MARCH 4, 2020
PROJECT NO. - 2019-020

BLACKMOOR GATES DEVELOPMENT DESIGN & STORMWATER MANAGEMENT REPORT

TOWN OF COLLINGWOOD

CAPES ENGINEERING

355310 BLUE MOUNTAINS-EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0

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Introduction

CAPES Engineering Ltd. has been retained by Blackmoor Gates to prepare a detailed servicing and stormwater management report in support of a Site Plan Agreement for the 1.61 ha site located in the Town of Collingwood.

A previous submission for the site was completed by WSP in May 2018 including Functional Servicing, Stormwater Management, Traffic Impact Study and Environmental Reports. This report will build on the previous submission information, includes a revised and updated design for the site and will address comments received from the Town of Collingwood in May/June 2018.

The site is irregularly shaped and includes several parcels including 33 Findlay Drive, 750 and 774 Hurontario Street, and 22 Campbell Street. The development is bound by Findlay Drive to the south, Hurontario Street to the East, Campbell Street to the North and Notre-Dame Elementary School to the west. There are also numerous single-family residential lots which have back yards along the edge of the development parcel.

The proposed development will include a single, two-way access point from Campbell Street with an internal looped road. An emergency access point is proposed to connect to Hurontario Street. The site will include a total of 28 detached single-family residences. In addition, the existing single-family residence at 33 Findlay Drive will be demolished and a two unit semi-detached residential building constructed in its place.

The site will be on full Municipal servicing and will provide on-site stormwater management controls which will require a new connection to the storm sewer on Maple Street (via Campbell Street)

We believe that the internal works of the proposed site plan do not require Ministry of the Environment Climate and Parks (MECP) approval as it is to be developed as a private site plan with a residential use. We believe, however that an MECP ECA will be required for the proposed external storm sewer design on Campbell Street. Approvals are also required from the Town of Collingwood (Town). The site is outside of the Nottawasaga Valley Conservation Authority (NVCA) regulated area, and through previous submissions the NVCA have deferred review of the SWM design to the Town of Collingwood.

The following report is intended to discuss the servicing requirements for the site, provide detailed design and to demonstrate the viability of the project in support of the Site Plan Application.

Existing Site Conditions

The existing 1.61 ha site consist of 4 parcels located at 33 Findlay Drive, 750 & 774 Hurontario Street and 22 Campbell Street in the Town of Collingwood and is legally described as Part of Lot 5, Part of Lot O and Part of Block P Registered Plan 353 and Part of Block A Registered Plan 334. Please refer to **Appendix A** for the Draft Plan prepared by MHBC and to Drawing C1 which shows the legal plan details prepared by WSP Geomatics Ontario Limited in Oct. 2017.

The site is bound by Findlay Drive to the south, Hurontario Street to the East, Campbell Street to the North and Notre-Dame Elementary School to the west. There are also numerous single-family residential lots which have back yards along the edge of the development parcel.

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The majority of the site generally slopes at an average of 2.4% from the high point at the back of the existing house at 33 Findlay Drive (elevation 195.15) north to Campbell Street (elevation 189.50). The front yard of 33 Findlay slopes towards Findlay Drive.

33 Findlay Drive has a single-family house and small detached garage on it while the remainder of the site is largely grassed.

774 Hurontario Street has a single-family residence on it while the remainder of the lot is an old apple orchard with mature trees around the perimeter of the lot. The house and small rear-yard will be severed from the remaining development, while the northern side yard will be used for the emergency access location to Hurontario.

750 Hurontario Street has a single-family residence on it and an asphalt tennis court in the back yard. The house and a small rear-yard have been severed from the remainder of the lot

22 Campbell Street is currently vacant and is largely grassed with some trees along the edges.

There are multiple properties along the perimeter of this irregular development parcel.

Starting in the South at Findlay Drive, to the west is a single-family residence at 37 Findlay Drive. This site is graded to slope to the south towards Findlay Street with a slightly bowl-shaped rear yard.

Moving north along the western property line is Notre-Dame Elementary School. The school has created a swale along the east side of their site to ensure drainage does not enter the development site. Flow is directed north and then west to Maple Street.

North of the school are 3 residential properties which front on Maple Street; 569, 567 and 565 Maple Street. It appears from the site visit in 2019 that these yards are sloped to drain to Maple Street with shallow rear yard swales to direct flow west.

Along the NW part of the site there is a shallow swale which prevents flow from entering the rear yards of 32, 30 and 24 Campbell Street. These three lots are graded to direct flow north to Campbell Street. A portion of the site (22 Campbell Street) shares a side property line with 24 Campbell Street and it appears that runoff could currently exit the site into 24 Campbell Street.

Along the eastern side of the site, starting at Campbell Street, the vacant parcel at 22 Campbell shares a side property line with 18 Campbell Street. This neighbouring lot is grading to direct flow east and north and does not direct drainage into the site.

Moving south along the east side of the site is the rear yard of 736 Hurontario Street which appears to be graded to direct flow to the north. South of this is 750 Hurontario, which has been severed and the rear yard including part of the tennis court are now part of the development. The front yard of 750 Hurontario drains east to the road while the rear lots of 760-788 Hurontario and 21-29 Findlay are all graded to drain north/north-east toward the site.

Findlay Drive, Hurontario Street and Campbell Street all have an asphalt surface, but Campbell Street has an open ditch on the south side as well as a 300 mm dia. storm sewer which only drains a small part of Campbell Street. Both Findlay and Hurontario have curb and gutter and storm sewer. Campbell and Findlay have a sidewalk on the north side of the street while Hurontario has a sidewalk on the west side.

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Existing Utilities

Electrical supply on Campbell Street, Hurontario Street and Findlay Drive is provided by Epcor Power. There is an overhead hydro line on the north side of Campbell Street and the west side of Hurontario. Electrical servicing on Findlay is located underground.

Telecommunications (Bell/Rogers) are routed on either over head pole lines or underground as per the electrical servicing.

Natural gas for the area is provided by Enbridge Ltd. and gas lines are located on the north side of Findlay, both east and west sides of Hurontario (200 mm dia. HP gas main on the east side) and the north side of Campbell Street (200 mm dia.)

The existing homes on 750 and 760 Hurontario and 33 Findlay are all currently connected to the above noted utilities.

Existing Sanitary Sewer

There is a sanitary sewer on all three streets that surround the site.

There is a 375 mm dia. sanitary sewer along the frontage of the site on Findlay which drains east to Hurontario Street and then north. The existing residence at 33 Findlay is currently connected to the sanitary sewer with a 125 mm dia. sanitary lateral located at the centerline of the lot.

There is a 375 mm dia. sanitary sewer on Hurontario Street between Findlay and Campbell Street at which point it transitions to a 350 mm dia. and continues north. The existing homes at 774 Hurontario and 750 Hurontario are connected to the 375 mm dia. sanitary main on Hurontario.

There is a 200 mm dia. sanitary sewer on Campbell Street which drains west to Maple Street and then continues north on Maple. It appears from the 1973 as-constructed information available that there was a sanitary lateral provided for the vacant lot at 22 Campbell Street.

Please refer to **Appendix B** for selected Record drawings for the area adjacent to the site.

Existing Watermain

There is an existing 450 mm dia. DI watermain on Findley Drive which connects to Hurontario Street. The existing residence at 33 Findley is currently connected to this water main with a 19 mm dia. service connection.

The watermain on Hurontario Street is a 300 mm dia. DI pipe and the existing residence at 750 Hurontario is connected to the watermain with a 19 mm dia. service, however this connection is not shown on any of the available as-constructed drawings for Hurontario.

The watermain on Campbell Street between Maple and Hurontario is a 100 mm dia. which we understand is to be replaced by the Town of Collingwood in 2020. As constructed drawings from 1973 provided by the Town appear to show a water service line connected to the vacant parcel at 22 Campbell Street. The water service is also shown on the more detailed drawings prepared by MTE for the Campbell Street reconstruction.

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There are fire hydrants on the north side of Findlay Drive with the closest being at the SE corner of 33 Findlay Drive. Hydrants are located on the west side of Hurontario with one being located at the SE corner of 778 Hurontario Street and another located at the NE corner of 774 Hurontario and the SW corner of Hurontario and Campbell Street. There are no other hydrants on Campbell Street in proximity to the site.

We understand from an analysis completed by C3 Water in June of 2019 (based on an earlier iteration of the design) that the existing Blackmoor site is at the edge of the Zone 1 Pressure Zone with Hurontario being the edge of Zone 2. The C3 analysis and the proposed water demands will be discussed in more detail below with respect to the proposed site design.

Please refer to **Appendix B** for selected Record drawings for the area adjacent to the site and to **Appendix G** for the C3 Water report which we anticipate will need to be updated based on the current design submission.

Geotechnical Information

A geotechnical investigation was completed on the site by WSP between June 2017 and April 2018. WSP completed 9 boreholes on the site and determined that there is a variable thickness topsoil layer (approximately 0.2 m thick) underlain by a fill layer. Below the fill was a layer of sand and gravel and/or sandy silt till.

Groundwater was encountered in all of the boreholes with depths ranging from 4.3 m deep to 0.3 m deep. The central part of the site had consistently high groundwater readings (0.3 to 0.4 m deep) while the southern part of the site had deeper readings (1.4-4.3 m). For the purposes of this design we have assumed that the higher groundwater condition exists across the site and will need to be accounted for in the design and construction.

Based on the 2007 USDA NRCS Part 630 Hydrology National Engineering Handbook (Chapter 7 Hydrologic Soil Groups), for the purposes of stormwater management the least permeable soil layer within 1.0 m of the surface is to be used as the dominant soil type. In this case the dominant soil type varies between sand (Type B with 50%-90% Sand) and sandy silt till (Type D with >40% clay) depending on the location.

The NRCS also recommend that when there is a high groundwater condition (within 0.6 m of the surface) that the dominant soil type should be described as a “dual hydrologic soil group” in this case a Type B/D soil signifying that the dominant soil type (B) functions as a Type D soil due to the high groundwater condition.

Based on this classification we believe that the dominant soil type will act as a Type D soil and will therefore be the sandy silt till.

The geotechnical report has previously been submitted under separate cover, please refer to the April 2018 WSP report for additional details.

Existing Stormwater Infrastructure

There are no formal stormwater management controls on the existing site, however all of the adjacent streets have stormwater infrastructure installed. As described above, flow from the site generally sheet flows north towards Campbell Street, however a small portion (front yard of 33 Findlay) flows south to Findlay Drive.

Findlay Drive

There is an existing 375 mm dia. concrete storm sewer on Findlay Drive which drains east to Hurontario Street. The storm sewer was installed as park of the South Collingwood Servicing project completed in 2008. The design report for this identified the portion of the site draining to Findlay as Catchment 3 and assigned a runoff coefficient of 0.30 (typically used for "residential suburban" neighbourhoods in the Rational Method analysis). The area of the Blackmoor Development site assumed to go to Findlay Drive was equal to 0.06 ha and was approximately 20% impervious.

The major system was intended to flow on the road surface east to Hurontario., although Findlay Drive has a low point on it which requires the Major System flow to reach a ponding depth of 0.18 m in front of 33 Findlay before it flows east to Hurontario. Please refer to **Appendix B** for relevant as-constructed drawings for Findlay Drive.

Huronia Road

The 375 mm dia. conc. Storm sewer on Findlay Drive connects to a 525 mm dia. concrete storm sewer on Hurontario, which turns into a 675 mm dia. pipe as it moves north. The 675 mm dia. pipe transitions first to a 560 x 860 pipe arch and then to a 610x 960 elliptical pipe through the intersection of Campbell and Hurontario Street. The pipe discharges east through the property at 1 Lockhart Rd. in a 900 mm dia. round pipe. We understand that this pipe discharges to an open channel, north of this property however the open channel is located on private property and we were not able to confirm the location of the open channel, nor do any record drawings provided depict the location.

Based on our PCSWMM analysis the storm sewer on Hurontario is designed to carry greater than the 5-year flow but surcharges during flows greater than the 25-year storm through the Campbell Street/Hurontario intersection. The pipe system does not appear to overflow, and the majority of the flow is contained within the pipe rather than being carried on the surface of Hurontario Rd. during the 100 year and Regional Storm events. The Hurontario system does have additional capacity up to the 25-year storm event, and greater overall capacity than the Maple Street system in general.

These results will be discussed in greater detail below.

Please refer to **Appendix B** for the relevant as-constructed details for Huronia Rd.

Campbell Street

There is currently a 300 mm dia. storm sewer on Campbell street adjacent to the frontage of the site however there is only one catchbasin east of the site and only a small part of Campbell Street is directed to the storm sewer. This portion of Campbell Street also has shallow ditches which drain west to Maple Street. There is a catchbasin at the NE corner of Maple and Campbell which appears to collect the

majority of runoff, while excess flow overtops Campbell Street and flows north on Maple Street. Maple Street has a 680 x 500 pipe arch storm sewer on the west side of the road with limited capacity. This pipe extends west to McKay Court, then north to Cameron Street where flow continues west to discharge to a wetland area at the west end of Cameron Street.

Please refer to **Appendix B** which contains the relevant as constructed details for Cameron Street, Maple Street and excerpts from a 2017 report for drainage improvements in this area including a storm sewer design sheet which demonstrates the existing capacity.

The storm sewer design sheet assumed that approximately 1.12 ha of the development site (1.12 ha of the 5.11 ha catchment EXT1) drains overland to Cameron Street with a C value of 0.3 (approximately 20% impervious). It appears from our site reconnaissance and topographic survey that the previous study should have included an additional 0.8 ha from both the Blackmoor Development site as well as additional external area when calculating the total drainage area and flow to Campbell and Maple Streets. In addition, the design to Maple Street should have included an additional 1 ha of drainage area from the Notre Dame Elementary School.

We believe therefore that the Maple Street storm system will likely have even less capacity than anticipated in the 2017 calculations.

Stormwater Approval Criteria

The stormwater management for the development site must conform to the current Town of Collingwood Engineering Standards (July 2007) and any external stormwater and sanitary sewer (greater than a single pipe length) must conform to Ministry of the Environment, Climate and Parks (MECP) regulates and guidelines and will require an MECP ECA.

The site is not within a regulated area and as such does not require a permit from the NVCA, and in previous submissions the NVCA has indicated they are deferring review of the stormwater management design to the Town of Collingwood.

In general the stormwater design is intended to follow the recommendations of the MECP (2003 Stormwater Management Planning and Design Manual) as well as the CVC LID Manual (online version Low Impact Development Stormwater Management Planning and Design Guide maintained by the Sustainable Technologies Evaluation Program https://wiki.sustainabletechnologies.ca/wiki/Main_Page

The following are the stormwater criteria the site must achieve:

- Post Development peak runoff must match pre-development peak runoff for the 2-100 year storm events.
- Safe Conveyance of the Regulatory (Timmins/100 Year) storm
- Enhanced level of quality control as defined by the MOECC (80% net annual TSS Removal).
- Incorporate Low Impact Development (LID) where possible
- Storm sewer must be designed to convey the 5-year storm event where foundation drains are not connected

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Existing Condition Stormwater Modelling

Although not strictly required for this site due to the previous work completed by WSP in 2018, we have opted to complete an updated existing condition stormwater model to allow for more robust comparisons when analyzing any proposed on-site LID and infiltration measures. In addition, there are external catchment areas which flow onto the site which were not previously accounted for and needed to be included as per approval agency comments received.

We have utilized PCSWMM 2019 modelling software (Version 7.2.2785, SWMM version 5.0.013-5.1.013) to undertake the analysis of the existing site condition. We have tested the site for the 2-100 storm event for the 4-hour Chicago Storm and the 24 hr SCS Type II Storm as required by the Town of Collingwood.

We have also analysed the 4 hr 25 mm Chicago storm (quality control storm) and the Regional (Timmins) storm. Please refer to **Appendix D** for the existing condition catchment plan and modelling summary results for the existing condition design storm events.

The contributing drainage area for the site was determined using a combination of aerial imagery from Simcoe County Mapping (https://maps.simcoe.ca/public/), topographic survey of the site and surrounding area completed in 2017-2019, information obtained from previous reports and studies, as-constructed information from the Town of Collingwood and multiple site visits conducted in 2019.

The total on-site drainage area has been determined to be 1.6 ha in size and flows primarily by overland sheet flow north to Campbell Street. A small (0.05 ha) portion of the overall site is graded to direct flow south to Findlay Drive. We have delineated these two areas as A1 (1.56 ha) and A2 (0.05 ha) respectively in the PCSWMM model.

There is no external drainage area contributing flow to the site from the west as the elementary school and private residences direct runoff to Marie Street or to Campbell Street.

There is approximately 0.79 ha of external drainage area (Catchment A3) contributing sheet flow onto the site, consisting of the rear yards of the private residences at the NW corner of Findlay Drive and Hurontario. The front yards of these homes tend to drain to Findlay or Hurontario.

It appears that the private residential lots E and NE of the site drain largely north towards Campbell Street or Hurontario and flow does not enter the site due to existing landscaping and grading on the external lands.

Based on the average grain size analysis for the dominant sandy silt till (4% gravel, 28% sand, 22% clay & 46% Silt) for the native site soils and using the USDA Natural Resources Conservation Service Soil Texture Calculator the dominant soil on site is classified as a “loam”

(https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_054167)

We have selected the Green Ampt Method of infiltration for the site for a Loam as per the geotechnical information provided. Green Ampt infiltration parameters for saturated hydraulic conductivity (Ks) suction head and initial moisture deficit have been determined as per Rawls (1983).

K_{eff} = 3.4 mm/hr (Loam - As per Rawls 1983)

Suction Head = 88.9 mm (Loam as per Rawls 1983)

Initial Deficit (fraction) = 0.231 (Loam as per Rawls 1983)

Rainfall data was obtained from the Town of Collingwood standards for the Owen Sound Atmospheric Environment Services weather station.

2 Year Storm	I=	$\frac{807.44}{(T.C.+6.75)^{0.828}}$
5 Year Storm	I =	$\frac{1135.4}{(T.C. + 7.5)^{0.841}}$
10 Year Storm	I =	$\frac{1387}{(T.C. + 7.97)^{0.852}}$
25 Year Storm	I =	$\frac{1676.2}{(T.C. + 8.3)^{0.858}}$
50 Year Storm	I =	$\frac{1973.1}{(T.C. + 9.0)^{0.868}}$
100 Year Storm	I =	$\frac{2193.1}{(T.C.+9.04)^{0.871}}$

TABLE 2 OWEN SOUND MOE ONT 6116132

LATITUDE 4435 LONGITUDE 8056 ELEVATION/ALTITUDE 179 M

RETURN PERIOD RAINFALL AMOUNTS (MM)
PERIODE DE RETOUR QUANTITIES DE PLUIE (MM)

DURATION DUREE	2 YR/ANS	5 YR/ANS	10 YR/ANS	25 YR/ANS	50 YR/ANS	100 YR/ANS	# YEARS ANNEES
5 MIN	8.1	10.9	12.7	15.0	16.7	18.4	35
10 MIN	12.4	15.8	18.1	21.0	23.1	25.2	35
15 MIN	15.4	19.8	22.7	26.4	29.1	31.8	35
30 MIN	20.2	26.9	31.4	37.1	41.3	45.4	35
1 H	24.1	33.2	39.2	46.8	52.4	58.0	36
2 H	28.1	39.0	46.2	55.3	62.1	68.8	36
6 H	37.2	48.3	55.7	65.0	71.9	78.7	35
12 H	42.6	53.9	61.5	70.9	78.0	85.0	35
24 H	47.3	59.3	67.3	77.4	84.9	92.3	36

The 2-100 year 4-hour Chicago, 24 hr SCS Type II, 25 mm Chicago, and Timmins Storm events were modelled for the site as per the Town of Collingwood and NVCA standards.

Additional PCSWMM model input parameters for the Manning's roughness coefficient (*n*) and depression storage were determined from the US EPA TR-55 Report (1986) and from UNESCO Manual on Urban Drainage (1987).

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Table 5.9: Manning Roughness Coefficients - Overland Flow

Cover	*n*
Impervious areas	0.013
Woods	
with light underbrush	0.4
with dense underbrush	0.8
Lawns	
Short grass	0.15
Dense grass	0.24
Agriculture Land	0.050-0.170

Ref: Adapted from Soil Conservation Service, Urban Hydrology for Small Watersheds, U.S. Dept. of Agriculture, Soil Conservation Service, Engineering Division, Technical Release 55, June 1986

10.2 Initial Abstraction/Depression Storage

Table 10.2: Initial abstraction/depression storage

Cover	Depth (mm)
Woods	10
Pasture/Meadow	8
Cultivated	7
Lawns	5
Wetland	12/16
Impervious areas	2

Ref: UNESCO, Manual on Drainage in Urbanized Areas, 1987.

The existing site is largely cultivated agricultural land (apple orchard) with meadow/grassland and the single family residences at 39 Findlay Drive and as such we have calculated an overall Manning's value of 0.2 and depression storage value of 8 mm for area A1, and an n value and dstor value of 0.15 and 5 mm respectively for Catchments A2 an A3 as they are largely urban lawn with some trees. The total impervious area for each of the 3 catchments are 1% (A1), 35% (A2) and 8%(A3).

We have modelled the catchments with the impervious areas flowing onto pervious areas.

Please refer to **Table 1** below for a summary of the existing condition peak runoff.

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Table 1 – Pre-Development Modelling Results

Storm Event	Peak flow to Findlay Dr. (m^3/s)	External Flow Onto Site (m^3/s)	Peak flow to Campbell St. (m^3/s)	Total Flow Offsite (m^3/s)
24 Hr SCS Type II				
2-year	0.01	0.04	0.03	0.04
5-year	0.01	0.07	0.06	0.07
10-year	0.01	0.09	0.08	0.09
25-year	0.01	0.11	0.12	0.13
50-year	0.01	0.13	0.15	0.16
100-year	0.02	0.15	0.18	0.20
4 Hr Chicago				
2-year	0.01	0.02	0.02	0.03
5-year	0.01	0.05	0.05	0.06
10-year	0.01	0.07	0.08	0.09
25-year	0.02	0.10	0.11	0.13
50-year	0.02	0.12	0.15	0.17
100-year	0.02	0.14	0.18	0.20
25 mm	0.00	0.01	0.00	0.00
Timmins	0.01	0.09	0.22	0.23

The 24 hr SCS Type II and the 100-year 4 hr Chicago Storm produce equivalent high peak flow for the existing condition site. Please refer to **Appendix D** for a summary of the results for the 2-100-year Chicago storms. Additional storm results or the full digital model can be provided upon request.

The external drainage area east of the site sheet flows onto the site but largely does not impact the overall peak flow offsite due to the sheet flow making the peaks concurrent (ie. as the peak from the external area is reaching the site the peak from the site is reaching Campbell Street).

Existing Storm Sewer Analysis

In consultation with the Town of Collingwood we have undertaken an analysis of the Hurontario Street storm system including both the storm sewer and the overland flow routes in order to determine whether flow from the proposed Blackmoor site should be directed to the Maple Street system or the Hurontario Rd. system.

As indicated above the existing flow from the site is currently directed to the Maple Street storm system through a series of flat, discontinuous ditches. The flow is collected into the storm sewer system which appears to have a maximum capacity of 0.08 m^3/s and that capacity is exceeded in the 2-year storm event (See **Appendix E)**. We believe, based on our review of the work completed previously that the

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flows to the Maple Street system have been underestimated as flow from approximately 0.8 ha of the Blackmoor site and as much as 1 ha from the Notre Dame school were not included. We believe therefore that there is no capacity for the Maple Street system to accept flow during the peak and that capacity even when no flow is present is extremely limited.

The Hurontario Street system is equidistant from the discharge point from the Blackmoor site to Campbell Street and based on information on the system compiled previously (by others) appeared to have significantly more capacity than the Maple Street system, however the contributing drainage area is significantly larger and it was unknown whether there was any excess capacity.

The Town of Collingwood has provided a significant amount of record drawings, historic reports and analysis of the area surrounding Hurontario Street for review. We analysed the information and completed a site investigation including confirmatory survey of the lid elevations of storm structures, depths to inverts and pipe sizing to create an updated drainage map for the Hurontario system. Please refer to **Appendix E** for the updated overall catchment map for the site including the proposed Blackmoor site.

We have created a dual drainage PCSWMM Model with both the pipe information as well as the overland flow route information included. As noted above we ground truthed the catchment area extents, confirmed any confusing or conflicting information from record drawings and checked elevations and invert elevations at key locations throughout the model.

We also compared a similar mapping/analysis effort for Hurontario completed by Condeland Engineering for the Eden Oak site in 2018 (see **Appendix E**) and found that the mapping is generally correct, however we believe that Condeland has underestimated the upstream catchment area and overestimated the downstream catchment. Significant changes we found were as follows:

- CAPES - Catchments A100-A106 – 4.592 ha is significantly larger than Condeland Area “West Hurontario” at 2.95 ha. IN particular we have assumed the Bowling Alley property is largely directed north through Hurontario Street
- CAPES Catchment A117 (0.26 ha) is smaller than Condeland’s S16 as Condeland assumed that the rear yards of a number of properties fronting on Hurontario would drain to Hurontario which is not correct. These rear yards are significantly lower than Hurontario and would drain north and north-west to Campbell Street
- CAPES Catchments A119 & 120 (total of 0.52 ha) is smaller than Condelands S17-S19 (total of 2.46 ha). The difference comes in the Condeland assumption that the east side of CCI and a portion of Hurontario Street drain south to the outlet, when in fact the flow continues north with a high point in the road at 641 Hurontario Street and a 300-400 mm dia. storm sewer (See Greenland Engineering Drawing 2675-PP2 (2011).

The input parameters including percentage of impervious area was calculated by measuring the actual impervious area from aerial imagery, along with the percentage of forested and grassed areas. Please refer to the table of input values included in **Appendix E** for details.

We also created a series of triangular synthetic hydrographs for each storm event for the outflow from the Eden Oak West SWMF which discharges to Golfview Drive for the 2-100 year storm events and

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discharges additional flow to Tracey Lane in the Regional Storm Event. The peak of the hydrographs was set to match the published outflow from the Condeland Engineering design reports (Sept. 2018) and the time of the peak was obtained from the OTTHYMO output files. The Town of Collingwood also provided the .dat time series output files for the Eden Oak West SWMF for both the 24 hr 100 year and Regional Storms which we have also incorporated.

We included a rating curve for the inlet capacity for each catchbasin, ditch inlet and double catchbasin based on MTO Design Charts 4.14 to 4.20 with a maximum inlet capacity set at a conservative 0.1 m^3/s for a DCB within a sag.

The overland flow route cross section was set to match either Town of Collingwood Standard 201 (20 m ROW) or 205 (26 m ROW) depending on the road being modelled.

We have assumed a single soil type across the study area of a "sandy loam" based on the results of Eden Oak Geotechnical Report (dominant soil type – "sand to silty sand" Terraprobe, 2013), information from the 2004 CC Tatham design for "South Collingwood Servicing" report ("sand loam"), the Blackmoor Development Geotechnical Report (WSP 2017/2018 – "silty sand till") and from the mapping available from the Ontario Geologic Survey ("coarse textured glaciolacustrine deposits – sand, gravel, minor silt and clay").

A sand loam based on the work of Rawls (1983) equates to Green Ampt Infiltration parameters as follows

K_{eff} = 10.9 mm/hr (Sand Loam - As per Rawls 1983)

Suction Head = 109.982 mm (Loam as per Rawls 1983)

Initial Deficit (fraction) = 0.263 (Loam as per Rawls 1983)

The Town of Collingwood has asked that the outlet for the Hurontario system; the 400 mm dia. pipe which continues north on Hurontario and the 900 mm dia. pipe discharge through the property at 1 Lockhart Rd. be modelled not as a free discharge condition, but rather assume a Normal hydraulic condition or utilize a fixed tailwater condition. We do not believe that a fixed tailwater condition is realistic for either outlet and have therefore utilized a Normal flow condition for the outfalls.

The results for the modelling indicate that the Hurontario system surcharges and flows full between the Campbell Street intersection and the outlet for storms greater than the 5-year storm. Please refer to **Appendix E** for copies of the PCSWMM HGL output for the 100-year 4 Hr Chicago Storm (worst case scenario), Regional storm, and 5-year Chicago event.

The results show that although the Hurontario storm sewer flows full and surcharges through the intersection of Campbell Street, the peak of the flow is reduced within 30 minutes and then provides sufficient capacity for the maximum flows from the Blackmoor site.

The storm sewer on Hurontario downstream of the intersection is a 610 mm x 960 mm horizontal ellipse at a slope of 0.35% which has a full flow capacity of 0.70 m^3/s which is well in excess of the calculated maximum flow from the Blackmoor site of 0.22 m^3/s (Regional) or 0.18 m^3/s (100 year).

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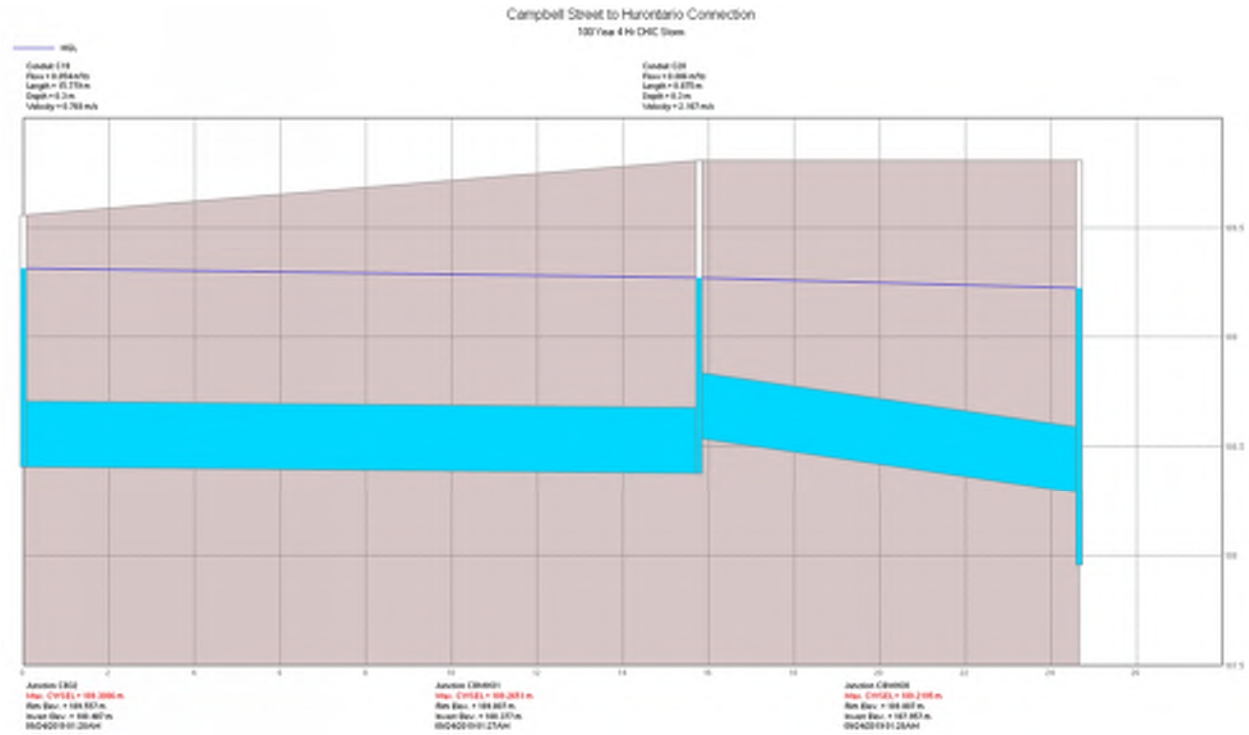
The Blackmoor site could connect to the existing CB32 located on the south side of Campbell Street, just west of Hurontario. This CB connects to CBMH31 on the west side of Hurontario with a 300 mm dia. pipe at approximately 0.2% slope. The outlet pipe from CBMH31 to CBMH30 is also a 300 mm dia. pipe but the inlet has been raised by 0.16 m creating a surcharge condition in CBMH31.

See the image below from PCSWMM for the 100-year Chicago event for illustration of this situation.



Unfortunately, there is a significant number of obstructions and conflicts associated with this routing option and as such we believe it would be better to construct a new connection directly to the 610 x 960 mm dia. storm pipe on the east side of Hurontario (See **Drawings C4 and C13**).

Proposed Site Design

It is proposed to construct a total of 28 single family detached residential units on the site within a private condominium development. Access to the site will be from a new private entrance road (Street A) connecting to Campbell Street on the 22 Campbell Street vacant parcel. The internal ROW is proposed to be 11.0 m in width and will have an internal loop (Street B) and has been designed to allow for public garbage collection by Simcoe County.

A total of 9 visitor parking spaces have been provided for the site including 1 accessible space. Each of the residential units will provide 2 parking spaces; one in the garage and one in the driveway for a total of 56 parking spaces. The site will also have a centrally located amenity building for use by the residents.

An additional two residential units will be created fronting on Findlay Drive by demolishing the existing home on 33 Findlay and severing the lot into two smaller parcels with a single semi-detached building.

A 10.22 m wide emergency access block will be provided to Hurontario Street between 774 Hurontario and 760 Hurontario. The block will contain a 6.0 m wide emergency access (only) route consisting of grassed open graded pavers (Ecoraster E50), collapsible bollards and signage will be provided to discourage vehicle traffic other than emergency vehicles from using the route. A 1.5 m wide walkway or permeable pavers will be provided along the route to provide pedestrian access from the development to Hurontario Street.

A second, 2.0 m gravel multi-use trail within a 3.0 m wide block will be provided connecting the development to Findlay Street. The 3.0 m Block is to be dedicated to the Town.

The 2017 legal plan prepared by WSP as represented on **Drawing C1** is to be amended with the following changes:

- Two 13.3 m wide lots are to be severed off 33 Findlay, fronting on Findlay Drive
- A 10.2 m wide emergency access roadway block is to be severed from the north side of 774 Hurontario Street

The site will be serviced with municipal watermain, gravity sanitary sewer and storm sewer piping.

Stormwater runoff will be collected via storm sewer, or by overland flow route and directed to a concrete subsurface storage tank located in the central pervious area between lots 23-28 and 12-15. A second concrete tank will be located under the ROW of Street A. The proposed subsurface tanks will provide stormwater quantity control storage prior to discharge. Quality controls for the site will be provided by an Oil Grit Separator located on the downstream end of the Street A storage tank.

Additional details of the watermain, sanitary sewer and stormwater management design is provided below.

The findings of the previously prepared Traffic Impact Study will not have changed as the TIS was based on 34 residential units with an additional 2 units off Findlay Drive. The TIS found that based on 34 units Campbell Street and the associated intersections would function at an acceptable service level. The current proposal is for 28 units with 2 off Findlay. We believe therefore that the impact will be less than previously anticipated and will operate at an acceptable level.

Sanitary Sewer Design

The proposed development units will be serviced by a new 200 mm dia. gravity sanitary sewer line connected to an existing manhole on Campbell Street. Please refer to **Appendix F** for the proposed condition sanitary sewer design sheet and to **Drawing C7** for the sanitary sewer drainage areas. Each unit will be provided with a 125 mm dia. sanitary connection.

The internal sanitary sewer flow from the site will flow west in the existing 200 mm dia. sanitary main on Campbell Street which has sufficient capacity to accept the additional flow from the Blackmoor site.

The two proposed units fronting on Findlay Drive will require new individual 125 mm dia. sanitary connections to the 375 mm dia. main on Findlay Drive. The existing single connection for 33 Findlay

Drive will be abandoned in favour of the two new individual connections. The existing main on Findlay Drive has sufficient capacity to accept the additional flow.

Previous design submissions prepared a review of the capacity of the downstream sanitary sewer on Campbell Street and determined that the peak sanitary sewage flow from the Blackmoor site would be equal to 2.39 L/s. The smallest capacity downstream pipe was determined to be on Maple Street with 6.778 L/s capacity. The Blackmoor Site including all other flows totaled 6.60 L/s of flow (97% full).

With the reduced number of units on the site the new flow from Blackmoor has been reduced to 1.87 L/s which in turn reduces the downstream total flow to 6.08 L/s (90% full).

Water Servicing

It is proposed to provide a 150 mm dia. ductile iron looped watermain through the site with a connection point on Campbell Street and to Hurontario Street. An easement over the watermain will be provided to the Town of Collingwood as requested.

We understand that the Town of Collingwood is in the process of tendering the contract for an upgrade to the watermain on Campbell Street to a 200 mm dia. line. We understand this work is to be completed in 2020, although we currently do not have more specific timing information.

As the existing watermain on Campbell Street is a 100 mm dia. line which can not provide the required fire flows or pressures (as outlined in the C3 Water report in **Appendix G**) we have assumed for our design that the upgrades to Campbell Street will be complete by the time Blackmoor will be need occupancy for the units.

The 150 mm di. connection to the 300 mm dia. DI watermain on Hurontario Street will be routed through the 10.2 m wide emergency access block between 774 and 760 Hurontario Street.

Each unit will be provided an individual 25 mm copper water service connection and a single meter will be provided for the 28 units and communal building as per Town of Collingwood request.

The two units fronting on Findlay Drive will require new 25 mm dia. connections to the watermain on Findlay. The existing 19 mm service to 33 Findlay will be abandoned.

Three new fire hydrants will be provided on the site at maximum 90 m spacing as per Town of Collingwood Engineering Standards.

Based on the proposed 28 residential units the domestic water demands for the site are as follows:

Max Daily Flow:

$Q_{MAX\ Day} = (Q \times P \times 2.0) / 86.4$

Where Q = 450 Litres/capita/day (Average Daily Demand)

P = Population/1000 = 2.9 ppu x 28 units = 81.2/1000 = 0.0812

Max. Daily Demand Factor = 2.0

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$Q_{MAX\ Day}$ = (450 x 0.0812 x 2.0) / 86.4

= 0.846 L/s

Peak Hour Flow:

$Q_{MAX\ Hour}$ = (Q x P x 2.0) / 86.4

Where Q = 450 Litres/capita/day (Average Daily Demand)

P = Population/1000 = 2.9 ppu x 28 units = 81.2/1000 = 0.0812

Peak Hourly Demand Factor = 4.5

$Q_{Peak\ Hour}$= (450 x 0.0812 x 4.5) / 86.4

= 1.90 L/s

Fire Flows:

Based on Fire Underwriters Survey (FUS) , 1999 – See **Appendix G**

= 74.38 L/s

Fire Storage (assuming 0.5 hrs duration) = 134 m^3

The reduction in the number of units and adjustments to previous calculations (by others) has resulted in a reduction in the calculated MDD, Peak Hour and Fire Flow requirements. We believe that the findings and recommendations of C3 Water would likely not significantly change despite the reduction in the demand on the water system.

The recommendation from the C3 report was to replace the 100 mm dia. watermain between Maple Street and Campbell Street with a 200 mm dia. (as noted previously we understand this is a change the Town intends to make in 2020) and set the existing PRV between Zone 1 and Zone 2 to 45 psi.

It is unclear at this time whether the alternative option presented by C3 Water, specifically moving the PRV north on Hurontario is currently being considered by the Town of Collingwood.

Utilities

Electrical supply for the development is to be connected from either Campbell Street or Hurontario Street and will be routed underground in a common trench with telecommunications and natural gas. The utility design is being prepared by others and will be submitted under separate cover.

Street lighting will be provided within the ROW and will be dark sky compliant. Please refer to the Photometric plans and report prepared by others and submitted separately.

Stormwater Modelling - Proposed Development

It is proposed to implement an on-site storm sewer system to collected and convey runoff to Campbell Street. Concrete subsurface storage tanks will be provided both within the central green space area (between residential units) and under Street A just south of Campbell Street. The tanks combined with outlet structures will provide quantity control for the site.

The southern tank will consist of 82.6 m of 4 m (wide) x 1.2 m (high) concrete box culvert with a closed upper and lower end. A 750 mm dia. pipe will connect the tank to the storm sewer within the ROW. We also propose to increase the pipe sizing within the ROW to provide additional storage within the system and as such we have not utilized hydraulic drops within the storm manholes to maximize the storage of the system and increase the depth of the system to able to maintain minimum cover on the pipes.

The southern tank and pipe system will discharge through a control structure (Control Structure 1) consisting of a 75 mm dia. orifice set at the bottom of a concrete midwall within the manhole. A trapezoidal weir with an opening width of 0.25 m is proposed 0.91 m above the orifice to control the maximum hydraulic grade line (HGL).

Control Structure 1 will discharge into a second 58 m long subsurface storage tank which will consist of a 6.0 m wide x 0.9 m concrete box culvert with closed upper and lower ends (expect for the piped inlet and outlet). Due to the lack of cover on Street A approaching Campbell Street the chamber needed to be a lower profile and could not extend all the way to Campbell Street.

We currently propose a minimum of 0.3 m of cover over the top of the storage tank within the ROW, which will require a short stretch of reinforcement to ensure the structural integrity of the system. Reinforcement will either be a distribution slab (minimum thickness 150 mm) or reinforcing plates over the seams.

Flow from the tanks will be routed through an Oil Grit Separator (OGS) which is proposed to be a CDS Model PMSU 2015_5 which will provide the required quality control for runoff. Please refer to **Appendix H** for details of the CDS unit. The proposed CDS unit will provide 84% TSS removal for the 25 mm storm which is in excess of the Town and NVCA required minimum 80% net annual TSS removal.

The discharge from the Blackmoor site will be conveyed via a 300 mm dia. storm sewer to a new connection point on Campbell Street connecting to the existing storm sewer on Hurontario Street. As per the findings of the Hurontario Storm Sewer analysis (**Appendix E** and above) there is sufficient capacity in the Hurontario storm sewer to accommodate the 100 year peak flow from the site, however the flow must be delayed in order to ensure the peak in the Hurontario system has already passed. To accomplish this a check valve will be installed on the downstream side of Control Structure 2 on Street A. The check valve is designed to only open when there is sufficiently low head on the downstream side of the valve. Please refer to the valve details included in **Appendix H** for additional information and to the detail on **Drawing C21**.

Using the proposed site plan (**Drawing C2**) we have measured the overall imperviousness of the site and found it increases from 3.4% (pre-development) to 46% (proposed condition).

We have separated the post development model into eighteen sub-catchments to better model the proposed SWM controls and storm sewer network. Please refer to **Appendix H** for details of each of the catchments and to **Drawing C6** for the post development catchment plan.

The Green Ampt infiltration parameters have been kept consistent with the existing condition model, and the pervious n value set to 0.15 and pervious depression storage to 5 mm to reflect urban lawn which is the majority of the pervious area of the site.

Please refer to **Table 2** (below) for a summary of the Post Development Peak Flows and to **Appendix H** for the PCSWMM Post Development catchment plan, 2-100-year Chicago storm, 25 mm 4 hr Chicago (quality control) storm and Timmins (Regional Storm) PCSWMM output results and additional details for the post development model.

Table 2 – Post Development Modelling Results

Storm Event	Allowable Flow Offsite (m^3/s)	Peak Flow to Campbell Street (m^3/s)	Peak Flow to Findlay Drive (m^3/s)	Total Peak Flow Offsite (m^3/s)
24 Hr SCS Type II				
2-year	0.04	0.03	0.01	0.04
5-year	0.07	0.04	0.01	0.05
10-year	0.09	0.06	0.01	0.07
25-year	0.13	0.10	0.01	0.11
50-year	0.16	0.13	0.01	0.14
100-year	0.20	0.16	0.01	0.17
4 Hr Chicago				
2-year	0.03	0.03	0	0.03
5-year	0.06	0.03	0.01	0.04
10-year	0.09	0.06	0.01	0.07
25-year	0.13	0.11	0.01	0.12
50-year	0.17	0.15	0.01	0.16
100-year	0.20	0.18	0.02	0.20
25 mm	0.00	0.02	0	0.02
Timmins	0.23	0.20	0	0.20

Flow out of the subsurface tanks are restricted due to control structures to predevelopment levels and the proposed check valve ensures that the downstream system on Hurontario will have available capacity.

The subsurface facility reaches near full capacity in the 100-year 24 hr storm (elevation 189.33) and full capacity in the Timmins storm event (elevation 189.39) but does not overflow.

Please refer to the 100-year hydrographs in **Appendix H** for both the tank facilities and the Hurontario storm sewer. We are unable to mimic the proposed check valve in PCSWMM (there is no option to restrict flow until the downstream peak has passed) so the systems are not connected in the model. The hydrographs demonstrate the lag between the timing of the flow off the site and the maximum flow in the Hurontario system.

The 100-year peak from the proposed Blackmoor site occurs at 1 hr 58 minutes into the 4 hr storm and the maximum discharge rate from the site is 0.18 m^3/s. The higher 0.22 m^3/s flow rate from the site would typically not be conveyed completely by the storm sewer as there is no requirement to provide peak flow controls on the Regional Storm event. The regional event could be allowed to spill into the Campbell Street ROW and be conveyed by the ditch system.

The 610 x 960 mm storm sewer at 0.35% slope has a maximum full flow capacity of 0.7 m^3/s (with no surcharge) although with surcharge the peak flow in the system during the 100-year event reaches 1.05 m^3/s.

To provide capacity for the Blackmoor site the downstream system must therefore have a maximum of 0.18 m^3/s of capacity or a maximum peak flow in the Hurontario system of 0.52 m^3/s.

In the 100-year 4 hr storm event the peak flow in the Hurontario pipe network in the Lockhart Rd. intersection exceeds 0.52 m^3/s at 1 hr 23 minutes into the storm, peaks at 1 hr 28 minutes into the storm and the peak has passed back below 0.52 m^3/s by 1 hr 53 minutes into the storm (25 minutes later).

The Blackmoor site therefore needs to hold back flow for approximately 30 minutes before discharging to the Hurontario storm sewer.

We propose to install an inline check valve (Tideflex Checkmate or approved equivalent) on the 300 mm dia. outgoing flow pipe from the Blackmoor site to ensure there is sufficient capacity in the downstream system. The check valve will not open until the head on the downstream side is sufficiently low enough to allow it but will open with less than 0.025 m of head differential.

Please refer to **Appendix H** for the hydraulic grade line analysis in the 100-year event and 5-year event for the internal storm sewer system which demonstrates capacity.

Stormwater Quality Controls

The Town of Collingwood requires that in the absence of a Master Drainage Study for a specific area that quality control criteria is based on the current MECP standards. The 2003 MECP SWM Guidelines only require an “Enhanced” level of treatment as the discharge from the site will be to the Municipal storm sewer which will discharge from the west end of Campbell Street into a wetland, Highly Vulnerable Aquifer. An enhanced level of treatment requires the long-term removal of 80% total suspended solids (TSS). In practice (as per the MECP SWM Drainage Guidelines) the TSS removal is calculated based on a 4 hr Chicago Distribution 25 mm storm event.

We propose to implement an Oil Grit Separator (OGS) on the storm sewer system prior to discharge to Campbell Street. The proposed OGS is to be a CDS Model PMSU 2015_5 which will provide 84% TSS removal on a long-term basis. Please refer to **Appendix H** for details of the proposed CDS Unit.

Water Balance and On-Site Infiltration

The site does not require a water balance analysis as it is not within a significant groundwater recharge area (SGRA), is not within a regulated area of the NVCA and the NVCA has deferred review of the on-site SWM controls to the Town of Collingwood.

The NVCA require a minimum of 5 mm of runoff to be retained and infiltrated on the site, however as indicated above the site is not within a regulated area and the NVCA has deferred review to the Town of Collingwood.

Limited infiltration controls are proposed on the site due to the high groundwater condition. It is not feasible to implement extended subsurface infiltration controls as it will be difficult to achieve 1.0 m of separation between the bottom of an infiltration LID and the seasonally high groundwater level.

We do propose to implement permeable pavers on the emergency access route, specifically we propose the Ecoraster E50 system with grass infill as the traffic will be low, the Ecoraster E50 is suitable for heavy vehicles and the permeable pavers will help in reduce the peak flows on the site and improve the overall water balance.

Erosion and Sediment Controls

We recommend that heavy duty silt fence as per OPSD 219.130 be installed along the perimeter of the site to prevent sediment transport during construction. These controls should remain in place and be maintained until the vegetation is re-established on the site.

Temporary sediment traps and interceptor swales are also proposed on the site to help control on-site runoff and provide quality controls during the construction period. Runoff from these facilities will need to be routed overland to the Campbell Street ditch system until the storm sewer on the site is installed and functioning.

A mud-mat is proposed on the entrance to the site from Campbell Street and we propose an internal ESC pond to be implemented during construction.

Please refer to **Drawings C16 & C17** for details of the proposed ESC details.

Conclusions

It is proposed to develop the 1.61 ha site consisting of 22 Campbell Street, 33 Findlay Drive, 750 and 774 Hurontario Street as a private condominium corporation. 28 Single family residential units are proposed for the site with an additional 2 residential units in a semi-detached building fronting on Findlay Drive being severed off.

A single access will be provided for vehicle traffic from Campbell Street with a secondary emergency access off Hurontario Street. The emergency access route will have bollards and signage to prevent normal traffic from entering and is intended to be used only be emergency vehicles in the event that Street A from Campbell Street is blocked.

Pedestrian access to Campbell, Findlay and Hurontario Streets will be provided with concrete sidewalk, gravel multi-use trail and permeable paver walkway respectively.

The site will be serviced with a Municipal watermain connection to both Campbell Street and Hurontario. It is anticipated that the Town initiated reconstruction of Campbell Street will need to be completed for the required fire flows and pressures for the site to meet Town standards.

Gravity sanitary sewer will be implemented and connect to the existing sanitary sewer on Campbell Street, and we do not anticipate any capacity issues in the downstream system.

Stormwater management will be implemented in the form of an internal subsurface storage system consisting of oversized piping and storage tanks. Flow will be controlled to pre-development levels and connect to a new storm sewer on Campbell Street that would ideally get installed at the same time as the proposed watermain. The new storm sewer will connect to the existing system on Hurontario Street and will require a check valve to delay the release of runoff until the flow in the receiving system has passed.

Quality control for stormwater runoff will be provided by an Oil Grit Separator which will ensure greater than 80% TSS removal.

This report is intended to provide support for the proposed Site Plan Agreement and demonstrate that the site is feasible from an engineering point of view. We believe that this report demonstrates the site can be constructed to meet all of the Town of Collingwood guidelines and criteria.

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Drawings

Cover Sheet
C1 – Existing Conditions and Removals
C2 – General Engineering Site Plan
C3 – Grading Plan
C4 – C5 - Servicing Plan
C6 – Post Development Drainage Area Plan
C7 – Sanitary Drainage Area Plan
C8 – C15 - Plan & Profile
C16-C17 – Erosion and Sediment Controls
C18-C22 – Standard Details

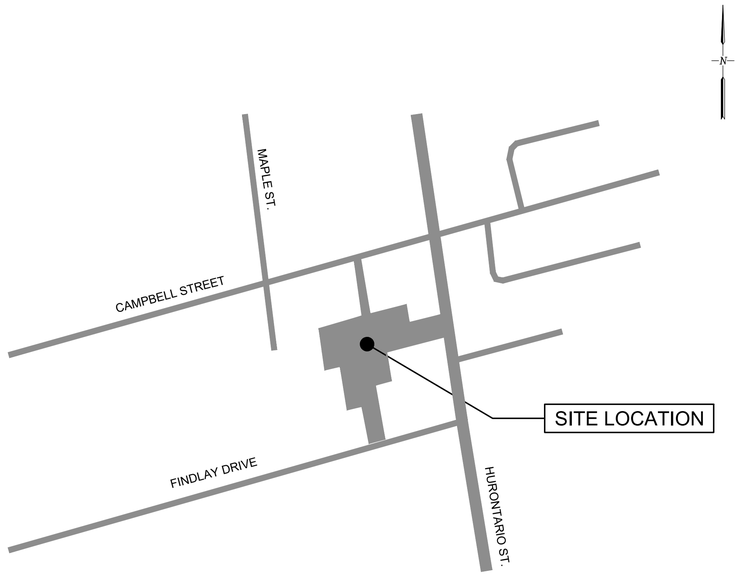
BLACKMOOR GATES

BLACKMOOR GATES

TOWN OF COLLINGWOOD

DRAWING INDEX

C1	EXISTING CONDITIONS AND REMOVALS		
C2	GENERAL ENGINEERING SITE PLAN		
C3	GRADING PLAN		
C4	SERVICING PLAN		
C5	SERVICING PLAN		
C6	POST DEVELOPMENT DRAINAGE AREA PLAN		
C7	SANITARY DRAINAGE AREA PLAN		
C8	PLAN AND PROFILE	BMGA	STA 0+000 to STA 0+096.21
C9	PLAN AND PROFILE	BMGB	STA 0+000 to STA 0+120
C10	PLAN AND PROFILE	BMGB	STA 0+120 to STA 0+280
C11	PLAN AND PROFILE	BMGB	STA 0+280 to STA 0+350.60
C12	PLAN AND PROFILE	EMERGENCY VEHICLE ACCESS DRIVEWAY	STA 0+000 to STA 0+070
C13	PLAN AND PROFILE	CAMPBELL STREET	STA 0+000 to STA 0+180
C14	PLAN AND PROFILE	REAR LOTS 23-28	STA 0+000 to STA 0+093.74
C15	PLAN AND PROFILE	REAR LOTS 19-22	STA 0+000 to STA 0+071.78
C16	EROSION AND SEDIMENT CONTROL PLAN		
C17	EROSION AND SEDIMENT CONTROL DETAILS		
C18	STANDARD DETAILS		
C19	STANDARD DETAILS		
C20	STANDARD DETAILS		
C21	STANDARD DETAILS		
C22	STANDARD DETAILS		



KEY PLAN
N.T.S.

BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

Project No. 2019-020

ISSUED FOR APPROVAL - MARCH 5, 2020

ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

CAPES ENGINEERING

BLACKMOOR GATES
ISSUED FOR APPROVALS - MARCH 5, 2020

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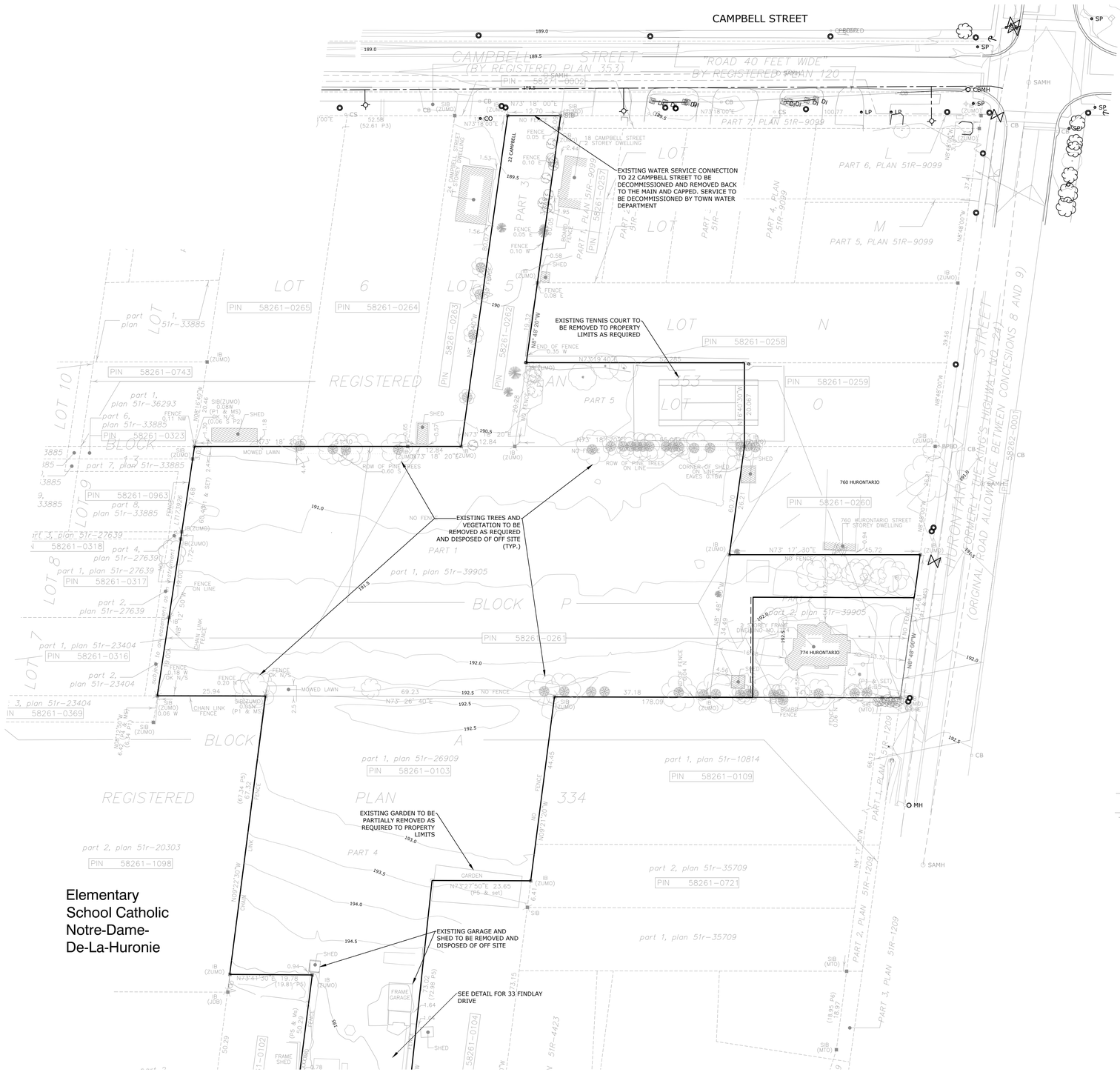
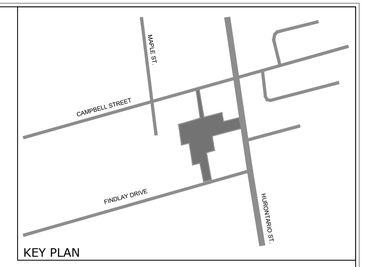
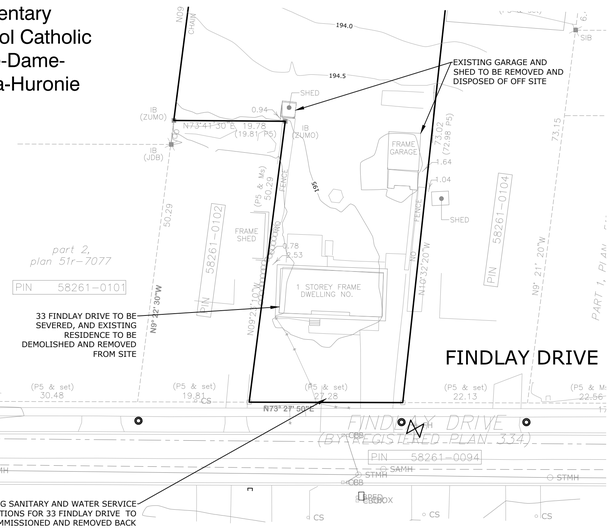




KEY PLAN

Elementary School Catholic Notre-Dame-De-La-Huronie



33 FINDLAY DRIVE

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

Notes
1. This drawing is the exclusive property of CAPES Engineering Ltd. The reproduction of any part without express written consent of this Corporation is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to CAPES Engineering Ltd. prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
C. CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

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BLACKMOOR GATES

EXISTING CONDITIONS AND REMOVALS

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C1
Project No. 2019-020		Rev No. 1	
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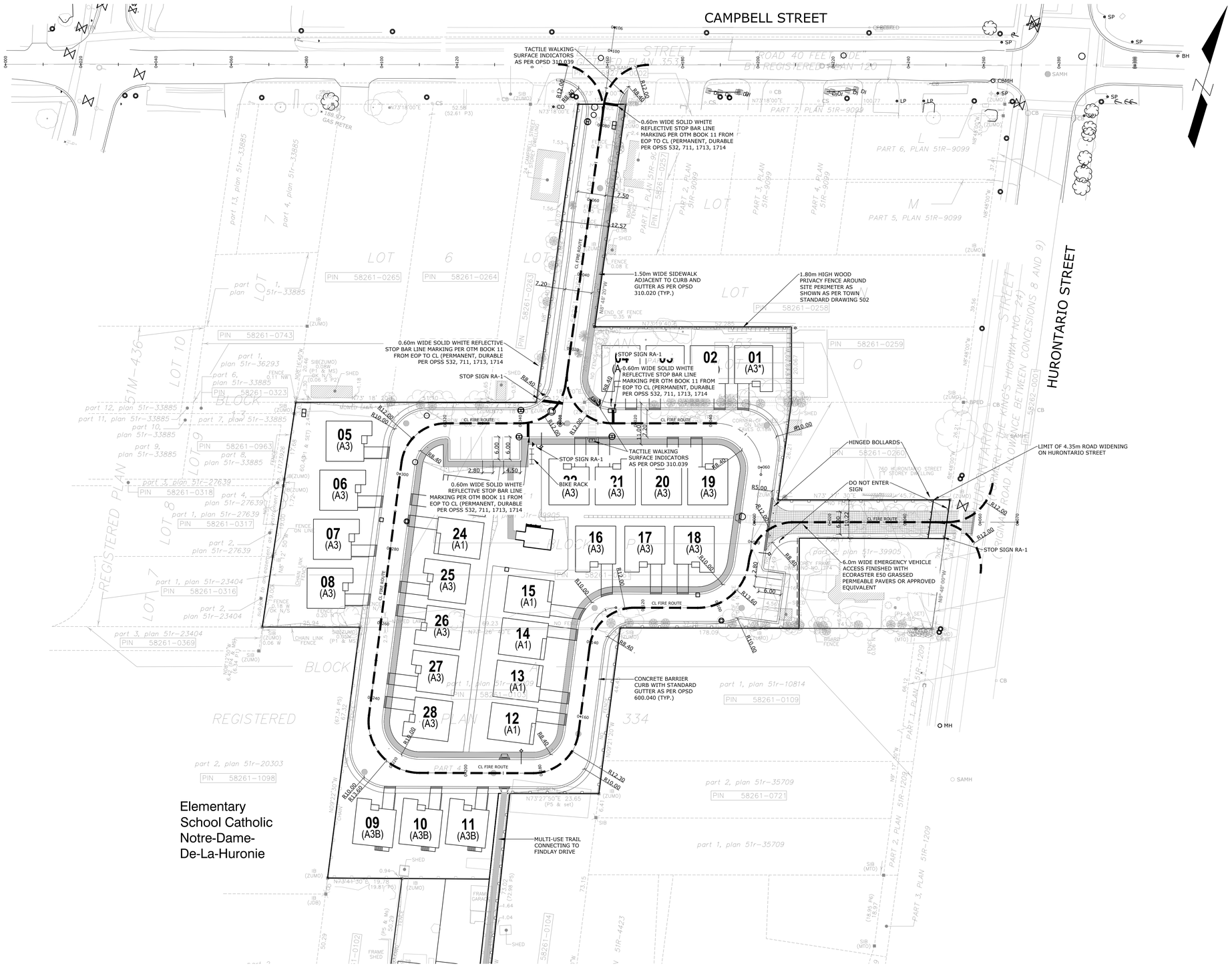

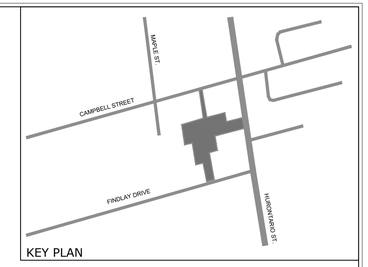

LEGEND

- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE
- SANITARY MANHOLE
- HYDRANT & VALVE

SNOW STORAGE:

SNOW CLEARED FROM ON SITE ROADWAYS AND SIDEWALKS TO BE TRUCKED OFF SITE

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

Notes

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

BENCHMARK:

TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

GENERAL ENGINEERING SITE PLAN

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/12/09	C2
Project No.		Rev No.	
2019-020		1	
Scale			
1:500	0 5.0 10.0 20.0 30.0m		

File: C:\Users\work\Desktop\Capes Engineering\Projects\2019\020 Blackmoor\Drawings\03 Production\Dwg\2019-020 General Engineering Site Plan.dwg Date Plotted: March 4, 2020 - 4:12 PM

GROUNDWATER DEPTHS

**PER GEOTECHNICAL REPORT PREPARED BY WSP APRIL 4, 2018

BH17-01

DEPTH = 0.30m
ELEVATION = 190.61+/-

BH17-02

DEPTH = 2.5m
ELEVATION = 187.80+/-

BH17-03

DEPTH = 0.30m
ELEVATION = 191.75+/-

BH17-04

DEPTH = 0.40m
ELEVATION = 191.37

BH18-01

DEPTH = 1.1m
ELEVATION = 190.66+/-

BH18-02

DEPTH = DRY
ELEVATION = N/A

BH18-03

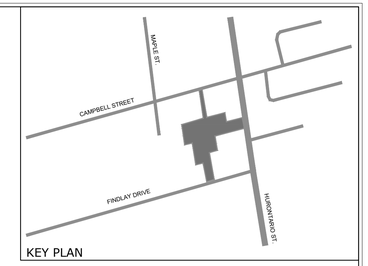
DEPTH = 4.3m
ELEVATION = 188.26

BH18-04

DEPTH = 1.5m
ELEVATION = 193.09

BH18-05

DEPTH = 1.4m
ELEVATION = 193.64



KEY PLAN

LEGEND

* 221.21	PROPOSED ELEVATION
221.21	EXISTING ELEVATION
	MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
	STORM MANHOLE
	SANITARY MANHOLE
	HYDRANT & VALVE

MATCH INTO EXISTING GRADE AT EXISTING EDGE OF PAVEMENT

PROPOSED CURB AND GUTTER TO TERMINATE AT EDGE OF NEIGHBOURING DRIVEWAY, AND MATCH INTO EXISTING GRADE FLUSH

MATCH INTO EXISTING GRADE AT PROPERTY BOUNDARY (TYP.)

1.50m WIDE SIDEWALK AS PER OPSD 310.020 (TYP.)

ARMOURSTONE RETAINING WALL, REFER TO DETAIL

MAXIMUM 3:1 SLOPING TO MATCH INTO EXISTING GRADE
0.15m HIGH FALSE BERM

TYPICAL 0.15m DEEP SWALE C/W 3:1 SIDESLOPES (REFER TO DETAIL)

MATCH INTO EXISTING GRADE AT PROPERTY BOUNDARY (TYP.)

0.15m HIGH FALSE BERM
MAXIMUM 3:1 SLOPING TO MATCH INTO EXISTING GRADE

EMERGENCY VEHICLE ACCESS LANE TO BE CONSTRUCTED OF ECORASTER E50 GRASSED PERMEABLE PAVERS, OR APPROVED EQUIVALENT AS PER MANUFACTURER'S SPECIFICATIONS (REFER TO DETAIL)

EXISTING CURB TO BE CUT AS PER OPSD 600.040 TO ACCOMMODATE EMERGENCY VEHICLE ACCESS LANE

MATCH INTO EXISTING GRADE AT EDGE OF EXISTING SIDEWALK, AND BACK OF CURB CUT

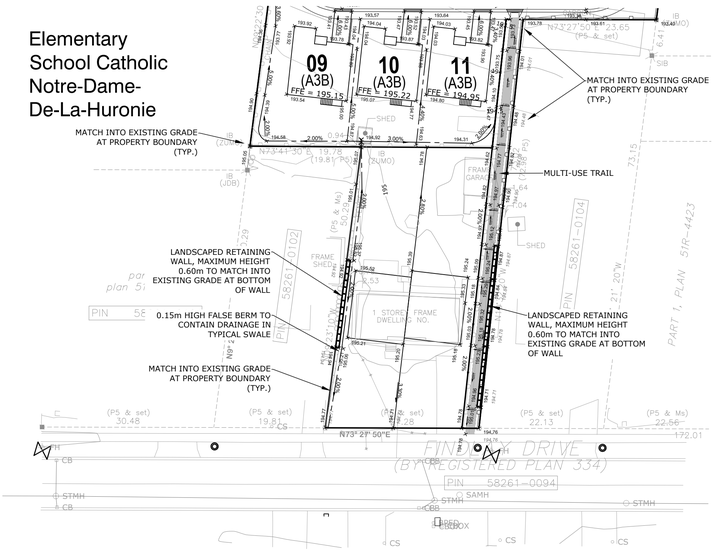
MAXIMUM 3:1 SLOPING TO MATCH INTO EXISTING GRADE, 3:1 SLOPE TO BE TREATED WITH NAG SC250 TURF REINFORCEMENT MAT

MATCH INTO EXISTING GRADE AT PROPERTY BOUNDARY (TYP.)

SEE DETAIL FOR 33 FINDLAY DRIVE MULTI-USE TRAIL

LANDSCAPED RETAINING WALL, MAXIMUM HEIGHT 0.60m TO MATCH INTO

Elementary School Catholic Notre-Dame-De-La-Huronie



33 FINDLAY DRIVE

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

BENCHMARK:

TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

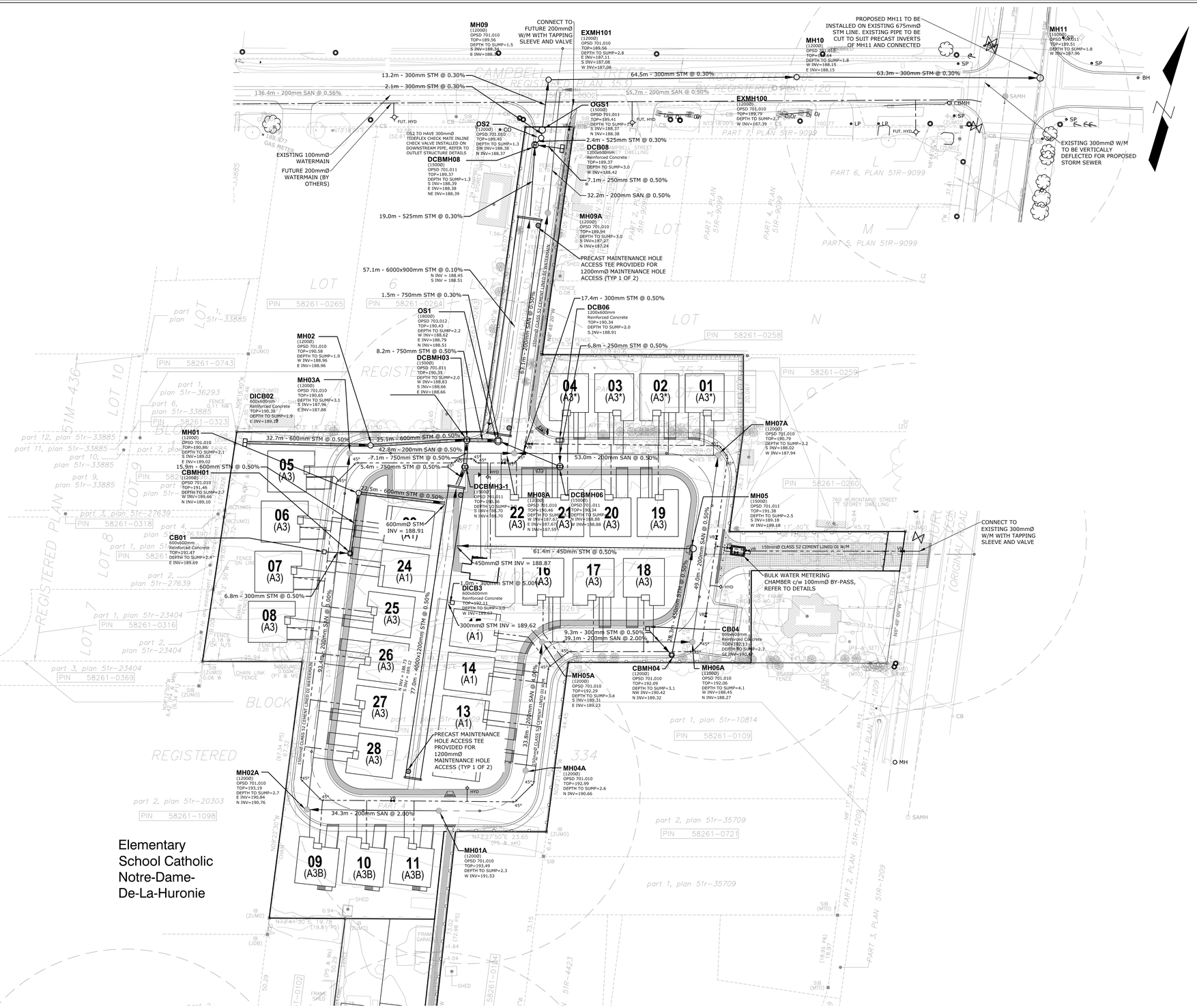
CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

GRADING PLAN

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C3
Project No.		Rev No.	
2019-020		1	
Scale	0 5.0 10.0 20.0 30.0m		
1:500			

File: C:\Users\kevin\Desktop\Capes Engineering\Projects\2019\2019-020 Blackmoor Gardens\2019-020 Grading Revised.dwg, 2020-03-05 4:13 PM



NOTES:

1. AN EASEMENT TO BE PROVIDED OVER PROPOSED WATERMAIN AND ASSOCIATED SERVICES WITHIN SUBJECT SITE IN FAVOUR OF THE TOWN OF COLLINGWOOD. EASEMENT TO EXTEND TO UNIT ISOLATION VALVES AS REQUIRED.
2. ALL TOWN WATERMAINS AND SERVICES TO BE CONSTRUCTED IN ACCORDANCE WITH WITH TOWN WATER DEPARTMENT STANDARDS; REFER TO DETAILS FOR APPROVED MATERIALS.
3. ANY AND ALL CONNECTIONS MADE TO TOWN OWNED WATER INFRASTRUCTURE TO BE COMPLETED BY TOWN OF COLLINGWOOD WATER DEPARTMENT AT THE DEVELOPER'S EXPENSE.
4. THE COMMUNAL AMENITY BUILDING AND ANY IRRIGATION SYSTEMS WILL REQUIRE PREMISE PROTECTION BACKFLOW PREVENTION AS PER CSA B64.10-11/B64.10.1-11, OBC AND THE TOWN WATER BY-LAW. THE INSTALLED DEVICE WILL REQUIRE ANNUAL TESTING, WITH ALL ASSOCIATED COSTS THE RESPONSIBILITY OF THE OWNER.

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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LICENSED PROFESSIONAL ENGINEER
C. CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

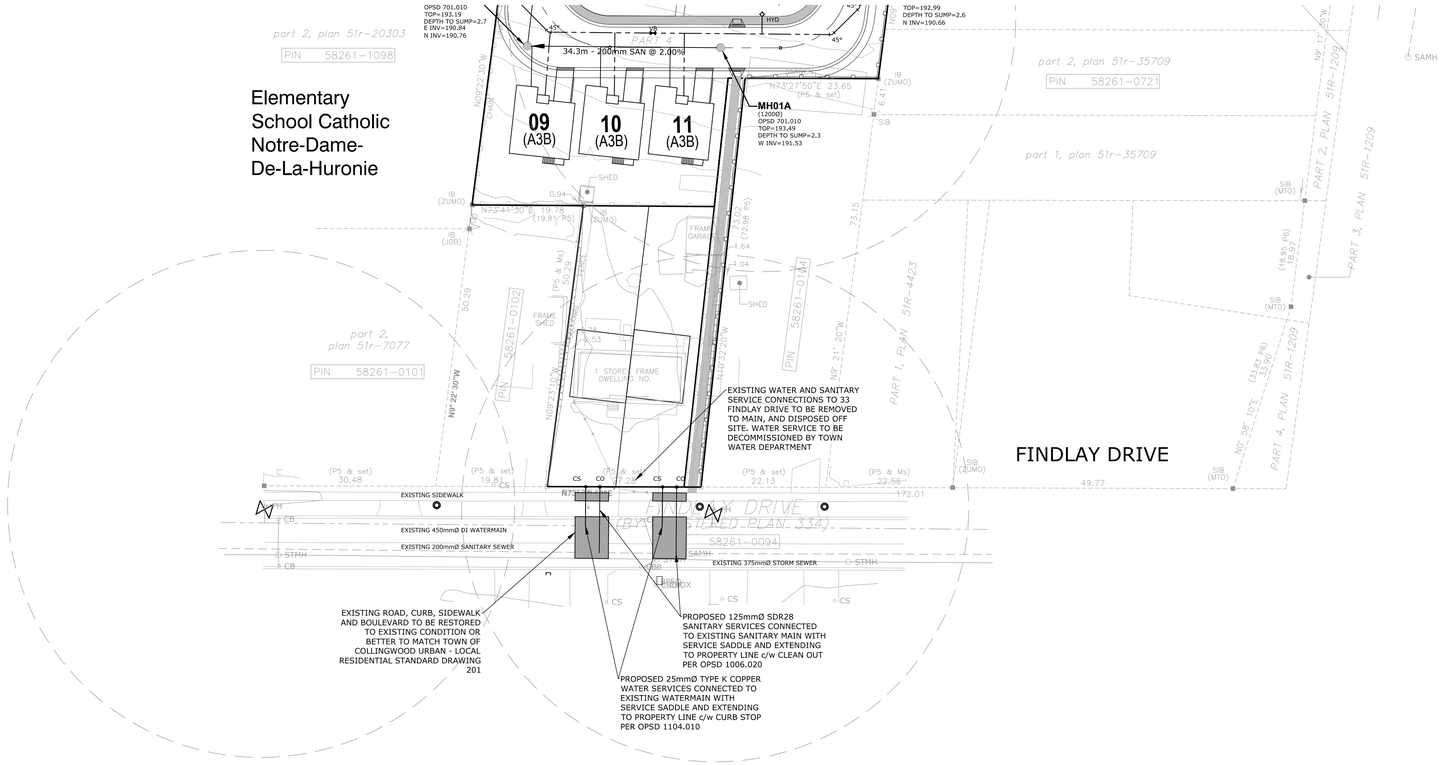
CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

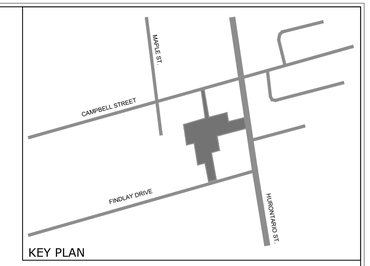
BLACKMOOR GATES

SERVICING PLAN

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C4
Project No. 2019-020		Rev No. 1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

File: C:\Users\kevin\Desktop\Capes Engineering\Projects\2019-020 Blackmoor Gates\dwg\2019-020 Servicing Plan.dwg Date Plotted: March 4, 2020 - 4:13 PM





KEY PLAN

LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

SERVICING PLAN

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/12/09	C5
Project No.		Rev No.	
2019-020		1	
Scale			
1:500	0 5.0 10.0 20.0 30.0m		

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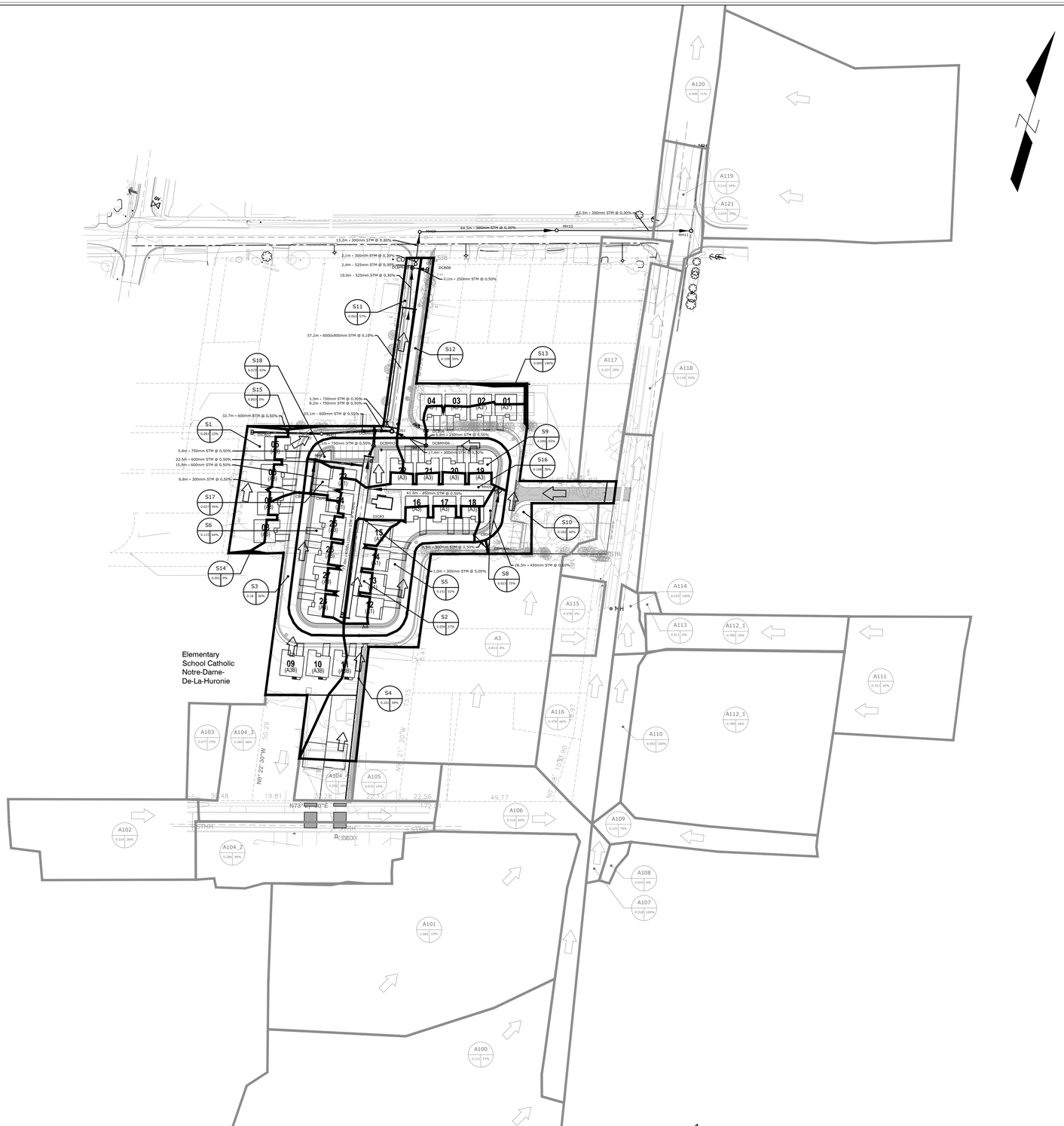
Elementary
School Catholic
Notre-Dame-
De-La-Huronie
S1
S2
S3
S4
S5
S6
S8
S9
S10
S11
S12
S13
S14
S15
S16
S17
S18
A1
A2
A3
A100
A101
A102
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A104
A104_1
A104_2
A104_3
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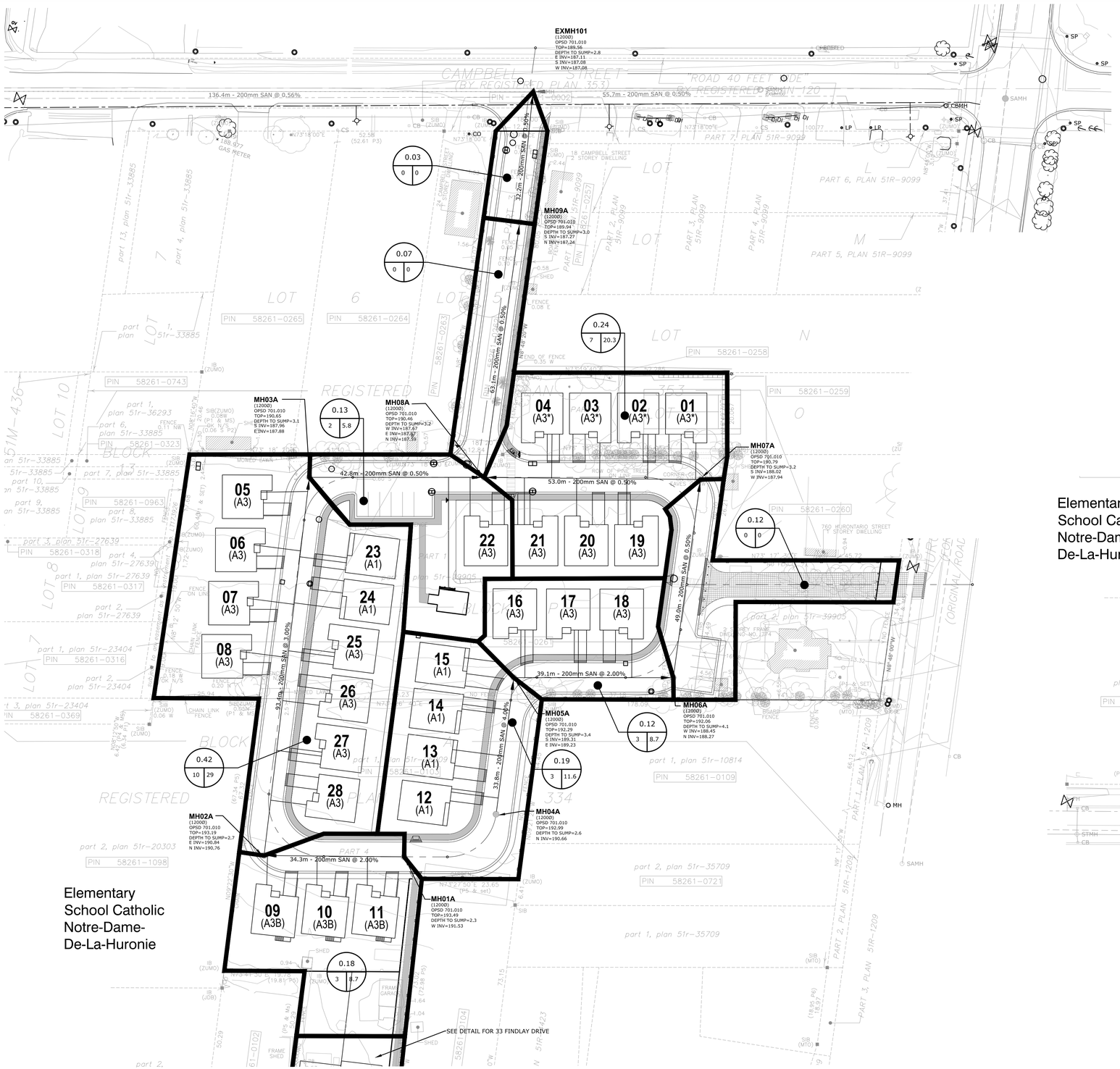
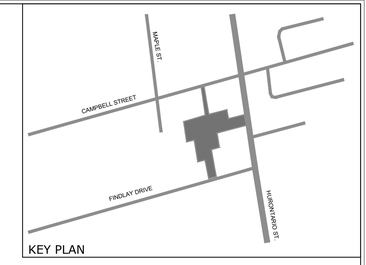
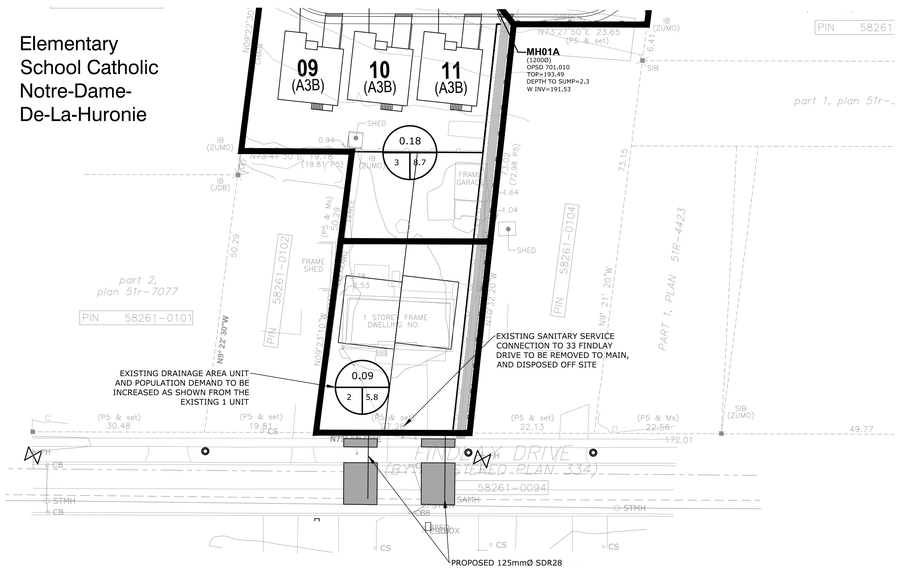




LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- SANITARY MANHOLE/SEWER
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- 0.50 / 3 / 8.7 — SANITARY DRAINAGE AREA; TOTAL POPULATION, 2.9PPU; TOTAL UNITS

Elementary
School Catholic
Notre-Dame-
De-La-Huronie



33 FINDLAY DRIVE

ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
C. CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

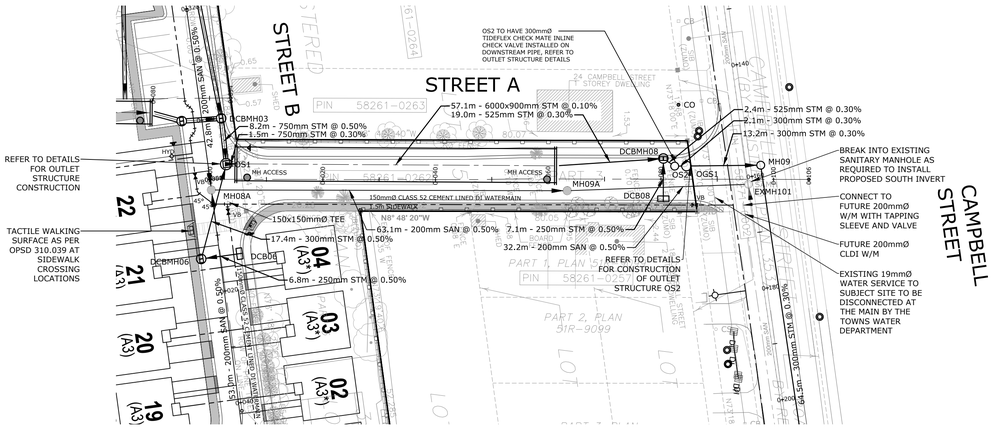
CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

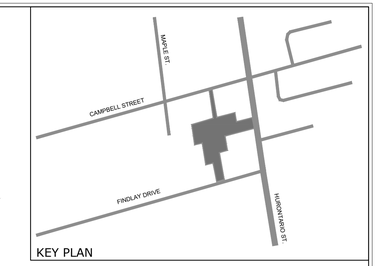
BLACKMOOR GATES

SANITARY DRAINAGE AREA PLAN

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/12/09	C7
Project No. 2019-020		Rev No. 1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

File: C:\Users\kevin\Desktop\Capes Engineering\Projects\2019\2019-020 Blackmoor\Drawings\01 Production\Dwg\2019-020 Sanitary Drainage Area Plan.dwg Date Plotted: March 5, 2020 - 3:14 PM





LEGEND

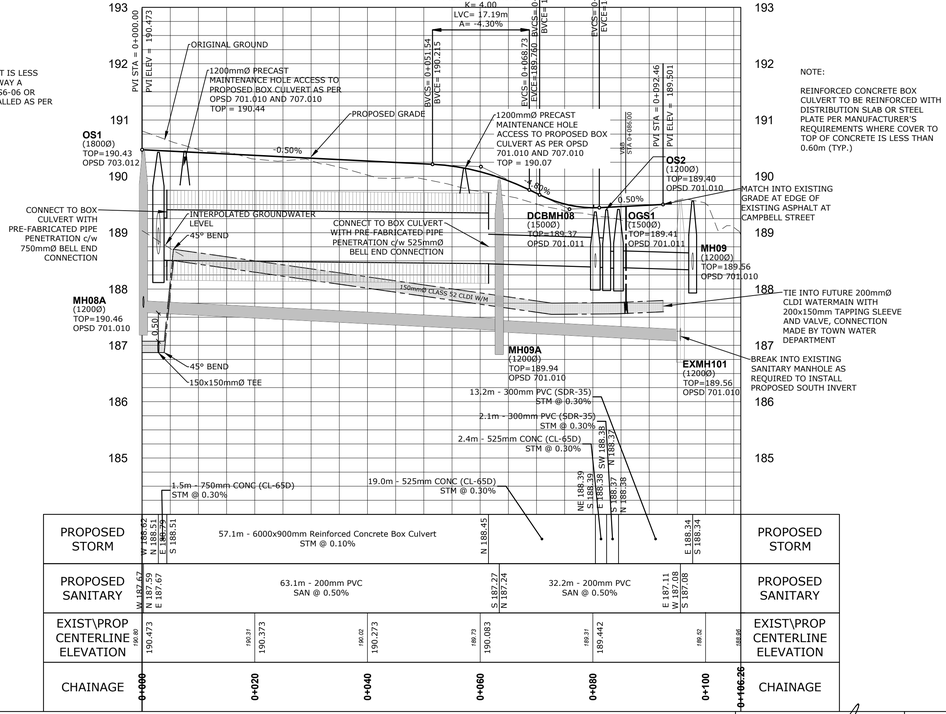
- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

NOTES:

1. RESTORATION REQUIRED OF EXISTING RIGHT-OF-WAYS ADJACENT TO SUBJECT SITE TO MEET TOWN OF COLLINGWOOD ENGINEERING STANDARDS.
2. RESTORATION OF CAMPBELL STREET PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 201
2. RESTORATION OF FINDLAY DRIVE PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 201
2. RESTORATION OF HURONTARIO STREET PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 205
3. TOWN BOULEVARDS TO BE RESTORED WITH MINIMUM 150mm DEPTH TOPOSIL AND NURSERY SOD.
4. TOWN SIDEWALKS TO BE RESTORED AS PER OPSD 310.010, AS REQUIRED
5. ALL CONNECTIONS TO TOWN OWNED WATER INFRASTRUCTURE TO BE COMPLETED BY TOWN WATER DEPARTMENT AT THE EXPENSE OF THE OWNER

REINFORCED BOX CULVERT NOTE:

WHERE COVER TO TOP OF BOX CULVERT IS LESS THAN 0.60m UNDER TRAVELLED ROADWAY A DISTRIBUTION SLAB AS PER CAN/CSA-S6-06 OR REINFORCING PLATES ARE TO BE INSTALLED AS PER MANUNFACTURER'S SPECIFICATIONS



ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

BENCHMARK:

TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENCED PROFESSIONAL ENGINEER
C. CAPES
100050104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

PLAN AND PROFILE
BMGA
STA 0+000 to STA 0+096.21

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C8
Project No.		Rev No.	
2019-020		1	
Scale			
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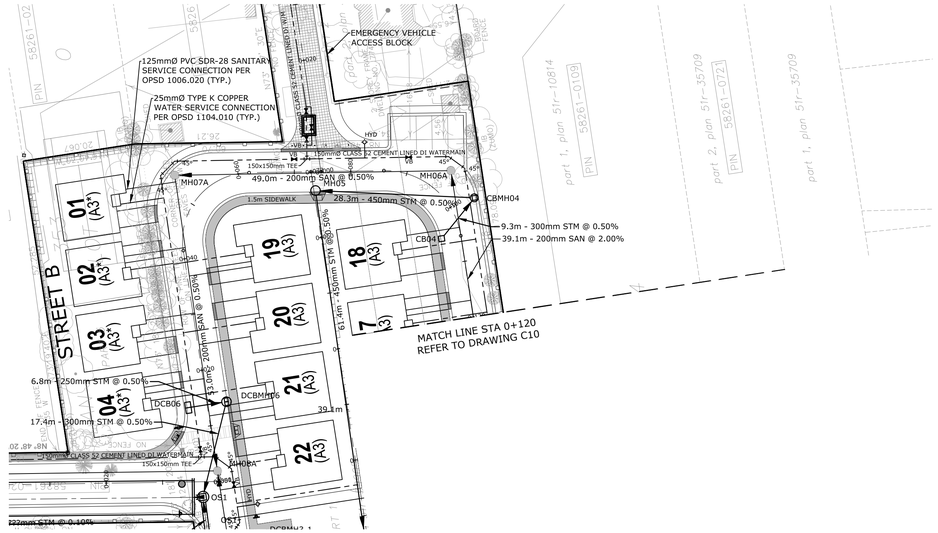

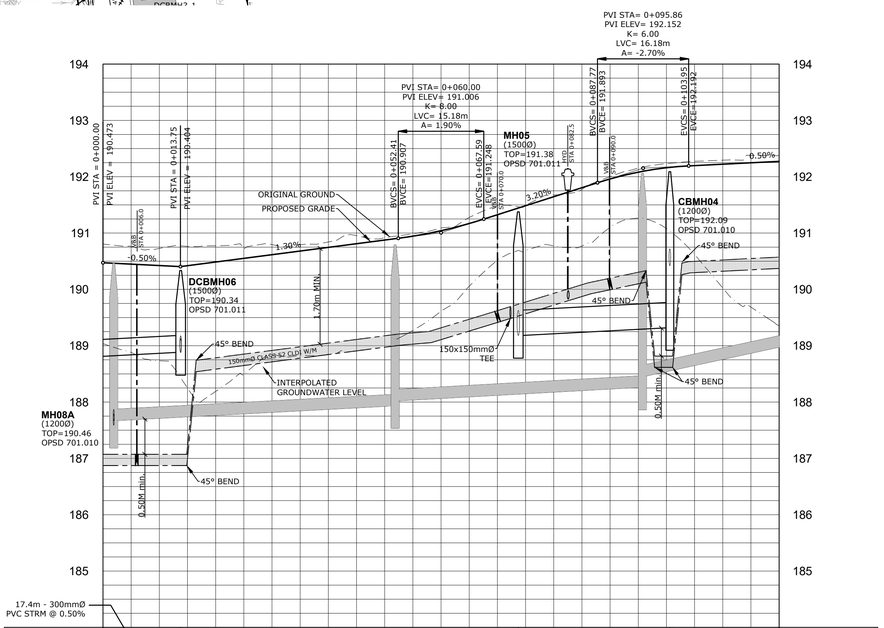

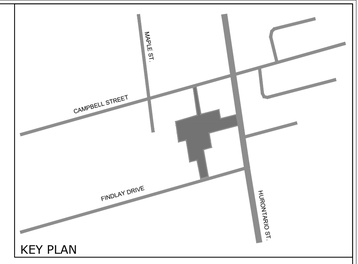

KEY PLAN

LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

NOTES:

1. RESTORATION REQUIRED OF EXISTING RIGHT-OF-WAYS ADJACENT TO SUBJECT SITE TO MEET TOWN OF COLLINGWOOD ENGINEERING STANDARDS.
2. RESTORATION OF CAMPBELL STREET PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 201
2. RESTORATION OF FINDLAY DRIVE PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 201
2. RESTORATION OF HURONTARIO STREET PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 205
3. TOWN BOULEVARDS TO BE RESTORED WITH MINIMUM 150mm DEPTH TOPOSIL AND NURSERY SOD.
4. TOWN SIDEWALKS TO BE RESTORED AS PER OPSD 310.010, AS REQUIRED
5. ALL CONNECTIONS TO TOWN OWNED WATER INFRASTRUCTURE TO BE COMPLETED BY TOWN WATER DEPARTMENT AT THE EXPENSE OF THE OWNER

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENSED PROFESSIONAL ENGINEER
C. CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

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CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

PLAN AND PROFILE
BMGB
STA 0+000 to STA 0+120

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C9
Project No.		Rev No.	
2019-020		1	
Scale			
H 1:500 V 1:50			

0 5.0 10.0 20.0 30.0m

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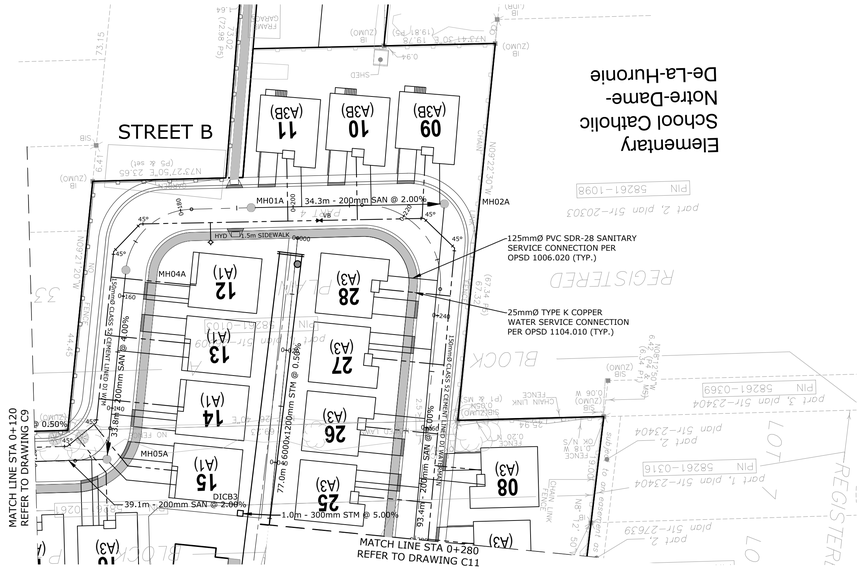

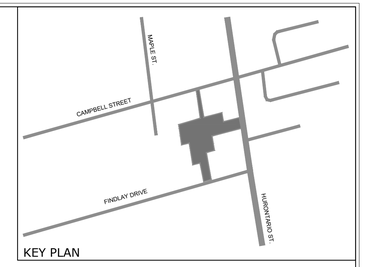

LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

NOTES:

1. RESTORATION REQUIRED OF EXISTING RIGHT-OF-WAYS ADJACENT TO SUBJECT SITE TO MEET TOWN OF COLLINGWOOD ENGINEERING STANDARDS.
2. RESTORATION OF CAMPBELL STREET PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 201
2. RESTORATION OF FINDLAY DRIVE PAVEMENT STRUCTURE TO MEET REQUIREMENTS OF TOWN STANDARD DRAWING 201
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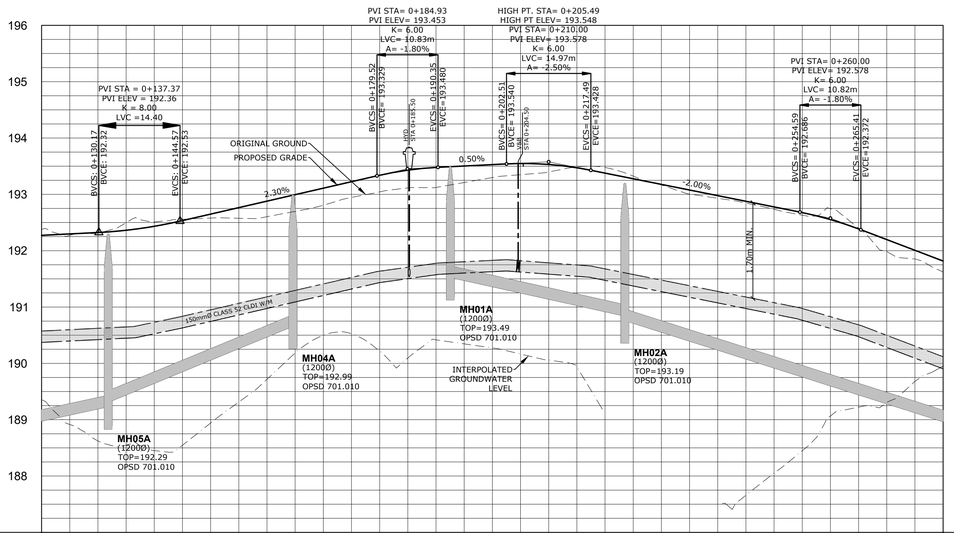

PROPOSED STORM		39.1m - 200mm PVC SAN @ 2.00%									PROPOSED STORM
PROPOSED SANITARY	S 189.23 E 189.23	33.8m - 200mm PVC SAN @ 4.00%	N 190.66		W 191.53	34.3m - 200mm PVC SAN @ 2.00%	E 190.84 N 190.76	93.4m - 200mm PVC SAN @ 3.00%			PROPOSED SANITARY
EXIST\PROP CENTERLINE ELEVATION	192.38 192.273	192.51 192.433	192.60 192.880	192.04 193.340	192.30 193.528	192.48 193.378	192.93 192.978	192.75 192.553	191.62 191.817		EXIST\PROP CENTERLINE ELEVATION
CHAINAGE	0+120	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280		CHAINAGE

ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

Notes
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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

BENCHMARK:

TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENSED PROFESSIONAL ENGINEER
C. CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

PLAN AND PROFILE
BMGB
STA 0+120 to STA 0+280

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C10
Project No. 2019-020		Rev No. 1	
Scale H 1:500 V 1:50	0 5.0 10.0 20.0 30.0m		

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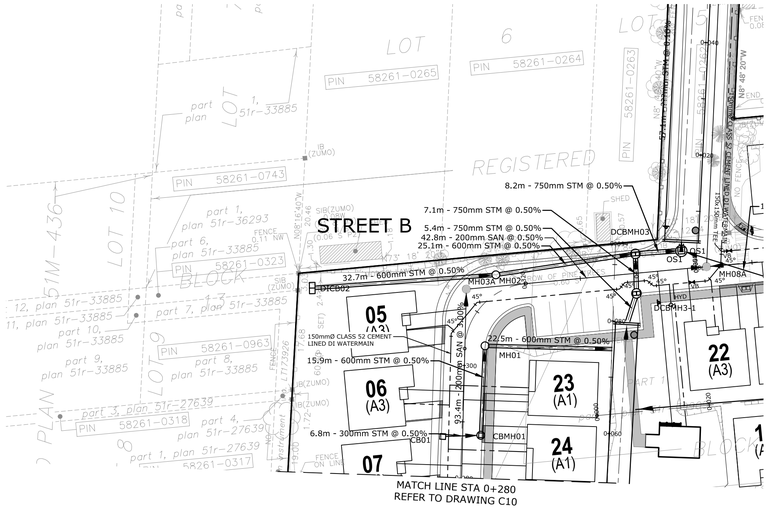

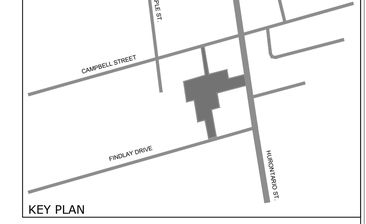

KEY PLAN

LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

NOTES:

1. RESTORATION REQUIRED OF EXISTING RIGHT-OF-WAYS ADJACENT TO SUBJECT SITE TO MEET TOWN OF COLLINGWOOD ENGINEERING STANDARDS.
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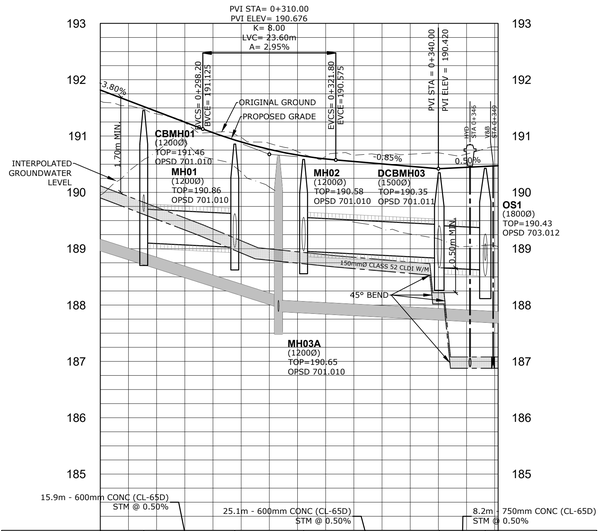

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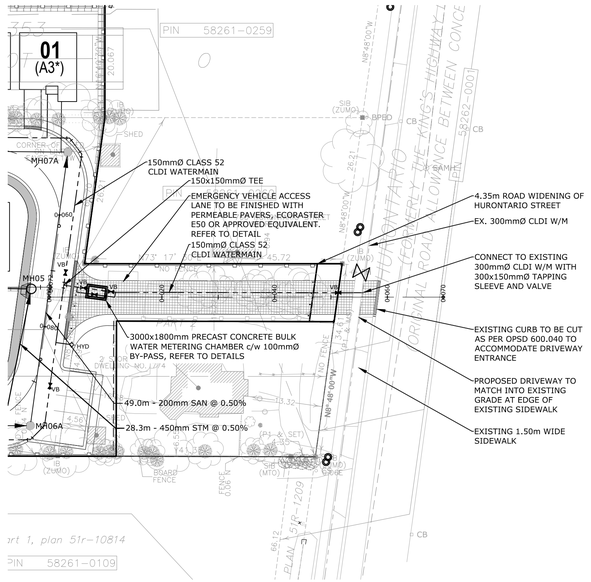

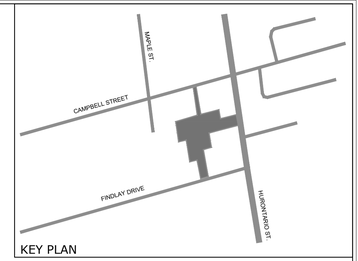

KEY PLAN

LEGEND

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- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
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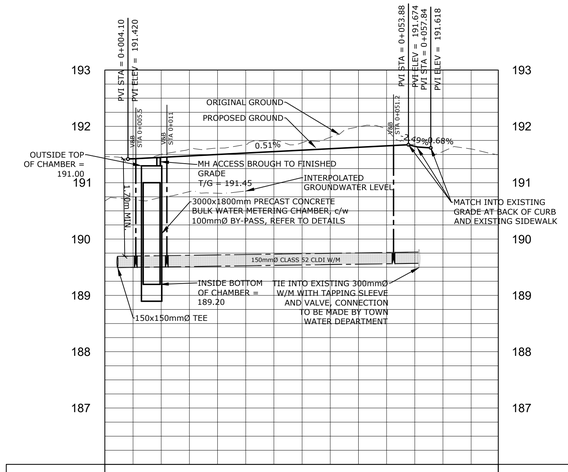

PROPOSED STORM		PROPOSED STORM
PROPOSED SANITARY		PROPOSED SANITARY
EXIST\PROP CENTERLINE ELEVATION	191.48	191.501 191.603 191.85
CHAINAGE	0+000	0+020 0+040 0+060 0+069.82

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

Notes
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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

BENCHMARK:

TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

PLAN AND PROFILE
EMERGENCY VEHICLE ACCESS DRIVEWAY
STA 0+000 to STA 0+070

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C12
Project No.		Rev No.	
2019-020		1	
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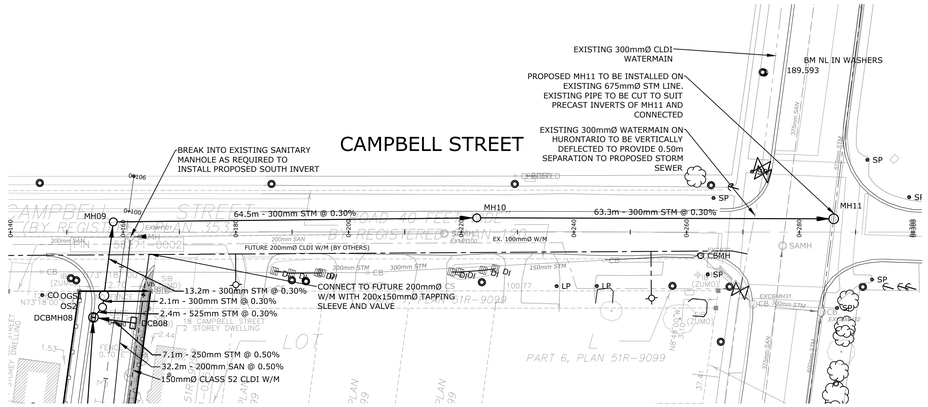

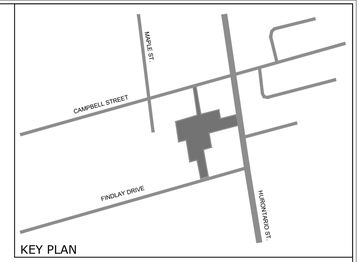

KEY PLAN

LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

NOTES:

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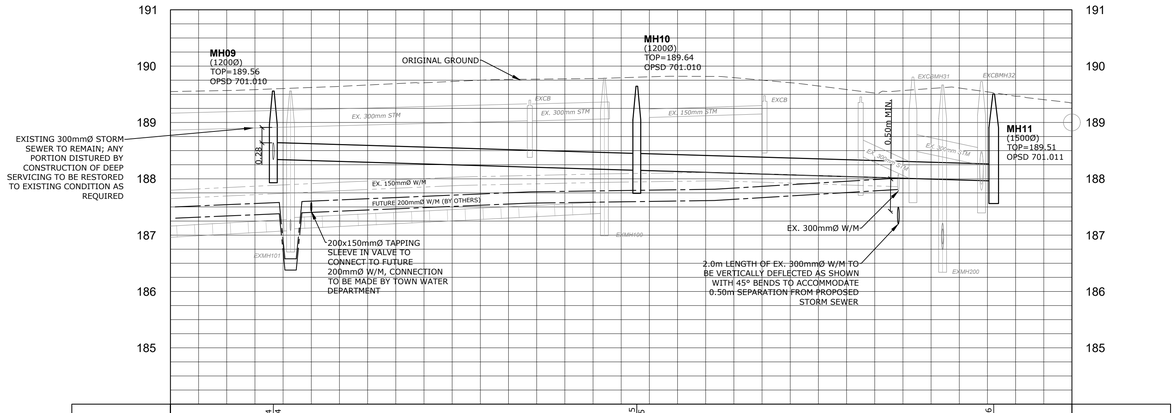

PROPOSED STORM	E 188.34 S 188.34	64.5m - 300mm PVC (SDR-35) STM @ 0.30%			W 188.15 E 188.15	63.3m - 300mm PVC (SDR-35) STM @ 0.30%		W 187.96 N 187.75 S 187.75	PROPOSED STORM
PROPOSED SANITARY	EXISTING 136.4m - 200mm PVC SAN @ 0.56% E 187.70 S 187.00		EXISTING 55.7m - 200mm PVC SAN @ 0.50%		W 187.39			E 188.43 S 188.43	PROPOSED SANITARY
EXIST\PROP CENTERLINE ELEVATION	PT1 189.548	189.60 189.602	189.69 189.689	189.78 189.764	189.79 189.794	189.80 189.796	189.88 189.885	189.81 189.611	189.85 189.747 EXIST\PROP CENTERLINE ELEVATION
CHAINAGE	0+140	0+160	0+180	0+200	0+220	0+240	0+260	0+280	0+300 CHAINAGE

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

BENCHMARK:

TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

PLAN AND PROFILE
CAMPBELL STREET
STA 0+000 to STA 0+180

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C13
Project No.		Rev No.	
2019-020		1	
Scale H 1:500 V 1:50	0 5.0 10.0 20.0 30.0m		

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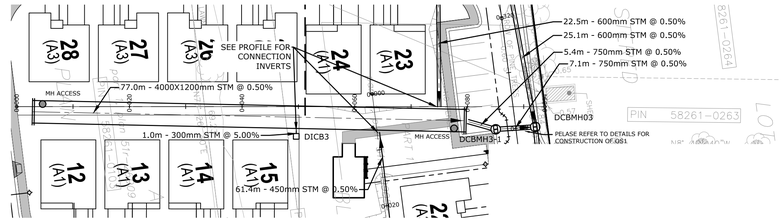

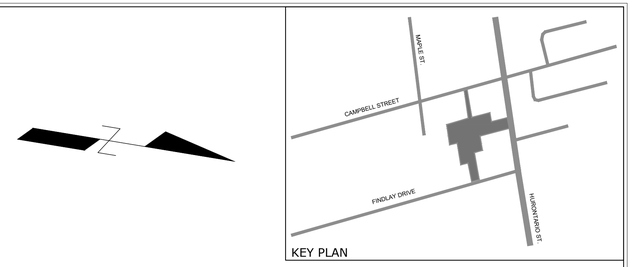

KEY PLAN

LEGEND

- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE/SEWER
- SANITARY MANHOLE/SEWER
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE

NOTES:

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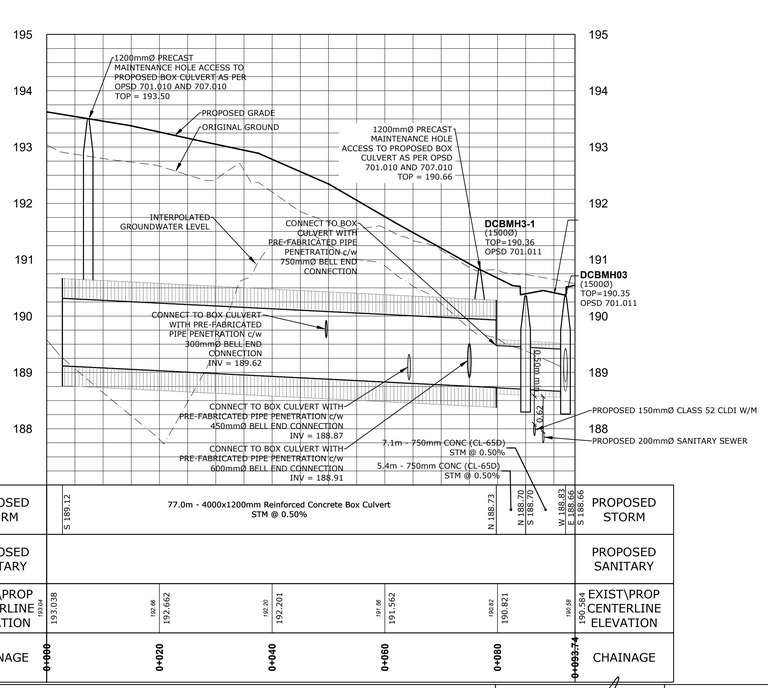

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

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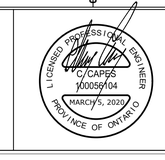
TOPOGRAPHIC SURVEY INFORMATION PROVIDED BY SMC GEOMATICS

LOCAL BENCHMARK TOP OF EXISTING SANITARY MANHOLE ON CAMPBELL STREET IMMEDIATELY NORTH OF PROPOSED SITE ENTRANCE

ELEVATION = 189.582



Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

PLAN AND PROFILE
REAR LOTS 23-28
STA 0+000 to STA 0+093.74

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C14
Project No.		Rev No.	
2019-020		1	
Scale			
H 1:500 V 1:50			

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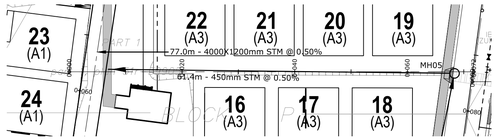

23
(A1)
24
(A1)
22
(A3)
21
(A3)
20
(A3)
19
(A3)
16
(A3)
17
(A3)
18
(A3)
L77.0m - 4000X1200mm STM @ 0.50%
61.4m - 450mm STM @ 0.50%
MH05
PART 1
PART 2
PART 3
PART 4
PART 5
PART 6
PART 7
PART 8
PART 9
PART 10
PART 11
PART 12
PART 13
PART 14
PART 15
PART 16
PART 17
PART 18
PART 19
PART 20
PART

CONTRACTOR TO ENSURE THAT SITE ENTRANCE IS SWEPT REGULARLY AND KEPT FREE OF DEBRIS AND MUD AT ALL TIMES. CONTRACTOR TO ENSURE THAT NEIGHBOURING RESIDENTIAL DRIVEWAYS ARE UNOBSTRUCTED AT ALL TIMES, OTHER THAN AS REQUIRED FOR INSTALLATION OF DEEP SERVICING ON CAMPBELL STREET

30.0x6.0m CONSTRUCTION ENTRANCE AS PER TOWN OF COLLINGWOOD STANDARD5, REFER TO DETAIL, TO REMAIN FOR DURATION OF CONSTRUCTION UNTIL PLACEMENT OF GRANULAR BASE MATERIAL

ALL PROPOSED AND EXISTING CATCHBASINS ON SITE TO BE FIT WITH CATCHBASIN SEDIMENT BARRIER PER TOWN DETAIL 311 THAT IS TO BE REGULARLY MAINTAINED, AND REMAIN FOR THE DURATION OF CONSTRUCTION.

HEAVY DUTY SEDIMENT FENCING AS PER OPSD 219.130 TO BE INSTALLED AS SHOWN FOR INSTALLATION OF PROPOSED STORM SEWER CONNECTIONS AT HURONTARIO STREET

ALL PROPOSED AND EXISTING CATCHBASINS ON SITE TO BE FIT WITH AN INLET SEDIMENT CONTROL DEVICE THAT IS TO BE REGULARLY MAINTAINED, AND REMAIN FOR THE DURATION OF CONSTRUCTION. TERRAFIX SILTSACK OR APPROVED EQUIVALENT

HEAVY DUTY SEDIMENT FENCING AS PER OPSD 219.130 TO BE INSTALLED ON PERIMETER OF SITE AS SHOWN AND REMAIN FOR DURATION OF CONSTRUCTION

DOUBLE LAYER OF HEAVY DUTY SEDIMENT FENCING AS PER OPSD 219.130

ALL PROPOSED AND EXISTING CATCHBASINS ON SITE TO BE FIT WITH CATCBASIN SEDIMENT BARRIER PER TOWN DETAIL 311 THAT IS TO BE REGULARLY MAINTAINED, AND REMAIN FOR THE DURATION OF CONSTRUCTION.

12.0mLx2.0mW, 1.0m DEEP SEDIMENT TRAP AS PER OPSD 219.220 TO REMAIN UNTIL CONSTRUCTION OF ON-SITE STORM SEWER SYSTEM AND ROAD GRANULAR BASE

ROCK CHECK AS PER OPSD 219.210 (TYP.)

PROPOSED 0.50m HIGH, 1.00m TOP WIDTH BERM c/w 2:1 SIDESLOPES BE CONSTRUCTED TO ASSIST WITH DIRECTING RUNOFF TOWARDS PROPOSED SEDIMENT TRAP

12.0mLx2.0mW, 1.0m DEEP SEDIMENT TRAP AS PER OPSD 219.220 TO REMAIN UNTIL CONSTRUCTION OF ON-SITE STORM SEWER SYSTEM ROAD GRANULAR BASE

ROCK CHECK AS PER OPSD 219.210 (TYP.)

0.30m DEEP INTERCEPTOR SWALE (TYP. REFER TO DETAIL) AT PERIMETER OF SITE AS SHOWN TO REMAIN FOR DURATION OF CONSTRUCTION UNTIL CONSTRUCTION OF RETAINING WALL AND ULTIMATE REAR YARD SWALE

PROPOSED 0.50m HIGH, 1.00m TOP WIDTH BERM c/w 2:1 SIDESLOPES BE CONSTRUCTED TO ASSIST WITH DIRECTING RUNOFF TOWARDS PROPOSED SEDIMENT TRAP

0.30m DEEP INTERCEPTOR SWALE (TYP. REFER TO DETAIL) AT PERIMETER OF SITE AS SHOWN TO REMAIN FOR DURATION OF CONSTRUCTION

20.0x10.0m SEDIMENT TRAP AS PER OPSD 219.220 TO REMAIN DURING EARTHWORKS OPERATIONS, AND DEPTH BE ADJUSTED DURING PREGRADE OPERATIONS SUCH THAT 1.0m DEPTH IS MAINTAINED

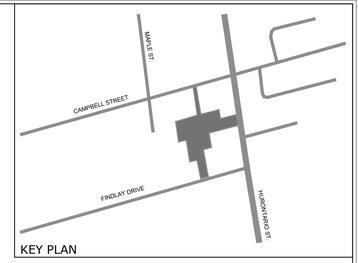
EARTHWORKS CONTRACTOR TO ENSURE THAT STRIPPED SURFACE OF SITE IS GRADED GENTLY TOWARDS THE TEMPORARY INTERCEPTOR SWALE

0.30m DEEP INTERCEPTOR SWALE (TYP. REFER TO DETAIL)

DEMOLITION AND EARTHWORKS CONTRACTOR TO ACCESS 33 FINDLAY DRIVE FROM CONSTRUCTION ENTRANCE AT CAMPBELL STREET, BUILDING CONTRACTOR TO ACCESS 33 FINDLAY DRIVE FROM FINDLAY DRIVE AT EXISTING DRIVEWAY

SEE DETAIL FOR 33 FINDLAY DRIVE

Elementary School Catholic Notre-Dame-De-La-Huronie



KEY PLAN

LEGEND

- * 221.21 — PROPOSED ELEVATION
- 221.21 — EXISTING ELEVATION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM MANHOLE
- SANITARY MANHOLE
- HYDRANT & VALVE
- SEDIMENT FENCING
- CONSTRUCTION ACCESS (MUD MAT)
- ROCK CHECK DAM

Elementary School Catholic Notre-Dame-De-La-Huronie

33 FINDLAY DRIVE

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

Notes
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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
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BLACKMOOR GATES

EROSION AND SEDIMENT CONTROL PLAN

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C16
Project No. 2019-020		Rev No. 1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

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ESC NOTES

SEEDING

1. AREAS OF SITE LEFT UNSTABLE FOR MORE THAN 30 DAYS TO BE STABILIZED WITH ACCEPTABLE GROUND COVER
2. OPTIONS: BLOWER TRUCK APPLICATION OF MEDIA/SEED/MULCH MIX, HYDROSEEDING, MECHANICAL OR BROADCAST; SPECIES TO BE APPROVED BY TOWN OF SAUGEEN SHORES, IN ACCORDANCE WITH LANDSCAPING PLANS
3. SEEDING IDEALLY APPLIED BETWEEN APRIL 15 & MAY 30 OR AUGUST 15 & SEPTEMBER 30.
4. BARE SOIL TO BE PROPERLY SCARIFIED TO PREPARE FOR PLANTING IF SOIL HAS BEEN CRUSTED OVER OR COMPACTED.
5. MINIMUM 75mm OF TOPSOIL APPLIED TO ALL AREAS SUBJECT TO PERMANENT LANDSCAPING.
6. TREAD TRACKING/CAT TRACKING METHOD TO BE USED FOR SEEDING ON SLOPES >3:1.
7. SEED COVERED WITH EROSION CONTROL MATS/BLANKETS/MATTING AS NEEDED FOR SLOPES > 2:1.
8. AREAS THAT DO NOT SHOW GROWTH WITHIN 14 DAYS TO BE RE-SEEDED.
9. MULCH APPLIED AFTER OR WITH SEED.

SODDING

10. SOD TO BE LAID IN STRAIGHT LINES, PERPENDICULAR TO SLOPING.
11. PIECES OF SOD TIGHTLY BUTTED TOGETHER BUT WITHOUT OVERLAPPING OR STRETCHING.
12. INSTALLED IN A BRICK-WORK TYPE PATTERN WITH STAGGERING OF JOINTS IN ADJACENT ROWS.
13. SOD TO BE NOTCHED INTO EXISTING GRASS.
14. SOD TO BE ANCHORED IN PLACE IF INSTALLED ON SLOPES >3:1.
15. SOD TO BE ADEQUATELY IRRIGATED POST INSTALLATION.
16. SOD TO BE INSTALLED DURING PROPER WEATHER CONDITIONS.

RIP-RAP

17. GEOTEXTILE FABRIC LINER TO BE INSTALLED UNDER RIP RAP.

ROLLED EROSION CONTROL PRODUCTS

18. STRIPS INSTALLED PARALLEL TO FLOW IN SWALES OR CONVEYANCE CHANNELS.
19. STRIPS INSTALLED UP AND DOWN A HILL (VERTICALLY) FOR LONG SLOPES (DOES NOT INCLUDE WATERCOURSE BANKS).
20. BLANKETS OVERLAPPING 20cm ON SIDES, TOPS AND BOTTOMS.
21. BLANKETS NOT TO BE STRETCHED.
22. MAXIMUM SLOPE ON WHICH PRODUCT IS USED BASED ON MANUFACTURER'S SPECIFICATIONS.
23. CONTINUOUS CONTACT WITH SOIL SURFACE AND NO TENTING.
24. ANCHORED WITH SUFFICIENT QUANTITY OF WOODEN OR BIODEGRADABLE STAKES OR METAL STAPLES, SPACED AS SPECIFIED IN MANUFACTURER RECOMMENDATIONS.
25. FIRMLY ANCHORED AT TOP AND BOTTOM, WITH ANCHOR TRENCH AT THE BOTTOM.

GROWTH MEDIA EROSION CONTROL BLANKETS

26. APPLIED AT A DEPTH OF 25-100mm.
27. >50mm THICKNESS APPLIED FOR SLOPES >2:1.
28. 75-100mm APPLIED FOR SLOPES 1:1 OR GREATER.
29. OVERLAPPED 1-3m AT THE TOP OF THE SLOPE TO WHICH THE BLANKET IS APPLIED.

VEGETATIVE BUFFER STRIPS

30. >30m WIDE AND ADJACENT TO WATERCOURSES.

INTERCEPTOR SWALE AND DIVERSION DIKE

31. SWALE MINIMUM 300mm DEEP AND 600mm WIDE.
32. BOTH SWALES AND DIKE SIDE SLOPES CONSTRUCTED TO BE 3:1 OR LESS.
33. STABILIZED BY SEEDING OR RIP RAP, ESPECIALLY AT INLET AND OUTLET.
34. IMMEDIATE STABILIZATION MANDATORY FOR SWALES/DIKES AND IMMEDIATELY FOLLOWING A STORM EVENT. SWALES TO BE STABILIZED WITH SEEDING OPERATIONS AND RIP-RAP TREATMENT AS REQUIRED.
35. FLOW VELOCITIES IN THE SWALE REDUCED WITH FLOW INTERRUPTION DEVICES.

CHECK DAMS

36. CENTRE HEIGHT < 1.0m; CENTRE NOTCHED APPROXIMATELY 150mm, INCLUDING SPILLWAY.
37. ROCK PILED WITH A MAXIMUM UPSTREAM SLOPE OF 2:1 AND MAXIMUM DOWNSTREAM SLOPE OF 4:1.
38. SIDES OF DAM PILED UP THE DITCH SLOPE AT LEAST 0.5m HIGHER THAN THE CENTRE OF THE DAM.
39. FOR DAMS USED IN SERIES IN A SWALE OR CHANNEL, HEIGHT OF SUBSEQUENT CHECK DAMS MUST BE EQUAL TO THE ELEVATION OF THE BASE OF THE PREVIOUS DAM.
40. CONSTRUCTED WITH 3 LAYERS; BOTTOM LAYER CONSISTING OF 450mm OF 5cm DIA. STONE, MIDDLE LAYER NON-WOVEN GEOTEXTILE FABRIC, AND TOP LAYER CONSISTING OF 10cm OF 15cm DIA. STONE.
41. CHECK DAM SPILLWAY WIDTH APPROXIMATELY THE SAME WIDTH AS THE DITCH BOTTOM.
42. STONES PLACED UP THE SIDES OF THE DITCH ABOVE THE ELEVATION ON THE SPILLWAY TO PREVENT WASHOUTS.
43. STONE SIZE OF 5-10cm FOR DITCH GRADES LESS THAN 2% AND 7-30cm FOR DITCH GRADES 2% AND GREATER.
44. INSTALLED DOWNSTREAM OF SEDIMENT TRAPS.

SILT FENCING

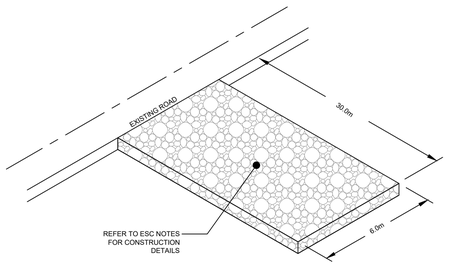
45. TRENCHED IN AT LEAST 150mm.
46. STAKES INSTALLED ON DOWNSLOPE SIDE.
47. MAXIMUM 2.0m BETWEEN POSTS FOR HEAVY-DUTY FENCES AND 2.3m FOR LIGHT-DUTY.
48. ENDS TURNED UP SLOPE WHERE POSSIBLE.
49. FABRIC IS NON-WOVEN SYNTHETIC FABRIC MATERIAL (WITH A WEAVE DENSITY OF 270R OR EQUIVALENT) STRETCHED ACROSS AND ATTACHED TO SUPPORTING POST AND WIRE FENCE.
50. FABRIC TAUGHT BETWEEN POSTS.
51. STRUCTURAL FENCING USED TO BACK THE SILT FENCE.
52. POSITIONED ON A LEVEL CONTOUR RATHER THAN UP AND DOWN SLOPES.
53. NO GAPS, 2.0m MINIMUM OVERLAP OF NEW CLOTH SECTIONS.
54. POSITIONED TO RECEIVE ONLY MODERATE SHEET FLOWS, NOT CONCENTRATED FLOWS.
55. TOE COMPACTED AS MUCH AS POSSIBLE TO AVOID USE OF STONE PLACEMENT.

SEDIMENT TRAPS

56. 125m³ STORAGE PER HECTARE OF DRAINAGE AREA MINIMUM.
57. SEDIMENT TRAPS CAN BE USED TO TREAT UP TO 2 HECTARES OF DISTURBED AREA.
58. STABILIZED EMBANKMENTS.
59. LOCATED IN A FLAT LAND AREA, AWAY FROM WATERCOURSES AND WETLANDS.

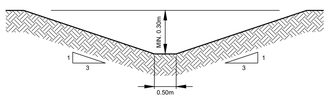
MUD MAT/CONSTRUCTION ENTRANCE

60. STONE PAD TO BE MINIMUM 450mm THICK, 30m LONG AND 6.0m WIDE.
61. THE FIRST 15m FROM THE ENTRANCE SHALL BE CONSTRUCTED OF 50mm CLEAR STONE.
62. THE REMAINING 15m SHALL BE CONSTRUCTED WITH 150mm RIP RAP.
63. PAD UNDERLAIN WITH A GEOTEXTILE (OR GRADED AGGREGATE FILTER).
64. CLEAR/REPLACE/MAINTAIN AS REQUIRED DURING CONSTRUCTION.



MUD MAT - CONSTRUCTION ACCESS

NTS



NOTES:

1. TEMPORARY SWALES WITH GRADES UP TO 3.0% TO BE LINED WITH NORTH AMERICAN GREEN S150 TEMPORARY TURF REINFORCEMENT MAT.
2. TEMPORARY SWALE WITH GRADES GREATER THAN 3.0% TO BE LINED WITH NORTH AMERICAN GREEN C125 TEMPORARY TURF REINFORCEMENT MAT

INTERCEPTOR SWALE - 3:1 SIDE SLOPES

N.T.S.

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
C. CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
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TEL: 705-994-4818

BLACKMOOR GATES

EROSION AND SEDIMENT CONTROL DETAILS

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/12/09	C17
Project No. 2019-020		Rev No. 1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

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GENERAL – CONSTRUCTION

A) ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH TOWN OF COLLINGWOOD STANDARDS, O.P.S.D. AND O.P.S.S. WHERE CONFLICT OCCURS, TOWN OF COLLINGWOOD STANDARD TO GOVERN.

B) TRENCH BACKFILL (OPSD 802.XXX AS APPLICABLE) TO BE SELECT NATIVE MATERIAL OR IMPORTED SELECT SUBGRADE TO OPSS 1010. BACKFILL TO BE PLACED IN MAXIMUM 200 mm THICK LIFTS AND COMPACTED TO 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).

C) PIPE BEDDING TO BE GRANULAR 'A' PIPE COVER TO BE GRANULAR 'B' MAX. AGGREGATE SIZE 25mm FOR RIGID PIPE AND GRANULAR 'A' FOR FLEXIBLE PIPE. (MINIMUM BEDDING DEPTH 150 mm, MINIMUM COVER 300mm, COMPACTED TO A MINIMUM 95% SPMDD).

D) CLEAR STONE WRAPPED IN FILTER FABRIC CAN BE SUBSTITUTED FOR BEDDING MATERIAL IF APPROVED BY THE ENGINEER.

E) ALL MAINTENANCE HOLES ARE 1200 mm DIAMETER UNLESS OTHERWISE SPECIFIED.

F) ALL TOPSOIL AND EARTH EXCAVATION TO BE STOCK PILED OR REMOVED TO AN APPROVED SITE AS DIRECTED BY ENGINEER.

G) THE OWNER'S ENGINEER SHALL PROVIDE BENCH MARK ELEVATIONS AND HORIZONTAL ALIGNMENT REFERENCE FOR THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED LAYOUT OF THE WORK.

H) ALL PROPERTY BARS TO BE PRESERVED AND REPLACED BY O.L.S. AT CONTRACTOR'S EXPENSE IF REMOVED DURING CONSTRUCTION.

I) ALL MAINTENANCE HOLE AND CATCHBASIN FRAMES AND COVERS TO BE SET TO BASE COURSE HL8 ASPHALT ELEVATION AND RAISED PRIOR TO PLACEMENT OF FINAL COURSE HL3 ASPHALT TO THE SATISFACTION OF THE TOWN.

J) THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR THE SUPPLY OF TEMPORARY WATER AND POWER.

K) DEWATERING TO BE CARRIED OUT IN ACCORDANCE WITH OPSS–517 AND 518 TO MAINTAIN ALL TRENCHES IN A DRY CONDITION. CONTRACTOR RESPONSIBLE FOR OBTAINING M.O.E. PERMIT IF REQUIRED.

L) ALL ENGINE DRIVEN PUMPS TO BE ADEQUATELY SILENCED, SUITABLE FOR OPERATION IN A RESIDENTIAL DISTRICT.

M) DISTURBED AREAS TO BE REINSTATED TO PREVIOUS CONDITION OR BETTER.

N) THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION OF ALL EXISTING FACILITIES AS WELL AS ALL UTILITY COMPANIES PRIOR TO COMMENCING WORK AND CO–ORDINATE CONSTRUCTION ACCORDINGLY.

NO.	REVISION	APR'D	DATE		
1.	REVISED BASE ASPHALT TYPE	EDH	JUL/04	TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: N/A
				GENERAL – CONSTRUCTION NOTES	STD. No. 122

STORM SEWERS

A) M.H.'S CBMH AND DICBMH TO OPSD – 701.XXX (AS APPROPRIATE) C/W SUMP UNLESS NOTED OTHERWISE.

B) STEPS TO OPSD 405.010.

C) M.H. FRAMES AND GRATES TO OPSD–401.01 OPEN COVER.

D) C.B.'S TO OPSD – 705.010, 705.020

E) DICB'S TO OPSD – 705.030, 705.040, 706.010, 706.020, 706.030, 706.040

F) C.B. AND CBMH FRAMES AND GRATES TO OPSD – 400.020 AND REAR LOT 400.120..

G) PIPE SUPPORT AT M.H.'S, CB'S AND CBMH'S TO OPSD – 708.020.

H) C.B. LEADS – 250mm DIA SINGLE AND 300mm DIA DOUBLE TO OPSD – 708.010, 708.030.

I) PROTECTION DURING CONSTRUCTION TO OPSD – 808.010.

J) BEDDING AND COVER TO OPSD – 802.010. (FLEXIBLE PIPE) GRANULAR 'A' EMBEDMENT MATERIAL OR OTHER APPROVED HOMOGENEOUS GRANULAR MATERIAL OR OPSD – 802.030, 802.031 AND 802.032 (RIGID PIPE) GRANULAR 'A' BEDDING AND GRANULAR 'B' (MAXIMUM AGGREGATE SIZE 25mm) COVER.

K) TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.

L) BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S SPMDD.

M) WHERE RESIDENTIAL STORM SEWER CONNECTIONS ARE REQUIRED, THE STORM SEWER SHALL BE OVERSIZED.

N) SERVICE CONNECTION TO TOWN STD. 530 100mm, GRANULAR 'A' EMBEDMENT, TERMINATE AT PROPERTY LINE 1.0m RIGHT OF SANITARY SERVICE (FACING LOT) c/w A CAP/PLUG AND A 38mm x 89mm MARKER STAKE PAINTED WHITE.

NO.	REVISION	APR'D	DATE		
1.	ADDED RESIDENTIAL STORM CONNECTION	EDH	JUL/04	TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: N/A
				NOTES – STORM SEWERS	STD. No. 123

SANITARY SEWERS

A) M.H.'S TO OPSD–701.XXX AS APPROPRIATE.

B) BENCHING TO OPSD – 701.021. NOTE: MINIMUM HOLE SIZE I WALL IF PRE–CAST RISER SECTION SHALL CONFORM WITH MANUFACTURER'S SPECIFICATIONS.

C) STEPS TO OPSD – 405.010.

D) FROST STRAPS SHALL BE INSTALLED ON ALL MAINTENANCE HOLE AS PER OPSD – 701.100

E) BEDDING AND COVER TO OPSD – 802.010 (FLEXIBLE PIPE), GRANULAR 'A' EMBEDMENT MATERIAL OR OTHER APPROVED HOMOGENEOUS GRANULAR MATERIAL.

F) TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.

G) FRAMES AND COVERS TO OPSD – 401.01 TYPE 'A' (CLOSED COVER).

H) SERVICE CONNECTIONS TO OPSD–1006.020 (125 mm), GRANULAR 'A' EMBEDMENT, TERMINATE AT THE PROPERTY LINE 2.5m RIGHT OF WATER SERVICE (FACING LOT) WITH A 125 X 100 REDUCER C/W PLUG AND 38mm x 89mm MARKER POST PAINTED GREEN. MINIMUM GRADE TO BE 2.0%

I) RADIUS BENDS TO BE USED ON SANITARY SEWER CONNECTIONS WHERE THE ANGLE OF CONNECTION BETWEEN THE SERVICE AND SEWER EXCEEDS 90°.

J) BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).

K) CLEAR STONE WRAPPED WITH FILTER FABRIC CAN BE SUBSTITUTED FOR EMBEDMENT MATERIAL IF APPROVED BY THE ENGINEER.

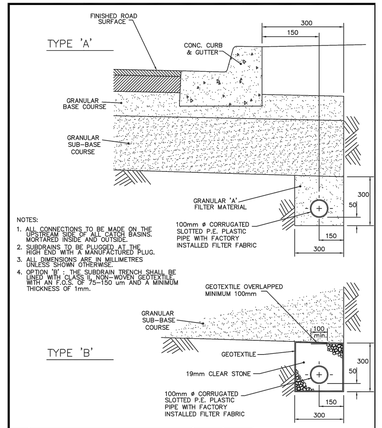
L) MAINTENANCE HOLE FRAMES TO BE SET TO BASE COURSE ASPHALT ELEVATION AND RAISED PRIOR TO PLACING SURFACE COURSE ASPHALT TO THE SATISFACTION OF THE TOWN.

M) PIPE SUPPORT AT MAINTENANCE HOLES AS PER OPSD 708.020.

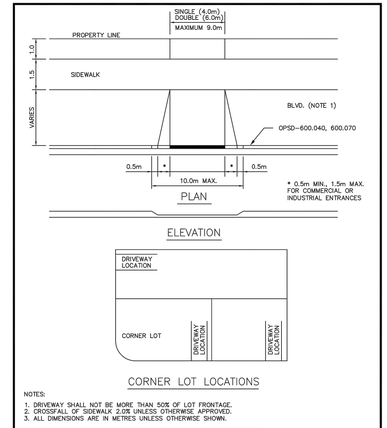
N) ALL MAINTENANCE HOLES, UNLESS EXPRESSLY IDENTIFIED ARE 1200 mm DIAMETER.

O) GENERAL INSTALLATION AND TESTING OF SEWERS AND APPURTENANCES TO BE IN ACCORDANCE WITH O.P.S.S. 407, 408, 409 (CCTV), 410, 421 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.

NO.	REVISION	APR'D	DATE		
1.	REVISED SERVICE LOCATION	EDH	JUL/04	TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
2.	REMOVED TEST FITTING	EDH	APR/07		DRAWN: / SCALE: N/A
				NOTES – SANITARY SEWERS	STD. No. 124



NO.	REVISION	APR'D	DATE		
				TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: NTS
				100mmø SUBDRAIN DETAIL	STD. No. 210



NO.	REVISION	APR'D	DATE		
				TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: NTS
				DRIVEWAY ENTRANCE DETAIL	STD. No. 405

WATER MAINS

A) BEDDING AND COVER TO OPSD–802.010, GRANULAR 'A' EMBEDMENT MATERIAL OR OTHER APPROVED HOMOGENEOUS GRANULAR MATERIAL.

B) TRENCH BACKFILL TO BE SELECT NATIVE MATERIAL AS APPROVED BY ENGINEER OR IMPORTED GRANULAR MATERIAL.

C) THRUST BLOCKS TO OPSD–1103.010 AND 1103.020 WHERE SUITABLE SOILS ARE ENCOUNTERED.

D) SERVICE CONNECTIONS TO OPSD–1104.010, 100 mm GRANULAR 'A' EMBEDMENT AND COVER OVER PIPE. TERMINATE AT PROPERTY LINE AT CENTER OF LOT C/W CURB STOP AND BOX, TESTING TAIL TO SURFACE ATTACHED TO A 38mm x 89mm MARKER POST PAINTED BLUE.

E) HYDRANTS TO OPSD–1105.010. DRAIN PLUGS SHALL BE INSTALLED WHERE HIGH WATER TABLE IS ENCOUNTERED.

F) BACKFILL AND EMBEDMENT MATERIAL TO BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD).

G) MINIMUM COVER ON WATER MAIN AND SERVICES TO BE 1.7 m.

H) GATE VALVES, BENDS AND HYDRANT LEADS AND FITTINGS TO BE CONNECTED WITH ROMAX GRIP RING RESTRAINING CLAMP.

I) CLEARANCE BETWEEN WATER MAINS AND SEWERS TO BE A MINIMUM OF 0.5m VERTICAL WHERE WATER MAIN IS BELOW SEWER OR 2.5 m MINIMUM HORIZONTAL SEPARATION. WHERE WATER MAIN IS ABOVE SEWER, THE MINIMUM SEPARATION TO BE 150 mm (BEDDING MATERIAL).

J) SERVICE TO OPSD – 1104.010 AND SHALL BE DIRECT TAP.

K) FOLLOWING TESTING, CONTRACTOR SHALL OPERATE EACH WATER SERVICE TO VERIFY FULL FLOW AND PRESSURE AT THE CURB STOP TO THE SATISFACTION OF THE ENGINEER.

P) GENERAL INSTALLATION AND TESTING OF WATER MAIN AND APPURTENANCES TO BE IN ACCORDANCE WITH O.P.S.S. 701 AND ALL SPECIFICATIONS REFERENCED WITHIN THESE SECTIONS.

Q) ALL WATERMAIN TESTING AND CHLORINATION WILL BE CONDUCTED BY CPU AT THE DEVELOPER'S COST. IT SHOULD BE NOTED THAT NEW WATERMAINS ARE NOT TO BE CONNECTED TO EXISTING WATERMAINS UNTIL BACTERIOLOGICAL TESTING HAS BEEN SUCCESSFULLY COMPLETED.

NO.	REVISION	APR'D	DATE		
1.	REVISED SERVICE LOCATION	EDH	JUL/04	TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
2.	REVISED WATERMAIN TESTING	EDH	APR/07		DRAWN: / SCALE: N/A
				NOTES – WATER MAINS	STD. No. 125

ROADS

A) SUBGRADE AND BOULEVARD MATERIAL TO BE COMPACTED TO A MINIMUM DRY DENSITY OF AT LEAST 95% SPMDD. SUBGRADE TO BE PROOF ROLLED AND CERTIFIED PRIOR TO PLACING GRANULAR 'B'.

B) GRANULAR 'A' AND 'B' BASE TO BE COMPACTED TO 100% OF THE MATERIAL'S RESPECTIVE SPMDD.

C) ROADWAYS TO BE CONSTRUCTED WITH MIN. 300MM GRANULAR 'B' TYPE 1, 150 MM GRANULAR 'A', AND 50 MM HL8 BASE 40 MM HL3 SURFACE COURSE ASPHALT. ALL SUBDRAINS TO BE CONSTRUCTED IN ACCORDANCE WITH OPSS 405.

D) SELECT SUBGRADE MATERIAL, OR IMPORTED GRANULAR MATERIAL APPROVED BY THE ENGINEER, COMPACTED TO 98% S.P.M.D.D. TO BE USED AS FILL IN ALL AREAS WHERE PROPOSED PIPE INVERTS ARE HIGHER THAN EXISTING GRADE OR AS INSTRUCTED BY THE ENGINEER.

E) ALL GRANULARS AND ASPHALT MATERIALS AND PLACEMENT TO BE IN ACCORDANCE WITH OPSS 314 AND OPSS 310

F) JOINTS WITH EXISTING ASPHALT TO BE SAW CUT STRAIGHT PRIOR TO PLACING NEW ASPHALT AND TACK COAT APPLIED TO EXISTING ASPHALT.

G) STOP SIGNS AND STREET SIGNS TO TOWN STANDARDS.

H) REINSTATEMENT OF ALL DISTURBED BOULEVARDS TO INCLUDE REGRADING, 100mm TOPSOIL AND SOD TO OPSS 570 AND 571.

I) CONCRETE CURB AND GUTTER TO OPSD 600.040 OR OPSD 600.070 AND OPSS 353

J) CONCRETE SIDEWALK TO OPSD 310.010, 310.030 AND OPSS 351. SUBBASE TO CONSIST OF MINIMUM 150 mm OF GRANULAR 'A'.

K) 100 mm DIAMETER PIPE SUBDRAINS SHALL BE PROVIDED AS PER STANDARD 210 ON BOTH SIDES OF THE ROAD.

L) SUBDRAIN TO BE INSTALLED 200 mm BELOW CURB IN GRANULAR 'A' TRENCH AND CONNECTED TO EACH CB OR CBMH.

M) SUBDRAINS TO BE PERFORATED OTHER THAN THE 2 m SECTION IMMEDIATELY UPSTREAM OF ALL STRUCTURES WHICH SHALL BE NON–PERFORATED.

NO.	REVISION	APR'D	DATE		
				TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: N/A
				NOTES – ROADS	STD. No. 126

MATERIALS

A) SANITARY SEWER – SDR 35 PVC (INCREASE SPECIFICATION WHERE INSTALLATION DICTATES)

B) SANITARY SERVICES – SDR 28 PVC. – 125 mm COLOUR GREEN (USING TEE CONNECTIONS TO MAINS UNLESS SHOWN OTHERWISE).

C) WATER MAIN – DUCTILE IRON CLASS 52, OR PRESSURE CLASS 350 CEMENT LINED. CONDUCTIVITY CONNECTORS TO BE USED ON ALL JOINTS.

D) WATER MAIN SERVICES – 20mm DIAMETER TYPE "K" SOFT COPPER PIPE.

E) MAIN STOPS TO 201–A3H3, 3/4",BALL STYLE, AWWA THREAD BY COMPRESSION CAMBRIDGE BRASS.

F) CURB STOPS TO 203–H3H3, 3/4", BALL STYLE WITH DRAIN, COMPRESSION JOINT BY CAMBRIDGE BRASS.

G) SERVICE BOXES TO NUMBER 7, D–1 CLOW OR MUELLER, 24" BLACK RODS STRAIGHT.

H) HYDRANTS – CENTURY NUMBER 1, OPEN LEFT (s/l), 2 HOSE CSA, 33B PUMBER PORT, 6" MJ BASE, DRAINING. YELLOW BASE WITH SILVER BONNET AND PORTS

I) HYDRANT ACCESSORIES – MARKER'S FLEX STAKE MODEL FHV 804, REFLECTIVE HYDRANT DECAL, YELLOW, 48" LENGTH; ANTI TAMPER DEVICE FOR CENTURY HYDRANTS, BLUE.

J) VALVES – RESILIENT SEATED, RSGV, MECHANICAL JOINT, OPEN LEFT CLOW OR MUELLER WITH 5 SL–48 SLIDING VALVE BOX.

K) MECHANICAL JOINT DUCTILE FITTINGS – AWWA/ANSI C153/A21.53

L) RESTRAINER–ROLMAC GRIPPER RING UP TO 300mm, SIGMA ONE LOCK RESTRAINING GLANDS OVER 300mm.

M) LIVE TAP SADDLES – EPOXY CAOTED C/W STAINLESS STEEL BOLTS.

N) FILTER FABRIC – TERRAFIX 270R OR APPROVED EQUAL.

O) PERFORATED SUBDRAINS – 100mm BIG 'O' WITH GEOTEXTILE FILTER SOCK OR APPROVED EQUAL.

P) STORM SEWER – PVC SDR35, CONCRETE CLASS III OR HDPE OPEN PROFILE BELL & SPIGOT (BOSS 2000 AND MIN. PIPE STIFFNESS=320Kpa OR EQUAL).

Q) STORM SEWER CONNECTION PVC SDR28 – 100mm COLOUR WHITE

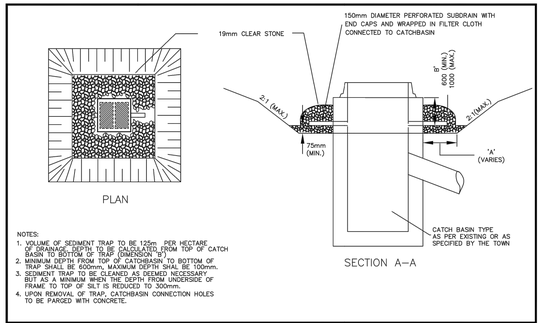
R) CULVERTS – SMOOTH WALL HDPE (MIN. PIPE STIFFNESS = 320Kpa) OR CORRUGATED METAL PIPE (MIN. THICKNESS = 2.0 mm)

S) RIP–RAP TO OPSD 1004.05.09

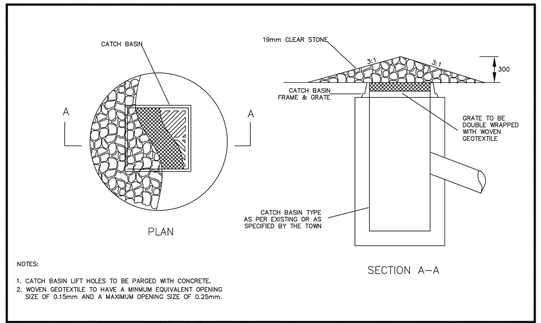
T) ALL SPECIFIED AGGREGATES TO OPSD 1010.

U) HYDRANTS ARE TO BE 1.85m LONG. EXTENSIONS IF REQUIRED ARE TO BE INSTALLED BELOW THE 1.85m SECTION.

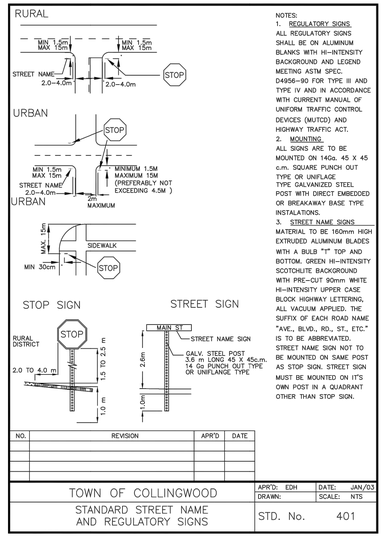
NO.	REVISION	APR'D	DATE		
1.	ADDED STORM SEWER CONNECTION	EDH	JUL/04	TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
2.	ADDED HYDRANT LENGTH	EDH	APR/07		DRAWN: / SCALE: N/A
				NOTES – MATERIALS	STD. No. 127



NO.	REVISION	APR'D	DATE		
				TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: NTS
				CATCH BASIN SEDIMENT TRAP	STD. No. 310



NO.	REVISION	APR'D	DATE		
				TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: NTS
				CATCH BASIN SEDIMENT BARRIER	STD. No. 311



NO.	REVISION	APR'D	DATE		
				TOWN OF COLLINGWOOD	APR'D: EDH / DATE: JAN/03
					DRAWN: / SCALE: NTS
				STANDARD STREET NAME AND REGULATORY SIGNS	STD. No. 401

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to CAPES Engineering Ltd. prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

STANDARD DETAILS

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C18
Project No.		Rev No.	
2019-020		1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

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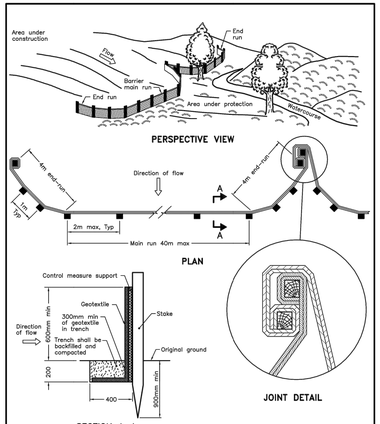
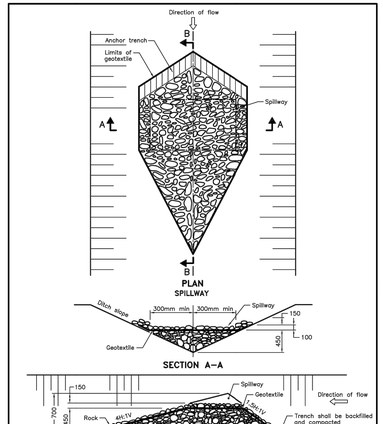


NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
HEAVY-DUTY SILT FENCE BARRIER		**OPSD 219.130**



NOTE:
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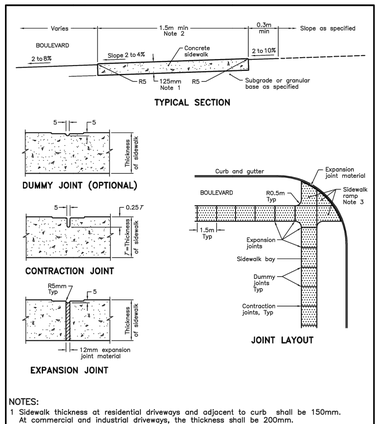
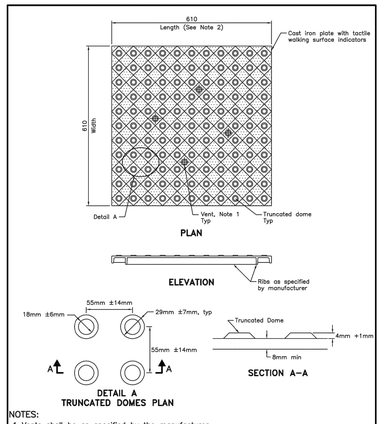
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
TEMPORARY ROCK FLOW CHECK DAM V-DITCH		**OPSD 219.210**



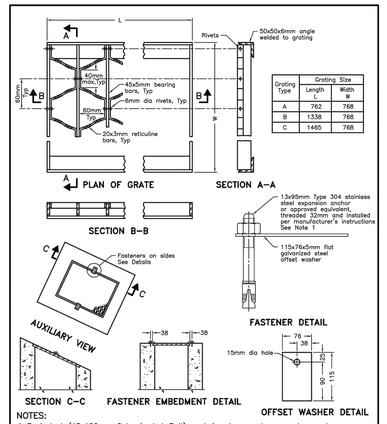
NOTES:
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.032, 310.033 and 310.039.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
CONCRETE SIDEWALK		**OPSD 310.010**



NOTES:
1 Vents shall be as specified by the manufacturer.
2 Length of plate may be increased to suit the curb depression width.
A Adjacent cast iron plates shall be permanently connected using a locking mechanism and any hardware shall be hot dipped galvanized.
B All dimensions are in millimetres unless otherwise shown.

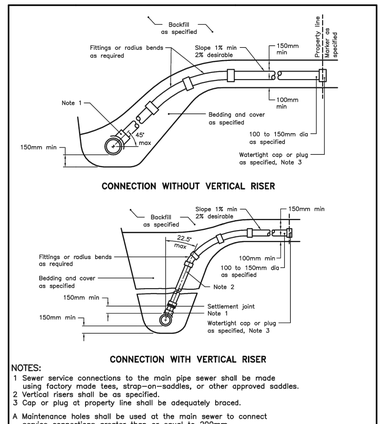
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 0
CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT		**OPSD 310.039**



Grating Type	Grating Size	
	Length L	Width W
A	762	768
B	1336	768
C	1465	768

NOTES:
1 Equivalent (13x100mm Galvanized J-Bolt) cast-in-place anchor may be used.
A Fastener shall be inserted to maintain minimum concrete cover requirements.
B All steel components and rivets shall be galvanized.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2017	Rev 3
GALVANIZED STEEL HONEYCOMB GRATING FOR DITCH INLETS		**OPSD 403.010**



NOTES:
1 Sewer service connections to the main pipe sewer shall be made using factory made tees, strap-on-saddles, or other approved saddles.
2 Vertical risers shall be as specified.
3 Cap or plug at property line shall be adequately braced.
A Maintenance holes shall be used at the main sewer to connect service connections greater than or equal to 200mm.
B For new construction, saddles shall be installed on the main pipe before that pipe is laid.
C Approved cut-in tool shall be used for field made connections.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2016	Rev 3
SEWER SERVICE CONNECTIONS FOR MAIN PIPE SEWER		**OPSD 1006.010**

NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		**OPSD 701.010**

NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.040, 701.041, 703.011, 703.021, and 706.010.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.021.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1500mm DIAMETER		**OPSD 701.011**

NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
3 Minimum clearance between beam recess and hole for pipe shall be 300mm or minimum clearance can be 150mm with addition of two 15M size rebar on 45 degree diagonal.
A Centre reinforcing in base slab and walls ±20mm.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE CATCH BASIN 600x600mm		**OPSD 705.010**

NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
3 For slipforming procedure a 5% batter is acceptable.
4 For composite pavement the depth of concrete curb shall be adjusted to depth of concrete pavement.
5 When tie bars are specified, refer to OPSD 552.010 and 552.020 for details.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ALTERNATE STANDARD HEIGHTS	
ALTERNATIVE	DIMENSION
A	1980
B	1830
C	1680

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE TWIN INLET CATCH BASIN 600 x 1450mm		**OPSD 705.020**

NOTES:
A Where inlet is placed across ditch and is accessible to vehicular traffic, grating slope shall be 6H:1V or flatter.
B Grating shall be according to OPSD 403.010.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
PRECAST CONCRETE DITCH INLET 600 x 600mm		**OPSD 705.030**

SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 199 kPa

PIPE DIA	Dimensions a	b	c	d
100	150	250	300	200
150	250	400	250	300
200	400	550	300	450
250	500	650	400	500
300	650	800	450	650
350	700	900	550	700
400	800	1050	600	850

SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 299 kPa

PIPE DIA	Dimensions a	b	c	d
100	150	200	150	150
150	250	250	200	200
200	400	350	250	300
250	500	450	300	350
300	650	500	350	400
350	700	600	400	500
400	800	750	400	600

SOILS WITH TYPICAL BEARING STRENGTH OF 300 kPa AND OVER

PIPE DIA	Dimensions a	b	c	d
100	150	150	150	150
150	250	200	200	200
200	400	300	200	250
250	500	400	250	300
300	650	450	300	350
350	700	550	350	350
400	800	650	350	450

NOTES:
A Concrete shall be placed to within 50mm of the face of the bell.
B Bond breaker shall be used between concrete and fittings.
C The above thrust block dimensions meet or exceed the MECP Watermain Design Criteria for Future Alterations Authorized Under a Drinking Water Works Permit.
D The assumptions made for the above calculations are:
– Maximum operating pressure of 690 kPa,
– Maximum surge pressure with a flow velocity change of 0.6 m/s of 790 kPa for Class 52 DI pipe and 240 kPa for PVC pipe.
E The tables apply to both ductile iron and PVC pipe. When one length exceeded the other, the longer length was used.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
CONCRETE THRUST BLOCKS FOR TEES, PLUGS, AND HORIZONTAL BENDS		**OPSD 1103.010**

LEGEND:
D – Inside diameter

NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

CLEARANCE TABLE	
For Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		**OPSD 802.010**

NOTES:
A All reinforcing steel shall have 25mm minimum cover.
B All dimensions are nominal.
C All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 2
PRECAST CONCRETE SINGLE INLET FLAT CAP 1800mm DIAMETER		**OPSD 703.012**

LEGEND:
S – Rate of pavement superelevation in percent, %.

NOTES:
1 Flexible and composite pavement shall be placed 5mm above the adjacent edge of gutter.
2 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
3 For slipforming procedure a 5% batter is acceptable.
4 For composite pavement the depth of concrete curb shall be adjusted to depth of concrete pavement.
5 When tie bars are specified, refer to OPSD 552.010 and 552.020 for details.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB WITH STANDARD GUTTER		**OPSD 600.040**

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
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100050104
MARCH 5, 2020
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TEL: 705-994-4818

BLACKMOOR GATES
STANDARD DETAILS

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C19
Project No. 2019-020		Rev No. 1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

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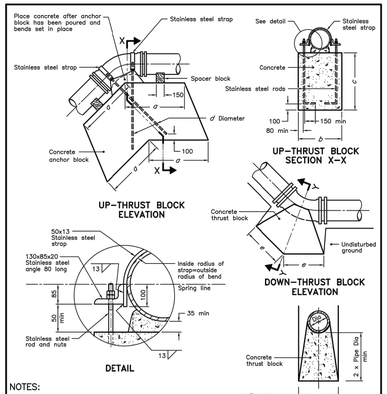
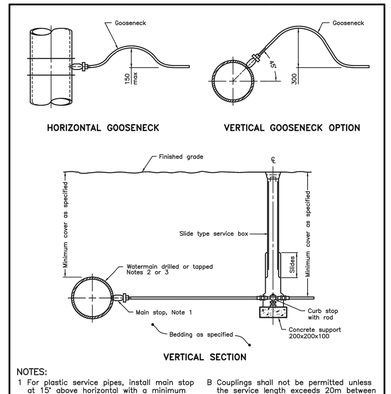


NOTES:

A Concrete shall be placed to within 50mm of the face of the bell.
B Bond breaker shall be used between concrete and fittings.
C This blocking is for bends up to 45° for up-thrust and 90° for down-thrust.
D This OPSD shall be read in conjunction with OPSD 1103.021.
E All stainless steel to be type 316.
F Stainless steel rods and nuts to be designed based on actual watermain diameter and surge pressure.
G All dimensions are in millimetres unless otherwise shown.

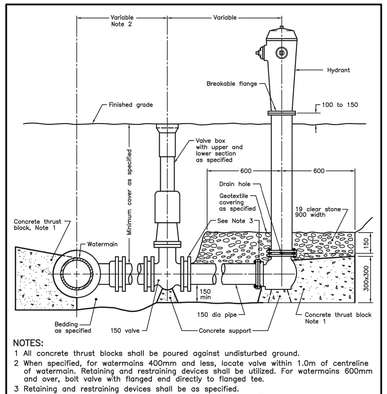
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev. 4
CONCRETE THRUST BLOCKS FOR VERTICAL BENDS		OPSD 1103.020



NOTES:

1 For plastic service pipes, install main stop at 15° above horizontal with a minimum 1.2m long gooseneck.
2 Direct tap ductile iron pipe with approved tool with standard AWWA inlet thread.
3 Service connections to plastic watermains shall be made using service saddles or factory made tees.
A When specified, the vertical gooseneck option shall be used.
B Couplings shall not be permitted unless the service length exceeds 20m between the main stop and curb stop.
C All water services shall be installed 90° to the longitudinal axis of the watermain.
D Backfill material within 500mm of service box shall be native or imported, as specified.
E All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev. 4
WATER SERVICE CONNECTION 19 and 25mm DIAMETER SIZES		OPSD 1104.010



NOTES:

1 All concrete thrust blocks shall be poured against undisturbed ground.
2 When specified, for watermains 400mm and less, locate valve within 1.0m of centreline of watermain. Retaining and restraining devices shall be utilized. For watermains 600mm and over, bolt valve with flanged end directly to flanged tee.
3 Retaining and restraining devices shall be as specified.
A Bond breaker shall be used between the concrete and the fittings and appurtenances.
B Bolts and nuts for buried flange to flange connections shall be stainless steel.
C When required, flange of standpipe extensions shall not be in frost zone.
D This OPSD shall be read in conjunction with OPSD 1103.010 and 1103.020.
E Backfill material within 500mm of service box shall be native or imported, as specified.
F Tracer wire shall be installed as specified.
G All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev. 3
HYDRANT INSTALLATION		OPSD 1105.010

ECORASTER®

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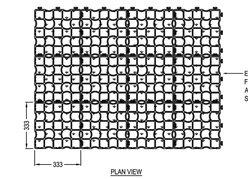

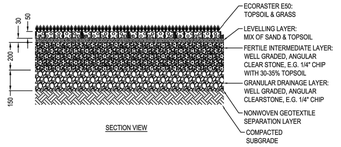

NOTES:
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4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 5146-006

ECORASTER E50 HEAVY DUTY

ECORASTER E50: PERMEABLE PAVING SYSTEM FIRE ACCESS, GRASSED

5146-006 REVISION DATE 06/02/2019

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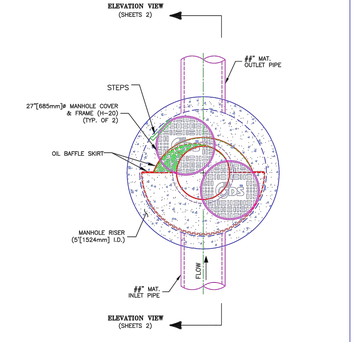
CDS

PLAN VIEW



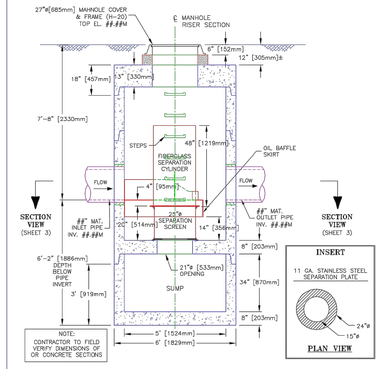
CDS MODEL PMSU20_15m, 0.7 CFS TREATMENT CAPACITY STORM WATER TREATMENT UNIT

CONTECH STORMWATER SOLUTIONS	PROJECT NAME CITY, STATE	JOB# XX-##-###	SCALE 1" = 2'
		DATE ##/##/##	SHEET 1
		DRAWN INITIALS	
		APPROV.	

Echelon Environmental 505 Hood Road, Unit 26, Markham, Ontario L3R 5V6 Tel: (905) 948-0000 Fax: (905) 948-0577
CONTECH Stormwater Solutions Inc. 200 Enterprise Drive, Scarborough, Maine 04074 Tel: (877) 907-8676 Fax: (207) 885-9825

CDS

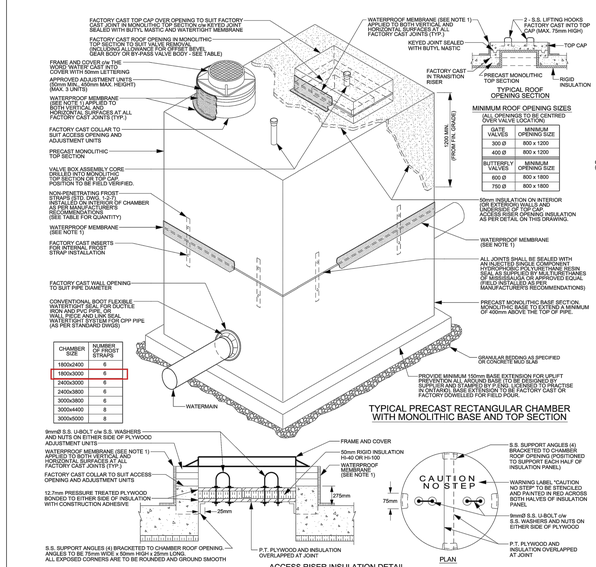
ELEVATION VIEW



CDS MODEL PMSU20_15m, 0.7 CFS TREATMENT CAPACITY STORM WATER TREATMENT UNIT

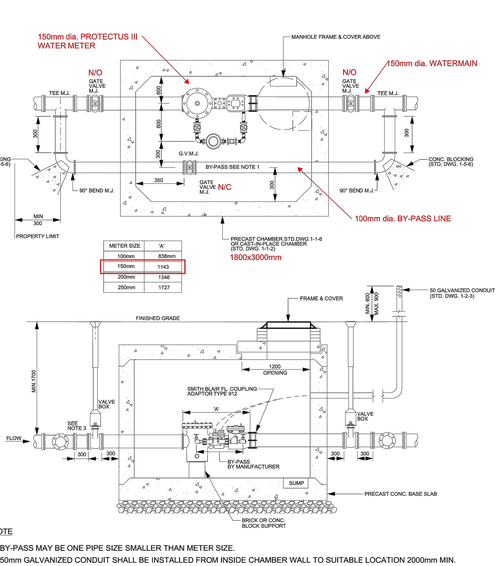
CONTECH STORMWATER SOLUTIONS	PROJECT NAME CITY, STATE	JOB# XX-##-###	SCALE 1" = 2.5'
		DATE ##/##/##	SHEET 2
		DRAWN INITIALS	
		APPROV.	

Echelon Environmental 505 Hood Road, Unit 26, Markham, Ontario L3R 5V6 Tel: (905) 948-0000 Fax: (905) 948-0577
CONTECH Stormwater Solutions Inc. 200 Enterprise Drive, Scarborough, Maine 04074 Tel: (877) 907-8676 Fax: (207) 885-9825



NOTE

1. WATERPROOF MEMBRANE TO BE "MEL-ROL" BY W.R. MEADOWS OF MILTON ONTARIO OR APPROVED EQUAL. EXTEND COMPLETELY AROUND ALL RISER SECTION JOINTS WITH A MINIMUM 300mm WIDE STRIP.
2. ALL INSULATION TO BE RIGID TYPE EXTRUDED POLYSTRENE FOAM DOW HI-40 OR HI-100 OR APPROVED EQUAL. ALL CHAMBER INSULATION TO BE INSTALLED WITH CONSTRUCTION ADHESIVE AND TAPCON ANCHORS AT MAX. 600mm SPACING IN ALL DIRECTIONS (MIN. 2 ANCHORS PER SHEET OF INSULATION).



NOTE

1. BY-PASS MAY BE ONE PIPE SIZE SMALLER THAN METER SIZE.
2. 50mm GALVANIZED CONDUIT SHALL BE INSTALLED FROM INSIDE CHAMBER WALL TO SUITABLE LOCATION 2000mm MIN. OUTSIDE TRAFFIC AREA, AS PER REGION STD.DWG. 1-2-3.
3. IF METER CHAMBER IS LOCATED NEAR STREET LINE, VALVE TO BE AT STREET LINE.
4. PROTECTUS METER SHALL BE USED FOR PRIVATE HYDRANTS ON A BULK METER SYSTEM.
5. ALL INTERNAL AND EXTERNAL VALVES, FITTINGS, THROUGH WALL METAL PIPING AND MECHANICAL RESTRAINTS TO BE c/w DENSO PASTE, DENSO MASTIC AND DENSO TAPE OR APPROVED EQUAL, APPLIED TO MANUFACTURER'S RECOMMENDATIONS.

BULK WATER METERING CHAMBER DETAILS

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENCED PROFESSIONAL ENGINEER C/CAPES 100050104 MARCH 5, 2020 PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

STANDARD DETAILS

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/09/19	C20
Project No. 2019-020		Rev No. 1	
Scale 1:500	0 5.0 10.0 20.0 30.0m		

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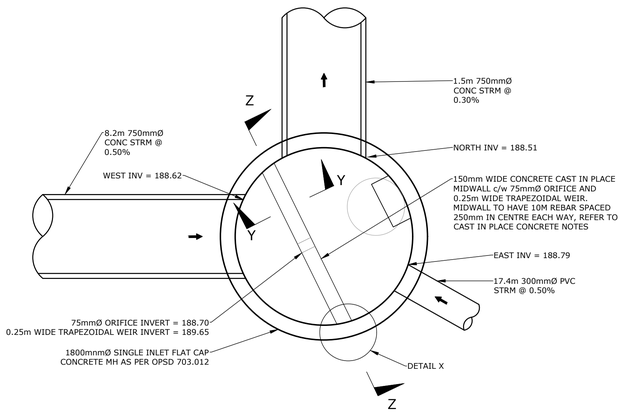
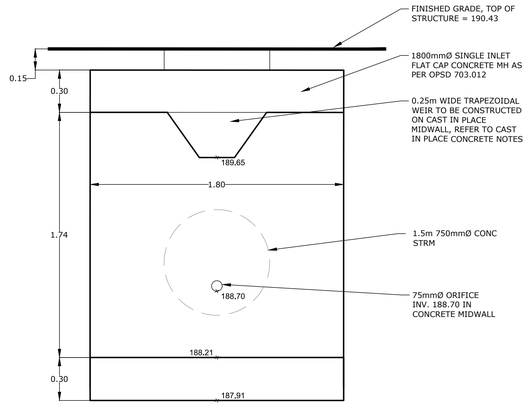


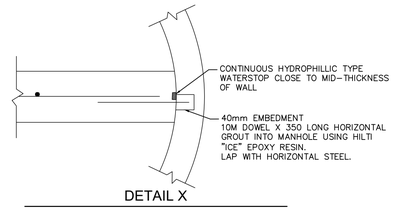
OUTLET STRUCTURE 1 - PLAN VIEW

N.T.S.



OUTLET STRUCTURE 1 - PROFILE VIEW

N.T.S.



DETAIL X

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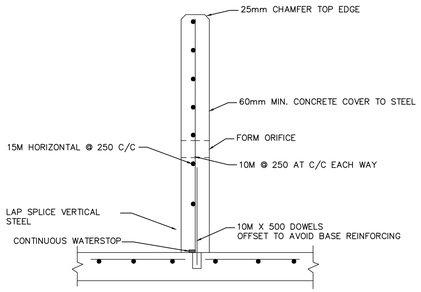

SECTION Y

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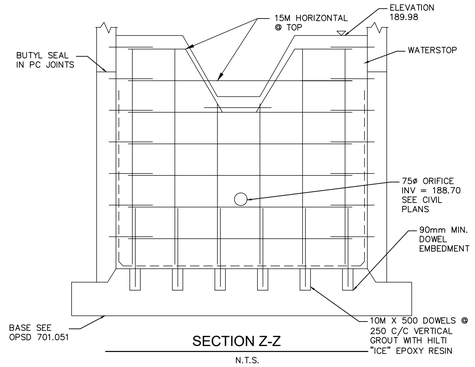

SECTION Z-Z

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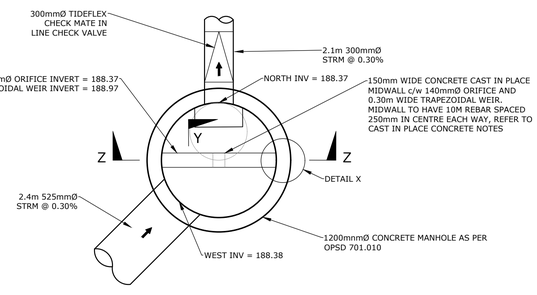

OUTLET STRUCTURE 2 - PLAN VIEW

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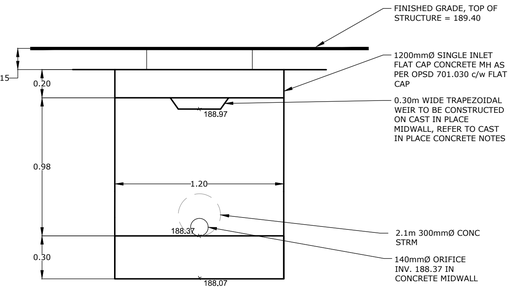

OUTLET STRUCTURE 2 - PROFILE VIEW

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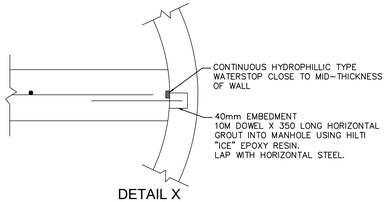

DETAIL X

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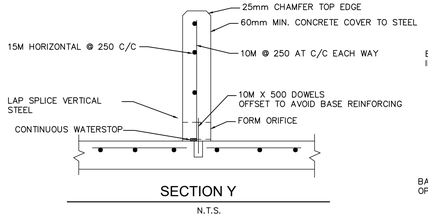

SECTION Y

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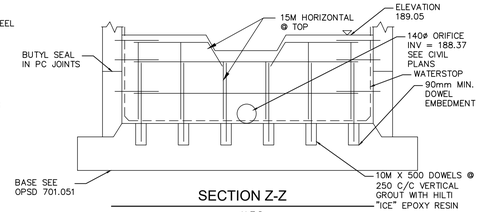

SECTION Z-Z

N.T.S.

CAST IN PLACE CONCRETE NOTES:

GENERAL

1. CONFORM TO CSA – A23 SERIES OF STANDARDS, AND THE RSIC MANUAL OF STANDARD PRACTICE (LATEST EDITION) FOR DESIGN, MATERIALS, CONSTRUCTION, CURING, TESTING, TOLERANCES, AND FINISHING CONCRETE.
2. INSTALL OR SUPPLY AND INSTALL, ANCHORAGE, FASTENINGS AND BLOCKING AS REQUIRED, FOR WORK OF OTHER SECTIONS.

PRODUCTS

1. MATERIALS:
   - 1.1. CEMENT GENERAL TYPE GU PORTLAND CEMENT TO CSA A3001.
   - 1.2. WATER, FINE AGGREGATES, COARSE AGGREGATES: TO CSA–A23.1. MAXIMUM COARSE AGGREGATE TO BE 20mm DIAMETER.
   - 1.3. AIR–ENTRAINING ADMIXTURE: TO ASTM C260.
   - 1.4. CHEMICAL ADMIXTURES: TO ASTM C494 OR ASTM C1017.
   - 1.5. CURING–SEALING COMPOUND: WHEN WATER CURING IS NOT PRACTICAL AS APPROVED BY THE ENGINEER, USE A CLEAR LIQUID PRODUCT TO ASTM C–309, TYPE 1. USE SEALTIGHT VOCOMP20 BY W.R. MEADOWS OF CANADA LIMITED.
   - 1.6. HYDROPHILLIC TYPE WATERSTOP: HYDROTITE CJK – BY MME MULTIURETHANES (1 800 663 6633).
   - 1.7. REINFORCING STEEL: NEW, DEFORMED, BILLET–STEEL BARS TO CSA STANDARDS G30.18, GRADE 400R.
2. SUPPLY CONCRETE AS PER CSA A23.1–09. **PERFORMANCE BASED SPECIFICATION** CLEARLY COORDINATING MIX DESIGNATIONS WITH STRUCTURAL AND ARCHITECTURAL CRITERIA FOUND WITHIN THE CONTRACT DOCUMENTS. FOR ALL CONCRETE MIXES CLEARLY IDENTIFY AND CONFIRM THE UNDERSTANDING OF THE CONCRETE REQUIREMENTS IN WRITING PRIOR TO PRODUCTION FOR ALL MIXES. SUCH A SUBMISSION SHALL INCLUDE, AS A MINIMUM; THE LOCATION OF EACH MIX DESIGN TO BE USED IN THE STRUCTURE, THE CEMENT TYPE, ALL SUPPLEMENTARY MATERIALS, CLASS OF EXPOSURE, COMPRESSIVE STRENGTHS, AGGREGATE SIZE, AND CONCRETE DENSITY. USE READY–MIXED CONCRETE TO GIVE MINIMUM 28–DAY COMPRESSIVE STRENGTH OF 35 MPa @ 28 DAYS, WITH EXPOSURE CLASS C1. COORDINATE WITH THE GENERAL CONTRACTOR WITH RESPECT TO WORKABILITY ISSUES, AND CONFIRM THE CRITERIA IN THE SUBMISSION (SLUMP, PUMP MIX, DESIGN CONCRETE TEMPERATURE, ETC.).

EXECUTION

1. USE VIBRATORS FOR CONSOLIDATION OF CONCRETE.
2. PROVIDE STEEL CHAIRS OR CONCRETE SPACERS TO MAINTAIN SPECIFIED 60mm COVER TO REINFORCING STEEL.
3. CONCRETE SHALL BE FREE FROM HONEYCOMBING, VOIDS, LOSS OF FINES, VISIBLE FLOW LINES AND COLD JOINTS, CHIPS AND SPALLS. PATCH DEFECTS AND TIE HOLES.
4. LAP ALL REINFORCING WITH CLASS 'B' SPLICES U/N. ALL STEEL MUST BE ADEQUATELY TIED AND ACCURATELY PLACED PRIOR TO THE COMMENCEMENT OF ANY CONCRETE POUR.
5. PROTECT FRESH CONCRETE FROM PREMATURE DRYING, SUNSHINE, EXCESSIVELY HOT OR COLD TEMPERATURES AND MECHANICAL INJURY. MAINTAIN AT A RELATIVELY CONSTANT TEMPERATURE FOR AS LONG AS REQUIRED FOR HYDRATION OF THE CEMENT AND CURING OF THE CONCRETE. REFER TO CSA A23.1 FOR HOT AND COLD WEATHER CONCRETING PRACTICES.
6. PROTECT FRESH CONCRETE FROM COLD TEMPERATURES BELOW 5 DEGREES CELSIUS. PROVIDE TEMPORARY HEAT FOR A MINIMUM OF 3 DAYS TO MAINTAIN A TEMPERATURE OF GREATER THAN 15 DEGREES CELSIUS.

ACCEPTED FOR
CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

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No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER
C/CAPES
100056104
MARCH 5, 2020
PROVINCE OF ONTARIO

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

STANDARD DETAILS

Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/12/09	C21
Project No.		Rev No.	
2019-020		1	
Scale	0 5.0 10.0 20.0 30.0m		
1:500			

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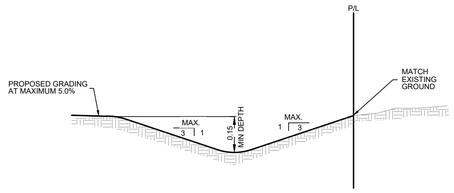

TYPICAL SIDE YARD SWALE
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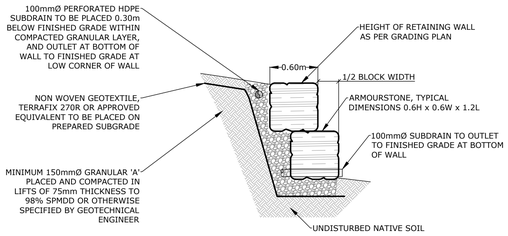
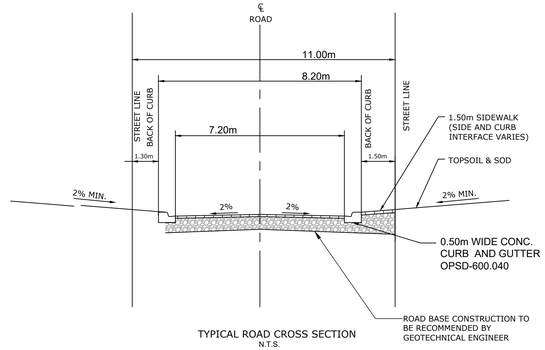


ARMOURSTONE WALL DETAIL
NTS



TYPICAL ROAD CROSS SECTION
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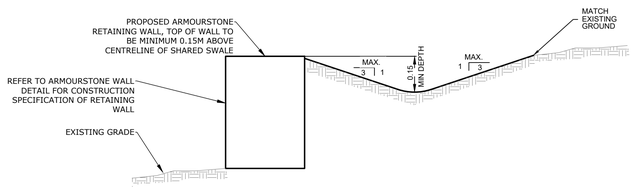

SWALE ADJACENT RETAINING WALL
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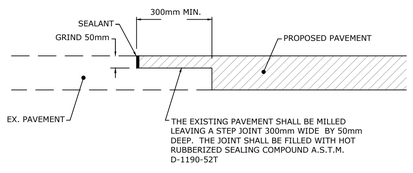


PAVEMENT LAP JOINT
NOT TO SCALE

GEOTECHNICAL NOTES, WSP APRIL 4, 2018

1. IF FILL GREATER THAN ONE (1) METER IN THICKNESS IS TO BE PLACED AT THE SITE, WSP SHOULD BE CONTACTED TO REVIEW THE FILL AREAS.
2. REMOVAL OF ALL TOPSOIL AND FILL WILL BE REQUIRED TO FACILITATE THE PROPOSED DEVELOPMENT ON THE SITE. IT IS RECOMMENDED THAT A TOPSOIL TEST PIT PROGRAM BE COMPLETED AT THE SITE BY WSP PRIOR TO CONSTRUCTION TO REFINE THE TOPSOIL THICKNESS. REGARDING THE REUSE OF THE SITE TOPSOIL, THE TOPSOIL MAY BE REUSED IN LANDSCAPING APPLICATIONS OR OTHER NON-STRUCTURAL FILL APPLICATIONS. WSP SHOULD BE CONTACTED TO REVIEW ALL PROPOSED TOPSOIL REUSE ON SITE.
3. SUBSEQUENT TO THE COMPLETION OF THE REQUIRED STRIPPING AND REMOVAL OF UNSUITABLE MATERIALS (TOPSOIL), THE SUB-GRADE SHOULD BE PROOF-ROLLED AND INSPECTED BY EXPERIENCED WSP GEOTECHNICAL ENGINEERING PERSONNEL. THE PROOF-ROLLING AND COMPACTION OF THE EXPOSED SUB-GRADE IS RECOMMENDED TO BE CONDUCTED USING A VIBRATORY COMPACTOR WITH A MINIMUM STATIC WEIGHT OF 10 TONNES. THE PROOF-ROLLING PROGRAM SHOULD CONSIST OF A MINIMUM OF SIX (6) PASSES PER UNIT AREA AND BE TESTED TO ASSURE THAT THE SUB-GRADE IS COMPACTED TO A MINIMUM OF 98% OF THE EXPOSED MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD). ANY LOOSE/SOFT OR WET AREAS IDENTIFIED AT THE TIME OF PROOF-ROLLING THAT CANNOT BE UNIFORMLY COMPACTED ARE RECOMMENDED TO BE SUB-EXCAVATED AND BACKFILLED WITH APPROVED ENGINEERED FILL CONSISTENT WITH THE RECOMMENDATIONS
4. WHERE ENGINEERED FILL IS REQUIRED TO DEVELOP THE DESIGN GRADES AND ELEVATIONS OR FOR USE IN BACKFILLING EXCAVATIONS CREATED THROUGH THE REMOVAL OF UNSUITABLE MATERIALS OR SOILS AS DESCRIBED ABOVE, THE EXCAVATED ON-SITE MATERIALS MAY BE RE-USED, SUBJECT THAT THESE ARE FREE OF ORGANIC AND OTHER UNSUITABLE MATERIALS AND HAVE ADEQUATE MOISTURE CONTENT. BOULDERS OR COBBLES GREATER THAN 200 MM IN SIZE SHOULD BE REMOVED FROM THE FILL.
5. ALTERNATIVELY, ONTARIO PROVINCIAL STANDARD SPECIFICATION (OPSS) GRANULAR B – TYPE I, OPSS SELECT SUBGRADE MATERIAL (SSM) OR APPROVED EQUAL MAY BE USED.
6. ALL FILL MATERIALS IMPORTED TO THE SITE MUST MEET ALL APPLICABLE MUNICIPAL, PROVINCIAL AND FEDERAL GUIDELINES AND REQUIREMENTS ASSOCIATED WITH ENVIRONMENTAL CHARACTERIZATION OF THE MATERIALS.
7. ENGINEERED FILL IS TO BE PLACED IN MAXIMUM 200 MM THICK LOOSE LIFTS UNDER FULL TIME SUPERVISION OF QUALIFIED GEOTECHNICAL PERSONNEL. EACH LIFT IS TO BE UNIFORMLY COMPACTED TO ACHIEVE A MINIMUM OF 100% OF THE MATERIAL'S SPMDD.
8. BASED ON THE SOIL CONDITIONS ENCOUNTERED IN THE BOREHOLES AND PROVIDED THAT THE SITE IS PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS PRESENTED IN THIS REPORT, FOOTINGS THAT ARE FOUNDED AT A MINIMUM DEPTH OF 1.5 MBGS ON THE COMPACT OR STIFF ORIGINAL SOIL OR ENGINEERED FILL SOILS MAY BE DESIGNED BASED ON A PRELIMINARY FACTORED ULTIMATE GEOTECHNICAL RESISTANCE AT ULTIMATE LIMIT STATES (ULS) OF 150 KPA. A PRELIMINARY SERVICEABILITY GEOTECHNICAL RESISTANCE AT SERVICEABILITY LIMIT STATES (SLS) OF 100 KPA MAY BE USED IN THE DESIGN OF THE FOUNDATIONS. WE NOTE THAT SOME SUBEXCAVATION MAY BE REQUIRED IN SOME AREAS DUE TO LOOSE SOIL CONDITIONS (I.E. BOREHOLE BH18-05).
9. ALL FOOTINGS EXPOSED TO SEASONAL FREEZING CONDITIONS SHOULD BE PROVIDED WITH AT LEAST 1.5 M OF EARTH COVER OR EQUIVALENT THERMAL INSULATION AGAINST FROST. IT IS RECOMMENDED TO KEEP FOOTINGS AS HIGH AS POSSIBLE TO AVOID OR MINIMIZE PENETRATION BELOW GROUNDWATER LEVELS WHILE CONSIDERING THE MINIMUM FROST COVER REQUIREMENT.
10. VARIATIONS IN THE SOIL CONDITIONS ARE EXPECTED IN BETWEEN THE BOREHOLE LOCATIONS, AND DURING CONSTRUCTION, THE GEOTECHNICAL RESISTANCES SHOULD BE CONFIRMED BY EXPERIENCED WSP SITE PERSONNEL.
11. WHERE IT IS NECESSARY TO PLACE FOOTINGS AT DIFFERENT LEVELS, THE UPPER FOOTING MUST BE FOUNDED BELOW AN IMAGINARY 10 HORIZONTAL TO 7 VERTICAL LINE DRAWN UP FROM THE BASE OF THE LOWER FOOTING. THE LOWER FOOTING MUST BE INSTALLED FIRST TO HELP MINIMIZE THE RISK OF UNDERMINING THE UPPER FOUNDATIONS.
12. THE SOILS AT THE BASE OF FOOTINGS CAN BE EASILY DISTURBED BY CONSTRUCTION MACHINERY AND FOOT TRAFFIC OR LOSE THEIR STRENGTH IN CONTACT WITH SURFACE WATER. CONSIDERATION COULD BE GIVEN TO PLACING A 50 MM THICK SKIM COAT OF LOW-STRENGTH CONCRETE ON THE FOUNDING SUBGRADE IMMEDIATELY AFTER ITS APPROVAL, TO PREVENT ITS DISTURBANCE BY CONSTRUCTION ACTIVITIES AND FROM GROUND OR SURFACE WATER, WHERE NECESSARY.
13. DURING WINTER CONSTRUCTION, FOUNDATIONS AND SLAB ON GRADES MUST NOT BE POURED ON FROZEN SOIL. FOUNDATIONS MUST BE ADEQUATELY PROTECTED AT ALL TIMES FROM COLD WEATHER AND FREEZING CONDITIONS.
14. IN THE VICINITY OF THE EXISTING BURIED UTILITIES, ALL FOOTINGS MUST BE LOWERED TO UNDISTURBED NATIVE SOILS, OR ALTERNATIVELY THE SERVICES MUST BE STRUCTURALLY BRIDGED
15. THE BASEMENT FLOOR SLABS CAN BE PLACED ON UNDISTURBED NATIVE SOILS OR ON ENGINEERED FILL. FOR BEDDING AND MOISTURE BARRIER PURPOSES, A 200 MM THICK LAYER OF 19 MM CLEAR CRUSHED STONE MUST BE PROVIDED UNDER THE CONCRETE BASEMENT FLOOR SLAB. WHERE WET AND/OR FINE GRAINED SOIL CONDITIONS EXIST, THE MOISTURE BARRIER SHOULD BE SEPARATED FROM THE SUBGRADE BY A GEOTEXTILE FABRIC TO AVOID LOSS OF SOIL/FINES AND SETTLEMENT PROBLEMS.
16. BASED UPON THE SUBSURFACE CONDITIONS AT THE BOREHOLE LOCATIONS, EXCAVATIONS CAN BE CARRIED OUT WITH HEAVY HYDRAULIC BACK-HOES.IT IS RECOMMENDED THAT PROVISION BE CARRIED IN THE CONTRACT FOR THE EXCAVATION AND DISPOSAL OF OBSTRUCTIONS ON SITE, INCLUDING COBBLES AND BOULDERS.
17. ALL TEMPORARY EXCAVATIONS MUST BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT (OHSA). IN ACCORDANCE WITH OHSA, THE SOILS (ASSUMING THEY ARE ABOVE THE GROUNDWATER TABLE OR PROPERLY DEWATERED) WOULD BE CLASSIFIED AS A TYPE 3 SOIL. IF SPACE LIMITATIONS EXIST DUE TO ADJACENT STRUCTURES OR FACILITIES, CONSIDERATION COULD BE GIVEN TO THE CONSTRUCTION OF A TEMPORARY SUPPORT SYSTEM TO PROVIDE PROTECTION TO THE STRUCTURES AND/OR FACILITIES. ALL EXCAVATED SPOIL SHOULD BE PLACED AT LEAST THE DEPTH OF THE TRENCH AWAY FROM THE EDGE OF THE TRENCH FOR SAFETY REASONS.
18. AS NOTED ABOVE, GROUNDWATER WAS ENCOUNTERED IN THE MAJORITY OF THE BOREHOLES AT THE SITE; GROUNDWATER WAS MEASURED AS HIGH AS 0.3 MBGS IN TWO (2) OF THE BOREHOLES. AS SUCH, DEPENDING ON SITE GRADING REQUIREMENTS AND EXCAVATION DEPTHS IT IS LIKELY THAT DEWATERING WILL BE REQUIRED AT THE SITE AND AN ENVIRONMENTAL ACTIVITY AND SECTOR REGISTRY (EASR) OR A PERMIT TO TAKE WATER (PTTW) WILL BE REQUIRED FOR THE EXCAVATIONS.
19. IN ANY AREAS REQUIRING DEWATERING, THE GROUNDWATER TABLE MUST BE LOWERED A MINIMUM OF ONE (1) METER BELOW THE LOWEST EXCAVATION LEVEL. IT IS RECOMMENDED THAT, PRIOR TO EXCAVATIONS FOR SITE SERVICING, TEST PITS BE CARRIED OUT IN AREAS WHERE GROUNDWATER ISSUES ARE EXPECTED TO FURTHER EXPLORE THE GROUNDWATER AND SEEPAGE CONDITIONS. A SPECIALIZED DEWATERING CONTRACTOR SHOULD BE RETAINED TO DESIGN AND INSTALL THE DEWATERING SYSTEM.
20. THE SOILS ABOVE THE GROUNDWATER LEVEL, OR PROPERLY DEWATERED IF ENCOUNTERED BELOW THE GROUNDWATER LEVEL, WILL PROVIDE ADEQUATE SUPPORT FOR THE SEWER PIPES AND ALLOW THE USE OF NORMAL CLASS B TYPE BEDDING. THE RECOMMENDED MINIMUM THICKNESS OF GRANULAR BEDDING BELOW THE INVERT OF THE PIPES IS 150 MM. THE THICKNESS OF THE BEDDING MAY, HOWEVER, HAVE TO BE INCREASED DEPENDING ON THE PIPE DIAMETER OR IN ACCORDANCE WITH LOCAL STANDARDS OR IF WET OR WEAK SUBGRADE CONDITIONS ARE ENCOUNTERED, ESPECIALLY WHEN THE SOIL AT THE TRENCH BASE LEVEL CONSISTS OF WET, DILATANT SILT. THE BEDDING MATERIAL SHOULD CONSIST OF WELL GRADED GRANULAR MATERIAL SUCH AS GRANULAR 'A' OR EQUIVALENT. AFTER INSTALLING THE PIPE ON THE BEDDING, A GRANULAR SURROUND OF APPROVED BEDDING MATERIAL, WHICH EXTENDS AT LEAST 300 MM ABOVE THE OBVERT OF THE PIPE, OR AS SET OUT BY THE LOCAL AUTHORITY OR MUNICIPALITY, SHOULD BE PLACED. IT IS RECOMMENDED THAT WSP BE ON SITE DURING EXCAVATIONS TO ASSESS THE SUITABILITY OF THE SUBGRADE MATERIALS TO SUPPORT THE PIPES.
21. IF LOCALIZED WET TRENCH CONDITIONS ARE ENCOUNTERED, A UNIFORMLY GRADED CLEAR STONE MAY BE USED PROVIDED A SUITABLE, APPROVED FILTER FABRIC (GEOTEXTILE) IS PLACED IN CONJUNCTION WITH THE CLEAR STONE. THE GEOTEXTILE MUST EXTEND UNDERNEATH THE CLEAR STONE, ALONG THE SIDES OF THE TRENCH, AND WRAPPED ON TOP OF THE CLEAR STONE SUCH THAT THE CLEAR STONE IS FULLY WRAPPED BY THE GEOTEXTILE. A MINIMUM GEOTEXTILE OVERLAP OF 1 M IS REQUIRED; ALTERNATIVELY STITCHING OF THE GEOTEXTILE COULD BE CONSIDERED.
22. LOCALIZED, WET AND UNSTABLE SOILS ENCOUNTERED WITHIN GENERALLY STABLE SOIL ZONES CAN BE GENERALLY STABILIZED BY 'PUNCHING' A 50 MM WELL GRADED CRUSHER RUN LIMESTONE PAD INTO THE SOFT SUBGRADE PRIOR TO BEDDING PLACEMENT. THE THICKNESS OF THE 'PAD' WILL DEPEND ON FIELD CONDITIONS AND SHOULD BE EXAMINED BY WSP PERSONNEL DURING THE CONSTRUCTION OPERATIONS. ALTERNATIVELY, IF LONGER STRETCHES OF UNSTABLE SOILS ARE ENCOUNTERED, CLASS 'A' BEDDING COULD BE CONSIDERED. THE RIGID CONCRETE BEDDING (LEAN MIX CONCRETE) SHOULD BE LAID FROM MANHOLE TO MANHOLE TO MITIGATE THE POTENTIAL FOR DIFFERENTIAL SETTLEMENT.
23. WHERE THE SEWER PIPE IS PLACED IN WATER BEARING SOILS BELOW THE WATER TABLE, THE JOINTS CONNECTING THE SEWER SECTIONS SHOULD BE VERY WELL SEALED TO PREVENT PIPING OF FINES INTO THE SEWER PIPE AND MANHOLE CATCH BASIN RISERS.
24. THE EXCAVATED SOILS CAN BE USED AS CONSTRUCTION BACKFILL PROVIDED THEIR MOISTURE CONTENT AT THE TIME OF PLACEMENT IS WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT AND THAT THE SOILS DO NOT CONTAIN ORGANIC CONTENT OR OTHER DELETERIOUS MATERIALS. BOULDERS OR COBBLES GREATER THAN 200 MM IN SIZE SHOULD BE REMOVED FROM THE TRENCH BACKFILL. WSP SHOULD BE ON SITE DURING ALL TRENCH BACKFILLING OPERATIONS TO CONFIRM THE SUITABILITY OF THE MATERIAL BEING USED.
25. FOR THE GRANULAR SOILS, SMOOTH DRUM TYPE VIBRATORY ROLLERS ARE RECOMMENDED. COHESIVE SOILS, IF ENCOUNTERED, SHOULD BE COMPACTED WITH SHEEPSFOOT TYPE VIBRATORY COMPACTORS. THE TRENCH BACKFILL SHOULD BE PLACED IN MAXIMUM 0.3 M LIFT THICKNESS AND COMPACTED TO AT LEAST 98 PERCENT OF ITS SPMDD. TRENCH BACKFILLING OPERATIONS SHOULD BE AVOIDED DURING FREEZING WEATHER.
26. IT IS PREFERABLE THAT THE NATIVE SOILS BE RE-USED FROM APPROXIMATELY THE POSITION AT WHICH THEY ARE EXCAVATED SO THAT FROST RESPONSE CHARACTERISTICS OF THE SOILS AFTER CONSTRUCTION REMAIN ESSENTIALLY SIMILAR. IF REQUIRED, CONSIDERATION MAY ALSO BE GIVEN TO BACKFILLING TRENCHES WITH A WELL GRADED, COMPACTED GRANULAR SOIL SUCH AS GRANULAR 'B' MATERIAL.
27. IT SHOULD BE NOTED THAT THE EXCAVATED SOILS ARE SUBJECT TO MOISTURE CONTENT INCREASE DURING WET WEATHER WHICH WOULD MAKE THESE MATERIALS TOO WET FOR THE COMPACTION REQUIREMENTS NOTED ABOVE. STOCKPILES SHOULD THEREFORE BE COVERED WITH TARPAULINS TO HELP MINIMIZE MOISTURE INCREASES.
28. PRIOR TO THE PLACEMENT OF GRANULAR MATERIALS AS PART OF THE PAVEMENT STRUCTURE, THE SUBGRADE SHOULD BE PREPARED AND HEAVILY PROOF-ROLLED UNDER THE SUPERVISION OF WSP. ANY POORLY PERFORMING AREAS SHOULD BE SUB-EXCAVATED AND REPLACED WITH EITHER GRANULAR EARTH FILL APPROVED BY WSP OR IMPORTED GRANULAR B, TYPE I MATERIAL CONFORMING TO THE REQUIREMENTS OF OPSS.
29. BASED ON THE ABOVE AND ASSUMING THAT TRAFFIC USAGE WILL BE INDUSTRIAL, THE FOLLOWING MINIMUM PAVEMENT THICKNESS IS RECOMMENDED:
    40mm HL3 ASPHALTIC CONCRETE SURFACE COURSE 92-96.5 MRD
    50mm HL8 ASPHALTIC CONCRETE 92-96.5 MRD
    150mm OPSS GRANULAR 'A' BASE 100% SPMDD
    300mm OPSS GRANULAR 'B' BASE 100% SPMDD

ACCEPTED FOR CONSTRUCTION
TOWN OF COLLINGWOOD

PER .....

DATE: .....

Notes
1. This drawing is the exclusive property of CAPES Engineering Ltd. The reproduction of any part without express written consent of this Corporation is strictly prohibited.
2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to CAPES Engineering Ltd. prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No	Issue / Revision	Date	Auth
1	ISSUED FOR APPROVALS	20/03/05	CC

LICENSED PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO — C/CAPES 100056104 — MARCH 5, 2020

Client
BLACKMOOR GATES
75 WESTMORE DRIVE
ETOBICOKE, ON
M9V 3Y6

CAPES ENGINEERING
355310 BLUE MOUNTAINS - EUPHRASIA TOWNLINE
CLARKSBURG, ON N0H 1J0
TEL: 705-994-4818

BLACKMOOR GATES

STANDARD DETAILS

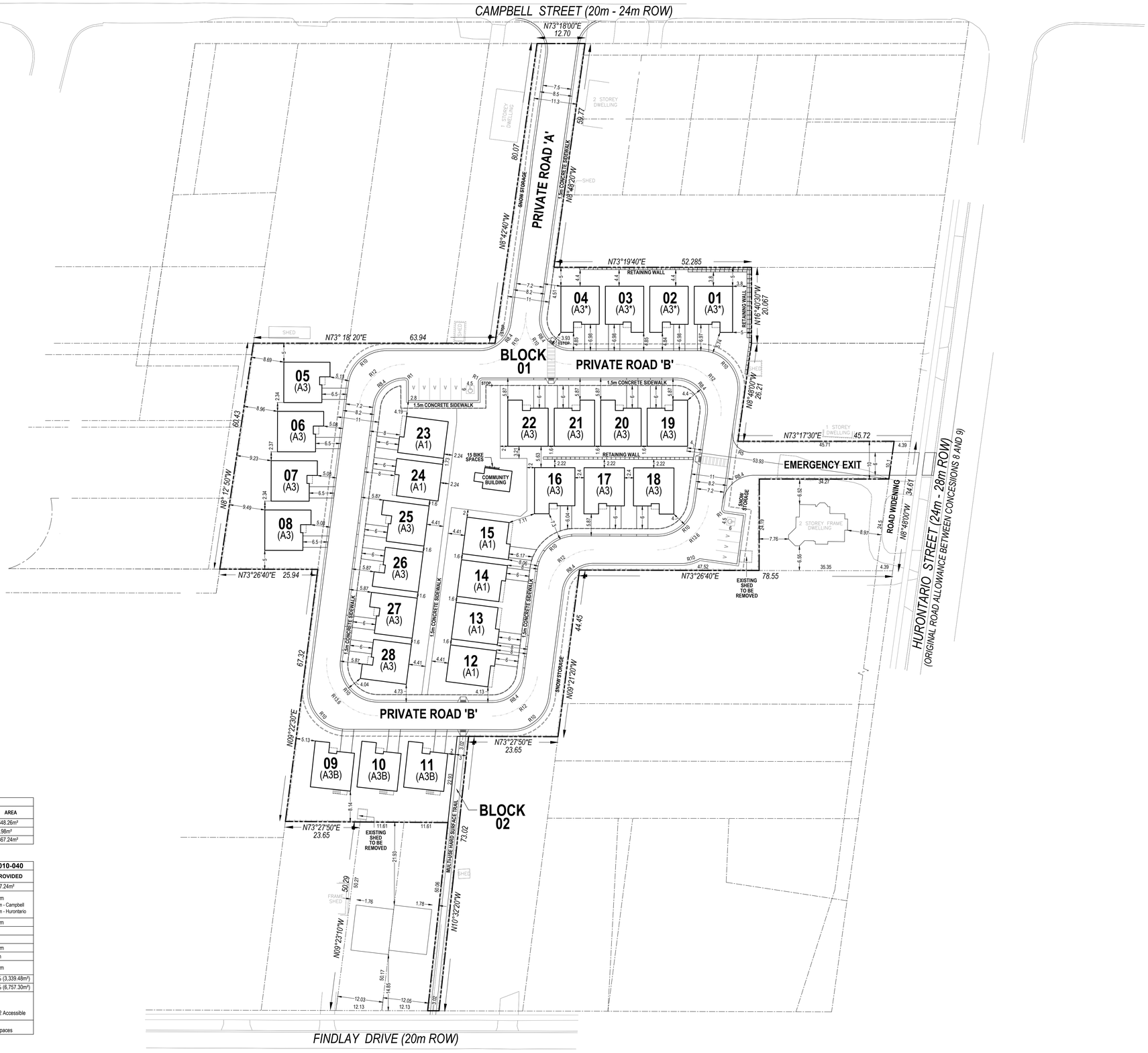
Designed	Checked	Date	Drawing No.
K. GRIFFIN	C. CAPES	19/12/09	C22
Project No. 2019-020		Rev No. 1	
Scale AS NOTED			

File: C:\Users\kevin\Desktop\Capes Engineering\Projects\2019\2019-020 Blackmoor\Drawings\03 Production\Dwg\2019-020 Standard Details.dwg Date Plotted: March 4, 2020 - 4:11 PM

Appendices

Appendix A – Draft Plan

CAPES Engineering Ltd.
355310 Blue Mountains-Euphrasia Townline
Clarksburg, ON
N0H 1J0



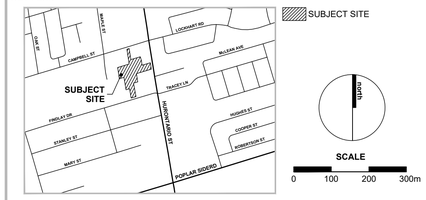
LAND USE SUMMARY			
LAND USE	BLOCK #	UNITS	AREA
Condominium	01	28 Units	14,648.26m²
Walkway	02		218.98m²
Totals		28 Units	14,867.24m²

TOWN OF COLLINGWOOD ZONING BY-LAW 2010-040		
ZONE PROVISION	REQUIRED	PROVIDED
Lot Area (min)	450m²	14,867.24m²
Lot Frontage (min)	120m	23.08m 12.69m - Campbell 10.39m - Hurontario
Front Yard (min)	4.5m	53.93m
Interior Side Yard (min)	1.2m	5.0m
Exterior Side Yard (min)	4.5m	N/A
Rear Yard (min)	7.5m	23.33m
Building Height (min)	6.0m	9.75m
Building Height (max)	12.0m	<12.0m
Lot Coverage (max)	40%	22.5% (3,339.48m²)
Landscaped Open Space (min)	35%	45.5% (6,757.30m²)
Parking Spaces Requirements (min) • 2 per unit • 0.25 per unit visitor	 • 56 • 7	 • 56 • 8 + 2 Accessible
Bicycle Parking (min) • 0.5 per unit	• 14 spaces	• 15 spaces

LEGAL DESCRIPTION

PART OF LOTS 5, O AND PART OF BLOCK P
REGISTERED PLAN 353,
PART OF BLOCK A
REGISTERED PLAN 334,
TOWN OF COLLINGWOOD
COUNTY OF SIMCOE

KEY PLAN



LEGEND

- Site Boundary
- Block Line
- Parcel Fabric
- Edge of Pavement / Edge of Curb
- Road Easement
- 1.5m Wood Fence (Development Standards - STD. No. 502)
- Accessible Parking Space
- V — Visitor Parking
- Retaining Wall
- Crosswalk
- Curb Ramp
- STOP — Stop Sign

NOTES

1. Snow to be removed from the site by private contractor.

REVISION No.	DATE	ISSUED/REVISION	BY

PLANNING
URBAN DESIGN
& LANDSCAPE
ARCHITECTURE
MHBC PLANNING
113 COLLIER STREET
BARRIE, ON, L4M 1H2
P: 705 728 0045 F: 705 728 2010
WWW.MHBCPLAN.COM

STAMP

DATE	Mar. 3, 2020
DRAWN BY	M.A.M.
PLAN SCALE	1:500 (ARCH D)
FILE No.	1948A
CHECKED BY	K.C.
OTHER	

PROJECT

BLACKMOOR GATES
STRAW HAT RESTORATION
75 Westmore Drive
Etobicoke, ON M9V 3Y6
Phone: 647-824-7474
www.strawhatrestoration.ca

FILE NAME SITE PLAN

DWG No. 1 of 1

SCALE BAR

0 5 10 15 20 25 37.5 50 75 100m

MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

N:\Collingwood\Straw Hat Restoration – Blackmoor Gates – 1948A\Drawings\Site Plan\CAD\1948A – Site Plan 3m Walkway – 2020-03-03.dwg

I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE LAND TITLES ACT.

DATE _____

_____
MICHAEL MACEK, O.L.S.

METRIC

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

PLAN 51R-

RECEIVED AND DEPOSITED

DATE _____

_____
REPRESENTATIVE FOR THE LAND REGISTRAR FOR THE LAND TITLES DIVISION OF SIMCOE (NO. 51)

SCHEDULE

PART	LOT	REGISTERED PLAN	P. I. NO.	AREA
1	PART OF BLOCK P	REGISTERED PLAN 353	ALL OF PIN 58261-0261	7920.5 m^2
2				1565.6 m^2
3	PART OF LOT 5		ALL OF PIN 58261-0262	1012.6 m^2
4	PART OF BLOCK A	REGISTERED PLAN 334	ALL OF PIN 58261-0103	5430.3 m^2
5	PART OF LOT O	REGISTERED PLAN 353	ALL OF PIN 58261-0259	1077.3 m^2

PLAN OF SURVEY OF

PART OF LOT 5, PART OF LOT O AND PART OF BLOCK P REGISTERED PLAN 353

AND

PART OF BLOCK A REGISTERED PLAN 334

IN THE

TOWN OF COLLINGWOOD

COUNTY OF SIMCOE

SCALE 1: 500

5 0 5 10 15 20 30 50 metres

WSP GEOMATICS ONTARIO LIMITED
ONTARIO LAND SURVEYORS
2017

NOTE

BEARINGS SHOWN HEREON ARE GRID BEARINGS AND ARE DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK OBSERVATIONS, UTM ZONE 17, NAD83(CSRS)(2010).

SPECIFIED CONTROL POINTS (SCPs) UTM ZONE 17 NAD83 (ORIGINAL), COORDINATES TO URBAN ACCURACY PER SEC. 14 (2) OF O.REG. 216/10		
POINT ID	NORTHING	EASTING
A	4926121.38	562489.41
B	4926070.04	562318.28
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.		

DISTANCES HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR 0.9996326

LEGEND

■	DENOTES	FOUND
□	DENOTES	PLANTED
SIB	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
IB	DENOTES	IRON BAR
PB	DENOTES	PLASTIC BAR
MMM	DENOTES	WSP GEOMATICS ONTARIO LIMITED (FORMERLY MMM GEOMATICS ONTARIO LIMITED)
OU	DENOTES	ORIGIN UNKNOWN
WIT	DENOTES	WITNESS
P1	DENOTES	PLAN 51R-39905
P2	DENOTES	PLAN 51R-36293
P3	DENOTES	PLAN 51R-33885
P4	DENOTES	PLAN 51R-23404
P5	DENOTES	PLAN 51R-26909
P6	DENOTES	PLAN 51R-1209
MTO	DENOTES	MINISTRY OF TRANSPORTATION
ZUMO	DENOTES	ZUBEK, EMO, PATTEN AND THOMSEN LIMITED, O.L.S.
JDB	DENOTES	J.D. BARNES LTD, O.L.S.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 18TH DAY OF OCTOBER, 2017.

DATE _____ MICHAEL MACEK, ONTARIO LAND SURVEYOR

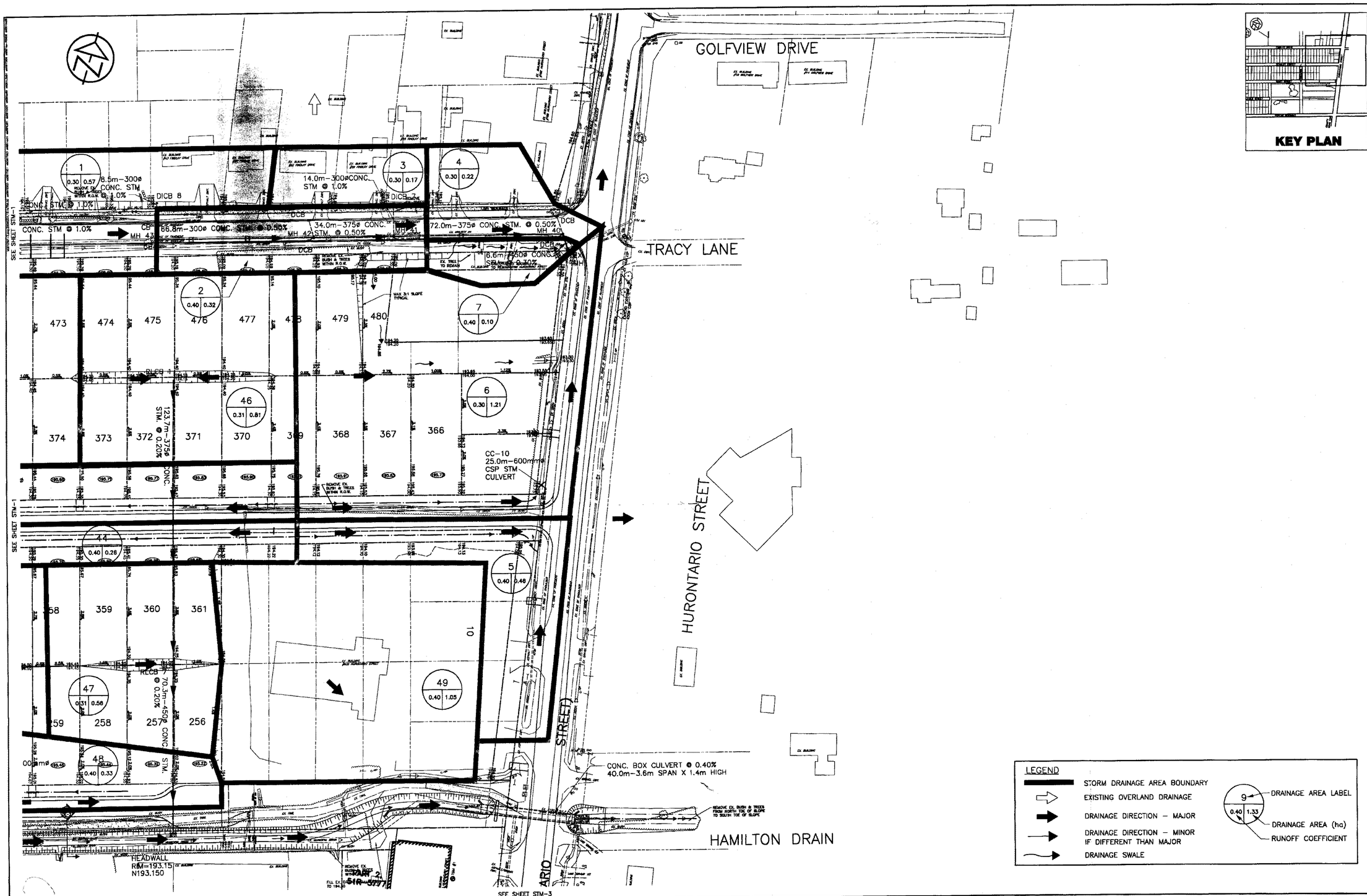
WSP Geomatics Ontario Limited — Ontario Land Surveyors
610 Chartwell Road, Suite 300, Oakville, Ontario Canada, L6J 4A5
t: 905-823-8500 f: 905-823-8503 Website : www.wspgroup.ca

Drawing Number : 17M-01364-100

P.Chief : L.L. / J.S.	Dwg. By : M.A.M.	Chk'd by : M.M.
Job Number : 17M-01364-00-GEO1		Tab Name: R-PLAN
Dwg File Name: P17-M1003-61_R03_ C3D2015.DWG		

K:\Jobs\17P\17M1003-61-SRT_Blackmoor Collingwood\05. Drawings\01. DWG\P17-M1003-61_R03_ c3d2015.dwg

Appendix B – Background Information



LEGEND

CONTRACT DRAWINGS

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NOTES:

1. SEE LG-DE FOR LOT GRADING DETAILS AND DRIVEWAY CULVERTS TABLE.

BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

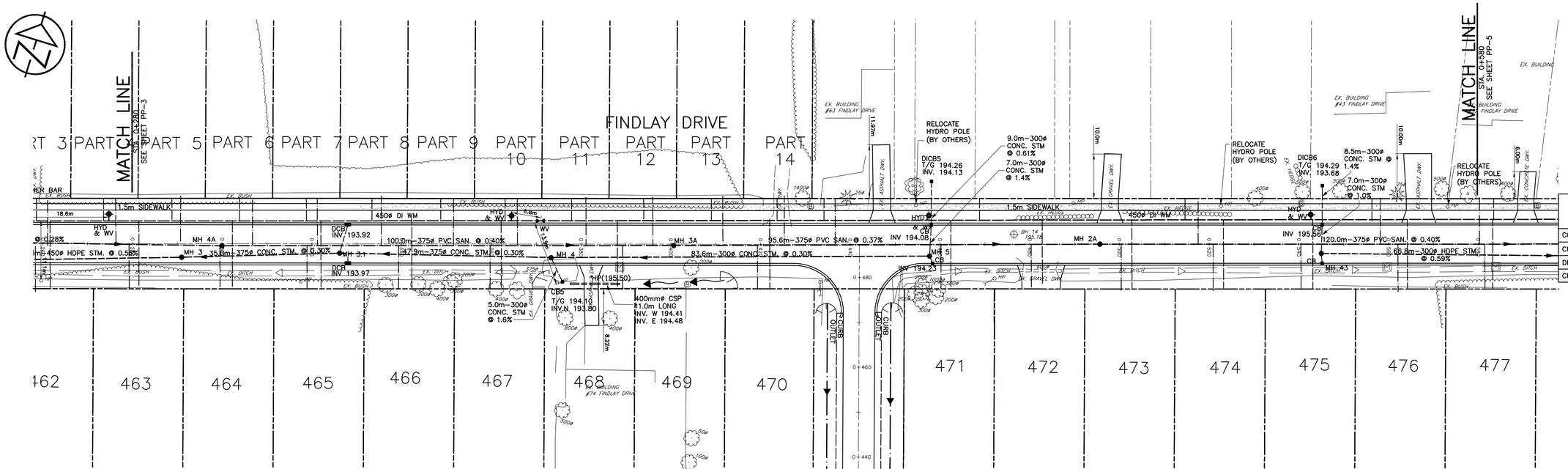
LICENSED PROFESSIONAL ENGINEER D. J. HURLEY PROVINCE OF ONTARIO

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

STORMWATER SERVICING PLAN

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: 1:750		JOB NO.	102081
DESIGN: RF	CHECKED: RS	DWG.	**STM-2**
DRAWN: MCA	DATE: MARCH 2006		



FOR RECORD DRAWINGS

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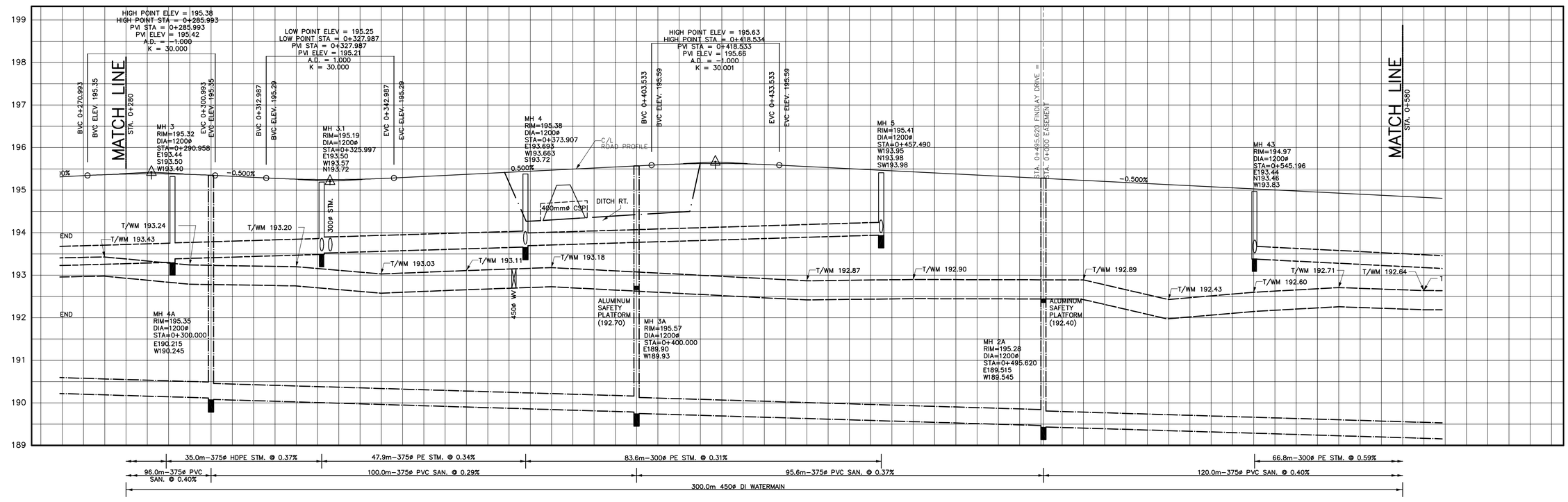
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+280	194.87	195.38
0+300	194.91	195.35
0+320	194.91	195.26
0+340	194.93	195.27
0+360	195.02	195.37
0+380	195.11	195.47
0+400	195.19	195.57
0+420	195.26	195.63
0+440	195.28	195.56
0+460	195.29	195.46
0+480	195.23	195.36
0+495.6	195.17	195.26
0+500	195.16	195.16
0+520	195.09	195.06
0+540	195.01	194.96
0+560	194.96	194.86
0+580	194.94	194.86

LEGEND

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

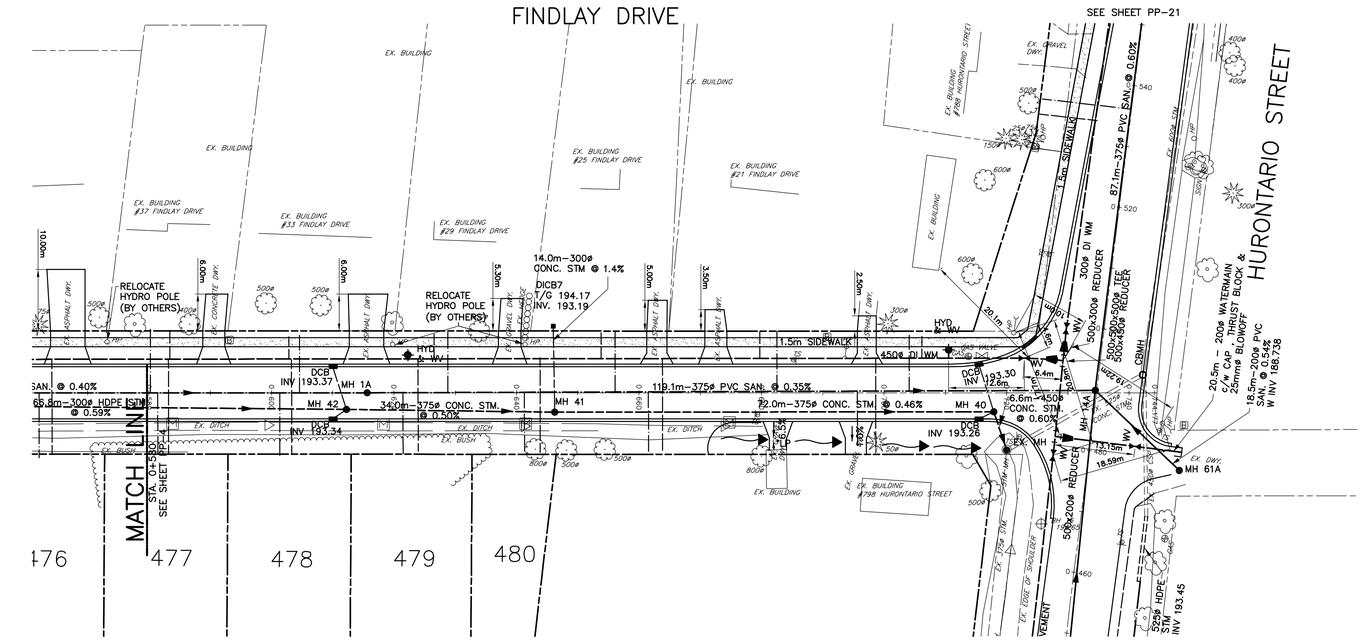
ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

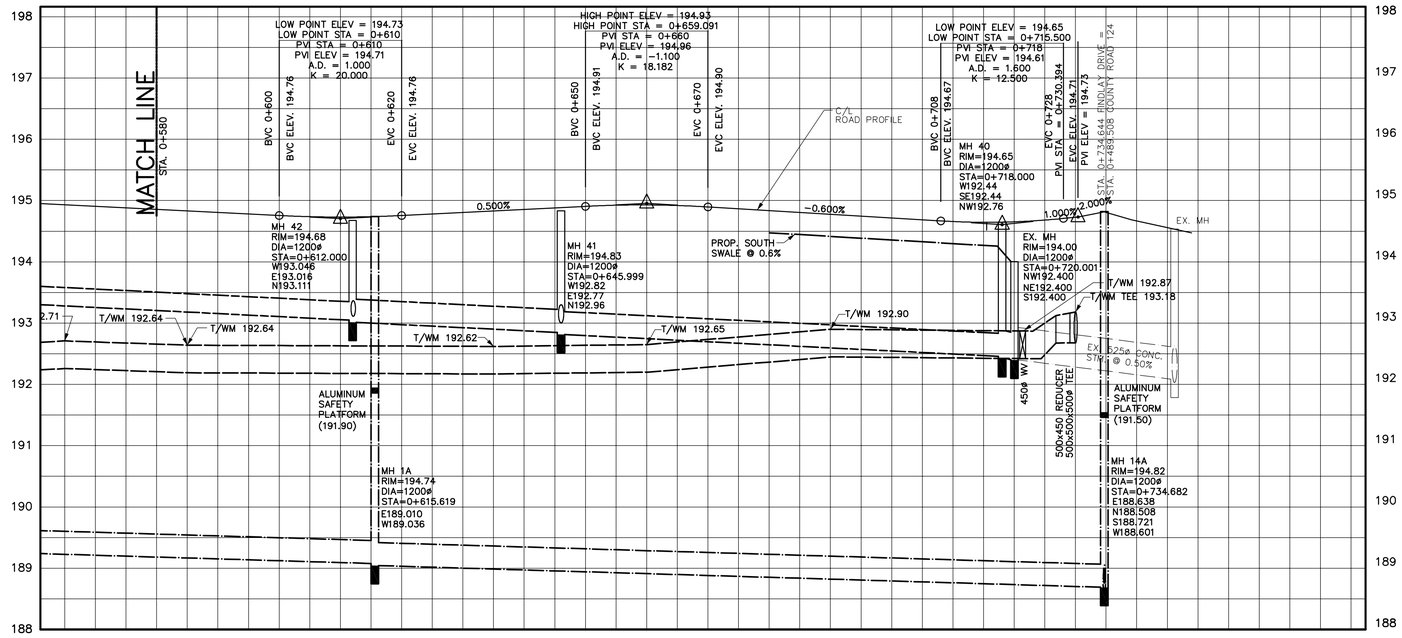
SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

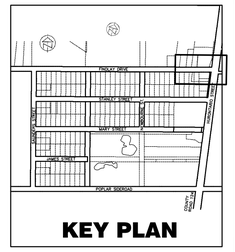
PLAN AND PROFILE FINDLAY DRIVE STA. 0+280 TO 0+580

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500 VERT. 1:50		JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-4
DRAWN: MCA/WJV	DATE: MARCH 2006		







KEY PLAN

FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008

LEGEND

CONTRACT DRAWINGS

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4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081–1	OCT/04	RS

APPROVED

ORIGINAL STAMPED BY
B. F. STANTON
MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

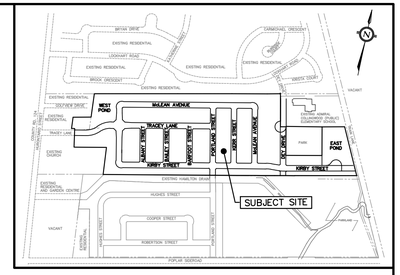
PLAN AND PROFILE FINDLAY DRIVE STA. 0+580 TO 0+734.6

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500	VERT. 1:50	JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-5
DRAWN: MCA/WJV	DATE: MARCH 2006		

LEGEND:

- STORM DRAINAGE AREA BOUNDARY
- CATCHMENT NUMBER
- RUNOFF COEFFICIENT
- STORM TRIBUTARY AREA
- THIRD PIPE TRIBUTARY AREA
- OVERLAND FLOW ARROW
- EXISTING DRAINAGE PATTERN
- CAPTURE POINTS
- SEWER FLOW DIRECTION
- HOUSE NUMBER



1. PIPE SIZES ARE IN MILLIMETERS UNLESS INDICATED. ELEVATIONS ARE IN METERS UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

BENCHMARK INFORMATION

ELEVATIONS ARE GEODETIC AND ARE REFERRED TO TOWN OF COLLINGWOOD BM No. 001192641669 ELEVATION 180.474m UTM-17 N4927891 E562139. DESCRIPTION: COLLINGWOOD POST OFFICE, TABLET IN STONE FOUNDATION OF NORTH SIDE WALL, MIDWAY BETWEEN FIRST AND SECOND WINDOWS FROM FRONT AND 60cm ABOVE PAVEMENT OF LANE.

NO.	REVISIONS	DATE	INITIAL	NO.	REVISIONS	DATE	INITIAL

DESIGNED — LICENSED PROFESSIONAL ENGINEER — M.E.HALL — SEP. 25/18 — PROVINCE OF ONTARIO

APPROVED — REGISTERED PROFESSIONAL PLANNER — R.P. DE ANGELIS — SEP. 25/18 — PROVINCE OF ONTARIO

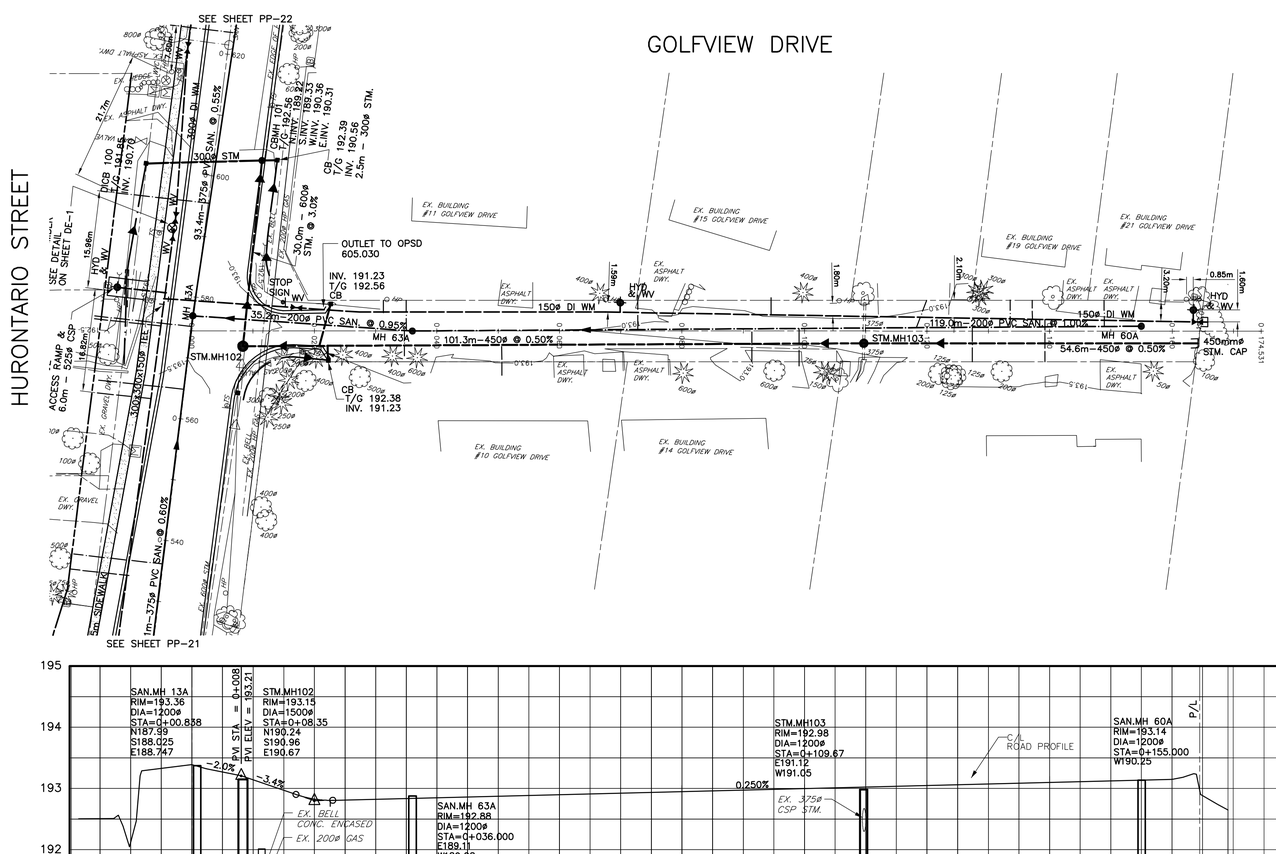
EDEN OAK (MCNABB) INC.

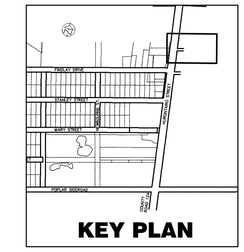
TOWN OF COLLINGWOOD

STORM TRIBUTARY PLAN FOR STORM SEWER @ HURONTARIO STREET AND GOLFVIEW DRIVE

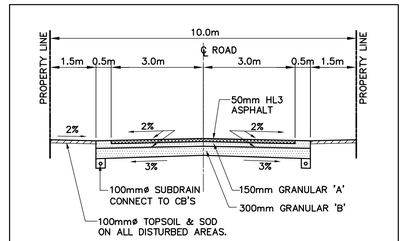
CONDELAND
CONSULTING ENGINEERS & PROJECT MANAGERS
350 Creditstone Road, Unit 200
Concord, Ontario L4K 3Z2
P: (905) 695-2096
F: (905) 695-2099

SCALE: 1:750		JOB NO. 15-010	
DESIGN: R.P.D; S.N.	APPROVED: R.P.D.		DWG.
DRAWN: A.G. / V.B.	DATE: SEPTEMBER 2018		





FOR RECORD DRAWINGS			
COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



ROAD CROSS-SECTION - GOLFVIEW DRIVE
SCALE NTS

LEGEND

CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S, SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
6.	FOR RECORD INFORMATION	MAR/08	BFS
5.	STORM SEWER ADDED TO GOLFVIEW DR., SAN. SEWER & WATERMAIN REVISED.	JULY/06	BFS
4.	STRUCTURE NUMBERING REVISED	JUNE/06	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS

APPROVED

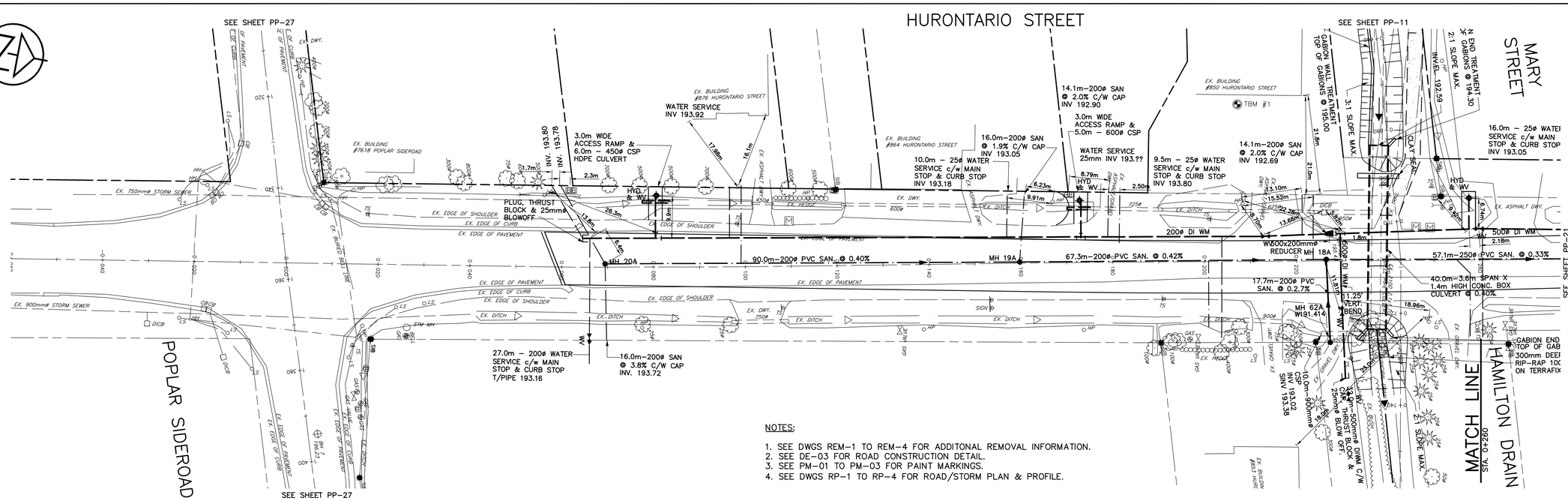
ORIGINAL STAMPED BY
B. F. STANTON
MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

PLAN AND PROFILE GOLFVIEW DRIVE STA. 0+000 TO 0+164

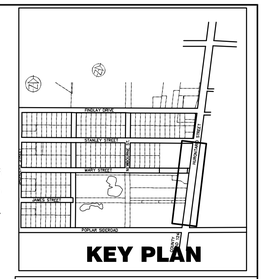
C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500		JOB NO.	102081
DESIGN: PM	CHECKED: MH	DWG.	PP-19
DRAWN: PM	DATE: MARCH 2006		



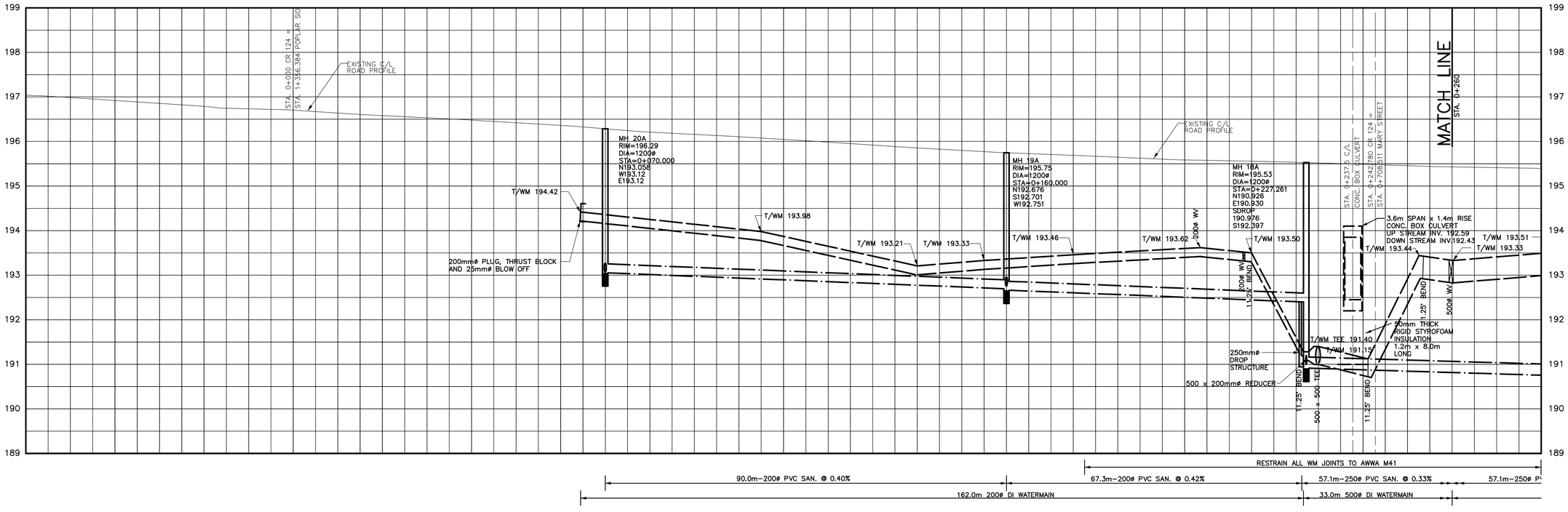
NOTES:

1. SEE DWGS REM–1 TO REM–4 FOR ADDITONAL REMOVAL INFORMATION.
2. SEE DE–03 FOR ROAD CONSTRUCTION DETAIL.
3. SEE PM–01 TO PM–03 FOR PAINT MARKINGS.
4. SEE DWGS RP–1 TO RP–4 FOR ROAD/STORM PLAN & PROFILE.



FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+060	197.04	
0+040	196.92	
0+020	196.79	
0+000	196.70	
0+020	196.58	
0+040	196.48	
0+060	196.36	
0+080	196.21	
0+100	196.11	
0+120	195.99	
0+140	195.85	
0+160	195.75	
0+180	195.67	
0+200	195.59	
0+220	195.55	
0+240	195.49	
0+260	195.43	
0+280	195.40	

LEGEND

CONTRACT DRAWINGS

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081–1	OCT/04	RS

APPROVED

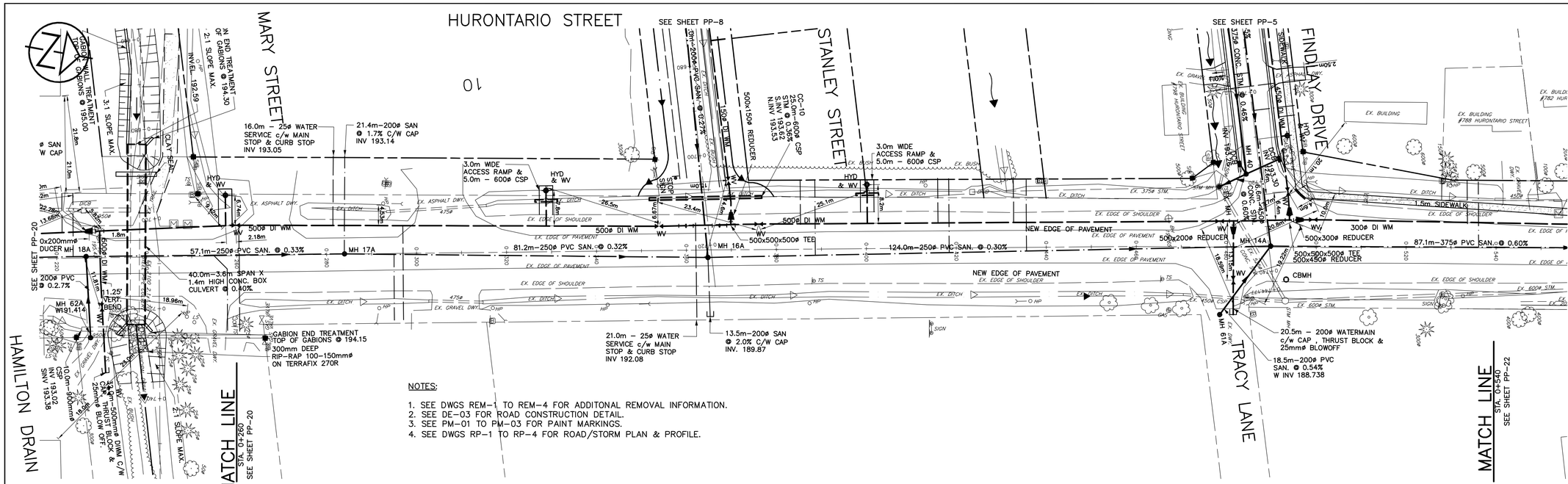
ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

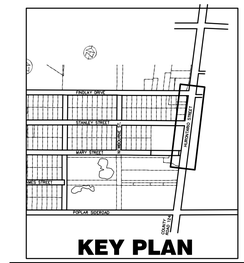
SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

PLAN AND PROFILE HURONTARIO STREET STA. 0–040 TO 0+260

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

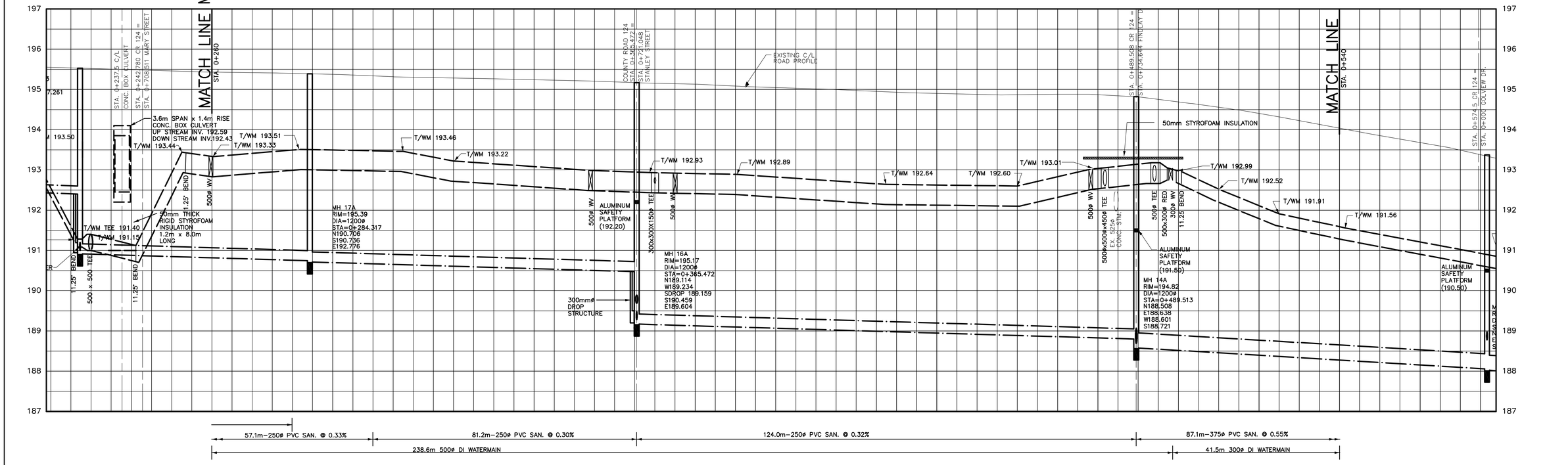
SCALE: HORZ. 1:500 VERT. 1:50		JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-20
DRAWN: MCA/WJV	DATE: MARCH 2006		





FOR RECORD DRAWINGS

COMPILED BY: MH	DATE: 3/30/2007
CHECKED BY: SEM	DATE: 3/30/2007
DRAWN BY: PM	DATE: 3/14/2008
CHECKED BY: BFS	DATE: 3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+260	195.43	
0+280	195.40	
0+300	195.33	
0+320	195.28	
0+340	195.24	
0+360	195.19	
0+365.5	195.16	
0+380	195.13	
0+400	195.05	
0+420	194.97	
0+440	194.90	
0+460	194.87	
0+480	194.87	
0+489.5	194.82	
0+500	194.69	
0+520	194.40	
0+540	194.04	

LEGEND

CONTRACT DRAWINGS

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081–1	OCT/04	RS

APPROVED

ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

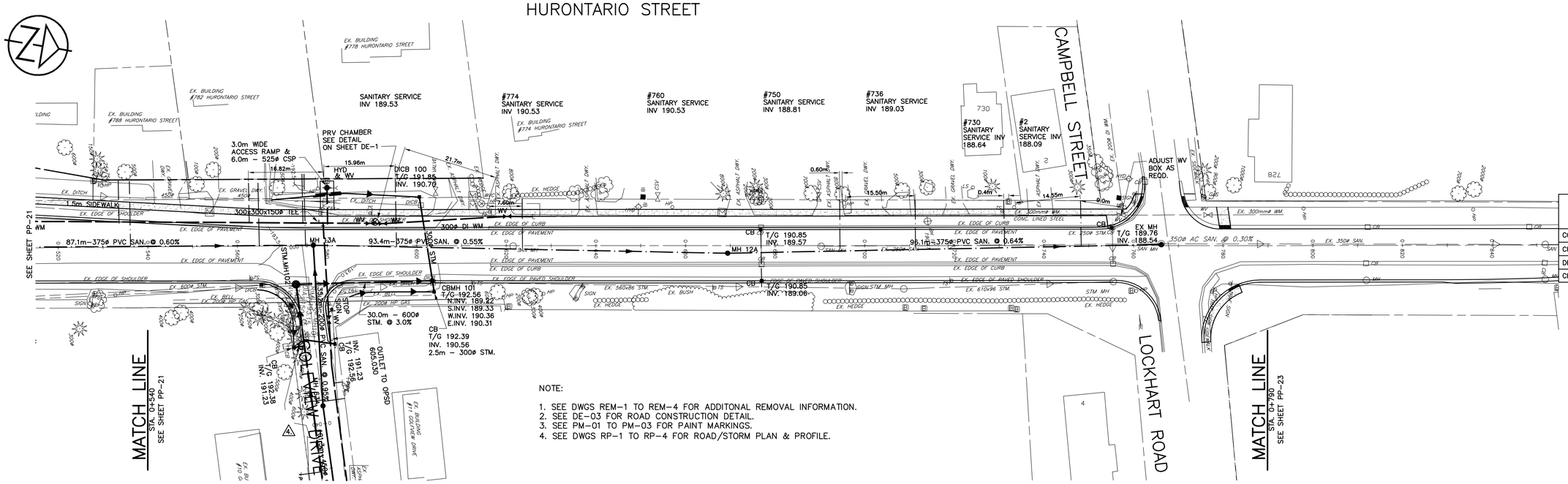
PLAN AND PROFILE HURONTARIO STREET STA. 0+260 TO 0+540

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500	VERT. 1:50	JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-21
DRAWN: MCA/WJV	DATE: MARCH 2006		

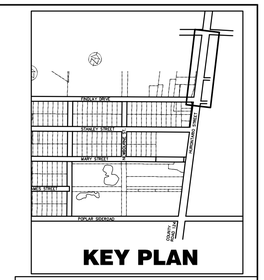
M:\81\ca20c-31-ma-p20060815.1000.1000.00.ski\81\1001 - xM\81\1001 - xM\81\1xc01 - xM\81\1xc05 - xM\81\1xc02 - xM\81\1004 - xM\81\1006

HURONTARIO STREET



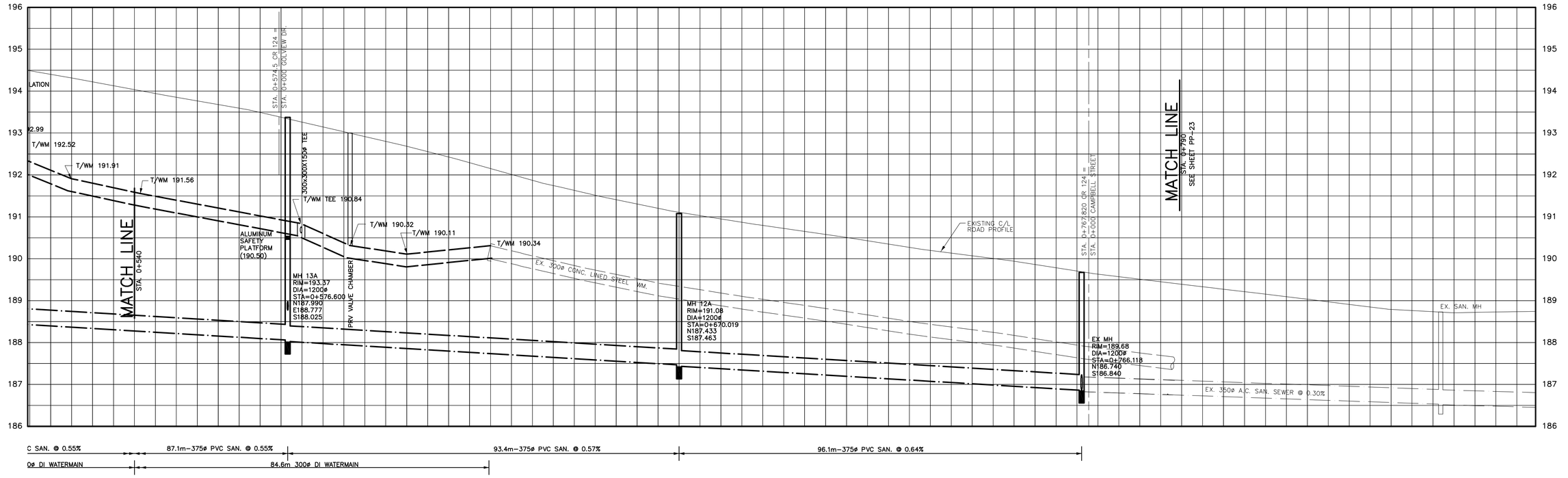
NOTE:

1. SEE DWGS REM-1 TO REM-4 FOR ADDITONAL REMOVAL INFORMATION.
2. SEE DE-03 FOR ROAD CONSTRUCTION DETAIL.
3. SEE PM-01 TO PM-03 FOR PAINT MARKINGS.
4. SEE DWGS RP-1 TO RP-4 FOR ROAD/STORM PLAN & PROFILE.



FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+540	194.04	
0+560	193.68	
0+580	193.26	
0+600	192.80	
0+620	192.29	
0+640	191.75	
0+660	191.31	
0+680	190.95	
0+700	190.65	
0+720	190.35	
0+740	190.07	
0+760	189.79	
0+780	189.51	
0+790	189.39	

LEGEND

CONTRACT DRAWINGS

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
5.	FOR RECORD INFORMATION	MAR/08	BFS
4.	STRUCTURE NUMBERING REVISED	JUNE/06	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

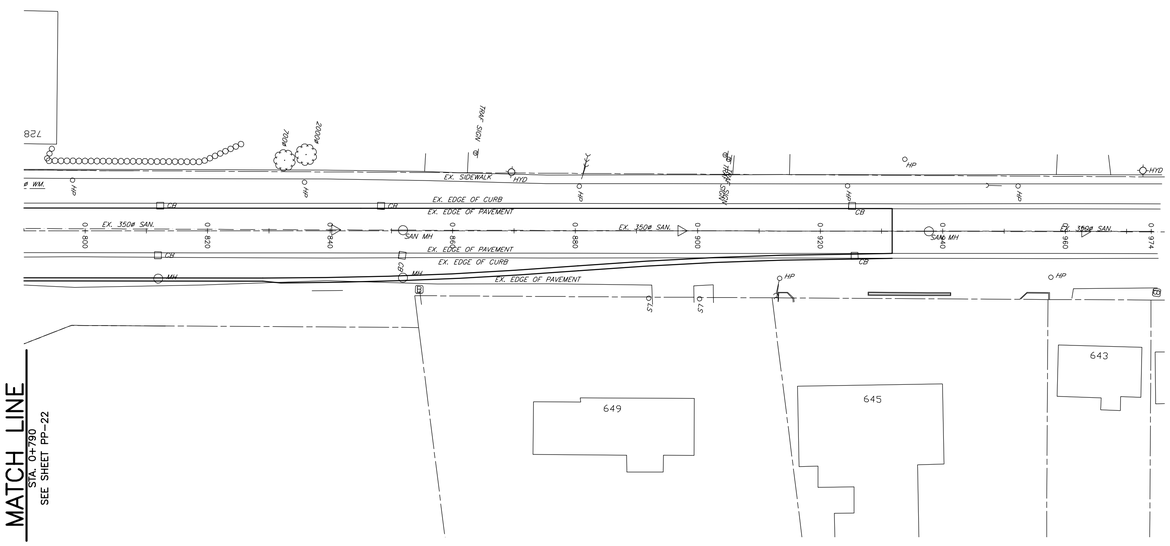
PLAN AND PROFILE HURONTARIO STREET STA. 0+540 TO 0+790

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

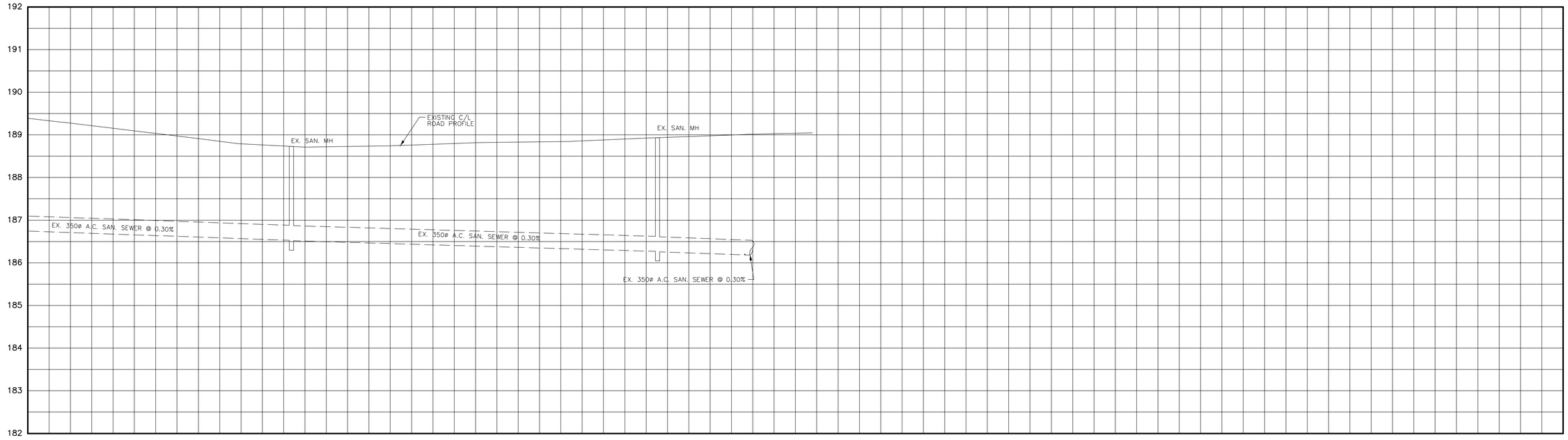
SCALE: HORZ. 1:500		JOB NO.	102081
DESIGN: PM	CHECKED: MH	DWG.	PP-22
DRAWN: PM	DATE: MARCH 2006		

M:\st\20--\31-Aug-2006\102081\0024\102081-0000.00 xMSR1st01 xMSR1st02 xMSR1st03 xMSR1st04 xMSR1st05 xMSR1st06 xMSR1st07 xMSR1st08 xMSR1st09 xMSR1st10

HURONTARIO STREET



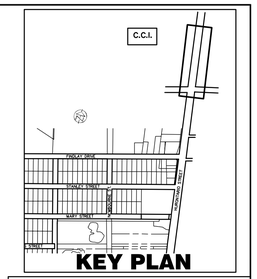
MATCH LINE
STA. 0+790
SEE SHEET PP-22



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+790	189.39	
0+800	189.27	
0+820	189.04	
0+840	188.79	
0+860	188.72	
0+880	188.76	
0+900	188.83	
0+920	188.86	
0+940	188.94	
0+960	189.02	
0+974		

NOTES:

1. SEE DWGS REM-1 TO REM-4 FOR ADDITONAL REMOVAL INFORMATION.
2. SEE DE-03 FOR ROAD CONSTRUCTION DETAIL.
3. SEE PM-01 TO PM-03 FOR PAINT MARKINGS.
4. SEE DWGS RP-1 TO RP-4 FOR ROAD/STORM PLAN & PROFILE.



FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008

LEGEND

CONTRACT DRAWINGS

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

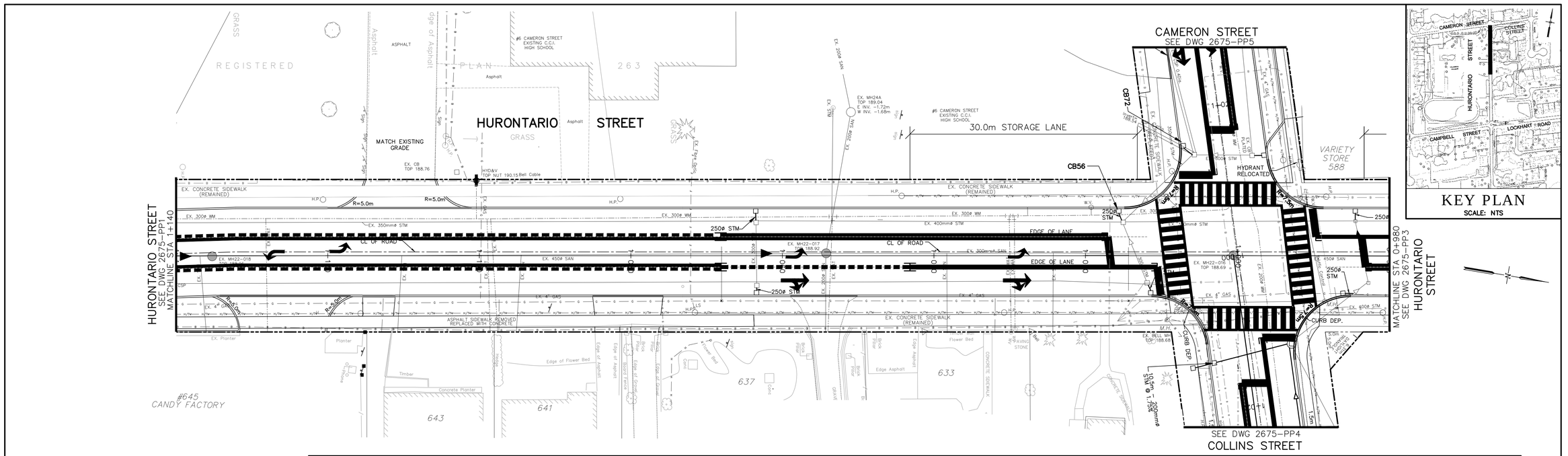
ORIGINAL STAMPED BY
B. F. STANTON
MAR 30/06

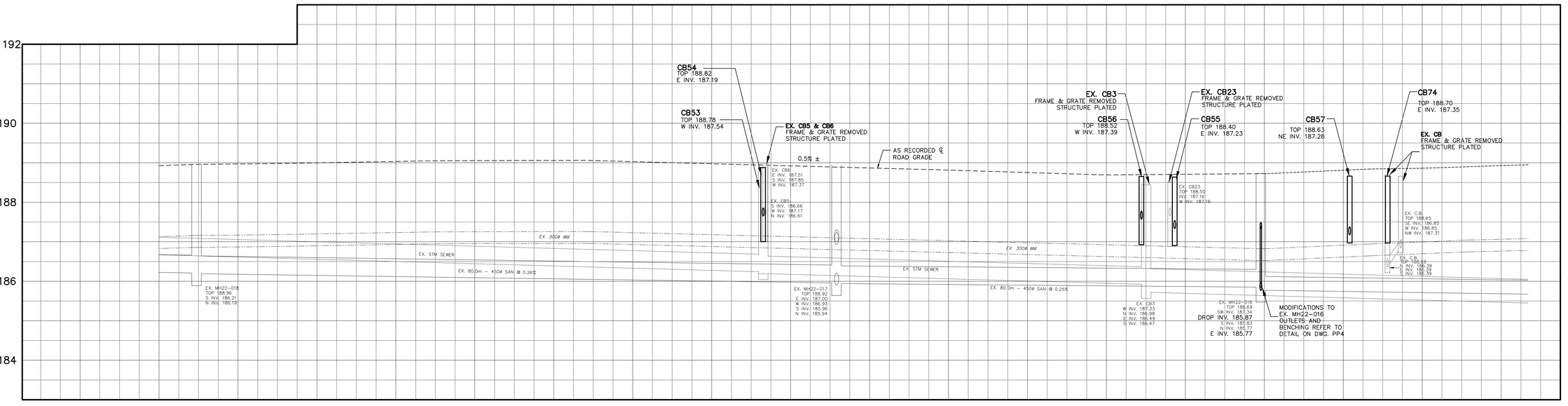
SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

PLAN AND PROFILE HURONTARIO STREET STA. 0+790 TO 0+974

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500	VERT. 1:50	JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-23
DRAWN: MCA/WJV	DATE: MARCH 2006		





	1+140	1+120	1+100	1+080	1+060	1+040	1+020	1+000	0+980
RECORDED C/L ELEV	188.93	189.00	189.05	189.02	188.92	188.81	188.69	188.72	188.86
PREVIOUS C/L ELEV	188.92	189.00	189.06	189.05	188.95	188.83	188.73	188.72	189.06
CHAINAGE	1+140	1+120	1+100	1+080	1+060	1+040	1+020	1+000	0+980

LEGEND
- EXISTING STORM MANHOLE
- EXISTING CATCHBASIN MANHOLE
- EXISTING SINGLE CATCHBASIN
- EXISTING SANITARY MANHOLE
- STORM MANHOLE
- CATCHBASIN MANHOLE
- SINGLE CATCHBASIN
- CURB DEPRESSION

1. PIPE SIZES ARE IN MILLIMETRES UNLESS INDICATED. ELEVATIONS ARE IN METRES UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

NOTE:
THIS PLAN TO BE READ IN CONJUNCTION WITH ALL 2675 DRAWINGS IN THIS SET.

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: .....

NO.	REVISIONS	DATE	INITIAL
6.	AS RECORDED	MAY 14/14	R.H.
5.	ISSUED FOR CONSTRUCTION	JUNE 04/12	J.H.
4.	ISSUED FOR TENDER	MAY 04/12	J.H.
3.	ISSUED FOR TENDER REVIEW	APR 25/12	J.H.
2.	ISSUED FOR TOWN APPROVAL	MAR 07/12	J.H.

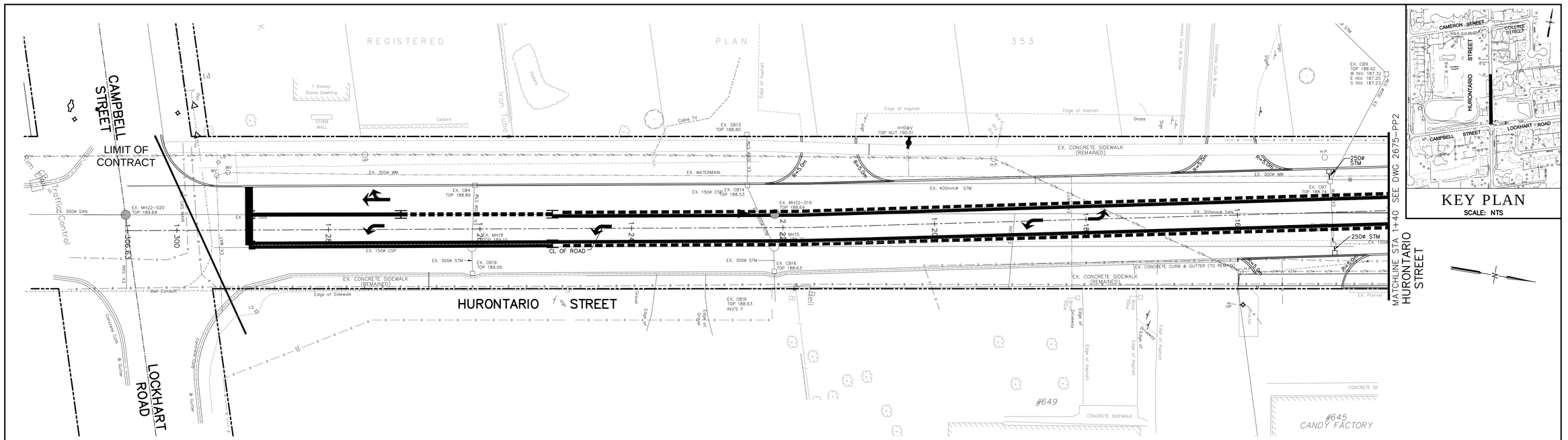
APPROVED

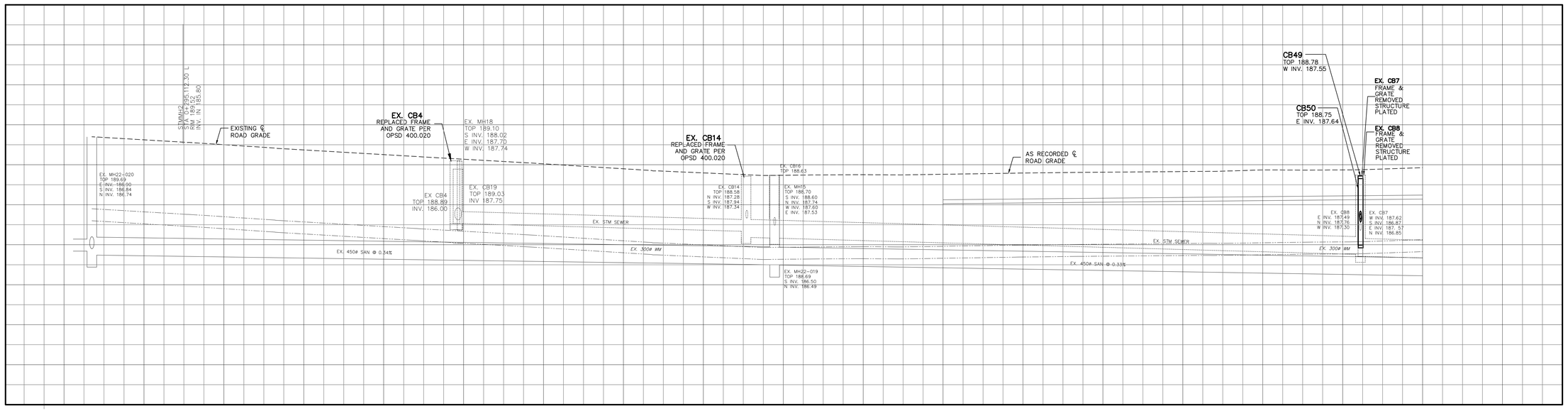
HURONTARIO STREET
ROAD WIDENING
TOWN OF COLLINGWOOD

HURONTARIO STREET PLAN & PROFILE STA: 1+140 TO STA: 0+980

GREENLAND® Consulting Engineers
120 Hume Street
Collingwood, Ontario, L9Y 1V5
Tel: (705) 444-8805
Fax: (705) 444-5482
E-mail: greenland@grnland.com
Website: www.grnland.com

SCALE: H-1:250 V-1:50		JOB NO.	11-2675
DESIGN: P. ELLIS	CHECKED: J. HARTMAN	DWG.	2675-PP2
DRAWN: B. KLESS	DATE: NOV 03, 2011		





RECORDED C/L ELEV	189.49	189.49	189.15	188.91	188.75	188.75	188.80	188.87	188.93
PREVIOUS C/L ELEV	189.49	189.49	189.15	188.91	188.75	188.75	188.80	188.84	188.92
CHAINAGE	1+300	1+280	1+260	1+240	1+220	1+200	1+180	1+160	1+140

LEGEND
- EXISTING STORM MANHOLE
- EXISTING CATCHBASIN MANHOLE
- EXISTING SINGLE CATCHBASIN
- EXISTING SANITARY MANHOLE
- STORM MANHOLE
- CATCHBASIN MANHOLE
- SINGLE CATCHBASIN
- CURB DEPRESSION

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ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: .....

NO.	REVISIONS	DATE	INITIAL
6.	AS RECORDED	MAY 14/14	R.H.
5.	ISSUED FOR CONSTRUCTION	JUNE 04/12	J.H.
4.	ISSUED FOR TENDER	MAY 04/12	J.H.
3.	ISSUED FOR TENDER REVIEW	APR 25/12	J.H.
2.	ISSUED FOR TOWN APPROVAL	MAR 07/12	J.H.

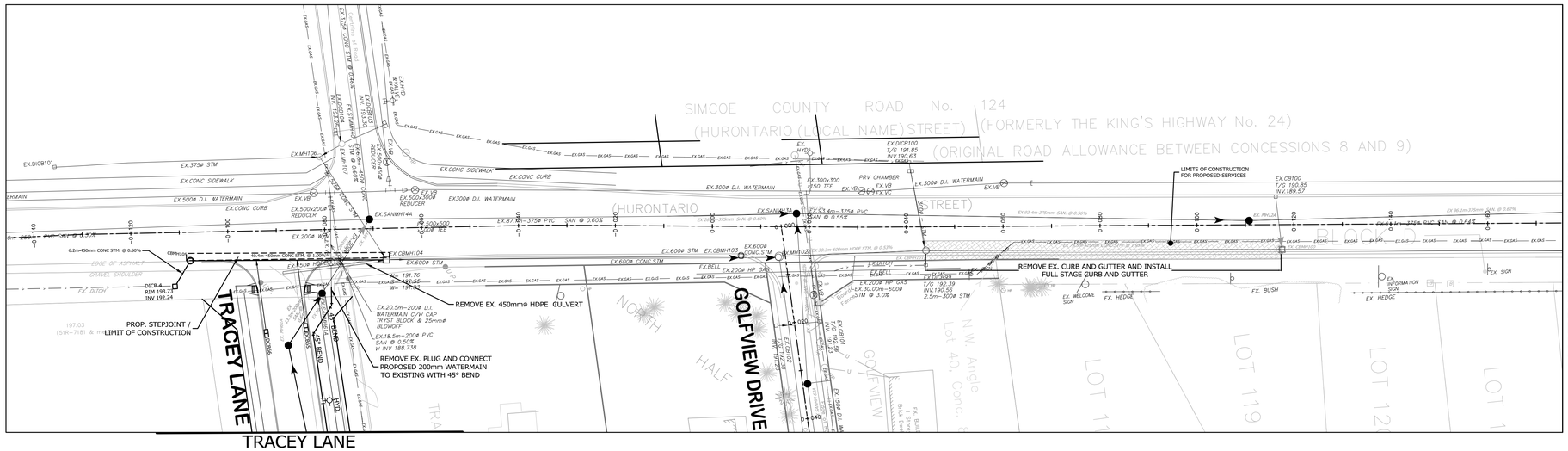
APPROVED

HURONTARIO STREET
ROAD WIDENING
TOWN OF COLLINGWOOD

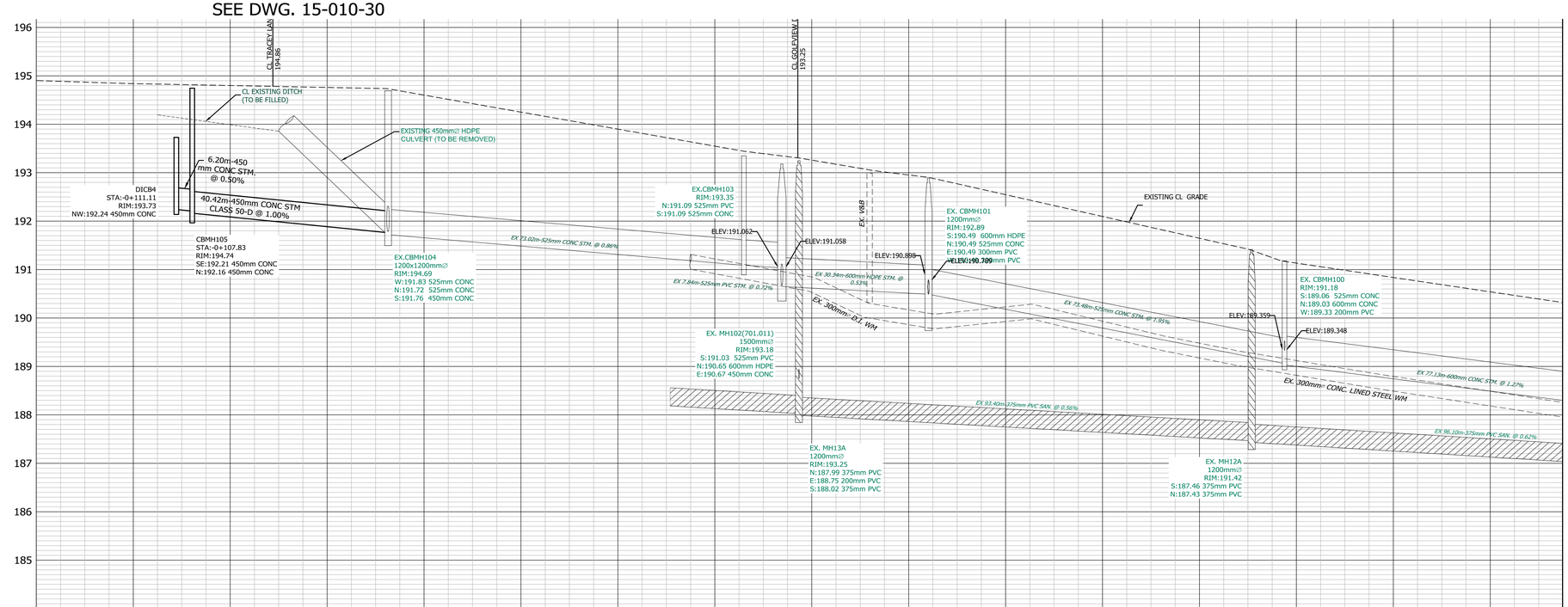
HURONTARIO STREET PLAN & PROFILE STA: 1+306.63 TO STA: 1+140

GREENLAND® Consulting Engineers
120 Hume Street
Collingwood, Ontario, L9Y 1V5
Tel: (705) 444-8805
Fax: (705) 444-5482
E-mail: greenland@grnland.com
Website: www.grnland.com

SCALE: H-1:250 V-1:50
JOB NO. 11-2675
DESIGN: P. ELLIS
CHECKED: J. HARTMAN
DRAWN: B. KLESS
DATE: NOV 03, 2011
DWG. 2675-PP1



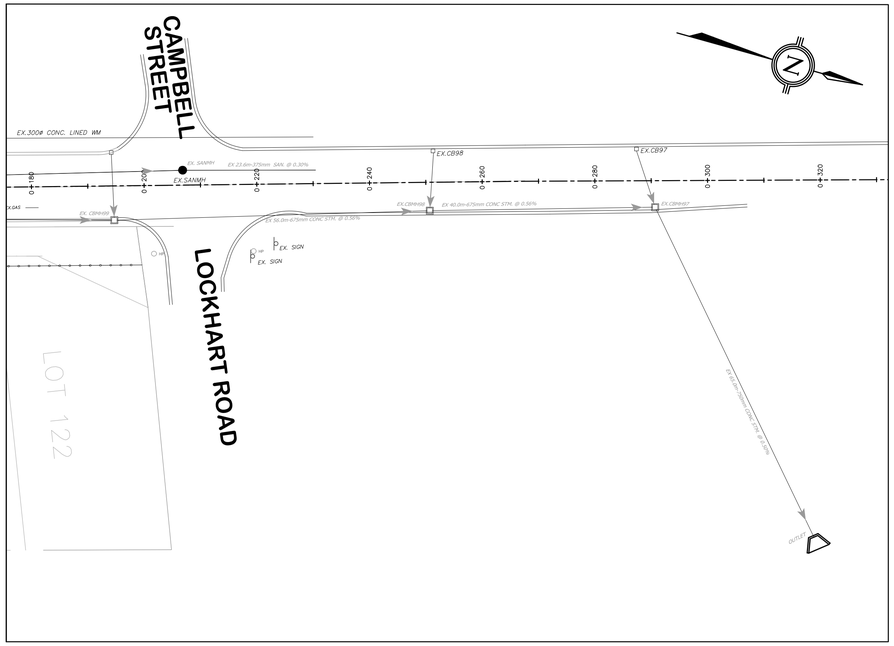
TRACEY LANE
SEE DWG. 15-010-30



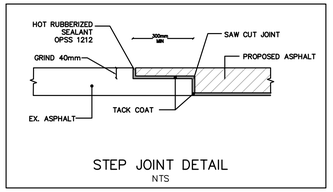
MATCH LINE STA 0+170.000

MATCH LINE STA 0+170.000

| | | |



SEE DWG. 15-010-20
MATCH LINE STA 0+170.000

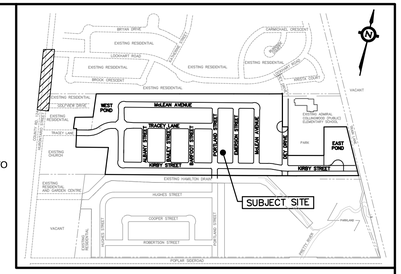


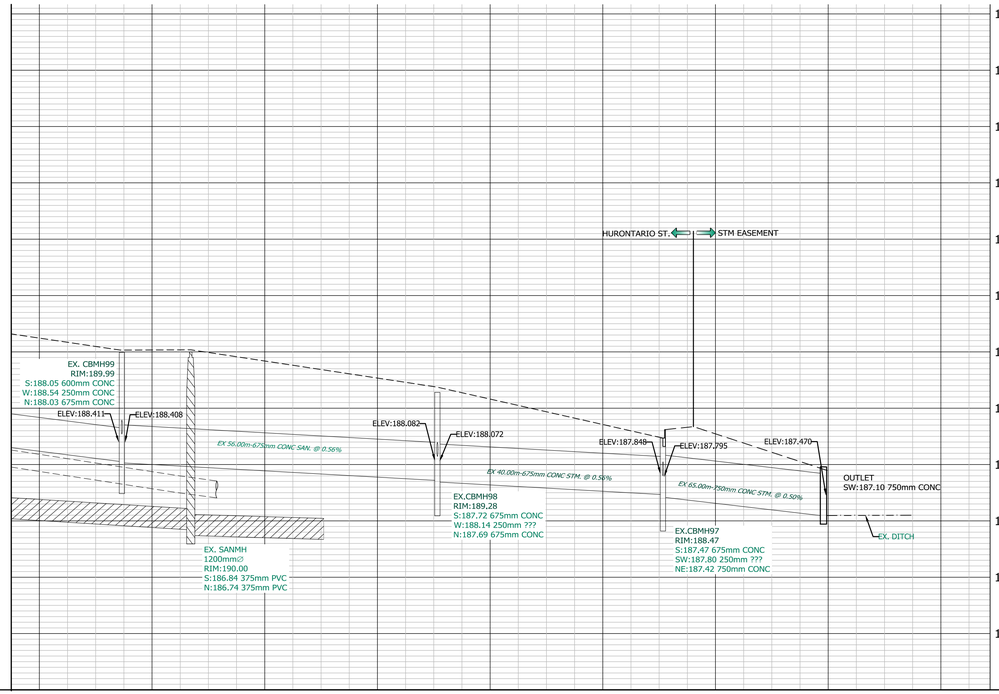
STEP JOINT DETAIL
NTS

NOTE:
CLEARANCE BETWEEN WATER MAINS AND SEWERS TO BE A MINIMUM OF 0.5m VERTICAL OR 2.5m MINIMUM HORIZONTAL SEPARATION. NO CASING.

NOTES:

1. CONTRACTOR TO OBTAIN MUNICIPAL APPROVAL FOR ROAD OCCUPANCY. TRAFFIC SIGNAGE PLAN AND ROAD CLOSURE A MINIMUM OF 2 WEEKS PRIOR TO COMMENCING CONSTRUCTION WITHIN HURONTARIO STREET RIGHT-OF-WAY.
2. SERVICING TO BASE ROADWORKS - FULL ROAD RESTORATION WITHIN THE SERVICE CUTS (UNSHRINKABLE BACKFILL, 350mm DEPTH GRANULAR B, 150mm DEPTH GRANULAR A, AND 90mm HL8 BASE ASPHALT) IS REQUIRED DURING THE INITIAL INSTALLATION. TOPWORKS - REMOVE AND REPLACE CONCRETE CURB BETWEEN EX. CBMH101 AND EX. CBMH1. FULL WIDTH OF HURONTARIO TO BE MILLED 40mm, TACK COAT AND PLACE 40mm HL3 TOP ASPHALT. CONTRACTOR TO ENSURE 2.0% CROSSFALL, ADJUST MANHOLES TO NEW GRADE. BOULEVARD TO BE RESTORED WITH MIN 150mm TOPSOIL AND No.1 NURSERY SOD. ALL RESTORATION WORK IS TO THE SATISFACTION OF THE TOWN AND THE ENGINEER.
3. WORKS PROVIDE A SMOOTH TRANSITION TO EXISTING. EXTENT OF REMOVAL AND RESTORATION TO BE DETERMINED BY TOWN OF COLLINGWOOD.





SEE DWG. 15-010-20
MATCH LINE STA 0+170.000

EXISTING CENTERLINE ELEVATION	190.24	190.03	189.64
	189.53	189.16	188.71
CENTERLINE CHAINAGE	0+180	0+200	0+220
	0+240	0+260	0+280
	0+300	0+320	0+340
	0+349		

1. PIPE SIZES ARE IN MILLIMETERS UNLESS INDICATED. ELEVATIONS ARE IN METERS UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

BENCHMARK INFORMATION
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO TOWN OF COLLINGWOOD BM No. 001192641669 ELEVATION 180.474m UTM-17N 4927891 E562139. DESCRIPTION: COLLINGWOOD POST OFFICE, TABLET IN STONE FOUNDATION OF NORTH SIDE WALL, MIDWAY BETWEEN FIRST AND SECOND WINDOWS FROM FRONT AND 60cm ABOVE PAVEMENT OF LANE.

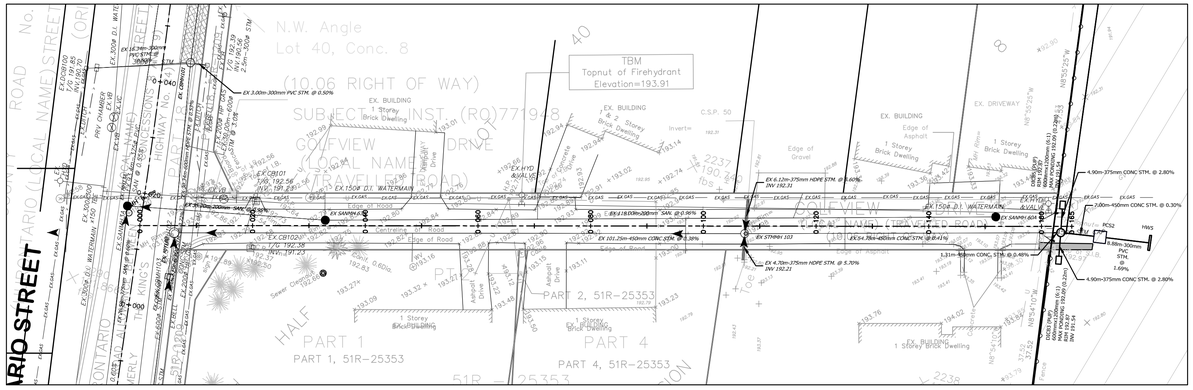
NO.	REVISIONS	DATE	INITIAL
4.	FILL PERMIT - 3RD SUBMISSION (ESC ST.1 ONLY)	2017-06-05	S.N.
3.	SECOND SUBMISSION	2017-05-12	R.P.D.
2.	FILL PERMIT - 2ND SUBMISSION (ESC ONLY)	2017-05-03	R.P.D.
1.	FIRST SUBMISSION	2016-11-23	R.P.D.

DESIGNED JUN 05/17
APPROVED JUN 05/17

EDEN OAK (MCNABB) INC.
TOWN OF COLLINGWOOD
HURONTARIO STREET
PLAN AND PROFILE STA.
-0+115 TO 0+210

CONDELAND ENGINEERING LTD.
Consulting Engineers and Project Managers
350 CREDITSTONE ROAD, UNIT 200
CONCORD, ON., L4K 3Z2
PHONE: (905) 695-2096
FAX: (905) 695-2099

SCALE:	HORIZ. 1:500 VERT. 1:50	JOB NO.	15-010
DESIGN:	R.P.D; S.N.	APPROVED:	R.P.D.
DRAWN:	A.G. / V.B.	DATE:	JUNE 2017
DWG.	20		


TBM
Topnut of Firehydrant
Elevation=193.91
EX. BUILDING
1 Storey
Brick Dwelling
EX. BUILDING
Edge of
Asphalt
1 Storey
Brick Dwelling
EX. DRIVEWAY
EX. BUILDING
1 Storey
Brick Dwelling
EX. BUILDING
1 Storey
Brick Dwelling
EX. BUILDING
1 Storey
Brick Dwelling
EX. 3.00m-300mm PVC STM. @ 0.50%
EX. 6.12m-375mm HDPE STM. @ 1.40%
INV 192.31
EX. 4.70m-375mm HDPE STM. @ 5.70%
INV 192.21
EX. 101.25m-450mm CONC STM. @ 0.38%
EX. 118.00m-300mm SAN. @ 0.95%
EX. 54.78m-450mm CONC STM. @ 0.41%
EX. 4.90m-375mm CONC STM. @ 2.80%
EX. 7.00m-450mm CONC STM. @ 0.30%
1.31m-900mm CONC. STM. @ 0.48%
4.90m-375mm CONC STM. @ 2.80%
EX. 150M D.I. WATERMAIN
EX. 150M D.I. WATERMAIN
EX. SANMH 63A
EX. SANMH 60A
EX. STMMH 103
EX. STM CAP
EX. CB101
EX. CB102
EX. CB103
EX. CB104
EX. CB105
EX. CB106
EX. CB107
EX. CB108
EX. CB109
EX. CB110
EX. CB111
EX. CB112
EX. CB113
EX. CB114
EX. CB115
EX. CB116
EX. CB117
EX. CB118
EX. CB119
EX. CB120
EX.

TOWN OF COLLINGWOOD
ENGINEERING AND PUBLIC WORKS DEPARTMENT
STORM SEWER DESIGN SHEET

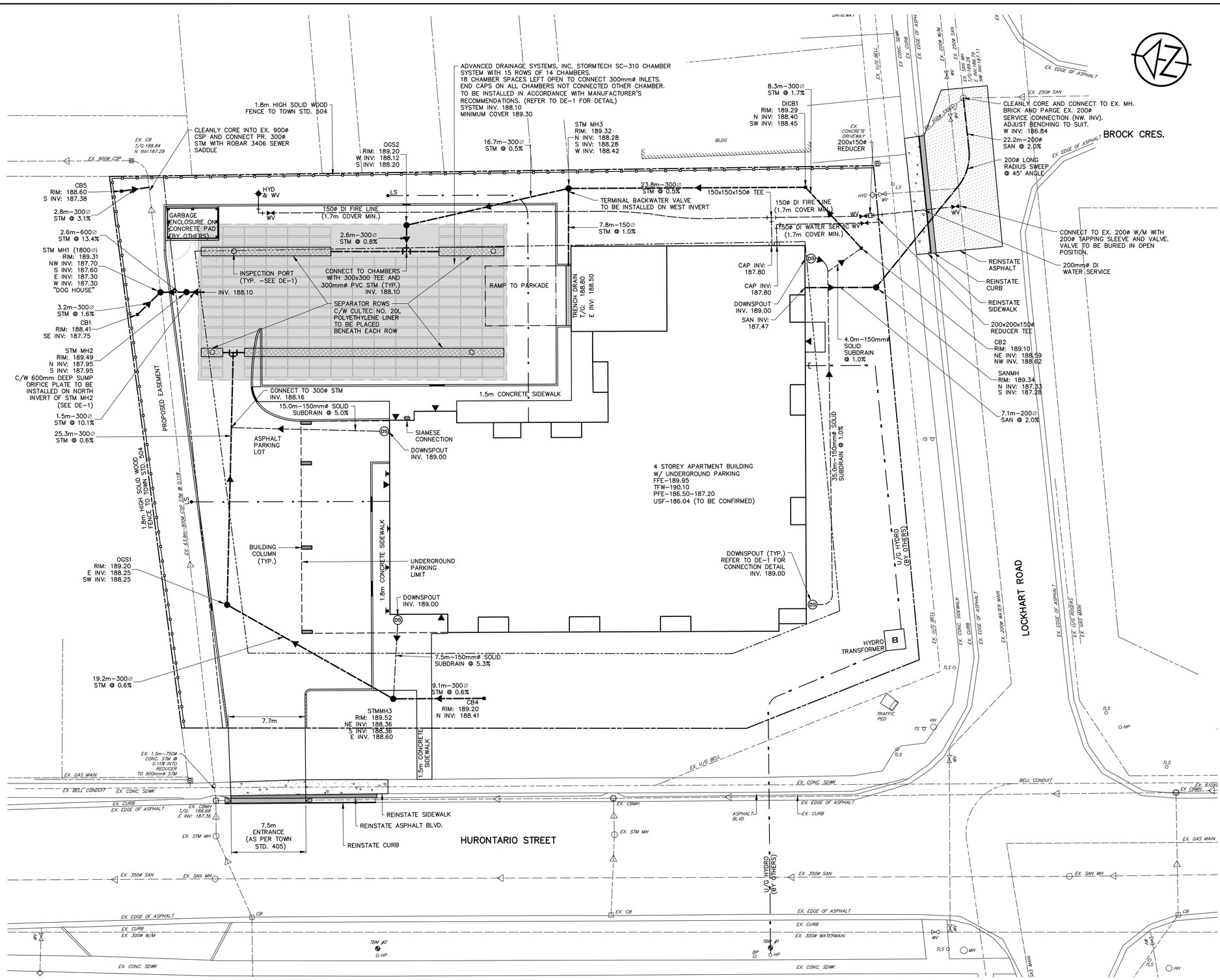
Ainley Group
550 Welham Road, Barrie
L4N 8Z7
Tel. 705-726-3371

Eden Oak Subdivision
100 Year Storm

SHEET	1 OF 1
PREPARED B	CFT
CHECKED BY	DLM
DATE	January-08-07
FILE No.	105026

i= a(
246
a=
b=
c=

STREET	FROM M.H.	INVERT ELEV.	TO M.H.	INVERT ELEV.	AREA Ha.	R	2.78xAxR	ACCUM. AxR	Tc	I mm/hr.	Q c.m.s.	PIPE DIA. m	GRADE %	CAPACITY c.m.s.	VELOCITY m/sec	LENGTH m	SECT. TIME min.	TOTAL TIME min.	COMMENTS
Findlay Dr.	MH 40		Ex. MH		1.28	0.325	1.16	1.16	12.72	150.0	**0.173**	0.450	0.30	**0.156**	0.98	6.6	0.11	12.83	From CCTA design sheet
County Rd. #124	Ex. DICB		Ex. MH		1.67	0.328	1.52	1.52	10.52	164.5	**0.251**	0.375	1.00	**0.175**	1.59	58.0	0.61	11.13	From CCTA design sheet
County Rd. #124	Ex. MH		Ex. MH		0	0.4	0.00	2.68	12.84	149.2	**0.400**	0.525	0.50	**0.304**	1.40	29.0	0.34	13.18	From CCTA design sheet
County Rd. #124	Ex. Ditch		Ex. MH		0.44	0.4	0.49	0.49	10.00	168.4	**0.082**	0.450	0.50	**0.201**	1.27	33.0	0.43	10.43	ength and Slope are approx.
County Rd. #124	Ex. MH		STM MH 102		0	0.4	0.00	3.17	13.18	147.2	**0.466**	0.600	0.50	**0.434**	1.54	78.0	0.85	14.03	Grade is approximate
Golfview Dr.	Inlet	191.43	STM MH 103	191.16	0.00	0.40	0.00	0.00	10.00	168.4	**0.000**	0.450	0.50	**0.201**	1.27	54.6	0.72	10.72	
Golfview Dr.	STM MH 103	191.11	STM MH 102	190.60	0.41	0.40	0.46	0.46	10.72	163.1	**0.074**	0.450	0.50	**0.202**	1.27	101.3	1.33	12.05	
County Rd. #124	STM MH 102	190.44	CBMH 101	190.14	1.66	0.40	1.85	5.47	14.03	142.5	**0.780**	0.600	0.98	**0.609**	2.15	30.5	0.24	14.27	
County Rd. #124	CBMH 101	190.14	STM MH 201	189.54	0.54	0.40	0.60	6.07	14.27	141.2	**0.857**	0.675	0.57	**0.344**	0.96	105.0	1.82	16.09	860 x 560 Pipe Arch
County Rd. #124	STM MH 201	189.48	STM MH 202	188.99	0.80	0.40	0.89	6.96	16.09	132.3	**0.921**	0.750	1.04	**0.615**	1.39	47.0	0.56	16.65	610 x 960 Pipe Arch
County Rd. #124	STM MH 202	188.02	STM MH 203	187.65	0.43	0.40	0.48	7.44	16.65	129.8	**0.965**	0.900	0.66	**0.797**	1.25	56.0	0.74	17.39	610 x 960 Pipe Arch
County Rd. #124	STM MH 203	187.64	STM MH 204	187.47	0.35	0.40	0.39	7.83	17.39	126.6	**0.991**	0.900	0.42	**0.639**	1.00	40.0	0.66	18.06	611 x 960 Pipe Arch
Easement	STM MH 204		STM MH 205		1.68	0.40	1.87	9.70	18.06	123.9	**1.201**	0.750	0.50	**0.787**	1.78	120.0	1.12	19.18	



TOWN APPROVAL

DISCLAIMER AND COPYRIGHT

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BENCHMARKS

TBM1 – ELEVATION 189.177
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN SECOND HYDRO POLE NORTH OF THE INTERSECTION OF LOCKHART ROAD AND HURONTARIO STREET ON WEST SIDE OF ROAD.

TBM2 – ELEVATION 189.682
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN FIRST HYDRO POLE NORTH OF INTERSECTION OF LOCKHART ROAD AND HURONTARIO STREET ON WEST SIDE OF ROAD.

NOTES

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY ZUBEK, EMO, THOMSEN & PATTEN, DATED 2019. WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA.
TOPOGRAPHIC INFORMATION ON THIS PLAN FROM SURVEY PREPARED BY C.C. TATHAM & ASSOCIATES DATED OCT 13/2016.

No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	MAR 16/19

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
R.S. SIMPSON
PROVINCE OF ONTARIO

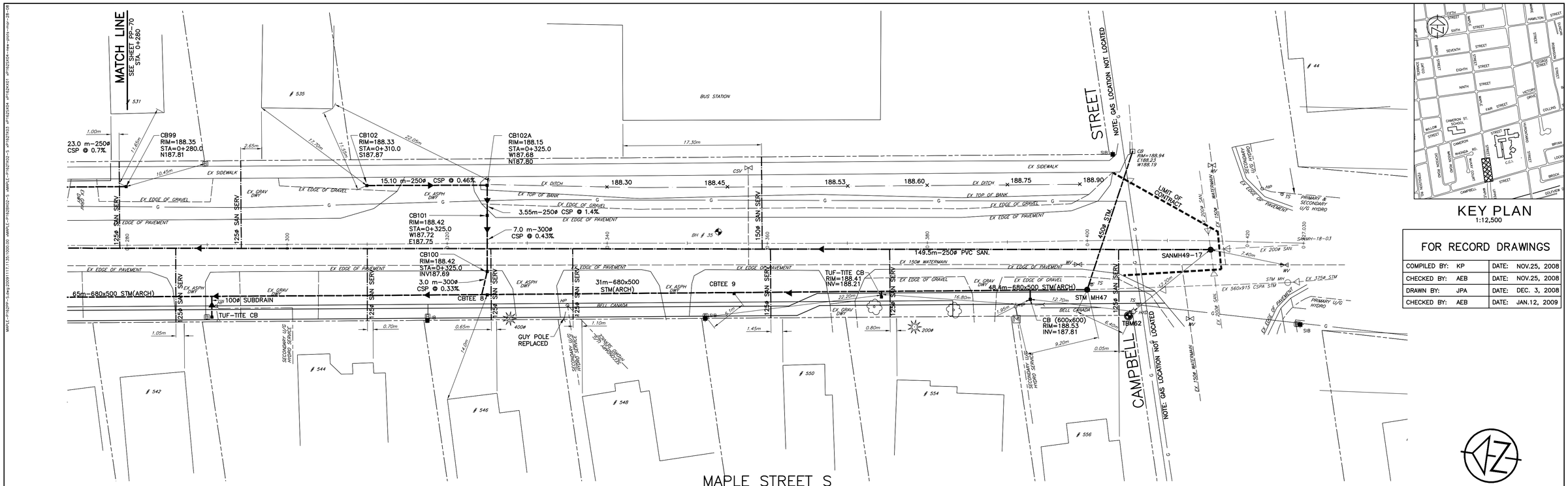
RDL EXPORT
655 HURONTARIO STREET
TOWN OF COLLNGWOOD

SITE SERVICING PLAN

TATHAM ENGINEERING

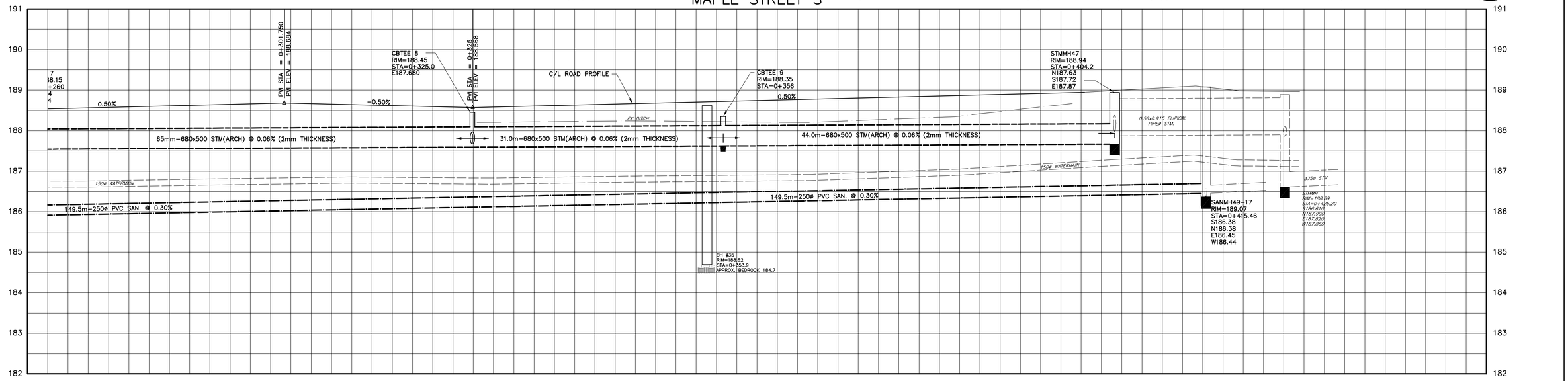
DESIGN: AS/RD	FILE: 118197	DWG: SS-1
DRAWN: RD	DATE: DEC 2018	
CHECK: JPA/RS	SCALE: 1:200	

Drawing Name: 118197-SS01.dwg, Plotted: May 17, 2019



FOR RECORD DRAWINGS	
COMPILED BY: KP	DATE: NOV.25, 2008
CHECKED BY: AEB	DATE: NOV.25, 2008
DRAWN BY: JPA	DATE: DEC. 3, 2008
CHECKED BY: AEB	DATE: JAN.12, 2009

MAPLE STREET S



C/L ELEV	188.57	188.68	188.59	188.64	188.74	188.84	188.94			C/L ELEV
CHAINAGE	0+280	0+290	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+427

NOTES

CONTRACT DRAWINGS

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1. PIPE SIZES ARE IN MILLIMETRES UNLESS INDICATED. ELEVATIONS ARE IN METRES UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION ADDED	DEC 5/08	BFS
3.	ISSUED FOR CONSTRUCTION	MAY 6/08	BFS
2.	ISSUED FOR MOE SUBMISSION	MAR.28/08	KRS
1.	ISSUED FOR TENDER	MAR.25/08	KRS

APPROVED

ORIGINAL STAMPED BY B. F. STANTON MAY 6 2008

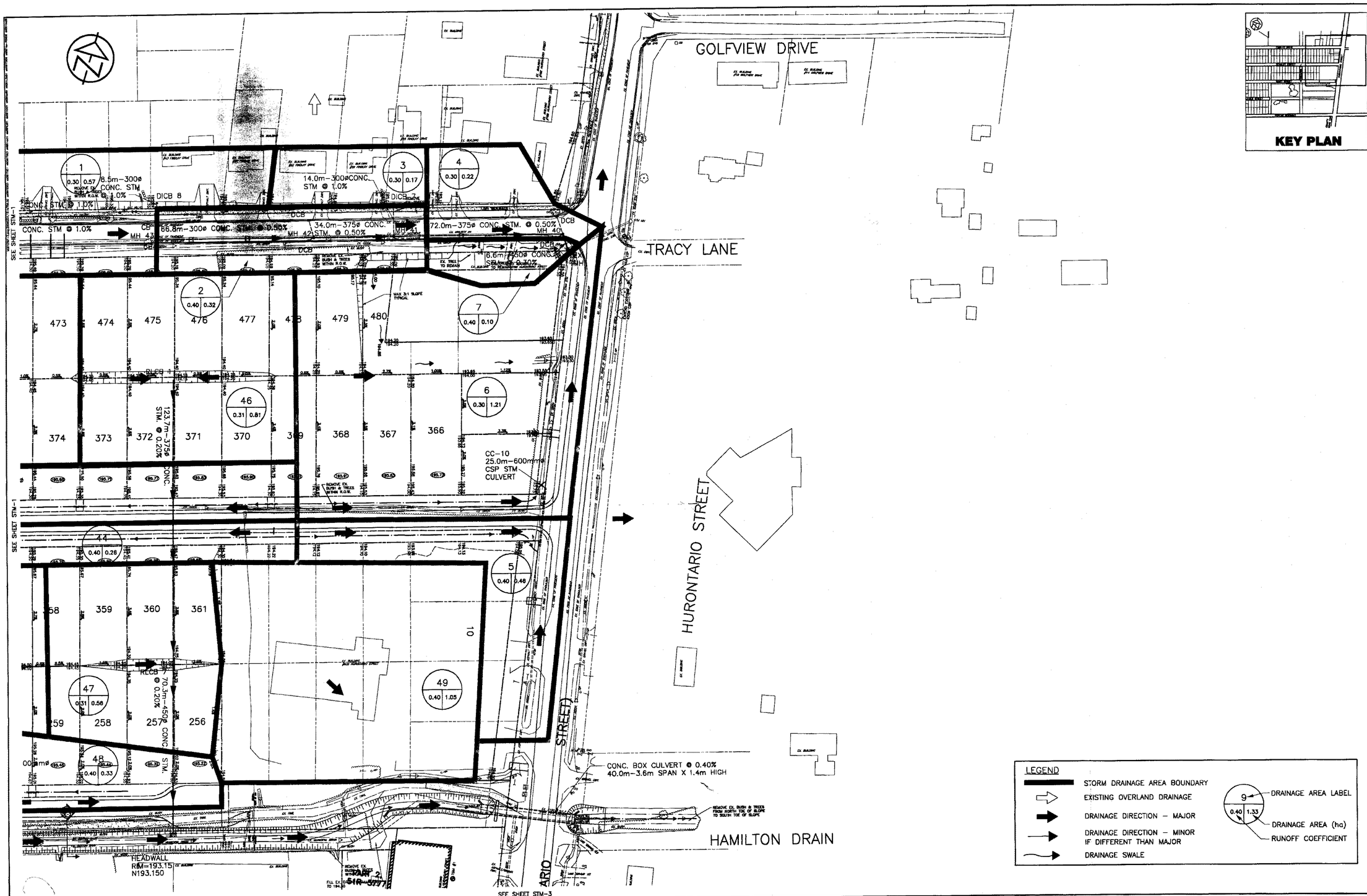
ORIGINAL STAMPED BY K. R. SANSOM MAY 6 2008

TOWN OF COLLINGWOOD
SANITARY SEWER RENEWAL PROGRAM
PHASE 1- CONTRACT 4

PLAN AND PROFILE MAPLE STREET STA. 0+290 TO 0+427

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORIZ. 1:250 VERT. 1:50		JOB NO.	105162-11
DESIGN: WK	CHECKED: KRS	DWG.	PP-71
DRAWN: WK	DATE: MAR./2008		



LEGEND

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NOTES:

1. SEE LG-DE FOR LOT GRADING DETAILS AND DRIVEWAY CULVERTS TABLE.

BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

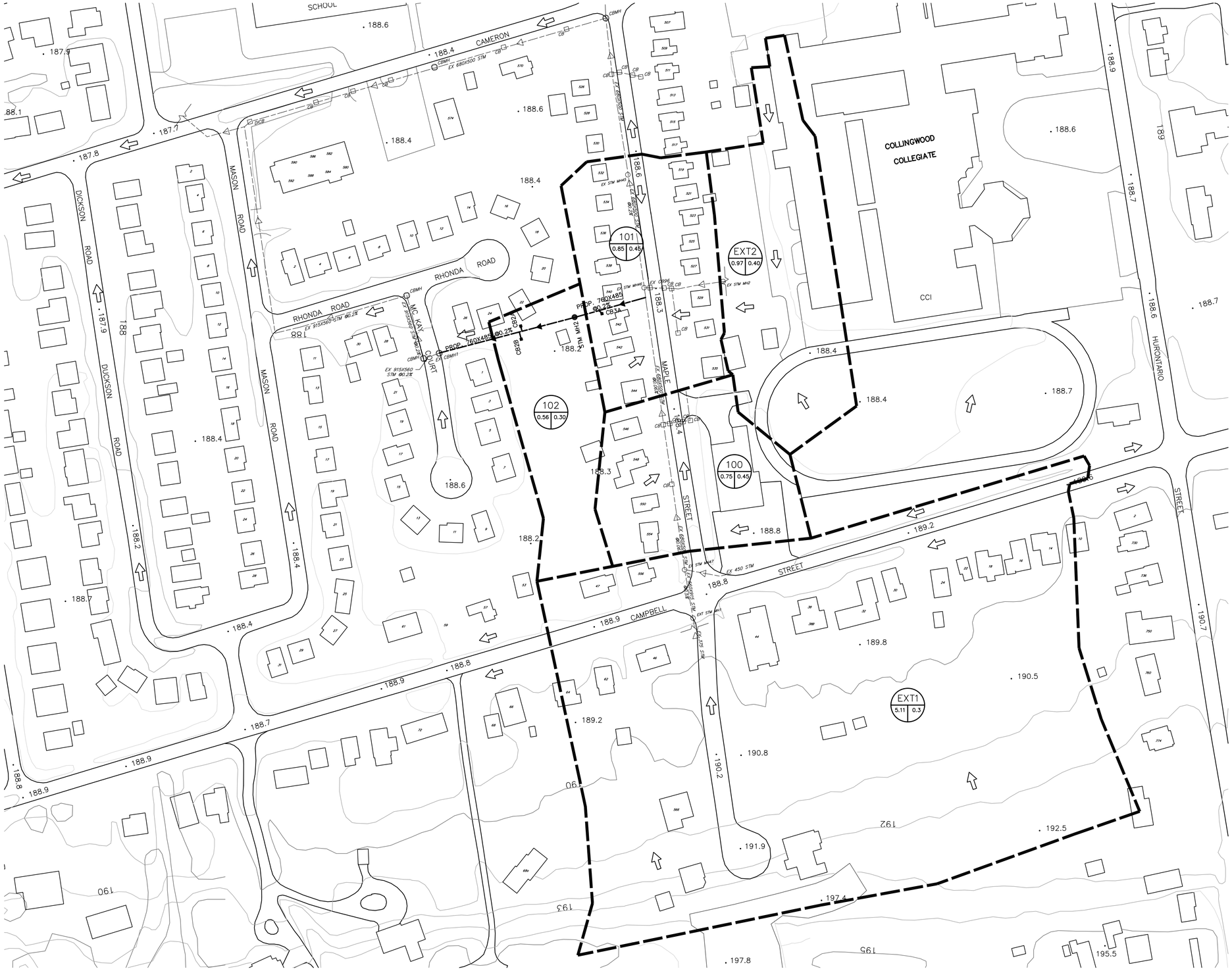
LICENSED PROFESSIONAL ENGINEER D. J. HURLEY PROVINCE OF ONTARIO

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

STORMWATER SERVICING PLAN

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: 1:750		JOB NO.	102081
DESIGN: RF	CHECKED: RS	DWG.	**STM-2**
DRAWN: MCA	DATE: MARCH 2006		


CAMERON
MASON ROAD
DICKSON ROAD
RHONDA ROAD
MC KAY COURT
MAPLE STREET
CAMPBELL STREET
HURONTARIO STREET
COLLINGWOOD COLLEGIATE
CCI
SCHOOL
101
0.85 0.45
EXT2
0.97 0.40
102
0.56 0.30
100
0.75 0.45
EXT1
5.11 0.3
PROP. 750X485
PROP. 675X450
EX 915X560 STM
EX 680X500 STM
EX 450 STM
EX STM MH45
EX STM MH46
EX STM MH2
EX STM MH1
EX CBMH1
EX CB2A
EX CB2B
EX CB3A
EX CB4
EX CB5
EX CB6
EX CB7
EX CB8
EX CB9
EX CB10
EX CB11
EX CB12
EX CB13
EX CB14
EX CB15
EX CB16
EX CB17
EX CB18
EX CB19
EX CB20
EX CB21
EX CB22
EX CB23
EX

STORM SEWER DESIGN SHEET - 2 YEAR

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

IDF Curve Coefficients

Storm	A	B	C
2 Year	807.4	6.75	0.828
5 Year	1135.4	7.50	0.841
10 Year	1387.0	7.97	0.852
25 Year	1676.2	8.30	0.858
50 Year	1973.1	9.00	0.868
100 Year	2193.1	9.04	0.871

Manning's Coefficient

CSP	0.024
PVC/HDPE/Conc.	0.013

Project Number: 116248
Project: Maple Street Drainage

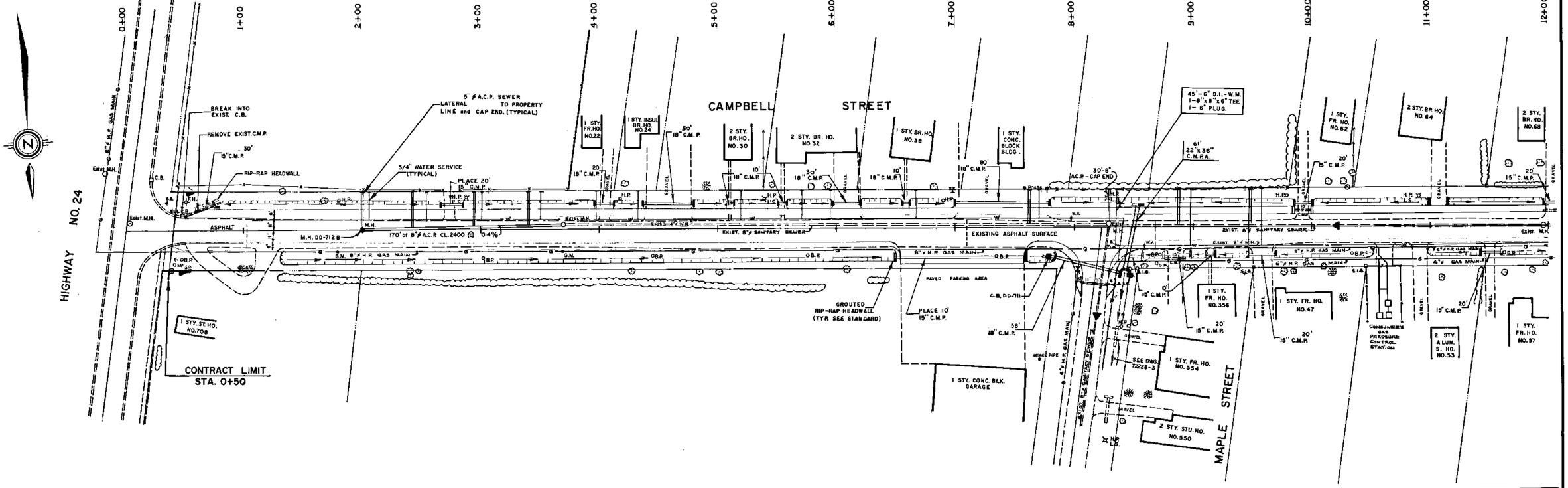
Municipality: Town of Collingwood
Designed By: APR
Date: June 8, 2017
Checked By: LL/AEB
Date: June 9, 2017
Revision Number:

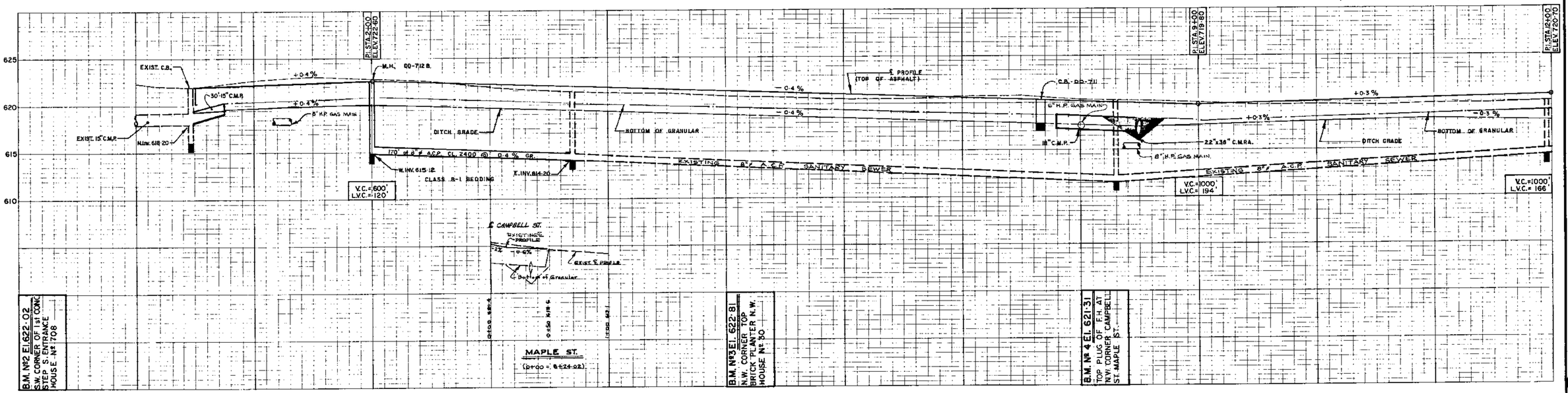
Approved:

LOCATION OF SECTION	AREA LABEL	UPSTREAM MAINTENANCE HOLE	DOWNSTREAM MAINTENANCE HOLE	TRIBUTARY AREA - A	RUNOFF COEFFICIENT - C	INDIVIDUAL A x C	CUMULATIVE AREA	CUMULATIVE A x C	TIME OF CONCENTRATION	RAINFALL INTENSITY (2 YEAR)	RAINFALL INTENSITY (5 YEAR)	PEAK FLOW (2 YEAR)	PEAK FLOW (5 YEAR)	MANNING'S ROUGHNESS COEFFICIENT	LENGTH	SLOPE	EQUIVALENT DIAMETER	FULL FLOW VELOCITY	FULL FLOW CAPACITY	ACTUAL VELOCITY	TIME OF FLOW	CALCULATED PIPE DIAMETER (2 YEAR)	TIME OF CONCENTRATION
		MH No.	MH No.	ha					min.	mm/hr	mm/hr	cms	cms		m	m/m	mm	m/s	cms	m/s	min	mm	min
EXISTING STORM SYSTEM																							
Campbell Street	EXT1	EX STM MH1	EX STM MH47	5.11	0.30	1.533	5.11	1.533	11.80	71.93	94.19	0.306	0.401	0.024	22.0	0.50%	750	0.97	0.426	0.97	0.38	662	12.18
Maple Street	100	EX STM MH47	EX STM MH46	0.75	0.45	0.338	5.86	1.871	12.18	70.73	92.66	0.368	0.481	0.024	149.4	0.06%	600	0.29	0.081	0.29	8.64	1055	20.82
CCI	EXT-2	EX STM MH2	EXCB96	0.97	0.40	0.388	0.97	0.388	12.00	71.30	93.37	0.077	0.101	0.013	30.0	0.50%	300	0.97	0.068	0.97	0.52	313	12.52
Maple Street	101	EX CB96	EX STM MH46	0.85	0.45	0.383	1.82	0.771	12.52	69.71	91.34	0.149	0.195	0.013	3.0	0.67%	300	1.12	0.079	1.12	0.04	380	12.56
Maple Street - EXISTING OUTLET	---	EX STM MH46	EX STM MH45	0.00	0.00	0.000	7.680	2.641	20.82	51.81	68.22	0.380	0.500	0.024	58.3	0.20%	600	0.53	0.149	0.53	1.85	853	22.67
PROPOSED STORM SYSTEM																							
Maple Street - EXISTING OUTLET	---	EX STM MH46	EX STM MH45	0.00	0.00	0.000	7.680	2.641	20.82	51.81	68.22	0.149	0.149	0.024	58.3	0.20%	600	0.53	0.149	0.53	1.85	600	22.67
Maple Street - NEW OUTLET	---	EX STM MH46	STM MH2	0.00	0.00	0.000	7.680	2.641	20.82	51.81	68.22	0.231	0.352	0.013	38.1	0.20%	610	0.98	0.287	0.98	0.65	562	21.47
											SUM	0.380	0.500					SUM	0.436				
Maple Street - NEW OUTLET	102	STM MH2	EX CBMH1	0.56	0.30	0.168	6.420	2.039	21.47	50.82	66.94	0.288	0.379	0.013	70.9	0.20%	610	0.98	0.287	0.98	1.20	610	22.67

Notes:

1. Refer to drawing 116248-STM-1 prepared by C.C. Tatham & Associates Ltd. for catchment areas.
2. Runoff coefficient calculated based on average lot size and coverage using suggested values in MTO Drainage Manual and Town Standards.
3. Existing storm pipes are included to demonstrate the results of this 'best efforts' approach. No changes are proposed to the existing pipes. Proposed design calculations have been bolded.
4. The largest possible pipes have been proposed to suit existing geometric constraints.
5. The proposed storm sewer is proposed to be installed upstream of EX STM MH46 but is treated as connected at the same location due to their close proximity and the relatively minor slopes. Under full flow conditions, the majority of flow is anticipated to use the new elliptical pipe.
6. Time of concentration in EXT-1 and EXT-2 calculated using the longest flow path and 2 m/s flow velocity according to the average slope across the catchment. These values have been shown in green.
7. Equivalent diameters have been used in these calculations, shown in red. The existing 680x500 mm CSPA storm pipe is hydraulically equivalent to 600 mm dia.; the new outlet 760x485 mm concrete elliptical pipe is hydraulically equivalent to 610 mm dia.; the existing 560x915mm CSPA storm pipe is hydraulically equivalent to 750 mm dia.
8. Catchment boundaries are approximate and have been delineated from Town As-built drawings, Ontario Base Map contours and site visits.





CHAINAGE	0+00	+50	1+00	+50	2+00	+50	3+00	+50	4+00	+50	5+00	+50	6+00	+50	7+00	+50	8+00	+50	9+00	+50	10+00	+50	11+00	+50	12+00
EXISTING ℄ ELEV.		622.0		622.7		625.1		622.8		622.5		621.9		621.5		621.3		621.2		620.9		620.7		620.5	
PROPOSED ℄ ELEV.				622.20		622.39		622.46		622.39		622.20		622.00		621.80		621.60		621.40		621.20		621.00	

CHAINAGE		620.5		620.5		620.7		620.8		620.4		620.3		620.0		619.8		619.8		619.7		619.9		619.9		620.0
EXISTING ℄ ELEV.																										
PROPOSED ℄ ELEV.		620.80		620.60		620.40		620.20		620.04		619.97		619.99		620.10		620.25		620.40		620.53		620.58		

Notes:

NO.	REVISIONS	DATE	INITIAL

Approved

REGISTERED PROFESSIONAL ENGINEER — CIVIL — P. W. AINLEY — PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER — CIVIL — J. S. McGAVIN — PROVINCE OF ONTARIO

TOWN OF COLLINGWOOD
CAMPBELL STREET RECONSTRUCTION
PLAN and PROFILE
"AS BUILT"

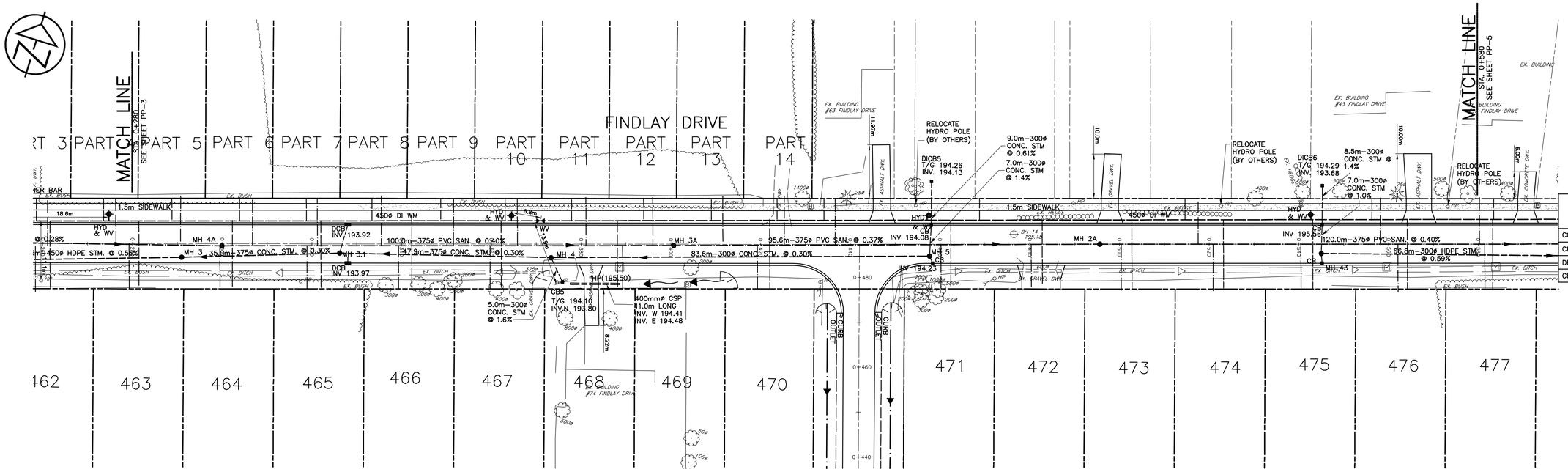
AINLEY and ASSOCIATES LTD.
Consulting Engineers
Barrie — Collingwood

SCALE: HORZ. 1"=40' VERT. 1"= 5'

DESIGN	K.C.H.	CHECKED	J.S.M.
DRAWN	L.G.B.	DATE	JAN. 1973.

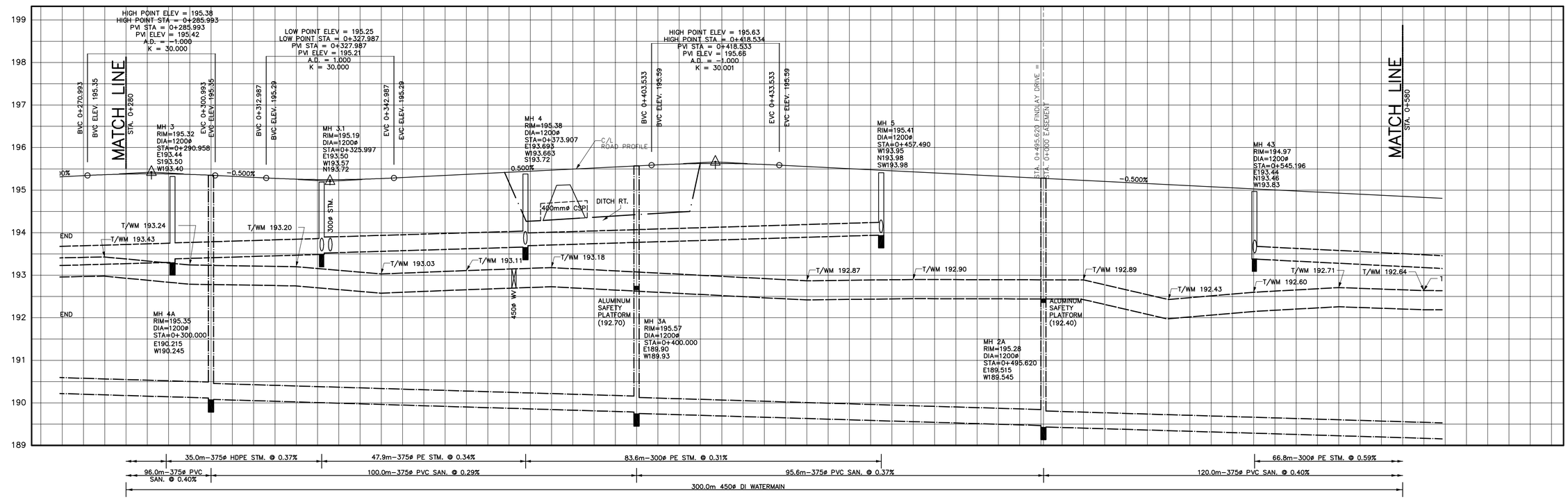
DWG. No 72228-1

DRD-0307



FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+280	194.87	195.38
0+300	194.91	195.35
0+320	194.91	195.26
0+340	194.93	195.27
0+360	195.02	195.37
0+380	195.11	195.47
0+400	195.19	195.57
0+420	195.26	195.63
0+440	195.28	195.56
0+460	195.29	195.46
0+480	195.23	195.36
0+495.6	195.17	195.26
0+500	195.16	195.16
0+520	195.09	195.06
0+540	195.01	194.96
0+560	194.96	194.86
0+580	194.94	194.86

LEGEND

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

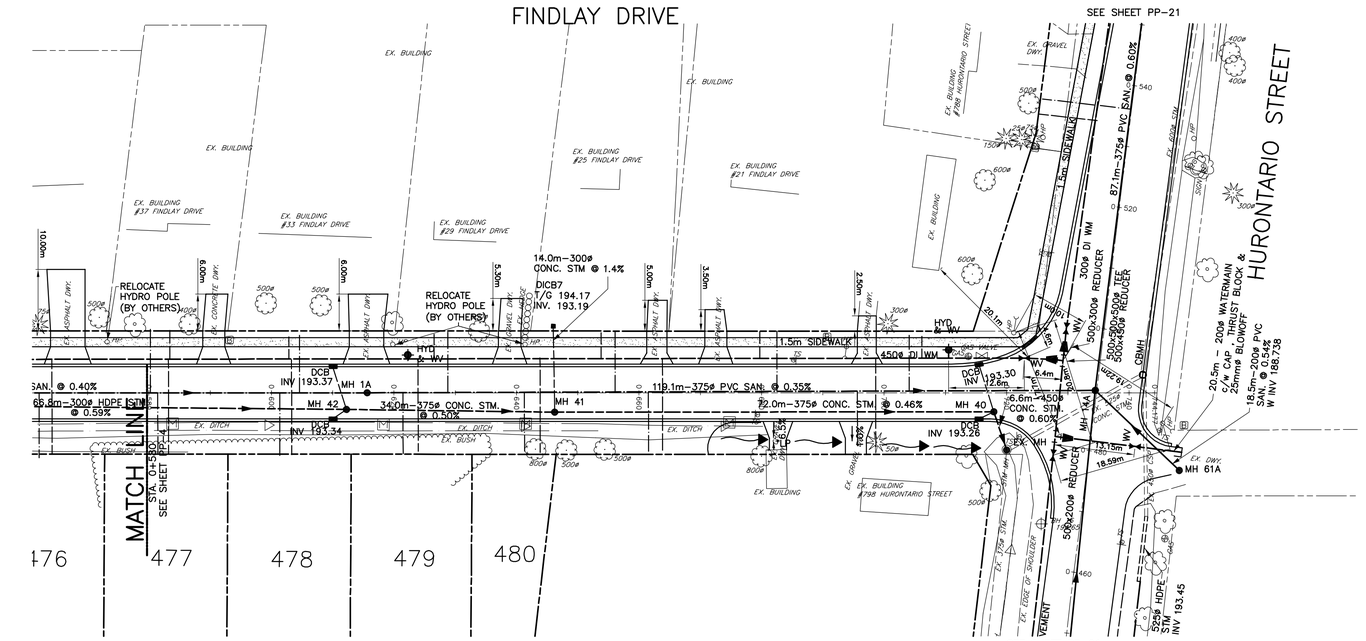
ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

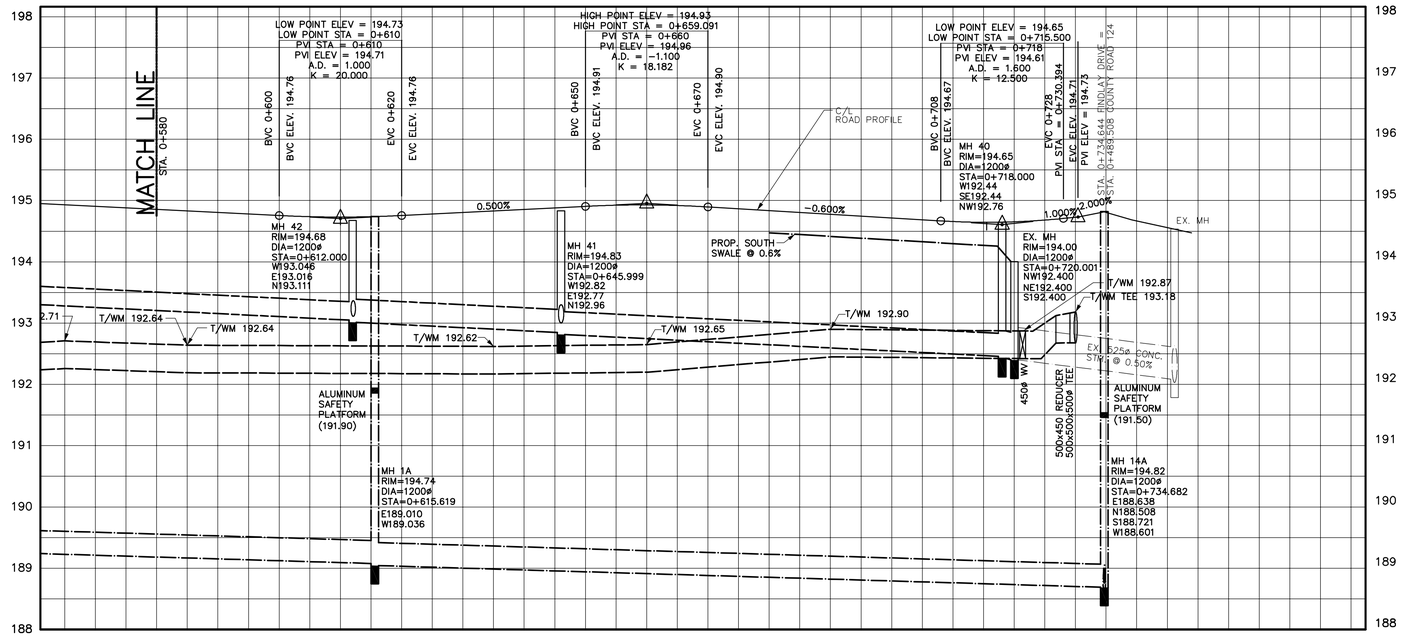
SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

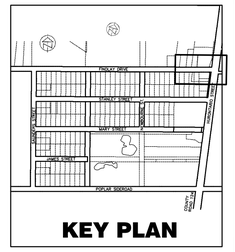
PLAN AND PROFILE FINDLAY DRIVE STA. 0+280 TO 0+580

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500 VERT. 1:50		JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-4
DRAWN: MCA/WJV	DATE: MARCH 2006		







KEY PLAN

FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008

LEGEND

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3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081–1	OCT/04	RS

APPROVED

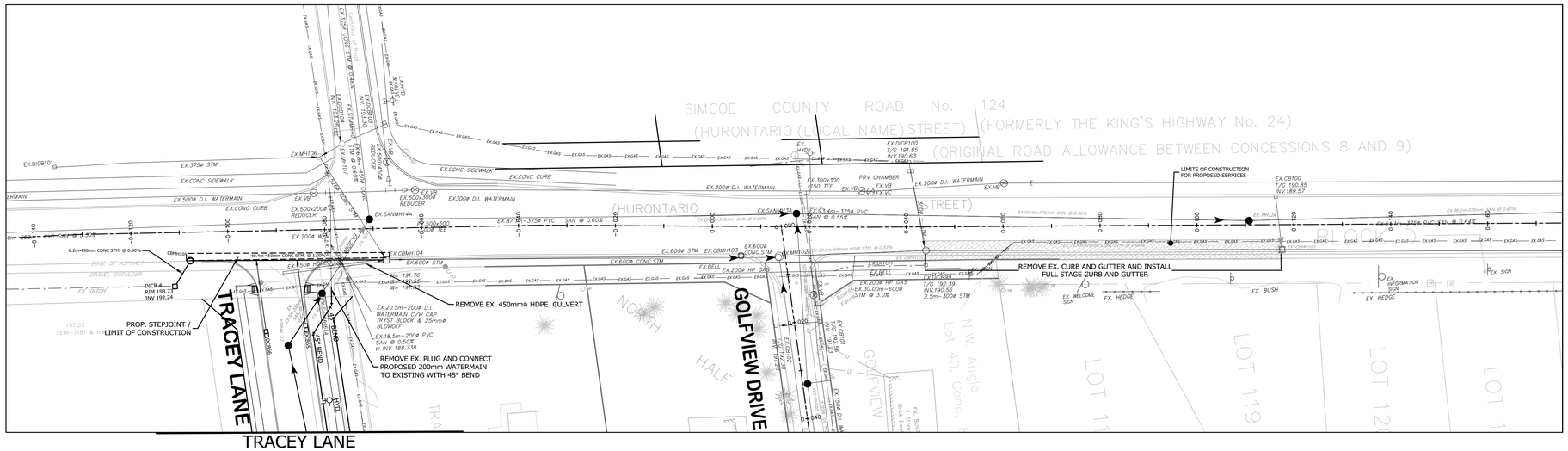
ORIGINAL STAMPED BY
B. F. STANTON
MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

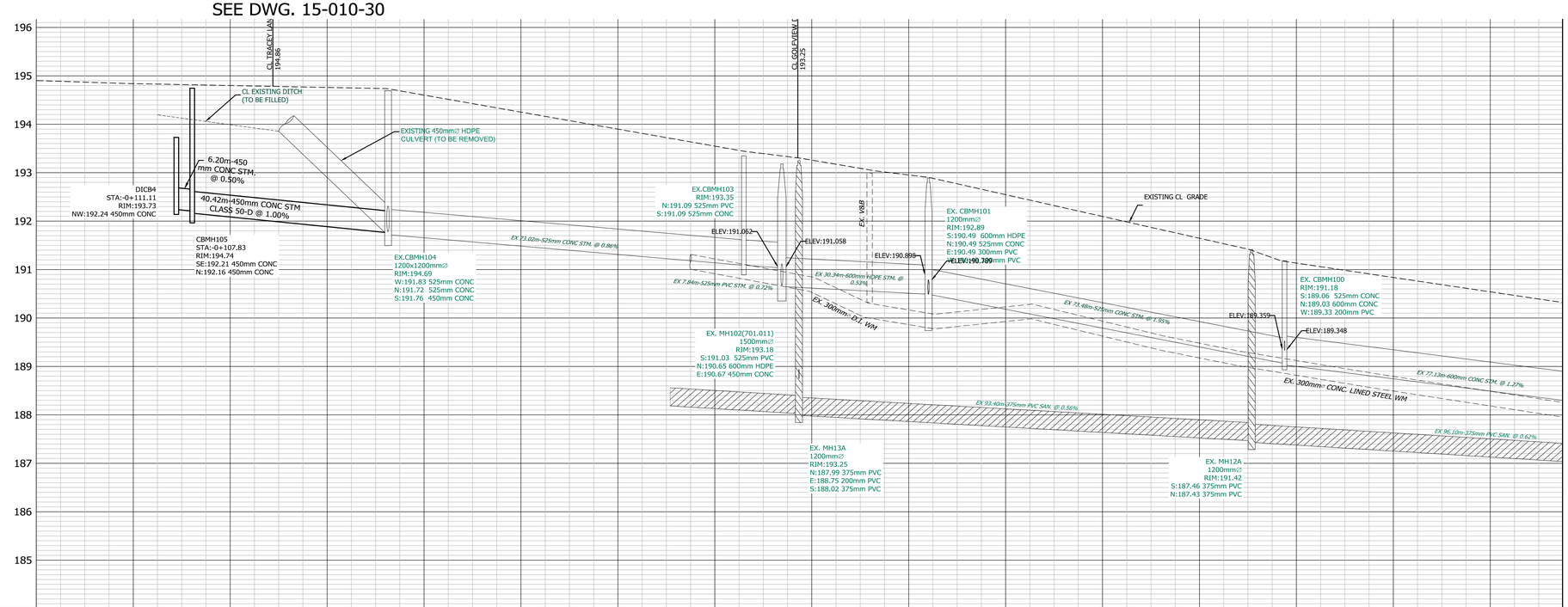
PLAN AND PROFILE FINDLAY DRIVE STA. 0+580 TO 0+734.6

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500	VERT. 1:50	JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-5
DRAWN: MCA/WJV	DATE: MARCH 2006		



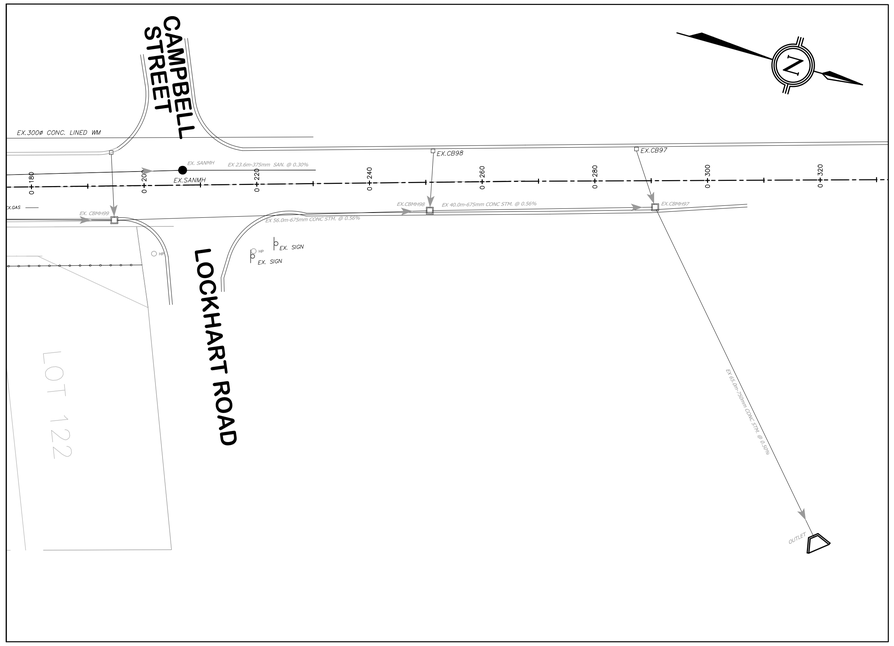
TRACEY LANE
SEE DWG. 15-010-30



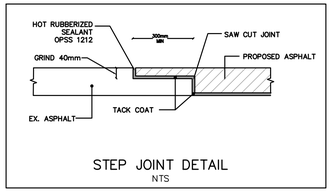
MATCH LINE STA 0+170.000

MATCH LINE STA 0+170.000

| | | |



SEE DWG. 15-010-20
MATCH LINE STA 0+170.000

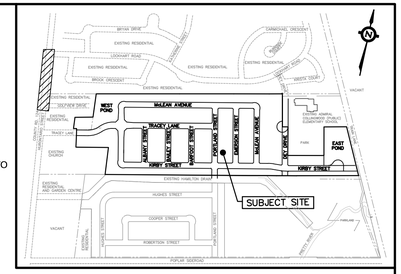


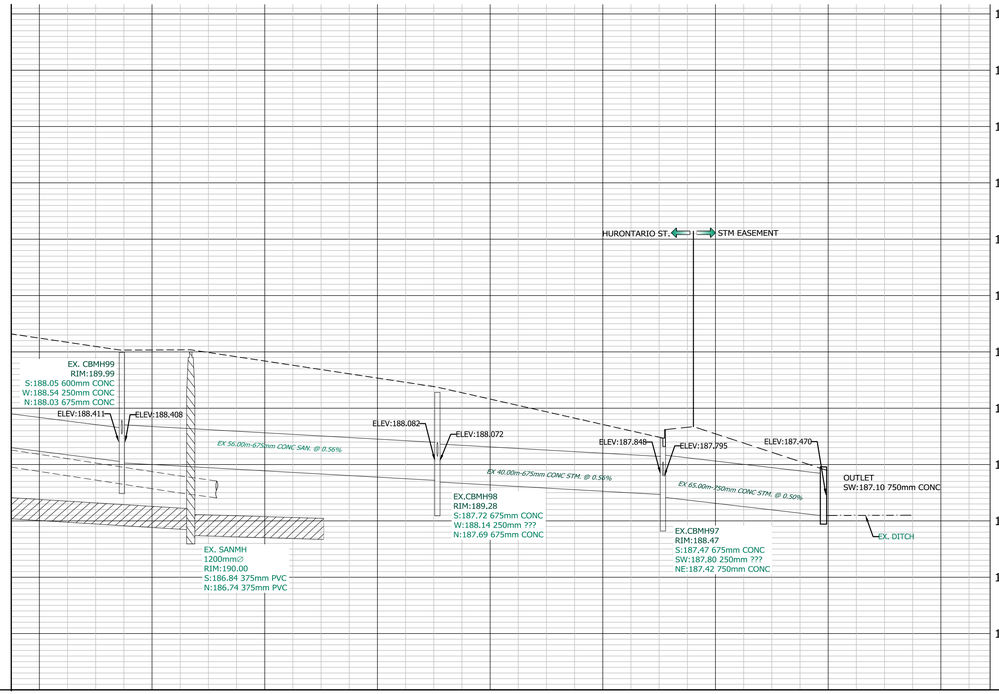
STEP JOINT DETAIL
NTS

NOTE:
CLEARANCE BETWEEN WATER MAINS AND SEWERS TO BE A MINIMUM OF 0.5m VERTICAL OR 2.5m MINIMUM HORIZONTAL SEPARATION. NO CASING.

NOTES:

1. CONTRACTOR TO OBTAIN MUNICIPAL APPROVAL FOR ROAD OCCUPANCY. TRAFFIC SIGNAGE PLAN AND ROAD CLOSURE A MINIMUM OF 2 WEEKS PRIOR TO COMMENCING CONSTRUCTION WITHIN HURONTARIO STREET RIGHT-OF-WAY.
2. SERVICING TO BASE ROADWORKS - FULL ROAD RESTORATION WITHIN THE SERVICE CUTS (UNSHRINKABLE BACKFILL, 350mm DEPTH GRANULAR B, 150mm DEPTH GRANULAR A, AND 90mm HL8 BASE ASPHALT) IS REQUIRED DURING THE INITIAL INSTALLATION. TOPWORKS - REMOVE AND REPLACE CONCRETE CURB BETWEEN EX. CBMH101 AND EX. CBMH1. FULL WIDTH OF HURONTARIO TO BE MILLED 40mm, TACK COAT AND PLACE 40mm HL3 TOP ASPHALT. CONTRACTOR TO ENSURE 2.0% CROSSFALL, ADJUST MANHOLES TO NEW GRADE. BOULEVARD TO BE RESTORED WITH MIN 150mm TOPSOIL AND No.1 NURSERY SOD. ALL RESTORATION WORK IS TO THE SATISFACTION OF THE TOWN AND THE ENGINEER.
3. WORKS PROVIDE A SMOOTH TRANSITION TO EXISTING. EXTENT OF REMOVAL AND RESTORATION TO BE DETERMINED BY TOWN OF COLLINGWOOD.





SEE DWG. 15-010-20
MATCH LINE STA 0+170.000

EXISTING CENTERLINE ELEVATION	190.24	190.03	189.64
	189.53	189.16	188.71
CENTERLINE CHAINAGE	0+180	0+200	0+220
	0+240	0+260	0+280
	0+300	0+320	0+340
	0+349		

1. PIPE SIZES ARE IN MILLIMETERS UNLESS INDICATED. ELEVATIONS ARE IN METERS UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

BENCHMARK INFORMATION
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO TOWN OF COLLINGWOOD BM No. 001192641669 ELEVATION 180.474m UTM-17N 4927891 E562139. DESCRIPTION: COLLINGWOOD POST OFFICE, TABLET IN STONE FOUNDATION OF NORTH SIDE WALL, MIDWAY BETWEEN FIRST AND SECOND WINDOWS FROM FRONT AND 60cm ABOVE PAVEMENT OF LANE.

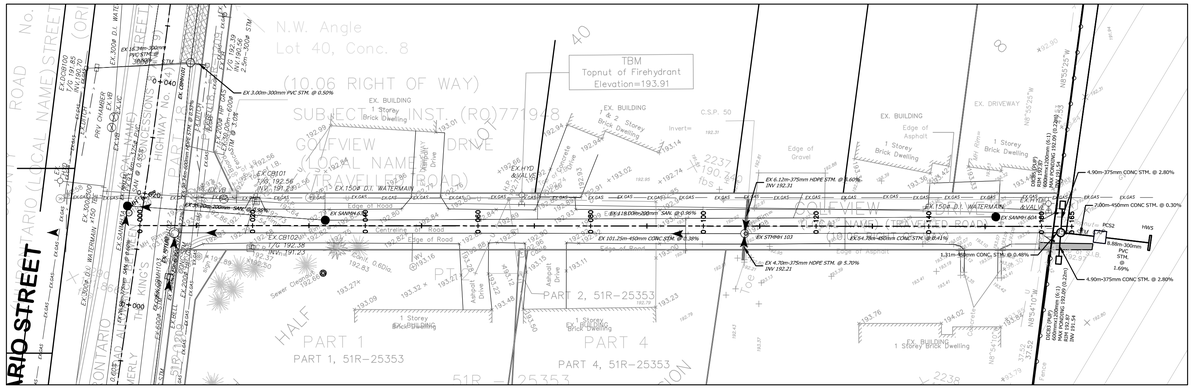
NO.	REVISIONS	DATE	INITIAL
4.	FILL PERMIT - 3RD SUBMISSION (ESC ST.1 ONLY)	2017-06-05	S.N.
3.	SECOND SUBMISSION	2017-05-12	R.P.D.
2.	FILL PERMIT - 2ND SUBMISSION (ESC ONLY)	2017-05-03	R.P.D.
1.	FIRST SUBMISSION	2016-11-23	R.P.D.

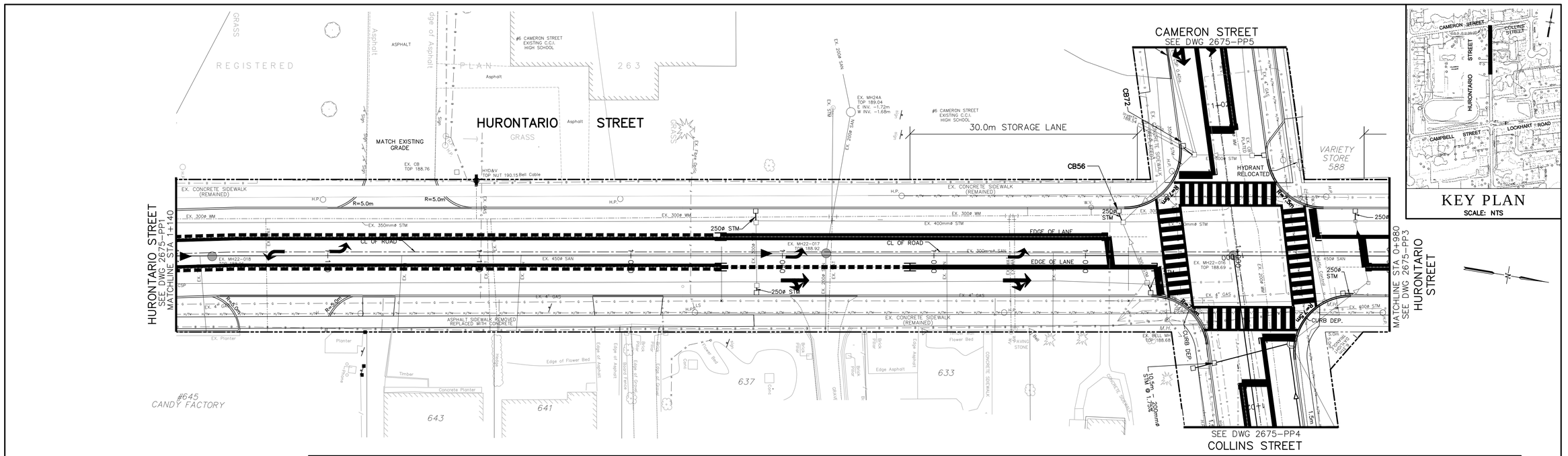
DESIGNED JUN 05/17
APPROVED JUN 05/17

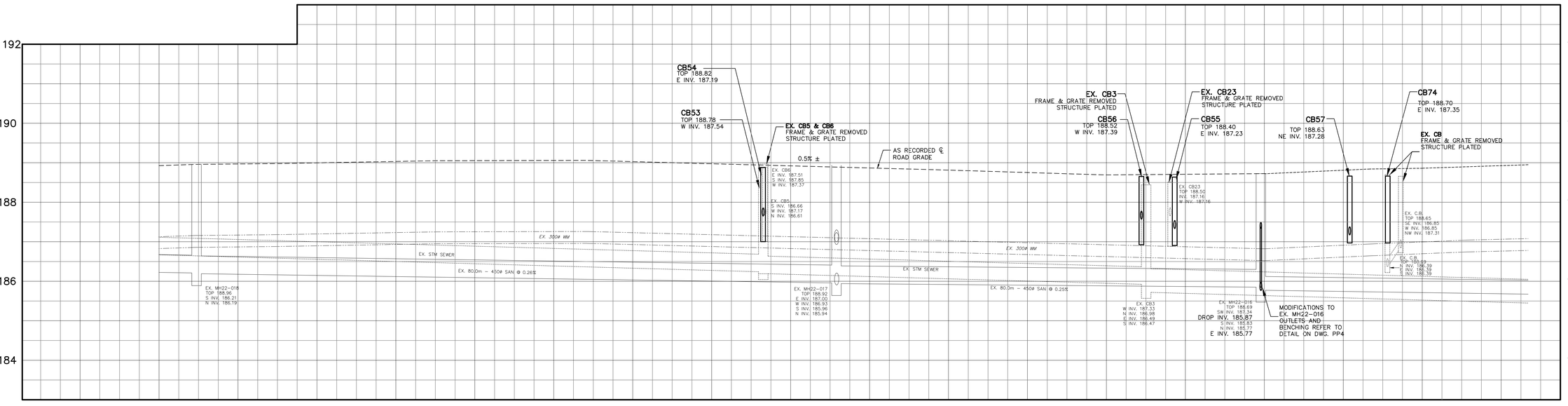
EDEN OAK (MCNABB) INC.
TOWN OF COLLINGWOOD
HURONTARIO STREET
PLAN AND PROFILE STA.
-0+115 TO 0+210

CONDELAND ENGINEERING LTD.
Consulting Engineers and Project Managers
350 CREDITSTONE ROAD, UNIT 200
CONCORD, ON., L4K 3Z2
PHONE: (905) 695-2096
FAX: (905) 695-2099

SCALE:	HORIZ. 1:500 VERT. 1:50	JOB NO.	15-010
DESIGN:	R.P.D; S.N.	APPROVED:	R.P.D.
DRAWN:	A.G. / V.B.	DATE:	JUNE 2017
DWG.	20		


TBM
Topnut of Firehydrant
Elevation=193.91
EX. BUILDING
1 Storey
Brick Dwelling
EX. BUILDING
Edge of
Asphalt
1 Storey
Brick Dwelling
EX. DRIVEWAY
EX. BUILDING
1 Storey
Brick Dwelling
EX. BUILDING
1 Storey
Brick Dwelling
EX. BUILDING
1 Storey
Brick Dwelling
EX. 3.00m-300mm PVC STM. @ 0.50%
EX. 6.12m-375mm HDPE STM. @ 1.40%
INV 192.31
EX. 4.70m-375mm HDPE STM. @ 5.70%
INV 192.21
EX. 101.25m-450mm CONC STM. @ 0.38%
EX. 118.00m-300mm SAN. @ 0.95%
EX. 54.78m-450mm CONC STM. @ 0.41%
EX. 4.90m-375mm CONC STM. @ 2.80%
EX. 7.00m-450mm CONC STM. @ 0.30%
1.31m-900mm CONC. STM. @ 0.48%
4.90m-375mm CONC STM. @ 2.80%
EX. 150M D.I. WATERMAIN
EX. 150M D.I. WATERMAIN
EX. SANMH 63A
EX. SANMH 60A
EX. STMMH 103
EX. STM CAP
EX. CB101
EX. CB102
EX. CB103
EX. CB104
EX. CB105
EX. CB106
EX. CB107
EX. CB108
EX. CB109
EX. CB110
EX. CB111
EX. CB112
EX. CB113
EX. CB114
EX. CB115
EX. CB116
EX. CB117
EX. CB118
EX. CB119
EX. CB120
EX.





	1+140	1+120	1+100	1+080	1+060	1+040	1+020	1+000	0+980
RECORDED C/L ELEV	188.93	189.00	189.05	189.02	188.92	188.81	188.69	188.72	188.86
PREVIOUS C/L ELEV	188.92	189.00	189.06	189.05	188.95	188.83	188.73	188.72	189.06
CHAINAGE	1+140	1+120	1+100	1+080	1+060	1+040	1+020	1+000	0+980

LEGEND
- EXISTING STORM MANHOLE
- EXISTING CATCHBASIN MANHOLE
- EXISTING SINGLE CATCHBASIN
- EXISTING SANITARY MANHOLE
- STORM MANHOLE
- CATCHBASIN MANHOLE
- SINGLE CATCHBASIN
- CURB DEPRESSION

1. PIPE SIZES ARE IN MILLIMETRES UNLESS INDICATED. ELEVATIONS ARE IN METRES UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

NOTE:
THIS PLAN TO BE READ IN CONJUNCTION WITH ALL 2675 DRAWINGS IN THIS SET.

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: .....

NO.	REVISIONS	DATE	INITIAL
6.	AS RECORDED	MAY 14/14	R.H.
5.	ISSUED FOR CONSTRUCTION	JUNE 04/12	J.H.
4.	ISSUED FOR TENDER	MAY 04/12	J.H.
3.	ISSUED FOR TENDER REVIEW	APR 25/12	J.H.
2.	ISSUED FOR TOWN APPROVAL	MAR 07/12	J.H.

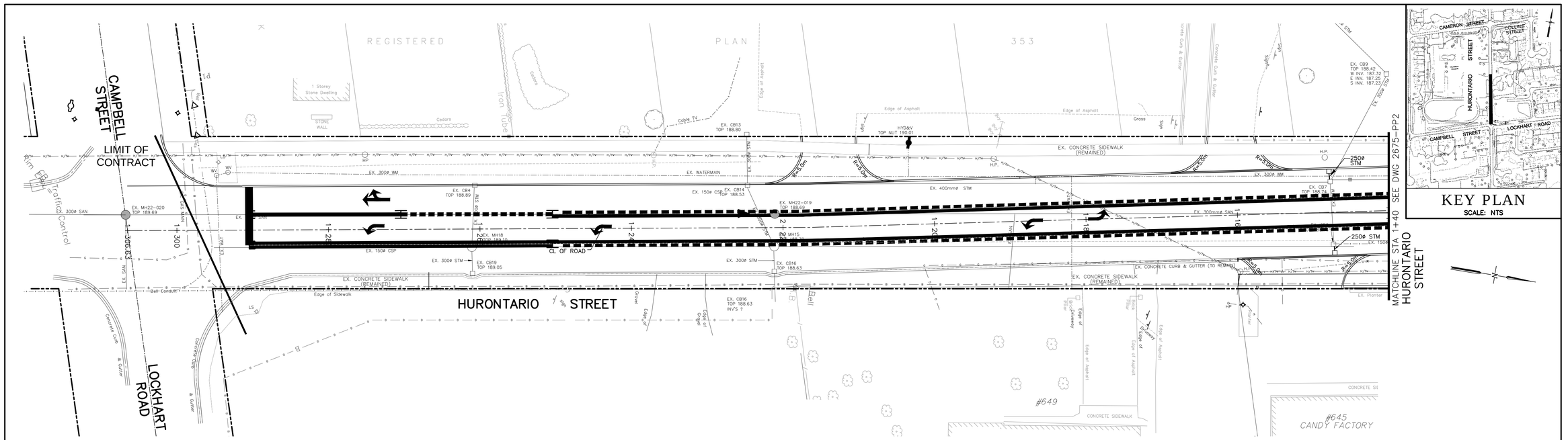
APPROVED

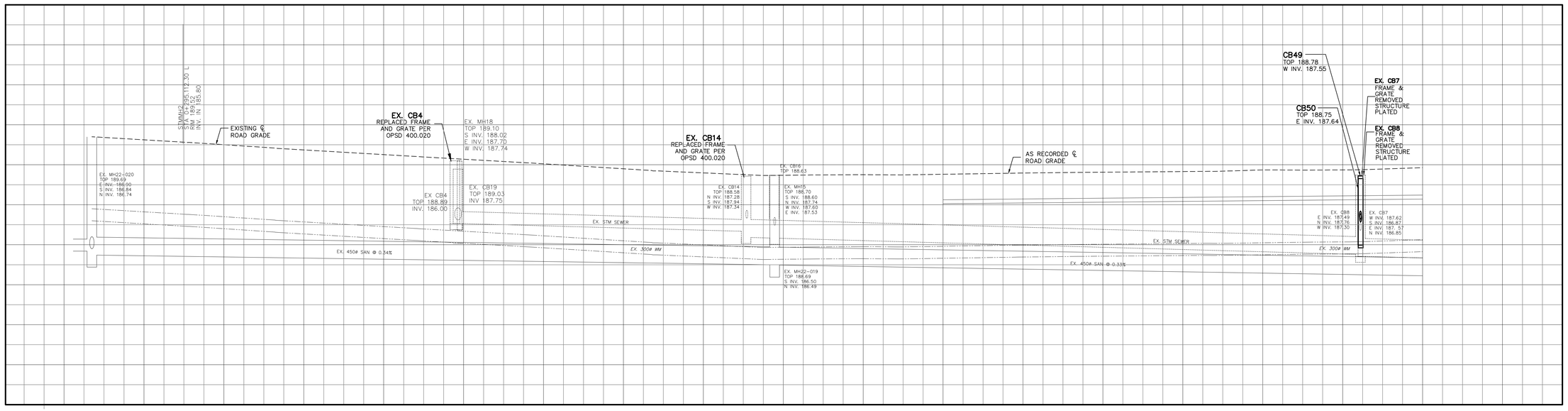
HURONTARIO STREET
ROAD WIDENING
TOWN OF COLLINGWOOD

HURONTARIO STREET PLAN & PROFILE STA: 1+140 TO STA: 0+980

GREENLAND® Consulting Engineers
120 Hume Street
Collingwood, Ontario, L9Y 1V5
Tel: (705) 444-8805
Fax: (705) 444-5482
E-mail: greenland@grnland.com
Website: www.grnland.com

SCALE: H-1:250 V-1:50		JOB NO.	11-2675
DESIGN: P. ELLIS	CHECKED: J. HARTMAN	DWG.	2675-PP2
DRAWN: B. KLESS	DATE: NOV 03, 2011		





RECORDED C/L ELEV	189.49	189.49	189.15	188.91	188.75	188.75	188.80	188.87	188.93
PREVIOUS C/L ELEV	189.49	189.49	189.15	188.91	188.75	188.75	188.80	188.84	188.92
CHAINAGE	1+300	1+280	1+260	1+240	1+220	1+200	1+180	1+160	1+140

LEGEND
- EXISTING STORM MANHOLE
- EXISTING CATCHBASIN MANHOLE
- EXISTING SINGLE CATCHBASIN
- EXISTING SANITARY MANHOLE
- STORM MANHOLE
- CATCHBASIN MANHOLE
- SINGLE CATCHBASIN
- CURB DEPRESSION

1. PIPE SIZES ARE IN MILLIMETRES UNLESS INDICATED. ELEVATIONS ARE IN METRES UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

NOTE: THIS PLAN TO BE READ IN CONJUNCTION WITH ALL 2675 DRAWINGS IN THIS SET.

ACCEPTED FOR CONSTRUCTION
Town of Collingwood
per .....
Date: .....

NO.	REVISIONS	DATE	INITIAL
6.	AS RECORDED	MAY 14/14	R.H.
5.	ISSUED FOR CONSTRUCTION	JUNE 04/12	J.H.
4.	ISSUED FOR TENDER	MAY 04/12	J.H.
3.	ISSUED FOR TENDER REVIEW	APR 25/12	J.H.
2.	ISSUED FOR TOWN APPROVAL	MAR 07/12	J.H.

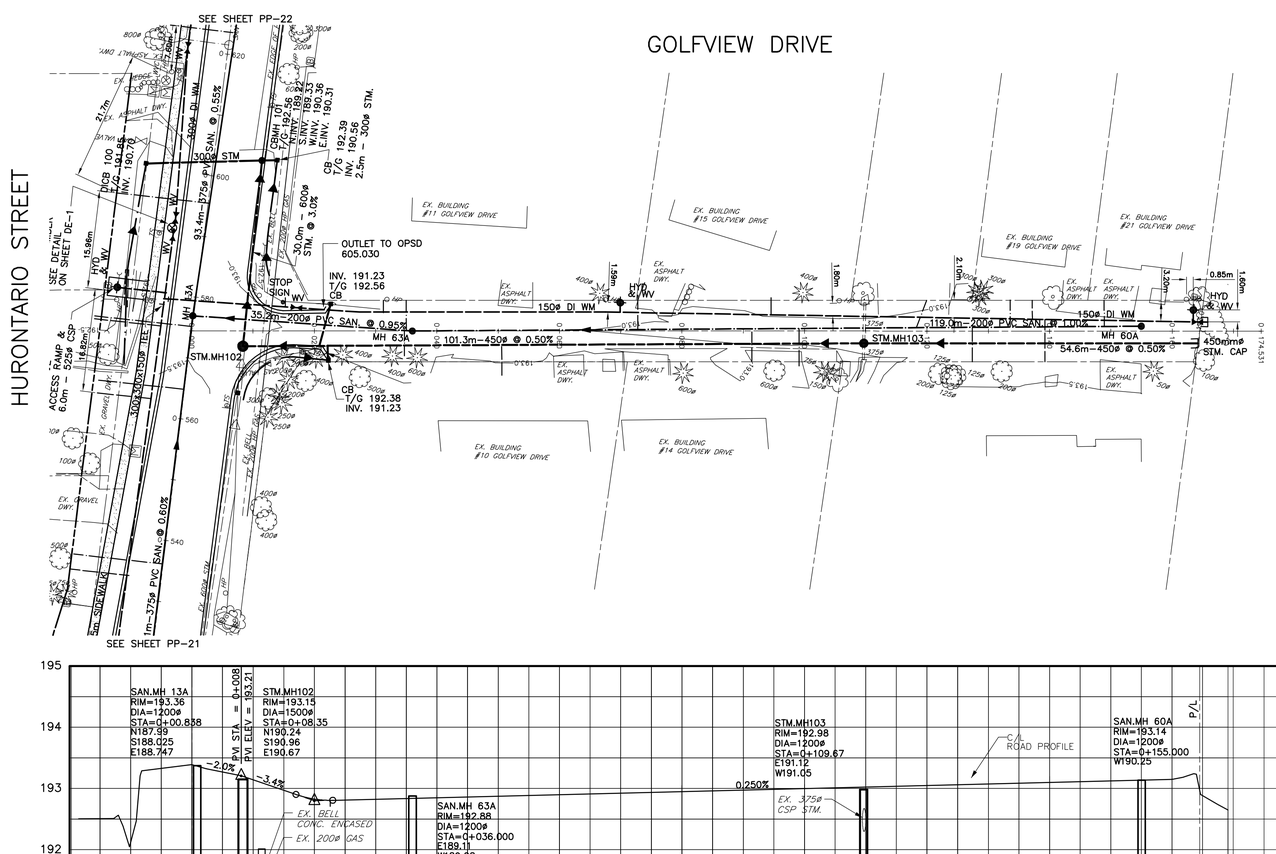
APPROVED

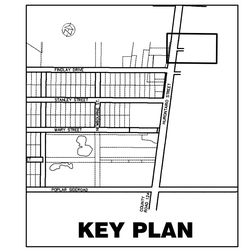
HURONTARIO STREET
ROAD WIDENING
TOWN OF COLLINGWOOD

HURONTARIO STREET PLAN & PROFILE STA: 1+306.63 TO STA: 1+140

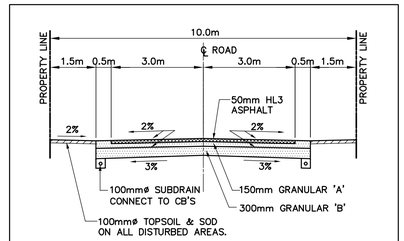
GREENLAND® Consulting Engineers
120 Hume Street
Collingwood, Ontario, L9Y 1V5
Tel: (705) 444-8805
Fax: (705) 444-5482
E-mail: greenland@grnland.com
Website: www.grnland.com

SCALE: H-1:250 V-1:50
JOB NO. 11-2675
DESIGN: P. ELLIS
CHECKED: J. HARTMAN
DRAWN: B. KLESS
DATE: NOV 03, 2011
DWG. 2675-PP1





FOR RECORD DRAWINGS			
COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



ROAD CROSS-SECTION - GOLFVIEW DRIVE
SCALE NTS

LEGEND

CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S, SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
6.	FOR RECORD INFORMATION	MAR/08	BFS
5.	STORM SEWER ADDED TO GOLFVIEW DR., SAN. SEWER & WATERMAIN REVISED.	JULY/06	BFS
4.	STRUCTURE NUMBERING REVISED	JUNE/06	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS

APPROVED

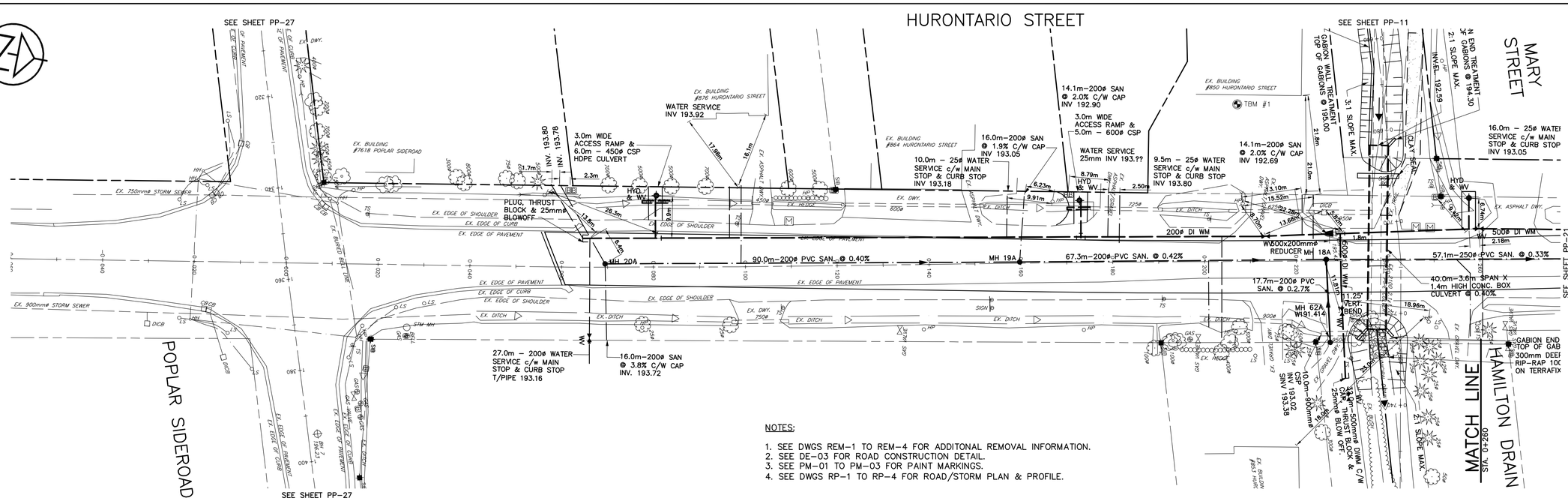
ORIGINAL STAMPED BY
B. F. STANTON
MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

PLAN AND PROFILE GOLFVIEW DRIVE STA. 0+000 TO 0+164

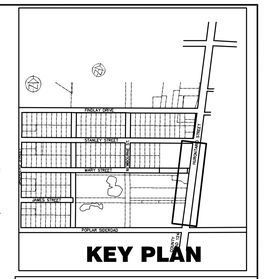
C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500		JOB NO.	102081
DESIGN: PM	CHECKED: MH	DWG.	PP-19
DRAWN: PM	DATE: MARCH 2006		



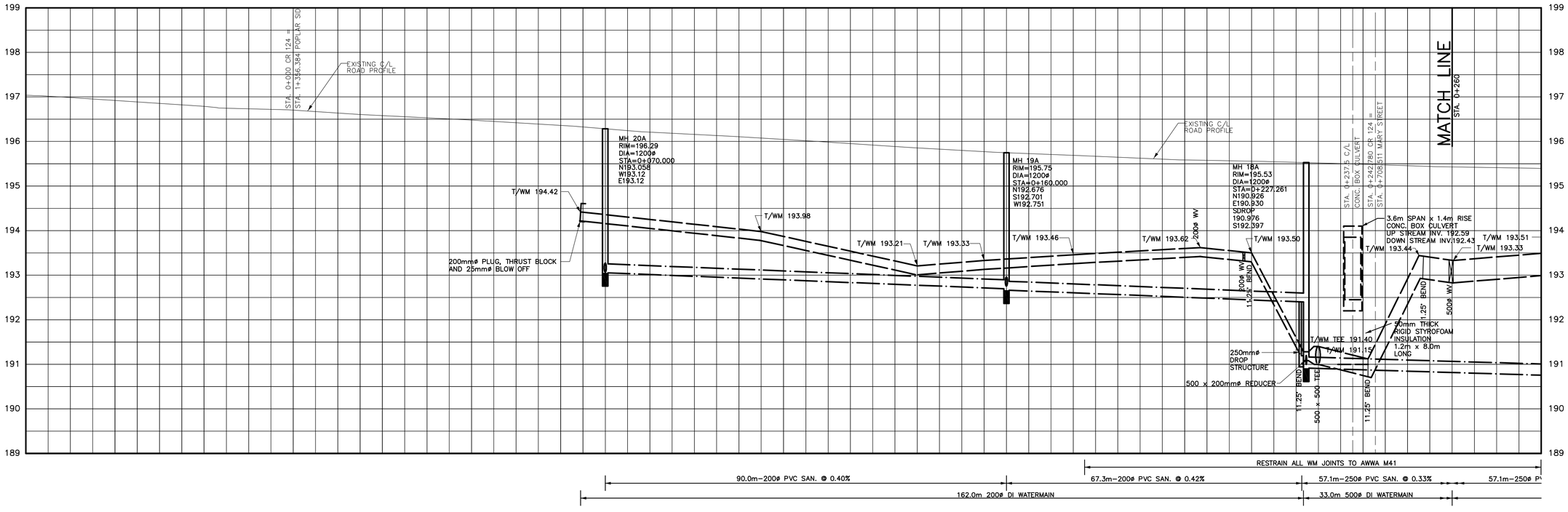
NOTES:

1. SEE DWGS REM–1 TO REM–4 FOR ADDITONAL REMOVAL INFORMATION.
2. SEE DE–03 FOR ROAD CONSTRUCTION DETAIL.
3. SEE PM–01 TO PM–03 FOR PAINT MARKINGS.
4. SEE DWGS RP–1 TO RP–4 FOR ROAD/STORM PLAN & PROFILE.



FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+060	197.04	
0+040	196.92	
0+020	196.79	
0+000	196.70	
0+020	196.58	
0+040	196.48	
0+060	196.36	
0+080	196.21	
0+100	196.11	
0+120	195.99	
0+140	195.85	
0+160	195.75	
0+180	195.67	
0+200	195.59	
0+220	195.55	
0+240	195.49	
0+260	195.43	
0+280	195.40	

LEGEND

CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081–1	OCT/04	RS

APPROVED

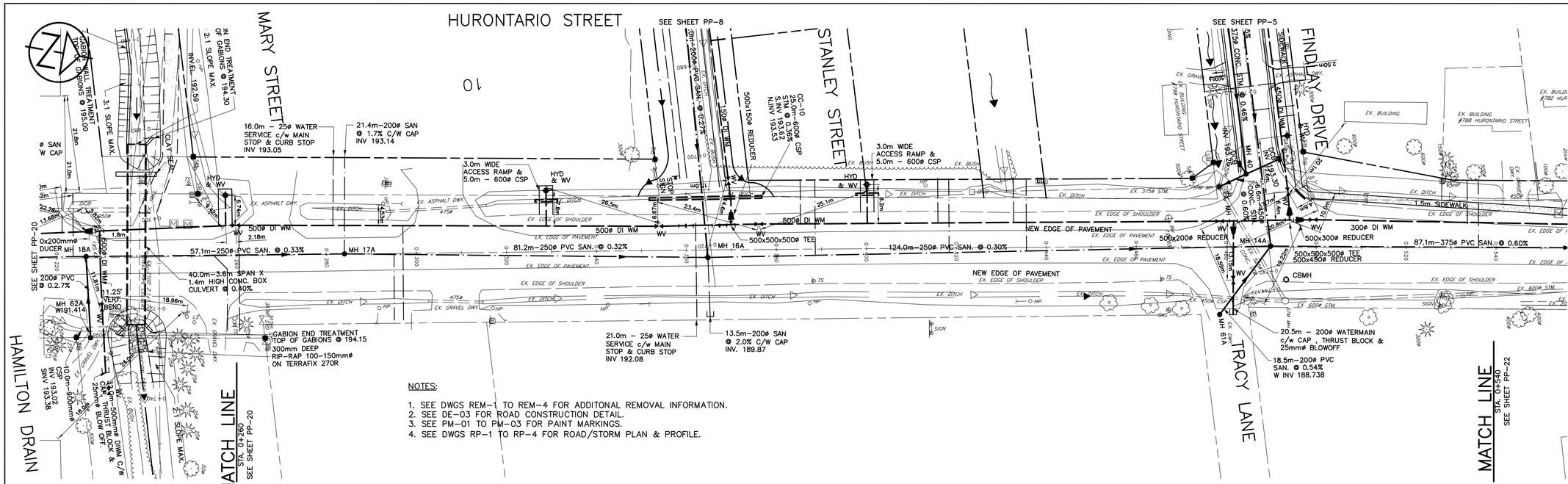
ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

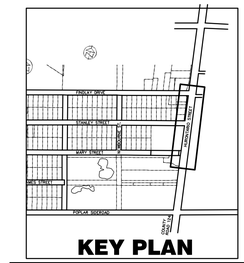
SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

PLAN AND PROFILE HURONTARIO STREET STA. 0–040 TO 0+260

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

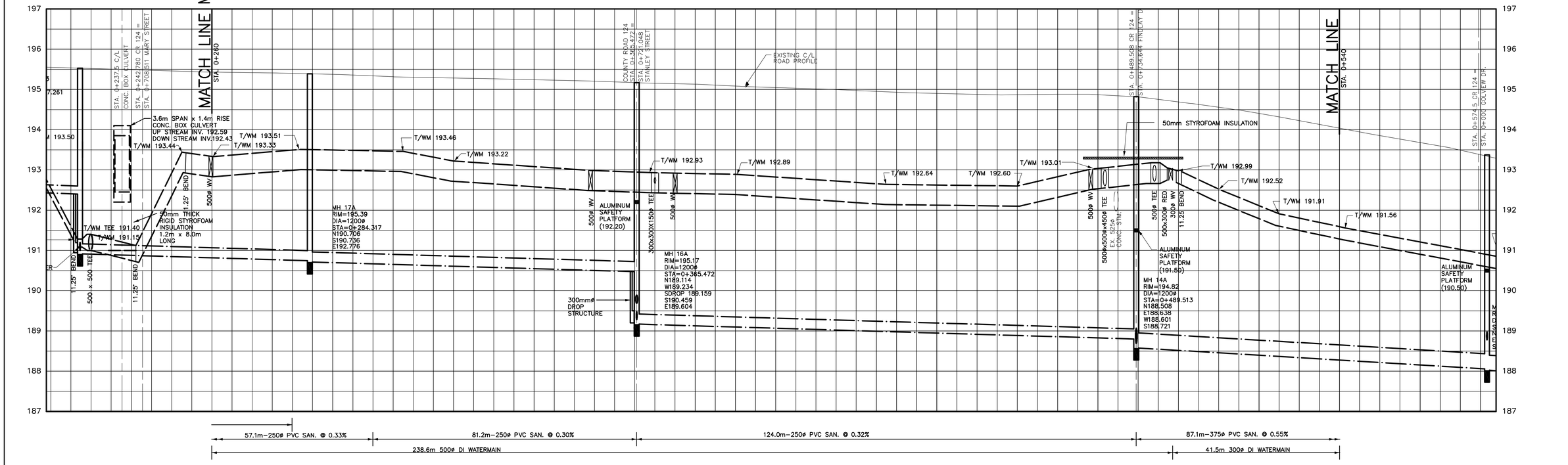
SCALE: HORZ. 1:500 VERT. 1:50		JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-20
DRAWN: MCA/WJV	DATE: MARCH 2006		





FOR RECORD DRAWINGS

COMPILED BY: MH	DATE: 3/30/2007
CHECKED BY: SEM	DATE: 3/30/2007
DRAWN BY: PM	DATE: 3/14/2008
CHECKED BY: BFS	DATE: 3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+260	195.43	
0+280	195.40	
0+300	195.33	
0+320	195.28	
0+340	195.24	
0+360	195.19	
0+365.5	195.16	
0+380	195.13	
0+400	195.05	
0+420	194.97	
0+440	194.90	
0+460	194.87	
0+480	194.87	
0+489.5	194.82	
0+500	194.69	
0+520	194.40	
0+540	194.04	

LEGEND

CONTRACT DRAWINGS

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081–1	OCT/04	RS

APPROVED

ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

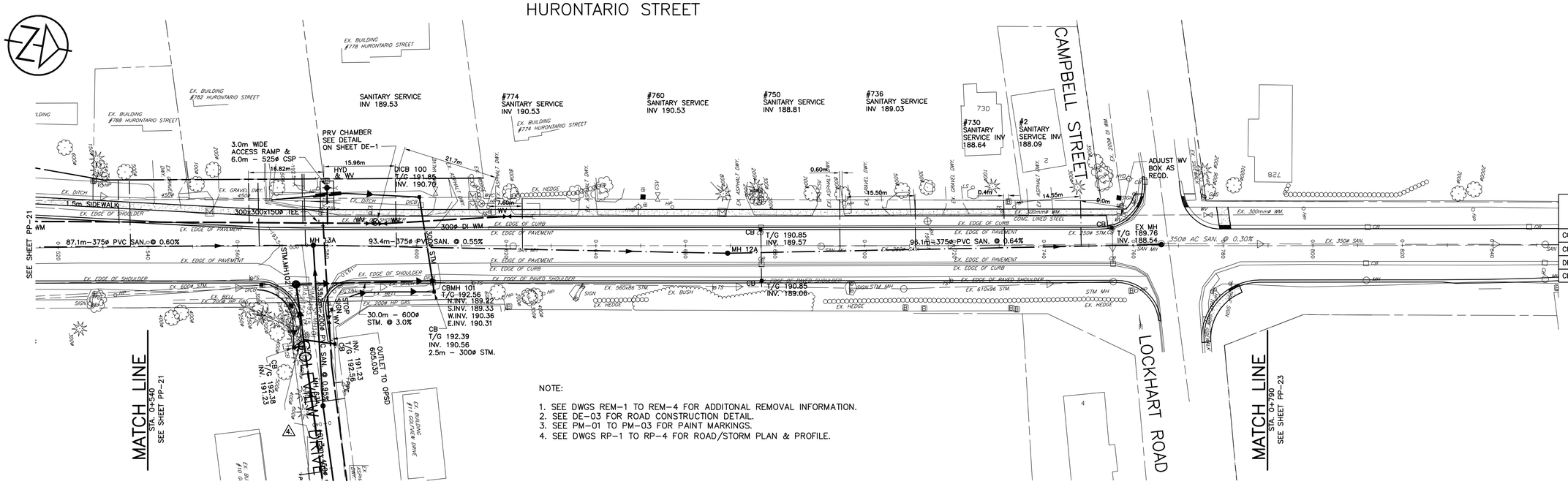
PLAN AND PROFILE HURONTARIO STREET STA. 0+260 TO 0+540

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500	VERT. 1:50	JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-21
DRAWN: MCA/WJV	DATE: MARCH 2006		

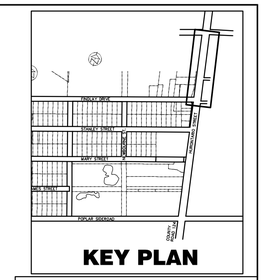
M:\81\ca20c-31-ma-p20060815.1000.1000.00.ski\81\1001 - xM\81\1001 - xM\81\1xc01 - xM\81\1xc05 - xM\81\1xc02 - xM\81\1004 - xM\81\1006

HURONTARIO STREET



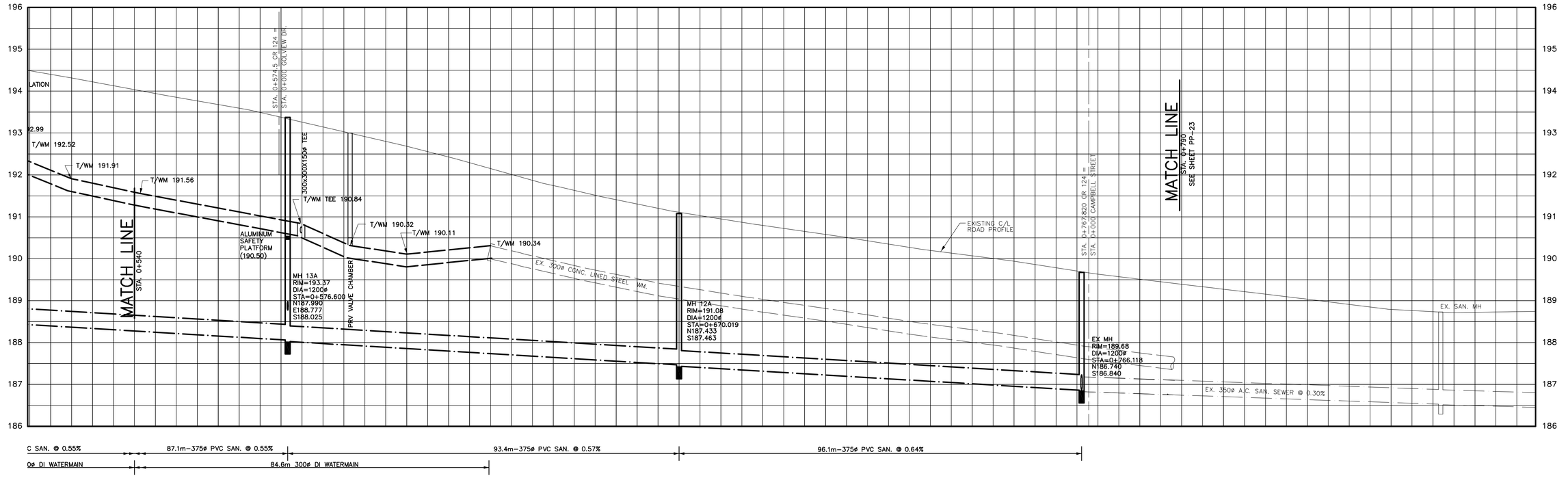
NOTE:

1. SEE DWGS REM-1 TO REM-4 FOR ADDITONAL REMOVAL INFORMATION.
2. SEE DE-03 FOR ROAD CONSTRUCTION DETAIL.
3. SEE PM-01 TO PM-03 FOR PAINT MARKINGS.
4. SEE DWGS RP-1 TO RP-4 FOR ROAD/STORM PLAN & PROFILE.



FOR RECORD DRAWINGS

COMPILED BY:	MH	DATE:	3/30/2007
CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
0+540	194.04	
0+560	193.68	
0+580	193.26	
0+600	192.80	
0+620	192.29	
0+640	191.75	
0+660	191.31	
0+680	190.95	
0+700	190.65	
0+720	190.35	
0+740	190.07	
0+760	189.79	
0+780	189.51	
0+790	189.39	

LEGEND

CONTRACT DRAWINGS

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BM ELEVATION 188.485

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TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
5.	FOR RECORD INFORMATION	MAR/08	BFS
4.	STRUCTURE NUMBERING REVISED	JUNE/06	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

ORIGINAL STAMPED BY B. F. STANTON MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

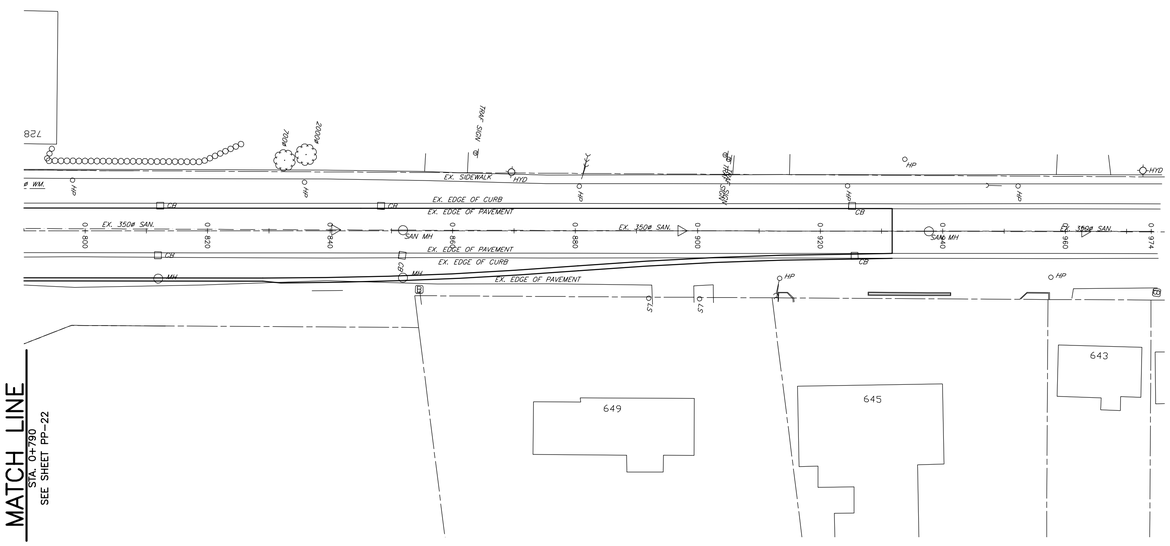
PLAN AND PROFILE HURONTARIO STREET STA. 0+540 TO 0+790

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

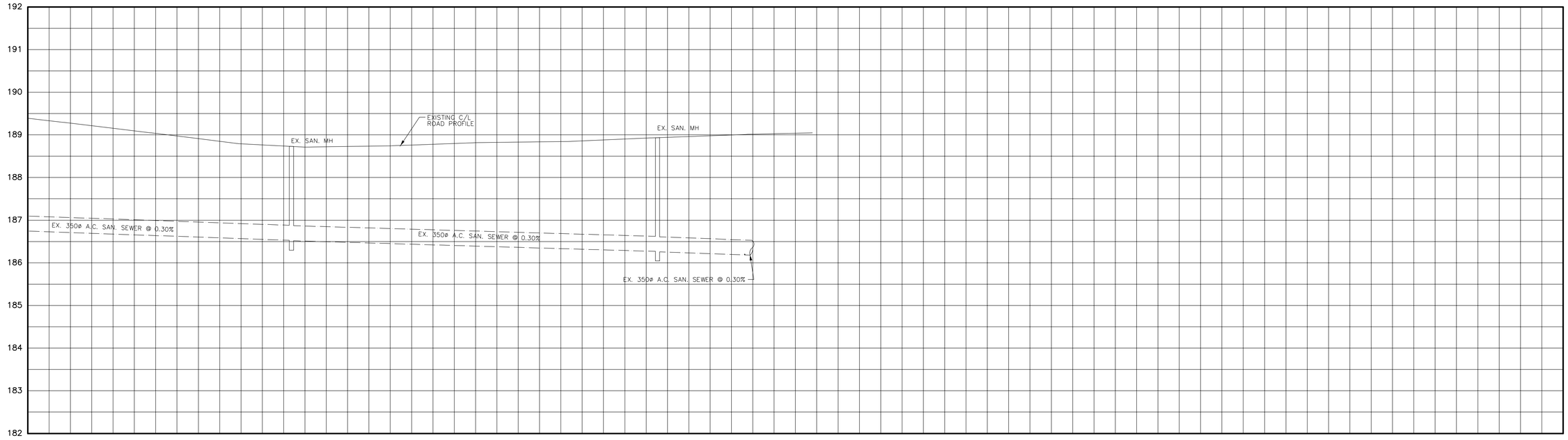
SCALE: HORZ. 1:500		JOB NO.	102081
DESIGN: PM	CHECKED: MH	DWG.	PP-22
DRAWN: PM	DATE: MARCH 2006		

M:\st\20--\31-Aug-2006\102081\0024\102081-0000.00 xMSR1st01 xMSR1st02 xMSR1st03 xMSR1st04 xMSR1st05 xMSR1st06 xMSR1st07 xMSR1st08 xMSR1st09 xMSR1st10

HURONTARIO STREET



MATCH LINE
STA. 0+790
SEE SHEET PP-22



CHAINAGE	EXISTING C/L ELEV	PROPOSED C/L ELEV
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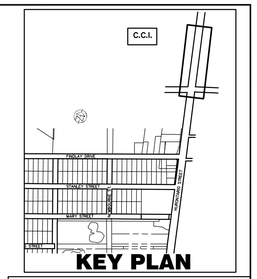
0+800	189.27	
0+820	189.04	
0+840	188.79	
0+860	188.72	
0+880	188.76	
0+900	188.83	
0+920	188.86	
0+940	188.94	
0+960	189.02	
0+974		

NOTES:

1. SEE DWGS REM-1 TO REM-4 FOR ADDITONAL REMOVAL INFORMATION.
2. SEE DE-03 FOR ROAD CONSTRUCTION DETAIL.
3. SEE PM-01 TO PM-03 FOR PAINT MARKINGS.
4. SEE DWGS RP-1 TO RP-4 FOR ROAD/STORM PLAN & PROFILE.



FOR RECORD DRAWINGS

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CHECKED BY:	SEM	DATE:	3/30/2007
DRAWN BY:	PM	DATE:	3/14/2008
CHECKED BY:	BFS	DATE:	3/28/2008

LEGEND

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BM ELEVATION 188.485

HUME STREET CONCRETE BRIDGE OVER PRETTY RIVER, 1.3km NORTHEAST OF JUNCTION OF HIGHWAYS NO.124 AND NO.26 IN TOWN, IMMEDIATELY EAST OF RAGLAN STREET, TABLET IN COPING OF BRIDGE AT NORTHWEST END, 1.25m BELOW TOP OF CONCRETE END POST AND 48cm EAST OF WEST END OF BRIDGE.

TBM #1 ELEVATION 195.956

MARKER 'X' ON DS OF EAST ENTRANCE TO WALKER'S SMALL MOTORS.

TBM #2 ELEVATION 196.421

MARKER 'X' ON DS OF EAST ENTRANCE TO ST. MARY'S SCHOOL.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION	MAR/08	BFS
3.	ISSUED FOR TENDER	MAR/06	RS
2.	REVISED LEVEL OF SERVICE	DEC/05	RS
1.	TENDER CONTRACT 102081-1	OCT/04	RS

APPROVED

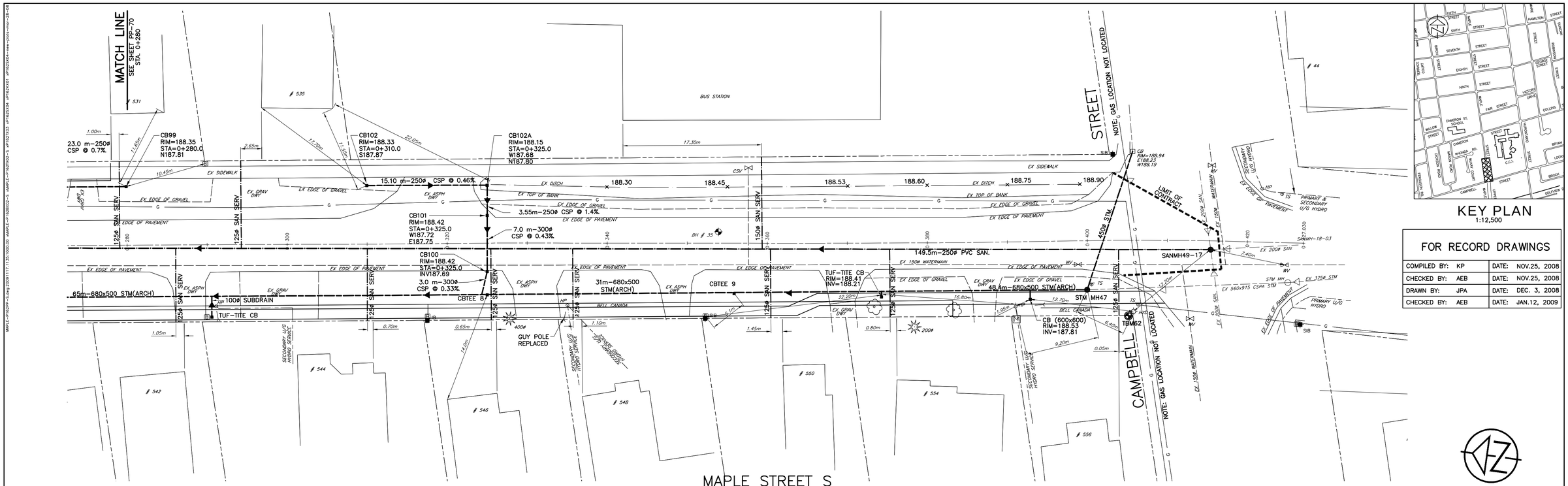
ORIGINAL STAMPED BY
B. F. STANTON
MAR 30/06

SOUTH COLLINGWOOD SERVICING
RESIDENTIAL SUBDIVISION
TOWN OF COLLINGWOOD

PLAN AND PROFILE HURONTARIO STREET STA. 0+790 TO 0+974

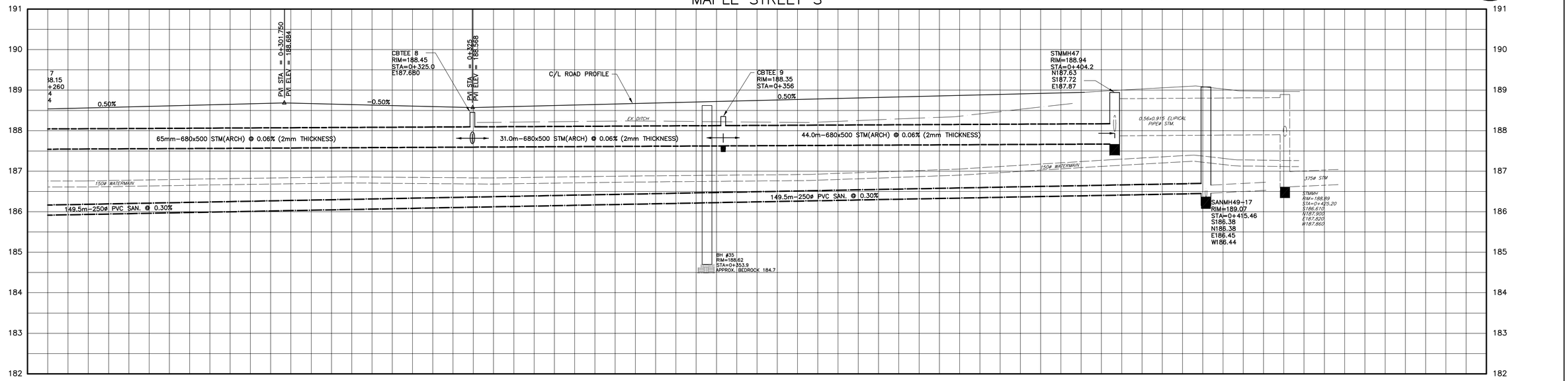
C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORZ. 1:500	VERT. 1:50	JOB NO.	102081
DESIGN: RJF	CHECKED: RS	DWG.	PP-23
DRAWN: MCA/WJV	DATE: MARCH 2006		



FOR RECORD DRAWINGS	
COMPILED BY: KP	DATE: NOV.25, 2008
CHECKED BY: AEB	DATE: NOV.25, 2008
DRAWN BY: JPA	DATE: DEC. 3, 2008
CHECKED BY: AEB	DATE: JAN.12, 2009

MAPLE STREET S



C/L ELEV	188.57	188.68	188.59	188.64	188.74	188.84	188.94			C/L ELEV
CHAINAGE	0+280	0+290	0+300	0+320	0+340	0+360	0+380	0+400	0+420	0+427

NOTES

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1. PIPE SIZES ARE IN MILLIMETRES UNLESS INDICATED. ELEVATIONS ARE IN METRES UNLESS INDICATED. ALL DIMENSIONS, ELEVATIONS AND SIZES ARE IN METRIC UNITS UNLESS INDICATED.

NO.	REVISIONS	DATE	INITIAL
4.	FOR RECORD INFORMATION ADDED	DEC 5/08	BFS
3.	ISSUED FOR CONSTRUCTION	MAY 6/08	BFS
2.	ISSUED FOR MOE SUBMISSION	MAR.28/08	KRS
1.	ISSUED FOR TENDER	MAR.25/08	KRS

APPROVED

ORIGINAL STAMPED BY B. F. STANTON MAY 6 2008

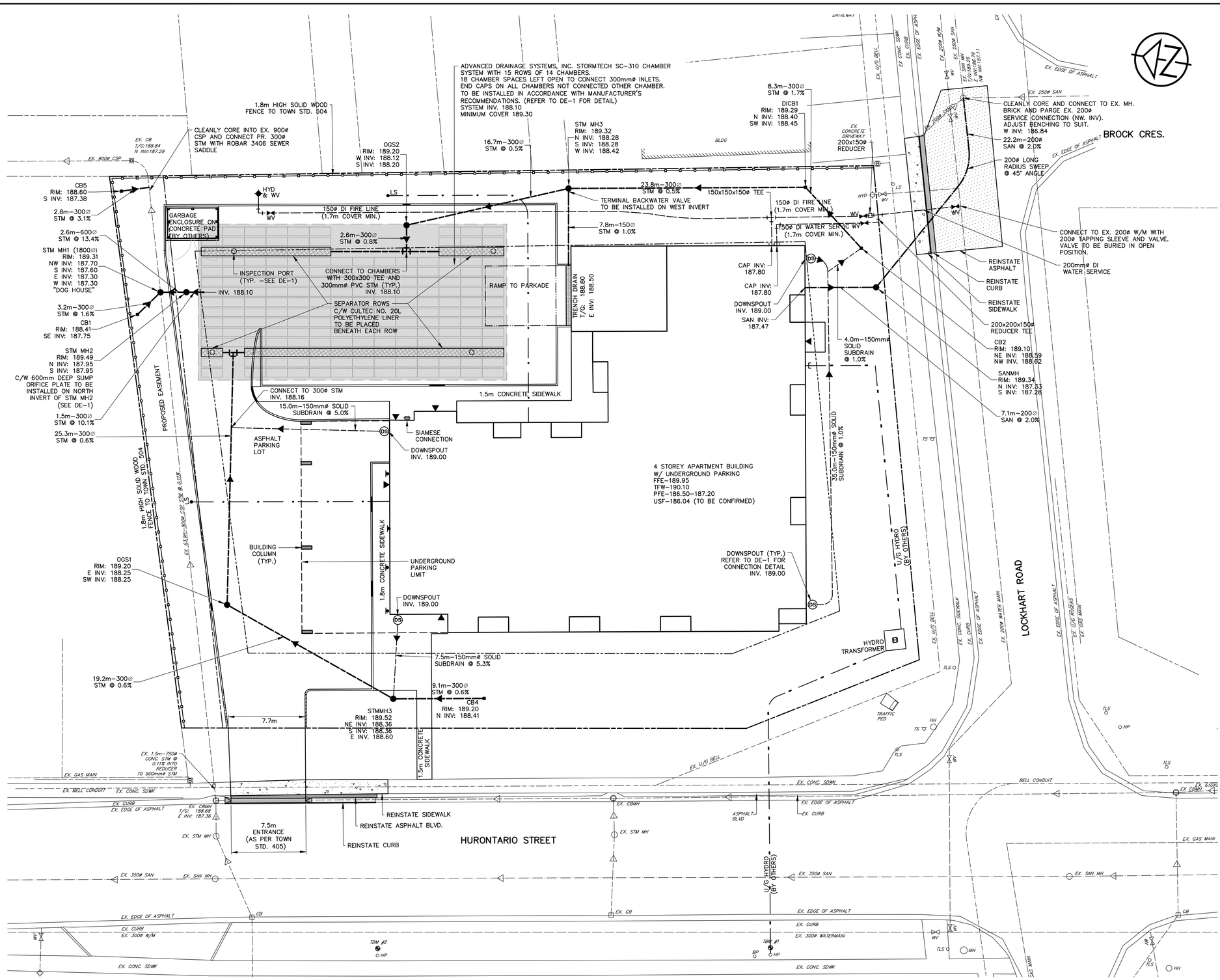
ORIGINAL STAMPED BY K. R. SANSOM MAY 6 2008

TOWN OF COLLINGWOOD
SANITARY SEWER RENEWAL PROGRAM
PHASE 1- CONTRACT 4

PLAN AND PROFILE MAPLE STREET STA. 0+290 TO 0+427

C.C. TATHAM & ASSOCIATES LTD.
CONSULTING ENGINEERS
Collingwood Bracebridge Orillia Barrie

SCALE: HORIZ. 1:250 VERT. 1:50		JOB NO.	105162-11
DESIGN: WK	CHECKED: KRS	DWG.	PP-71
DRAWN: WK	DATE: MAR./2008		



TOWN APPROVAL

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BENCHMARKS

TBM1 – ELEVATION 189.177
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN SECOND HYDRO POLE NORTH OF THE INTERSECTION OF LOCKHART ROAD AND HURONTARIO STREET ON WEST SIDE OF ROAD.

TBM2 – ELEVATION 189.682
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN FIRST HYDRO POLE NORTH OF INTERSECTION OF LOCKHART ROAD AND HURONTARIO STREET ON WEST SIDE OF ROAD.

NOTES

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY ZUBEK, EMO, THOMSEN & PATTEN, DATED 2019. WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA.
TOPOGRAPHIC INFORMATION ON THIS PLAN FROM SURVEY PREPARED BY C.C. TATHAM & ASSOCIATES DATED OCT 13/2016.

No.	REVISION DESCRIPTION	DATE
1.	1ST SUBMISSION	MAR 16/19

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
R.S. SIMPSON
PROVINCE OF ONTARIO

RDL EXPORT
655 HURONTARIO STREET
TOWN OF COLLNGWOOD

SITE SERVICING PLAN

TATHAM ENGINEERING

DESIGN: AS/RD	FILE: 118197	DWG: SS-1
DRAWN: RD	DATE: DEC 2018	
CHECK: JPA/RS	SCALE: 1:200	

Drawing Name: 118197-SS01.dwg, Plotted: May 17, 2019

Appendix C – Geotechnical Information

STRAW HAT RESTORATION

774 AND 750 HURONTARIO STREET, 33 FINDLAY DRIVE, 22 CAMPBELL STREET

GEOTECHNICAL INVESTIGATION

APRIL 4, 2018

774 AND 750 HURONTARIO STREET, 33 FINDLAY DRIVE, 22 CAMPBELL STREET

GEOTECHNICAL INVESTIGATION

STRAW HAT RESTORATION

FINAL REPORT

PROJECT NO.: 17M-01364-00
DATE: APRIL 2018

WSP
UNITS C AND D
561 BRYNE DRIVE
BARRIE, ON, CANADA L4N 9Y3

T: +1 705 735-9771
F: +1 705 735-6450
WSP.COM

April 4, 2018

Straw Hat Restoration
325 Willard Avenue
Toronto, Ontario
M6S 3R1

Dear Sir:

Subject: 774 and 750 Hurontario Street, 33 Findlay Drive, 22 Campbell Street - Geotechnical Assessment

WSP Canada Inc. was retained to complete geotechnical investigation at the above noted property. The purpose of the geotechnical investigation is to identify the subsurface conditions at select borehole locations and to provide design recommendations toward the design of the proposed development, as well as identify any potential constraints which may be encountered during construction.

Kind regards,

Nick La Posta, P.Eng.
Team Lead - Environment

Kent Malcom, P.Eng.
Senior Geotechnical Engineer

NL/KM/hm

WSP ref.: 17M-01364-00

UNITS C AND D
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wsp.com

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A ENGINEERED FILL

B SOIL QUALITY ASSESSMENT

1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Straw Hat Restoration to undertake a Geotechnical Investigation for the proposed residential development located at 774 Hurontario Street, 33 Findlay Drive, 22 Campbell Street, as well as a portion of 750 Hurontario Street, in the Town of Collingwood, Ontario. The location of the proposed development is shown on the attached ***Site Location Plan - Drawing 1.***

The scope of this geotechnical investigation was to obtain information about the subsurface conditions through the advancement of nine (9) boreholes and based upon the findings of the boreholes ultimately provide recommendations herein pertaining to the following:

- Site preparation and grading;
- Appropriate foundation type, geotechnical resistances (ULS and SLS) and founding depth;
- Floor slab design and construction;
- General excavation, backfill and bedding requirements; and,
- Groundwater control.

This report deals with geotechnical issues only. Other studies completed by WSP will be submitted under a separate cover.

This report is provided on the basis of the terms of reference presented above and on the assumption that the design will be in accordance with the applicable codes and standards. If there are any changes in the design features relevant to the geotechnical analyses, or if any questions arise concerning the geotechnical aspects of the codes and standards, this office should be contacted to review the design.

The site investigation and recommendations follow generally accepted practice for Geotechnical Consultants in Ontario. The format and contents are guided by client specific needs and economics and do not conform to generalized standards for services. Laboratory testing follows ASTM or CSA Standards or modifications of these standards that have become standard practice.

This report has been prepared for James and Jason Harrison of Straw Hat Restoration. Third party use of this report without WSP consent is prohibited.

2 SITE BACKGROUND AND PROJECT DESCRIPTION

The site is irregular in shape as the properties are located on adjacent streets. A portion of the site is located on the west side of Hurontario Street, north of Poplar Sideroad; the remaining portion of the site is located on the north side of Findlay Drive and connects to the rear portion of 774 Hurontario Street. A small portion of 750 Hurontario is also proposed to be developed as part of the residential development. The site is located in the Town of Collingwood, Ontario.

The portion of the site located at 774 Hurontario was previously an apple orchard; the other two (2) properties are residential. The site is relatively flat; each property includes an existing residential structure.

Based on the latest site concept plan provided to our office, the proposed residential development includes:

- 11 detached 30 foot units
- 6 detached 40 foot units
- 12 detached 30 foot units
- 4 semi-detached 25 foot units

A copy of this concept plan is appended to this report.

3 INVESTIGATION METHODOLOGY

The field investigation consisted of drilling a total of nine (9) boreholes (BH17-01 to BH17-04 and BH18-01 to BH18-05) at the sites on June 23, 2017 and March 2, 2018, as shown on the attached ***Borehole Plan - Drawing 2***. The boreholes were advanced to depths between 3.2 m below existing ground surface (mbgs) to 5.2 mbgs. The boreholes were drilled with both hollow and solid stem continuous flight auger equipment.

Drilling equipment was supplied and operated by a drilling sub-contractor under the direction and supervision of WSP personnel. Samples were retrieved at regular intervals with a 50 mm O.D. split-barrel sampler driven with a hammer in accordance with the Standard Penetration Test (ASTM D 1586) method. This sampling method recovers samples from the soil strata, and the number of blows required to drive the sampler a 0.3 m depth into the undisturbed soil (SPT 'N' values) gives an indication of the compactness condition or consistency of the sampled soil material. The SPT 'N' values are indicated on the Borehole Logs - ***Enclosures 1-9***.

Soil samples were visually classified in the field and re-evaluated by a senior engineer in our laboratory. All soil samples were tested for moisture contents. Laboratory Grain Size Analyses were carried out on representative samples and the results are provided in ***Enclosures 10 to 14***.

Water level observations were made during the drilling and in the open boreholes upon the completion of drilling operations. Monitoring wells were installed in four (4) of the boreholes to allow for subsequent water level observations.

4 SITE AND SUBSURFACE CONDITIONS

Details of the subsurface conditions encountered are presented on the Borehole Logs and summarized in the following sections. It is noted that subsurface conditions can change between boreholes and the details provided below refer to soil conditions that were encountered at the borehole locations only.

4.1 GENERAL SUBSURFACE CONDITIONS

Based on the results of the field investigation, the subsurface conditions at the site consisted of topsoil overlying either fill or sand to sand and gravel; glacial till was encountered underlying the sand. A lower sand and gravel / silt deposit was encountered underlying the till in two (2) of the boreholes. Minor cohesive deposits were encountered in two (2) of the boreholes. Groundwater was encountered in the majority of the boreholes on completion of drilling as well as in the monitoring wells following the drilling operations.

4.1.1 TOPSOIL

Topsoil was encountered surficially at each of the borehole locations at the site. The topsoil varied between 10 cm and 40 cm in thickness. It should be noted that topsoil quantities should not be calculated from the borehole information, as large variations in depth may exist between boreholes. A detailed topsoil thickness survey is required to determine an accurate evaluation of quantity.

The topsoil is generally dark brown in colour and very moist.

4.1.2 FILL

Fill was encountered underlying the topsoil in boreholes BH18-01, BH18-04 and BH18-05 advanced at the site. The fill comprised moist brown sand to sand and gravel; a cobble was encountered within the fill deposit in Borehole BH18-01. The fill extended to depths between 0.8 mbgs to 1.5 mbgs at the site.

The measured SPT 'N' values in the fill ranged from 6 blows per 0.3 m of penetration to greater than 50 blows per 0.3 m of penetration, indicating that the fill varied from loose to very dense; generally being loose as noted above the high SPT 'N' value was due to a cobble being encountered in the fill.

4.1.3 NON-COHESIVE DEPOSITS

Non-cohesive deposits of soil, ranging from sand to sand and gravel were encountered underlying the topsoil and fill, in BH18-04 and BH18-05, excluding Borehole BH18-01. In addition, a sand and gravel deposit and a silt deposit were encountered underlying the till in Boreholes BH17-03 and Borehole BH18-04, respectively. The upper non-cohesive deposits extended to a maximum depth of 1.9 mbgs in Boreholes BH18-04 and BH18-05. The lower sand and gravel deposit in Borehole BH17-03 was encountered at a depth of 4.3 mbgs; the borehole was terminated in this deposit at a depth of 5.0 mbgs. The lower silt deposit in Borehole BH18-04 was encountered at a depth of 4.6 mbgs; the borehole was terminated in this deposit at a depth of 5.2 mbgs.

The non-cohesive deposits are brown, moist to wet, and contained trace organics near the ground surface at BH17-01.

The measured SPT 'N' values in the non-cohesive deposits ranged from 3 blows per 0.3 m of penetration to 43 blows per 0.3 m of penetration, indicating that the deposits varied from very loose (in samples directly underlying the topsoil) to dense.

The natural moisture content of these soil samples ranged between 7% and 28%.

Grain size analysis of the lower sand and gravel deposit in Borehole BH17-03 was conducted and the gradation curve is presented in ***Enclosure 10***. A review of the grain size analysis indicates the following ranges of clay and silt (fines), sand and gravel percentages:

— Gravel: 23%
— Sand: 47%
— Fines (Silt and Clay): 30%

4.1.4 SANDY SILT TILL

A sandy silt till deposit was encountered in each of the boreholes advanced at the site. The till was brown to grey and contains trace to some gravel and trace to some clay. At the time of the investigation, the till was observed to be moist to wet.

Boulders and cobbles are inferred to be present within the till deposit. Each of the boreholes excluding Boreholes BH17-03 and BH18-04 were terminated in the till deposit at a maximum depth of 5.2 mbgs.

The measured SPT 'N' values in this till deposit ranged from 12 blows per 0.3 m to 68 blows per 0.3 m, indicating that the till varied from compact to very dense.

The natural moisture content of these soil samples ranged between 5% and 20%.

Grain size analyses of three till samples were completed and the gradation curves are presented in ***Enclosures 11, 12, and 13***. A review of the grain size analyses indicate the following ranges of clay, silt, sand and gravel percentages:

— Gravel: 7% to 13%
— Sand: 25% to 30%
— Silt: 40% to 49%
— Clay: 17% - 19%

4.1.5 CLAYEY SILT TO SILT AND CLAY

A minor cohesive deposit was encountered in two (2) of the boreholes advanced at the site. The clayey silt to silt and clay deposit was brown and contains trace sand. At the time of the investigation, the soil was observed to be moist.

The measured SPT 'N' values in this deposit were 14 blows per 0.3 m and 40 blows per 0.3 m, indicating that the clayey silt and silt to clay varied from stiff to hard.

A grain size analysis of one (1) clayey silt sample was completed and the gradation curve is presented in ***Enclosure 14***. A review of the grain size analyses indicates the following ranges of clay, silt, sand and gravel percentages:

— Gravel: 0%
— Sand: 5%
— Silt: 73%
— Clay: 22%

4.1.6 GROUNDWATER

Groundwater was encountered in each of the boreholes. A summary of the groundwater depths encountered at the site is shown below.

BOREHOLE	DATE	GROUNDWATER DEPTH (MBGS)	MEASUREMENT SOURCE
BH17-01	June 23, 2017	1.9	Open Borehole
	June 28, 2017	0.3	Monitoring Well
	March 7, 2018	0.4	Monitoring Well
BH17-02	June 23, 2017	2.5	Open Borehole
BH17-03	June 23, 2017	0.4	Open Borehole
	June 28, 2017	0.3	Monitoring Well
	March 7, 2018	0.4	Monitoring Well
BH17-04	June 23, 2017	3.6	Open Borehole
	June 28, 2017	3.5	Monitoring Well
	March 7, 2018	0.4	Monitoring Well
BH18-01	March 2, 2018	Dry	Open Borehole
	March 7, 2018	1.1	Monitoring Well
BH18-02	March 2, 2018	Dry	Open Borehole
BH18-03	March 2, 2018	4.3	Open Borehole
BH18-04	March 2, 2018	1.5	Open Borehole
BH18-05	March 2, 2018	1.4	Open Borehole

It should be noted that the groundwater levels can vary and are subject to seasonal fluctuations in response to major weather events. Further monitoring of the groundwater level is recommended.

5 DISCUSSION & RECOMMENDATIONS

5.1 GENERAL

The following recommendations for the proposed site development are based on the information obtained from the borehole investigation and laboratory testing, which we believe fairly represents the subsurface conditions of the site. These recommendations are intended for the guidance of the design engineer to establish constructability and should not be construed as instructions to contractors. If significant differences in the subsurface conditions described above are found, we request to be contacted immediately to review and revise our findings and recommendations, if necessary.

The construction methods described in this report must not be considered as being specifications or recommendations to the prospective contractors, or as being the only suitable methods. Prospective contractors should evaluate all of the factual information, obtain additional subsurface information as they might deem necessary and should select their construction methods, sequencing and equipment based on their own experience in similar ground conditions. The readers of this report are also reminded that the conditions are known only at the borehole locations and in view of the generally wide spacing of the boreholes, conditions may vary significantly between boreholes.

It is noted that, as no detailed design information was available at the time of this investigation, the information and recommendations provided below should be considered preliminary in nature only.

5.2 SITE BACKGROUND

Based on information provided by the client, it is anticipated that the site is proposed to be developed into a residential development. It is anticipated that the residential structures will have full basements.

The results of the geotechnical investigation indicate that the subsurface conditions at the site comprise topsoil overlying either fill or very loose to dense sand to sand and gravel; compact to very dense glacial till was encountered underlying the upper sand deposits. A lower sand and gravel and silt deposit was encountered underlying the till in two (2) of the boreholes. Minor stiff to hard cohesive deposits were encountered in two (2) of the boreholes. Groundwater was measured as high as 0.3 mbgs in one (1) of the monitoring wells following the drilling operations.

5.3 SITE PREPARATION AND GRADING

At the time of our investigation, a portion of the site was an existing apple orchard (774 Hurontario Street); therefore tree removal will be required to facilitate the proposed development on the site. In general the site is relatively flat and as such it is anticipated that only minor site grading will be required. However, if fill greater than one (1) meter in thickness is to be placed at the site, WSP should be contacted to review the fill areas.

Removal of all topsoil and fill will be required to facilitate the proposed development on the site. It is recommended that a topsoil test pit program be completed at the site by WSP prior to construction to refine the topsoil thickness. Regarding the reuse of the site topsoil, the topsoil may be reused in landscaping applications or other non-structural fill applications. WSP should be contacted to review all proposed topsoil reuse on site.

Subsequent to the completion of the required stripping and removal of unsuitable materials (topsoil), the sub-grade should be proof-rolled and inspected by experienced WSP geotechnical engineering personnel. The proof-rolling and compaction of the exposed sub-grade is recommended to be conducted using a vibratory compactor with a minimum static weight of 10 tonnes. The proof-rolling program should consist of a minimum of six (6) passes per unit area and be tested to assure that the sub-grade is compacted to a minimum of 98% of the exposed material's Standard Proctor Maximum Dry Density (SPMDD). Any loose/soft or wet areas identified at the time of proof-rolling that cannot be uniformly compacted are recommended to be sub-excavated and backfilled with approved engineered fill consistent with the recommendations provided in ***Appendix A***.

Where engineered fill is required to develop the design grades and elevations or for use in backfilling excavations created through the removal of unsuitable materials or soils as described above, the excavated on-site materials may be re-used,

subject that these are free of organic and other unsuitable materials and have adequate moisture content. Boulders or cobbles greater than 200 mm in size should be removed from the fill.

Alternatively, Ontario Provincial Standard Specification (OPSS) Granular B – Type I, OPSS Select Subgrade Material (SSM) or approved equal may be used.

All fill materials imported to the site must meet all applicable municipal, provincial and federal guidelines and requirements associated with environmental characterization of the materials.

Engineered fill is to be placed in maximum 200 mm thick loose lifts under full time supervision of qualified geotechnical personnel. Each lift is to be uniformly compacted to achieve a minimum of 100% of the material's SPMDD. Additional information related to the placement and compaction of engineered fill can be found in ***Appendix A***.

5.4 PRELIMINARY FOUNDATION RECOMMENDATIONS

Details of the proposed development such as underside of footing elevations were not available at the time when this report was prepared. When this information is available, the recommendations provided below should be reviewed by WSP to confirm that the recommendations are still valid based on the design information.

Based on the soil conditions encountered in the boreholes and provided that the site is prepared in accordance with the recommendations presented in this report, footings that are founded at a minimum depth of 1.5 mbgs on the compact or stiff original soil or engineered fill soils may be designed based on a preliminary factored ultimate geotechnical resistance at Ultimate Limit States (ULS) of 150 kPa. A preliminary serviceability geotechnical resistance at Serviceability Limit States (SLS) of 100 kPa may be used in the design of the foundations. We note that some subexcavation may be required in some areas due to loose soil conditions (i.e. Borehole BH18-05).

Foundations designed to the specified bearing capacities at the serviceability limit states (SLS) are expected to settle less than 25 mm total and 13 mm differential.

5.4.1 GENERAL FOUNDATION COMMENTS

All footings exposed to seasonal freezing conditions should be provided with at least 1.5 m of earth cover or equivalent thermal insulation against frost. It is recommended to keep footings as high as possible to avoid or minimize penetration below groundwater levels while considering the minimum frost cover requirement.

Variations in the soil conditions are expected in between the borehole locations, and during construction, the geotechnical resistances should be confirmed by experienced WSP site personnel.

Where it is necessary to place footings at different levels, the upper footing must be founded below an imaginary 10 horizontal to 7 vertical line drawn up from the base of the lower footing. The lower footing must be installed first to help minimize the risk of undermining the upper foundations.

The soils at the base of footings can be easily disturbed by construction machinery and foot traffic or lose their strength in contact with surface water. Consideration could be given to placing a 50 mm thick skim coat of low-strength concrete on the founding subgrade immediately after its approval, to prevent its disturbance by construction activities and from ground or surface water, where necessary.

During winter construction, foundations and slab on grades must not be poured on frozen soil. Foundations must be adequately protected at all times from cold weather and freezing conditions.

In the vicinity of the existing buried utilities, all footings must be lowered to undisturbed native soils, or alternatively the services must be structurally bridged.

It should be noted that the recommended geotechnical resistances have been calculated by WSP from the borehole information for the preliminary design stage only. Additional input may be required as new design information becomes available and is refined. For example, more specific information is available with respect to conditions between boreholes when construction is underway. In this regard, the interpretation between boreholes and the recommendations of this report must therefore be checked through field inspections provided by WSP to validate the information for use during the construction stage.

5.5 FLOOR SLAB CONSTRUCTION AND DRAINAGE

The basement floor slabs can be placed on undisturbed native soils or on engineered fill. For bedding and moisture barrier purposes, a 200 mm thick layer of 19 mm clear crushed stone must be provided under the concrete basement floor slab. Where wet and/or fine grained soil conditions exist, the moisture barrier should be separated from the subgrade by a geotextile fabric to avoid loss of soil/fines and settlement problems.

With the assumption of basement levels approximately 3 metres below grade for the proposed residential development, a robust perimeter and underfloor drainage system will be required around the exterior basement walls. It is recommended that, at a minimum, drains be installed along the perimeter of the base of the basement level and underneath the slab to collect water accumulated behind the perimeter foundation walls. The perimeter drains can consist of 100 mm diameter perforated pipes surrounded by a 150 mm thick layer of 19 mm clear stone on all sides. The pipe and bedding stone are to be completely wrapped in a non-woven geotextile with a minimum 600 mm overlap. The subfloor and perimeter drainage system are to be hydraulically connected. The adjacent filter fabric sheets are to be overlapped by not less than 400 mm. In areas where gravity drainage is not feasible, the water collected by the perimeter drain pipes are to be channelled into a sump from where the water could be removed by pumping. A review of the drainage system should be completed by WSP during the detail design stage.

Underfloor and perimeter drainage will likely be required in the basements. A hydrogeological study must be carried out to investigate the feasibility of perimeter and underfloor drainage for basement floors below the groundwater table.

5.6 LATERAL EARTH PRESSURES

The lateral earth pressure for the design of retaining walls, foundation walls, shoring, or trench boxes can be estimated from the following expressions:

Above groundwater table: $p = K(\gamma z + q)$

Below groundwater table: $p = K\{\gamma h_1 + \gamma_1(z - h_1) + q\} + p_w$

Where:

- p = Lateral earth and water pressure in kPa acting at depth z;
- z = Depth below ground surface, in meters;
- K = Active earth pressure coefficient, (K_a);
- γ = Unit weight of soil above groundwater table, in kN/m^3;
- γ_1 = Submerged unit weight of soil below water table;
- h = Thickness of soil above groundwater table, in meters;
- q = Value of Surcharge (kPa);
- p_w = Hydrostatic water pressure

The suggested soil parameters (unfactored) for the retaining wall design and/or ground support systems are summarized below.

SOIL TYPE	UNIT WEIGHT γ (KN/M^3)	EFFECTIVE ANGLE OF INTERNAL FRICTION (Φ')	COEFFICIENT OF EARTH PRESSURE		
			ACTIVE K_A	AT REST K_O	PASSIVE K_P
Granular A	22	35	0.27	0.43	3.69
Granular B	21	32	0.31	0.47	3.25
Glacial Till	20	32	0.31	0.47	3.25
Engineered Fill / Native Cohesive and Non-Cohesive Deposits	19	30	0.33	0.50	3.00

It is essential that imported free-draining OPSS Granular 'B' type fill be used as backfill against foundation walls. Backfilling of the footing wall excavations is recommended to be placed in 200 mm thick lifts, uniformly compacted to 100% SPMDD to proposed sub-grade elevations.

5.7 TEMPORARY EXCAVATIONS AND GROUNDWATER CONTROL

The details for the proposed services installations are not available at the time of preparing this report. The recommendations provided below assume that conventional depths for services will be carried out (approximately 3 mbgs to 4 mbgs below existing site grades).

Based upon the subsurface conditions at the borehole locations, excavations can be carried out with heavy hydraulic back-hoes. It is recommended that provision be carried in the contract for the excavation and disposal of obstructions on site, including cobbles and boulders.

All temporary excavations must be carried out in accordance with the Occupational Health and Safety Act (OHSA). In accordance with OHSA, the soils (assuming they are above the groundwater table or properly dewatered) would be classified as a Type 3 soil. If space limitations exist due to adjacent structures or facilities, consideration could be given to the construction of a temporary support system to provide protection to the structures and/or facilities. All excavated spoil should be placed at least the depth of the trench away from the edge of the trench for safety reasons.

As noted above, groundwater was encountered in the majority of the boreholes at the site; groundwater was measured as high as 0.3 mbgs in two (2) of the boreholes. As such, depending on site grading requirements and excavation depths it is likely that dewatering will be required at the Site and an Environmental Activity and Sector Registry (EASR) or a Permit to Take Water (PTTW) will be required for the excavations. It should be noted that the requirements for a PTTW, issued by the Ontario Ministry of the Environment and Climate Change (MOECC) have recently changed; daily water takings of 50 m^3/day require registration of the MOECC EASR database, and daily water takings of 400 m^3/day require a PTTW. Both the EASR and the PTTW require a hydrogeological assessment report to support the specific application. In addition, a permit to discharge the collected water to the sewer system/water body will be required from the applicable agency.

Once site grading information is available, it is recommended that WSP review the information to determine if a hydrogeological assessment is required to be completed at the site to provide input toward an EASR or a PTTW. A PTTW application requires a minimum of 90 days for the MOECC to process; in this regard, appropriate lead time should be factored into the overall project schedule to accommodate the PTTW process, if required.

In any areas requiring dewatering, the groundwater table must be lowered a minimum of one (1) meter below the lowest excavation level. It is recommended that, prior to excavations for site servicing, test pits be carried out in areas where groundwater issues are expected to further explore the groundwater and seepage conditions. A specialized dewatering contractor should be retained to design and install the dewatering system.

5.8 PIPE BEDDING AND COVER

The soils above the groundwater level, or properly dewatered if encountered below the groundwater level, will provide adequate support for the sewer pipes and allow the use of normal Class B type bedding. The recommended minimum thickness of granular bedding below the invert of the pipes is 150 mm. The thickness of the bedding may, however, have to be increased depending on the pipe diameter or in accordance with local standards or if wet or weak subgrade conditions are encountered, especially when the soil at the trench base level consists of wet, dilatant silt. The bedding material should consist of well graded granular material such as Granular 'A' or equivalent. After installing the pipe on the bedding, a granular surround of approved bedding material, which extends at least 300 mm above the obvert of the pipe, or as set out by the local authority or municipality, should be placed. It is recommended that WSP be on site during excavations to assess the suitability of the subgrade materials to support the pipes.

If localized wet trench conditions are encountered, a uniformly graded clear stone may be used provided a suitable, approved filter fabric (geotextile) is placed in conjunction with the clear stone. The geotextile must extend underneath the clear stone, along the sides of the trench, and wrapped on top of the clear stone such that **the clear stone is fully wrapped by the geotextile.** A minimum geotextile overlap of 1 m is required; alternatively stitching of the geotextile could be considered.

Localized, wet and unstable soils encountered within generally stable soil zones can be generally stabilized by 'punching' a 50 mm well graded crusher run limestone pad into the soft subgrade prior to bedding placement. The thickness of the 'pad' will depend on field conditions and should be examined by WSP personnel during the construction operations.

Alternatively, if longer stretches of unstable soils are encountered, Class 'A' bedding could be considered. The rigid concrete bedding (lean mix concrete) should be laid from manhole to manhole to mitigate the potential for differential settlement.

Where the sewer pipe is placed in water bearing soils below the water table, the joints connecting the sewer sections should be very well sealed to prevent piping of fines into the sewer pipe and manhole catch basin risers.

5.9 TRENCH BACKFILL

The excavated soils can be used as construction backfill provided their moisture content at the time of placement is within 2% of the optimum moisture content and that the soils do not contain organic content or other deleterious materials. Boulders or cobbles greater than 200 mm in size should be removed from the trench backfill. WSP should be on site during all trench backfilling operations to confirm the suitability of the material being used.

For the granular soils, smooth drum type vibratory rollers are recommended. Cohesive soils, if encountered, should be compacted with sheepsfoot type vibratory compactors. The trench backfill should be placed in maximum 0.3 m lift thickness and compacted to at least 98 percent of its SPMDD. Trench backfilling operations should be avoided during freezing weather.

It is preferable that the native soils be re-used from approximately the position at which they are excavated so that frost response characteristics of the soils after construction remain essentially similar. If required, consideration may also be given to backfilling trenches with a well graded, compacted granular soil such as Granular 'B' material.

It should be noted that the excavated soils are subject to moisture content increase during wet weather which would make these materials too wet for the compaction requirements noted above. Stockpiles should therefore be covered with tarpaulins to help minimize moisture increases.

5.10 PRELIMINARY PAVEMENT DESIGN

The investigation has shown that the predominant subgrade soils encountered at the site, after stripping any topsoil will be native cohesive and non-cohesive deposits, glacial till, and possibly engineered fill.

Prior to the placement of granular materials as part of the pavement structure, the subgrade should be prepared and heavily proof-rolled under the supervision of WSP. Any poorly performing areas should be sub-excavated and replaced

with either granular earth fill approved by WSP or imported Granular B, Type I material conforming to the requirements of OPSS.

Based on the above and assuming that traffic usage will be industrial, the following minimum pavement thickness is recommended:

PAVEMENT LAYER	COMPACTION REQUIREMENTS	LOCAL ROAD
Asphaltic Concrete	92.0 to 96.5% Maximum Relative Density (MRD)	40 mm HL 3
		50 mm HL 8
OPSS Granular A Base	100% SPMDD	150 mm
OPSS Granular B	100% SPMDD	300 mm

We note that the pavement design noted above should be considered preliminary only. If required, a more refined pavement structure design can be performed based on specific traffic data and design life requirements and will involve specific laboratory tests to determine frost susceptibility and strength characteristics of the subgrade soils, as well as specific data input from the client.

5.11 LIMITED ENVIRONMENTAL TESTING RESULTS

In order to characterize the quality of the existing soils at the site, 34 soil samples were collected and submitted to an analytical laboratory for analysis of various parameters. Additional details regarding the testing methods and results can be found in ***Appendix B***.

5.12 DESIGN REVIEW, TESTING AND INSPECTIONS

WSP requests to be afforded the opportunity to complete a final review of the proposed development discussed in this report to verify that geotechnical recommendations are appropriate. If not given this opportunity, we cannot assume liability for omissions, misinterpretations or deficiencies in our recommendations.

WSP should be contacted to provide geotechnical testing and inspections during construction operations. Exposed subgrade soils for all structures are to be inspected to confirm the material is stable and competent. Inspections of seepage and groundwater conditions during construction are also required, as discussed in this report. Testing and inspections for general QA/QC are to include sampling and laboratory testing of fill materials and asphalt, compaction testing for the placement of fill materials and asphalt, and field and laboratory testing of concrete (including mix design reviews).

6 LIMITATIONS OF REPORT

This report is intended solely for the Client named. The material in it reflects our best judgment in light of the information available to WSP Canada Inc.at the time of preparation. Unless otherwise agreed in writing by WSP Canada Inc., it shall not be used to express or imply warranty as to the fitness of the property for a particular purpose. No portion of this report may be used as a separate entity, it is written to be read in its entirety.

The conclusions and recommendations given in this report are based on information determined at the test hole locations. The information contained herein in no way reflects on the environment aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the test holes may differ from those encountered at the test hole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. The benchmark and elevations used in this report are primarily to establish relative elevation differences between the test hole locations and should not be used for other purposes, such as grading, excavating, planning, development, etc.

The design recommendations given in this report are applicable only to the project described in the text and then only if constructed substantially in accordance with the details stated in this report.

The comments made in this report on potential construction problems and possible methods are intended only for the guidance of the designer. The number of test holes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP Canada Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

We accept no responsibility for any decisions made or actions taken as a result of this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

We trust that the information contained in this report is satisfactory. Should you have any questions, please do not hesitate to contact this office.

DRAWINGS

Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.

wsp

126 DON HILLOCK DRIVE, UNIT 2
AURORA, ONTARIO CANADA L4G 0G9
TEL.: 905-750-3080 | FAX: 905-727-0463 | WWW.WSP.COM

PROJECT: GEOTECHNICAL INVESTIGATION 33 FINDLAY DR., 750 & 744 HURONTARIO ST. COLLINGWOOD, ONTARIO	SCALE: 1:30,000
	DRAWN BY: TP / CHECKED BY: -
TITLE: SITE LOCATION MAP	PROJECT NO: 17M-01364-00 GEO
	DATE: MARCH 2018
CLIENT: STRAW HAT RESTORATION	FIGURE NO: 1 / REV.: -

Document Path: T:\17M-01364-00\MXD\GEO\17M-01364-00 GEO Figure 1 Location Map.mxd

126 DON HILLOCK DRIVE, UNIT 2
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LEGEND

- APPROXIMATE SITE LOCATION
- BOREHOLE LOCATION
- MONITORING WELL LOCATION

N
W E
S

20 10 0 20 Metres

Data Source: Ministry of Natural Resources, Ontario Base Mapping, October 2016.
Imagery, Simcoe County, 2016.

CLIENT:

STRAW HAT RESTORATION

PROJECT:

GEOTECHNICAL INVESTIGATION
33 FINDLAY DR., 750 & 744 HURONTARIO ST.
COLLINGWOOD, ONTARIO

PROJECT NO:	DATE:
17M-01364-00 GEO	MARCH 2018

DESIGNED BY: -

DRAWN BY: T.P.

CHECKED BY: -

FIGURE NO:	SCALE:
2	1:1,200

TITLE:

BOREHOLE LOCATION PLAN

DISCIPLINE:

ENVIRONMENT

ISSUE:	REV.:
-	-

Document Path: T:\17M-01364-00\MXD\GEO\17M-01364-00 GEO Figure 2 Borehole Location Plan.mxd

ENCLOSURES

LOG OF BOREHOLE BH17-01

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Hollow Stem Auger
Diameter: 216 mm
Date: Jun/23/2017

REF. NO.: 17M-01364-00
ENCL NO.: 1

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	STANDARD PENETRATION TEST RESISTANCE PLOT / SHEAR STRENGTH (kPa)	PLASTIC LIMIT / NATURAL MOISTURE CONTENT / LIQUID LIMIT / WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	Ground Surface											
0.0	**TOPSOIL**											
0.2	**SAND**, trace silt *organics, brown, layered, loose, very moist*		1	SS	4			4				
0.6	**SANDY SILT TILL**, trace to some clay, trace to some gravel *brown, compact to dense, moist*		2	SS	18		W. L. 0.4 mBGL Mar 07, 2018	18				
			3	SS	47		Bentonite	47				
			4	SS	19			19				
			5	SS	14		Sand Screen	14				
	Increasing clay content becoming grey		6	SS	17			17				
5.2	**END OF BOREHOLE**											

Notes:
1. Groundwater measured at a depth of 1.9 m below site grades on completion of drilling operations.

Groundwater Levels

Date	Water Level (mbg)
June 28/17	0.3
March 7/18	0.4

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

WSP-SOIL (ICV).GPJ APRIL 6, 2017 10:0
WSP SOIL LOG 2016 GDP1 PLOT DT: 17M-01364-00 BH LOGS PRELIMINARY.GPJ 1/22/18

LOG OF BOREHOLE BH17-02

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Hollow Stem Auger
Diameter: 216 mm
Date: Jun/23/2017

REF. NO.: 17M-01364-00
ENCL NO.: 2

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0.0	Ground Surface **TOPSOIL**							
0.2	**SAND**, trace silt *orangish brown, very loose to dense, moist*		1	SS	3			
			2	SS	32			
1.2	**SANDY SILT TILL**, trace to some clay, trace to some gravel, occasional cobble *brown, compact to very dense, very moist*		3	SS	68			
			4	SS	31			
			5	SS	17			7 25 49 19
	becoming grey		6	SS	31			
5.2	**END OF BOREHOLE** Notes: 1. Borehole open to a depth of 4.0 m below site grades on completion of drilling. 2. Groundwater measured at a depth of 2.5 m below site grades on completion of drilling operations.							

STANDARD PENETRATION TEST RESISTANCE PLOT
20 40 60 80 100
SHEAR STRENGTH (kPa)
○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

WSP-SOIL-ROCK-APRIL-8-2017.GLB
WSP-SOIL LOG-2016-SEP-8.PLOT (3).* 17M-01364-00 BH LOGS PRELIMINARY.GPJ 1/22/18

LOG OF BOREHOLE BH17-03

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Hollow Stem Auger
Diameter: 216 mm
Date: Jun/23/2017

REF. NO.: 17M-01364-00
ENCL NO.: 3

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE	WATER CONTENT (%) PLASTIC LIMIT w_P NATURAL MOISTURE CONTENT w LIQUID LIMIT w_L	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
Ground Surface							STANDARD PENETRATION TEST RESISTANCE PLOT 20 40 60 80 100	10 20 30			
0.0	**TOPSOIL**										
0.3	**SAND**, trace silt *orangish brown, compact, wet*	1	SS	5	▽	W. L. 0.4 mBGL Mar 07, 2018	5	○			
1		2	SS	23			23	○			
1.4	**SANDY SILT TILL**, trace to some clay, some gravel, occasional cobbles *grey, compact to dense, moist*					Bentonite					
2		3	SS	39			39	○			
3		4	SS	29			29	○			
3		5	SS	26		Sand Screen	26	○			
4											
4.3	**GRAVELLY SILTY SAND** *grey, wet, dense*	6	SS	43			43	○			23 46 31
5											
5.0	**END OF BOREHOLE** Notes: 1. Groundwater measured at a depth of 0.4 m below site grades on completion of drilling operations. Groundwater Levels Date Water Level (mbg) June 28/17 0.3 March 7/18 0.4										

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ○ ε=3% Strain at Failure

WSP-SOIL (OCV).APRIL 8, 2017 (2).6
WSP SOIL LOG 2016 GDP1 PLOT (2).17M01364-00 BH LOGS PRELIMINARY.GPJ 3/22/18

LOG OF BOREHOLE BH17-04

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Hollow Stem Auger
Diameter: 216 mm
Date: Jun/23/2017

REF. NO.: 17M-01364-00
ENCL NO.: 4

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS "N" 0.3 m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0.0	**TOPSOIL**					
0.2	**SAND TO SAND AND GRAVEL**, trace silt *orangish brown, very loose to compact, moist*	1	SS	3		
		2	SS	29		
1.2	**SANDY SILT TILL**, some clay, some gravel *brown, compact to dense, very moist*	3	SS	42		
		4	SS	20		13 29 41 17
	becoming grey	5	SS	23		
		6	SS	43		
5.2	**END OF BOREHOLE** Notes: 1. Groundwater measured at a depth of 3.6 m below site grades on completion of drilling operations. Groundwater Levels Date Water Level (mbg) June 28/17 3.5 March 7/18 0.4					

GROUND WATER CONDITIONS: W. L. 0.7 mBGL Mar 07, 2018; Bentonite; Sand; Screen

STANDARD PENETRATION TEST RESISTANCE PLOT: 20 40 60 80 100

SHEAR STRENGTH (kPa): ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE; 20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L

WATER CONTENT (%): 10 20 30

POCKET PEN. (Cu) (kPa)

NATURAL UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ○ ε=3% Strain at Failure

LOG OF BOREHOLE BH18-01

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Hollow Stem Auger
Diameter: 216 mm
Date: Mar/02/2018

REF. NO.: 17M-01364-00
ENCL NO.: 5

(m) ELEV / DEPTH	DESCRIPTION	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
	Ground Surface					
0.0	**TOPSOIL**					
0.2	**FILL**, sand *brown, moist, loose to compact*	1	SS	10		
	no recovery, spoon possibly pushing cobble *very dense*	2	SS	50/ 80mm	W. L. 1.1 mBGL Mar 07, 2018	
1.5	**SILT AND CLAY** *layered, brown, moist, hard*	3	SS	40	Bentonite	
1.8	**SANDY SILT TILL**, some sand, some gravel *grey, moist, compact to dense*	4	SS	15	Sand Screen	
		5	SS	14		
3.7	**END OF BOREHOLE** Notes: 1. Installed 50mm groundwater monitoring well upon completion. Groundwater Levels Date Water Level (mbg) March 7/18 1.1					

STANDARD PENETRATION TEST RESISTANCE PLOT
20 40 60 80 100
SHEAR STRENGTH (kPa)
○ UNCONFINED + FIELD VANE & Sensitivity
● QUICK TRIAXIAL × LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

LOG OF BOREHOLE BH18-02

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Solid Stem Auger
Diameter: 150mm
Date: Mar/02/2018

REF. NO.: 17M-01364-00
ENCL NO.: 6

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS 0.3 m	GROUND WATER CONDITIONS	ELEVATION	STANDARD PENETRATION TEST RESISTANCE PLOT / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L / WATER CONTENT (%)	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0.0	Ground Surface **TOPSOIL**											
0.2	**SAND**, some gravel *brown, moist to wet, loose to compact*		1	SS	6			6				
1.0	**SILTY SAND TILL**, some clay, trace gravel *brown to grey, moist, compact*		2	SS	27			27				
	some gravel *dense*		3	SS	45			45				
			4	SS	24			24				
			5	SS	22			22				
	increased clay content *wet*		6	SS	12			12				
5.2	**END OF BOREHOLE** Notes: 1. Borehole was open and dry upon completion											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

WSP-SOIL (OCV).APRIL 8 2017.GLB
WSP-SOIL LOG 2016 GDP1 PLOT 20 - 17M-01364-00 BH LOGS PRELIMINARY.GPJ 1/22/18

LOG OF BOREHOLE BH18-03

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Solid Stem Auger
Diameter: 150mm
Date: Mar/02/2018

REF. NO.: 17M-01364-00
ENCL NO.: 7

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
	Ground Surface						
0.0	**TOPSOIL**						
0.3	**SAND** *brown, moist to wet, loose to compact*		1	SS	4		
0.9	**SILTY SAND TILL**, some clay, some gravel *brown, moist, compact*		2	SS	24		
	trace gravel *grey, very dense*		3	SS	51		
	some gravel to gravelly		4	SS	54		
	cobbles		5	SS	25		
4.6	**SAND TILL**, some silt, some clay, some gravel *grey, moist, compact*		6	SS	19		
5.2	**END OF BOREHOLE** Notes: 1. Borehole was open and wet at 4.3 mbg upon completion						

STANDARD PENETRATION TEST RESISTANCE PLOT
20 40 60 80 100

SHEAR STRENGTH (kPa)
○ UNCONFINED
● QUICK TRIAXIAL
+ FIELD VANE & Sensitivity
× LAB VANE
20 40 60 80 100

PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
		10 25 48 17

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

LOG OF BOREHOLE BH18-04

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Solid Stem Auger
Diameter: 150mm
Date: Mar/02/2018

REF. NO.: 17M-01364-00
ENCL NO.: 8

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION	STANDARD PENETRATION TEST RESISTANCE PLOT 20 40 60 80 100 / SHEAR STRENGTH (kPa) ○ UNCONFINED ● QUICK TRIAXIAL + FIELD VANE & Sensitivity × LAB VANE 20 40 60 80 100	PLASTIC LIMIT w_P / NATURAL MOISTURE CONTENT w / LIQUID LIMIT w_L WATER CONTENT (%) 10 20 30	POCKET PEN. (Cu) (kPa)	NATURAL UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
0.0	**TOPSOIL**											
0.1	**FILL**, sand and gravel *brown, moist, loose to compact*		1	SS	6			6				
1	sand		2	SS	10			10				
1.2	**SAND** *brown, moist, loose to compact*		3	SS	14			14				0 5 73 22
2 1.9	**CLAYEY SILT**, trace sand *brown, moist, stiff*											
2.3	**SANDY SILT TILL**, some clay, some gravel *grey, moist, compact*		4	SS	26			26				
3			5	SS	27			27				
4												
4.6	**SILT**, some sand to sandy, some clay *grey, moist, compact*		6	SS	16			16				
5												
5.2	**END OF BOREHOLE** Notes: 1. Borehole was open to 2.4 mbg and wet at 1.5 mbg upon completion											

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

WSP GDL (ICC).GPJ APRIL 6, 2017 12:0
WSP SOIL LOG 2016 GDP1.PLOT (ICC) - 17M-01364-00 BH LOGS PRELIMINARY.GPJ - 1/22/18

LOG OF BOREHOLE BH18-05

PROJECT: Hurontario Street/Findlay Drive
CLIENT: Straw Hat Restoration
PROJECT LOCATION: Collingwood ON
DATUM: Relative
BH LOCATION: See Figure 2

Method: Solid Stem Auger
Diameter: 150mm
Date: Mar/02/2018

REF. NO.: 17M-01364-00
ENCL NO.: 9

(m) ELEV / DEPTH	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	BLOWS 0.3 m "N"	GROUND WATER CONDITIONS	ELEVATION
	Ground Surface						
0.0	**TOPSOIL**		1	SS	7		
0.4	**FILL**, sand, some gravel *brown, moist, loose*						
0.8	**SAND**, trace silt *layered, oxidized, brown, wet, loose*		2	SS	9		
			3	SS	7		
1.9	**SANDY SILT TILL:**, some clay, layers of clayey silt *layered, brown, moist, compact to very dense*		4	SS	26		
			5	SS	50		
			6	SS	48		
5.2	**END OF BOREHOLE** Notes: 1. Borehole was open to 1.5 mbg and wet at 1.4 mbg upon completion						

STANDARD PENETRATION TEST RESISTANCE PLOT
20 40 60 80 100
SHEAR STRENGTH (kPa)
○ UNCONFINED
● QUICK TRIAXIAL
+ FIELD VANE & Sensitivity
× LAB VANE
20 40 60 80 100

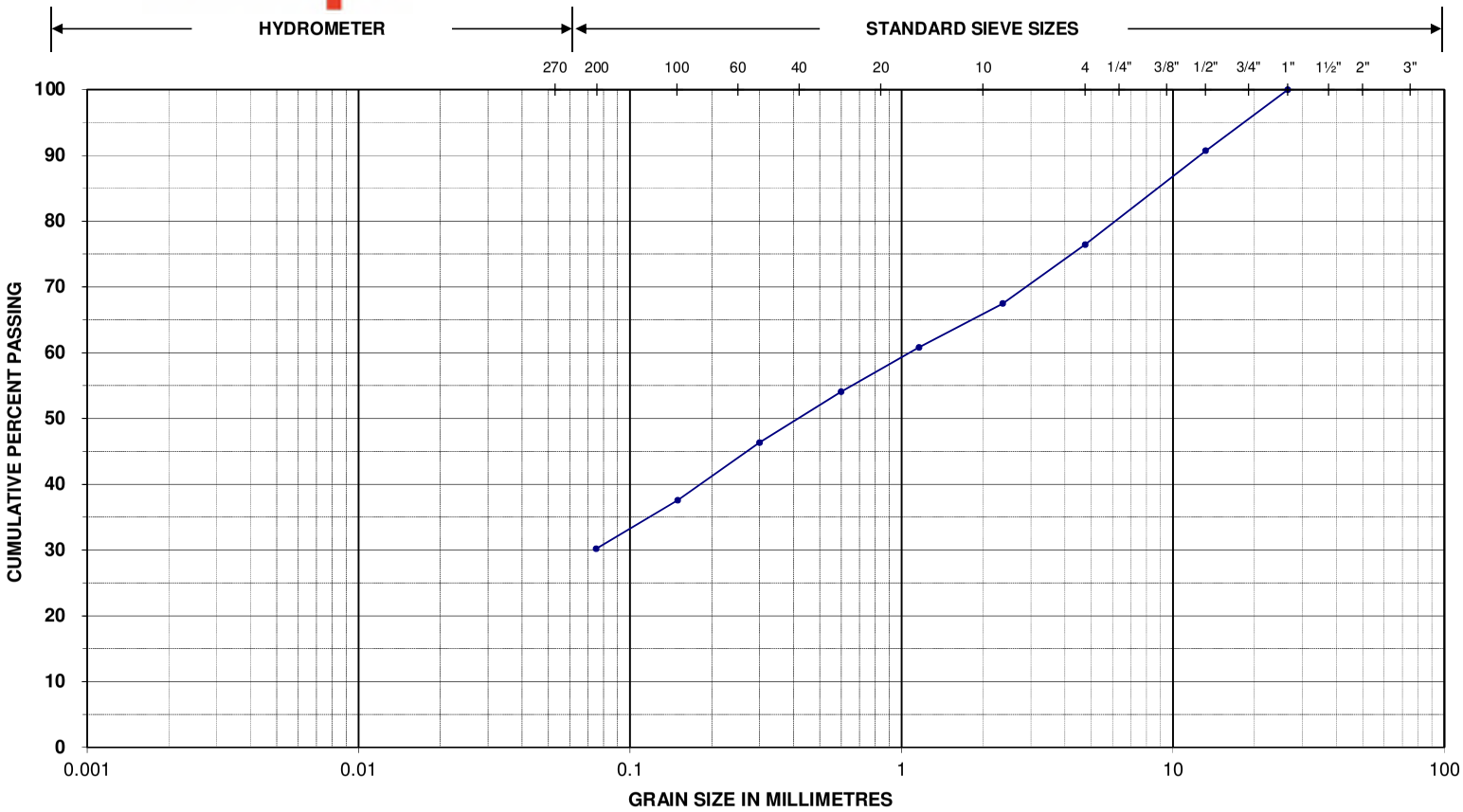
PLASTIC LIMIT w_P | NATURAL MOISTURE CONTENT w | LIQUID LIMIT w_L
WATER CONTENT (%)
10 20 30

POCKET PEN. (Cu) (kPa)
NATURAL UNIT WT (kN/m³)
REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
○ ε=3% Strain at Failure

PARTICLE SIZE DISTRIBUTION



Unified Classification System

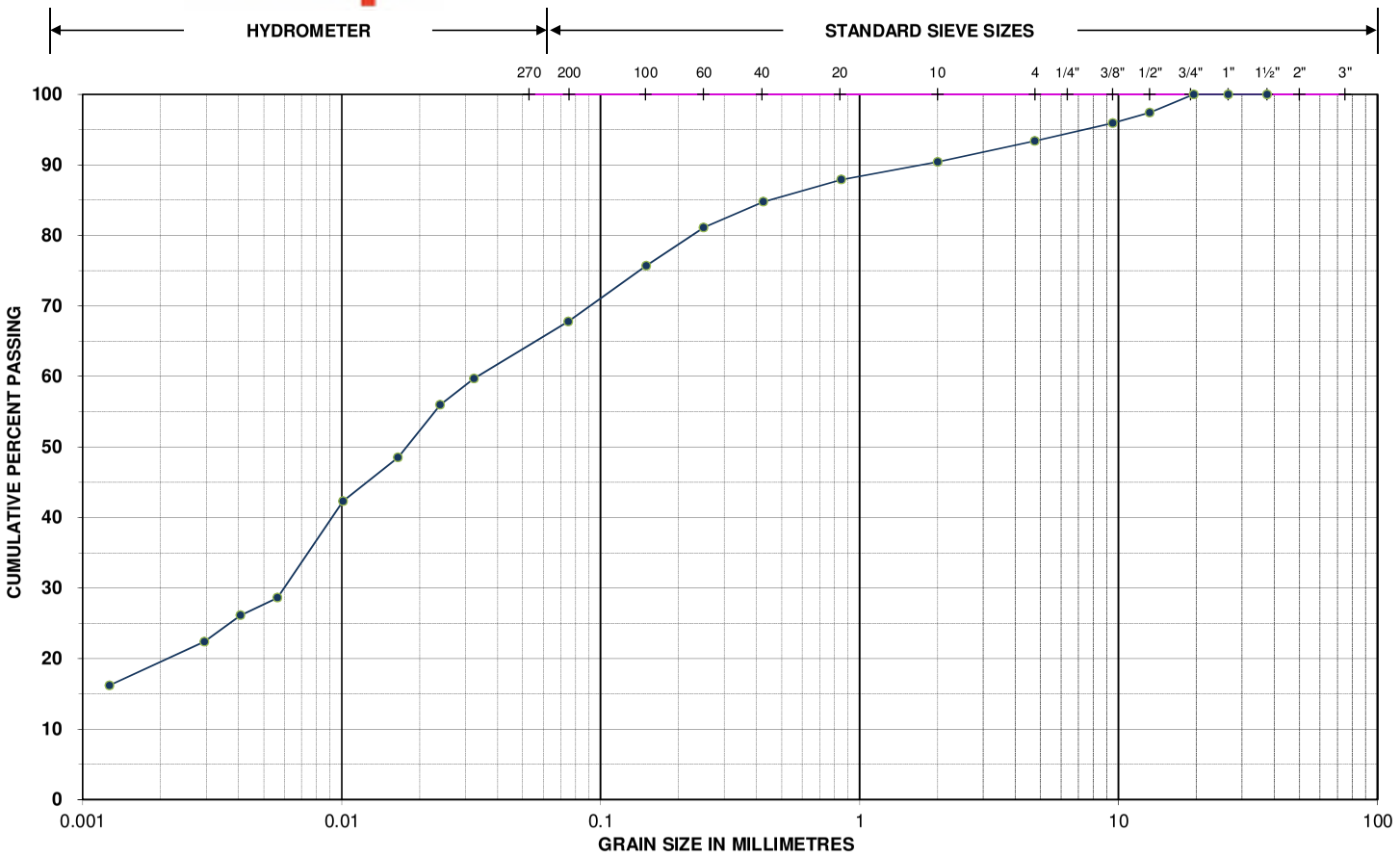
SILT AND CLAY	SAND	GRAVEL

Project Name:	774 Hurontario Street	**Project No.:**	17M-01364-00
Location ID.:	BH17-03	**Sample No./Depth:**	SS6, 4.6-5.2 m

Sieve Size	% Passing Coarse	Sieve Size	% Passing Fine
37.5 mm	100.0	**1.16 mm**	60.8
26.5 mm	100.0	**0.60 mm**	54.1
13.2 mm	90.7	**0.30 mm**	46.3
4.75 mm	76.4	**0.15 mm**	37.6
2.36 mm	67.5	**0.075 mm**	30.2

Enclosure No.: 10

PARTICLE SIZE DISTRIBUTION ASTM D422



Unified Classification System

SILT AND CLAY	SAND	GRAVEL

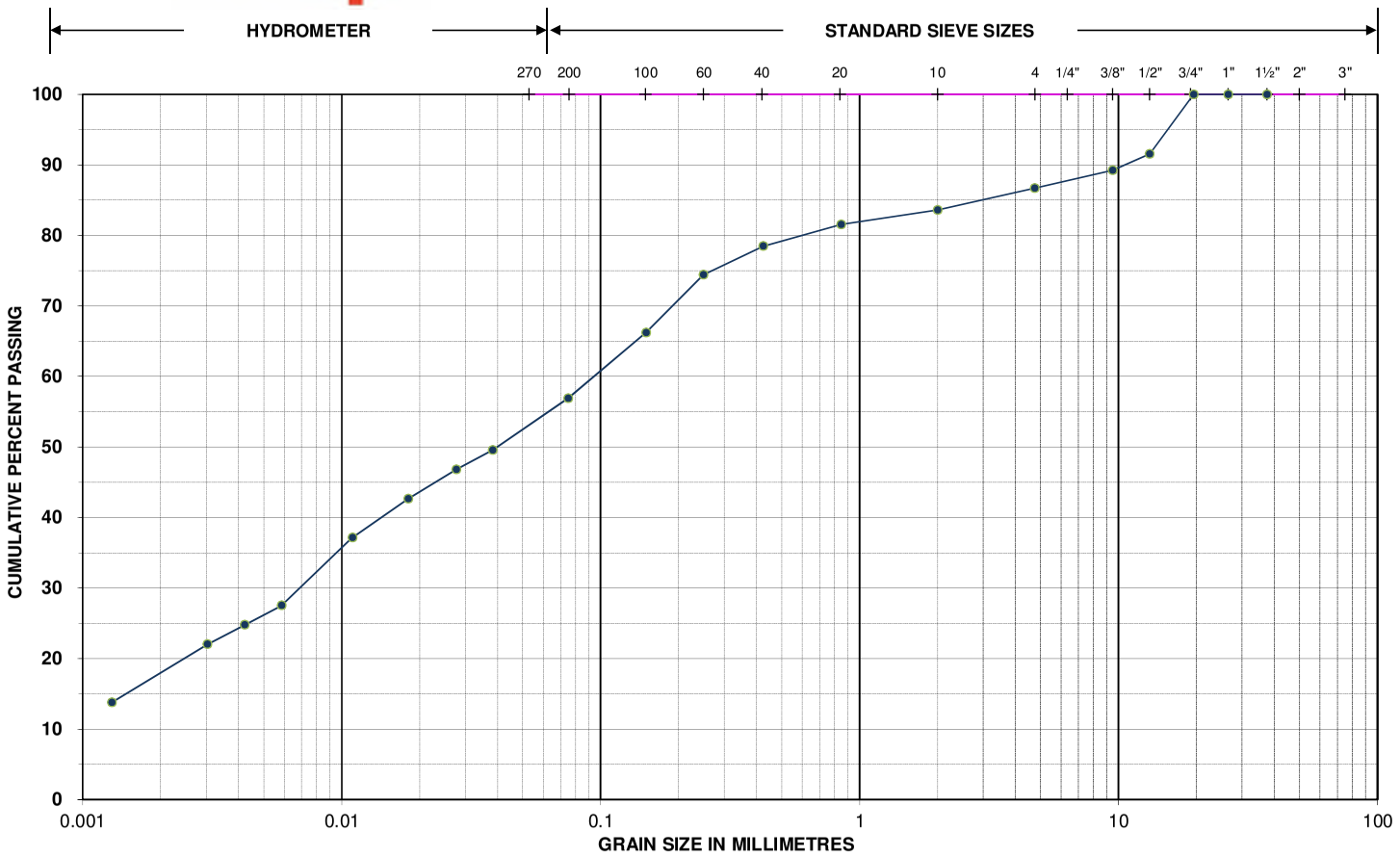
Project Name: 774 Hurontario Street **Project No.:** 171-01364-00

Location ID.: BH17-02 **Sample No./Depth:** SS5, 3.0-3.7 m

Sieve Size	% Passing Coarse	Sieve Size	% Passing Fine	Hydrometer (mm)	% Passing
26.5 mm	100.0	**0.850 mm**	87.9	**0.032**	59.7
13.2 mm	97.4	**0.425 mm**	84.8	**0.017**	48.5
9.50 mm	95.9	**0.250 mm**	81.1	**0.006**	28.6
4.75 mm	93.4	**0.106 mm**	75.7	**0.003**	22.4
2.00 mm	90.4	**0.075 mm**	67.8	**0.001**	16.2

Enclosure No. 11

PARTICLE SIZE DISTRIBUTION ASTM D422



Unified Classification System

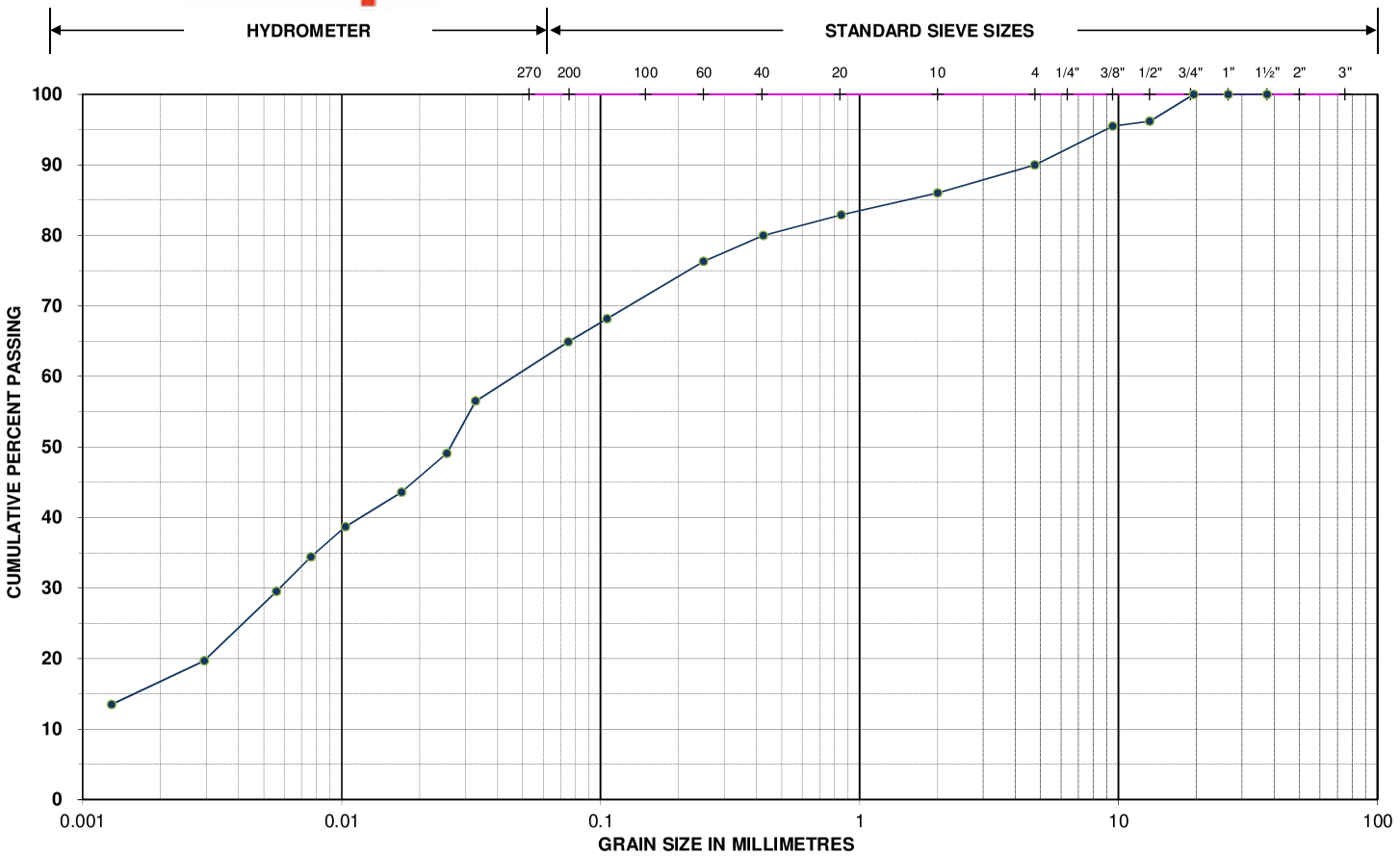
SILT AND CLAY	SAND	GRAVEL

Project Name:	774 Hurontario Street	**Project No.:**	171-01364-00
Location ID.:	BH17-04	**Sample No./Depth:**	SS4, 2.3-2.9 m

Sieve Size	% Passing Coarse	Sieve Size	% Passing Fine	Hydrometer (mm)	% Passing
26.5 mm	100.0	**0.850 mm**	81.5	**0.038**	49.6
13.2 mm	91.6	**0.425 mm**	78.5	**0.018**	42.7
9.50 mm	89.3	**0.250 mm**	74.4	**0.006**	27.5
4.75 mm	86.7	**0.106 mm**	66.2	**0.003**	22.0
2.00 mm	83.6	**0.075 mm**	56.9	**0.001**	13.8

Enclosure No. 12

PARTICLE SIZE DISTRIBUTION ASTM D422



Unified Classification System

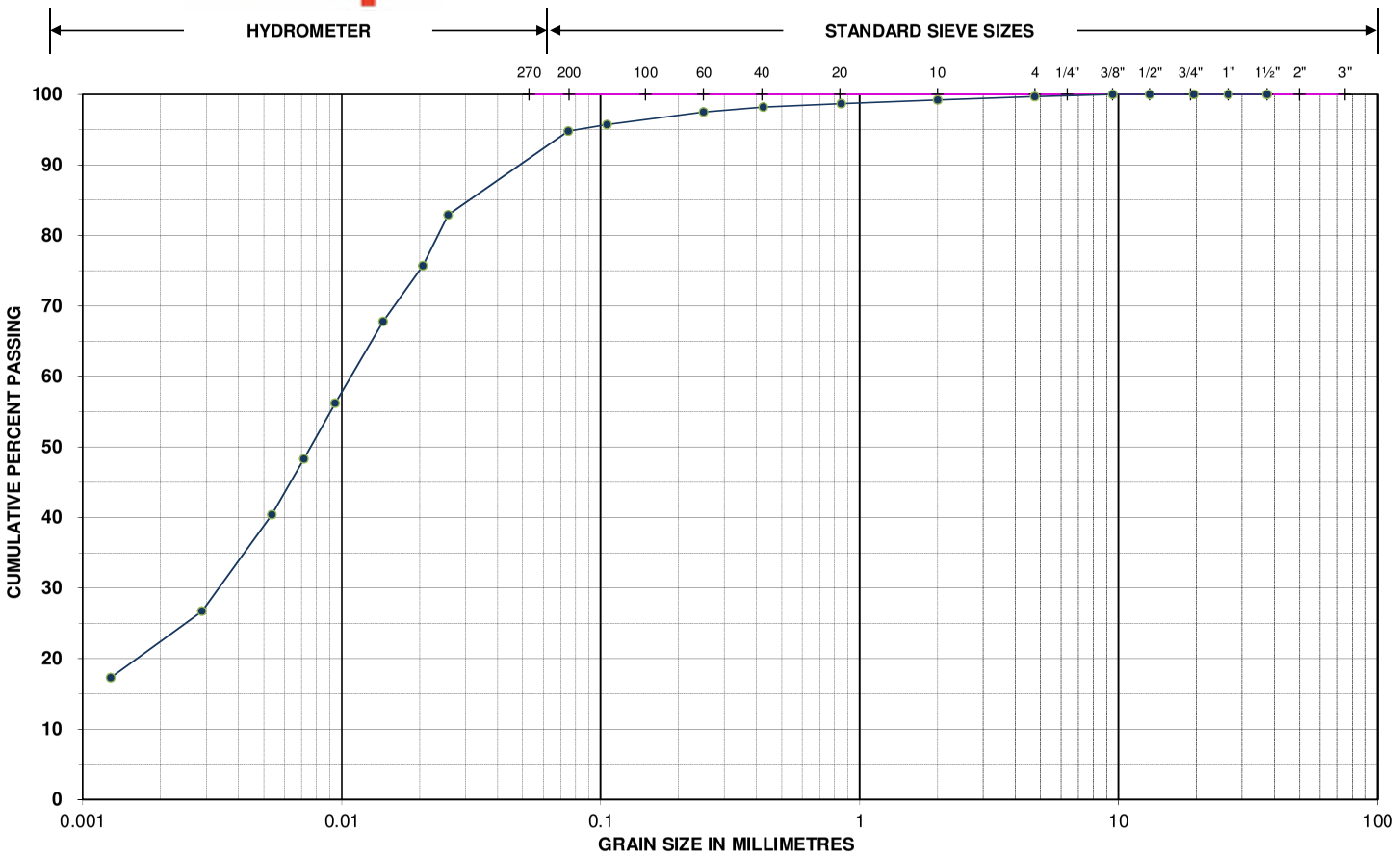
SILT AND CLAY	SAND	GRAVEL

Project Name:	774 Hurontario Street	**Project No.:**	17M-01364-00
Location ID.:	BH18-03	**Sample No./Depth:**	SS3, 1.5 - 2.0 m

Sieve Size	% Passing Coarse	Sieve Size	% Passing Fine	Hydrometer (mm)	% Passing
26.5 mm	100.0	**0.850 mm**	82.9	**0.033**	56.5
13.2 mm	96.2	**0.425 mm**	80.0	**0.017**	43.6
9.50 mm	95.5	**0.250 mm**	76.3	**0.008**	34.4
4.75 mm	90.0	**0.106 mm**	68.2	**0.003**	19.7
2.00 mm	86.0	**0.075 mm**	64.9	**0.001**	13.5

Enclosure No. 13

PARTICLE SIZE DISTRIBUTION ASTM D422



Unified Classification System

SILT AND CLAY	SAND	GRAVEL

Project Name:	774 Hurontario Street	**Project No.:**	17M-01364-00
Location ID.:	BH18-04	**Sample No./Depth:**	SS3, 1.5 - 2.0 m

Sieve Size	% Passing Coarse	Sieve Size	% Passing Fine	Hydrometer (mm)	% Passing
26.5 mm	100.0	**0.850 mm**	98.7	**0.026**	82.9
13.2 mm	100.0	**0.425 mm**	98.2	**0.014**	67.8
9.50 mm	100.0	**0.250 mm**	97.5	**0.007**	48.3
4.75 mm	99.7	**0.106 mm**	95.7	**0.003**	26.7
2.00 mm	99.2	**0.075 mm**	94.8	**0.001**	17.3

Enclosure No. 14

APPENDIX

A ENGINEERED FILL

GENERAL REQUIREMENTS FOR ENGINEERED FILL

Compacted imported soil that meets specific engineering requirements and is free of organics and debris and that has been continually monitored on a full-time basis by a qualified geotechnical representative is classified as engineered fill. Engineered fill that meets these requirements and is bearing on suitable native subsoil can be used for the support of foundations.

Imported soil used as engineered fill can be removed from other portions of a site or can be brought in from other sites. In general, most of Ontario soils are too wet to achieve the 100% Standard Proctor Maximum Dry Density (SPMDD) and will require drying and careful site management if they are to be considered for engineered fill. Imported non-cohesive granular soil is preferred for all engineered fill. For engineered fill, we recommend use of OPSS Granular 'B' sand and gravel fill material.

Adverse weather conditions such as rain make the placement of engineered fill to the required degree of density difficult or impossible; engineered fill cannot be placed during freezing conditions, i.e. normally not between December 15 and April 1 of each year.

The location of the foundations on the engineered fill pad is critical and certification by a qualified surveyor that the foundations are within the stipulated boundaries is mandatory. Since layout stakes are often damaged or removed during fill placement, offset stakes must be installed and maintained by the surveyors during the course of fill placement so that the contractor and engineering staff are continually aware of where the engineered fill limits lie. Excavations within the engineered fill pad must be backfilled with the same conditions and quality control as the original pad.

To perform satisfactorily, engineered fill requires the cooperation of the designers, engineers, contractors and all parties must be aware of the requirements. The minimum requirements are as follows, however, the geotechnical report must be reviewed for specific information and requirements.

1. Prior to site work involving engineered fill, a site meeting to discuss all aspects must be convened. The surveyor, contractor, design engineer and geotechnical engineer must attend the meeting. At this meeting, the limits of the engineered fill will be defined. The contractor must make known where all fill material will be obtained from and samples must be provided to the geotechnical engineer for review, and approval before filling begins.

2. Detailed drawings indicating the lower boundaries as well as the upper boundaries of the engineered fill must be available at the site meeting and be approved by the geotechnical engineer.

3. The building footprint and base of the pad, including basements, garages, etc. must be defined by offset stakes that remain in place until the footings and service connections are all constructed. Confirmation that the footings are within the pad, service lines are in place, and that the grade conforms to drawings, must be obtained by the owner in writing from the surveyor and WSP Canada Inc. Without this confirmation no responsibility for the performance of the structure can be accepted by WSP Canada Inc. Survey drawing of the pre and post fill location and elevations will also be required.

4. The area must be stripped of all topsoil and fill materials. Subgrade must be proof-rolled. Soft spots must be dug out. The stripped native subgrade must be examined and approved by a WSP Canada Inc. engineer prior to placement of fill.

5. The approved engineered fill material must be compacted to 100% Standard Proctor Maximum Dry Density throughout. Engineered fill should not be placed during the winter months. Engineered fill compacted to 100% SPMDD will settle under its own weight approximately 0.5% of the fill height and the structural engineer must be aware of this settlement. In addition to the settlement of the fill, additional settlement due to consolidation of the underlying soils from the structural and fill loads will occur and should be evaluated prior to placing the fill.

6. Full-time geotechnical inspection by WSP Canada Inc. during placement of engineered fill is required. Work cannot commence or continue without the presence of the WSP Canada Inc. representative.

7. The fill must be placed such that the specified geometry is achieved. Refer to the attached sketches for minimum requirements. Take careful note that the projection of the compacted pad beyond the footing at footing level is a minimum of 2 m. The base of the compacted pad extends 2 m plus the depth of excavation beyond the edge of the footing.

8. A bearing capacity of 150 kPa at SLS (225 kPa at ULS) can be used provided that all conditions outlined above are adhered to. A minimum footing width of 500 mm (20 inches) is suggested and footings must be provided with nominal steel reinforcement.

9. All excavations must be done in accordance with the Occupational Health and Safety Regulations of Ontario.

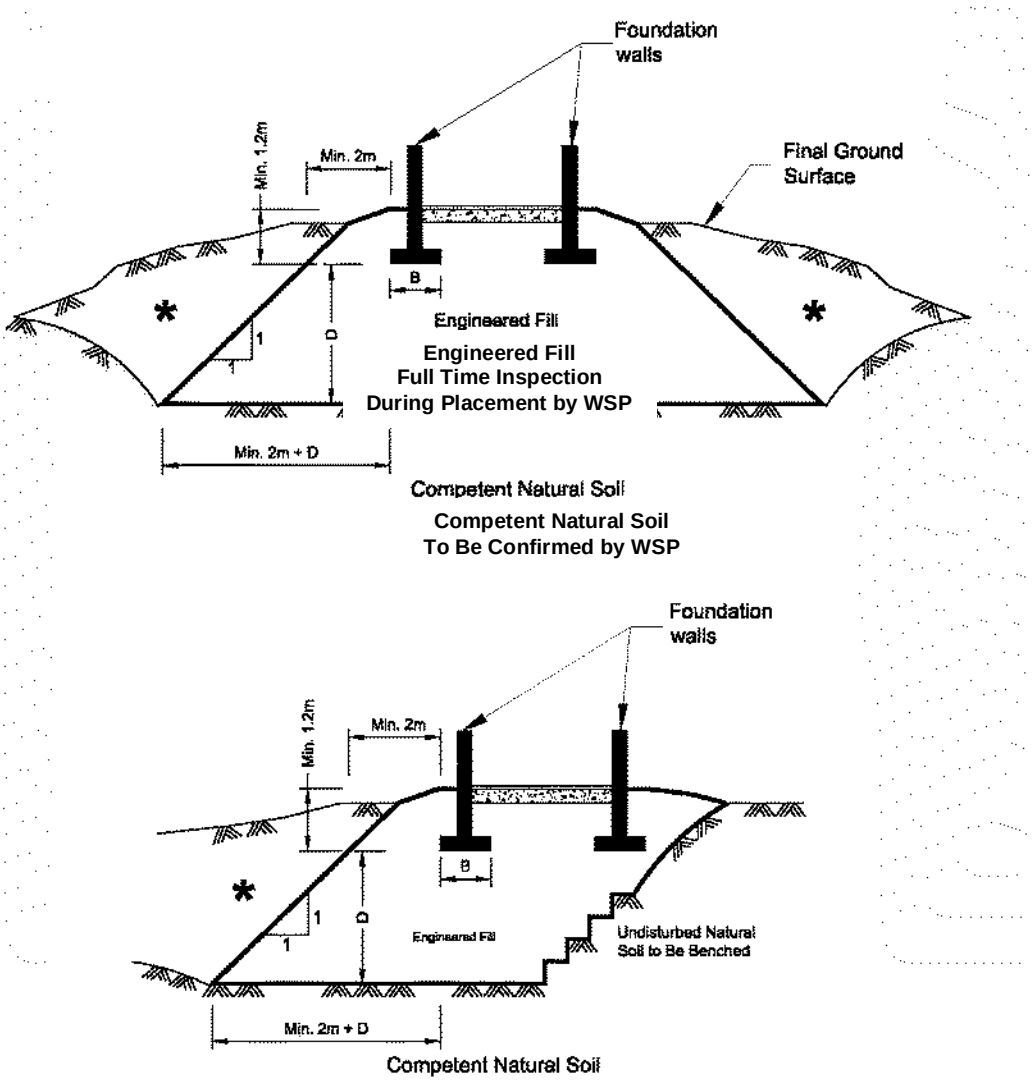
10. After completion of the engineered fill pad a second contractor may be selected to install footings. The prepared footing bases must be evaluated by engineering staff from WSP Canada Inc. prior to footing concrete placements. All excavations must be backfilled under full time supervision by WSP Canada Inc. to the same degree as the engineered fill pad. Surface water cannot be allowed to pond in excavations or to be trapped in clear stone backfill. Clear stone backfill can only be used with the approval of WSP Canada Inc.

11. After completion of compaction, the surface of the engineered fill pad must be protected from disturbance from traffic, rain and frost. During the course of fill placement, the engineered fill must be smooth-graded, proof-rolled and sloped/crowned at the end of each day, prior to weekends and any stoppage in work in order to promote rapid runoff of rainwater and to avoid any ponding surface water. Any stockpiles of fill intended for use as engineered fill must also be smooth-bladed to promote runoff and/or protected from excessive moisture take up.

12. If there is a delay in construction, the engineered fill pad must be inspected and accepted by the geotechnical engineer. The location of the structure must be reconfirmed that it remains within the pad.

13. The geometry of the engineered fill as illustrated in these General Requirements is general in nature. Each project will have its own unique requirements. For example, if perimeter sidewalks are to be constructed around the building, then the projection of the engineered fill beyond the foundation wall may need to be greater.

14. These guidelines are to be read in conjunction with WSP Canada Inc. report attached.



* **Backfill in this area to be as per WSP report.**

APPENDIX

B SOIL QUALITY ASSESSMENT

Project Number: 17M-01364-00 **March 21, 2018**

Straw Hat Restoration
325 Willard Avenue
Toronto, Ontario
M6S 3R1

Re: Soil Quality Assessment
33 Findlay Drive & 774 Hurontario Street
Town of Collingwood, Ontario

INTRODUCTION

WSP Canada Inc. (WSP) was retained by Straw Hat Restoration to complete a geotechnical investigation for the potential development of 33 Findlay Drive and 774 Hurontario Street located in the Town of Collingwood, Ontario.

In order to characterize the quality of the existing materials, a total of thirty-four (34) soil samples were collected by WSP personnel. The samples were submitted to AGAT Laboratories for analysis of Metals and Other Regulated Parameters (ORPs), Organochlorine Pesticides (OCPs), Petroleum Hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylenes (BTEX) parameters.

Soil samples from BH17-01 to BH17-04 were collected on June 22 & 23, 2017 and samples from BH18-02 to BH18-04 were collected on March 2, 2018. A summary of the soil samples collected from the boreholes and the parameters analyzed for each sample is summarized in the table below.

Sample Location	Sample ID	Sample Depth (mbg)	Soil Type	Parameters Analyzed
BH17-01	SS2	0.8-1.4	Sandy Silt Till	Metals and ORPs, incl. EC & SAR
BH17-01	SS3	1.5-2.1	Sandy Silt Till	OCPs, PHCs (F1-F4) incl. BTEX
BH17-01	SS4	2.3-2.9	Sandy Silt Till	Metals and ORPs, incl. EC & SAR
BH17-01	SS5	3.1-3.7	Sandy Silt Till	OCPs, PHCs (F1-F4) incl. BTEX
BH17-02	SS1	0.0-0.6	Topsoil/ Sand	Metals and ORPs, incl. EC & SAR
BH17-02	SS2	0.8-1.4	Sand/ Sandy Silt Till	OCPs, PHCs (F1-F4) incl. BTEX
BH17-02	SS3	1.5-2.1	Sandy Silt Till	Metals and ORPs, incl. EC & SAR

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Collingwood, ON, Canada L9Y 4J7

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Fax: +1 705 445-0067
wsp.com

BH17-02	SS4	2.3-2.9	Sandy Silt Till	OCPs, PHCs (F1-F4) incl. BTEX
BH17-03	SS1	0.0-0.6	Topsoil/ Sand	OCPs
BH17-03	SS2	0.8-1.4	Sand	PHCs (F1-F4) incl. BTEX
BH17-03	SS3	1.5-2.1	Sandy Silt Till	Metals and ORPs, incl. EC & SAR
BH17-03	SS4	2.3-2.9	Sandy Silt Till	OCPs, PHCs (F1-F4) incl. BTEX
BH17-03	SS5	3.1-3.7	Sandy Silt Till	Metals and ORPs, incl. EC & SAR
BH17-04	SS1	0.0-0.6	Topsoil/ Sand to Sand and Gravel	OCPs, PHCs (F1-F4) incl. BTEX
BH17-04	SS2	0.8-1.4	Sand to Sand and Gravel	Metals and ORPs, incl. EC & SAR
BH17-04	SS3	1.5-2.1	Sandy Silt Till	OCPs, PHCs (F1-F4) incl. BTEX
BH17-04	SS4	2.3-2.9	Sandy Silt Till	Metals and ORPs, incl. EC & SAR
BH18-02	SS1	0.0-0.6	Topsoil/Sand	OCPs
BH18-02	SS2	0.8-1.4	Silty Sand Till	Metals and ORPs, incl. EC & SAR, OCPs, PHCs (F1-F4) incl. BTEX
BH18-02	SS3	1.5-2.1	Silty Sand Till	Metals and ORPs, including EC & SAR
BH18-02	SS6	4.6-5.2	Silty Sand Till	PHCs (F1-F4) incl. BTEX
BH18-03	SS1	0.0-0.6	Topsoil/Sand	OCPs, PHCs (F1-F4) incl. BTEX
BH18-03	SS2	0.8-1.4	Silty Sand Till	Metals and ORPs, incl. EC & SAR
BH18-03	SS3	1.5-2.1	Silty Sand Till	OCPs
BH18-03	SS4	2.3-2.9	Silty Sand Till	Metals and ORPs, including EC & SAR
BH18-03	SS5	3.1-3.7	Silty Sand Till	PHCs (F1-F4) incl. BTEX
BH18-04	SS1	0.0-0.6	Topsoil/Fill	Metals and ORPs, incl. EC & SAR, OCPs
BH18-04	SS2	0.8-1.4	Fill/Sand	PHCs (F1-F4) incl. BTEX
BH18-04	SS4	2.3-2.9	Clayey Silt Till	Metals and ORPs, incl. EC & SAR, OCPs, PHCs (F1-F4) incl. BTEX
BH18-05	SS1	0.0-0.6	Topsoil/Fill	Metals and ORPs, incl. EC & SAR, OCPs
BH18-05	SS2	0.8-1.4	Sand	OCPs
BH18-05	SS3	1.5-2.1	Sand/Sandy Silt Till	PHCs (F1-F4) incl. BTEX
BH18-05	SS4	2.3-2.9	Sandy Silt Till	Metals and ORPs, incl. EC & SAR
BH18-05	SS5	3.1-3.7	Sandy Silt Till	PHCs (F1-F4) incl. BTEX

Since the potential purpose of the re-use of soils is unknown, the results were compared to Table 1 Full Depth Background Site Condition Standards for residential/parkland/institutional/ commercial/community property uses and Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition as contained in the Ministry of the Environment (MOE) document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" (Standards).

The certificate of analysis from the laboratory is attached to this letter report. A summary of the soil quality analysis is provided in the following section.

SOIL QUALITY ASSESSMENT

Soil samples were collected and handled in accordance with generally accepted procedures used by the environmental consulting industry. Prior to each sampling event, new disposable gloves were used to transfer samples to glass jars and vials supplied by the laboratory. All soil samples were kept under refrigerated conditions during field storage and transportation to the environmental analytical laboratory.

No visual or olfactory evidence of environmental impact (debris or staining) was noted in any of the soil samples collected.

The chemical analysis was conducted by AGAT Laboratories located in Mississauga, Ontario. AGAT is a member of the Canadian Association for Laboratory Accreditation (CALA) and meets the requirements of Section 47 of O.Reg. 153/04 certifying that the analytical laboratory be accredited in accordance with the International Standard ISO/IEC 17025 and with standards developed by the Standards Council of Canada.

Based on the results of the chemical analysis, WSP provides the following conclusions:

- All samples met the Table 1 criteria, for the parameters tested with the exception of the following:
    - BH17-03 SS1 for DDE with 0.13 ug/g (Table 1 criteria is 0.05 ug/g); and,
    - BH17-04 SS1 for DDE with 0.057 ug/g (Table 1 criteria is 0.05 ug/g).
- All samples met the Table 3 criteria, for the parameters tested.

The results of this soil quality assessment are based on the soil samples collected from the borehole locations and the parameters analyzed. The information in this Soil Quality Assessment will be included in the Phase Two Environmental Site Assessment report that is being completed by WSP. Soil quality may vary at locations other than those tested.

We trust this letter report satisfies your needs. If there are questions or you need more information, please do not hesitate to contact our office.

WSP Canada Inc.

Nicole Collins
Environmental Technician

Gord Jarvis
Team Lead - Environment

AGAT Laboratories

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http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC.
561 BRYNE DRIVE, UNITS C&D
BARRIE , ON L4N9Y3
(705) 735-9771

ATTENTION TO: Jason Murchison

PROJECT: 17M-01364-00

AGAT WORK ORDER: 17T231150

SOIL ANALYSIS REVIEWED BY: Yris Verastegui, Report Reviewer

TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist

DATE REPORTED: Jul 06, 2017

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

Member of: Association of Professional Engineers and Geoscientists of Alberta (APEGA)
Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2017-06-27

DATE REPORTED: 2017-07-04

		SAMPLE DESCRIPTION:		BH17-01 SS2	BH17-01 SS4	BH17-02 SS1	BH17-02 SS3	BH17-03 SS3	BH17-03 SS5	BH17-04 SS2	BH17-04 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-06-22	2017-06-22	2017-06-22	2017-06-22	2017-06-23	2017-06-23	2017-06-23	2017-06-23
Parameter	Unit	G / S	RDL	8512961	8512975	8512979	8512984	8513001	8513024	8513032	8513044
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	3	3	11	3	3	3	3	3
Barium	µg/g	220	2	10	24	14	24	22	23	12	26
Beryllium	µg/g	2.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	36	5	<5	9	<5	7	7	7	<5	9
Boron (Hot Water Soluble)	µg/g	NA	0.10	<0.10	0.56	0.25	0.25	0.31	0.50	0.12	0.41
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	5	8	8	8	7	8	6	8
Cobalt	µg/g	21	0.5	2.2	4.5	2.2	3.4	3.2	3.9	2.5	4.2
Copper	µg/g	92	1	4	11	6	10	8	8	6	11
Lead	µg/g	120	1	4	4	32	6	5	4	4	4
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	1	3	9	4	7	6	7	4	8
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	1	9	13	18	11	11	12	12	12
Zinc	µg/g	290	5	13	19	19	20	16	18	14	19
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.57	0.005	0.108	0.159	0.119	0.255	0.163	0.169	0.105	0.199
Sodium Adsorption Ratio	NA	2.4	NA	0.090	0.262	0.062	0.157	0.231	0.267	0.201	0.216
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.72	7.76	7.80	7.94	8.01	8.06	7.86	8.05

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8512961-8513044 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By: Yuri Verastegui

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2017-06-27

DATE REPORTED: 2017-07-05

		SAMPLE DESCRIPTION:		BH17-01 SS3	BH17-01 SS5	BH17-02 SS2	BH17-02 SS4	BH17-03 SS1	BH17-03 SS4	BH17-04 SS1	BH17-04 SS3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-06-22	2017-06-22	2017-06-22	2017-06-22	2017-06-23	2017-06-23	2017-06-23	2017-06-23
Parameter	**Unit**	**G / S**	**RDL**	**8512963**	**8512976**	**8512980**	**8512985**	**8512992**	**8513021**	**8513025**	**8513041**
Hexachloroethane	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	**0.13**	<0.007	**0.057**	<0.007
DDD	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.014	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	7.7	12.2	13.3	10.0	24.4	8.2	7.7	7.7
Surrogate	**Unit**	**Acceptable Limits**									
TCMX	%	50-140		74	62	62	59	60	62	72	80
Decachlorobiphenyl	%	60-130		73	68	74	62	71	61	96	90

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8512963-8513041 Results are based on the dry weight of the soil.
Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.
Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By: NPopnikolof

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Certificate of Analysis

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2017-06-27

DATE REPORTED: 2017-07-04

		SAMPLE DESCRIPTION:		BH17-01 SS3	BH17-01 SS5	BH17-02 SS2	BH17-02 SS4	BH17-03 SS2	BH17-03 SS4	BH17-04 SS3
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2017-06-22	2017-06-22	2017-06-22	2017-06-22	2017-06-23	2017-06-23	2017-06-23
Parameter	**Unit**	**G / S**	**RDL**	**8512963**	**8512976**	**8512980**	**8512985**	**8512996**	**8513021**	**8513041**
Benzene	µg/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.2	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	7.7	12.2	13.3	10.0	22.9	8.2	7.7
Surrogate	**Unit**	**Acceptable Limits**								
Terphenyl	%	60-140		78	95	89	81	74	93	74

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8512963-8513041 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: N Popnikolof

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AGAT Laboratories

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Certificate of Analysis

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - PHCs F2 - F4 (Soil)

DATE RECEIVED: 2017-06-27

DATE REPORTED: 2017-06-30

		SAMPLE DESCRIPTION:		BH17-04 SS1
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2017-06-23
Parameter	**Unit**	**G / S**	**RDL**	**8513025**
F2 (C10 to C16)	µg/g	10	10	<10
F3 (C16 to C34)	µg/g	240	50	<50
F4 (C34 to C50)	µg/g	120	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA
Moisture Content	%		0.1	15.6
Surrogate	**Unit**	**Acceptable Limits**		
Terphenyl	%	60-140		75

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

8513025 Results are based on sample dry weight.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By: NPopnikolof

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Guideline Violation

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC.

ATTENTION TO: Jason Murchison

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
8512992	BH17-03 SS1	ON T1 S RPI/ICC	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	µg/g	0.05	0.13
8513025	BH17-04 SS1	ON T1 S RPI/ICC	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	µg/g	0.05	0.057

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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

ATTENTION TO: Jason Murchison

SAMPLING SITE:

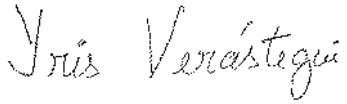
SAMPLED BY:

Soil Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	8512961	8512961	<0.8	<0.8	NA	< 0.8	106%	70%	130%	96%	80%	120%	84%	70%	130%
Arsenic	8512961	8512961	3	3	NA	< 1	111%	70%	130%	90%	80%	120%	93%	70%	130%
Barium	8512961	8512961	10	12	18.2%	< 2	109%	70%	130%	100%	80%	120%	99%	70%	130%
Beryllium	8512961	8512961	<0.5	<0.5	NA	< 0.5	75%	70%	130%	98%	80%	120%	90%	70%	130%
Boron	8512961	8512961	<5	<5	NA	< 5	73%	70%	130%	99%	80%	120%	90%	70%	130%
Boron (Hot Water Soluble)	8512961	8512961	<0.10	<0.10	NA	< 0.10	93%	60%	140%	104%	70%	130%	97%	60%	140%
Cadmium	8512961	8512961	<0.5	<0.5	NA	< 0.5	99%	70%	130%	95%	80%	120%	97%	70%	130%
Chromium	8512961	8512961	5	5	NA	< 2	87%	70%	130%	99%	80%	120%	82%	70%	130%
Cobalt	8512961	8512961	2.2	2.3	NA	< 0.5	98%	70%	130%	91%	80%	120%	93%	70%	130%
Copper	8512961	8512961	4	5	NA	< 1	95%	70%	130%	99%	80%	120%	90%	70%	130%
Lead	8512961	8512961	4	4	NA	< 1	105%	70%	130%	96%	80%	120%	85%	70%	130%
Molybdenum	8512961	8512961	<0.5	<0.5	NA	< 0.5	100%	70%	130%	103%	80%	120%	108%	70%	130%
Nickel	8512961	8512961	3	3	NA	< 1	102%	70%	130%	93%	80%	120%	93%	70%	130%
Selenium	8512961	8512961	<0.4	<0.4	NA	< 0.4	101%	70%	130%	98%	80%	120%	99%	70%	130%
Silver	8512961	8512961	<0.2	<0.2	NA	< 0.2	92%	70%	130%	91%	80%	120%	89%	70%	130%
Thallium	8512961	8512961	<0.4	<0.4	NA	< 0.4	99%	70%	130%	96%	80%	120%	91%	70%	130%
Uranium	8512961	8512961	<0.5	<0.5	NA	< 0.5	90%	70%	130%	95%	80%	120%	96%	70%	130%
Vanadium	8512961	8512961	9	9	0.0%	< 1	94%	70%	130%	101%	80%	120%	87%	70%	130%
Zinc	8512961	8512961	13	13	NA	< 5	100%	70%	130%	98%	80%	120%	95%	70%	130%
Chromium VI	8509348		<0.2	<0.2	NA	< 0.2	99%	70%	130%	103%	80%	120%	93%	70%	130%
Cyanide	8512961	8512961	<0.040	<0.040	NA	< 0.040	91%	70%	130%	103%	80%	120%	110%	70%	130%
Mercury	8512961	8512961	<0.10	<0.10	NA	< 0.10	107%	70%	130%	99%	80%	120%	86%	70%	130%
Electrical Conductivity	8512961	8512961	0.108	0.111	2.7%	< 0.005	96%	90%	110%	NA			NA		
Sodium Adsorption Ratio	8512961	8512961	0.090	0.095	5.4%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	8513001	8513001	8.01	7.98	0.4%	NA	101%	80%	120%	NA			NA		

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By:



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Quality Assurance

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	8509490		< 0.01	< 0.01	NA	< 0.01	99%	50%	140%	70%	50%	140%	84%	50%	140%
Gamma-Hexachlorocyclohexane	8509490		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	74%	50%	140%	74%	50%	140%
Heptachlor	8509490		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	90%	50%	140%	90%	50%	140%
Aldrin	8509490		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	90%	50%	140%	90%	50%	140%
Heptachlor Epoxide	8509490		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%	102%	50%	140%	100%	50%	140%
Endosulfan	8509490		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	87%	50%	140%	88%	50%	140%
Chlordane	8509490		< 0.007	< 0.007	NA	< 0.007	108%	50%	140%	102%	50%	140%	92%	50%	140%
DDE	8509490		< 0.007	< 0.007	NA	< 0.007	106%	50%	140%	109%	50%	140%	100%	50%	140%
DDD	8509490		< 0.007	< 0.007	NA	< 0.007	111%	50%	140%	93%	50%	140%	93%	50%	140%
DDT	8509490		< 0.007	< 0.007	NA	< 0.007	114%	50%	140%	86%	50%	140%	84%	50%	140%
Dieldrin	8509490		< 0.005	< 0.005	NA	< 0.005	107%	50%	140%	102%	50%	140%	96%	50%	140%
Endrin	8509490		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	102%	50%	140%	98%	50%	140%
Methoxychlor	8509490		< 0.005	< 0.005	NA	< 0.005	112%	50%	140%	94%	50%	140%	102%	50%	140%
Hexachlorobenzene	8509490		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	96%	50%	140%	96%	50%	140%
Hexachlorobutadiene	8509490		< 0.01	< 0.01	NA	< 0.01	108%	50%	140%	74%	50%	140%	92%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	8509842		< 0.02	< 0.02	NA	< 0.02	114%	60%	130%	117%	60%	130%	108%	60%	130%
Toluene	8509842		< 0.08	< 0.08	NA	< 0.08	114%	60%	130%	116%	60%	130%	115%	60%	130%
Ethylbenzene	8509842		< 0.05	< 0.05	NA	< 0.05	115%	60%	130%	114%	60%	130%	111%	60%	130%
Xylene Mixture	8509842		< 0.05	< 0.05	NA	< 0.05	111%	60%	130%	111%	60%	130%	109%	60%	130%
F1 (C6 to C10)	8509842		< 5	< 5	NA	< 5	76%	60%	130%	86%	85%	115%	71%	70%	130%
F2 (C10 to C16)	8515718		< 10	< 10	NA	< 10	100%	60%	130%	95%	80%	120%	72%	70%	130%
F3 (C16 to C34)	8515718		< 50	< 50	NA	< 50	94%	60%	130%	105%	80%	120%	74%	70%	130%
F4 (C34 to C50)	8515718		< 50	< 50	NA	< 50	86%	60%	130%	92%	80%	120%	81%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By: N Popnikolof

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010B	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC.

AGAT WORK ORDER: 17T231150

PROJECT: 17M-01364-00

ATTENTION TO: Jason Murchison

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

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AGAT Laboratories

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Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 17T231150

Cooler Quantity: 1 of 5

Arrival Temperatures: 4.6 4.2 4.5 / 3.4 2.7 3

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: WSP Canada Inc.
Contact: Nick LaPosta
Address: 561 Bryne Dr. Units C+D
Barrie, ON L4N 9Y3
Phone: 705-735-9771 Fax:
Reports to be sent to:
1. Email: nick.la.posta@wspgroup.com
2. Email: nicole.collins@wspgroup.com

Regulatory Requirements:

☐ No Regulatory Requirement
(Please check all applicable boxes)

☒ Regulation 153/04
Table 1 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a Record of Site Condition? ☐ Yes ☒ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01364-00
Site Location: 774 Huron tario
Sampled By: NC
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	All Metals ☐ 153 Metals (excl. Hydrides)	Hydride Metals ☐ 153 Metals (incl. Hydrides)	ORPs: ☐ B-HWS ☐ Cl ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	Sewer Use	PHCs (F1-F4)	BTEX
BH17-01 SS2	06/22/17	PM		S			X															X	X
BH17-01 SS3	"	"		"															X			X	X
BH17-01 SS4							X																
BH17-01 SS5																			X			X	X
BH17-02 SS1							X																
BH17-02 SS2																			X			X	X
BH17-02 SS3							X																
BH17-02 SS4																			X			X	X
BH17-03 SS1	06/23/17	AM																	X				
BH17-03 SS2	"	"																				X	X
BH17-03 SS3							X																

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Brian Cooper	June 22/17	11:45		2017/6/22	11:45
	2017/6/23	14:29			

Page 1 of 2

N°: T 054091

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Mississauga, Ontario L4Z 1Y2
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webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #:

Cooler Quantity: 1 of 1

Arrival Temperatures: 4.6 | 4.2 | 4.5
2.4 | 2.7 | 3

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes:

Report Information:

Company: WSP Canada Inc.
Contact: Nick LaPosta
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2. Email: nicole.collins@wspgroup.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

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Table 1 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Project Information:

Project: 17M-01364-00
Site Location: 774 Huronteria St.
Sampled By: NC
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☐ Yes ☒ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Invoice Information:

Bill To Same: Yes ☒ No ☐

Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics (☐ All Metals ☐ 153 Metals (excl. Hydrides) ☐ Hydride Metals ☐ 153 Metals (incl. Hydrides))	ORPs: ☐ B-HWS ☐ Cl⁻ ☐ CN ☐ Cr⁶⁺ ☐ EC ☐ FOC ☐ Hg ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	CCME Fractions 1 to 4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ BaP ☐ PCBs	Sewer Use	PAHs (F1-F4)	BTEX
BH17-03 SS4	06/23/17	AM		S													X			X	X
BH17-03 SS5	↓	↓		↓			X														
BH17-04 SS1																	X			X	X
BH17-04 SS2							X														
BH17-04 SS3																	X			X	X
BH17-04 SS4							X														

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Brian Gagen	Tue 27/17	11:17	Roy	2017/6/27	11
Samples Relinquished By (Print Name and Sign)	2017/6/27	4:39			
Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time

Page 2 of 2

N°: T 054092

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AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: WSP CANADA INC
14 RONELL CRESCENT UNIT 1
COLLINGWOOD, ON L9Y 4J7
(705) 445-0064

ATTENTION TO: Nicole Collins

PROJECT: 17M-01364-00

AGAT WORK ORDER: 18T317303

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Mar 15, 2018

PAGES (INCLUDING COVER): 10

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.

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Western Enviro-Agricultural Laboratory Association (WEALA)
Environmental Services Association of Alberta (ESAA)

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Results relate only to the items tested and to all the items tested
All reportable information as specified by ISO 17025:2005 is available from AGAT Laboratories upon request

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 18T317303

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Nicole Collins

SAMPLING SITE:774 Hurontario/ Findlay Dr.

SAMPLED BY:Brian Cooper/Nicole Collins

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2018-03-06

DATE REPORTED: 2018-03-15

		SAMPLE DESCRIPTION:		BH18-02 SS2	BH18-02 SS3	BH18-03 SS2	BH18-03 SS4	BH18-04 SS1	BH18-04 SS4	BH18-05 SS1	BH18-05 SS4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02
Parameter	Unit	G / S	RDL	9104422	9104466	9104482	9104485	9104496	9104505	9104512	9104524
Antimony	µg/g	1.3	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	4	4	3	3	6	4	7	3
Barium	µg/g	220	2	41	29	29	26	28	33	44	35
Beryllium	µg/g	2.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	36	5	10	11	10	10	6	11	6	9
Boron (Hot Water Soluble)	µg/g	NA	0.10	0.27	0.55	0.22	0.41	0.21	0.34	0.37	0.24
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	70	2	15	13	10	10	12	13	15	13
Cobalt	µg/g	21	0.5	8.4	6.9	6.0	5.1	5.2	8.0	5.4	7.2
Copper	µg/g	92	1	17	15	12	10	26	17	17	17
Lead	µg/g	120	1	6	6	4	4	11	6	18	6
Molybdenum	µg/g	2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	82	1	16	15	12	11	14	17	12	15
Selenium	µg/g	1.5	0.4	<0.4	<0.4	<0.4	<0.4	0.4	0.4	0.5	0.4
Silver	µg/g	0.5	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	2.5	0.5	0.6	0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.5
Vanadium	µg/g	86	1	19	15	14	13	15	17	19	18
Zinc	µg/g	290	5	34	26	23	21	32	31	46	30
Chromium VI	µg/g	0.66	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity	mS/cm	0.57	0.005	0.176	0.206	0.164	0.237	0.144	0.189	0.149	0.218
Sodium Adsorption Ratio	NA	2.4	NA	0.327	0.231	0.126	0.138	0.030	0.158	0.040	0.208
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.58	7.82	7.78	7.80	7.60	7.71	7.54	7.76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

9104422-9104524 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By: Nivine Basily

Results relate only to the items tested and to all the items tested

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Certificate of Analysis

AGAT WORK ORDER: 18T317303

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Nicole Collins

SAMPLING SITE:774 Hurontario/ Findlay Dr.

SAMPLED BY:Brian Cooper/Nicole Collins

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2018-03-06

DATE REPORTED: 2018-03-15

		SAMPLE DESCRIPTION:		BH18-02 SS2	BH18-02 SS1	BH18-03 SS1	BH18-03 SS3	BH18-04 SS1	BH18-04 SS4	BH18-05 SS1	BH18-05 SS2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02
Parameter	Unit	G / S	RDL	9104422	9104459	9104477	9104486	9104496	9104505	9104512	9104516
Hexachloroethane	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Gamma-Hexachlorocyclohexane	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.05	0.007	<0.007	0.014	0.022	<0.007	<0.007	<0.007	0.048	<0.007
DDD	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	0.011	0.008	<0.007	<0.007	<0.007	0.050	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.01	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	14.8	17.4	23	8.7	10.6	11.3	13.7	14.7
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		68	66	62	102	60	72	68	70
Decachlorobiphenyl	%	60-130		84	74	90	88	76	82	80	80

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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9104422-9104516 Results are based on the dry weight of the soil.
Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.
Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:

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Certificate of Analysis

AGAT WORK ORDER: 18T317303

PROJECT: 17M-01364-00

CLIENT NAME: WSP CANADA INC

ATTENTION TO: Nicole Collins

SAMPLING SITE:774 Hurontario/ Findlay Dr.

SAMPLED BY:Brian Cooper/Nicole Collins

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2018-03-06

DATE REPORTED: 2018-03-15

		SAMPLE DESCRIPTION:		BH18-02 SS2	BH18-02 SS6	BH18-03 SS1	BH18-03 SS5	BH18-04 SS2	BH18-04 SS4	BH18-05 SS3	BH18-05 SS5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02	2018-03-02
Parameter	Unit	G / S	RDL	9104422	9104468	9104477	9104494	9104501	9104505	9104520	9104527
Benzene	µg/g	0.02	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	0.2	0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Ethylbenzene	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	µg/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 to C10)	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	25	5	<5	<5	<5	<5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	10	10	<10	<10	<10	<10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	240	50	<50	<50	<50	<50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	120	50	<50	<50	<50	<50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	120	50	NA	NA	NA	NA	NA	NA	NA	NA
Moisture Content	%		0.1	14.8	7.8	16.8	9.7	14.9	11.3	16.5	13.4
Surrogate	Unit	Acceptable Limits									
Terphenyl	%	60-140		76	73	79	67	62	70	79	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 1: Full Depth Background Site Condition Standards - Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
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9104422-9104527 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Certified By:

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Quality Assurance

CLIENT NAME: WSP CANADA INC
PROJECT: 17M-01364-00
SAMPLING SITE:774 Hurontario/ Findlay Dr.

AGAT WORK ORDER: 18T317303
ATTENTION TO: Nicole Collins
SAMPLED BY:Brian Cooper/Nicole Collins

Soil Analysis

RPT Date: Mar 15, 2018

PARAMETER	Batch	Sample Id	DUPLICATE Dup #1	DUPLICATE Dup #2	DUPLICATE RPD	Method Blank	REFERENCE MATERIAL Measured Value	REFERENCE MATERIAL Acceptable Limits Lower	REFERENCE MATERIAL Acceptable Limits Upper	METHOD BLANK SPIKE Recovery	METHOD BLANK SPIKE Acceptable Limits Lower	METHOD BLANK SPIKE Acceptable Limits Upper	MATRIX SPIKE Recovery	MATRIX SPIKE Acceptable Limits Lower	MATRIX SPIKE Acceptable Limits Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	9104422	9104422	<0.8	<0.8	NA	< 0.8	96%	70%	130%	104%	80%	120%	87%	70%	130%
Arsenic	9104422	9104422	4	4	NA	< 1	104%	70%	130%	107%	80%	120%	105%	70%	130%
Barium	9104422	9104422	41	40	2.5%	< 2	99%	70%	130%	99%	80%	120%	95%	70%	130%
Beryllium	9104422	9104422	<0.5	<0.5	NA	< 0.5	99%	70%	130%	110%	80%	120%	94%	70%	130%
Boron	9104422	9104422	10	11	NA	< 5	74%	70%	130%	104%	80%	120%	86%	70%	130%
Boron (Hot Water Soluble)	9104422	9104422	0.27	0.27	NA	< 0.10	101%	60%	140%	98%	70%	130%	99%	60%	140%
Cadmium	9104422	9104422	<0.5	<0.5	NA	< 0.5	98%	70%	130%	97%	80%	120%	102%	70%	130%
Chromium	9104422	9104422	15	15	0.0%	< 2	89%	70%	130%	100%	80%	120%	100%	70%	130%
Cobalt	9104422	9104422	8.4	8.3	1.2%	< 0.5	101%	70%	130%	107%	80%	120%	103%	70%	130%
Copper	9104422	9104422	17	17	0.0%	< 1	92%	70%	130%	104%	80%	120%	102%	70%	130%
Lead	9104422	9104422	6	6	0.0%	< 1	100%	70%	130%	105%	80%	120%	100%	70%	130%
Molybdenum	9104422	9104422	<0.5	<0.5	NA	< 0.5	97%	70%	130%	107%	80%	120%	109%	70%	130%
Nickel	9104422	9104422	16	16	0.0%	< 1	95%	70%	130%	100%	80%	120%	94%	70%	130%
Selenium	9104422	9104422	<0.4	<0.4	NA	< 0.4	109%	70%	130%	98%	80%	120%	101%	70%	130%
Silver	9104422	9104422	<0.2	<0.2	NA	< 0.2	75%	70%	130%	101%	80%	120%	90%	70%	130%
Thallium	9104422	9104422	<0.4	<0.4	NA	< 0.4	96%	70%	130%	101%	80%	120%	96%	70%	130%
Uranium	9104422	9104422	0.6	0.6	NA	< 0.5	90%	70%	130%	101%	80%	120%	99%	70%	130%
Vanadium	9104422	9104422	19	19	0.0%	< 1	92%	70%	130%	103%	80%	120%	95%	70%	130%
Zinc	9104422	9104422	34	34	0.0%	< 5	98%	70%	130%	105%	80%	120%	109%	70%	130%
Chromium VI	9104531		<0.2	<0.2	NA	< 0.2	77%	70%	130%	103%	80%	120%	97%	70%	130%
Cyanide	9104422	9104422	<0.040	<0.040	NA	< 0.040	94%	70%	130%	100%	80%	120%	97%	70%	130%
Mercury	9104422	9104422	<0.10	<0.10	NA	< 0.10	106%	70%	130%	103%	80%	120%	102%	70%	130%
Electrical Conductivity	9104422	9104422	0.176	0.181	2.8%	< 0.005	96%	90%	110%						
Sodium Adsorption Ratio	9104422	9104422	0.327	0.331	1.2%	NA									
pH, 2:1 CaCl2 Extraction	9107591		7.52	7.51	0.1%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
Duplicate Qualifier: As the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Certified By: Nivine Basily

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Quality Assurance

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18T317303

PROJECT: 17M-01364-00

ATTENTION TO: Nicole Collins

SAMPLING SITE:774 Hurontario/ Findlay Dr.

SAMPLED BY:Brian Cooper/Nicole Collins

Trace Organics Analysis

RPT Date: Mar 15, 2018			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	9104512		< 0.01	< 0.01	NA	< 0.01	81%	50%	140%	90%	50%	140%	70%	50%	140%
Gamma-Hexachlorocyclohexane	9104512		< 0.005	< 0.005	NA	< 0.005	60%	50%	140%	55%	50%	140%	94%	50%	140%
Heptachlor	9104512		< 0.005	< 0.005	NA	< 0.005	93%	50%	140%	114%	50%	140%	87%	50%	140%
Aldrin	9104512		< 0.005	< 0.005	NA	< 0.005	87%	50%	140%	92%	50%	140%	88%	50%	140%
Heptachlor Epoxide	9104512		< 0.005	< 0.005	NA	< 0.005	90%	50%	140%	103%	50%	140%	89%	50%	140%
Endosulfan	9104512		< 0.005	< 0.005	NA	< 0.005	86%	50%	140%	91%	50%	140%	78%	50%	140%
Chlordane	9104512		< 0.007	< 0.007	NA	< 0.007	86%	50%	140%	100%	50%	140%	86%	50%	140%
DDE	9104512		< 0.007	< 0.007	NA	< 0.007	95%	50%	140%	117%	50%	140%	90%	50%	140%
DDD	9104512		< 0.007	< 0.007	NA	< 0.007	97%	50%	140%	110%	50%	140%	86%	50%	140%
DDT	9104512		< 0.007	< 0.007	NA	< 0.007	97%	50%	140%	103%	50%	140%	99%	50%	140%
Dieldrin	9104512		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	107%	50%	140%	92%	50%	140%
Endrin	9104512		< 0.005	< 0.005	NA	< 0.005	91%	50%	140%	113%	50%	140%	108%	50%	140%
Methoxychlor	9104512		< 0.005	< 0.005	NA	< 0.005	110%	50%	140%	110%	50%	140%	112%	50%	140%
Hexachlorobenzene	9104512		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	84%	50%	140%	89%	50%	140%
Hexachlorobutadiene	9104512		< 0.01	< 0.01	NA	< 0.01	90%	50%	140%	95%	50%	140%	80%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	9102931		< 0.02	< 0.02	NA	< 0.02	93%	60%	130%	94%	60%	130%	107%	60%	130%
Toluene	9102931		< 0.08	< 0.08	NA	< 0.08	89%	60%	130%	97%	60%	130%	115%	60%	130%
Ethylbenzene	9102931		< 0.05	< 0.05	NA	< 0.05	88%	60%	130%	99%	60%	130%	116%	60%	130%
Xylene Mixture	9102931		< 0.05	< 0.05	NA	< 0.05	85%	60%	130%	96%	60%	130%	115%	60%	130%
F1 (C6 to C10)	9102931		< 5	< 5	NA	< 5	85%	60%	130%	89%	85%	115%	102%	70%	130%
F2 (C10 to C16)	9105581		< 10	< 10	NA	< 10	94%	60%	130%	86%	80%	120%	74%	70%	130%
F3 (C16 to C34)	9105581		< 50	< 50	NA	< 50	97%	60%	130%	84%	80%	120%	75%	70%	130%
F4 (C34 to C50)	9105581		< 50	< 50	NA	< 50	86%	60%	130%	86%	80%	120%	77%	70%	130%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

Certified By:

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Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18T317303

PROJECT: 17M-01364-00

ATTENTION TO: Nicole Collins

SAMPLING SITE:774 Hurontario/ Findlay Dr.

SAMPLED BY:Brian Cooper/Nicole Collins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A;SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010B	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

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http://www.agatlabs.com

Method Summary

CLIENT NAME: WSP CANADA INC

AGAT WORK ORDER: 18T317303

PROJECT: 17M-01364-00

ATTENTION TO: Nicole Collins

SAMPLING SITE:774 Hurontario/ Findlay Dr.

SAMPLED BY:Brian Cooper/Nicole Collins

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE
Benzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Toluene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Ethylbenzene	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
Xylene Mixture	VOL-91-5009	EPA SW-846 5035 & 8260	P & T GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	P & T GC/FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method, EPA SW846 8015	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	BALANCE
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID

Results relate only to the items tested and to all the items tested

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only

Work Order #: 18T317303

Cooler Quantity:

Arrival Temperatures: 2.1 | 2.2 | 2.5 °C

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: ice

Report Information:

Company: WSP Canada Inc.
Contact: Nicole Collins
Address: 14 Ronell Cres. Unit 1
Collingwood, ON
Phone: (705)443-0064 Fax: (705)445-0067
Reports to be sent to:
1. Email: nicole.collins@wsp.com
2. Email: gord.jarvis@wsp.com

Regulatory Requirements:

☐ No Regulatory Requirement

(Please check all applicable boxes)

☒ Regulation 153/04
Table 1 (Indicate One)
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (Check One)
☒ Coarse
☐ Fine

☐ Sewer Use
☐ Sanitary
☐ Storm
Region (Indicate One)
☐ MISA

☐ Regulation 558
☐ CCME
☐ Prov. Water Quality Objectives (PWQO)
☐ Other
(Indicate One)

Is this submission for a **Record of Site Condition?** ☐ Yes ☒ No

Report Guideline on Certificate of Analysis ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☒ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
TAT is exclusive of weekends and statutory holidays

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: 17M-01364-00
Site Location: 774 Hurontario / Findley Dr.
Sampled By: Brian Cooper / Nicole Collins
AGAT Quote #: PO:
Please note: if quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐

Company:
Contact:
Address:
Email: Payables.Ontario@wsp.com

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	O. Reg 153: All Metals ☐ 153 Metals (excl. Hydrides)	O. Reg 153: Hydride Metals ☐ 153 Metals (Incl. Hydrides)	O. Reg 153: ORPs: ☐ B-HWS ☐ Cl ☐ CN	O. Reg 153: ☐ $CrVI$ ☐ EC ☐ FOC ☐ Hg	O. Reg 153: ☐ pH ☐ SAR	Full Metals Scan	Regulation/Custom Metals	Nutrients: ☐ TP ☐ NH_3 ☐ TKN ☐ NO_3 ☐ NO_2 ☐ NO_3+NO_2	Volatiles: ☐ VOC ☐ BTEX ☐ THM	PHCs F1 - F4	ABNs	PAHs	PCBs: ☐ Total ☐ Aroclors	Organochlorine Pesticides	TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ BaP ☐ PCBs	Sewer Use	PHCs & BTEX
BH18-02 SS2	03/02/18	AM	4	S			X														X			X
BH18-02 SS1	"	"	1	S																	X			
BH18-02 SS3	"	"	1	S			X																	
BH18-02 SS6	"	"	2	S																				X
BH18-03 SS1	"	"	3	S																	X			X
BH18-03 SS2	"	"	1	S			X																	
BH18-03 SS4	"	"	1	S			X																	
BH18-03 SS3	"	"	1	S																	X			
BH18-03 SS5	"	"	2	S																				X
BH18-04 SS1	"	PM	2	S			X														X			
BH18-04 SS2	"	"	2	S																				X

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Nicole Collins Nicole Collins	03/05/18	4:00pm			
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date: Mar 6	Time: 9:00

Page 1 of 2

N°: T 064506

Document ID: DIV 75 1511 004

Pink Copy - Client ! Yellow Copy - AGAT ! White Copy - AGAT

Date Issued: February 22, 2017

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
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If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: WSP Canada Inc.
Contact: Nicole Collins
Address: 14 Powell Cres. Unit 1
Collingwood, ON
Phone: (705)445-0064 Fax: (705)445-0067
Reports to be sent to:
1. Email: nicole.collins@wsp.com
2. Email: gord.jarvis@wsp.com

Project Information:

Project: 17M-01364-00
Site Location: Huronia / Findlay, Collingwood
Sampled By: Brian Cooper / Nicole Collins
AGAT Quote #: PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes [X] No [ ]
Company:
Contact:
Address:
Email: Payables.Ontario@wsp.com

Regulatory Requirements:

[ ] No Regulatory Requirement
(Please check all applicable boxes)

[X] Regulation 153/04
Table 1 *Indicate One*
[ ] Ind/Com
[X] Res/Park
[ ] Agriculture
Soil Texture *(Check One)*
[X] Coarse
[ ] Fine

[ ] Sewer Use
[ ] Sanitary
[ ] Storm
Region *Indicate One*
[ ] MISA

[ ] Regulation 558
[ ] CCME
[ ] Prov. Water Quality Objectives (PWQO)
[ ] Other
Indicate One

Is this submission for a **Record of Site Condition?** [ ] Yes [X] No

Report Guideline on *Certificate of Analysis* [X] Yes [ ] No

Laboratory Use Only

Work Order #:
Cooler Quantity:
Arrival Temperatures: 2.1 | 2.2 | 2.5 °C
Custody Seal Intact: [ ] Yes [ ] No [ ] N/A
Notes: ice

Turnaround Time (TAT) Required:

Regular TAT [X] 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
[ ] 3 Business Days [ ] 2 Business Days [ ] Next Business Day
OR Date Required (Rush Surcharges May Apply):
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Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI (Y/N)	O. Reg 153: Metals and Inorganics	Full Metals Scan	Regulation/Custom Metals	Volatiles	CCME Fractions 1 to 4	ABNs	PAHs	PCBs	Organochlorine Pesticides	Sewer Use	PHCs + BTEX
BH18-04 S54	03/02/18	PM	4	S			X								X		X
BH18-05 S51	03/02/18	PM	2	S			X								X		
BH18-05 S52	"	"	1	S											X		
BH18-05 S53	"	"	2	S													X
BH18-05 S54	"	"	1	S			X										
BH18-05 S55	"	"	2	S													X

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Nicole Collins	03/05/18	4:00pm			
			Mar 6		9:00

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No: T 056723

Appendix D – Existing Condition SWM Information

Existing Condition PCSWMM Catchment Plan

Existing Condition - Including Huronia Rd. - 2 Year Chicago 4 hr Storm

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 25
Number of nodes ........... 66
Number of links ........... 82
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


********************
Subcatchment Summary
********************
Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
A1                           1.56     66.72       3.40    2.4000 Chicago_4h_2yr       J1
A100                         2.11     98.17      37.00    1.7000 Chicago_4h_2yr       DICB101
A101                         1.08     64.95      14.00    2.7500 Chicago_4h_2yr       MH106
```

A102	0.31	37.80	38.00	1.0000	Chicago_4h_2yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_2yr	DICB6
A104	0.62	62.28	48.00	0.1600	Chicago_4h_2yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_2yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_2yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_2yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_2yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_2yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_2yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_2yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_2yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_2yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_2yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_2yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_2yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_2yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_2yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_2yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_2yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_2yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_2yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_2yr	A1

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	

CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	
DCB65	JUNCTION	191.23	3.40	0.0	
DCB66	JUNCTION	191.23	3.40	0.0	
DICB100	JUNCTION	190.63	1.22	0.0	
DICB101	JUNCTION	192.76	0.59	1000.0	
DICB4	JUNCTION	192.24	1.26	0.0	
DICB6	JUNCTION	193.68	0.61	100.0	
DICB7	JUNCTION	193.19	0.98	0.0	
DICB99	JUNCTION	190.56	1.83	0.0	
J1	JUNCTION	189.50	0.50	0.0	
J12	JUNCTION	187.36	0.91	0.0	
J13	JUNCTION	187.29	1.55	0.0	
J15	JUNCTION	192.31	0.38	0.0	
J16	JUNCTION	192.21	0.38	0.0	
J17	JUNCTION	191.20	3.55	0.0	
J17-S	JUNCTION	194.63	0.20	0.0	
J2	JUNCTION	190.72	0.46	0.0	
MH102	JUNCTION	190.65	2.76	0.0	
MH102-S	JUNCTION	193.27	0.26	0.0	
MH103	JUNCTION	191.05	1.93	0.0	
MH106	JUNCTION	192.40	1.60	0.0	
MH106-S	JUNCTION	194.47	0.26	0.0	
MH15	JUNCTION	187.53	1.19	0.0	
MH18	JUNCTION	187.80	1.33	0.0	
MH40	JUNCTION	192.44	2.21	0.0	
MH40-S	JUNCTION	194.56	0.26	0.0	
MH41	JUNCTION	192.77	2.06	0.0	
MH41-S	JUNCTION	194.83	0.26	0.0	
MH42	JUNCTION	193.02	1.66	0.0	
MH42-S	JUNCTION	194.65	0.26	0.0	
MH43	JUNCTION	193.44	1.53	0.0	
MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	

CAMPBELL	OUTFALL	189.49	0.00	0.0
CB7	OUTFALL	186.85	0.42	0.0
J14	OUTFALL	187.28	0.90	0.0
OF1	OUTFALL	188.60	0.30	0.0

****
Link Summary
****

Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	CAMPBELL	CONDUIT	4.8	0.2101	0.0130
C10	CBMH30	CB19	CONDUIT	60.7	0.3544	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	57.9	1.2347	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	15.8	0.1901	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	8.9	2.8180	0.0130
C21	CB100	CBMH100	CONDUIT	6.8	3.5363	0.0130
C22	CBMH100	STMH201	CONDUIT	1.9	-1.6071	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100
C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130

C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	76.0	2.6843	0.0100
C9	STMH201	CBMH30	CONDUIT	77.0	1.2720	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	77.5	1.3460	0.0100
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			

STMH201-IC STMH201-S STMH201 OUTLET

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.71
C10-S	Street2	0.25	2.94	0.11	26.00	1	7.58
C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.04
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	3.04
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09

C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	11.17
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.34
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.91

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081
0.0107	0.0141	0.0183	0.0233	0.0291
0.0357	0.0431	0.0513	0.0606	0.0714
0.0837	0.0975	0.1128	0.1295	0.1478
0.1676	0.1889	0.2116	0.2359	0.2616
0.2889	0.3176	0.3478	0.3796	0.4127
0.4466	0.4813	0.5167	0.5529	0.5898
0.6274	0.6658	0.7050	0.7449	0.7855
0.8269	0.8691	0.9120	0.9556	1.0000

Hrad:

0.0220 0.0439 0.0659 0.0878 0.1098
0.1317 0.1537 0.1756 0.1960 0.1619
0.1576 0.1645 0.1766 0.1918 0.2088
0.2271 0.2461 0.2658 0.2688 0.2758
0.2864 0.2994 0.3142 0.3302 0.3473
0.3651 0.3836 0.4025 0.4219 0.4416
0.4616 0.4818 0.5023 0.5229 0.5504
0.5827 0.6145 0.6460 0.6771 0.7078
0.7383 0.7684 0.7982 0.8277 0.8570
0.8861 0.9149 0.9435 0.9718 1.0000

Width:

0.0035 0.0069 0.0104 0.0138 0.0173
0.0208 0.0242 0.0277 0.0314 0.0492
0.0671 0.0849 0.1028 0.1206 0.1385
0.1563 0.1742 0.1920 0.2246 0.2580
0.2914 0.3248 0.3582 0.3916 0.4250
0.4584 0.4918 0.5252 0.5586 0.5920
0.6254 0.6588 0.6922 0.7256 0.7495
0.7662 0.7829 0.7996 0.8163 0.8330
0.8497 0.8664 0.8831 0.8998 0.9165
0.9332 0.9499 0.9666 0.9833 1.0000

Transect Street2

Area:

0.0001 0.0004 0.0009 0.0017 0.0026
0.0041 0.0064 0.0096 0.0137 0.0186
0.0243 0.0309 0.0384 0.0467 0.0559
0.0659 0.0768 0.0886 0.1012 0.1147
0.1290 0.1441 0.1602 0.1771 0.1948
0.2134 0.2328 0.2532 0.2743 0.2963
0.3202 0.3457 0.3729 0.4018 0.4324
0.4643 0.4970 0.5306 0.5651 0.6003
0.6365 0.6735 0.7113 0.7500 0.7895
0.8299 0.8712 0.9133 0.9562 1.0000

Hrad:

0.0210 0.0420 0.0630 0.0840 0.1050
0.0922 0.1006 0.1154 0.1328 0.1518
0.1715 0.1918 0.2125 0.2334 0.2545
0.2757 0.2971 0.3185 0.3400 0.3616
0.3832 0.4049 0.4266 0.4483 0.4700
0.4918 0.5136 0.5354 0.5572 0.5790
0.5703 0.5766 0.5848 0.5945 0.6057
0.6334 0.6609 0.6881 0.7151 0.7418
0.7684 0.7947 0.8209 0.8469 0.8728
0.8985 0.9240 0.9495 0.9748 1.0000

Width:

```
            0.0047     0.0095     0.0142     0.0190     0.0237
            0.0431     0.0624     0.0818     0.1012     0.1205
            0.1399     0.1592     0.1786     0.1979     0.2173
            0.2367     0.2560     0.2754     0.2947     0.3141
            0.3335     0.3528     0.3722     0.3915     0.4109
            0.4303     0.4496     0.4690     0.4883     0.5077
            0.5577     0.5962     0.6346     0.6731     0.7115
            0.7308     0.7500     0.7692     0.7885     0.8077
            0.8269     0.8462     0.8654     0.8846     0.9038
            0.9231     0.9423     0.9615     0.9808     1.0000

************************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
************************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.368	33.740
Evaporation Loss	0.000	0.000
Infiltration Loss	0.258	23.646
Surface Runoff	0.105	9.603
Final Storage	0.006	0.584
Continuity Error (%)	-0.278	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.105	1.049
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.181	1.814
External Outflow	0.291	2.914
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-1.769	

Highest Continuity Errors

Node MH40-S (-34.02%)
Node MH102-S (24.50%)
Node DCB65 (14.76%)
Node DCB66 (14.76%)
Node MH42-S (-12.07%)

Time-Step Critical Elements

Link C13 (99.18%)

Highest Flow Instability Indexes

****
Link DCB_40A-IC (24)
Link MH40-IC (24)
Link J17-IC (22)
Link DCB66-IC (22)
Link DCB_42A-IC (20)

****
Routing Time Step Summary
****
Minimum Time Step : 0.30 sec
Average Time Step : 1.01 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.02
Percent Not Converging : 0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	33.74	3.73	0.00	33.38	1.21	4.04	4.04	0.06	0.02	0.108
A100	33.74	0.00	0.00	21.26	11.87	0.00	11.87	0.25	0.19	0.352
A101	33.74	0.00	0.00	29.02	4.46	0.00	4.46	0.05	0.04	0.132
A102	33.74	0.00	0.00	20.92	12.17	0.00	12.17	0.04	0.03	0.361
A103	33.74	0.00	0.00	28.68	4.77	0.00	4.77	0.00	0.00	0.141
A104	33.74	0.00	0.00	17.22	15.38	0.35	15.73	0.10	0.06	0.466
A105	33.74	0.00	0.00	29.01	4.45	0.00	4.45	0.00	0.00	0.132
A106	33.74	0.00	0.00	13.50	19.21	0.00	19.21	0.06	0.03	0.569
A107	33.74	0.00	0.00	0.00	31.86	0.00	31.86	0.01	0.01	0.944
A108	33.74	0.00	0.00	33.74	0.00	0.00	0.00	0.00	0.00	0.000
A109	33.74	0.00	0.00	7.09	25.34	0.00	25.34	0.03	0.02	0.751
A110	33.74	0.00	0.00	0.00	32.09	0.00	32.09	0.03	0.02	0.951
A111	33.74	0.00	0.00	23.62	9.59	0.00	9.59	0.03	0.03	0.284
A112_1	33.74	0.00	0.00	27.67	5.73	0.00	5.73	0.05	0.04	0.170
A112_3	33.74	0.00	0.00	27.67	5.73	0.00	5.73	0.01	0.01	0.170
A113	33.74	0.00	0.00	33.74	0.00	0.00	0.00	0.00	0.00	0.000
A114	33.74	0.00	0.00	0.00	31.98	0.00	31.98	0.01	0.01	0.948
A115	33.74	0.00	0.00	33.74	0.00	0.00	0.00	0.00	0.00	0.000

A116	33.74	0.00	0.00	11.47	21.16	0.00	21.16	0.08	0.05	0.627
A117	33.74	0.00	0.00	23.96	9.28	0.00	9.29	0.02	0.02	0.275
A118	33.74	0.00	0.00	11.81	20.85	0.00	20.85	0.02	0.02	0.618
A119	33.74	0.00	0.00	18.89	14.06	0.00	14.06	0.02	0.01	0.417
A120	33.74	0.00	0.00	9.78	22.74	0.00	22.74	0.09	0.05	0.674
A121	33.74	0.00	0.00	25.30	8.02	0.00	8.02	0.08	0.07	0.238
A3	33.74	0.00	0.00	26.52	2.54	7.16	7.16	0.06	0.02	0.212

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Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.10	193.63	0 01:25	0.10
CB_43B	JUNCTION	0.00	0.09	193.94	0 01:25	0.09
CB100	JUNCTION	0.00	0.08	189.65	0 01:25	0.08
CB101	JUNCTION	0.00	0.04	191.27	0 01:25	0.04
CB102	JUNCTION	0.00	0.06	191.29	0 01:25	0.06
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.14	187.42	0 01:29	0.14
CB16	JUNCTION	0.10	0.66	188.02	0 01:28	0.66
CB16-S	JUNCTION	0.00	0.01	188.69	0 01:25	0.01
CB19	JUNCTION	0.05	0.29	188.03	0 01:27	0.29
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:25	0.00
CB32	JUNCTION	0.13	0.23	188.63	0 01:25	0.23
CB4	JUNCTION	0.00	0.17	188.04	0 01:28	0.17
CBMH100	JUNCTION	0.05	0.26	189.29	0 01:27	0.26
CBMH101	JUNCTION	0.04	0.23	190.72	0 01:27	0.23
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.02	0.39	191.12	0 01:27	0.39
CBMH103-S	JUNCTION	0.00	0.00	193.35	0 01:25	0.00
CBMH105	JUNCTION	0.00	0.06	191.45	0 01:27	0.05
CBMH30	JUNCTION	0.07	0.36	188.32	0 01:27	0.36
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:25	0.00
CBMH31	JUNCTION	0.16	0.25	188.63	0 01:25	0.25
DCB_40A	JUNCTION	0.00	0.05	193.35	0 01:25	0.05
DCB_40B	JUNCTION	0.00	0.03	193.29	0 01:25	0.03
DCB_42A	JUNCTION	0.00	0.08	193.45	0 01:25	0.08
DCB_42B	JUNCTION	0.00	0.06	193.40	0 01:25	0.06
DCB65	JUNCTION	0.00	0.22	191.45	0 01:26	0.21
DCB66	JUNCTION	0.00	0.21	191.44	0 01:26	0.21

DICB100	JUNCTION	0.00	0.09	190.72	0	01:27	0.09
DICB101	JUNCTION	0.01	0.60	193.36	0	01:27	0.60
DICB4	JUNCTION	0.00	0.00	192.24	0	01:40	0.00
DICB6	JUNCTION	0.00	0.03	193.71	0	01:25	0.03
DICB7	JUNCTION	0.00	0.04	193.23	0	01:25	0.04
DICB99	JUNCTION	0.00	0.16	190.72	0	01:27	0.16
J1	JUNCTION	0.00	0.00	189.50	0	00:00	0.00
J12	JUNCTION	0.10	0.66	188.02	0	01:28	0.66
J13	JUNCTION	0.10	0.66	187.95	0	01:28	0.66
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.25	191.44	0	01:26	0.25
J17-S	JUNCTION	0.00	0.00	194.63	1	13:15	0.00
J2	JUNCTION	0.08	0.35	191.07	0	01:27	0.35
MH102	JUNCTION	0.07	0.42	191.07	0	01:27	0.42
MH102-S	JUNCTION	0.00	0.00	193.27	0	01:29	0.00
MH103	JUNCTION	0.08	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.02	0.41	192.81	0	01:26	0.41
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.01	0.49	188.02	0	01:28	0.49
MH18	JUNCTION	0.01	0.24	188.05	0	01:27	0.23
MH40	JUNCTION	0.01	0.37	192.81	0	01:26	0.37
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:25	0.00
MH41	JUNCTION	0.01	0.26	193.03	0	01:26	0.26
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.23	193.25	0	01:25	0.23
MH42-S	JUNCTION	0.00	0.00	194.65	0	01:25	0.00
MH43	JUNCTION	0.01	0.14	193.58	0	01:25	0.14
MH43-S	JUNCTION	0.00	0.00	194.94	0	01:25	0.00
MH54	JUNCTION	0.08	0.15	191.50	0	00:00	0.13
MH61	JUNCTION	0.00	0.00	191.49	0	00:00	0.00
MH62	JUNCTION	0.02	0.39	191.44	0	01:27	0.39
STMH201	JUNCTION	0.05	0.26	189.29	0	01:27	0.26
STMH201-S	JUNCTION	0.00	0.01	190.86	0	01:25	0.01
CAMPBELL	OUTFALL	0.00	0.00	189.49	0	00:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.10	0.66	187.94	0	01:28	0.66
OF1	OUTFALL	0.00	0.01	188.61	0	01:25	0.01

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Node Inflow Summary
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		Maximum	Maximum		Lateral	Total	Flow

Node	Type	Lateral Inflow CMS	Total Inflow CMS	Time of Max Occurrence days	hr:min	Inflow Volume 10^6 ltr	Inflow Volume 10^6 ltr	Balance Error Percent	
CB_43A	JUNCTION	0.000	0.020	0	01:25	0	0.0235	1.439	
CB_43B	JUNCTION	0.000	0.017	0	01:25	0	0.0199	1.662	
CB100	JUNCTION	0.000	0.027	0	01:25	0	0.0406	0.341	
CB101	JUNCTION	0.008	0.008	0	01:25	0.00902	0.00902	-0.000	
CB102	JUNCTION	0.041	0.041	0	01:25	0.0452	0.0452	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.039	0	01:28	0	0.0506	0.491	
CB16	JUNCTION	0.000	0.555	0	01:27	0	2.72	0.020	
CB16-S	JUNCTION	0.054	0.054	0	01:25	0.093	0.093	-1.342	
CB19	JUNCTION	0.000	0.534	0	01:27	0	2.68	0.001	
CB19-S	JUNCTION	0.014	0.014	0	01:25	0.016	0.016	-0.499	
CB32	JUNCTION	0.021	0.021	0	01:25	0.0238	0.025	1.001	
CB4	JUNCTION	0.000	0.007	0	01:25	0	0.00845	0.052	
CBMH100	JUNCTION	0.000	0.027	0	01:25	0	0.041	0.104	
CBMH101	JUNCTION	0.000	0.439	0	01:27	0	2.53	-0.005	
CBMH101-S	JUNCTION	0.010	0.010	0	01:25	0.0112	0.0112	-0.243	
CBMH103	JUNCTION	0.000	0.363	0	01:27	0	0.607	0.022	
CBMH103-S	JUNCTION	0.024	0.024	0	01:25	0.0299	0.0299	-0.397	
CBMH105	JUNCTION	0.000	0.005	0	01:25	0	0.00588	0.393	
CBMH30	JUNCTION	0.000	0.517	0	01:27	0	2.66	-0.005	
CBMH30-S	JUNCTION	0.020	0.020	0	01:25	0.0246	0.0246	-0.799	
CBMH31	JUNCTION	0.000	0.031	0	01:25	0	0.0372	0.908	
DCB_40A	JUNCTION	0.000	0.020	0	01:20	0	0.0404	9.110	
DCB_40B	JUNCTION	0.000	0.020	0	01:20	0	0.0404	9.219	
DCB_42A	JUNCTION	0.000	0.031	0	01:25	0	0.0549	3.307	
DCB_42B	JUNCTION	0.000	0.031	0	01:25	0	0.0549	3.341	
DCB65	JUNCTION	0.000	0.027	0	01:25	0	0.0261	17.320	
DCB66	JUNCTION	0.000	0.027	0	01:25	0	0.0261	17.309	
DICB100	JUNCTION	0.000	0.001	0	01:25	4.19e-07	0.000209	0.181	
DICB101	JUNCTION	0.195	0.195	0	01:25	0.251	0.251	0.057	
DICB4	JUNCTION	0.000	0.000	0	01:30	2.98e-07	2.98e-07	0.298	ltr
DICB6	JUNCTION	0.003	0.003	0	01:25	0.00366	0.00366	0.001	
DICB7	JUNCTION	0.003	0.003	0	01:25	0.00328	0.00328	0.015	
DICB99	JUNCTION	0.000	0.001	0	00:01	3.28e-07	0.000234	0.237	
J1	JUNCTION	0.016	0.016	0	01:55	0.063	0.063	0.000	
J12	JUNCTION	0.000	0.538	0	01:28	0	2.72	-0.012	
J13	JUNCTION	0.070	0.580	0	01:28	0.0829	2.8	0.011	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.315	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.029	0	01:24	0	0.0454	-0.159	
J17-S	JUNCTION	0.022	0.022	0	01:25	0.0307	0.0307	-41.190	
J2	JUNCTION	0.000	0.176	0	00:00	0	1.91	0.028	

MH102	JUNCTION	0.000	0.431	0	01:27	0	2.52	0.000	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	1.35e-05	3.305	ltr
MH103	JUNCTION	0.027	0.035	0	01:25	0.0308	1.89	1.830	
MH106	JUNCTION	0.044	0.319	0	01:26	0.0484	0.525	-0.020	
MH106-S	JUNCTION	0.005	0.005	0	01:25	0.0058	0.0058	-1.343	
MH15	JUNCTION	0.000	0.016	0	01:28	0	0.00425	0.028	
MH18	JUNCTION	0.000	0.010	0	01:27	0	0.00949	0.071	
MH40	JUNCTION	0.000	0.128	0	01:26	0	0.226	-0.032	
MH40-S	JUNCTION	0.033	0.033	0	01:25	0.0603	0.0603	-25.385	
MH41	JUNCTION	0.000	0.097	0	01:26	0	0.152	-0.014	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.096	0	01:25	0	0.149	-0.045	
MH42-S	JUNCTION	0.062	0.062	0	01:25	0.098	0.098	-10.773	
MH43	JUNCTION	0.000	0.036	0	01:25	0	0.0427	0.006	
MH43-S	JUNCTION	0.033	0.033	0	01:25	0.0382	0.0382	-3.863	
MH54	JUNCTION	0.021	0.080	0	00:00	1.81	1.82	0.010	
MH61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH62	JUNCTION	0.000	0.349	0	01:26	0	0.577	-0.005	
STMH201	JUNCTION	0.000	0.486	0	01:27	0	2.61	0.015	
STMH201-S	JUNCTION	0.054	0.054	0	01:25	0.0803	0.0803	-1.145	
CAMPBELL	OUTFALL	0.000	0.016	0	01:55	0	0.063	0.000	
CB7	OUTFALL	0.000	0.038	0	01:29	0	0.0504	0.000	
J14	OUTFALL	0.000	0.576	0	01:28	0	2.8	0.000	
OF1	OUTFALL	0.000	0.000	0	01:25	0	2.33e-06	0.000	ltr

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
DICB101	JUNCTION	0.13	0.220	0.000
J1	JUNCTION	48.00	0.000	0.500
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	0.15	0.121	0.699

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DICB101	0.13	0.041	0 01:25	0.005	0.005

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CAMPBELL	7.86	0.008	0.016	0.063
CB7	18.13	0.003	0.038	0.050
J14	99.93	0.022	0.576	2.800
OF1	0.00	0.000	0.000	0.000
System	31.48	0.033	0.000	2.914

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	DUMMY	0.016	0 01:55			
C10	CONDUIT	0.520	0 01:27	2.03	0.74	0.53
C10-S	CHANNEL	0.000	0 01:25	0.00	0.00	0.01
C11	CONDUIT	0.530	0 01:27	1.38	0.46	0.74
C11-S	CHANNEL	0.000	0 01:25	0.01	0.00	0.01
C12	CONDUIT	0.016	0 01:28	0.22	0.08	1.00
C13	CONDUIT	0.538	0 01:28	1.34	1.33	0.88
C14	CONDUIT	0.530	0 01:28	1.08	0.90	0.73
C15	CONDUIT	0.576	0 01:28	1.15	0.89	0.73
C16	CONDUIT	0.016	0 01:28	0.35	0.08	0.60

C17	CONDUIT	0.010	0	01:27	0.36	0.10	0.66
C18	CONDUIT	0.009	0	01:27	0.19	0.09	0.88
C19	CONDUIT	0.021	0	01:25	0.35	0.49	0.79
C2	CONDUIT	0.164	0	01:24	1.49	1.33	1.00
C20	CONDUIT	0.031	0	01:25	1.77	0.19	0.30
C21	CONDUIT	0.027	0	01:25	1.85	0.15	0.26
C22	CONDUIT	0.027	0	01:25	0.67	0.01	0.24
C23	CONDUIT	0.001	0	01:25	0.06	0.02	0.54
C24	CONDUIT	0.001	0	00:01	0.14	0.01	0.65
C25	CONDUIT	0.319	0	01:26	1.83	1.03	0.75
C26	CONDUIT	0.041	0	01:25	1.06	0.10	0.60
C27	CONDUIT	0.017	0	01:25	2.11	0.06	0.17
C28	CONDUIT	0.129	0	01:26	0.92	0.55	0.86
C28-S	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C29	CONDUIT	0.017	0	01:25	0.57	0.03	0.56
C3	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C30	CONDUIT	0.008	0	01:25	0.24	0.03	0.56
C30_1	CONDUIT	0.003	0	01:25	0.30	0.03	0.22
C30_2	CONDUIT	0.020	0	01:25	0.85	0.21	0.37
C31	CONDUIT	0.017	0	01:25	0.97	0.18	0.29
C32	CONDUIT	0.035	0	01:25	0.83	0.47	0.58
C32-S	CHANNEL	0.000	0	01:25	0.09	0.00	0.02
C33	CONDUIT	0.031	0	01:25	1.65	0.17	0.37
C34	CONDUIT	0.031	0	01:25	2.46	0.09	0.33
C35	CONDUIT	0.094	0	01:26	1.33	0.71	0.61
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C36	CONDUIT	0.003	0	01:25	0.60	0.03	0.12
C37	CONDUIT	0.096	0	01:26	0.98	0.81	0.84
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.56
C39_2	CONDUIT	0.093	0	00:01	1.22	0.55	0.83
C4	CONDUIT	0.006	0	01:27	0.43	0.02	0.33
C40	CONDUIT	0.012	0	01:25	0.40	0.01	0.23
C41	CONDUIT	0.012	0	01:25	0.38	0.01	0.23
C42	CONDUIT	0.038	0	01:29	1.00	0.25	0.34
C42_1	CONDUIT	0.000	0	00:00	0.00	0.00	0.18
C42_2	CONDUIT	0.030	0	01:32	0.51	0.06	0.40
C42_2-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.00
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.13
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C46	CONDUIT	0.000	0	01:25	0.02	0.00	0.02
C5	CONDUIT	0.343	0	01:27	1.65	0.65	0.57
C6	CONDUIT	0.363	0	01:27	1.73	0.69	0.57

C6-S	CHANNEL	0.000	0	01:25	0.27	0.00	0.01
C7	CONDUIT	0.430	0	01:27	2.54	0.70	0.48
C7-S	CHANNEL	0.000	0	01:29	0.00	0.00	0.01
C8	CONDUIT	0.439	0	01:27	2.98	0.33	0.41
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.01
C9	CONDUIT	0.485	0	01:27	2.55	0.36	0.43
C9-S	CHANNEL	0.000	0	01:25	0.31	0.00	0.01
CB_43A-IC	DUMMY	0.017	0	01:25			
CB100-IC	DUMMY	0.027	0	01:25			
CB16-IC	DUMMY	0.027	0	01:25			
CB19-IC	DUMMY	0.007	0	01:25			
CB4-IC	DUMMY	0.007	0	01:25			
CBMH101-IC	DUMMY	0.010	0	01:25			
CBMH30-IC	DUMMY	0.010	0	01:25			
CBMH31-IC	DUMMY	0.010	0	01:25			
DCB_40A-IC	DUMMY	0.020	0	01:20			
DCB_42A-IC	DUMMY	0.031	0	01:25			
DCB66-IC	DUMMY	0.027	0	01:25			
J17-IC	DUMMY	0.027	0	01:25			
MH40-IC	DUMMY	0.020	0	01:20			
MH42-IC	DUMMY	0.031	0	01:25			
MH43-IC	DUMMY	0.017	0	01:25			
OL1	DUMMY	0.005	0	01:25			
OL2	DUMMY	0.024	0	01:25			
OL3	DUMMY	0.027	0	01:25			
STMH201-IC	DUMMY	0.027	0	01:25			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C10	1.00	0.00	0.00	0.00	0.75	0.25	0.00	0.00	0.01	0.00
C10-S	1.00	0.88	0.00	0.00	0.11	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C11-S	1.00	0.82	0.08	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.94	0.00	0.06	0.00	0.00	0.00	0.95	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04	0.00
C16	1.00	0.97	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00

C17	1.00	0.00	0.01	0.00	0.98	0.01	0.00	0.00	0.11	0.00
C18	1.00	0.00	0.65	0.00	0.35	0.00	0.00	0.00	0.92	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.09	0.00	0.80	0.00	0.11	0.00	0.00	0.00
C23	1.00	0.00	0.96	0.00	0.04	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.92	0.00	0.08	0.00	0.00	0.00	0.96	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.98	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C28-S	1.00	0.85	0.02	0.00	0.13	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.04	0.00	0.91	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.77	0.00	0.23	0.00	0.00	0.00	0.98	0.00
C30_1	1.00	0.01	0.21	0.00	0.78	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.83	0.05	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.91	0.00
C37-S	1.00	0.87	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C39_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.97	0.01	0.00
C40	1.00	0.01	0.46	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.44	0.00	0.54	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C42_2	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C42_2-S	1.00	0.88	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.87	0.06	0.00	0.07	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.82	0.00	0.00	0.18	0.00	0.00	0.00	0.97	0.00
C5	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C6	1.00	0.00	0.00	0.00	0.70	0.00	0.00	0.30	0.64	0.00

C6-S	1.00	0.01	0.86	0.00	0.12	0.01	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.02	0.00
C7-S	1.00	0.01	0.01	0.00	0.95	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C8-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C9-S	1.00	0.84	0.01	0.00	0.14	0.02	0.00	0.00	0.00	0.00

****
Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C11	0.01	0.01	0.09	0.01	0.01
C12	0.21	0.21	0.46	0.01	0.01
C13	0.01	0.01	0.01	0.14	0.01
C16	0.01	0.01	46.56	0.01	0.01
C2	0.11	0.13	0.11	0.14	0.11
C25	0.01	0.01	0.01	0.04	0.01
C26	0.01	0.01	0.12	0.01	0.01
C29	0.01	0.01	0.14	0.01	0.01
C30	0.01	0.01	0.12	0.01	0.01
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.01	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01

Analysis begun on: Wed Dec 11 12:38:51 2019
Analysis ended on: Wed Dec 11 12:39:01 2019
Total elapsed time: 00:00:10

Existing Condition - Including Huronia Rd. - 5 Year Chicago 4 hr Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 25
Number of nodes ........... 66
Number of links ........... 82
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
********************
Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
A1                           1.56     66.72       3.40    2.4000 Chicago_4h_5yr       J1
A100                         2.11     98.17      37.00    1.7000 Chicago_4h_5yr       DICB101
A101                         1.08     64.95      14.00    2.7500 Chicago_4h_5yr       MH106
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A102	0.31	37.80	38.00	1.0000	Chicago_4h_5yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_5yr	DICB6
A104	0.62	62.28	48.00	0.1600	Chicago_4h_5yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_5yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_5yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_5yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_5yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_5yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_5yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_5yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_5yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_5yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_5yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_5yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_5yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_5yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_5yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_5yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_5yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_5yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_5yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_5yr	A1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	

CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	
DCB65	JUNCTION	191.23	3.40	0.0	
DCB66	JUNCTION	191.23	3.40	0.0	
DICB100	JUNCTION	190.63	1.22	0.0	
DICB101	JUNCTION	192.76	0.59	1000.0	
DICB4	JUNCTION	192.24	1.26	0.0	
DICB6	JUNCTION	193.68	0.61	100.0	
DICB7	JUNCTION	193.19	0.98	0.0	
DICB99	JUNCTION	190.56	1.83	0.0	
J1	JUNCTION	189.50	0.50	0.0	
J12	JUNCTION	187.36	0.91	0.0	
J13	JUNCTION	187.29	1.55	0.0	
J15	JUNCTION	192.31	0.38	0.0	
J16	JUNCTION	192.21	0.38	0.0	
J17	JUNCTION	191.20	3.55	0.0	
J17-S	JUNCTION	194.63	0.20	0.0	
J2	JUNCTION	190.72	0.46	0.0	
MH102	JUNCTION	190.65	2.76	0.0	
MH102-S	JUNCTION	193.27	0.26	0.0	
MH103	JUNCTION	191.05	1.93	0.0	
MH106	JUNCTION	192.40	1.60	0.0	
MH106-S	JUNCTION	194.47	0.26	0.0	
MH15	JUNCTION	187.53	1.19	0.0	
MH18	JUNCTION	187.80	1.33	0.0	
MH40	JUNCTION	192.44	2.21	0.0	
MH40-S	JUNCTION	194.56	0.26	0.0	
MH41	JUNCTION	192.77	2.06	0.0	
MH41-S	JUNCTION	194.83	0.26	0.0	
MH42	JUNCTION	193.02	1.66	0.0	
MH42-S	JUNCTION	194.65	0.26	0.0	
MH43	JUNCTION	193.44	1.53	0.0	
MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	

CAMPBELL	OUTFALL	189.49	0.00	0.0
CB7	OUTFALL	186.85	0.42	0.0
J14	OUTFALL	187.28	0.90	0.0
OF1	OUTFALL	188.60	0.30	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	CAMPBELL	CONDUIT	4.8	0.2101	0.0130
C10	CBMH30	CB19	CONDUIT	60.7	0.3544	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	57.9	1.2347	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	15.8	0.1901	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	8.9	2.8180	0.0130
C21	CB100	CBMH100	CONDUIT	6.8	3.5363	0.0130
C22	CBMH100	STMH201	CONDUIT	1.9	-1.6071	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100
C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130

C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	76.0	2.6843	0.0100
C9	STMH201	CBMH30	CONDUIT	77.0	1.2720	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	77.5	1.3460	0.0100
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			

STMH201-IC STMH201-S STMH201 OUTLET

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.71
C10-S	Street2	0.25	2.94	0.11	26.00	1	7.58
C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.04
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	3.04
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09

C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	11.17
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.34
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.91

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Transect Summary
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Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081
0.0107	0.0141	0.0183	0.0233	0.0291
0.0357	0.0431	0.0513	0.0606	0.0714
0.0837	0.0975	0.1128	0.1295	0.1478
0.1676	0.1889	0.2116	0.2359	0.2616
0.2889	0.3176	0.3478	0.3796	0.4127
0.4466	0.4813	0.5167	0.5529	0.5898
0.6274	0.6658	0.7050	0.7449	0.7855
0.8269	0.8691	0.9120	0.9556	1.0000

Hrad:

0.0220 0.0439 0.0659 0.0878 0.1098
0.1317 0.1537 0.1756 0.1960 0.1619
0.1576 0.1645 0.1766 0.1918 0.2088
0.2271 0.2461 0.2658 0.2688 0.2758
0.2864 0.2994 0.3142 0.3302 0.3473
0.3651 0.3836 0.4025 0.4219 0.4416
0.4616 0.4818 0.5023 0.5229 0.5504
0.5827 0.6145 0.6460 0.6771 0.7078
0.7383 0.7684 0.7982 0.8277 0.8570
0.8861 0.9149 0.9435 0.9718 1.0000

Width:

0.0035 0.0069 0.0104 0.0138 0.0173
0.0208 0.0242 0.0277 0.0314 0.0492
0.0671 0.0849 0.1028 0.1206 0.1385
0.1563 0.1742 0.1920 0.2246 0.2580
0.2914 0.3248 0.3582 0.3916 0.4250
0.4584 0.4918 0.5252 0.5586 0.5920
0.6254 0.6588 0.6922 0.7256 0.7495
0.7662 0.7829 0.7996 0.8163 0.8330
0.8497 0.8664 0.8831 0.8998 0.9165
0.9332 0.9499 0.9666 0.9833 1.0000

Transect Street2

Area:

0.0001 0.0004 0.0009 0.0017 0.0026
0.0041 0.0064 0.0096 0.0137 0.0186
0.0243 0.0309 0.0384 0.0467 0.0559
0.0659 0.0768 0.0886 0.1012 0.1147
0.1290 0.1441 0.1602 0.1771 0.1948
0.2134 0.2328 0.2532 0.2743 0.2963
0.3202 0.3457 0.3729 0.4018 0.4324
0.4643 0.4970 0.5306 0.5651 0.6003
0.6365 0.6735 0.7113 0.7500 0.7895
0.8299 0.8712 0.9133 0.9562 1.0000

Hrad:

0.0210 0.0420 0.0630 0.0840 0.1050
0.0922 0.1006 0.1154 0.1328 0.1518
0.1715 0.1918 0.2125 0.2334 0.2545
0.2757 0.2971 0.3185 0.3400 0.3616
0.3832 0.4049 0.4266 0.4483 0.4700
0.4918 0.5136 0.5354 0.5572 0.5790
0.5703 0.5766 0.5848 0.5945 0.6057
0.6334 0.6609 0.6881 0.7151 0.7418
0.7684 0.7947 0.8209 0.8469 0.8728
0.8985 0.9240 0.9495 0.9748 1.0000

Width:

```
            0.0047     0.0095     0.0142     0.0190     0.0237
            0.0431     0.0624     0.0818     0.1012     0.1205
            0.1399     0.1592     0.1786     0.1979     0.2173
            0.2367     0.2560     0.2754     0.2947     0.3141
            0.3335     0.3528     0.3722     0.3915     0.4109
            0.4303     0.4496     0.4690     0.4883     0.5077
            0.5577     0.5962     0.6346     0.6731     0.7115
            0.7308     0.7500     0.7692     0.7885     0.8077
            0.8269     0.8462     0.8654     0.8846     0.9038
            0.9231     0.9423     0.9615     0.9808     1.0000

************************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
************************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.481	44.077
Evaporation Loss	0.000	0.000
Infiltration Loss	0.317	29.005
Surface Runoff	0.160	14.642
Final Storage	0.006	0.584
Continuity Error (%)	-0.348	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.160	1.599
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.363	3.628
External Outflow	0.527	5.267
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.758	

Highest Continuity Errors

Node MH40-S (-12.31%)
Node DCB65 (12.14%)
Node DCB66 (12.13%)
Node MH102-S (10.98%)
Node MH42-S (-5.66%)

Time-Step Critical Elements

Link C13 (99.49%)

Highest Flow Instability Indexes

```
*******************************
Link DCB66-IC (21)
Link J17-IC (21)
Link DCB_40A-IC (20)
Link MH40-IC (20)
Link DCB_42A-IC (13)


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     0.50 sec
Average Time Step           :     0.85 sec
Maximum Time Step           :     5.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     2.02
Percent Not Converging      :     0.01


***************************
Subcatchment Runoff Summary
***************************
```

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	44.08	7.99	0.00	37.68	1.71	14.37	14.37	0.22	0.05	0.276
A100	44.08	0.00	0.00	27.29	15.73	0.49	16.22	0.34	0.26	0.368
A101	44.08	0.00	0.00	37.15	5.91	0.78	6.70	0.07	0.06	0.152
A102	44.08	0.00	0.00	25.97	16.12	1.41	17.53	0.05	0.04	0.398
A103	44.08	0.00	0.00	34.93	6.32	2.67	9.00	0.01	0.00	0.204
A104	44.08	0.00	0.00	21.16	20.39	1.79	22.19	0.14	0.09	0.503
A105	44.08	0.00	0.00	33.91	5.91	4.49	10.40	0.01	0.01	0.236
A106	44.08	0.00	0.00	17.11	25.47	0.54	26.01	0.08	0.05	0.590
A107	44.08	0.00	0.00	0.00	42.21	0.00	42.21	0.01	0.01	0.958
A108	44.08	0.00	0.00	40.25	0.00	4.12	4.12	0.00	0.00	0.094
A109	44.08	0.00	0.00	8.57	33.58	0.72	34.31	0.04	0.03	0.778
A110	44.08	0.00	0.00	0.00	42.50	0.00	42.50	0.04	0.03	0.964
A111	44.08	0.00	0.00	29.32	12.70	1.60	14.29	0.05	0.04	0.324
A112_1	44.08	0.00	0.00	35.82	7.59	0.34	7.93	0.06	0.05	0.180
A112_3	44.08	0.00	0.00	35.82	7.59	0.34	7.93	0.01	0.01	0.180
A113	44.08	0.00	0.00	39.85	0.00	4.58	4.58	0.00	0.00	0.104
A114	44.08	0.00	0.00	0.00	42.34	0.00	42.34	0.01	0.01	0.961
A115	44.08	0.00	0.00	42.10	0.00	2.06	2.06	0.00	0.00	0.047

A116	44.08	0.00	0.00	14.24	28.05	0.77	28.83	0.11	0.08	0.654
A117	44.08	0.00	0.00	30.00	12.29	1.35	13.64	0.04	0.03	0.310
A118	44.08	0.00	0.00	14.28	27.61	1.21	28.82	0.03	0.03	0.654
A119	44.08	0.00	0.00	22.95	18.62	1.83	20.45	0.02	0.02	0.464
A120	44.08	0.00	0.00	12.20	30.15	0.61	30.75	0.13	0.08	0.698
A121	44.08	0.00	0.00	32.55	10.61	0.53	11.14	0.12	0.09	0.253
A3	44.08	0.00	0.00	28.81	3.37	15.33	15.33	0.12	0.05	0.348

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.12	193.65	0 01:25	0.12
CB_43B	JUNCTION	0.00	0.10	193.95	0 01:25	0.10
CB100	JUNCTION	0.00	0.09	189.66	0 01:25	0.09
CB101	JUNCTION	0.00	0.04	191.27	0 01:25	0.04
CB102	JUNCTION	0.00	0.07	191.30	0 01:25	0.07
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.23	187.51	0 01:30	0.23
CB16	JUNCTION	0.13	0.81	188.17	0 01:28	0.81
CB16-S	JUNCTION	0.00	0.01	188.69	0 01:25	0.01
CB19	JUNCTION	0.07	0.50	188.24	0 01:29	0.49
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:25	0.00
CB32	JUNCTION	0.13	0.25	188.65	0 01:25	0.25
CB4	JUNCTION	0.00	0.37	188.24	0 01:29	0.37
CBMH100	JUNCTION	0.06	0.29	189.32	0 01:27	0.29
CBMH101	JUNCTION	0.06	0.25	190.74	0 01:27	0.25
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.03	0.43	191.16	0 01:27	0.43
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.10	191.49	0 01:28	0.09
CBMH30	JUNCTION	0.09	0.44	188.39	0 01:29	0.44
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:25	0.00
CBMH31	JUNCTION	0.16	0.26	188.64	0 01:25	0.26
DCB_40A	JUNCTION	0.00	0.06	193.36	0 01:25	0.06
DCB_40B	JUNCTION	0.00	0.04	193.30	0 01:25	0.04
DCB_42A	JUNCTION	0.00	0.10	193.47	0 01:25	0.10
DCB_42B	JUNCTION	0.00	0.07	193.41	0 01:26	0.07
DCB65	JUNCTION	0.00	0.25	191.48	0 01:27	0.25
DCB66	JUNCTION	0.00	0.25	191.48	0 01:27	0.25

DICB100	JUNCTION	0.00	0.11	190.74	0	01:26	0.11
DICB101	JUNCTION	0.02	0.62	193.38	0	01:31	0.62
DICB4	JUNCTION	0.00	0.01	192.25	0	01:30	0.01
DICB6	JUNCTION	0.00	0.04	193.72	0	01:25	0.04
DICB7	JUNCTION	0.00	0.05	193.24	0	01:30	0.05
DICB99	JUNCTION	0.00	0.18	190.74	0	01:27	0.18
J1	JUNCTION	0.00	0.00	189.50	0	00:00	0.00
J12	JUNCTION	0.13	0.81	188.17	0	01:28	0.81
J13	JUNCTION	0.13	0.81	188.10	0	01:29	0.81
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.29	191.48	0	01:27	0.28
J17-S	JUNCTION	0.00	0.00	194.63	0	01:26	0.00
J2	JUNCTION	0.11	0.41	191.13	0	01:26	0.41
MH102	JUNCTION	0.10	0.47	191.12	0	01:27	0.47
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:27	0.01
MH103	JUNCTION	0.11	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.02	0.45	192.85	0	01:26	0.45
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.01	0.62	188.15	0	01:28	0.62
MH18	JUNCTION	0.01	0.43	188.24	0	01:29	0.43
MH40	JUNCTION	0.01	0.42	192.86	0	01:26	0.42
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:28	0.00
MH41	JUNCTION	0.01	0.46	193.23	0	01:27	0.46
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.36	193.37	0	01:27	0.35
MH42-S	JUNCTION	0.00	0.00	194.65	0	01:25	0.00
MH43	JUNCTION	0.01	0.17	193.61	0	01:25	0.17
MH43-S	JUNCTION	0.00	0.00	194.94	0	01:25	0.00
MH54	JUNCTION	0.11	0.15	191.50	0	00:00	0.15
MH61	JUNCTION	0.00	0.00	191.49	0	00:00	0.00
MH62	JUNCTION	0.02	0.43	191.48	0	01:27	0.43
STMH201	JUNCTION	0.06	0.29	189.32	0	01:27	0.29
STMH201-S	JUNCTION	0.00	0.01	190.86	0	01:25	0.01
CAMPBELL	OUTFALL	0.00	0.00	189.49	0	00:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.13	0.90	188.18	0	01:27	0.90
OF1	OUTFALL	0.00	0.01	188.61	0	01:25	0.01

****
Node Inflow Summary
****

		Maximum	Maximum		Lateral	Total	Flow

Node	Type	Lateral Inflow CMS	Total Inflow CMS	Time of Max Occurrence days	hr:min	Inflow Volume 10^6 ltr	Inflow Volume 10^6 ltr	Balance Error Percent	
CB_43A	JUNCTION	0.000	0.027	0	01:25	0	0.0349	0.654	
CB_43B	JUNCTION	0.000	0.022	0	01:25	0	0.028	0.805	
CB100	JUNCTION	0.000	0.037	0	01:25	0	0.055	0.213	
CB101	JUNCTION	0.011	0.011	0	01:25	0.0125	0.0125	-0.000	
CB102	JUNCTION	0.053	0.053	0	01:25	0.0626	0.0626	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.099	0	01:29	0	0.0922	0.214	
CB16	JUNCTION	0.000	0.663	0	01:29	0	4.87	0.012	
CB16-S	JUNCTION	0.076	0.076	0	01:25	0.126	0.126	-0.735	
CB19	JUNCTION	0.000	0.652	0	01:27	0	4.8	-0.000	
CB19-S	JUNCTION	0.019	0.019	0	01:25	0.0233	0.0233	-0.321	
CB32	JUNCTION	0.028	0.028	0	01:25	0.035	0.0357	0.700	
CB4	JUNCTION	0.000	0.010	0	01:25	0	0.0117	0.092	
CBMH100	JUNCTION	0.000	0.037	0	01:25	0	0.0558	0.076	
CBMH101	JUNCTION	0.000	0.550	0	01:27	0	4.6	-0.013	
CBMH101-S	JUNCTION	0.013	0.013	0	01:25	0.0148	0.0148	-0.164	
CBMH103	JUNCTION	0.000	0.422	0	01:27	0	0.822	0.014	
CBMH103-S	JUNCTION	0.032	0.032	0	01:25	0.0396	0.0396	-0.274	
CBMH105	JUNCTION	0.000	0.007	0	01:25	0	0.00831	0.100	
CBMH30	JUNCTION	0.000	0.647	0	01:27	0	4.78	0.015	
CBMH30-S	JUNCTION	0.028	0.028	0	01:25	0.034	0.034	-0.462	
CBMH31	JUNCTION	0.000	0.042	0	01:25	0	0.0526	0.670	
DCB_40A	JUNCTION	0.000	0.036	0	01:27	0	0.0459	3.718	
DCB_40B	JUNCTION	0.000	0.036	0	01:27	0	0.0458	3.677	
DCB_42A	JUNCTION	0.000	0.044	0	01:25	0	0.073	1.890	
DCB_42B	JUNCTION	0.000	0.044	0	01:25	0	0.073	1.899	
DCB65	JUNCTION	0.000	0.032	0	01:23	0	0.0319	13.817	
DCB66	JUNCTION	0.000	0.032	0	01:23	0	0.0319	13.803	
DICB100	JUNCTION	0.001	0.002	0	01:24	0.0016	0.00178	0.078	
DICB101	JUNCTION	0.263	0.263	0	01:25	0.342	0.342	0.042	
DICB4	JUNCTION	0.001	0.001	0	01:30	0.000569	0.000569	0.059	
DICB6	JUNCTION	0.005	0.005	0	01:25	0.00691	0.00691	0.001	
DICB7	JUNCTION	0.006	0.006	0	01:30	0.00766	0.00766	0.055	
DICB99	JUNCTION	0.001	0.001	0	01:24	0.000513	0.000893	0.067	
J1	JUNCTION	0.048	0.048	0	01:55	0.224	0.224	0.000	
J12	JUNCTION	0.000	0.612	0	01:27	0	4.84	-0.008	
J13	JUNCTION	0.093	0.670	0	01:27	0.115	4.95	0.012	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.315	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.034	0	01:30	0	0.0569	-0.120	
J17-S	JUNCTION	0.030	0.030	0	01:25	0.0415	0.0415	-34.835	
J2	JUNCTION	0.000	0.176	0	00:00	0	3.76	0.013	

MH102	JUNCTION	0.000	0.523	0	01:26	0	4.58	0.002	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	3.11e-05	3.417	ltr
MH103	JUNCTION	0.037	0.054	0	01:25	0.0459	3.72	0.924	
MH106	JUNCTION	0.058	0.366	0	01:26	0.0726	0.717	-0.017	
MH106-S	JUNCTION	0.007	0.007	0	01:25	0.00768	0.00768	-0.707	
MH15	JUNCTION	0.000	0.067	0	01:29	0	0.0297	-0.013	
MH18	JUNCTION	0.000	0.012	0	01:25	0	0.012	-0.047	
MH40	JUNCTION	0.000	0.172	0	01:28	0	0.302	0.008	
MH40-S	JUNCTION	0.047	0.047	0	01:25	0.0817	0.0817	-10.962	
MH41	JUNCTION	0.000	0.136	0	01:25	0	0.213	-0.174	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.134	0	01:25	0	0.206	0.100	
MH42-S	JUNCTION	0.088	0.088	0	01:25	0.138	0.138	-5.353	
MH43	JUNCTION	0.000	0.049	0	01:25	0	0.0624	0.147	
MH43-S	JUNCTION	0.044	0.044	0	01:25	0.055	0.055	-1.746	
MH54	JUNCTION	0.042	0.080	0	00:00	3.63	3.63	0.005	
MH61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH62	JUNCTION	0.000	0.402	0	01:26	0	0.782	0.002	
STMH201	JUNCTION	0.000	0.601	0	01:27	0	4.71	0.011	
STMH201-S	JUNCTION	0.075	0.075	0	01:25	0.109	0.109	-0.655	
CAMPBELL	OUTFALL	0.000	0.048	0	01:55	0	0.224	0.000	
CB7	OUTFALL	0.000	0.097	0	01:30	0	0.092	0.000	
J14	OUTFALL	0.000	0.692	0	01:30	0	4.95	0.000	
OF1	OUTFALL	0.000	0.000	0	01:25	0	5.64e-06	0.000	ltr

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB16	JUNCTION	0.10	0.062	0.508
CB4	JUNCTION	0.09	0.072	0.853
DICB101	JUNCTION	0.31	0.244	0.000
J1	JUNCTION	48.00	0.000	0.500
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	0.29	0.250	0.570
MH18	JUNCTION	0.14	0.134	0.893

****

Node Flooding Summary

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DICB101	0.31	0.114	0 01:25	0.029	0.029

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CAMPBELL	9.34	0.021	0.048	0.224
CB7	17.06	0.005	0.097	0.092
J14	99.94	0.035	0.692	4.950
OF1	0.00	0.000	0.000	0.000
System	31.58	0.061	0.000	5.267

Link Flow Summary

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	DUMMY	0.048	0 01:55			
C10	CONDUIT	0.637	0 01:27	2.06	0.90	0.76
C10-S	CHANNEL	0.000	0 01:25	0.00	0.00	0.01
C11	CONDUIT	0.631	0 01:29	1.44	0.55	0.91
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.02
C12	CONDUIT	0.067	0 01:29	0.94	0.36	1.00
C13	CONDUIT	0.612	0 01:27	1.39	1.51	1.00

C14	CONDUIT	0.597	0	01:29	1.08	1.01	0.90
C15	CONDUIT	0.692	0	01:30	1.16	1.07	0.95
C16	CONDUIT	0.067	0	01:29	1.25	0.35	0.70
C17	CONDUIT	0.012	0	01:25	0.34	0.13	1.00
C18	CONDUIT	0.011	0	01:25	0.17	0.11	1.00
C19	CONDUIT	0.028	0	01:25	0.44	0.67	0.85
C2	CONDUIT	0.167	0	01:40	1.52	1.36	1.00
C20	CONDUIT	0.042	0	01:25	1.93	0.26	0.35
C21	CONDUIT	0.037	0	01:25	2.03	0.21	0.31
C22	CONDUIT	0.037	0	01:25	0.67	0.01	0.27
C23	CONDUIT	0.002	0	01:35	0.06	0.02	0.61
C24	CONDUIT	0.001	0	01:29	0.14	0.01	0.72
C25	CONDUIT	0.366	0	01:26	1.93	1.18	0.82
C26	CONDUIT	0.053	0	01:25	1.16	0.13	0.62
C27	CONDUIT	0.024	0	01:25	2.20	0.09	0.27
C28	CONDUIT	0.169	0	01:28	1.08	0.72	0.97
C28-S	CHANNEL	0.000	0	01:28	0.00	0.00	0.01
C29	CONDUIT	0.024	0	01:28	0.58	0.04	0.57
C3	CONDUIT	0.001	0	01:30	0.90	0.00	0.02
C30	CONDUIT	0.011	0	01:25	0.26	0.04	0.57
C30_1	CONDUIT	0.005	0	01:25	0.38	0.04	0.26
C30_2	CONDUIT	0.027	0	01:25	0.89	0.28	0.45
C31	CONDUIT	0.022	0	01:25	1.05	0.25	0.34
C32	CONDUIT	0.048	0	01:25	0.85	0.64	0.78
C32-S	CHANNEL	0.000	0	01:25	0.11	0.00	0.03
C33	CONDUIT	0.044	0	01:25	1.70	0.25	0.59
C34	CONDUIT	0.044	0	01:25	2.52	0.13	0.55
C35	CONDUIT	0.130	0	01:25	1.40	0.99	0.97
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C36	CONDUIT	0.006	0	01:30	0.74	0.07	0.39
C37	CONDUIT	0.126	0	01:28	1.14	1.06	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.64
C39_2	CONDUIT	0.106	0	01:25	1.22	0.62	0.95
C4	CONDUIT	0.008	0	01:27	0.44	0.03	0.42
C40	CONDUIT	0.018	0	01:30	0.37	0.01	0.27
C41	CONDUIT	0.017	0	01:30	0.36	0.01	0.27
C42	CONDUIT	0.097	0	01:30	1.30	0.64	0.57
C42_1	CONDUIT	0.000	0	00:00	0.00	0.00	0.21
C42_2	CONDUIT	0.036	0	01:30	0.52	0.07	0.46
C42_2-S	CHANNEL	0.000	0	01:23	0.00	0.00	0.01
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.29
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.01

C46	CONDUIT	0.000	0	01:25	0.03	0.00	0.03
C5	CONDUIT	0.396	0	01:28	1.72	0.75	0.61
C6	CONDUIT	0.422	0	01:27	1.82	0.80	0.63
C6-S	CHANNEL	0.000	0	01:25	0.29	0.00	0.02
C7	CONDUIT	0.538	0	01:27	2.78	0.88	0.53
C7-S	CHANNEL	0.000	0	01:27	0.32	0.00	0.01
C8	CONDUIT	0.535	0	01:27	3.08	0.41	0.45
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.02
C9	CONDUIT	0.600	0	01:27	2.55	0.45	0.51
C9-S	CHANNEL	0.000	0	01:25	0.39	0.00	0.02
CB_43A-IC	DUMMY	0.022	0	01:25			
CB100-IC	DUMMY	0.037	0	01:25			
CB16-IC	DUMMY	0.038	0	01:25			
CB19-IC	DUMMY	0.010	0	01:25			
CB4-IC	DUMMY	0.010	0	01:25			
CBMH101-IC	DUMMY	0.013	0	01:25			
CBMH30-IC	DUMMY	0.014	0	01:25			
CBMH31-IC	DUMMY	0.014	0	01:25			
DCB_40A-IC	DUMMY	0.036	0	01:27			
DCB_42A-IC	DUMMY	0.044	0	01:25			
DCB66-IC	DUMMY	0.032	0	01:23			
J17-IC	DUMMY	0.032	0	01:23			
MH40-IC	DUMMY	0.036	0	01:27			
MH42-IC	DUMMY	0.044	0	01:25			
MH43-IC	DUMMY	0.022	0	01:25			
OL1	DUMMY	0.007	0	01:25			
OL2	DUMMY	0.032	0	01:25			
OL3	DUMMY	0.038	0	01:25			
STMH201-IC	DUMMY	0.037	0	01:25			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C10	1.00	0.00	0.00	0.00	0.33	0.67	0.00	0.00	0.01	0.00
C10-S	1.00	0.88	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.83	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.89	0.00	0.11	0.00	0.00	0.00	0.91	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00

C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C16	1.00	0.97	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.00	0.27	0.00	0.73	0.01	0.00	0.00	0.97	0.00
C18	1.00	0.00	0.40	0.00	0.60	0.00	0.00	0.00	0.51	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.02	0.00	0.92	0.00	0.06	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.75	0.00	0.25	0.00	0.00	0.00	0.81	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.99	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C28-S	1.00	0.85	0.02	0.00	0.13	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.02	0.00	0.93	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.19	0.00	0.80	0.00	0.00	0.00	0.99	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.98	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C35-S	1.00	0.84	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.90	0.00
C37-S	1.00	0.87	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.53	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.97	0.01	0.00
C40	1.00	0.01	0.48	0.00	0.51	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.46	0.00	0.53	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C42_2	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.87	0.05	0.00	0.07	0.00	0.00	0.00	0.97	0.00

C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C5	1.00	0.01	0.00	0.00	0.14	0.01	0.00	0.84	0.00	0.00
C6	1.00	0.00	0.00	0.00	0.85	0.00	0.00	0.15	0.25	0.00
C6-S	1.00	0.01	0.86	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.03	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C8-S	1.00	0.85	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C9-S	1.00	0.84	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C11	0.01	0.01	0.22	0.01	0.01
C12	0.35	0.35	0.63	0.01	0.01
C13	0.10	0.10	0.10	0.29	0.10
C14	0.01	0.01	0.01	0.02	0.01
C15	0.01	0.01	0.05	0.05	0.01
C16	0.01	0.01	46.58	0.01	0.01
C17	0.09	0.09	0.14	0.01	0.01
C18	0.14	0.14	0.18	0.01	0.01
C2	0.23	0.31	0.23	0.32	0.23
C25	0.01	0.01	0.01	0.17	0.01
C26	0.01	0.01	0.25	0.01	0.01
C29	0.01	0.01	0.31	0.01	0.01
C30	0.01	0.01	0.25	0.01	0.01
C32	0.01	0.01	0.04	0.01	0.01
C35	0.01	0.01	0.07	0.01	0.01
C37	0.10	0.10	0.15	0.08	0.08
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.01	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01

Analysis begun on: Wed Dec 11 12:42:14 2019
Analysis ended on: Wed Dec 11 12:42:26 2019
Total elapsed time: 00:00:12

Existing Condition - Including Huronia Rd. - 10 Year Chicago 4 hr Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 25
Number of nodes ........... 66
Number of links ........... 82
Number of pollutants ...... 0
Number of land uses ....... 0


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Raingage Summary
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                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
A1                           1.56     66.72       3.40    2.4000 Chicago_4h_10yr      J1
A100                         2.11     98.17      37.00    1.7000 Chicago_4h_10yr      DICB101
A101                         1.08     64.95      14.00    2.7500 Chicago_4h_10yr      MH106
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A102	0.31	37.80	38.00	1.0000	Chicago_4h_10yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_10yr	DICB6
A104	0.62	62.28	48.00	0.1600	Chicago_4h_10yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_10yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_10yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_10yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_10yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_10yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_10yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_10yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_10yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_10yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_10yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_10yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_10yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_10yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_10yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_10yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_10yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_10yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_10yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_10yr	A1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	

CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	
DCB65	JUNCTION	191.23	3.40	0.0	
DCB66	JUNCTION	191.23	3.40	0.0	
DICB100	JUNCTION	190.63	1.22	0.0	
DICB101	JUNCTION	192.76	0.59	1000.0	
DICB4	JUNCTION	192.24	1.26	0.0	
DICB6	JUNCTION	193.68	0.61	100.0	
DICB7	JUNCTION	193.19	0.98	0.0	
DICB99	JUNCTION	190.56	1.83	0.0	
J1	JUNCTION	189.50	0.50	0.0	
J12	JUNCTION	187.36	0.91	0.0	
J13	JUNCTION	187.29	1.55	0.0	
J15	JUNCTION	192.31	0.38	0.0	
J16	JUNCTION	192.21	0.38	0.0	
J17	JUNCTION	191.20	3.55	0.0	
J17-S	JUNCTION	194.63	0.20	0.0	
J2	JUNCTION	190.72	0.46	0.0	
MH102	JUNCTION	190.65	2.76	0.0	
MH102-S	JUNCTION	193.27	0.26	0.0	
MH103	JUNCTION	191.05	1.93	0.0	
MH106	JUNCTION	192.40	1.60	0.0	
MH106-S	JUNCTION	194.47	0.26	0.0	
MH15	JUNCTION	187.53	1.19	0.0	
MH18	JUNCTION	187.80	1.33	0.0	
MH40	JUNCTION	192.44	2.21	0.0	
MH40-S	JUNCTION	194.56	0.26	0.0	
MH41	JUNCTION	192.77	2.06	0.0	
MH41-S	JUNCTION	194.83	0.26	0.0	
MH42	JUNCTION	193.02	1.66	0.0	
MH42-S	JUNCTION	194.65	0.26	0.0	
MH43	JUNCTION	193.44	1.53	0.0	
MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	

CAMPBELL	OUTFALL	189.49	0.00	0.0
CB7	OUTFALL	186.85	0.42	0.0
J14	OUTFALL	187.28	0.90	0.0
OF1	OUTFALL	188.60	0.30	0.0

****
Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	CAMPBELL	CONDUIT	4.8	0.2101	0.0130
C10	CBMH30	CB19	CONDUIT	60.7	0.3544	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	57.9	1.2347	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	15.8	0.1901	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	8.9	2.8180	0.0130
C21	CB100	CBMH100	CONDUIT	6.8	3.5363	0.0130
C22	CBMH100	STMH201	CONDUIT	1.9	-1.6071	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100
C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130

C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	76.0	2.6843	0.0100
C9	STMH201	CBMH30	CONDUIT	77.0	1.2720	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	77.5	1.3460	0.0100
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			

STMH201-IC STMH201-S STMH201 OUTLET

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Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.71
C10-S	Street2	0.25	2.94	0.11	26.00	1	7.58
C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.04
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	3.04
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09

C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	11.17
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.34
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.91

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081
0.0107	0.0141	0.0183	0.0233	0.0291
0.0357	0.0431	0.0513	0.0606	0.0714
0.0837	0.0975	0.1128	0.1295	0.1478
0.1676	0.1889	0.2116	0.2359	0.2616
0.2889	0.3176	0.3478	0.3796	0.4127
0.4466	0.4813	0.5167	0.5529	0.5898
0.6274	0.6658	0.7050	0.7449	0.7855
0.8269	0.8691	0.9120	0.9556	1.0000

Hrad:

0.0220 0.0439 0.0659 0.0878 0.1098
0.1317 0.1537 0.1756 0.1960 0.1619
0.1576 0.1645 0.1766 0.1918 0.2088
0.2271 0.2461 0.2658 0.2688 0.2758
0.2864 0.2994 0.3142 0.3302 0.3473
0.3651 0.3836 0.4025 0.4219 0.4416
0.4616 0.4818 0.5023 0.5229 0.5504
0.5827 0.6145 0.6460 0.6771 0.7078
0.7383 0.7684 0.7982 0.8277 0.8570
0.8861 0.9149 0.9435 0.9718 1.0000

Width:

0.0035 0.0069 0.0104 0.0138 0.0173
0.0208 0.0242 0.0277 0.0314 0.0492
0.0671 0.0849 0.1028 0.1206 0.1385
0.1563 0.1742 0.1920 0.2246 0.2580
0.2914 0.3248 0.3582 0.3916 0.4250
0.4584 0.4918 0.5252 0.5586 0.5920
0.6254 0.6588 0.6922 0.7256 0.7495
0.7662 0.7829 0.7996 0.8163 0.8330
0.8497 0.8664 0.8831 0.8998 0.9165
0.9332 0.9499 0.9666 0.9833 1.0000

Transect Street2

Area:

0.0001 0.0004 0.0009 0.0017 0.0026
0.0041 0.0064 0.0096 0.0137 0.0186
0.0243 0.0309 0.0384 0.0467 0.0559
0.0659 0.0768 0.0886 0.1012 0.1147
0.1290 0.1441 0.1602 0.1771 0.1948
0.2134 0.2328 0.2532 0.2743 0.2963
0.3202 0.3457 0.3729 0.4018 0.4324
0.4643 0.4970 0.5306 0.5651 0.6003
0.6365 0.6735 0.7113 0.7500 0.7895
0.8299 0.8712 0.9133 0.9562 1.0000

Hrad:

0.0210 0.0420 0.0630 0.0840 0.1050
0.0922 0.1006 0.1154 0.1328 0.1518
0.1715 0.1918 0.2125 0.2334 0.2545
0.2757 0.2971 0.3185 0.3400 0.3616
0.3832 0.4049 0.4266 0.4483 0.4700
0.4918 0.5136 0.5354 0.5572 0.5790
0.5703 0.5766 0.5848 0.5945 0.6057
0.6334 0.6609 0.6881 0.7151 0.7418
0.7684 0.7947 0.8209 0.8469 0.8728
0.8985 0.9240 0.9495 0.9748 1.0000

Width:

```
            0.0047     0.0095     0.0142     0.0190     0.0237
            0.0431     0.0624     0.0818     0.1012     0.1205
            0.1399     0.1592     0.1786     0.1979     0.2173
            0.2367     0.2560     0.2754     0.2947     0.3141
            0.3335     0.3528     0.3722     0.3915     0.4109
            0.4303     0.4496     0.4690     0.4883     0.5077
            0.5577     0.5962     0.6346     0.6731     0.7115
            0.7308     0.7500     0.7692     0.7885     0.8077
            0.8269     0.8462     0.8654     0.8846     0.9038
            0.9231     0.9423     0.9615     0.9808     1.0000

************************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
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Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.552	50.595
Evaporation Loss	0.000	0.000
Infiltration Loss	0.343	31.421
Surface Runoff	0.205	18.796
Final Storage	0.006	0.584
Continuity Error (%)	-0.407	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.205	2.052
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.432	4.320
External Outflow	0.641	6.412
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.631	

Highest Continuity Errors

Node DCB66 (10.60%)
Node DCB65 (10.59%)
Node MH40-S (-10.51%)
Node MH102-S (7.52%)
Node DCB_40A (3.11%)

Time-Step Critical Elements

Link C13 (99.42%)

Highest Flow Instability Indexes

****
Link DCB66-IC (20)
Link J17-IC (20)
Link DCB_40A-IC (15)
Link MH40-IC (15)
Link MH42-IC (13)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 0.81 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.02
Percent Not Converging : 0.04

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	50.60	10.93	0.00	39.30	2.03	22.25	22.25	0.35	0.08	0.362
A100	50.59	0.00	0.00	30.21	18.16	1.71	19.86	0.42	0.31	0.393
A101	50.59	0.00	0.00	40.95	6.82	2.62	9.45	0.10	0.07	0.187
A102	50.60	0.00	0.00	28.00	18.60	3.49	22.09	0.07	0.05	0.437
A103	50.60	0.00	0.00	37.26	7.30	6.03	13.33	0.01	0.01	0.263
A104	50.60	0.00	0.00	23.04	23.55	3.33	26.88	0.17	0.11	0.531
A105	50.59	0.00	0.00	35.79	6.81	8.74	15.55	0.01	0.01	0.307
A106	50.59	0.00	0.00	18.77	29.42	1.51	30.93	0.10	0.06	0.611
A107	50.59	0.00	0.00	0.00	48.72	0.00	48.72	0.01	0.01	0.963
A108	50.60	0.00	0.00	42.64	0.00	8.57	8.57	0.00	0.00	0.169
A109	50.60	0.00	0.00	9.12	38.78	1.59	40.37	0.05	0.04	0.798
A110	50.59	0.00	0.00	0.00	49.06	0.00	49.06	0.05	0.04	0.970
A111	50.59	0.00	0.00	31.61	14.65	3.94	18.59	0.06	0.04	0.368
A112_1	50.60	0.00	0.00	39.59	8.76	1.94	10.70	0.08	0.06	0.212
A112_3	50.59	0.00	0.00	39.59	8.76	1.94	10.70	0.02	0.01	0.212
A113	50.59	0.00	0.00	42.15	0.00	9.24	9.24	0.00	0.00	0.183
A114	50.59	0.00	0.00	0.00	48.86	0.00	48.86	0.02	0.02	0.966
A115	50.59	0.00	0.00	45.56	0.00	5.21	5.21	0.00	0.00	0.103

A116	50.60	0.00	0.00	15.36	32.40	1.91	34.31	0.13	0.09	0.678
A117	50.59	0.00	0.00	32.54	14.18	3.49	17.67	0.05	0.03	0.349
A118	50.60	0.00	0.00	15.20	31.86	2.66	34.52	0.04	0.03	0.682
A119	50.60	0.00	0.00	24.47	21.49	4.08	25.57	0.03	0.02	0.505
A120	50.60	0.00	0.00	13.20	34.82	1.53	36.35	0.15	0.09	0.718
A121	50.59	0.00	0.00	36.12	12.25	1.86	14.11	0.15	0.11	0.279
A3	50.59	0.00	0.00	29.76	3.89	20.97	20.97	0.17	0.07	0.415

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.35	193.88	0 01:27	0.34
CB_43B	JUNCTION	0.00	0.11	193.96	0 01:25	0.11
CB100	JUNCTION	0.00	0.10	189.67	0 01:25	0.10
CB101	JUNCTION	0.00	0.04	191.27	0 01:25	0.04
CB102	JUNCTION	0.00	0.08	191.31	0 01:25	0.08
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.32	187.60	0 01:29	0.32
CB16	JUNCTION	0.15	0.94	188.30	0 01:29	0.93
CB16-S	JUNCTION	0.00	0.01	188.69	0 01:25	0.01
CB19	JUNCTION	0.08	0.90	188.64	0 01:27	0.72
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:25	0.00
CB32	JUNCTION	0.13	0.59	189.00	0 01:29	0.26
CB4	JUNCTION	0.01	0.78	188.65	0 01:27	0.59
CBMH100	JUNCTION	0.07	0.31	189.34	0 01:27	0.31
CBMH101	JUNCTION	0.06	0.27	190.76	0 01:28	0.27
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.03	0.46	191.19	0 01:27	0.46
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.13	191.52	0 01:27	0.13
CBMH30	JUNCTION	0.10	0.74	188.69	0 01:29	0.73
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:25	0.00
CBMH31	JUNCTION	0.16	0.32	188.70	0 01:29	0.27
DCB_40A	JUNCTION	0.00	0.07	193.37	0 01:26	0.07
DCB_40B	JUNCTION	0.00	0.05	193.31	0 01:26	0.05
DCB_42A	JUNCTION	0.00	0.41	193.78	0 01:26	0.34
DCB_42B	JUNCTION	0.00	0.39	193.73	0 01:26	0.35
DCB65	JUNCTION	0.01	0.29	191.52	0 01:29	0.29
DCB66	JUNCTION	0.01	0.29	191.52	0 01:28	0.29

DICB100	JUNCTION	0.00	0.13	190.76	0	01:27	0.13
DICB101	JUNCTION	0.02	0.65	193.41	0	01:34	0.65
DICB4	JUNCTION	0.00	0.01	192.25	0	01:30	0.01
DICB6	JUNCTION	0.00	0.19	193.87	0	01:27	0.18
DICB7	JUNCTION	0.00	0.28	193.47	0	01:27	0.28
DICB99	JUNCTION	0.01	0.20	190.76	0	01:28	0.20
J1	JUNCTION	0.00	0.00	189.50	0	00:00	0.00
J12	JUNCTION	0.15	0.94	188.29	0	01:29	0.93
J13	JUNCTION	0.14	0.93	188.22	0	01:27	0.90
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.32	191.52	0	01:28	0.32
J17-S	JUNCTION	0.00	0.00	194.63	0	01:25	0.00
J2	JUNCTION	0.12	0.47	191.19	0	01:26	0.46
MH102	JUNCTION	0.11	0.51	191.16	0	01:27	0.51
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:27	0.01
MH103	JUNCTION	0.12	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.02	0.50	192.90	0	01:26	0.50
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.01	0.71	188.24	0	01:29	0.70
MH18	JUNCTION	0.02	0.84	188.64	0	01:27	0.65
MH40	JUNCTION	0.01	0.49	192.93	0	01:26	0.49
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:27	0.00
MH41	JUNCTION	0.01	0.89	193.66	0	01:25	0.69
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.70	193.72	0	01:26	0.67
MH42-S	JUNCTION	0.00	0.01	194.66	0	01:25	0.01
MH43	JUNCTION	0.01	0.42	193.86	0	01:28	0.42
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:25	0.01
MH54	JUNCTION	0.12	0.16	191.51	0	03:35	0.16
MH61	JUNCTION	0.00	0.04	191.53	0	01:28	0.04
MH62	JUNCTION	0.02	0.47	191.52	0	01:28	0.47
STMH201	JUNCTION	0.07	0.31	189.34	0	01:27	0.31
STMH201-S	JUNCTION	0.00	0.01	190.86	0	01:25	0.01
CAMPBELL	OUTFALL	0.00	0.00	189.49	0	00:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.14	0.90	188.18	0	01:25	0.90
OF1	OUTFALL	0.00	0.01	188.61	0	01:25	0.01

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Node Inflow Summary
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		Maximum	Maximum		Lateral	Total	Flow

Node	Type	Lateral Inflow CMS	Total Inflow CMS	Time of Max Occurrence days	hr:min	Inflow Volume 10^6 ltr	Inflow Volume 10^6 ltr	Balance Error Percent	
CB_43A	JUNCTION	0.000	0.033	0	01:25	0	0.045	0.150	
CB_43B	JUNCTION	0.000	0.027	0	01:25	0	0.0348	0.207	
CB100	JUNCTION	0.000	0.045	0	01:25	0	0.0653	0.167	
CB101	JUNCTION	0.012	0.012	0	01:25	0.0168	0.0168	-0.000	
CB102	JUNCTION	0.063	0.063	0	01:25	0.0844	0.0844	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.150	0	01:29	0	0.148	0.133	
CB16	JUNCTION	0.000	0.777	0	01:29	0	5.85	0.008	
CB16-S	JUNCTION	0.092	0.092	0	01:25	0.149	0.149	-0.576	
CB19	JUNCTION	0.000	0.738	0	01:29	0	5.77	-0.005	
CB19-S	JUNCTION	0.023	0.023	0	01:25	0.0291	0.0291	-0.251	
CB32	JUNCTION	0.034	0.034	0	01:25	0.0454	0.0464	0.519	
CB4	JUNCTION	0.000	0.022	0	01:25	0	0.0147	0.058	
CBMH100	JUNCTION	0.000	0.045	0	01:25	0	0.0663	0.064	
CBMH101	JUNCTION	0.000	0.640	0	01:27	0	5.53	-0.018	
CBMH101-S	JUNCTION	0.015	0.015	0	01:25	0.0171	0.0171	-0.124	
CBMH103	JUNCTION	0.000	0.475	0	01:28	0	1.01	0.055	
CBMH103-S	JUNCTION	0.037	0.037	0	01:25	0.0457	0.0457	-0.229	
CBMH105	JUNCTION	0.000	0.009	0	01:25	0	0.0101	0.002	
CBMH30	JUNCTION	0.000	0.741	0	01:27	0	5.74	-0.003	
CBMH30-S	JUNCTION	0.033	0.033	0	01:25	0.0407	0.0408	-0.356	
CBMH31	JUNCTION	0.000	0.050	0	01:25	0	0.0666	0.577	
DCB_40A	JUNCTION	0.000	0.043	0	01:26	0	0.0537	3.211	
DCB_40B	JUNCTION	0.000	0.041	0	01:26	0	0.0536	3.167	
DCB_42A	JUNCTION	0.000	0.053	0	01:25	0	0.086	1.051	
DCB_42B	JUNCTION	0.000	0.053	0	01:25	0	0.086	1.042	
DCB65	JUNCTION	0.000	0.032	0	01:22	0	0.0361	11.850	
DCB66	JUNCTION	0.000	0.032	0	01:22	0	0.0361	11.852	
DICB100	JUNCTION	0.003	0.003	0	01:35	0.00405	0.00416	0.041	
DICB101	JUNCTION	0.312	0.312	0	01:25	0.419	0.419	0.035	
DICB4	JUNCTION	0.001	0.001	0	01:30	0.00118	0.00118	0.029	
DICB6	JUNCTION	0.007	0.008	0	01:26	0.0102	0.0102	0.008	
DICB7	JUNCTION	0.010	0.015	0	01:25	0.0115	0.0115	0.184	
DICB99	JUNCTION	0.001	0.003	0	01:31	0.00103	0.00208	0.057	
J1	JUNCTION	0.076	0.076	0	01:50	0.347	0.347	0.000	
J12	JUNCTION	0.000	0.668	0	01:29	0	5.77	-0.008	
J13	JUNCTION	0.110	0.742	0	01:29	0.146	5.92	0.009	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.315	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.040	0	01:27	0	0.0661	-0.123	
J17-S	JUNCTION	0.036	0.036	0	01:25	0.0489	0.0489	-32.333	
J2	JUNCTION	0.000	0.176	0	00:00	0	4.49	0.010	

MH102	JUNCTION	0.000	0.596	0	01:28	0	5.5	0.002	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	4.82e-05	8.134	
MH103	JUNCTION	0.045	0.065	0	01:25	0.0598	4.43	0.777	
MH106	JUNCTION	0.070	0.409	0	01:26	0.102	0.887	-0.011	
MH106-S	JUNCTION	0.008	0.008	0	01:25	0.00887	0.00887	-0.442	
MH15	JUNCTION	0.000	0.111	0	01:29	0	0.0745	-0.024	
MH18	JUNCTION	0.000	0.038	0	01:25	0	0.0152	-1.126	
MH40	JUNCTION	0.000	0.208	0	01:26	0	0.366	-0.002	
MH40-S	JUNCTION	0.057	0.057	0	01:25	0.0971	0.0971	-9.511	
MH41	JUNCTION	0.000	0.159	0	01:25	0	0.261	-0.248	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.165	0	01:25	0	0.25	0.059	
MH42-S	JUNCTION	0.106	0.106	0	01:25	0.167	0.167	-2.636	
MH43	JUNCTION	0.000	0.060	0	01:25	0	0.0797	0.130	
MH43-S	JUNCTION	0.053	0.053	0	01:25	0.0693	0.0693	-0.423	
MH54	JUNCTION	0.050	0.080	0	00:00	4.32	4.32	0.003	
MH61	JUNCTION	0.000	0.006	0	01:26	0	0.000535	5.647	
MH62	JUNCTION	0.000	0.453	0	01:28	0	0.963	-0.067	
STMH201	JUNCTION	0.000	0.687	0	01:27	0	5.66	0.015	
STMH201-S	JUNCTION	0.090	0.090	0	01:25	0.13	0.13	-0.519	
CAMPBELL	OUTFALL	0.000	0.076	0	01:50	0	0.347	0.000	
CB7	OUTFALL	0.000	0.146	0	01:30	0	0.148	0.000	
J14	OUTFALL	0.000	0.742	0	01:29	0	5.92	0.000	
OF1	OUTFALL	0.000	0.000	0	01:25	0	9.23e-06	0.000	ltr

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.03	0.048	1.062
CB16	JUNCTION	0.21	0.189	0.381
CB19	JUNCTION	0.12	0.288	0.452
CB32	JUNCTION	0.01	0.292	0.558
CB4	JUNCTION	0.20	0.480	0.445
CBMH30	JUNCTION	0.02	0.033	1.114
DCB_42A	JUNCTION	0.04	0.114	0.866
DCB_42B	JUNCTION	0.05	0.087	0.923
DICB101	JUNCTION	0.44	0.271	0.000
J1	JUNCTION	48.00	0.000	0.500

J12	JUNCTION	0.09	0.035	0.000
J13	JUNCTION	0.09	0.034	0.616
J2	JUNCTION	0.05	0.015	0.000
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	0.39	0.337	0.483
MH18	JUNCTION	0.23	0.538	0.489
MH41	JUNCTION	0.10	0.315	1.165
MH42	JUNCTION	0.14	0.305	0.964

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DICB101	0.44	0.166	0 01:25	0.056	0.056

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CAMPBELL	9.75	0.031	0.076	0.347
CB7	16.88	0.007	0.146	0.148
J14	99.94	0.041	0.742	5.917
OF1	0.00	0.000	0.000	0.000
System	31.64	0.079	0.000	6.412

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days	hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	DUMMY	0.076	0	01:50			
C10	CONDUIT	0.723	0	01:29	2.04	1.02	1.00
C10-S	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C11	CONDUIT	0.739	0	01:29	1.56	0.64	1.00
C11-S	CHANNEL	0.000	0	01:25	0.02	0.00	0.02
C12	CONDUIT	0.111	0	01:29	1.57	0.60	1.00
C13	CONDUIT	0.668	0	01:29	1.51	1.65	1.00
C14	CONDUIT	0.670	0	01:29	1.08	1.13	1.00
C15	CONDUIT	0.742	0	01:29	1.17	1.14	1.00
C16	CONDUIT	0.111	0	01:29	1.89	0.59	0.77
C17	CONDUIT	0.034	0	01:25	0.56	0.35	1.00
C18	CONDUIT	0.029	0	01:25	0.41	0.29	1.00
C19	CONDUIT	0.034	0	01:25	0.51	0.80	1.00
C2	CONDUIT	0.169	0	01:46	1.54	1.37	1.00
C20	CONDUIT	0.050	0	01:25	2.03	0.31	0.77
C21	CONDUIT	0.045	0	01:25	2.13	0.25	0.34
C22	CONDUIT	0.045	0	01:25	0.67	0.01	0.30
C23	CONDUIT	0.003	0	01:33	0.08	0.04	0.66
C24	CONDUIT	0.004	0	01:31	0.14	0.03	0.78
C25	CONDUIT	0.408	0	01:26	2.02	1.32	0.88
C26	CONDUIT	0.063	0	01:25	1.33	0.15	0.63
C27	CONDUIT	0.029	0	01:26	2.20	0.11	0.39
C28	CONDUIT	0.204	0	01:27	1.28	0.87	1.00
C28-S	CHANNEL	0.000	0	01:26	0.00	0.00	0.02
C29	CONDUIT	0.031	0	01:26	0.73	0.05	0.58
C3	CONDUIT	0.001	0	01:30	1.10	0.00	0.03
C30	CONDUIT	0.012	0	01:25	0.30	0.05	0.57
C30_1	CONDUIT	0.009	0	01:27	0.46	0.06	0.82
C30_2	CONDUIT	0.033	0	01:25	0.91	0.35	1.00
C31	CONDUIT	0.027	0	01:25	1.10	0.30	0.37
C32	CONDUIT	0.056	0	01:25	0.90	0.76	1.00
C32-S	CHANNEL	0.000	0	01:25	0.13	0.00	0.03
C33	CONDUIT	0.060	0	01:25	1.72	0.34	1.00
C34	CONDUIT	0.061	0	01:25	2.53	0.18	1.00
C35	CONDUIT	0.151	0	01:25	1.39	1.14	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C36	CONDUIT	0.013	0	01:26	0.82	0.13	0.96
C37	CONDUIT	0.152	0	01:27	1.37	1.28	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.70

C39_2	CONDUIT	0.133	0	01:26	1.22	0.78	1.00
C4	CONDUIT	0.011	0	01:27	0.43	0.04	0.50
C40	CONDUIT	0.021	0	01:27	0.32	0.01	0.31
C41	CONDUIT	0.020	0	01:27	0.31	0.01	0.31
C42	CONDUIT	0.146	0	01:30	1.46	0.97	0.75
C42_1	CONDUIT	0.006	0	01:26	0.08	0.01	0.27
C42_2	CONDUIT	0.043	0	01:29	0.52	0.08	0.51
C42_2-S	CHANNEL	0.000	0	01:22	0.00	0.00	0.01
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.43
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C46	CONDUIT	0.000	0	01:25	0.03	0.00	0.03
C5	CONDUIT	0.449	0	01:28	1.78	0.85	0.67
C6	CONDUIT	0.478	0	01:28	1.89	0.90	0.68
C6-S	CHANNEL	0.000	0	01:25	0.30	0.00	0.03
C7	CONDUIT	0.626	0	01:27	2.97	1.02	0.57
C7-S	CHANNEL	0.000	0	01:27	0.37	0.00	0.02
C8	CONDUIT	0.611	0	01:28	3.15	0.46	0.49
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.02
C9	CONDUIT	0.685	0	01:27	2.58	0.51	0.75
C9-S	CHANNEL	0.000	0	01:25	0.44	0.00	0.02
CB_43A-IC	DUMMY	0.027	0	01:25			
CB100-IC	DUMMY	0.045	0	01:25			
CB16-IC	DUMMY	0.046	0	01:25			
CB19-IC	DUMMY	0.012	0	01:25			
CB4-IC	DUMMY	0.012	0	01:25			
CBMH101-IC	DUMMY	0.015	0	01:25			
CBMH30-IC	DUMMY	0.017	0	01:25			
CBMH31-IC	DUMMY	0.017	0	01:25			
DCB_40A-IC	DUMMY	0.043	0	01:26			
DCB_42A-IC	DUMMY	0.053	0	01:25			
DCB66-IC	DUMMY	0.032	0	01:22			
J17-IC	DUMMY	0.032	0	01:22			
MH40-IC	DUMMY	0.041	0	01:26			
MH42-IC	DUMMY	0.053	0	01:25			
MH43-IC	DUMMY	0.027	0	01:25			
OL1	DUMMY	0.008	0	01:25			
OL2	DUMMY	0.037	0	01:25			
OL3	DUMMY	0.046	0	01:25			
STMH201-IC	DUMMY	0.045	0	01:25			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C10	1.00	0.00	0.00	0.00	0.27	0.73	0.00	0.00	0.01	0.00
C10-S	1.00	0.89	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.83	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.82	0.00	0.18	0.00	0.00	0.00	0.85	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C16	1.00	0.96	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.04	0.35	0.00	0.61	0.00	0.00	0.00	0.96	0.00
C18	1.00	0.00	0.32	0.00	0.68	0.00	0.00	0.00	0.43	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.05	0.00	0.93	0.00	0.02	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.60	0.00	0.40	0.00	0.00	0.00	0.69	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.99	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C28-S	1.00	0.84	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.02	0.00	0.93	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.18	0.00	0.81	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C35-S	1.00	0.84	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C37-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.44	0.00

C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C40	1.00	0.01	0.49	0.00	0.50	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.95	0.00	0.04	0.00	0.00	0.00	0.97	0.00
C42_2	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.05	0.00	0.07	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C5	1.00	0.01	0.00	0.00	0.31	0.00	0.00	0.68	0.24	0.00
C6	1.00	0.00	0.00	0.00	0.88	0.00	0.00	0.12	0.21	0.00
C6-S	1.00	0.01	0.87	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.06	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C8-S	1.00	0.85	0.05	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.01	0.00
C9-S	1.00	0.85	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C10	0.08	0.08	0.12	0.04	0.03
C11	0.12	0.12	0.30	0.01	0.01
C12	0.48	0.48	0.79	0.01	0.01
C13	0.21	0.21	0.21	0.39	0.21
C14	0.09	0.09	0.09	0.15	0.08
C15	0.09	0.09	0.17	0.17	0.09
C16	0.01	0.01	46.59	0.01	0.01
C17	0.20	0.20	0.23	0.01	0.01
C18	0.23	0.23	0.27	0.01	0.01
C19	0.01	0.01	0.01	0.01	0.01
C2	0.32	0.44	0.32	0.45	0.32
C20	0.01	0.01	0.06	0.01	0.01
C25	0.01	0.01	0.01	0.26	0.01
C26	0.01	0.01	0.36	0.01	0.01

C28	0.11	0.11	0.15	0.01	0.01
C29	0.01	0.01	0.44	0.01	0.01
C30	0.01	0.01	0.36	0.01	0.01
C30_1	0.01	0.01	0.03	0.01	0.01
C30_2	0.03	0.03	0.06	0.01	0.01
C32	0.07	0.07	0.16	0.01	0.01
C33	0.04	0.04	0.14	0.01	0.01
C34	0.05	0.05	0.14	0.01	0.01
C35	0.15	0.15	0.17	0.10	0.09
C36	0.01	0.01	0.10	0.01	0.01
C37	0.19	0.19	0.24	0.18	0.18
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.05	0.01	0.01
C39_2	0.05	0.05	0.13	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01
C7	0.01	0.01	0.01	0.01	0.01
C9	0.01	0.01	0.02	0.01	0.01

Analysis begun on: Wed Dec 11 13:05:32 2019
Analysis ended on: Wed Dec 11 13:05:44 2019
Total elapsed time: 00:00:12

Existing Condition - Including Huronia Rd. - 25 Year Chicago 4 hr Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 25
Number of nodes ........... 66
Number of links ........... 82
Number of pollutants ...... 0
Number of land uses ....... 0


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Raingage Summary
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                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
A1                           1.56     66.72       3.40    2.4000 Chicago_4h_25yr      J1
A100                         2.11     98.17      37.00    1.7000 Chicago_4h_25yr      DICB101
A101                         1.08     64.95      14.00    2.7500 Chicago_4h_25yr      MH106
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A102	0.31	37.80	38.00	1.0000	Chicago_4h_25yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_25yr	DICB6
A104	0.62	62.28	48.00	0.1600	Chicago_4h_25yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_25yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_25yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_25yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_25yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_25yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_25yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_25yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_25yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_25yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_25yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_25yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_25yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_25yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_25yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_25yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_25yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_25yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_25yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_25yr	A1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	

CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	
DCB65	JUNCTION	191.23	3.40	0.0	
DCB66	JUNCTION	191.23	3.40	0.0	
DICB100	JUNCTION	190.63	1.22	0.0	
DICB101	JUNCTION	192.76	0.59	1000.0	
DICB4	JUNCTION	192.24	1.26	0.0	
DICB6	JUNCTION	193.68	0.61	100.0	
DICB7	JUNCTION	193.19	0.98	0.0	
DICB99	JUNCTION	190.56	1.83	0.0	
J1	JUNCTION	189.50	0.50	0.0	
J12	JUNCTION	187.36	0.91	0.0	
J13	JUNCTION	187.29	1.55	0.0	
J15	JUNCTION	192.31	0.38	0.0	
J16	JUNCTION	192.21	0.38	0.0	
J17	JUNCTION	191.20	3.55	0.0	
J17-S	JUNCTION	194.63	0.20	0.0	
J2	JUNCTION	190.72	0.46	0.0	
MH102	JUNCTION	190.65	2.76	0.0	
MH102-S	JUNCTION	193.27	0.26	0.0	
MH103	JUNCTION	191.05	1.93	0.0	
MH106	JUNCTION	192.40	1.60	0.0	
MH106-S	JUNCTION	194.47	0.26	0.0	
MH15	JUNCTION	187.53	1.19	0.0	
MH18	JUNCTION	187.80	1.33	0.0	
MH40	JUNCTION	192.44	2.21	0.0	
MH40-S	JUNCTION	194.56	0.26	0.0	
MH41	JUNCTION	192.77	2.06	0.0	
MH41-S	JUNCTION	194.83	0.26	0.0	
MH42	JUNCTION	193.02	1.66	0.0	
MH42-S	JUNCTION	194.65	0.26	0.0	
MH43	JUNCTION	193.44	1.53	0.0	
MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	

CAMPBELL	OUTFALL	189.49	0.00	0.0
CB7	OUTFALL	186.85	0.42	0.0
J14	OUTFALL	187.28	0.90	0.0
OF1	OUTFALL	188.60	0.30	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	CAMPBELL	CONDUIT	4.8	0.2101	0.0130
C10	CBMH30	CB19	CONDUIT	60.7	0.3544	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	57.9	1.2347	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	15.8	0.1901	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	8.9	2.8180	0.0130
C21	CB100	CBMH100	CONDUIT	6.8	3.5363	0.0130
C22	CBMH100	STMH201	CONDUIT	1.9	-1.6071	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100
C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130

C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	76.0	2.6843	0.0100
C9	STMH201	CBMH30	CONDUIT	77.0	1.2720	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	77.5	1.3460	0.0100
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			

STMH201-IC STMH201-S STMH201 OUTLET

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.71
C10-S	Street2	0.25	2.94	0.11	26.00	1	7.58
C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.04
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	3.04
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09

C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	11.17
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.34
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.91

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081
0.0107	0.0141	0.0183	0.0233	0.0291
0.0357	0.0431	0.0513	0.0606	0.0714
0.0837	0.0975	0.1128	0.1295	0.1478
0.1676	0.1889	0.2116	0.2359	0.2616
0.2889	0.3176	0.3478	0.3796	0.4127
0.4466	0.4813	0.5167	0.5529	0.5898
0.6274	0.6658	0.7050	0.7449	0.7855
0.8269	0.8691	0.9120	0.9556	1.0000

Hrad:

0.0220 0.0439 0.0659 0.0878 0.1098
0.1317 0.1537 0.1756 0.1960 0.1619
0.1576 0.1645 0.1766 0.1918 0.2088
0.2271 0.2461 0.2658 0.2688 0.2758
0.2864 0.2994 0.3142 0.3302 0.3473
0.3651 0.3836 0.4025 0.4219 0.4416
0.4616 0.4818 0.5023 0.5229 0.5504
0.5827 0.6145 0.6460 0.6771 0.7078
0.7383 0.7684 0.7982 0.8277 0.8570
0.8861 0.9149 0.9435 0.9718 1.0000

Width:

0.0035 0.0069 0.0104 0.0138 0.0173
0.0208 0.0242 0.0277 0.0314 0.0492
0.0671 0.0849 0.1028 0.1206 0.1385
0.1563 0.1742 0.1920 0.2246 0.2580
0.2914 0.3248 0.3582 0.3916 0.4250
0.4584 0.4918 0.5252 0.5586 0.5920
0.6254 0.6588 0.6922 0.7256 0.7495
0.7662 0.7829 0.7996 0.8163 0.8330
0.8497 0.8664 0.8831 0.8998 0.9165
0.9332 0.9499 0.9666 0.9833 1.0000

Transect Street2

Area:

0.0001 0.0004 0.0009 0.0017 0.0026
0.0041 0.0064 0.0096 0.0137 0.0186
0.0243 0.0309 0.0384 0.0467 0.0559
0.0659 0.0768 0.0886 0.1012 0.1147
0.1290 0.1441 0.1602 0.1771 0.1948
0.2134 0.2328 0.2532 0.2743 0.2963
0.3202 0.3457 0.3729 0.4018 0.4324
0.4643 0.4970 0.5306 0.5651 0.6003
0.6365 0.6735 0.7113 0.7500 0.7895
0.8299 0.8712 0.9133 0.9562 1.0000

Hrad:

0.0210 0.0420 0.0630 0.0840 0.1050
0.0922 0.1006 0.1154 0.1328 0.1518
0.1715 0.1918 0.2125 0.2334 0.2545
0.2757 0.2971 0.3185 0.3400 0.3616
0.3832 0.4049 0.4266 0.4483 0.4700
0.4918 0.5136 0.5354 0.5572 0.5790
0.5703 0.5766 0.5848 0.5945 0.6057
0.6334 0.6609 0.6881 0.7151 0.7418
0.7684 0.7947 0.8209 0.8469 0.8728
0.8985 0.9240 0.9495 0.9748 1.0000

Width:

```
            0.0047     0.0095     0.0142     0.0190     0.0237
            0.0431     0.0624     0.0818     0.1012     0.1205
            0.1399     0.1592     0.1786     0.1979     0.2173
            0.2367     0.2560     0.2754     0.2947     0.3141
            0.3335     0.3528     0.3722     0.3915     0.4109
            0.4303     0.4496     0.4690     0.4883     0.5077
            0.5577     0.5962     0.6346     0.6731     0.7115
            0.7308     0.7500     0.7692     0.7885     0.8077
            0.8269     0.8462     0.8654     0.8846     0.9038
            0.9231     0.9423     0.9615     0.9808     1.0000

************************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
************************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.645	59.087
Evaporation Loss	0.000	0.000
Infiltration Loss	0.371	33.986
Surface Runoff	0.271	24.796
Final Storage	0.006	0.584
Continuity Error (%)	-0.473	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.271	2.708
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.510	5.097
External Outflow	0.785	7.847
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.548	

Highest Continuity Errors

Node DCB66 (8.70%)
Node DCB65 (8.69%)
Node MH40-S (-8.60%)
Node MH102-S (5.21%)
Node DCB_40A (2.64%)

Time-Step Critical Elements

Link C13 (99.23%)

Highest Flow Instability Indexes

****
Link DCB66-IC (20)
Link J17-IC (20)
Link DCB_40A-IC (15)
Link MH40-IC (15)
Link DCB_42A-IC (13)

****
Routing Time Step Summary
****
Minimum Time Step : 0.49 sec
Average Time Step : 0.78 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : -0.00
Average Iterations per Step : 2.02
Percent Not Converging : 0.09

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	59.09	14.74	0.00	41.12	2.45	32.79	32.79	0.51	0.11	0.444
A100	59.09	0.00	0.00	33.26	21.32	4.04	25.36	0.54	0.38	0.429
A101	59.09	0.00	0.00	44.89	8.01	6.05	14.06	0.15	0.09	0.238
A102	59.09	0.00	0.00	30.17	21.84	6.67	28.51	0.09	0.07	0.482
A103	59.09	0.00	0.00	39.91	8.58	10.80	19.37	0.01	0.01	0.328
A104	59.09	0.00	0.00	25.10	27.67	5.71	33.38	0.21	0.13	0.565
A105	59.09	0.00	0.00	38.27	8.01	14.18	22.18	0.02	0.02	0.375
A106	59.09	0.00	0.00	20.51	34.56	3.19	37.76	0.12	0.07	0.639
A107	59.09	0.00	0.00	0.00	57.22	0.00	57.22	0.01	0.01	0.968
A108	59.09	0.00	0.00	45.55	0.00	14.53	14.53	0.00	0.00	0.246
A109	59.09	0.00	0.00	9.76	45.55	2.79	48.34	0.06	0.04	0.818
A110	59.09	0.00	0.00	0.00	57.60	0.00	57.60	0.05	0.04	0.975
A111	59.09	0.00	0.00	34.06	17.21	7.53	24.74	0.08	0.06	0.419
A112_1	59.09	0.00	0.00	43.32	10.30	5.25	15.54	0.12	0.08	0.263
A112_3	59.09	0.00	0.00	43.32	10.30	5.25	15.54	0.02	0.02	0.263
A113	59.09	0.00	0.00	45.05	0.00	15.35	15.35	0.00	0.00	0.260
A114	59.09	0.00	0.00	0.00	57.37	0.00	57.37	0.02	0.02	0.971
A115	59.09	0.00	0.00	49.21	0.00	10.17	10.17	0.01	0.00	0.172

A116	59.09	0.00	0.00	16.55	38.05	3.65	41.71	0.16	0.11	0.706
A117	59.09	0.00	0.00	35.21	16.65	6.92	23.57	0.06	0.04	0.399
A118	59.09	0.00	0.00	16.26	37.41	4.66	42.07	0.05	0.04	0.712
A119	59.09	0.00	0.00	26.18	25.23	7.25	32.48	0.04	0.03	0.550
A120	59.09	0.00	0.00	14.25	40.91	2.97	43.89	0.18	0.11	0.743
A121	59.09	0.00	0.00	39.91	14.38	4.49	18.87	0.20	0.13	0.319
A3	59.09	0.00	0.00	31.00	4.57	28.30	28.30	0.23	0.10	0.479

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Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.01	1.10	194.63	0 01:25	0.79
CB_43B	JUNCTION	0.00	1.03	194.88	0 01:25	0.46
CB100	JUNCTION	0.00	0.11	189.68	0 01:24	0.11
CB101	JUNCTION	0.00	0.05	191.28	0 01:25	0.05
CB102	JUNCTION	0.00	0.11	191.34	0 01:26	0.10
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.40	187.68	0 01:29	0.40
CB16	JUNCTION	0.16	1.18	188.54	0 01:25	0.99
CB16-S	JUNCTION	0.00	0.05	188.73	0 01:27	0.05
CB19	JUNCTION	0.08	1.40	189.14	0 01:25	0.85
CB19-S	JUNCTION	0.00	0.00	189.10	0 01:25	0.00
CB32	JUNCTION	0.13	1.40	189.81	0 01:26	0.58
CB4	JUNCTION	0.01	1.13	189.00	0 01:26	0.73
CBMH100	JUNCTION	0.08	0.36	189.39	0 01:27	0.36
CBMH101	JUNCTION	0.07	0.30	190.79	0 01:29	0.29
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.04	0.53	191.26	0 01:28	0.52
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.19	191.58	0 01:27	0.18
CBMH30	JUNCTION	0.11	2.10	190.06	0 01:26	0.98
CBMH30-S	JUNCTION	0.00	0.01	189.81	0 01:26	0.00
CBMH31	JUNCTION	0.16	1.68	190.06	0 01:26	0.59
DCB_40A	JUNCTION	0.00	0.07	193.37	0 01:25	0.07
DCB_40B	JUNCTION	0.00	0.05	193.31	0 01:26	0.05
DCB_42A	JUNCTION	0.01	1.24	194.61	0 01:24	0.81
DCB_42B	JUNCTION	0.01	1.24	194.58	0 01:24	0.82
DCB65	JUNCTION	0.01	0.35	191.58	0 01:28	0.35
DCB66	JUNCTION	0.01	0.35	191.58	0 01:28	0.35

DICB100	JUNCTION	0.00	0.17	190.80	0	01:28	0.17
DICB101	JUNCTION	0.02	0.69	193.45	0	01:37	0.69
DICB4	JUNCTION	0.00	0.01	192.25	0	01:30	0.01
DICB6	JUNCTION	0.00	0.64	194.32	0	01:29	0.64
DICB7	JUNCTION	0.00	1.24	194.43	0	01:24	0.65
DICB99	JUNCTION	0.01	0.23	190.79	0	01:29	0.23
J1	JUNCTION	0.00	0.00	189.50	0	00:00	0.00
J12	JUNCTION	0.16	1.17	188.52	0	01:25	0.99
J13	JUNCTION	0.15	0.95	188.24	0	01:25	0.91
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.38	191.58	0	01:28	0.38
J17-S	JUNCTION	0.00	0.00	194.63	0	01:25	0.00
J2	JUNCTION	0.13	0.54	191.26	0	01:27	0.52
MH102	JUNCTION	0.11	0.57	191.22	0	01:27	0.55
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:26	0.01
MH103	JUNCTION	0.13	0.52	191.57	0	00:00	0.23
MH106	JUNCTION	0.02	0.59	192.99	0	01:24	0.58
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.02	0.89	188.42	0	01:25	0.74
MH18	JUNCTION	0.03	1.24	189.04	0	01:25	0.79
MH40	JUNCTION	0.02	0.59	193.03	0	01:25	0.59
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:25	0.00
MH41	JUNCTION	0.01	1.46	194.23	0	01:24	1.06
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	1.54	194.56	0	01:24	1.14
MH42-S	JUNCTION	0.00	0.01	194.66	0	01:25	0.01
MH43	JUNCTION	0.01	1.43	194.87	0	01:25	0.88
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:25	0.01
MH54	JUNCTION	0.13	0.18	191.53	0	03:35	0.18
MH61	JUNCTION	0.00	0.10	191.59	0	01:27	0.10
MH62	JUNCTION	0.02	0.53	191.58	0	01:28	0.52
STMH201	JUNCTION	0.08	0.36	189.39	0	01:27	0.35
STMH201-S	JUNCTION	0.00	0.03	190.88	0	01:26	0.03
CAMPBELL	OUTFALL	0.00	0.00	189.49	0	00:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.15	0.90	188.18	0	01:24	0.90
OF1	OUTFALL	0.00	0.05	188.65	0	01:27	0.05

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Node Inflow Summary
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		Maximum	Maximum		Lateral	Total	Flow

Node	Type	Lateral Inflow CMS	Total Inflow CMS	Time of Max Occurrence days	hr:min	Inflow Volume 10^6 ltr	Inflow Volume 10^6 ltr	Balance Error Percent	
CB_43A	JUNCTION	0.000	0.052	0	01:33	0	0.0615	0.008	
CB_43B	JUNCTION	0.000	0.035	0	01:25	0	0.0448	0.116	
CB100	JUNCTION	0.000	0.050	0	01:24	0	0.0792	0.131	
CB101	JUNCTION	0.015	0.015	0	01:25	0.0245	0.0245	0.000	
CB102	JUNCTION	0.077	0.077	0	01:25	0.123	0.123	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.195	0	01:26	0	0.208	0.096	
CB16	JUNCTION	0.000	0.957	0	01:27	0	7.05	0.007	
CB16-S	JUNCTION	0.113	0.113	0	01:25	0.179	0.179	-0.445	
CB19	JUNCTION	0.000	0.907	0	01:27	0	6.96	-0.006	
CB19-S	JUNCTION	0.029	0.036	0	01:25	0.037	0.037	-0.233	
CB32	JUNCTION	0.041	0.041	0	01:25	0.0605	0.0614	0.375	
CB4	JUNCTION	0.000	0.023	0	01:24	0	0.0187	0.162	
CBMH100	JUNCTION	0.000	0.050	0	01:24	0	0.0802	0.053	
CBMH101	JUNCTION	0.000	0.766	0	01:29	0	6.66	-0.022	
CBMH101-S	JUNCTION	0.018	0.018	0	01:25	0.0201	0.0202	-0.129	
CBMH103	JUNCTION	0.000	0.547	0	01:28	0	1.29	0.026	
CBMH103-S	JUNCTION	0.044	0.044	0	01:25	0.0536	0.0536	-0.196	
CBMH105	JUNCTION	0.000	0.011	0	01:25	0	0.0125	-0.063	
CBMH30	JUNCTION	0.000	0.882	0	01:27	0	6.92	-0.008	
CBMH30-S	JUNCTION	0.040	0.088	0	01:26	0.0496	0.0501	-0.243	
CBMH31	JUNCTION	0.000	0.119	0	01:26	0	0.0863	0.431	
DCB_40A	JUNCTION	0.000	0.049	0	01:26	0	0.0644	2.711	
DCB_40B	JUNCTION	0.000	0.049	0	01:26	0	0.0644	2.680	
DCB_42A	JUNCTION	0.000	0.065	0	01:25	0	0.106	0.795	
DCB_42B	JUNCTION	0.000	0.065	0	01:25	0	0.106	0.774	
DCB65	JUNCTION	0.000	0.033	0	01:25	0	0.0414	9.512	
DCB66	JUNCTION	0.000	0.033	0	01:25	0	0.0414	9.525	
DICB100	JUNCTION	0.005	0.005	0	01:28	0.00791	0.008	0.016	
DICB101	JUNCTION	0.376	0.376	0	01:25	0.535	0.535	0.016	
DICB4	JUNCTION	0.002	0.002	0	01:30	0.00201	0.00201	0.019	
DICB6	JUNCTION	0.009	0.046	0	01:25	0.0149	0.0166	-0.111	
DICB7	JUNCTION	0.016	0.036	0	01:24	0.0164	0.0165	0.098	
DICB99	JUNCTION	0.002	0.008	0	01:30	0.00172	0.00384	0.080	
J1	JUNCTION	0.114	0.114	0	01:50	0.512	0.512	0.000	
J12	JUNCTION	0.000	0.833	0	01:27	0	6.93	-0.009	
J13	JUNCTION	0.133	0.945	0	01:27	0.195	7.13	0.008	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.315	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.056	0	01:28	0	0.0785	-0.089	
J17-S	JUNCTION	0.043	0.043	0	01:25	0.0585	0.0585	-29.289	
J2	JUNCTION	0.000	0.176	0	00:00	0	5.34	0.006	

MH102	JUNCTION	0.000	0.724	0	01:29	0	6.62	0.004	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	7.65e-05	5.496	
MH103	JUNCTION	0.056	0.079	0	01:25	0.0795	5.23	0.658	
MH106	JUNCTION	0.087	0.468	0	01:26	0.153	1.15	-0.010	
MH106-S	JUNCTION	0.009	0.009	0	01:25	0.0104	0.0104	-0.308	
MH15	JUNCTION	0.000	0.144	0	01:26	0	0.119	-0.012	
MH18	JUNCTION	0.000	0.042	0	01:24	0	0.0192	-0.934	
MH40	JUNCTION	0.000	0.257	0	01:26	0	0.457	-0.007	
MH40-S	JUNCTION	0.070	0.070	0	01:25	0.119	0.119	-7.923	
MH41	JUNCTION	0.000	0.184	0	01:26	0	0.331	-0.222	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.171	0	01:24	0	0.315	0.050	
MH42-S	JUNCTION	0.129	0.130	0	01:25	0.208	0.208	-2.018	
MH43	JUNCTION	0.000	0.078	0	01:25	0	0.105	0.103	
MH43-S	JUNCTION	0.065	0.065	0	01:25	0.0894	0.0894	-0.304	
MH54	JUNCTION	0.059	0.080	0	00:00	5.1	5.1	0.002	
MH61	JUNCTION	0.000	0.018	0	01:26	0	0.00196	2.017	
MH62	JUNCTION	0.000	0.525	0	01:28	0	1.23	-0.056	
STMH201	JUNCTION	0.000	0.824	0	01:27	0	6.81	0.015	
STMH201-S	JUNCTION	0.110	0.110	0	01:25	0.158	0.158	-0.404	
CAMPBELL	OUTFALL	0.000	0.114	0	01:50	0	0.512	0.000	
CB7	OUTFALL	0.000	0.168	0	01:28	0	0.208	0.000	
J14	OUTFALL	0.000	0.946	0	01:27	0	7.13	0.000	
OF1	OUTFALL	0.000	0.002	0	01:27	0	0.000377	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.17	0.796	0.314
CB_43B	JUNCTION	0.13	0.733	0.057
CB16	JUNCTION	0.31	0.434	0.136
CB19	JUNCTION	0.23	0.791	0.000
CB32	JUNCTION	0.11	1.105	0.000
CB4	JUNCTION	0.30	0.829	0.096
CBMH30	JUNCTION	0.14	1.402	0.000
CBMH31	JUNCTION	0.05	1.225	0.000
DCB_42A	JUNCTION	0.16	0.937	0.043
DCB_42B	JUNCTION	0.17	0.941	0.069

DICB101	JUNCTION	0.64	0.317	0.000
DICB6	JUNCTION	0.15	0.342	0.000
DICB7	JUNCTION	0.15	0.935	0.000
J1	JUNCTION	48.00	0.000	0.500
J12	JUNCTION	0.20	0.265	0.000
J13	JUNCTION	0.20	0.048	0.602
J2	JUNCTION	0.18	0.089	0.000
MH103	JUNCTION	0.01	0.000	1.410
MH106	JUNCTION	0.14	0.069	1.006
MH15	JUNCTION	0.52	0.520	0.300
MH18	JUNCTION	0.33	0.936	0.091
MH41	JUNCTION	0.19	0.883	0.597
MH42	JUNCTION	0.23	1.147	0.122
MH43	JUNCTION	0.13	0.736	0.104

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
CB32	0.01	0.035	0 01:26	0.000	0.255
CBMH30	0.01	0.195	0 01:26	0.000	0.255
CBMH31	0.01	0.019	0 01:26	0.000	0.255
DICB101	0.64	0.238	0 01:25	0.103	0.102
DICB6	0.13	0.046	0 01:25	0.003	0.032
DICB7	0.01	0.026	0 01:24	0.000	0.255
J12	0.01	0.056	0 01:25	0.000	0.255

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CAMPBELL	10.00	0.042	0.114	0.512

CB7	16.78	0.009	0.168	0.208
J14	99.94	0.049	0.946	7.127
OF1	0.26	0.001	0.002	0.000
System	31.74	0.101	0.002	7.847

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	DUMMY	0.114	0 01:50			
C10	CONDUIT	0.882	0 01:27	2.04	1.25	1.00
C10-S	CHANNEL	0.000	0 01:26	0.36	0.00	0.02
C11	CONDUIT	0.907	0 01:27	1.92	0.79	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.10
C12	CONDUIT	0.144	0 01:26	2.04	0.78	1.00
C13	CONDUIT	0.833	0 01:27	1.89	2.06	1.00
C14	CONDUIT	0.834	0 01:27	1.31	1.41	1.00
C15	CONDUIT	0.946	0 01:27	1.49	1.46	1.00
C16	CONDUIT	0.145	0 01:26	2.31	0.76	0.83
C17	CONDUIT	0.036	0 01:24	0.60	0.37	1.00
C18	CONDUIT	0.031	0 01:24	0.45	0.32	1.00
C19	CONDUIT	0.041	0 01:25	0.60	0.98	1.00
C2	CONDUIT	0.173	0 01:53	1.57	1.40	1.00
C20	CONDUIT	0.062	0 01:25	2.12	0.38	1.00
C21	CONDUIT	0.050	0 01:24	2.22	0.28	0.36
C22	CONDUIT	0.051	0 01:27	0.67	0.02	0.34
C23	CONDUIT	0.009	0 01:28	0.16	0.10	0.77
C24	CONDUIT	0.010	0 01:30	0.17	0.06	0.88
C25	CONDUIT	0.468	0 01:26	2.23	1.51	0.93
C26	CONDUIT	0.079	0 01:24	1.59	0.19	0.68
C27	CONDUIT	0.036	0 01:26	2.23	0.13	0.57
C28	CONDUIT	0.253	0 01:26	1.59	1.08	1.00
C28-S	CHANNEL	0.000	0 01:26	0.11	0.00	0.02
C29	CONDUIT	0.037	0 01:26	0.86	0.06	0.59
C3	CONDUIT	0.002	0 01:30	1.28	0.00	0.03
C30	CONDUIT	0.015	0 01:25	0.36	0.06	0.58
C30_1	CONDUIT	0.037	0 01:25	0.52	0.28	1.00
C30_2	CONDUIT	0.052	0 01:33	0.93	0.54	1.00
C31	CONDUIT	0.037	0 01:25	1.16	0.41	1.00

C32	CONDUIT	0.071	0	01:33	1.00	0.95	1.00
C32-S	CHANNEL	0.000	0	01:25	0.20	0.00	0.04
C33	CONDUIT	0.065	0	01:24	1.73	0.37	1.00
C34	CONDUIT	0.069	0	01:24	2.44	0.20	1.00
C35	CONDUIT	0.169	0	01:26	1.53	1.28	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C36	CONDUIT	0.021	0	01:24	0.88	0.22	1.00
C37	CONDUIT	0.184	0	01:26	1.67	1.56	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C38	CONDUIT	0.080	0	00:00	1.06	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.76
C39_2	CONDUIT	0.162	0	01:25	1.22	0.95	1.00
C4	CONDUIT	0.014	0	01:27	0.42	0.05	0.63
C40	CONDUIT	0.025	0	01:25	0.33	0.01	0.37
C41	CONDUIT	0.027	0	01:25	0.31	0.02	0.36
C42	CONDUIT	0.168	0	01:28	1.48	1.11	0.87
C42_1	CONDUIT	0.018	0	01:26	0.19	0.03	0.35
C42_2	CONDUIT	0.059	0	01:28	0.51	0.11	0.60
C42_2-S	CHANNEL	0.000	0	01:29	0.00	0.00	0.01
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C46	CONDUIT	0.002	0	01:27	0.09	0.01	0.17
C5	CONDUIT	0.516	0	01:28	1.81	0.98	0.75
C6	CONDUIT	0.581	0	01:29	2.03	1.10	0.76
C6-S	CHANNEL	0.000	0	01:25	0.31	0.00	0.03
C7	CONDUIT	0.748	0	01:29	3.17	1.22	0.63
C7-S	CHANNEL	0.000	0	01:26	0.42	0.00	0.02
C8	CONDUIT	0.726	0	01:28	3.29	0.55	0.56
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.06
C9	CONDUIT	0.815	0	01:28	2.56	0.61	0.79
C9-S	CHANNEL	0.003	0	01:26	1.07	0.00	0.07
CB_43A-IC	DUMMY	0.033	0	01:25			
CB100-IC	DUMMY	0.050	0	01:24			
CB16-IC	DUMMY	0.050	0	01:24			
CB19-IC	DUMMY	0.023	0	01:25			
CB4-IC	DUMMY	0.018	0	01:25			
CBMH101-IC	DUMMY	0.018	0	01:25			
CBMH30-IC	DUMMY	0.049	0	01:26			
CBMH31-IC	DUMMY	0.035	0	01:26			
DCB_40A-IC	DUMMY	0.049	0	01:26			
DCB_42A-IC	DUMMY	0.065	0	01:25			
DCB66-IC	DUMMY	0.033	0	01:25			
J17-IC	DUMMY	0.033	0	01:25			
MH40-IC	DUMMY	0.049	0	01:26			

MH42-IC	DUMMY	0.065	0	01:25
MH43-IC	DUMMY	0.033	0	01:25
OL1	DUMMY	0.009	0	01:25
OL2	DUMMY	0.044	0	01:25
OL3	DUMMY	0.050	0	01:24
STMH201-IC	DUMMY	0.050	0	01:24

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C10	1.00	0.00	0.00	0.00	0.22	0.78	0.00	0.00	0.01	0.00
C10-S	1.00	0.89	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.83	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.67	0.00	0.33	0.00	0.00	0.00	0.72	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C16	1.00	0.95	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.11	0.41	0.00	0.48	0.00	0.00	0.00	0.96	0.00
C18	1.00	0.00	0.26	0.00	0.74	0.00	0.00	0.00	0.37	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.03	0.00	0.94	0.00	0.03	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.49	0.00	0.51	0.00	0.00	0.00	0.58	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.99	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C28-S	1.00	0.84	0.01	0.00	0.14	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.02	0.00	0.94	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.17	0.00	0.82	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00

C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.01	0.00
C33	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.98	0.00	0.00
C34	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C37-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.38	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C40	1.00	0.01	0.49	0.00	0.50	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.95	0.00	0.05	0.00	0.00	0.00	0.97	0.00
C42_2	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.01	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.06	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.05	0.00	0.08	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C5	1.00	0.01	0.00	0.00	0.44	0.00	0.00	0.55	0.36	0.00
C6	1.00	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.18	0.00
C6-S	1.00	0.01	0.87	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.06	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C8-S	1.00	0.85	0.05	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.01	0.01	0.00	0.99	0.01	0.00
C9-S	1.00	0.85	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C10	0.20	0.20	0.23	0.17	0.15
C11	0.23	0.23	0.41	0.01	0.01

C12	0.67	0.67	1.00	0.01	0.01
C13	0.31	0.31	0.31	0.51	0.30
C14	0.20	0.20	0.20	0.26	0.20
C15	0.20	0.20	0.27	0.27	0.20
C16	0.01	0.01	46.61	0.01	0.01
C17	0.30	0.30	0.33	0.01	0.01
C18	0.33	0.33	0.36	0.01	0.01
C19	0.11	0.11	0.12	0.01	0.01
C2	0.43	0.64	0.43	0.65	0.43
C20	0.05	0.05	0.19	0.01	0.01
C25	0.01	0.14	0.01	0.36	0.01
C26	0.01	0.01	0.51	0.01	0.01
C28	0.22	0.22	0.26	0.09	0.09
C29	0.01	0.01	0.61	0.01	0.01
C30	0.01	0.01	0.51	0.01	0.01
C30_1	0.15	0.15	0.17	0.01	0.01
C30_2	0.17	0.17	0.18	0.01	0.01
C31	0.13	0.13	0.13	0.01	0.01
C32	0.18	0.18	0.25	0.01	0.01
C33	0.16	0.16	0.23	0.01	0.01
C34	0.17	0.17	0.23	0.01	0.01
C35	0.24	0.24	0.26	0.19	0.18
C36	0.15	0.15	0.19	0.01	0.01
C37	0.28	0.28	0.33	0.26	0.26
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.18	0.01	0.01
C39_2	0.18	0.18	0.24	0.01	0.01
C42	0.01	0.01	0.01	0.11	0.01
C43	0.01	0.01	0.01	0.01	0.01
C6	0.01	0.01	0.01	0.04	0.01
C7	0.01	0.01	0.01	0.13	0.01
C9	0.01	0.01	0.14	0.01	0.01

Analysis begun on: Wed Dec 11 13:07:30 2019
Analysis ended on: Wed Dec 11 13:07:43 2019
Total elapsed time: 00:00:13

Existing Condition - Including Huronia Rd. - 50 Year Chicago 4 hr Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 25
Number of nodes ........... 66
Number of links ........... 82
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
----------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-----------------------------------------------------------------------------------------------
A1                           1.56     66.72       3.40    2.4000 Chicago_4h_50yr      J1
A100                         2.11     98.17      37.00    1.7000 Chicago_4h_50yr      DICB101
A101                         1.08     64.95      14.00    2.7500 Chicago_4h_50yr      MH106
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A102	0.31	37.80	38.00	1.0000	Chicago_4h_50yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_50yr	DICB6
A104	0.62	62.28	48.00	0.1600	Chicago_4h_50yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_50yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_50yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_50yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_50yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_50yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_50yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_50yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_50yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_50yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_50yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_50yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_50yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_50yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_50yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_50yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_50yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_50yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_50yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_50yr	A1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	

CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	
DCB65	JUNCTION	191.23	3.40	0.0	
DCB66	JUNCTION	191.23	3.40	0.0	
DICB100	JUNCTION	190.63	1.22	0.0	
DICB101	JUNCTION	192.76	0.59	1000.0	
DICB4	JUNCTION	192.24	1.26	0.0	
DICB6	JUNCTION	193.68	0.61	100.0	
DICB7	JUNCTION	193.19	0.98	0.0	
DICB99	JUNCTION	190.56	1.83	0.0	
J1	JUNCTION	189.50	0.50	0.0	
J12	JUNCTION	187.36	0.91	0.0	
J13	JUNCTION	187.29	1.55	0.0	
J15	JUNCTION	192.31	0.38	0.0	
J16	JUNCTION	192.21	0.38	0.0	
J17	JUNCTION	191.20	3.55	0.0	
J17-S	JUNCTION	194.63	0.20	0.0	
J2	JUNCTION	190.72	0.46	0.0	
MH102	JUNCTION	190.65	2.76	0.0	
MH102-S	JUNCTION	193.27	0.26	0.0	
MH103	JUNCTION	191.05	1.93	0.0	
MH106	JUNCTION	192.40	1.60	0.0	
MH106-S	JUNCTION	194.47	0.26	0.0	
MH15	JUNCTION	187.53	1.19	0.0	
MH18	JUNCTION	187.80	1.33	0.0	
MH40	JUNCTION	192.44	2.21	0.0	
MH40-S	JUNCTION	194.56	0.26	0.0	
MH41	JUNCTION	192.77	2.06	0.0	
MH41-S	JUNCTION	194.83	0.26	0.0	
MH42	JUNCTION	193.02	1.66	0.0	
MH42-S	JUNCTION	194.65	0.26	0.0	
MH43	JUNCTION	193.44	1.53	0.0	
MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	

CAMPBELL	OUTFALL	189.49	0.00	0.0
CB7	OUTFALL	186.85	0.42	0.0
J14	OUTFALL	187.28	0.90	0.0
OF1	OUTFALL	188.60	0.30	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	CAMPBELL	CONDUIT	4.8	0.2101	0.0130
C10	CBMH30	CB19	CONDUIT	60.7	0.3544	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	57.9	1.2347	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	15.8	0.1901	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	8.9	2.8180	0.0130
C21	CB100	CBMH100	CONDUIT	6.8	3.5363	0.0130
C22	CBMH100	STMH201	CONDUIT	1.9	-1.6071	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100
C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130

C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	76.0	2.6843	0.0100
C9	STMH201	CBMH30	CONDUIT	77.0	1.2720	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	77.5	1.3460	0.0100
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			

STMH201-IC STMH201-S STMH201 OUTLET

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.71
C10-S	Street2	0.25	2.94	0.11	26.00	1	7.58
C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.04
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	3.04
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09

C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	11.17
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.34
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.91

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081
0.0107	0.0141	0.0183	0.0233	0.0291
0.0357	0.0431	0.0513	0.0606	0.0714
0.0837	0.0975	0.1128	0.1295	0.1478
0.1676	0.1889	0.2116	0.2359	0.2616
0.2889	0.3176	0.3478	0.3796	0.4127
0.4466	0.4813	0.5167	0.5529	0.5898
0.6274	0.6658	0.7050	0.7449	0.7855
0.8269	0.8691	0.9120	0.9556	1.0000

Hrad:

0.0220 0.0439 0.0659 0.0878 0.1098
0.1317 0.1537 0.1756 0.1960 0.1619
0.1576 0.1645 0.1766 0.1918 0.2088
0.2271 0.2461 0.2658 0.2688 0.2758
0.2864 0.2994 0.3142 0.3302 0.3473
0.3651 0.3836 0.4025 0.4219 0.4416
0.4616 0.4818 0.5023 0.5229 0.5504
0.5827 0.6145 0.6460 0.6771 0.7078
0.7383 0.7684 0.7982 0.8277 0.8570
0.8861 0.9149 0.9435 0.9718 1.0000

Width:

0.0035 0.0069 0.0104 0.0138 0.0173
0.0208 0.0242 0.0277 0.0314 0.0492
0.0671 0.0849 0.1028 0.1206 0.1385
0.1563 0.1742 0.1920 0.2246 0.2580
0.2914 0.3248 0.3582 0.3916 0.4250
0.4584 0.4918 0.5252 0.5586 0.5920
0.6254 0.6588 0.6922 0.7256 0.7495
0.7662 0.7829 0.7996 0.8163 0.8330
0.8497 0.8664 0.8831 0.8998 0.9165
0.9332 0.9499 0.9666 0.9833 1.0000

Transect Street2

Area:

0.0001 0.0004 0.0009 0.0017 0.0026
0.0041 0.0064 0.0096 0.0137 0.0186
0.0243 0.0309 0.0384 0.0467 0.0559
0.0659 0.0768 0.0886 0.1012 0.1147
0.1290 0.1441 0.1602 0.1771 0.1948
0.2134 0.2328 0.2532 0.2743 0.2963
0.3202 0.3457 0.3729 0.4018 0.4324
0.4643 0.4970 0.5306 0.5651 0.6003
0.6365 0.6735 0.7113 0.7500 0.7895
0.8299 0.8712 0.9133 0.9562 1.0000

Hrad:

0.0210 0.0420 0.0630 0.0840 0.1050
0.0922 0.1006 0.1154 0.1328 0.1518
0.1715 0.1918 0.2125 0.2334 0.2545
0.2757 0.2971 0.3185 0.3400 0.3616
0.3832 0.4049 0.4266 0.4483 0.4700
0.4918 0.5136 0.5354 0.5572 0.5790
0.5703 0.5766 0.5848 0.5945 0.6057
0.6334 0.6609 0.6881 0.7151 0.7418
0.7684 0.7947 0.8209 0.8469 0.8728
0.8985 0.9240 0.9495 0.9748 1.0000

Width:

```
            0.0047     0.0095     0.0142     0.0190     0.0237
            0.0431     0.0624     0.0818     0.1012     0.1205
            0.1399     0.1592     0.1786     0.1979     0.2173
            0.2367     0.2560     0.2754     0.2947     0.3141
            0.3335     0.3528     0.3722     0.3915     0.4109
            0.4303     0.4496     0.4690     0.4883     0.5077
            0.5577     0.5962     0.6346     0.6731     0.7115
            0.7308     0.7500     0.7692     0.7885     0.8077
            0.8269     0.8462     0.8654     0.8846     0.9038
            0.9231     0.9423     0.9615     0.9808     1.0000

************************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
************************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.717	65.661
Evaporation Loss	0.000	0.000
Infiltration Loss	0.388	35.556
Surface Runoff	0.326	29.848
Final Storage	0.006	0.584
Continuity Error (%)	-0.499	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.326	3.259
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.562	5.615
External Outflow	0.893	8.934
Flooding Loss	0.000	0.001
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.674	

Highest Continuity Errors

Node DCB_42A (-35.07%)
Node DCB65 (8.79%)
Node DCB66 (8.78%)
Node MH40-S (-7.45%)
Node DCB_42B (4.95%)

Time-Step Critical Elements

Link C13 (99.05%)

Highest Flow Instability Indexes

****
Link J17-IC (20)
Link DCB66-IC (20)
Link DCB_40A-IC (15)
Link MH40-IC (15)
Link DCB_42A-IC (12)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 0.76 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : -0.00
Average Iterations per Step : 2.05
Percent Not Converging : 0.58

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	65.66	17.82	0.00	42.18	2.77	41.43	41.43	0.65	0.15	0.496
A100	65.66	0.00	0.00	35.15	23.76	6.32	30.08	0.63	0.42	0.458
A101	65.66	0.00	0.00	47.31	8.93	9.33	18.26	0.20	0.10	0.278
A102	65.66	0.00	0.00	31.53	24.33	9.46	33.79	0.11	0.07	0.515
A103	65.66	0.00	0.00	41.61	9.56	14.84	24.39	0.02	0.01	0.371
A104	65.66	0.00	0.00	26.42	30.85	7.82	38.67	0.24	0.15	0.589
A105	65.66	0.00	0.00	39.91	8.92	18.58	27.50	0.02	0.02	0.419
A106	65.66	0.00	0.00	21.58	38.54	4.77	43.31	0.14	0.08	0.660
A107	65.66	0.00	0.00	0.00	63.78	0.00	63.78	0.01	0.01	0.971
A108	65.66	0.00	0.00	47.49	0.00	19.48	19.48	0.00	0.00	0.297
A109	65.66	0.00	0.00	10.18	50.77	3.80	54.57	0.07	0.05	0.831
A110	65.66	0.00	0.00	0.00	64.19	0.00	64.19	0.06	0.05	0.978
A111	65.66	0.00	0.00	35.60	19.17	10.68	29.85	0.10	0.06	0.455
A112_1	65.66	0.00	0.00	45.54	11.48	8.48	19.95	0.16	0.09	0.304
A112_3	65.66	0.00	0.00	45.54	11.48	8.48	19.95	0.03	0.02	0.304
A113	65.66	0.00	0.00	46.96	0.00	20.36	20.36	0.00	0.00	0.310
A114	65.66	0.00	0.00	0.00	63.93	0.00	63.93	0.02	0.02	0.974
A115	65.66	0.00	0.00	51.47	0.00	14.57	14.57	0.01	0.01	0.222

A116	65.66	0.00	0.00	17.29	42.42	5.18	47.60	0.18	0.12	0.725
A117	65.66	0.00	0.00	36.88	18.56	9.98	28.54	0.07	0.05	0.435
A118	65.66	0.00	0.00	16.95	41.69	6.35	48.04	0.06	0.05	0.732
A119	65.66	0.00	0.00	27.29	28.11	9.92	38.04	0.04	0.03	0.579
A120	65.66	0.00	0.00	14.90	45.61	4.25	49.87	0.20	0.13	0.759
A121	65.66	0.00	0.00	42.25	16.03	7.10	23.13	0.24	0.15	0.352
A3	65.66	0.00	0.00	31.69	5.10	34.21	34.21	0.28	0.12	0.521

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.01	1.35	194.88	0 01:24	0.90
CB_43B	JUNCTION	0.01	1.19	195.04	0 01:24	0.57
CB100	JUNCTION	0.00	0.11	189.68	0 01:23	0.11
CB101	JUNCTION	0.00	0.05	191.28	0 01:25	0.05
CB102	JUNCTION	0.00	0.13	191.36	0 01:27	0.13
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.46	187.74	0 01:30	0.46
CB16	JUNCTION	0.17	1.19	188.55	0 01:25	1.04
CB16-S	JUNCTION	0.00	0.08	188.76	0 01:29	0.08
CB19	JUNCTION	0.09	1.60	189.35	0 01:25	0.91
CB19-S	JUNCTION	0.00	0.00	189.10	0 01:25	0.00
CB32	JUNCTION	0.13	1.40	189.81	0 01:25	0.72
CB4	JUNCTION	0.01	1.33	189.19	0 01:25	0.80
CBMH100	JUNCTION	0.08	0.42	189.45	0 01:28	0.42
CBMH101	JUNCTION	0.07	0.31	190.80	0 01:28	0.31
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.05	0.56	191.29	0 01:28	0.56
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.23	191.62	0 01:27	0.23
CBMH30	JUNCTION	0.11	2.10	190.06	0 01:25	1.10
CBMH30-S	JUNCTION	0.00	0.01	189.82	0 01:25	0.01
CBMH31	JUNCTION	0.16	1.68	190.06	0 01:25	0.72
DCB_40A	JUNCTION	0.00	0.08	193.38	0 01:25	0.08
DCB_40B	JUNCTION	0.00	0.05	193.31	0 01:25	0.05
DCB_42A	JUNCTION	0.01	1.53	194.91	0 01:24	1.19
DCB_42B	JUNCTION	0.01	1.27	194.61	0 01:24	1.00
DCB65	JUNCTION	0.01	0.38	191.61	0 01:28	0.37
DCB66	JUNCTION	0.01	0.38	191.61	0 01:28	0.37

DICB100	JUNCTION	0.00	0.19	190.82	0	01:29	0.19
DICB101	JUNCTION	0.02	0.74	193.50	0	01:40	0.74
DICB4	JUNCTION	0.00	0.02	192.26	0	01:30	0.02
DICB6	JUNCTION	0.01	0.75	194.43	0	01:35	0.75
DICB7	JUNCTION	0.01	1.24	194.43	0	01:24	0.72
DICB99	JUNCTION	0.01	0.26	190.82	0	01:30	0.25
J1	JUNCTION	0.00	0.00	189.50	0	00:00	0.00
J12	JUNCTION	0.17	1.17	188.52	0	01:25	1.03
J13	JUNCTION	0.16	0.96	188.25	0	01:25	0.92
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.41	191.61	0	01:28	0.41
J17-S	JUNCTION	0.00	0.01	194.64	0	01:25	0.00
J2	JUNCTION	0.14	0.58	191.30	0	01:27	0.56
MH102	JUNCTION	0.12	0.60	191.25	0	01:27	0.58
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:26	0.01
MH103	JUNCTION	0.14	0.52	191.57	0	00:00	0.29
MH106	JUNCTION	0.02	0.62	193.02	0	01:25	0.61
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.02	0.90	188.43	0	01:25	0.78
MH18	JUNCTION	0.03	1.42	189.22	0	01:25	0.85
MH40	JUNCTION	0.02	0.64	193.08	0	01:25	0.62
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:31	0.00
MH41	JUNCTION	0.02	1.94	194.71	0	01:24	1.15
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.02	1.57	194.59	0	01:24	1.26
MH42-S	JUNCTION	0.00	0.09	194.74	0	01:31	0.09
MH43	JUNCTION	0.01	1.64	195.08	0	01:24	0.99
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:24	0.01
MH54	JUNCTION	0.13	0.19	191.54	0	03:34	0.19
MH61	JUNCTION	0.00	0.13	191.62	0	01:26	0.13
MH62	JUNCTION	0.02	0.56	191.61	0	01:28	0.56
STMH201	JUNCTION	0.08	0.42	189.45	0	01:28	0.42
STMH201-S	JUNCTION	0.00	0.04	190.89	0	01:27	0.04
CAMPBELL	OUTFALL	0.00	0.00	189.49	0	00:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.16	0.90	188.18	0	01:24	0.90
OF1	OUTFALL	0.00	0.08	188.68	0	01:29	0.08

****
Node Inflow Summary
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		Maximum	Maximum		Lateral	Total	Flow

Node	Type	Lateral Inflow CMS	Total Inflow CMS	Time of Max Occurrence days	hr:min	Inflow Volume 10^6 ltr	Inflow Volume 10^6 ltr	Balance Error Percent	
CB_43A	JUNCTION	0.000	0.075	0	01:42	0	0.0803	-0.067	
CB_43B	JUNCTION	0.000	0.048	0	01:24	0	0.0531	0.012	
CB100	JUNCTION	0.000	0.050	0	01:23	0	0.0891	0.113	
CB101	JUNCTION	0.018	0.018	0	01:25	0.0314	0.0314	-0.000	
CB102	JUNCTION	0.089	0.089	0	01:25	0.157	0.157	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.203	0	01:25	0	0.262	0.075	
CB16	JUNCTION	0.000	1.036	0	01:27	0	7.95	0.003	
CB16-S	JUNCTION	0.128	0.128	0	01:25	0.204	0.204	-0.331	
CB19	JUNCTION	0.000	0.986	0	01:27	0	7.84	-0.005	
CB19-S	JUNCTION	0.033	0.035	0	01:25	0.0433	0.0434	-0.233	
CB32	JUNCTION	0.047	0.047	0	01:25	0.0732	0.0743	0.342	
CB4	JUNCTION	0.000	0.025	0	01:23	0	0.022	0.055	
CBMH100	JUNCTION	0.000	0.050	0	01:23	0	0.0903	0.047	
CBMH101	JUNCTION	0.000	0.854	0	01:27	0	7.49	-0.023	
CBMH101-S	JUNCTION	0.019	0.019	0	01:25	0.0224	0.0225	-0.149	
CBMH103	JUNCTION	0.000	0.585	0	01:27	0	1.54	0.019	
CBMH103-S	JUNCTION	0.049	0.049	0	01:25	0.0598	0.0598	-0.173	
CBMH105	JUNCTION	0.000	0.013	0	01:24	0	0.0144	-0.109	
CBMH30	JUNCTION	0.000	0.959	0	01:29	0	7.8	-0.005	
CBMH30-S	JUNCTION	0.045	0.089	0	01:25	0.0566	0.0596	-0.244	
CBMH31	JUNCTION	0.000	0.152	0	01:25	0	0.104	0.371	
DCB_40A	JUNCTION	0.000	0.040	0	01:25	0	0.073	2.293	
DCB_40B	JUNCTION	0.000	0.040	0	01:25	0	0.0731	2.309	
DCB_42A	JUNCTION	0.000	0.075	0	01:24	0	0.0793	-25.963	
DCB_42B	JUNCTION	0.000	0.100	0	01:24	0	0.159	5.206	
DCB65	JUNCTION	0.000	0.038	0	01:26	0	0.0458	9.641	
DCB66	JUNCTION	0.000	0.038	0	01:26	0	0.0459	9.619	
DICB100	JUNCTION	0.007	0.007	0	01:35	0.0113	0.0114	-0.003	
DICB101	JUNCTION	0.423	0.423	0	01:25	0.635	0.635	0.004	
DICB4	JUNCTION	0.002	0.002	0	01:30	0.00269	0.00269	0.013	
DICB6	JUNCTION	0.012	0.075	0	01:24	0.0187	0.0269	-0.047	
DICB7	JUNCTION	0.021	0.053	0	01:24	0.0203	0.0205	1.366	
DICB99	JUNCTION	0.002	0.013	0	01:30	0.00228	0.00563	0.042	
J1	JUNCTION	0.147	0.147	0	01:45	0.647	0.647	0.000	
J12	JUNCTION	0.000	0.908	0	01:27	0	7.78	-0.005	
J13	JUNCTION	0.150	1.032	0	01:27	0.239	8.02	0.008	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.315	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.058	0	01:27	0	0.0879	-0.107	
J17-S	JUNCTION	0.049	0.049	0	01:25	0.0661	0.0661	-27.964	
J2	JUNCTION	0.000	0.180	0	01:27	0	5.91	0.006	

MH102	JUNCTION	0.000	0.805	0	01:28	0	7.45	0.005	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	0.000103	4.321	
MH103	JUNCTION	0.064	0.090	0	01:25	0.096	5.76	0.598	
MH106	JUNCTION	0.101	0.496	0	01:25	0.198	1.38	-0.002	
MH106-S	JUNCTION	0.010	0.010	0	01:25	0.0116	0.0116	-0.175	
MH15	JUNCTION	0.000	0.153	0	01:25	0	0.164	0.001	
MH18	JUNCTION	0.000	0.047	0	01:24	0	0.0226	-0.880	
MH40	JUNCTION	0.000	0.267	0	01:25	0	0.549	-0.010	
MH40-S	JUNCTION	0.080	0.080	0	01:25	0.136	0.136	-6.936	
MH41	JUNCTION	0.000	0.192	0	01:31	0	0.405	-0.120	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.185	0	01:25	0	0.383	-0.577	
MH42-S	JUNCTION	0.147	0.147	0	01:25	0.241	0.241	0.946	
MH43	JUNCTION	0.000	0.089	0	01:24	0	0.125	0.286	
MH43-S	JUNCTION	0.074	0.074	0	01:25	0.106	0.106	-0.329	
MH54	JUNCTION	0.065	0.080	0	00:00	5.62	5.62	0.001	
MH61	JUNCTION	0.000	0.025	0	01:25	0	0.00317	1.446	
MH62	JUNCTION	0.000	0.556	0	01:27	0	1.48	-0.064	
STMH201	JUNCTION	0.000	0.898	0	01:28	0	7.67	0.020	
STMH201-S	JUNCTION	0.124	0.124	0	01:25	0.181	0.181	-0.325	
CAMPBELL	OUTFALL	0.000	0.147	0	01:45	0	0.647	0.000	
CB7	OUTFALL	0.000	0.177	0	01:30	0	0.261	0.000	
J14	OUTFALL	0.000	1.032	0	01:27	0	8.02	0.000	
OF1	OUTFALL	0.000	0.006	0	01:29	0	0.00262	0.000	

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.32	1.047	0.063
CB_43B	JUNCTION	0.30	0.891	0.000
CB16	JUNCTION	0.41	0.444	0.126
CB19	JUNCTION	0.32	0.995	0.000
CB32	JUNCTION	0.22	1.105	0.000
CB4	JUNCTION	0.39	1.025	0.000
CBMH30	JUNCTION	0.23	1.402	0.000
CBMH31	JUNCTION	0.13	1.225	0.000
DCB_42A	JUNCTION	0.31	1.235	0.000
DCB_42B	JUNCTION	0.31	0.973	0.037

DICB101	JUNCTION	0.82	0.362	0.000
DICB6	JUNCTION	0.30	0.451	0.000
DICB7	JUNCTION	0.27	0.935	0.000
J1	JUNCTION	48.00	0.000	0.500
J12	JUNCTION	0.29	0.265	0.000
J13	JUNCTION	0.29	0.056	0.594
J2	JUNCTION	0.29	0.133	0.000
MH103	JUNCTION	0.01	0.000	1.410
MH106	JUNCTION	0.24	0.097	0.978
MH15	JUNCTION	0.63	0.531	0.289
MH18	JUNCTION	0.43	1.116	0.000
MH40	JUNCTION	0.01	0.018	1.572
MH41	JUNCTION	0.33	1.357	0.123
MH42	JUNCTION	0.35	1.178	0.091
MH43	JUNCTION	0.30	0.945	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
CB19	0.01	0.103	0 01:25	0.000	0.255
CB32	0.01	0.019	0 01:25	0.000	0.255
CBMH30	0.01	0.187	0 01:25	0.000	0.255
CBMH31	0.01	0.107	0 01:25	0.000	0.255
DCB_42A	0.01	0.049	0 01:24	0.000	0.255
DICB101	0.82	0.295	0 01:25	0.148	0.147
DICB6	0.30	0.074	0 01:24	0.014	0.141
DICB7	0.01	0.040	0 01:24	0.000	0.255
J12	0.01	0.078	0 01:25	0.000	0.255

****
Outfall Loading Summary
****

	Flow Freq	Avg Flow	Max Flow	Total Volume

Outfall Node	Pcnt	CMS	CMS	10^6 ltr
CAMPBELL	10.10	0.051	0.147	0.647
CB7	16.67	0.011	0.177	0.261
J14	99.95	0.054	1.032	8.023
OF1	0.46	0.004	0.006	0.003
System	31.79	0.120	0.006	8.934

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	DUMMY	0.147	0 01:45			
C10	CONDUIT	0.959	0 01:29	2.03	1.36	1.00
C10-S	CHANNEL	0.000	0 01:25	0.51	0.00	0.03
C11	CONDUIT	0.986	0 01:27	2.09	0.86	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.17
C12	CONDUIT	0.153	0 01:25	2.17	0.83	1.00
C13	CONDUIT	0.908	0 01:27	2.06	2.25	1.00
C14	CONDUIT	0.906	0 01:27	1.42	1.53	1.00
C15	CONDUIT	1.032	0 01:27	1.62	1.59	1.00
C16	CONDUIT	0.153	0 01:25	2.42	0.81	0.84
C17	CONDUIT	0.037	0 01:24	0.64	0.39	1.00
C18	CONDUIT	0.033	0 01:23	0.48	0.34	1.00
C19	CONDUIT	0.048	0 01:25	0.68	1.13	1.00
C2	CONDUIT	0.177	0 01:58	1.61	1.44	1.00
C20	CONDUIT	0.084	0 01:25	2.14	0.52	1.00
C21	CONDUIT	0.050	0 01:23	2.24	0.28	0.38
C22	CONDUIT	0.052	0 01:27	0.67	0.02	0.40
C23	CONDUIT	0.012	0 01:29	0.20	0.13	0.82
C24	CONDUIT	0.016	0 01:30	0.24	0.10	0.93
C25	CONDUIT	0.497	0 01:25	2.35	1.60	0.94
C26	CONDUIT	0.089	0 01:25	1.68	0.21	0.72
C27	CONDUIT	0.040	0 01:25	2.25	0.15	0.63
C28	CONDUIT	0.269	0 01:25	1.69	1.15	1.00
C28-S	CHANNEL	0.000	0 01:25	0.00	0.00	0.02
C29	CONDUIT	0.040	0 01:25	0.92	0.07	0.59
C3	CONDUIT	0.002	0 01:30	1.38	0.00	0.04
C30	CONDUIT	0.018	0 01:25	0.41	0.07	0.59

C30_1	CONDUIT	0.064	0	01:24	0.91	0.49	1.00
C30_2	CONDUIT	0.075	0	01:42	1.06	0.77	1.00
C31	CONDUIT	0.046	0	01:24	1.17	0.52	1.00
C32	CONDUIT	0.088	0	01:38	1.24	1.18	1.00
C32-S	CHANNEL	0.000	0	01:24	0.26	0.00	0.27
C33	CONDUIT	0.071	0	01:24	1.73	0.40	1.00
C34	CONDUIT	0.115	0	01:24	2.31	0.34	1.00
C35	CONDUIT	0.183	0	01:38	1.65	1.38	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.26
C36	CONDUIT	0.035	0	01:24	0.91	0.38	1.00
C37	CONDUIT	0.191	0	01:31	1.73	1.62	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.09	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.82
C39_2	CONDUIT	0.180	0	01:27	1.22	1.06	1.00
C4	CONDUIT	0.018	0	01:25	0.42	0.06	0.71
C40	CONDUIT	0.026	0	01:27	0.33	0.01	0.40
C41	CONDUIT	0.025	0	01:25	0.31	0.01	0.40
C42	CONDUIT	0.177	0	01:30	1.51	1.17	0.88
C42_1	CONDUIT	0.025	0	01:25	0.23	0.05	0.40
C42_2	CONDUIT	0.058	0	01:28	0.56	0.11	0.65
C42_2-S	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C46	CONDUIT	0.006	0	01:29	0.13	0.03	0.28
C5	CONDUIT	0.547	0	01:27	1.83	1.04	0.81
C6	CONDUIT	0.633	0	01:28	2.08	1.20	0.82
C6-S	CHANNEL	0.000	0	01:25	0.31	0.00	0.04
C7	CONDUIT	0.838	0	01:27	3.36	1.37	0.67
C7-S	CHANNEL	0.000	0	01:26	0.46	0.00	0.03
C8	CONDUIT	0.799	0	01:28	3.35	0.61	0.62
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.09
C9	CONDUIT	0.883	0	01:29	2.56	0.66	0.84
C9-S	CHANNEL	0.011	0	01:27	1.54	0.00	0.10
CB_43A-IC	DUMMY	0.050	0	01:24			
CB100-IC	DUMMY	0.050	0	01:23			
CB16-IC	DUMMY	0.050	0	01:23			
CB19-IC	DUMMY	0.024	0	01:25			
CB4-IC	DUMMY	0.023	0	01:25			
CBMH101-IC	DUMMY	0.019	0	01:25			
CBMH30-IC	DUMMY	0.050	0	01:25			
CBMH31-IC	DUMMY	0.042	0	01:25			
DCB_40A-IC	DUMMY	0.040	0	01:25			
DCB_42A-IC	DUMMY	0.075	0	01:24			

DCB66-IC	DUMMY	0.038	0	01:26
J17-IC	DUMMY	0.038	0	01:26
MH40-IC	DUMMY	0.040	0	01:25
MH42-IC	DUMMY	0.100	0	01:24
MH43-IC	DUMMY	0.048	0	01:24
OL1	DUMMY	0.010	0	01:25
OL2	DUMMY	0.048	0	01:25
OL3	DUMMY	0.050	0	01:23
STMH201-IC	DUMMY	0.050	0	01:23

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C10	1.00	0.00	0.00	0.00	0.20	0.80	0.00	0.00	0.01	0.00
C10-S	1.00	0.89	0.00	0.00	0.10	0.01	0.00	0.00	0.96	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.82	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.59	0.00	0.41	0.00	0.00	0.00	0.65	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C16	1.00	0.94	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.03	0.44	0.00	0.52	0.00	0.00	0.00	0.96	0.00
C18	1.00	0.00	0.23	0.00	0.77	0.00	0.00	0.00	0.33	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.99	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.02	0.00	0.95	0.00	0.03	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.95	0.00
C24	1.00	0.00	0.43	0.00	0.57	0.00	0.00	0.00	0.53	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.98	0.00
C27	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.01	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C28-S	1.00	0.84	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.02	0.00	0.94	0.03	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00

C30_1	1.00	0.01	0.17	0.00	0.82	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.02	0.00	0.96	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.01	0.00
C33	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.98	0.00	0.00
C34	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.85	0.00
C37-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.35	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C40	1.00	0.01	0.49	0.00	0.50	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.95	0.00	0.05	0.00	0.00	0.00	0.97	0.00
C42_2	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.01	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.06	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.05	0.00	0.08	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C5	1.00	0.01	0.00	0.00	0.50	0.00	0.00	0.50	0.42	0.00
C6	1.00	0.00	0.00	0.00	0.91	0.00	0.00	0.09	0.16	0.00
C6-S	1.00	0.01	0.87	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.08	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C8-S	1.00	0.85	0.05	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.01	0.01	0.00	0.99	0.01	0.00
C9-S	1.00	0.85	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited

C10	0.29	0.29	0.32	0.27	0.25
C11	0.32	0.32	0.50	0.01	0.01
C12	0.84	0.84	1.16	0.01	0.01
C13	0.40	0.41	0.40	0.61	0.33
C14	0.29	0.29	0.29	0.35	0.29
C15	0.29	0.29	0.36	0.37	0.29
C16	0.01	0.01	46.62	0.01	0.01
C17	0.39	0.39	0.43	0.01	0.01
C18	0.43	0.43	0.46	0.01	0.01
C19	0.21	0.22	0.23	0.05	0.05
C2	0.53	0.82	0.53	0.82	0.53
C20	0.13	0.13	0.28	0.01	0.01
C23	0.01	0.01	0.08	0.01	0.01
C24	0.01	0.01	0.08	0.01	0.01
C25	0.01	0.24	0.01	0.45	0.01
C26	0.01	0.01	0.63	0.01	0.01
C27	0.01	0.01	0.01	0.01	0.01
C28	0.34	0.34	0.38	0.22	0.22
C29	0.01	0.01	0.73	0.01	0.01
C30	0.01	0.01	0.63	0.01	0.01
C30_1	0.30	0.30	0.32	0.01	0.01
C30_2	0.32	0.32	0.33	0.01	0.01
C31	0.30	0.30	0.30	0.01	0.01
C32	0.33	0.33	0.36	0.08	0.08
C33	0.31	0.31	0.35	0.01	0.01
C34	0.31	0.31	0.35	0.01	0.01
C35	0.35	0.35	0.37	0.34	0.32
C36	0.27	0.27	0.33	0.01	0.01
C37	0.38	0.38	0.43	0.37	0.37
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.29	0.01	0.01
C39_2	0.29	0.29	0.35	0.08	0.06
C42	0.01	0.13	0.01	0.19	0.01
C43	0.01	0.01	0.01	0.01	0.01
C5	0.01	0.01	0.01	0.07	0.01
C6	0.01	0.01	0.01	0.14	0.01
C7	0.01	0.01	0.01	0.24	0.01
C9	0.01	0.01	0.23	0.01	0.01

Analysis begun on: Wed Dec 11 13:09:15 2019
Analysis ended on: Wed Dec 11 13:09:28 2019
Total elapsed time: 00:00:13

Existing Condition - Including Huronia Rd. - 100 Year Chicago 4 hr Storm

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 25
Number of nodes ........... 66
Number of links ........... 82
Number of pollutants ...... 0
Number of land uses ....... 0


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Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
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A1                           1.56     66.72       3.40    2.4000 Chicago_4h_100yr     J1
A100                         2.11     98.17      37.00    1.7000 Chicago_4h_100yr     DICB101
A101                         1.08     64.95      14.00    2.7500 Chicago_4h_100yr     MH106
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A102	0.31	37.80	38.00	1.0000	Chicago_4h_100yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_100yr	DICB6
A104	0.62	62.28	48.00	0.1600	Chicago_4h_100yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_100yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_100yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_100yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_100yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_100yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_100yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_100yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_100yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_100yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_100yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_100yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_100yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_100yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_100yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_100yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_100yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_100yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_100yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_100yr	A1

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	

CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	
DCB65	JUNCTION	191.23	3.40	0.0	
DCB66	JUNCTION	191.23	3.40	0.0	
DICB100	JUNCTION	190.63	1.22	0.0	
DICB101	JUNCTION	192.76	0.59	1000.0	
DICB4	JUNCTION	192.24	1.26	0.0	
DICB6	JUNCTION	193.68	0.61	100.0	
DICB7	JUNCTION	193.19	0.98	0.0	
DICB99	JUNCTION	190.56	1.83	0.0	
J1	JUNCTION	189.50	0.50	0.0	
J12	JUNCTION	187.36	0.91	0.0	
J13	JUNCTION	187.29	1.55	0.0	
J15	JUNCTION	192.31	0.38	0.0	
J16	JUNCTION	192.21	0.38	0.0	
J17	JUNCTION	191.20	3.55	0.0	
J17-S	JUNCTION	194.63	0.20	0.0	
J2	JUNCTION	190.72	0.46	0.0	
MH102	JUNCTION	190.65	2.76	0.0	
MH102-S	JUNCTION	193.27	0.26	0.0	
MH103	JUNCTION	191.05	1.93	0.0	
MH106	JUNCTION	192.40	1.60	0.0	
MH106-S	JUNCTION	194.47	0.26	0.0	
MH15	JUNCTION	187.53	1.19	0.0	
MH18	JUNCTION	187.80	1.33	0.0	
MH40	JUNCTION	192.44	2.21	0.0	
MH40-S	JUNCTION	194.56	0.26	0.0	
MH41	JUNCTION	192.77	2.06	0.0	
MH41-S	JUNCTION	194.83	0.26	0.0	
MH42	JUNCTION	193.02	1.66	0.0	
MH42-S	JUNCTION	194.65	0.26	0.0	
MH43	JUNCTION	193.44	1.53	0.0	
MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	

CAMPBELL	OUTFALL	189.49	0.00	0.0
CB7	OUTFALL	186.85	0.42	0.0
J14	OUTFALL	187.28	0.90	0.0
OF1	OUTFALL	188.60	0.30	0.0

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	J1	CAMPBELL	CONDUIT	4.8	0.2101	0.0130
C10	CBMH30	CB19	CONDUIT	60.7	0.3544	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	57.9	1.2347	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	15.8	0.1901	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	8.9	2.8180	0.0130
C21	CB100	CBMH100	CONDUIT	6.8	3.5363	0.0130
C22	CBMH100	STMH201	CONDUIT	1.9	-1.6071	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100
C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130

C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	76.0	2.6843	0.0100
C9	STMH201	CBMH30	CONDUIT	77.0	1.2720	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	77.5	1.3460	0.0100
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			

STMH201-IC STMH201-S STMH201 OUTLET

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	DUMMY	0.00	0.00	0.00	0.00	1	0.00
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.71
C10-S	Street2	0.25	2.94	0.11	26.00	1	7.58
C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.04
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	3.04
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09

C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	11.17
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.34
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.91

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Transect Summary
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Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081
0.0107	0.0141	0.0183	0.0233	0.0291
0.0357	0.0431	0.0513	0.0606	0.0714
0.0837	0.0975	0.1128	0.1295	0.1478
0.1676	0.1889	0.2116	0.2359	0.2616
0.2889	0.3176	0.3478	0.3796	0.4127
0.4466	0.4813	0.5167	0.5529	0.5898
0.6274	0.6658	0.7050	0.7449	0.7855
0.8269	0.8691	0.9120	0.9556	1.0000

Hrad:

0.0220 0.0439 0.0659 0.0878 0.1098
0.1317 0.1537 0.1756 0.1960 0.1619
0.1576 0.1645 0.1766 0.1918 0.2088
0.2271 0.2461 0.2658 0.2688 0.2758
0.2864 0.2994 0.3142 0.3302 0.3473
0.3651 0.3836 0.4025 0.4219 0.4416
0.4616 0.4818 0.5023 0.5229 0.5504
0.5827 0.6145 0.6460 0.6771 0.7078
0.7383 0.7684 0.7982 0.8277 0.8570
0.8861 0.9149 0.9435 0.9718 1.0000

Width:

0.0035 0.0069 0.0104 0.0138 0.0173
0.0208 0.0242 0.0277 0.0314 0.0492
0.0671 0.0849 0.1028 0.1206 0.1385
0.1563 0.1742 0.1920 0.2246 0.2580
0.2914 0.3248 0.3582 0.3916 0.4250
0.4584 0.4918 0.5252 0.5586 0.5920
0.6254 0.6588 0.6922 0.7256 0.7495
0.7662 0.7829 0.7996 0.8163 0.8330
0.8497 0.8664 0.8831 0.8998 0.9165
0.9332 0.9499 0.9666 0.9833 1.0000

Transect Street2

Area:

0.0001 0.0004 0.0009 0.0017 0.0026
0.0041 0.0064 0.0096 0.0137 0.0186
0.0243 0.0309 0.0384 0.0467 0.0559
0.0659 0.0768 0.0886 0.1012 0.1147
0.1290 0.1441 0.1602 0.1771 0.1948
0.2134 0.2328 0.2532 0.2743 0.2963
0.3202 0.3457 0.3729 0.4018 0.4324
0.4643 0.4970 0.5306 0.5651 0.6003
0.6365 0.6735 0.7113 0.7500 0.7895
0.8299 0.8712 0.9133 0.9562 1.0000

Hrad:

0.0210 0.0420 0.0630 0.0840 0.1050
0.0922 0.1006 0.1154 0.1328 0.1518
0.1715 0.1918 0.2125 0.2334 0.2545
0.2757 0.2971 0.3185 0.3400 0.3616
0.3832 0.4049 0.4266 0.4483 0.4700
0.4918 0.5136 0.5354 0.5572 0.5790
0.5703 0.5766 0.5848 0.5945 0.6057
0.6334 0.6609 0.6881 0.7151 0.7418
0.7684 0.7947 0.8209 0.8469 0.8728
0.8985 0.9240 0.9495 0.9748 1.0000

Width:

```
            0.0047     0.0095     0.0142     0.0190     0.0237
            0.0431     0.0624     0.0818     0.1012     0.1205
            0.1399     0.1592     0.1786     0.1979     0.2173
            0.2367     0.2560     0.2754     0.2947     0.3141
            0.3335     0.3528     0.3722     0.3915     0.4109
            0.4303     0.4496     0.4690     0.4883     0.5077
            0.5577     0.5962     0.6346     0.6731     0.7115
            0.7308     0.7500     0.7692     0.7885     0.8077
            0.8269     0.8462     0.8654     0.8846     0.9038
            0.9231     0.9423     0.9615     0.9808     1.0000

************************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
************************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 4
Head Tolerance ........... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.784	71.774
Evaporation Loss	0.000	0.000
Infiltration Loss	0.401	36.742
Surface Runoff	0.380	34.833
Final Storage	0.006	0.584
Continuity Error (%)	-0.537	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.380	3.804
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.050	0.504
External Outflow	0.440	4.396
Flooding Loss	0.000	0.001
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-2.049	

Highest Continuity Errors

Node DCB_42A (-46.32%)
Node MH40-S (-13.00%)
Node DCB65 (8.55%)
Node DCB66 (8.53%)
Node DCB_42B (7.61%)

Time-Step Critical Elements

Link C13 (52.53%)
Link C34 (44.40%)
Link C26 (2.55%)

****
Highest Flow Instability Indexes
****
Link J17-IC (55)
Link DCB66-IC (55)
Link DCB_40A-IC (36)
Link MH40-IC (36)
Link DCB_42A-IC (28)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 2.21 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : -0.00
Average Iterations per Step : 2.19
Percent Not Converging : 2.49

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A1	71.77	20.69	0.00	43.09	3.08	49.52	49.52	0.77	0.18	0.536
A100	71.77	0.00	0.00	36.54	26.04	8.82	34.86	0.74	0.48	0.486
A101	71.77	0.00	0.00	49.08	9.79	12.86	22.65	0.25	0.12	0.316
A102	71.77	0.00	0.00	32.53	26.66	12.31	38.97	0.12	0.08	0.543
A103	71.77	0.00	0.00	42.90	10.49	18.89	29.38	0.02	0.01	0.409
A104	71.77	0.00	0.00	27.40	33.81	10.03	43.85	0.27	0.17	0.611
A105	71.77	0.00	0.00	41.21	9.79	22.88	32.67	0.02	0.03	0.455
A106	71.77	0.00	0.00	22.38	42.25	6.45	48.69	0.15	0.09	0.678
A107	71.77	0.00	0.00	0.00	69.91	0.00	69.91	0.01	0.01	0.974
A108	71.77	0.00	0.00	48.98	0.00	24.38	24.38	0.00	0.00	0.340
A109	71.77	0.00	0.00	10.49	55.65	4.81	60.46	0.07	0.05	0.842
A110	71.77	0.00	0.00	0.00	70.34	0.00	70.34	0.07	0.05	0.980
A111	71.77	0.00	0.00	36.73	21.01	13.90	34.91	0.11	0.07	0.486
A112_1	71.77	0.00	0.00	47.14	12.58	11.95	24.53	0.19	0.10	0.342
A112_3	71.77	0.00	0.00	47.14	12.58	11.95	24.53	0.04	0.02	0.342
A113	71.77	0.00	0.00	48.48	0.00	25.32	25.32	0.00	0.00	0.353

A114	71.77	0.00	0.00	0.00	70.05	0.00	70.05	0.02	0.02	0.976
A115	71.77	0.00	0.00	53.15	0.00	19.10	19.10	0.01	0.01	0.266
A116	71.77	0.00	0.00	17.85	46.50	6.74	53.24	0.20	0.14	0.742
A117	71.77	0.00	0.00	38.10	20.34	13.16	33.50	0.09	0.05	0.467
A118	71.77	0.00	0.00	17.47	45.68	8.04	53.72	0.06	0.05	0.748
A119	71.77	0.00	0.00	28.14	30.81	12.61	43.42	0.05	0.04	0.605
A120	71.77	0.00	0.00	15.39	50.00	5.57	55.57	0.23	0.15	0.774
A121	71.77	0.00	0.00	43.98	17.56	9.99	27.55	0.28	0.17	0.384
A3	71.77	0.00	0.00	32.36	5.59	39.70	39.70	0.32	0.14	0.553

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.04	1.41	194.94	0 01:24	0.97
CB_43B	JUNCTION	0.02	1.27	195.12	0 01:24	0.65
CB100	JUNCTION	0.01	0.11	189.68	0 01:30	0.11
CB101	JUNCTION	0.01	0.09	191.32	0 01:28	0.08
CB102	JUNCTION	0.01	0.16	191.39	0 01:27	0.15
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.03	0.53	187.81	0 01:30	0.53
CB16	JUNCTION	0.12	1.20	188.56	0 01:24	1.06
CB16-S	JUNCTION	0.00	0.11	188.79	0 01:30	0.11
CB19	JUNCTION	0.07	1.60	189.35	0 01:24	1.00
CB19-S	JUNCTION	0.00	0.01	189.10	0 01:25	0.00
CB32	JUNCTION	0.15	1.40	189.81	0 01:25	0.90
CB4	JUNCTION	0.03	1.32	189.19	0 01:24	0.88
CBMH100	JUNCTION	0.07	0.56	189.59	0 01:28	0.56
CBMH101	JUNCTION	0.04	0.33	190.82	0 01:28	0.33
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.06	0.60	191.33	0 01:27	0.58
CBMH103-S	JUNCTION	0.00	0.02	193.37	0 01:25	0.02
CBMH105	JUNCTION	0.01	0.27	191.66	0 01:27	0.26
CBMH30	JUNCTION	0.08	2.10	190.06	0 01:25	1.26
CBMH30-S	JUNCTION	0.00	0.01	189.82	0 01:25	0.01
CBMH31	JUNCTION	0.17	1.68	190.06	0 01:25	0.89
DCB_40A	JUNCTION	0.01	0.08	193.38	0 01:25	0.08
DCB_40B	JUNCTION	0.01	0.06	193.32	0 01:25	0.06
DCB_42A	JUNCTION	0.02	1.53	194.91	0 01:23	0.59
DCB_42B	JUNCTION	0.03	1.26	194.60	0 01:24	1.05

DCB65	JUNCTION	0.02	0.42	191.65	0	01:27	0.41
DCB66	JUNCTION	0.02	0.42	191.65	0	01:27	0.41
DICB100	JUNCTION	0.01	0.19	190.82	0	01:25	0.19
DICB101	JUNCTION	0.08	0.79	193.55	0	01:44	0.79
DICB4	JUNCTION	0.00	0.02	192.26	0	01:30	0.02
DICB6	JUNCTION	0.02	0.83	194.51	0	01:36	0.83
DICB7	JUNCTION	0.02	1.24	194.43	0	01:23	0.77
DICB99	JUNCTION	0.02	0.28	190.84	0	01:31	0.26
J1	JUNCTION	0.00	0.00	189.50	0	00:00	0.00
J12	JUNCTION	0.12	1.17	188.52	0	01:24	1.04
J13	JUNCTION	0.12	0.97	188.26	0	01:24	0.92
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.03	0.45	191.64	0	01:27	0.44
J17-S	JUNCTION	0.00	0.01	194.64	0	01:25	0.00
J2	JUNCTION	0.07	0.62	191.34	0	01:27	0.60
MH102	JUNCTION	0.08	0.62	191.27	0	01:27	0.60
MH102-S	JUNCTION	0.00	0.02	193.29	0	01:26	0.02
MH103	JUNCTION	0.05	0.52	191.57	0	00:00	0.35
MH106	JUNCTION	0.07	0.64	193.04	0	01:25	0.64
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.06	0.90	188.43	0	01:24	0.79
MH18	JUNCTION	0.05	1.41	189.21	0	01:24	0.95
MH40	JUNCTION	0.06	0.66	193.10	0	01:25	0.66
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:25	0.00
MH41	JUNCTION	0.06	2.09	194.86	0	01:23	1.20
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.06	1.57	194.59	0	01:24	1.29
MH42-S	JUNCTION	0.00	0.11	194.76	0	01:33	0.11
MH43	JUNCTION	0.04	1.76	195.20	0	01:24	1.06
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:24	0.01
MH54	JUNCTION	0.04	0.19	191.54	0	03:34	0.19
MH61	JUNCTION	0.00	0.16	191.65	0	01:26	0.16
MH62	JUNCTION	0.06	0.60	191.65	0	01:28	0.59
STMH201	JUNCTION	0.05	0.56	189.59	0	01:28	0.56
STMH201-S	JUNCTION	0.00	0.05	190.90	0	01:27	0.05
CAMPBELL	OUTFALL	0.00	0.00	189.49	0	00:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.12	0.90	188.18	0	01:23	0.90
OF1	OUTFALL	0.00	0.11	188.71	0	01:30	0.11

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.085	0	01:44	0	0.0981	0.154	
CB_43B	JUNCTION	0.000	0.050	0	01:24	0	0.0618	0.336	
CB100	JUNCTION	0.000	0.050	0	01:23	0	0.0981	0.315	
CB101	JUNCTION	0.021	0.021	0	01:25	0.0386	0.0386	0.001	
CB102	JUNCTION	0.103	0.103	0	01:25	0.194	0.194	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.207	0	01:25	0	0.312	0.221	
CB16	JUNCTION	0.000	1.124	0	01:28	0	3.22	0.021	
CB16-S	JUNCTION	0.145	0.145	0	01:25	0.227	0.227	-1.738	
CB19	JUNCTION	0.000	1.074	0	01:28	0	3.11	-0.018	
CB19-S	JUNCTION	0.038	0.063	0	01:25	0.0495	0.0495	-0.412	
CB32	JUNCTION	0.054	0.054	0	01:25	0.086	0.0874	0.280	
CB4	JUNCTION	0.000	0.029	0	01:23	0	0.0251	-0.120	
CBMH100	JUNCTION	0.000	0.051	0	01:28	0	0.0981	0.035	
CBMH101	JUNCTION	0.000	0.913	0	01:27	0	2.71	-0.068	
CBMH101-S	JUNCTION	0.021	0.022	0	01:25	0.0245	0.0247	-0.242	
CBMH103	JUNCTION	0.000	0.625	0	01:27	0	1.8	0.013	
CBMH103-S	JUNCTION	0.054	0.054	0	01:25	0.0655	0.0655	-0.375	
CBMH105	JUNCTION	0.000	0.018	0	01:24	0	0.0163	-0.133	
CBMH30	JUNCTION	0.000	1.043	0	01:28	0	3.06	-0.010	
CBMH30-S	JUNCTION	0.051	0.090	0	01:25	0.0633	0.0713	-0.563	
CBMH31	JUNCTION	0.000	0.147	0	01:25	0	0.123	0.383	
DCB_40A	JUNCTION	0.000	0.045	0	01:25	0	0.0864	3.619	
DCB_40B	JUNCTION	0.000	0.045	0	01:25	0	0.0865	3.637	
DCB_42A	JUNCTION	0.000	0.100	0	01:23	0	0.0802	-31.656	
DCB_42B	JUNCTION	0.000	0.100	0	01:23	0	0.199	8.240	
DCB65	JUNCTION	0.000	0.040	0	01:25	0	0.0514	9.347	
DCB66	JUNCTION	0.000	0.040	0	01:25	0	0.0515	9.331	
DICB100	JUNCTION	0.009	0.009	0	01:35	0.0149	0.0149	-0.010	
DICB101	JUNCTION	0.477	0.477	0	01:25	0.736	0.736	-0.007	
DICB4	JUNCTION	0.003	0.003	0	01:30	0.00336	0.00336	0.011	
DICB6	JUNCTION	0.015	0.088	0	01:24	0.0226	0.0357	-0.113	
DICB7	JUNCTION	0.026	0.047	0	01:23	0.0241	0.0244	1.547	
DICB99	JUNCTION	0.003	0.017	0	01:31	0.00284	0.00714	0.050	
J1	JUNCTION	0.181	0.181	0	01:45	0.773	0.773	0.000	
J12	JUNCTION	0.000	0.987	0	01:28	0	3.02	-0.016	
J13	JUNCTION	0.169	1.125	0	01:27	0.285	3.3	0.016	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.315	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.061	0	01:29	0	0.0995	-0.102	

J17-S	JUNCTION	0.055	0.055	0	01:25	0.0732	0.0732	-28.799	
J2	JUNCTION	0.000	0.211	0	01:27	0	0.862	0.053	
MH102	JUNCTION	0.000	0.880	0	01:27	0	2.66	0.008	
MH102-S	JUNCTION	0.000	0.002	0	01:25	0	0.000219	3.272	
MH103	JUNCTION	0.074	0.101	0	01:25	0.112	0.666	5.417	
MH106	JUNCTION	0.118	0.521	0	01:25	0.246	1.62	-0.001	
MH106-S	JUNCTION	0.011	0.011	0	01:25	0.0127	0.0127	-0.231	
MH15	JUNCTION	0.000	0.157	0	01:25	0	0.202	0.001	
MH18	JUNCTION	0.000	0.048	0	01:23	0	0.0257	-0.776	
MH40	JUNCTION	0.000	0.280	0	01:25	0	0.643	-0.009	
MH40-S	JUNCTION	0.090	0.090	0	01:25	0.153	0.153	-11.506	
MH41	JUNCTION	0.000	0.193	0	01:31	0	0.476	-0.056	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.186	0	01:44	0	0.447	-1.040	
MH42-S	JUNCTION	0.166	0.166	0	01:25	0.273	0.273	-2.316	
MH43	JUNCTION	0.000	0.103	0	01:24	0	0.146	0.322	
MH43-S	JUNCTION	0.085	0.085	0	01:25	0.122	0.122	-1.198	
MH54	JUNCTION	0.070	0.080	0	00:00	0.504	0.506	-0.003	
MH61	JUNCTION	0.000	0.030	0	01:25	0	0.00407	1.266	
MH62	JUNCTION	0.000	0.586	0	01:26	0	1.74	-0.091	
STMH201	JUNCTION	0.000	0.984	0	01:28	0	2.9	0.054	
STMH201-S	JUNCTION	0.140	0.140	0	01:25	0.202	0.202	-1.062	
CAMPBELL	OUTFALL	0.000	0.181	0	01:45	0	0.773	0.000	
CB7	OUTFALL	0.000	0.186	0	01:31	0	0.312	0.000	
J14	OUTFALL	0.000	1.125	0	01:27	0	3.3	0.000	
OF1	OUTFALL	0.000	0.013	0	01:30	0	0.00715	0.000	

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.42	1.108	0.002
CB_43B	JUNCTION	0.41	0.974	0.000
CB16	JUNCTION	0.49	0.446	0.124
CB19	JUNCTION	0.40	0.995	0.000
CB32	JUNCTION	0.29	1.105	0.000
CB4	JUNCTION	0.48	1.023	0.000
CBMH30	JUNCTION	0.31	1.402	0.000
CBMH31	JUNCTION	0.21	1.225	0.000

DCB_42A	JUNCTION	0.38	1.235	0.000
DCB_42B	JUNCTION	0.40	0.960	0.050
DICB101	JUNCTION	0.99	0.411	0.000
DICB6	JUNCTION	0.41	0.527	0.000
DICB7	JUNCTION	0.34	0.935	0.000
J1	JUNCTION	48.00	0.000	0.500
J12	JUNCTION	0.37	0.265	0.000
J13	JUNCTION	0.38	0.070	0.580
J2	JUNCTION	0.38	0.168	0.000
MH103	JUNCTION	0.01	0.000	1.410
MH106	JUNCTION	0.34	0.117	0.958
MH15	JUNCTION	0.72	0.533	0.287
MH18	JUNCTION	0.51	1.108	0.000
MH40	JUNCTION	0.15	0.041	1.549
MH41	JUNCTION	0.43	1.509	0.000
MH42	JUNCTION	0.45	1.177	0.092
MH43	JUNCTION	0.41	1.065	0.000

****
Node Flooding Summary
****

Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
CB19	0.01	0.118	0 01:24	0.000	0.255
CB32	0.01	0.018	0 01:25	0.000	0.255
CBMH30	0.01	0.216	0 01:25	0.000	0.255
CBMH31	0.01	0.111	0 01:25	0.000	0.255
DCB_42A	0.01	0.032	0 01:23	0.000	0.255
DICB101	0.99	0.354	0 01:25	0.197	0.196
DICB6	0.41	0.087	0 01:24	0.022	0.217
DICB7	0.01	0.032	0 01:23	0.000	0.255
J12	0.01	0.088	0 01:24	0.001	0.255

****
Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CAMPBELL	26.84	0.066	0.181	0.773
CB7	42.14	0.015	0.186	0.312
J14	66.10	0.110	1.125	3.304
OF1	1.87	0.008	0.013	0.007
System	34.23	0.198	0.013	4.396

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	DUMMY	0.181	0 01:45			
C10	CONDUIT	1.043	0 01:28	2.21	1.48	1.00
C10-S	CHANNEL	0.000	0 01:25	0.51	0.00	0.04
C11	CONDUIT	1.074	0 01:28	2.27	0.93	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.23
C12	CONDUIT	0.157	0 01:25	2.22	0.85	1.00
C13	CONDUIT	0.987	0 01:28	2.23	2.44	1.00
C14	CONDUIT	0.985	0 01:28	1.55	1.66	1.00
C15	CONDUIT	1.125	0 01:27	1.77	1.73	1.00
C16	CONDUIT	0.157	0 01:25	2.46	0.83	0.85
C17	CONDUIT	0.043	0 01:23	0.74	0.45	1.00
C18	CONDUIT	0.038	0 01:23	0.56	0.39	1.00
C19	CONDUIT	0.057	0 01:25	0.81	1.36	1.00
C2	CONDUIT	0.182	0 02:04	1.65	1.47	1.00
C20	CONDUIT	0.102	0 01:25	2.17	0.63	1.00
C21	CONDUIT	0.051	0 01:28	2.20	0.28	0.62
C22	CONDUIT	0.058	0 01:31	0.67	0.02	0.55
C23	CONDUIT	0.014	0 01:38	0.25	0.16	0.82
C24	CONDUIT	0.020	0 01:31	0.30	0.12	0.96
C25	CONDUIT	0.521	0 01:25	2.45	1.68	0.95
C26	CONDUIT	0.106	0 01:25	1.88	0.25	0.77
C27	CONDUIT	0.045	0 01:25	2.28	0.17	0.64
C28	CONDUIT	0.281	0 01:25	1.76	1.20	1.00
C28-S	CHANNEL	0.000	0 01:25	0.00	0.00	0.02
C29	CONDUIT	0.045	0 01:25	1.03	0.08	0.59

C3	CONDUIT	0.003	0	01:30	1.47	0.00	0.04
C30	CONDUIT	0.024	0	01:28	0.53	0.09	0.65
C30_1	CONDUIT	0.076	0	01:24	1.07	0.58	1.00
C30_2	CONDUIT	0.084	0	01:44	1.19	0.87	1.00
C31	CONDUIT	0.051	0	01:24	1.18	0.57	1.00
C32	CONDUIT	0.098	0	01:44	1.38	1.32	1.00
C32-S	CHANNEL	0.000	0	01:24	0.26	0.00	0.35
C33	CONDUIT	0.085	0	01:24	1.73	0.48	1.00
C34	CONDUIT	0.110	0	01:44	2.32	0.32	1.00
C35	CONDUIT	0.185	0	01:41	1.68	1.40	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.34
C36	CONDUIT	0.028	0	01:23	0.94	0.30	1.00
C37	CONDUIT	0.192	0	01:31	1.74	1.63	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.11	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.89
C39_2	CONDUIT	0.211	0	01:27	1.33	1.24	1.00
C4	CONDUIT	0.024	0	01:24	0.42	0.08	0.79
C40	CONDUIT	0.029	0	01:26	0.31	0.01	0.43
C41	CONDUIT	0.029	0	01:26	0.30	0.02	0.43
C42	CONDUIT	0.186	0	01:31	1.58	1.23	0.89
C42_1	CONDUIT	0.030	0	01:25	0.26	0.06	0.44
C42_2	CONDUIT	0.060	0	01:30	0.57	0.11	0.70
C42_2-S	CHANNEL	0.000	0	01:24	0.04	0.00	0.02
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.04
C46	CONDUIT	0.013	0	01:30	0.16	0.07	0.37
C5	CONDUIT	0.583	0	01:27	1.83	1.10	0.86
C6	CONDUIT	0.671	0	01:27	2.13	1.27	0.85
C6-S	CHANNEL	0.002	0	01:25	0.48	0.00	0.07
C7	CONDUIT	0.889	0	01:27	3.44	1.45	0.70
C7-S	CHANNEL	0.001	0	01:26	0.78	0.00	0.04
C8	CONDUIT	0.886	0	01:28	3.39	0.67	0.76
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.11
C9	CONDUIT	0.946	0	01:30	2.55	0.71	0.96
C9-S	CHANNEL	0.024	0	01:27	1.95	0.00	0.12
CB_43A-IC	DUMMY	0.050	0	01:24			
CB100-IC	DUMMY	0.050	0	01:23			
CB16-IC	DUMMY	0.050	0	01:23			
CB19-IC	DUMMY	0.029	0	01:25			
CB4-IC	DUMMY	0.027	0	01:25			
CBMH101-IC	DUMMY	0.021	0	01:25			
CBMH30-IC	DUMMY	0.050	0	01:25			
CBMH31-IC	DUMMY	0.048	0	01:25			

DCB_40A-IC	DUMMY	0.045	0	01:25
DCB_42A-IC	DUMMY	0.100	0	01:23
DCB66-IC	DUMMY	0.040	0	01:25
J17-IC	DUMMY	0.040	0	01:25
MH40-IC	DUMMY	0.045	0	01:25
MH42-IC	DUMMY	0.100	0	01:23
MH43-IC	DUMMY	0.050	0	01:24
OL1	DUMMY	0.011	0	01:25
OL2	DUMMY	0.050	0	01:24
OL3	DUMMY	0.050	0	01:23
STMH201-IC	DUMMY	0.050	0	01:23

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C10	1.00	0.00	0.00	0.00	0.75	0.25	0.00	0.00	0.01	0.00
C10-S	1.00	0.68	0.01	0.00	0.28	0.03	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.60	0.10	0.00	0.30	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.72	0.00	0.28	0.00	0.00	0.00	0.92	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.85	0.00
C16	1.00	0.78	0.17	0.00	0.00	0.00	0.05	0.00	0.00	0.00
C17	1.00	0.00	0.02	0.00	0.97	0.01	0.00	0.00	0.23	0.00
C18	1.00	0.00	0.26	0.00	0.74	0.00	0.00	0.00	0.90	0.00
C19	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.03	0.00	0.00	0.03	0.00	0.00	0.93	0.00	0.00
C21	1.00	0.02	0.00	0.00	0.00	0.01	0.00	0.97	0.00	0.00
C22	1.00	0.00	0.15	0.00	0.32	0.00	0.53	0.00	0.00	0.00
C23	1.00	0.00	0.83	0.00	0.17	0.00	0.00	0.00	0.95	0.00
C24	1.00	0.00	0.70	0.00	0.30	0.00	0.00	0.00	0.93	0.00
C25	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C26	1.00	0.00	0.02	0.00	0.95	0.02	0.00	0.00	0.98	0.00
C27	1.00	0.02	0.00	0.00	0.03	0.01	0.00	0.94	0.01	0.00
C28	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.93	0.00
C28-S	1.00	0.62	0.03	0.00	0.33	0.02	0.00	0.00	0.00	0.00
C29	1.00	0.02	0.09	0.00	0.86	0.03	0.00	0.00	0.99	0.00

C3	1.00	0.08	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00
C30	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.02	0.39	0.00	0.59	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.02	0.00	0.00	0.04	0.05	0.00	0.89	0.00	0.00
C31	1.00	0.02	0.00	0.00	0.03	0.00	0.00	0.95	0.00	0.00
C32	1.00	0.02	0.00	0.00	0.14	0.00	0.00	0.84	0.02	0.00
C32-S	1.00	0.62	0.07	0.00	0.31	0.00	0.00	0.00	0.98	0.00
C33	1.00	0.02	0.00	0.00	0.03	0.01	0.00	0.93	0.00	0.00
C34	1.00	0.02	0.00	0.00	0.03	0.03	0.00	0.92	0.01	0.00
C35	1.00	0.02	0.00	0.00	0.04	0.00	0.00	0.94	0.00	0.00
C35-S	1.00	0.63	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.02	0.00	0.00	0.03	0.00	0.00	0.95	0.00	0.00
C37	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.89	0.00
C37-S	1.00	0.65	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.03	0.00	0.00	0.97	0.01	0.00
C39	1.00	0.02	0.98	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.02	0.00	0.98	0.00	0.00	0.00	0.97	0.00
C39_2	1.00	0.00	0.00	0.00	0.25	0.00	0.00	0.75	0.04	0.00
C4	1.00	0.02	0.00	0.00	0.11	0.00	0.00	0.87	0.01	0.00
C40	1.00	0.02	0.28	0.00	0.70	0.00	0.00	0.00	0.96	0.00
C41	1.00	0.02	0.26	0.00	0.71	0.00	0.00	0.00	0.96	0.00
C42	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C42_1	1.00	0.02	0.83	0.00	0.15	0.00	0.00	0.00	0.96	0.00
C42_2	1.00	0.02	0.00	0.00	0.13	0.00	0.00	0.84	0.01	0.00
C42_2-S	1.00	0.69	0.14	0.00	0.16	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.02	0.98	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.67	0.11	0.00	0.22	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.61	0.00	0.00	0.39	0.00	0.00	0.00	0.97	0.00
C5	1.00	0.02	0.00	0.00	0.03	0.00	0.00	0.95	0.00	0.00
C6	1.00	0.00	0.00	0.00	0.17	0.00	0.00	0.83	0.01	0.00
C6-S	1.00	0.02	0.65	0.00	0.32	0.01	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.53	0.47	0.00	0.00	0.05	0.00
C7-S	1.00	0.02	0.05	0.00	0.87	0.06	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.03	0.00	0.97	0.00	0.00
C8-S	1.00	0.62	0.08	0.00	0.30	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.03	0.02	0.00	0.96	0.01	0.00
C9-S	1.00	0.62	0.01	0.00	0.31	0.07	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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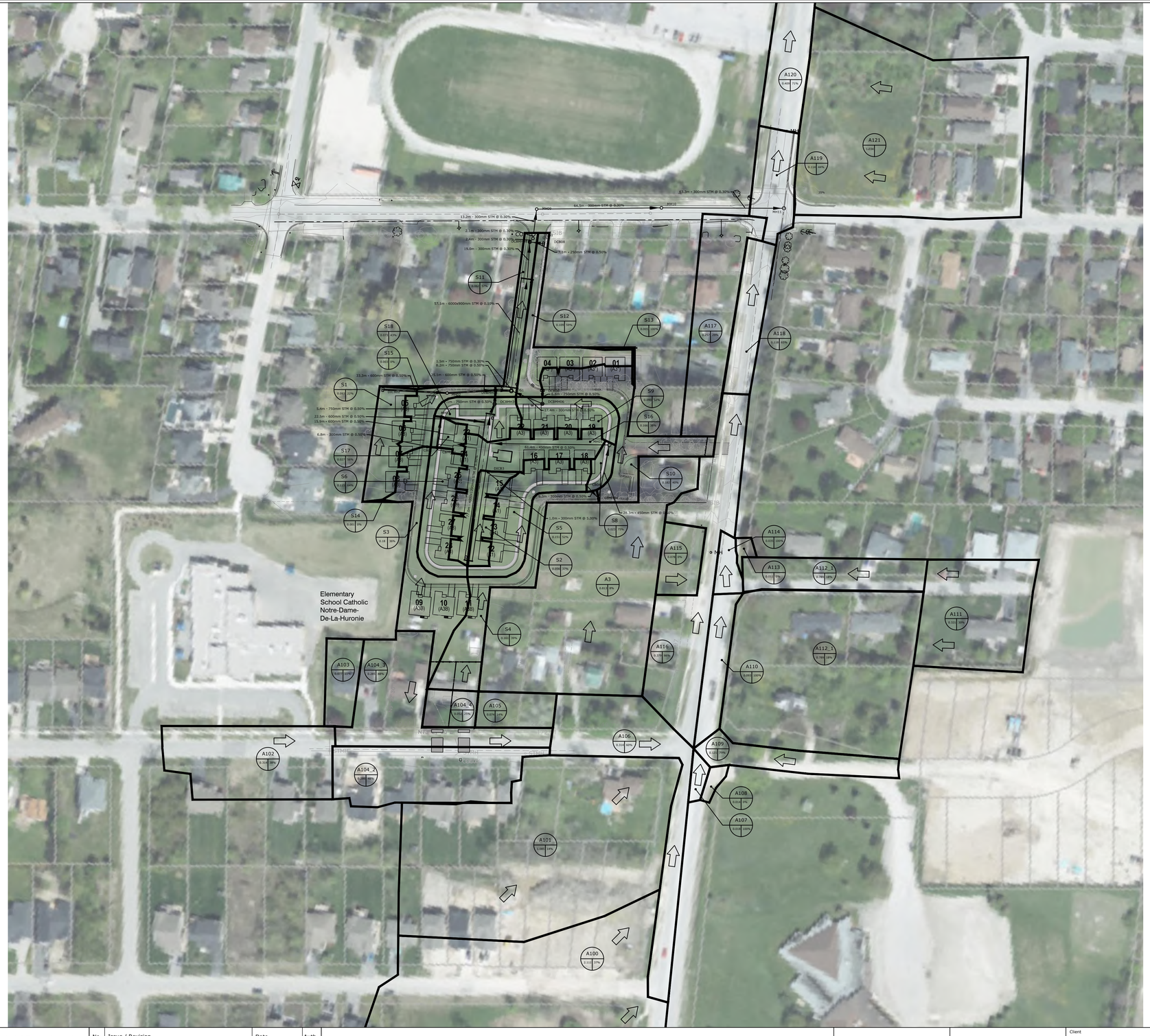
	Hours	Hours

Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Above Full Normal Flow	Capacity Limited
C10	0.37	0.37	0.40	0.35	0.33
C11	0.40	0.40	0.58	0.01	0.01
C12	0.96	0.96	1.29	0.01	0.01
C13	0.49	0.49	0.49	0.70	0.40
C14	0.37	0.37	0.37	0.42	0.36
C15	0.37	0.37	0.45	0.45	0.37
C16	0.01	0.01	46.63	0.01	0.01
C17	0.48	0.48	0.51	0.01	0.01
C18	0.51	0.51	0.54	0.01	0.01
C19	0.29	0.29	0.30	0.10	0.10
C2	0.62	0.99	0.62	0.98	0.61
C20	0.21	0.21	0.36	0.01	0.01
C23	0.01	0.01	0.19	0.01	0.01
C24	0.01	0.01	0.19	0.01	0.01
C25	0.01	0.34	0.01	0.54	0.01
C26	0.01	0.01	0.74	0.01	0.01
C27	0.01	0.01	0.15	0.01	0.01
C28	0.44	0.44	0.48	0.26	0.26
C29	0.01	0.01	0.83	0.01	0.01
C30	0.01	0.01	0.74	0.01	0.01
C30_1	0.41	0.41	0.42	0.01	0.01
C30_2	0.42	0.42	0.43	0.01	0.01
C31	0.41	0.41	0.41	0.01	0.01
C32	0.43	0.43	0.46	0.08	0.08
C33	0.38	0.38	0.45	0.01	0.01
C34	0.40	0.40	0.45	0.01	0.01
C35	0.45	0.45	0.47	0.44	0.42
C36	0.34	0.34	0.43	0.01	0.01
C37	0.48	0.48	0.52	0.46	0.46
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.38	0.01	0.01
C39_2	0.38	0.38	0.45	0.21	0.20
C42	0.01	0.20	0.01	0.24	0.01
C43	0.01	0.01	0.01	0.01	0.01
C5	0.01	0.01	0.01	0.18	0.01
C6	0.01	0.01	0.01	0.23	0.01
C7	0.01	0.01	0.01	0.33	0.01
C9	0.01	0.01	0.31	0.01	0.01

Analysis begun on: Wed Dec 11 13:11:50 2019
Analysis ended on: Wed Dec 11 13:11:55 2019

Total elapsed time: 00:00:05

Appendix E – Hurontario Street Stormwater Analysis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MH46
MH47
MH48
MH49

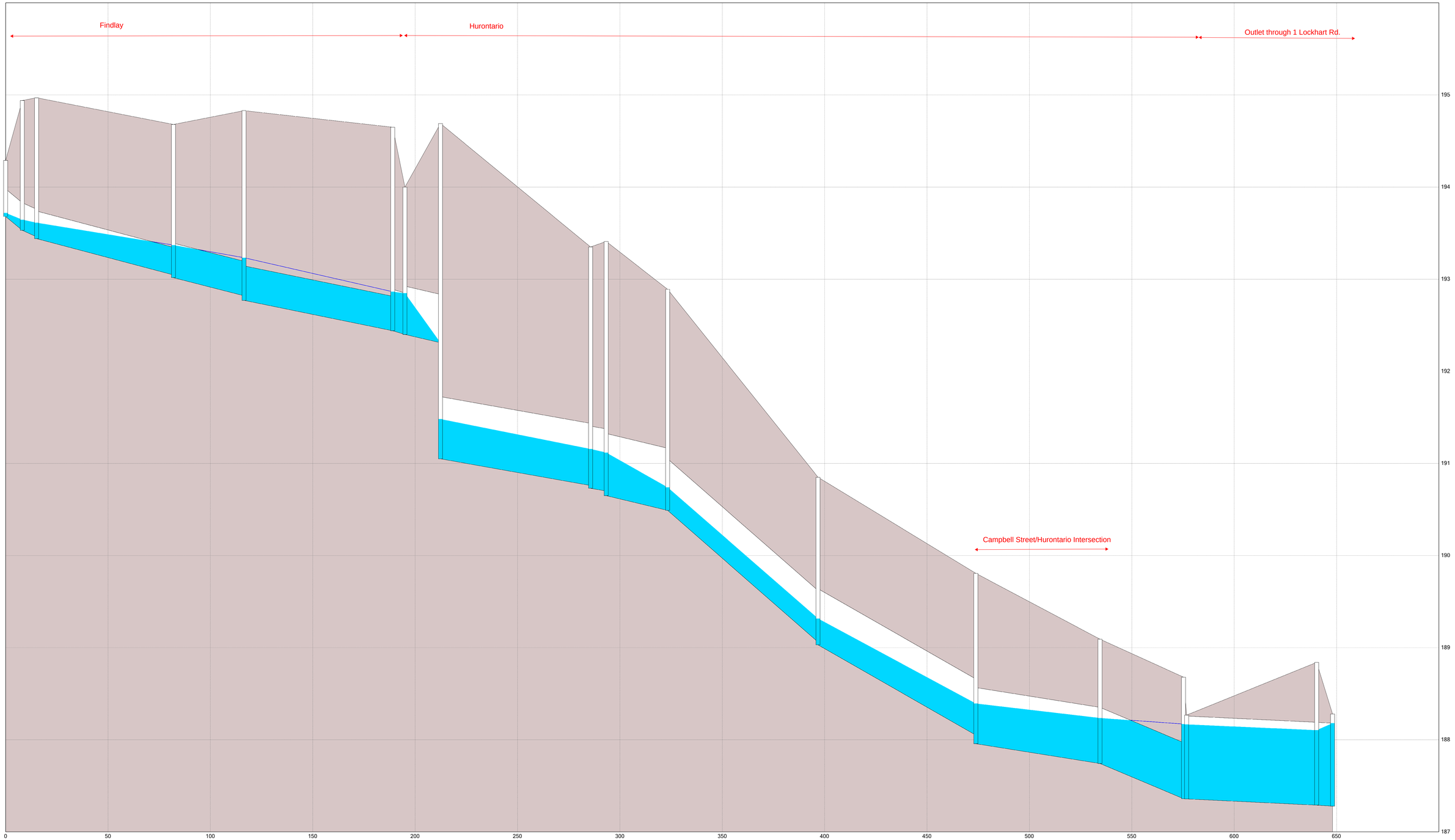
Findlay Street - Hurontario Street - To 900 mm dia. Outfall

5 Year 4 Hr CHIC Storm

HGL

Peak values

Conduit C30_1	Conduit C30_2	Conduit C32	Conduit C35	Conduit C37	Conduit C28	Conduit C25	Conduit C5	Conduit C6	Conduit C7	Conduit C8	Conduit C9	Conduit C10	Conduit C11	Conduit C13	Conduit C14	Conduit C15
Flow = 0.005 m³/s	Flow = 0.027 m³/s	Flow = 0.047 m³/s	Flow = 0.128 m³/s	Flow = 0.125 m³/s	Flow = 0.169 m³/s	Flow = 0.366 m³/s	Flow = 0.396 m³/s	Flow = 0.421 m³/s	Flow = 0.521 m³/s	Flow = 0.534 m³/s	Flow = 0.599 m³/s	Flow = 0.637 m³/s	Flow = 0.627 m³/s	Flow = 0.604 m³/s	Flow = 0.597 m³/s	Flow = 0.67 m³/s
Length = 8.13 m	Length = 7.014 m	Length = 66.823 m	Length = 34.469 m	Length = 72.62 m	Length = 5.962 m	Length = 17.344 m	Length = 73.323 m	Length = 7.605 m	Length = 30.022 m	Length = 73.458 m	Length = 77.049 m	Length = 60.661 m	Length = 40.778 m	Length = 1.518 m	Length = 63.482 m	Length = 7.761 m
Depth = 0.3 m	Depth = 0.3 m	Depth = 0.3 m	Depth = 0.375 m	Depth = 0.375 m	Depth = 0.45 m	Depth = 0.525 m	Depth = 0.675 m	Depth = 0.675 m	Depth = 0.675 m	Depth = 0.56 m	Depth = 0.61 m	Depth = 0.61 m	Depth = 0.61 m	Depth = 0.75 m	Depth = 0.9 m	Depth = 0.9 m
Velocity = 0.376 m/s	Velocity = 0.884 m/s	Velocity = 0.853 m/s	Velocity = 1.393 m/s	Velocity = 1.136 m/s	Velocity = 1.078 m/s	Velocity = 1.934 m/s	Velocity = 1.722 m/s	Velocity = 1.816 m/s	Velocity = 2.71 m/s	Velocity = 3.081 m/s	Velocity = 2.53 m/s	Velocity = 2.037 m/s	Velocity = 1.439 m/s	Velocity = 1.377 m/s	Velocity = 1.078 m/s	Velocity = 1.164 m/s



Junction DICB6	Junction CB_43A	Junction MH43	Junction MH42	Junction MH41	Junction MH40	Junction MH106	Junction MH62	Junction CBMH103	Junction MH102	Junction CBMH101	Junction STMH201	Junction CBMH30	Junction CB19	Junction CB16	Junction J12	Junction J13	Outfall J14
Max. CWSEL = 193.7194 m	Max. CWSEL = 193.6456 m	Max. CWSEL = 193.6131 m	Max. CWSEL = 193.3698 m	Max. CWSEL = 193.2327 m	Max. CWSEL = 192.8634 m	Max. CWSEL = 192.8476 m	Max. CWSEL = 191.4811 m	Max. CWSEL = 191.156 m	Max. CWSEL = 191.1175 m	Max. CWSEL = 190.7408 m	Max. CWSEL = 189.316 m	Max. CWSEL = 188.3931 m	Max. CWSEL = 188.2361 m	Max. CWSEL = 188.1707 m	Max. CWSEL = 188.1665 m	Max. CWSEL = 188.1043 m	Max. CWSEL = 188.18 m
Rim Elev. = 194.29 m	Rim Elev. = 194.94 m	Rim Elev. = 194.97 m	Rim Elev. = 194.68 m	Rim Elev. = 194.83 m	Rim Elev. = 194.65 m	Rim Elev. = 194 m	Rim Elev. = 194.69 m	Rim Elev. = 193.35 m	Rim Elev. = 193.41 m	Rim Elev. = 192.89 m	Rim Elev. = 190.85 m	Rim Elev. = 189.807 m	Rim Elev. = 189.092 m	Rim Elev. = 188.68 m	Rim Elev. = 188.268 m	Rim Elev. = 188.84 m	Rim Elev. = 188.28 m
Invert Elev. = 193.68 m	Invert Elev. = 193.53 m	Invert Elev. = 193.44 m	Invert Elev. = 193.016 m	Invert Elev. = 192.77 m	Invert Elev. = 192.44 m	Invert Elev. = 192.4 m	Invert Elev. = 191.05 m	Invert Elev. = 190.73 m	Invert Elev. = 190.65 m	Invert Elev. = 190.49 m	Invert Elev. = 189.03 m	Invert Elev. = 187.957 m	Invert Elev. = 187.742 m	Invert Elev. = 187.36 m	Invert Elev. = 187.358 m	Invert Elev. = 187.29 m	Invert Elev. = 187.28 m
09/24/2019 01:25AM	09/24/2019 01:25AM	09/24/2019 01:26AM	09/24/2019 01:28AM	09/24/2019 01:28AM	09/24/2019 01:27AM	09/24/2019 01:27AM	09/24/2019 01:27AM	09/24/2019 01:27AM	09/24/2019 01:27AM	09/24/2019 01:27AM	09/24/2019 01:27AM	09/24/2019 01:29AM	09/24/2019 01:29AM	09/24/2019 01:29AM	09/24/2019 01:29AM	09/24/2019 01:29AM	09/24/2019 01:31AM

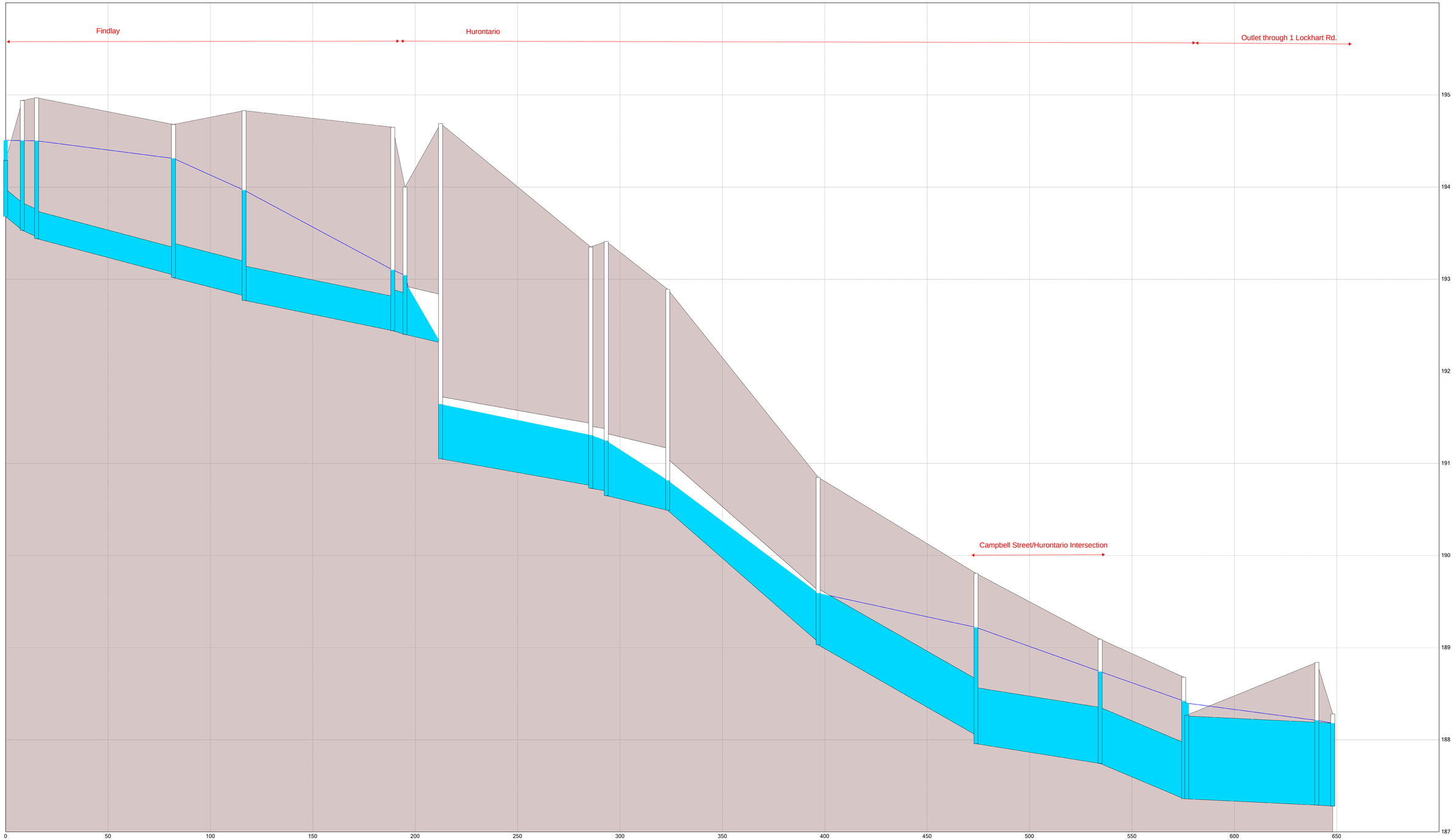
Findlay Street - Hurontario Street - To 900 mm dia. Outfall

100 Year 4 Hr CHIC Storm

HGL

Peak values

Conduit C30_1	Conduit C30_2	Conduit C32	Conduit C35	Conduit C37	Conduit C28	Conduit C25	Conduit C5	Conduit C6	Conduit C7	Conduit C8	Conduit C9	Conduit C10	Conduit C11	Conduit C13	Conduit C14	Conduit C15
Flow = 0.069 m³/s	Flow = 0.08 m³/s	Flow = 0.092 m³/s	Flow = 0.185 m³/s	Flow = 0.192 m³/s	Flow = 0.279 m³/s	Flow = 0.519 m³/s	Flow = 0.573 m³/s	Flow = 0.663 m³/s	Flow = 0.871 m³/s	Flow = 0.881 m³/s	Flow = 0.945 m³/s	Flow = 1.043 m³/s	Flow = 1.073 m³/s	Flow = 0.985 m³/s	Flow = 0.984 m³/s	Flow = 1.123 m³/s
Length = 8.13 m	Length = 7.014 m	Length = 66.823 m	Length = 34.469 m	Length = 72.62 m	Length = 5.962 m	Length = 17.344 m	Length = 73.323 m	Length = 7.605 m	Length = 30.022 m	Length = 73.458 m	Length = 77.049 m	Length = 60.661 m	Length = 40.778 m	Length = 1.518 m	Length = 63.482 m	Length = 7.761 m
Depth = 0.3 m	Depth = 0.3 m	Depth = 0.3 m	Depth = 0.375 m	Depth = 0.375 m	Depth = 0.45 m	Depth = 0.525 m	Depth = 0.675 m	Depth = 0.675 m	Depth = 0.675 m	Depth = 0.56 m	Depth = 0.61 m	Depth = 0.61 m	Depth = 0.61 m	Depth = 0.75 m	Depth = 0.9 m	Depth = 0.9 m
Velocity = 0.972 m/s	Velocity = 1.13 m/s	Velocity = 1.301 m/s	Velocity = 1.678 m/s	Velocity = 1.739 m/s	Velocity = 1.752 m/s	Velocity = 2.446 m/s	Velocity = 1.834 m/s	Velocity = 2.135 m/s	Velocity = 3.372 m/s	Velocity = 3.342 m/s	Velocity = 2.535 m/s	Velocity = 2.208 m/s	Velocity = 2.271 m/s	Velocity = 2.23 m/s	Velocity = 1.547 m/s	Velocity = 1.764 m/s



Junction DICB6	Junction CB_43A	Junction MH43	Junction MH42	Junction MH41	Junction MH40	Junction MH106	Junction MH62	Junction CBMH103	Junction MH102	Junction CBMH101	Junction STMH201	Junction CBMH30	Junction CB19	Junction CB16	Junction J12	Junction J13	Outfall J14
Max. CWSEL = 194.5072 m	Max. CWSEL = 194.5046 m	Max. CWSEL = 194.5022 m	Max. CWSEL = 194.3108 m	Max. CWSEL = 193.9658 m	Max. CWSEL = 193.1001 m	Max. CWSEL = 193.0416 m	Max. CWSEL = 191.6424 m	Max. CWSEL = 191.3085 m	Max. CWSEL = 191.2462 m	Max. CWSEL = 190.8163 m	Max. CWSEL = 189.5924 m	Max. CWSEL = 189.2195 m	Max. CWSEL = 188.7399 m	Max. CWSEL = 188.4211 m	Max. CWSEL = 188.3976 m	Max. CWSEL = 188.2099 m	Max. CWSEL = 188.18 m
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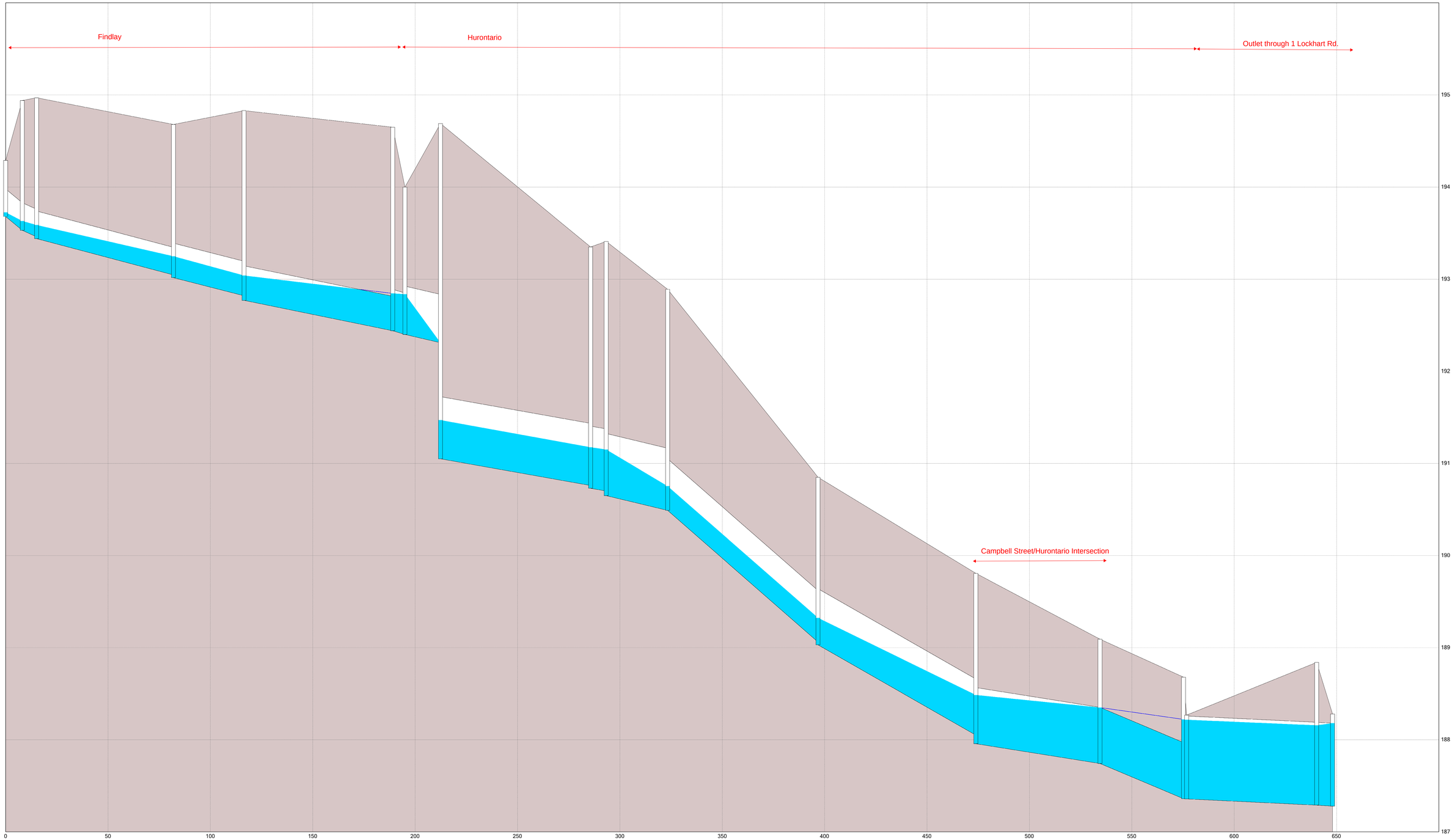
Findlay Street - Hurontario Street - To 900 mm dia. Outfall

Regional Storm

HGL

Peak values

Conduit C30_1	Conduit C30_2	Conduit C32	Conduit C35	Conduit C37	Conduit C28	Conduit C25	Conduit C5	Conduit C6	Conduit C7	Conduit C8	Conduit C9	Conduit C10	Conduit C11	Conduit C13	Conduit C14	Conduit C15
Flow = 0.007 m³/s	Flow = 0.021 m³/s	Flow = 0.036 m³/s	Flow = 0.094 m³/s	Flow = 0.1 m³/s	Flow = 0.131 m³/s	Flow = 0.355 m³/s	Flow = 0.376 m³/s	Flow = 0.387 m³/s	Flow = 0.601 m³/s	Flow = 0.593 m³/s	Flow = 0.633 m³/s	Flow = 0.662 m³/s	Flow = 0.674 m³/s	Flow = 0.642 m³/s	Flow = 0.604 m³/s	Flow = 0.693 m³/s
Length = 8.13 m	Length = 7.014 m	Length = 66.823 m	Length = 34.469 m	Length = 72.62 m	Length = 5.962 m	Length = 17.344 m	Length = 73.323 m	Length = 7.605 m	Length = 30.022 m	Length = 73.458 m	Length = 77.049 m	Length = 60.661 m	Length = 40.778 m	Length = 1.518 m	Length = 63.482 m	Length = 7.761 m
Depth = 0.3 m	Depth = 0.3 m	Depth = 0.3 m	Depth = 0.375 m	Depth = 0.375 m	Depth = 0.45 m	Depth = 0.525 m	Depth = 0.675 m	Depth = 0.675 m	Depth = 0.675 m	Depth = 0.56 m	Depth = 0.61 m	Depth = 0.61 m	Depth = 0.61 m	Depth = 0.75 m	Depth = 0.9 m	Depth = 0.9 m
Velocity = 0.495 m/s	Velocity = 0.864 m/s	Velocity = 0.844 m/s	Velocity = 1.331 m/s	Velocity = 0.993 m/s	Velocity = 0.847 m/s	Velocity = 1.909 m/s	Velocity = 1.621 m/s	Velocity = 1.553 m/s	Velocity = 2.89 m/s	Velocity = 3.207 m/s	Velocity = 2.566 m/s	Velocity = 2.017 m/s	Velocity = 1.432 m/s	Velocity = 1.458 m/s	Velocity = 1.068 m/s	Velocity = 1.164 m/s



Junction DICB6	Junction CB_43A	Junction MH43	Junction MH42	Junction MH41	Junction MH40	Junction MH106	Junction MH62	Junction CBMH103	Junction MH102	Junction CBMH101	Junction STMH201	Junction CBMH30	Junction CB19	Junction CB16	Junction J12	Junction J13	Outfall J14
Max. CWSEL = 193.7259 m	Max. CWSEL = 193.6313 m	Max. CWSEL = 193.5876 m	Max. CWSEL = 193.2485 m	Max. CWSEL = 193.04 m	Max. CWSEL = 192.8455 m	Max. CWSEL = 192.8378 m	Max. CWSEL = 191.4703 m	Max. CWSEL = 191.1756 m	Max. CWSEL = 191.1506 m	Max. CWSEL = 190.7533 m	Max. CWSEL = 189.3237 m	Max. CWSEL = 188.4859 m	Max. CWSEL = 188.3503 m	Max. CWSEL = 188.2212 m	Max. CWSEL = 188.2168 m	Max. CWSEL = 188.157 m	Max. CWSEL = 188.18 m
Rim Elev. = 194.29 m	Rim Elev. = 194.94 m	Rim Elev. = 194.97 m	Rim Elev. = 194.68 m	Rim Elev. = 194.83 m	Rim Elev. = 194.65 m	Rim Elev. = 194 m	Rim Elev. = 194.69 m	Rim Elev. = 193.35 m	Rim Elev. = 193.41 m	Rim Elev. = 192.89 m	Rim Elev. = 190.85 m	Rim Elev. = 189.807 m	Rim Elev. = 189.092 m	Rim Elev. = 188.68 m	Rim Elev. = 188.268 m	Rim Elev. = 188.84 m	Rim Elev. = 188.28 m
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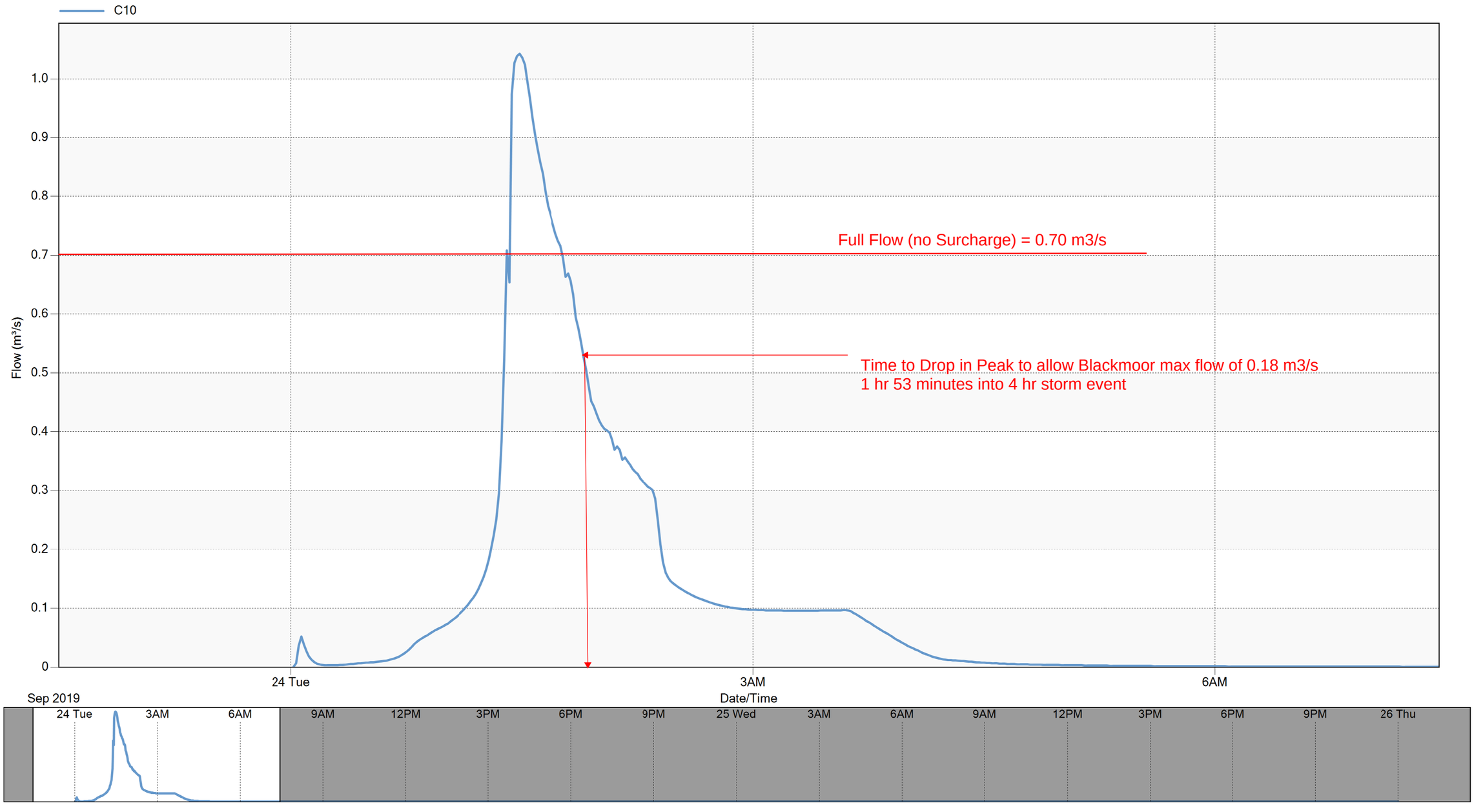
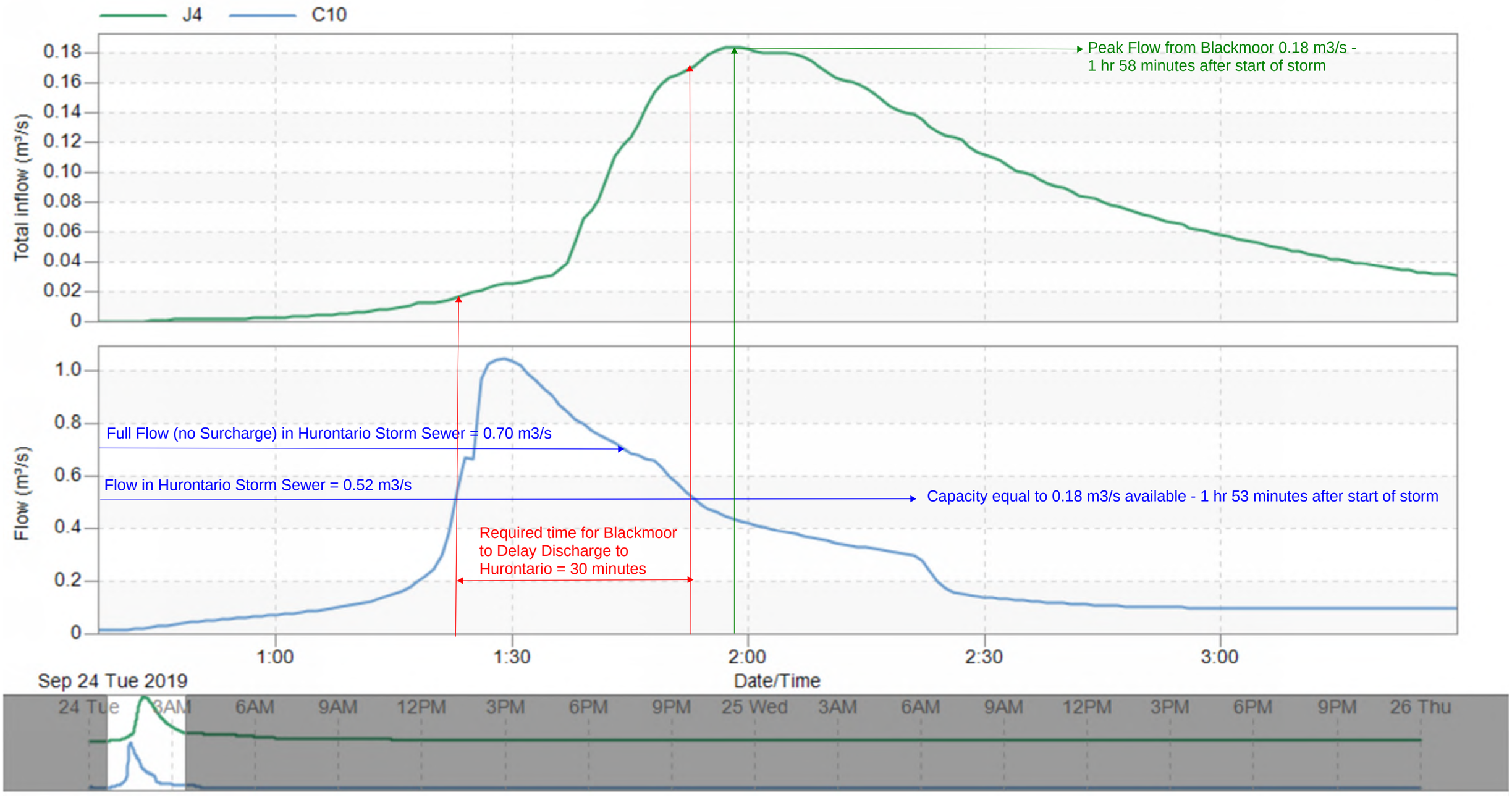
100 Year Chicago Peak Flow in Storm Sewer

Hurontario Street at Lockhart



Flow Comparison

100 Year Chicago Storm



Appendix F – Sanitary Sewer Design

Project:	Blackmoor Gates
Municipality:	Town of Collingwood
Project No.:	2019-020
Analyzed by:	PCC
Date:	December 3, 2019
Manning n Value	0.013

Sanitary Sewer Design Sheet

Blackmoor Gates Development

Town of Collingwood

CAPES ENGINEERING

	DESIGN SEWAGE FLOWS									SANITARY SEWER CAPACITY					
Location of Section	Cumulative Sanitary Catchment Area (ha)	From Upstream MH #	To Downstream MH #	Cumulative Serviced Population Cap.	Peaking Factor	Average Flow Residential L/s	Peak Flow Residential L/s	Peak Flow Infiltration L/s	Total Peak Flow L/s	Pipe Length m	Pipe Diameter mm	Pipe Grade %	Full Flow. Cap. L/s	Full Flow Velocity m/s	Percentage Full
BMG - B	0.18	MH01A	MH02A	8.7	4.42	0.05	0.20	0.04	0.24	34.3	200	2	46.4	1.48	0.5%
BMG - B	0.42	MH02A	MH03A	37.7	4.34	0.20	0.85	0.10	0.95	93.4	200	3	56.8	1.81	1.7%
BMG - B	0.13	MH03A	MH08A	43.5	4.33	0.23	0.98	0.03	1.01	42.8	200	0.5	23.2	0.74	4.4%
BMG - B	0.19	MH04A	MH05A	11.6	4.41	0.06	0.27	0.04	0.31	33.8	200	4.0	65.6	2.09	0.5%
BMG - B	0.12	MH05A	MH06A	20.3	4.38	0.11	0.46	0.03	0.49	39.1	200	2.0	46.4	1.48	1.1%
BMG - B	0.12	MH06A	MH07A	20.3	4.38	0.11	0.46	0.03	0.49	49.0	200	0.5	23.2	0.74	2.1%
BMG - B	0.24	MH07A	MH08A	40.6	4.33	0.21	0.92	0.06	0.97	53.0	200	0.5	23.2	0.74	4.2%
BMG - A	0.07	MH08A	MH09A	84.1	4.26	0.44	1.87	0.02	1.88	63.1	200	0.5	23.2	0.74	8.1%
BMG - A	0.03	MH09A	EXMH101	84.1	4.26	0.44	1.87	0.01	1.87	32.2	200	0.5	23.2	0.74	8.1%

NOTE:	BASED ON 2.9 PERSONS PER UNIT
	AVERAGE DAILY PER CAPITA FLOW = 450 L/cap/day
	EXTRANEOUS FLOW ALLOWANCE = 0.23 L/s/ gross ha
	PEAKING FACTOR : HARMON
	MANNING "n" = 0.013

Appendix G – Water System Demand

CAPES Engineering Ltd.
355310 Blue Mountains-Euphrasia Townline
Clarksburg, ON
N0H 1J0

CAPES ENGINEERING

CALCULATION SHEET

Project: **Blackmoor Gate**

Fire Flow Demand Calculations

Prepared by:	C. Capes
Checked by:	C. Capes
Project No:	2019-020
Date:	December 11, 2019

Domestic Flow Calculations

Average Day Per Capita Flow =	450	L/c/d	
Units	28		
Residential Density =	2.9	ppu	
Population =	81.2		
Average Day Demand =	36,540	L/d	
=	0.42	L/s	
Peak Day Factor =	2.0		Peak Day Factor - Town of Collingwood Standards
Peak Hour Factor	4.5		Peak Hour Factor - Town of Collingwood Standards

Total Domestic Peak Daily Demand = 0.85 L/s
Total Domestic Peak Hourly Demand = 1.90 L/s

Fire Flow Calculations Use worst Case Building - Unit 20 (Type A3)

Based on Fire Underwriters Survey

1 $F = 220C\sqrt{A}$

Where F = Required fire flow in Lpm
C = Construction type coefficient
= 1.5 wood frame (essentially all combustible)
= 1.0 ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 non-combustible (unprotected metal structure components, masonry or metal walls)
= 0.6 fire-resistive construction (fully protected frame, floors, roof)

A = Total floor area in sq.m. excluding basements, includes garage per building

Floor	Area (sq.m)	%
1	118	150%
2	118	150%
Total	236	

A = for fire resistive bldgs., consider the 2 largest adjoining floors + 50% of each of any floors immediately above them when the vertical openings are not adequately protected.

or

A = for fire resistive bldgs., consider the area of largest adjoining floor + 25% of each of the 2 floors immediately adjoining floors when the vertical openings and exterior vertical communications are protected for 1 hr rating.

Total Applicable Area = 354

F = 3,311.42 L/min (adjust formula accordingly) (Round to nearest 1000 L/min) 3000 L/min

2 Occupancy Reduction

-25% reduction for non-combustible
-15% reduction for limited combustible
0% reduction for combustible
15% increase for free burning
25% increase for rapid burning

Reduction = -450 L/min (adjust formula accordingly)
F = 2550 L/min

3 Sprinkler Reduction

30% Reduction for NFPA Sprinkler System (refer to FUS manual from addition, 1999)

Reduction = 0 L/min
F = 2550 L/min

4 Separation Charge Building 1

North Side	20.1 to 30m	10%			
East Side	0 to 3m	25%			
South Side	3.1 to 10m	20%			
West Side	0 to 3m	25%			
Total Separation Charge Bldg. 1=		80%	2040	L/min	(max. allowable 75%)
Total Separation Charge=		75%	1913	L/min	

0 to 3m	25%
3.1 to 10m	20%
10.1 to 20m	15%
20.1 to 30m	10%
30.1 to 45m	5%
45m +	0%

Fire Flow = 2 - 3 + 4
= 4463 L/min
= 74.38 L/s

Required Duration of Fire Flow
Minimum 30 minutes as per OBC

Fire Storage = 4463 Lmin 30 min **134 m^3**

Domestic Demand + Fire Flow = 75.22 L/s 4513 l/min

TECHNICAL MEMORANDUM

To:	**Peggy Slama, P.Eng.**	Company:	**Town of Collingwood**
	Manager, Environmental Services		
From:	**Sam Ziemann, P.Eng.**	Our File:	**75-41-171235**
Cc:		Date:	**June 17, 2019**
Subject:	**Watermain Hydraulic Assessment of the Proposed Developments at Blackmoor Gate**		

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TOWN OF COLLINGWOOD

Watermain Hydraulic Assessment of the Proposed Developments at Blackmoor Gate

C3 WATER INC.

June 17, 2019

VERSION	DATE	DESCRIPTION OF REVISIONS	REVISED BY	REVIEWED BY
1	August 31, 2018	Draft 1	Emma Thompson	Sam Ziemann Peggy Slama
2	June 17, 2019	Final	Emma Thompson	Sam Ziemann

Table of Contents

1.0 Introduction and Background 1
1.1 Design Standards 2
1.2 Demand and Fire Flow Calculations 2
2.0 Modelling Results 3
2.1 Pressures 3
2.2 Fire Flows 4
3.0 Model Findings 9

List of Appendices

APPENDIX A Site Layout
APPENDIX B Demand and Fire Flow Calculations

1.0 INTRODUCTION AND BACKGROUND

C3 Water (C3W) has been asked to conduct a watermain hydraulic assessment of the proposed Blackmoor Gate development and its impacts on the existing distribution system. Figure 1-1 below provides an overview of the proposed development area. A detailed site plan with proposed watermains, roads and lot types is included in Appendix A.

The proposed development at Blackmoor Gate includes the construction of 31 new residential units. The residential portions will consist of single detached homes and street townhomes. The Blackmoor Gate development is proposed to be located in Pressure Zone 1, near the boundary with Zone 2. Existing water distribution infrastructure near the development site consists of:

- 300 mm trunk watermain on Hurontario Street
- 100 mm diameter water main on Campbell Street between Maple Street and Hurontario Street
- 450 mm diameter watermain on Findlay Drive

The new development is proposed to be serviced by a 150mm dimeter looped pipe, connecting to Hurontario Street and Campbell Street watermains. The existing unit on Hurontario is proposed to remain with its current 19mm service on Hurontario Street. The two units on Findlay Drive are proposed to be serviced by two (2) new service connections off Findlay Drive.

Figure 1-1: Proposed Development Area Site Overview (NTS)

1.1 Design Standards

The Town of Collingwood Development Standards provide design criteria for assessing the impact of proposed developments. The standards recommend that watermains be designed to provide maximum day demands plus fire flows according to the land use type. The Town Standards also outline minimum pressure requirements, as shown in Table 1.2 below.

Table 1.2 Town of Collingwood Design Standards

	Minimum	Preferred
Fire Flow Requirements		
Single-Family Residential	57 L/s	76 L/s
Industrial/Commercial Subdivisions	136 L/s	154 L/s
Downtown Commercial	136 L/s	189 L/s
Pressure Requirements		
Maximum Day Demands + Fire Flows	20 psi	
Standard Operating Conditions	40 psi (Peak Hour)	50 - 80 psi

1.2 Demand and Fire Flow Calculations

WSP Global Inc. (WSP) completed calculations for the anticipated water demands for the buildings in the development. The calculations are based on recommended values from the Ontario Ministry of the Environment and Climate Change (MOECC) and the Town Standards. The Max Day Demands (MDD) and Peak Hour Demands (PHD) were calculated based on the average flows, and recommended peaking factors of 2.0 for MDD and 4.5 for PHD as per MOECC Design Guidelines for Drinking Water Systems (2008) and Town Standards.

Fire Flow calculations were also completed by WSP using the Fire Underwriters Survey (FUS) Method. The fire flow and domestic demands for the proposed development are summarized in Table 1.3 below and provided in Appendix B.

Table 1.3 Fire Flow and Demand Calculated Values

	Detached Homes	Semi-Detached	Townhouse Units
Number of Units (Phase 1 & 2)	233	86	87
Average Day Demand (ADD) (CCTA, Appendix B)	0.46 L/s		
Maximum Day Demand (MDD)	0.93 L/s		
Peak Hour Demand (PHD)	2.086 L/s		
Fire Flow (FF)	150 L/s		

2.0 MODELLING RESULTS

C3W has reviewed the Town's existing water model as part of the Town's ongoing water and wastewater master planning project and made updates based on information from GIS and current operating conditions.

The proposed development area was assessed using the model's existing (2016) and future (2018) Average Day Demand (ADD) and Maximum Day Demand (MDD). New watermains were added to represent the proposed watermains through the Blackmoor Gate development. Under the 2018 scenarios, the model also included the proposed watermains and demands for the Eden Oaks and Pretty River Village Developments since these are expected to be completed in the near future.

2.1 Pressures

The range of elevations in the Blackmoor Gate development is approximately 189 - 193 mASL, which is within the upper range of preferred Zone 1 elevations of 171 – 192 m. Based on the Zone 1 HGL of approximately 227m, it is expected that static pressures would be 34 - 38m of head, or 48 - 54 psi. However, the elevated tank typically fluctuates below the 227m HGL, and would result in even lower pressures in this area. Also, this part of Zone 1 experiences lower pressures during high demand periods due it's proximity from the water treatment plant and the elevated tank.

The pressures in the development were tested in Zone 1 under ADD and MDD scenarios, as well as under existing conditions and expected future conditions including the Zone 2 boundary change and surrounding development. The ADD existing pressures were found to be 45 – 52 psi, which is slightly below Town's preferred operating criteria of 50 – 80 psi. The minimum pressure at Peak Hour on MDD was found to be 40 psi under existing conditions and 42 psi under future conditions. This meets the Town's minimum pressure of 40 psi.

The pressure regulating valve (PRV) at the Zone 2 Boundary on Hurontario is currently closed due to operational concerns, and so it was modelled as being closed in the existing 2016 scenarios. In the 2018 scenario, the pressures were tested with the valve open to various settings up to 45 psi. Based on available information, it is understood that the PRV modulates to maintain pressure at the downstream node, which has an elevation of 190.0m in the model. Since the Blackmoor Gate elevations are slightly higher, it would not significantly improve the pressures in the development as the valve would only open in the case that the adjacent node falls below 45 psi. Setting the opening pressure to be over 45 psi may result in the valve being open too frequently and draining water from Zone 2. These pressures and settings should be confirmed in the field.

Pressure (psi)	2016 ADD Existing Zone Boundary and Demands 100 mm on Campbell		2016 MDD Existing Zone Boundary and Demands 100 mm on Campbell		2018 MDD New Zone 2 Boundary and Development Demands 200 mm on Campbell	
Node	**Min Pressure**	**Max Pressure**	**Min Pressure**	**Max Pressure**	**Min Pressure**	**Max Pressure**
J-BMG1	49.7	52.1	44.6	51.8	46.7	52.1
J-BMG2	47.7	50.0	42.8	49.7	44.7	50.0
J-BMG3	48.5	50.9	43.5	50.7	45.6	50.9
J-BMG4	46.3	48.7	41.3	48.4	43.3	48.7
J-BMG5	47.0	49.4	42.0	49.1	44.0	49.4
J-BMG6	45.3	47.6	40.3	47.4	42.3	47.6

2.2 Fire Flows

Modelling was conducted using a steady-state analysis of available fire flows at a residual pressure of 20psi for a 2-hour fire flow scenario at 12:00pm under MDD conditions + Fire Flow conditions. Results from the fire flow modelling are provided in Table 2.1 for the following development scenarios:

- 100 mm on Campbell (2016 Existing Conditions)
  - PRV closed
  - PRV set to 45 psi
- 200 mm on Campbell (2016 Existing Conditions)
  - PRV closed
  - PRV set to 45 psi
- 200mm on Campbell (2018 Future Conditions)
  - PRV closed
  - PRV set to 35 psi
  - PRV set to 45 psi

The fire flow results predicted by the model are representative of the amount of water available in a watermain and not the extent of flow available from a hydrant. Several hydrants may need to be operated to provide the desired fire flows. For modelling purposes, it was assumed that fires would not occur at multiple locations simultaneously, and therefore the results demonstrate the available flow at each location when run independently.

The modelling results indicated that the required fire flow of 150 L/s calculated by WSP could not be met at all locations in the development under all development scenarios. It should be noted that the 150 L/s FUS fire flow was calculated for the worst-case lot, which from the site plan appears to the semi-detached houses located closest to the proposed fire hydrant at node J-BGM4.

A number of changes were tested in the model, each with different impacts on the results on the nodes within the development (J-BMG3 to J-BMG6). J-BMG1 and J-BMG2 are the location of the connections to Campbell street and Hurontario Street, but do not have proposed fire hydrants. In summary:

- Increasing the existing 100mm portion of watermain between Maple Street and Campbell Street to a 200mm pipe increased fire flows in the development by 10 – 31 L/s
- Under existing conditions, opening the PRV and changing the setting to 45 psi increased fire flows by 11 – 37 L/s
- Implementing the future zone boundary change without opening the PRV decreased fire flows by 7 – 11 L/s
- Under future conditions, opening the PRV and changing the setting to 35 psi increased fire flows by 0 - 16 L/s
- Under future conditions, opening the PRV and changing the setting to 45 psi increased fire flows by 21 - 54 L/s

Under the 2016 and 2018 scenarios, the required fire flow of 150 L/s at J-BMG4 was achieved with a 200mm on Campbell St. and the PRV set to 45 psi.

Table 2.1 Fire Flow Model Results MDD Scenario

Fire Flow (L/s)	2016 MDD Existing Zone Boundary and Demands		2016 MDD Existing Zone Boundary and Demands		2018 new Zone 2 Boundary		
Sizing	100 mm on Campbell		200 mm on Campbell		200 mm on Campbell		
Node	PRV closed	PRV set to 45psi	PRV closed	PRV set to 45psi	PRV closed	PRV set to 35 psi	PRV set to 45 psi
J-BMG1	110	127	158		142		232
J-BMG2	150	240	166	251	149	318	394
J-BMG3	112	137	133	168	122	138	176
J-BMG4	112	145	127	164	117	130	173
J-BMG5	95	107	106	121	99	99	122
J-BMG6	93	104	103	116	96	96	117

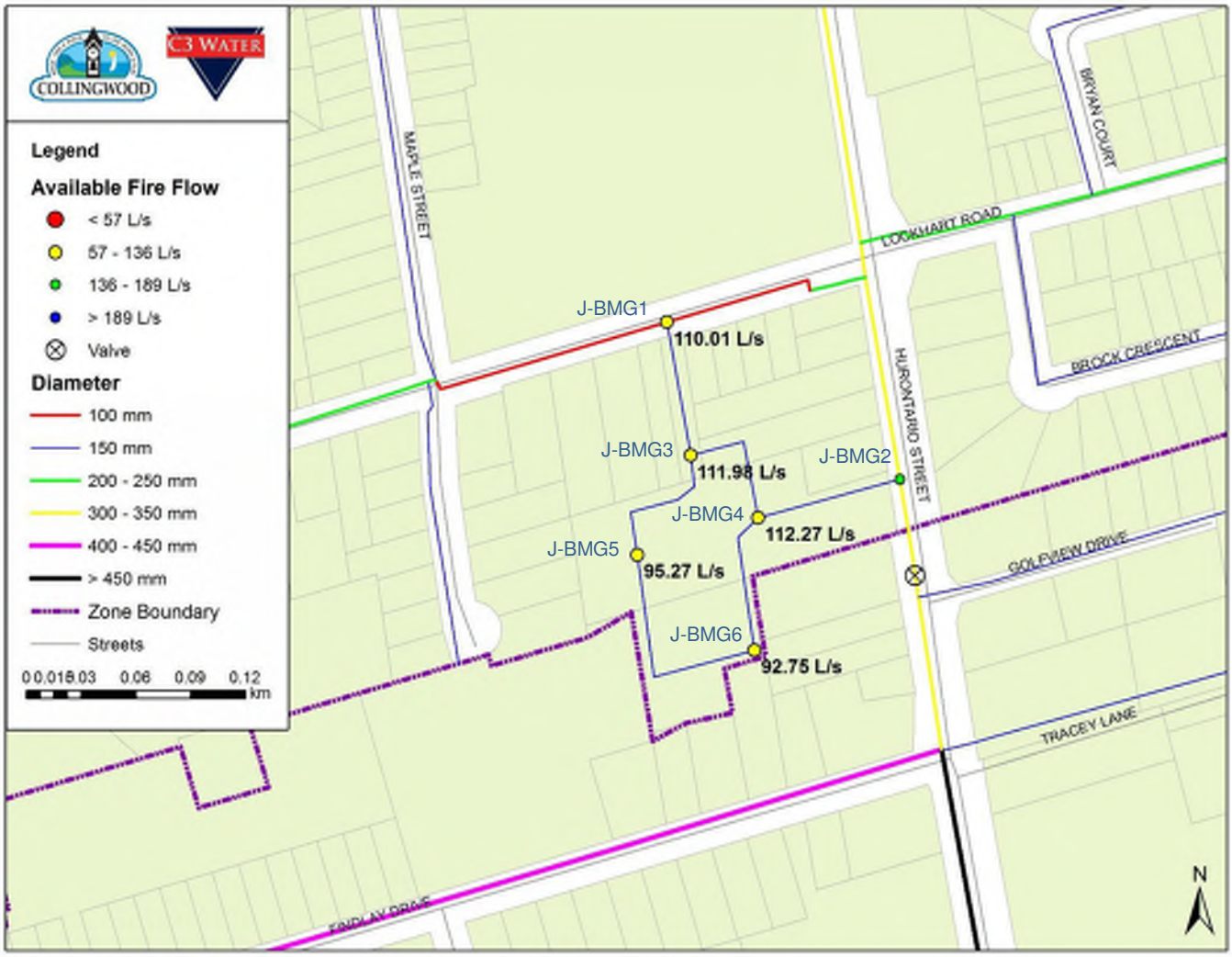


Figure 2-1 Available Fire Flows – Existing 2016 Conditions, 100 mm on Campbell, PRV Closed

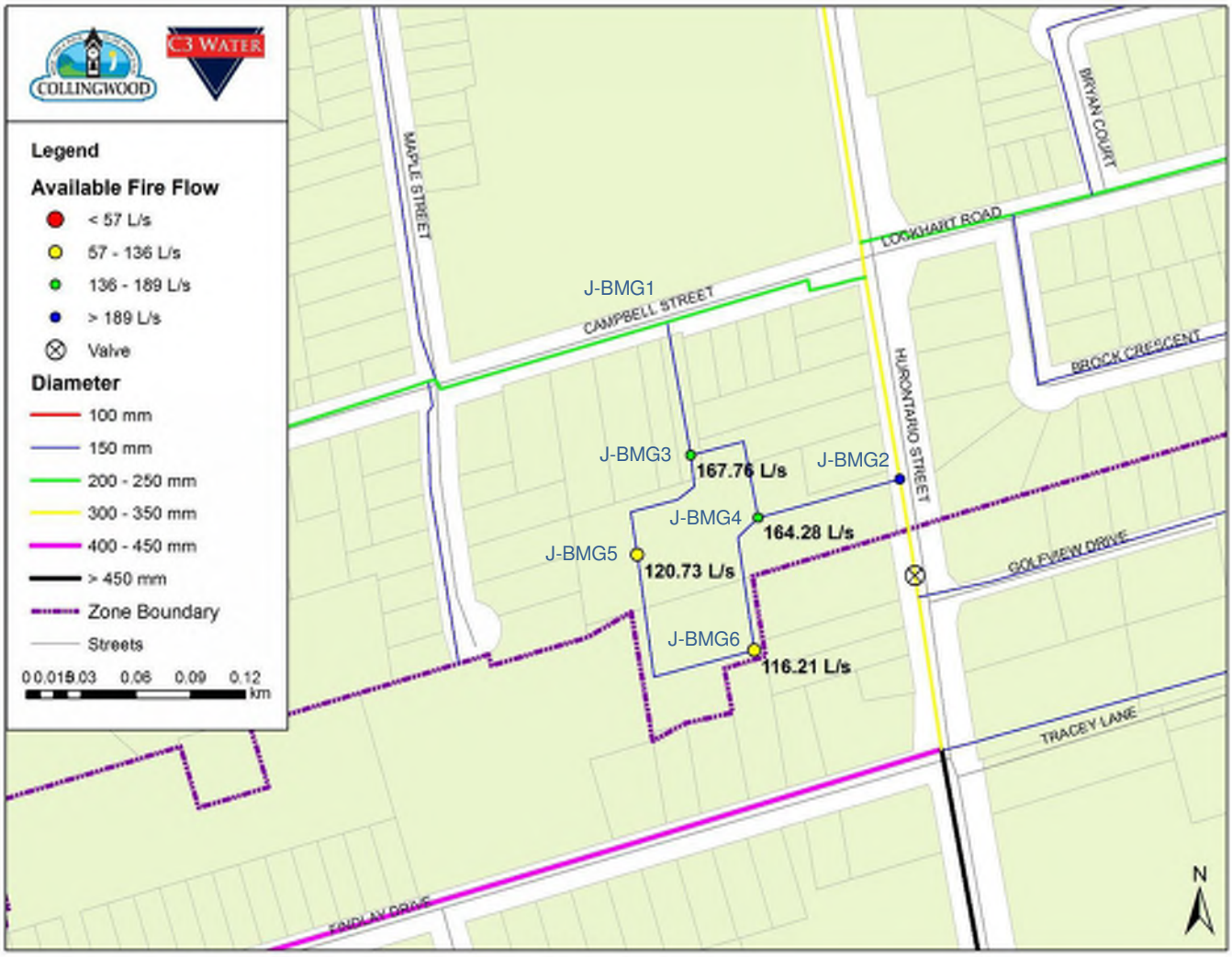


Figure 2-2 Available Fire Flows – Existing 2016 Conditions, 200 mm on Campbell, PRV at 45 psi

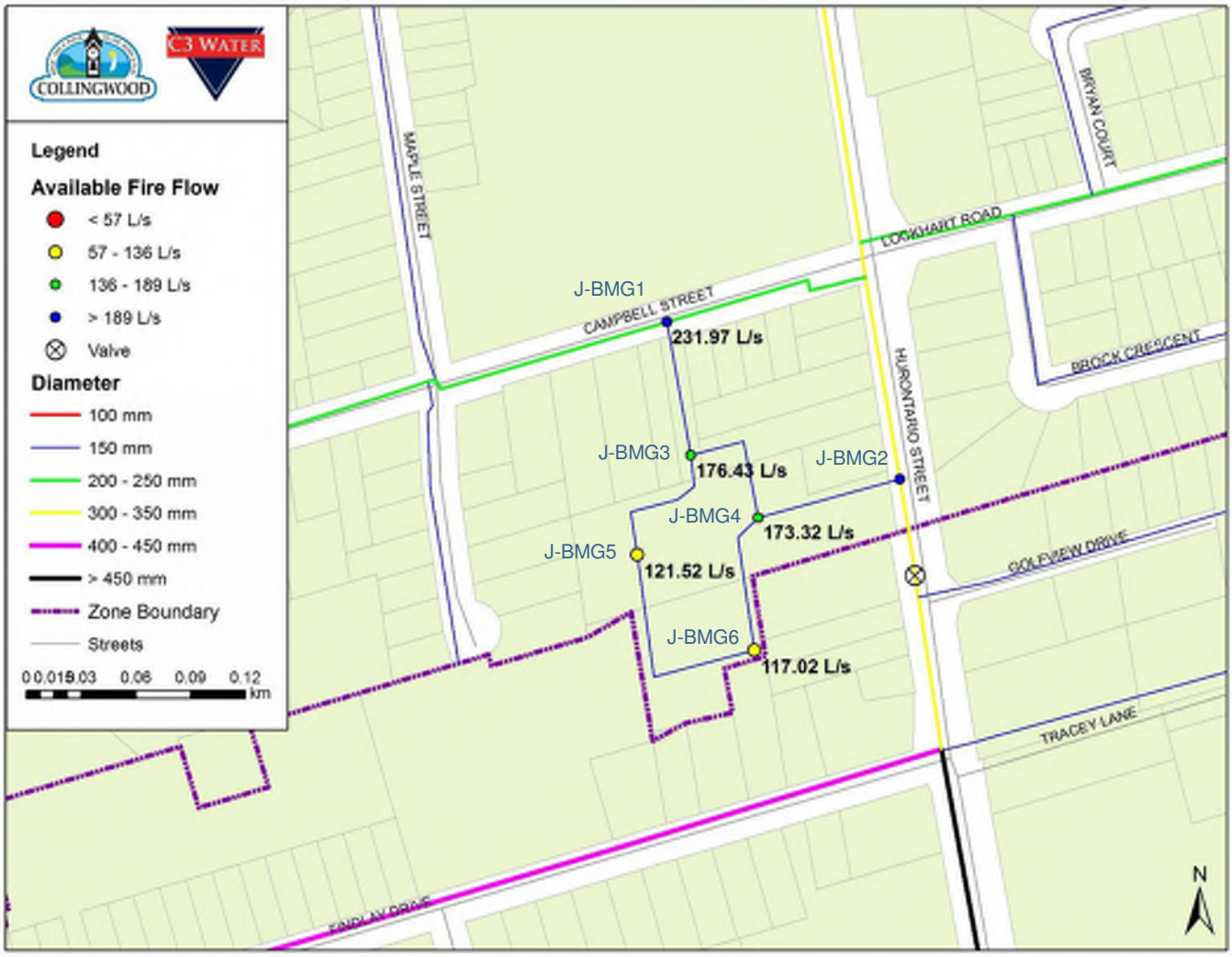


Figure 2-3 Available Fire Flows – Future 2018 Conditions, 200 mm on Campbell, PRV at 45 psi

3.0 ZONE 2 ALTERNATIVE

Another consideration would be to revise the site plan layout and move the PRV so that the development would be connected to Zone 2 from Findlay Drive and Hurontario Street, as shown in Figure 3-1.

Building the development into Zone 2 would provide consistently higher pressures in ADD and MDD conditions. Based on the Zone 2 HGL of approximately 250m, the Blackmoor Gate service elevations (190 – 193 mASL) would be expected to have static pressures of 57 – 60m of head, or 81 - 85 psi. This is slightly above the Town's preferred range, but well below the maximum pressure limit of 100 psi.

Connecting the Blackmoor Gate Development to Zone 2 would also improve fire flows. It would provide a direct connection through the 450mm on Findlay Drive to the pump capacity a Bob Davey Pumping Station. The available fire flow on Findlay Drive is approximately 300 L/s. Further discussion with the City on this option is needed to determine feasibility prior to completing a full hydraulic analysis.

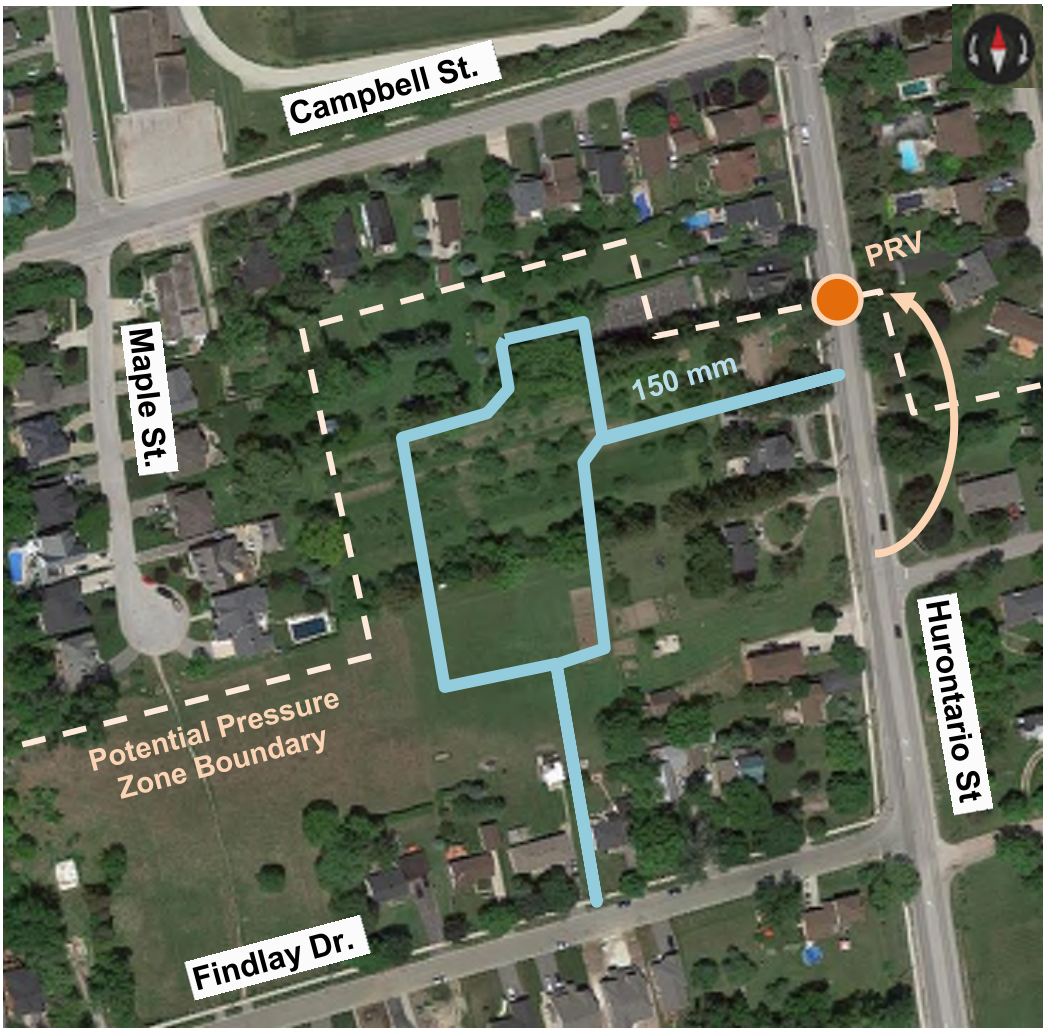
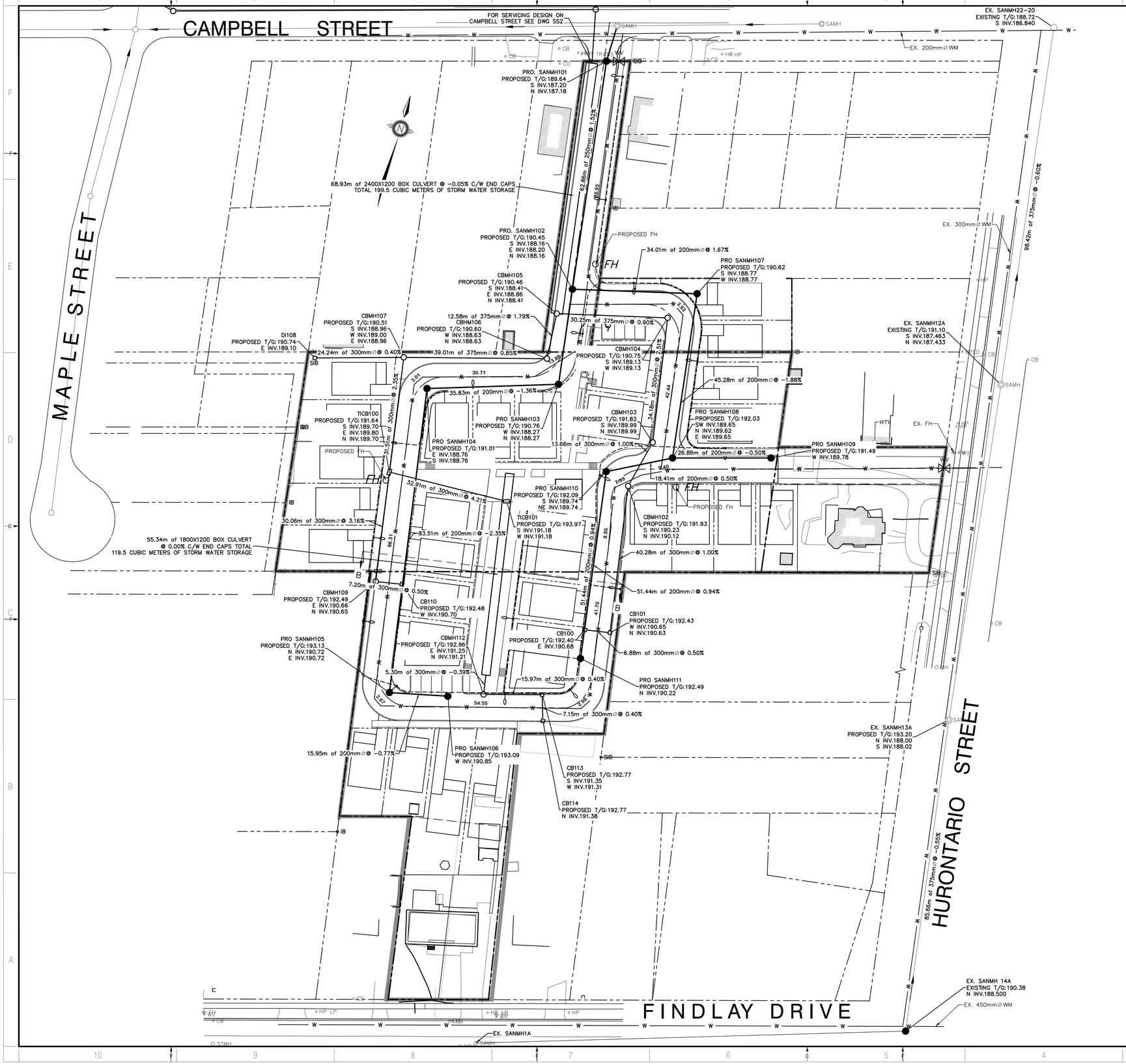


Figure 3-1: Proposed Development Area Site Overview (NTS)

4.0 SUMMARY AND RECOMMENDATIONS

1. The Blackmoor Development is located on the edge of the Zone 1 pressure boundary, and therefore is expected to experience below preferred pressures under ADD conditions. Model results show that MDD peak hour pressure would be equal to, or slightly above the minimum of 40 psi under existing and future conditions.
2. The Town's preferred fire flow of 76 L/s for single family homes can be met all locations in the development under existing and future conditions.
3. The required FUS fire flow calculated by WSP of 150 L/s cannot be achieved at all locations in the Blackmoor development with the proposed watermain sizing, existing 100mm on Campbell St. and closed PRV on Hurontario St.
4. According to model results, fire flows of 116 – 176 L/s can be achieved within the development by increasing the pipe size on Campbell St to 200mm and adjusting the PRV to open at a downstream setting of 45 psi.
5. If possible, connecting the Blackmoor Development to Zone 2 instead of Zone 1 is expected to improve pressures and available fire flows.

APPENDIX A - *Site Layout*



LEGEND

EXISTING CONDITIONS

- EXISTING PROPERTY LINE
- EXISTING EDGE OF PAVEMENT
- EXISTING 0.25m CONTOURS
- EXISTING TREELINE
- SANITARY SEWER
- WATERMAIN
- STORMSEWER
- BOTTOM OF SLOPE
- TOP OF SLOPE
- EXISTING BUILDING
- MH EXISTING SANITARY MANHOLE
- CBMH EXISTING CATCHBASIN MANHOLE
- POST EXISTING POST
- CB EXISTING CATCHBASIN
- CO EXISTING SANITARY CLEANOUT
- CS EXISTING CURB STOP VALVE
- FH EXISTING FIRE HYDRANT
- WV EXISTING WATERVALVE
- HP EXISTING HYDRO POLE AND ANCHOR
- BPED EXISTING BELL PEDESTAL
- BMH EXISTING BELL MANHOLE
- SIB EXISTING STANDARD IRON BAR
- IB EXISTING IRON BAR
- RIB EXISTING ROUND IRON BAR
- EXISTING ROAD SIGN
- EXISTING FLOWERBED
- EXISTING CONIFEROUS TREE
- EXISTING DECIDUOUS TREE
- EXISTING DECIDUOUS SHRUB

PROPOSED CONSTRUCTION

- PROPOSED CENTRELINE OF ROAD
- EDGE OF ASPHALT AND BACK OF CURB
- SANITARY SEWER
- STORM SEWER
- W WATERMAIN
- UNDER GROUND HYDRO
- WV PROPOSED WATERMAIN VALVE
- FH PROPOSED FIRE HYDRANT
- MH1 PROPOSED SANITARY MANHOLE
- PROPOSED STORM SEWER MANHOLE
- PROPOSED LIGHT POST
- 203.59 EXISTING GRADE
- 203.86 PROPOSED GRADE
- PROPOSED FLOW DIRECTION
- PROPOSED BOTTOM OF SWALE

NOTES:

- ALL PROPOSED WATERMAIN TO BE 150mmØ CLASS 52 DUCTILE IRON
- ALL STORM AND SANITARY STURCTURES TO COMPLY WITH OPSD REQUIRMENTS.
- ALL STORM PIPE TO BE HDPE SMOOTH WALL RIBBED PIPE
- ALL SANITARY PIPE TO BE PVC DR18

wsp
101-1450 1st AVENUE W,
OWEN SOUND, ONTARIO, CANADA N4K6W2
PHONE: 519-376-7612 FAX: 519-376-8008
WWW.WSP.COM

CONSULTANT:

SEAL:

CLIENT:

STRAW HAT RESTORATION

CLIENT REF. #: --

PROJECT:

BLACKMOOR GATE

KEY PLAN:

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THIS DRAWING IS NOT TO BE SCALED.

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
-	00	04/05/18	FIRST SUBMISSION SPA
-	-	-	--

PROJECT NO: 171-16446-00
DATE: APRIL 2018
ORIGINAL SCALE: 1:500
DESIGNED BY: K H
DRAWN BY: T J J
CHECKED BY: C W
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE. 25mm

DISCIPLINE: CIVIL

TITLE: SERVICING PLAN

SHEET NUMBER: SS1
SHEET #: -- OF: --

ISSUE: FIRST SUBMISSION SPA
REV #: 0
DATE OF: --

C:\PROJECTS\171-16446 Blackmoor Development\3 Design\3.2 Civil\171-16446-00-SP1.dwg 11x17 1:500 5.62mm per data division

APPENDIX B – *Demand and Fire Flow Calculations*

5.3 WATER SERVICING

Water servicing for the proposed subdivision is proposed to be accomplished by making connection to existing water services on Campbell Street and Hurontario Street, with looping of the watermain through the proposed Blackmoor Gate development. The proposed watermain layout is shown on the servicing plan found in **Appendix E**.

Water supply design has two (2) components; supply demand flow and fire protection flow at minimum pressure requirements.

Following the Town's Development Standards, the proposed development's water demand has been calculated as follows:

Maximum Day Flow required for the 31 units:

$$Q_{Max\ Day} = \frac{Q \cdot P \cdot 2.0}{86.4} = \frac{450 \cdot 0.089 \cdot 2.0}{86.4} = 0.93\ L/s$$

Where: Q=450litres/capita/day, and P=population/1000, Maximum Daily Demand Factor= 2.0

Peak Hour Flow:

$$Q_{Peak\ Hour} = \frac{Q \cdot P \cdot 4.5}{86.4} = \frac{450 \cdot 0.089 \cdot 4.5}{86.4} = 2.086\ L/s$$

Where: Q=450litres/capita/day, and P=population/1000, Peak Hourly Demand Factor= 4.5

Fire Flow Requirements based on a single worst-case lot:

Fire Flows	Q_{fire}	= 150 L/s
Storage Requirements (for 1.75 hours)		= 945 m^3

Table 1.0 - Fire Flows and Fire Storage Requirement Calculation

Project: **Blackmoor Gate, Collingwood**

Owner: **Straw Hat Restoration**

Guidelines: **Water Supply for Public Fire Protection - Fire Underwriters Survey - 1999**

Project No. 171-18448-00

Date: March 2018

Facility	Building Classification								Fire Flow Calculations			Adjustments to Fire Flow			Recommended Values		
	Occupancy	Floor Area (m^2)		Fire Walls	Dist. To Adj. Bldgs (m)	Roofing Material	Construction		C	A	F	Occupancy Hazard	Sprinkler Reduction	Building Exposure	Fire Flow Rate (l/s)	Duration (hours)	Fire Storage (m^3)
		Above Grade	Basement				Type	Year	Value	Area (m^2)	Fire F (l/min)						
1. Semi Detached Unit																	
	Group C	360	0	N/A	side 1 ~ 3m side 2 ~ 3m side 3 ~ 30m side 4 ~ 11m	Asphalt Shingles	Wood framed two storey structure	2019	1.5	360	6,000	-15%	0%	75%	150	1.75	945

1. Floor Area - Total floor area in square metres (including all storeys, but excluding basements which are at least 50% below grade) in the building considered. Condos assumed to contain loft (1.5xmain floor area was used).
2. C Value - Coefficient related to the type of construction: 1.5 - for wood frame construction (structure essentially all combustible); 1.0 - for ordinary construction (brick or other masonary walls, combustible floor and interior; 0.8 - for non-combustible construction (unprotected metal structural components, masonry or metal walls; 0.6 - for fire-resistive construction (fully protected frame, floors, roof)
3. F - the required fire flow in litres per minute calculated as follows: $F = 220 \times C \times A^{0.5}$
4. Occupancy Hazard Adjustments: the calculated fire flow may be modified based on the potential fire hazard of the occupancy contents. Adjustment factors for the type of contents are as follows: Non-combustible: -25%; Limited combustible: -15%; Combustible: no change; Free burning: +15%; Rapid burning: +25%. The fire flow demand shall not be less than 2,000 l/min.
5. Automatic Sprinkler Protection - the adjusted fire flow (as modified by the Occupancy Hazard Adjustment) may be further reduced by up to 50% for complete automatic sprinkler protection, depending upon adequacy of of the system. Typical adjustments include: -30% for sprinkler system that complies with NFPA 13 and other sprinkler standards; additional credit of up to -10% if the water supply is standard for both the system and fire department hose lines; additional credit up to -10% for for a fully supervised system.
6. Adjacent Building Exposure - the value obtained in #4 above (adjusted fire flow as modified by the Occupancy Hazard Adjustment) should be increased for structures exposed within 45 metres by the fire area under consideration. The charge for any one side generally should not exceed the following limits for the separations shown: 0 to 3 m 25%; 3.1 to 10 m 20%; 10.1 to 20 m 15%; 20.1 to 30 m 10%; 30.1 to 45 m 5%. The total shall be the sum of the percentages for all sides, but shall not exceed 75%.
7. The adjusted fire flow shall not exceed 45,000 l/min nor be less than 2,000 l/min.
8. Required Duration of Fire Flow: 2,000 l/min or less - 1.0 hr; 3,000 l/min - 1.25 hrs; 4,000 l/min - 1.5 hrs; 5,000 l/min - 1.75 hrs; 6,000 l/min - 2 hrs; 8,000 l/min - 2.0 hrs.
9. HRDC approved the use of NFPA 1142 for calculating the fire flow and fire storage volume for the school. Based on the NFPA calculations, the fireflow rate should be 39.4 l/s for a duration of 2 hrs resulting in a storage volume of 284 cu. m

Appendix H – Post Development Stormwater Management Information

CAPES Engineering Ltd.
355310 Blue Mountains-Euphrasia Townline
Clarksburg, ON
N0H 1J0

Project Name: Blackmoor Gate
Project No.: 2019-020
Location: Town of Collingwood
Created By: CC
Checked By: CC
Date Created: Nov. 14, 2019
Date Modified: 12-Dec-19

Catchment ID	Area (ha)	Flow Length (m)	Elev Up (masl)	Elev D (masl)	Sw (%)	Impervious Area (ha)	Forest Area (ha)	Grass Area (ha)	% Imp. (%)	Perv n	Dstor	Suction Head (mm)	Ksat (mm/hr)	IMD
A100	2.1107	215	197	193.35	1.70	0.7866	0.28	1.0441	37	0.20	6	109.982	10.9	0.263
A101	1.0847	167	197	192.4	2.75	0.1525	0.1723	0.7599	14	0.20	6	109.982	10.9	0.263
A102	0.3137	83	196	195.225	0.93	0.119	0	0.1947	38	0.15	5	109.982	10.9	0.263
A103	0.0768	45	195.1	194.29	1.80	0.0115	0	0.0653	15	0.15	5	109.982	10.9	0.263
A104	0.6228	100	195.1	194.935	0.16	0.298	0	0.3248	48	0.15	5	109.982	10.9	0.263
A105	0.0737	17	194.9	194.17	4.29	0.01	0	0.0637	14	0.15	5	109.982	10.9	0.263
A106	0.3141	138	195	194.65	0.25	0.19	0	0.1241	60	0.15	5	109.982	10.9	0.263
A107	0.0182	17			2.00	0.0182	0	0	100	0.15	5	109.982	10.9	0.263
A108	0.0138	15			1.00	0	0	0.0138	0	0.15	5	109.982	10.9	0.263
A109	0.1211	83	195.15	194.69	0.55	0.0955	0	0.0256	79	0.15	5	109.982	10.9	0.263
A110	0.0931	68	194.7	193.605	1.61	0.0931	0	0	100	0.15	5	109.982	10.9	0.263
A111	0.3214	57	193.32	192.98	0.60	0.0977	0	0.2237	30	0.15	5	109.982	10.9	0.263
A112	0.9485	104	195	191.4	3.46	0.1745	0.4	0.374	18	0.28	8	109.982	10.9	0.263
A113	0.0112	11	192.5	192.39	1.00	0	0	0.0112	0	0.15	5	109.982	10.9	0.263
A114	0.035	30	193.4	192.89	1.70	0.035	0	0	100	0.15	5	109.982	10.9	0.263
A115	0.0778	38	192	191.85	0.39	0	0	0.0778	0	0.15	5	109.982	10.9	0.263
A116	0.3792	176	193.2	190.85	1.34	0.25	0	0.1292	66	0.15	5	109.982	10.9	0.263
A117	0.2566	110	191	189.557	1.31	0.0735	0	0.1831	29	0.15	5	109.982	10.9	0.263
A118	0.1179	77	190.85	189.807	1.35	0.077	0	0.0409	65	0.15	5	109.982	10.9	0.263
A119	0.1139	54	189.807	189.092	1.32	0.05	0	0.0639	44	0.15	5	109.982	10.9	0.263
A120	0.4088	116	189.05	188.68	0.32	0.2884	0	0.1204	71	0.15	5	109.982	10.9	0.263
A121	1.0336	86	189.1	188.84	0.30	0.26	0.14	0.6336	25	0.20	6	109.982	10.9	0.263
S1	0.0926	64			2	0.0208		0.0718	22	0.15	5	109.982	10.9	0.263
S2	0.0557	55			2	0.0208		0.0349	37	0.15	5	109.982	10.9	0.263
S3	0.18	138			2	0.065		0.115	36	0.15	5	109.982	10.9	0.263
S4	0.1606	150			2	0.0625		0.0981	39	0.15	5	109.982	10.9	0.263
S5	0.1513	100			2	0.078		0.0733	52	0.15	5	109.982	10.9	0.263
S6	0.1148	90			2	0.073		0.0418	64	0.15	5	109.982	10.9	0.263
S7	0.0663	80			2	0.04		0.0263	60	0.15	5	109.982	10.9	0.263
S8	0.0232	30			2	0.0175		0.0057	75	0.15	5	109.982	10.9	0.263
S9	0.0897	52			2	0.047		0.0427	52	0.15	5	109.982	10.9	0.263
S10	0.1816	95			2	0.0722		0.1094	40	0.15	5	109.982	10.9	0.263
S11	0.0616	82			2	0.041		0.0206	67	0.15	5	109.982	10.9	0.263
S12	0.1096	104			2	0.065		0.0446	59	0.15	5	109.982	10.9	0.263
S13	0.0046	2			2	0.0046		0	100	0.15	5	109.982	10.9	0.263
S14	0.001	2			2	0		0.001	0	0.15	5	109.982	10.9	0.263
S15	0.0027	2			2	0		0.0027	0	0.15	5	109.982	10.9	0.263
S16	0.166	62			2	0.0638		0.1022	38	0.15	5	109.982	10.9	0.263
S17	0.0267	24			2	0.015		0.0117	56	0.15	5	109.982	10.9	0.263
S18	0.0732	40			2	0.0315		0.0417	43	0.15	5	109.982	10.9	0.263

Project Name: Blackmoor Gate
Project No.: 2019-020
Location: Town of Collingwood
Created By: CC
Checked By: CC
Date Created: Nov. 14, 2019
Date Modified: 11-Dec-19

Outlet to Campbell - Control Structure 2

Outlet Type	Elevation (m)	Head (m)	δ h (m)	h (m)	P (m)	H (m)	Outlet from Structure: Orifice m^3/s	Trap. Weir m^3/s		Total m^3/s	Storm Event	Max WSEL
Orifice	188.37	0.00	0.00				0.000			0.000		
Orifice	188.42	0.05	0.00				0.000			0.000		
Orifice	188.47	0.10	0.03				0.007			0.007		
Orifice	188.52	0.15	0.08				0.012			0.012		
Orifice	188.57	0.20	0.13				0.015			0.015		
Orifice	188.62	0.25	0.18				0.018			0.018		
Orifice	188.67	0.30	0.23				0.021			0.021		
Orifice	188.72	0.35	0.28				0.023			0.023		
Orifice	188.77	0.40	0.33				0.025			0.025		
Orifice	188.82	0.45	0.38				0.026			0.026	2	188.84
Orifice + Trap. W	188.87	0.50	0.43				0.028			0.028		
Orifice + Trap. W	188.92	0.55	0.48				0.030			0.030		
Orifice + Trap. W	188.97	0.60	0.53	0.00	0.60		0.031	0.000		0.031	5	188.99
Orifice + Trap. W	189.02	0.65	0.58	0.10	0.60		0.033	0.018		0.050		
Orifice + Trap. W	189.07	0.70	0.63	0.15	0.60		0.034	0.032		0.067	10	189.06
Orifice + Trap. W	189.12	0.75	0.68	0.20	0.60		0.035	0.050		0.085		
Orifice + Trap. W	189.17	0.80	0.73	0.25	0.60		0.037	0.070		0.106	25	189.17
Orifice + Trap. W	189.22	0.85	0.78	0.30	0.60		0.038	0.092		0.130		
Orifice + Trap. W	189.27	0.90	0.83	0.35	0.60		0.039	0.116		0.155	50	189.25
Orifice + Trap. W	189.32	0.95	0.88	0.40	0.60		0.040	0.141		0.181	100	189.33
Orifice + Trap. W	189.35	0.98	0.91	0.43	0.60		0.041	0.157		0.198		
Orifice + Trap. W	189.40	1.03	0.96	0.48	0.60		0.042	0.157		0.199	Timmins	189.39

Orifice — Q = Cd*Ao*SQRT(2g*δh)

Q = Peak Runoff (m^3/s)
Cd = Constant (0.63 orifice, 0.8 for orifice tube)
Ao = Cross sectional Area of Orifice (m^2)
g = gravity, 9.8 m/s^2
δ h = change in elevation between middle of the discharge pipe and the water surface (m)

Cd	**0.63**
Orifice Dia. (m)	**0.140**

Trapezoidal Weir — $Q = 1.86bh^{3/2}$

Q = Peak Runoff (m^3/s)
b = width of weir bottom (m)
h = distance from weir opening to top of water surface (m)

b	**0.30**

Project Name: Blackmoor Gate
Project No.: 2019-020
Location: Town of Collingwood
Created By: CC
Checked By: CC
Date Created: Nov. 14, 2019
Date Modified: 11-Dec-19

Control to Street A - Control Structure 1

Outlet Type	Elevation (m)	Head (m)	δ h (m)	h (m)	P (m)	H (m)	Outlet from Structure				Storm Event	Max WSEL
							Orifice m^3/s	Trap. Weir m^3/s		Total m^3/s		
Orifice	188.70	0.00	0.00				0.000			0.000		
Orifice	188.75	0.05	0.01				0.001			0.001		
Orifice	188.80	0.10	0.06				0.003			0.003		
Orifice	188.85	0.15	0.11				0.004			0.004		
Orifice	188.90	0.20	0.16				0.005			0.005		
Orifice	188.95	0.25	0.21				0.006			0.006		
Orifice	189.00	0.30	0.26				0.006			0.006		
Orifice	189.05	0.35	0.31				0.007			0.007		
Orifice	189.10	0.40	0.36				0.007			0.007		
Orifice	189.15	0.45	0.41				0.008			0.008		
Orifice	189.20	0.50	0.46				0.008			0.008		
Orifice	189.25	0.55	0.51				0.009			0.009		
Orifice	189.30	0.60	0.56				0.009			0.009		
Orifice	189.35	0.65	0.61				0.010			0.010		
Orifice	189.40	0.70	0.66				0.010			0.010		
Orifice	189.45	0.75	0.71				0.010			0.010	2	189.46
Orifice	189.50	0.80	0.76				0.011			0.011		
Orifice	189.55	0.85	0.81				0.011			0.011		
Orifice	189.60	0.90	0.86				0.011			0.011	5	189.61
Orifice + Trap. W	189.65	0.95	0.91	0.00	0.85		0.012	0.000		0.012		
Orifice + Trap. W	189.70	1.00	0.96	0.05	0.85		0.012	0.005		0.017		
Orifice + Trap. W	189.75	1.05	1.01	0.10	0.85		0.012	0.015		0.027	10	189.73
Orifice + Trap. W	189.80	1.10	1.06	0.15	0.85		0.013	0.027		0.040		
Orifice + Trap. W	189.85	1.15	1.11	0.20	0.85		0.013	0.042		0.055	25	189.83
Orifice + Trap. W	189.90	1.20	1.16	0.25	0.85		0.013	0.058		0.071	50	189.9
Orifice + Trap. W	189.95	1.25	1.21	0.30	0.85		0.014	0.076		0.090		
Orifice + Trap. W	190.00	1.30	1.26	0.35	0.85		0.014	0.076		0.090	100	189.98
Orifice + Trap. W	190.05	1.35	1.31	0.40	0.85		0.014	0.076		0.091		
Orifice + Trap. W	190.10	1.40	1.36	0.45	0.85		0.014	0.076		0.091		
Orifice + Trap. W	190.15	1.45	1.41	0.50	0.85		0.015	0.076		0.091		
Orifice + Trap. W	190.20	1.50	1.46	0.55	0.85		0.015	0.076		0.091	Timmins	190.19
Orifice + Trap. W	190.25	1.55	1.51	0.60	0.85		0.015	0.076		0.092		
Orifice + Trap. W	190.35	1.65	1.61	0.70	0.85		0.016	0.076		0.092		
Orifice + Trap. W	190.43	1.73	1.69	0.78	0.85		0.016	0.076		0.092		

Orifice $Q = Cd*Ao*SQRT(2g*\delta h)$

Q = Peak Runoff (m^3/s)
Cd = Constant (0.63 orifice, 0.8 for orifice tube)
Ao = Cross sectional Area of Orifice (m^2)
g = gravity, 9.8 m/s^2
δ h = change in elevation between middle of the discharge pipe and the water surface (m)

Cd	**0.63**
Orifice Dia. (m)	**0.075**

Trapezoidal Weir $Q = 1.86bh^{3/2}$

Q = Peak Runoff (m^3/s)
b = width of weir bottom (m)
h = distance from weir opening to top of water surface (m)

b	**0.25**

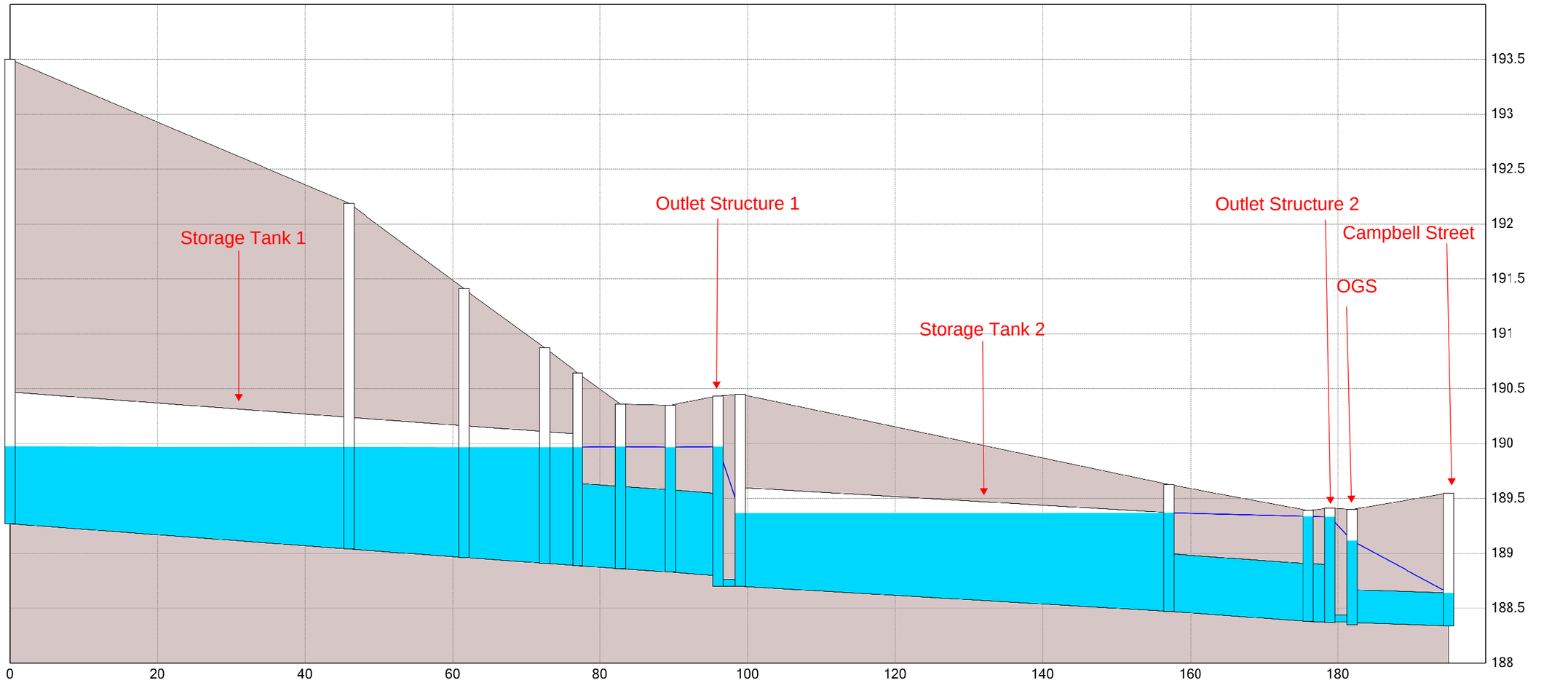
Blackmoor Gates - Internal Storm Sewer HGL1

100 Year Chicago Storm

HGL

Peak values

Links:	C60	C50_3	C50_4	C50_1	C50_5	C52	C53_1	C53_2	C59_1	C59_2	C60_3	C60_4	C60_2
	Q=0.051 m³/s	Q=0.042 m³/s	Q=0.064 m³/s	Q=0.075 m³/s	Q=0.078 m³/s	Q=0.081 m³/s	Q=0.09 m³/s	Q=0.09 m³/s	Q=0.308 m³/s	Q=0.174 m³/s	Q=0.184 m³/s	Q=0.184 m³/s	Q=0.184 m³/s
	L=45.902 m	L=15.582 m	L=10.979 m	L=4.495 m	L=5.809 m	L=6.723 m	L=6.502 m		L=58.045 m	L=18.938 m	L=2.931 m		L=13.09 m
	D=1.2 m	D=1.2 m	D=1.2 m	D=1.2 m	D=0.75 m	D=0.75 m	D=0.75 m		D=0.9 m	D=0.525 m	D=0.525 m		D=0.3 m
	V=0.016 m/s	V=0.048 m/s	V=0.075 m/s	V=0.098 m/s	V=0.452 m/s	V=0.429 m/s	V=0.483 m/s	V=0 m/s	V=0.142 m/s	V=0.803 m/s	V=0.848 m/s	V=0 m/s	V=2.598 m/s



Nodes:	J3	DICB3	J7	J5	J10	DCBMH3-1	DCBMH03	J9	MH07	J1	DCBMH08	OS2	OGS	J4
	M=189.9739 m	M=189.9682 m	M=189.9677 m	M=189.9676 m	M=189.9675 m	M=189.9718 m	M=189.9671 m	M=189.9719 m	M=189.3678 m	M=189.369 m	M=189.3374 m	M=189.3319 m	M=189.1141 m	M=188.64 m
	R=193.5 m	R=192.19 m	R=191.413 m	R=190.873 m	R=190.645 m	R=190.36 m	R=190.35 m	R=190.434 m	R=190.45 m	R=189.628 m	R=189.39 m	R=189.413 m	R=189.4 m	R=189.55 m
	I=189.27 m	I=189.04 m	I=188.963 m	I=188.91 m	I=188.888 m	I=188.86 m	I=188.83 m	I=188.7 m	I=188.7 m	I=188.472 m	I=188.38 m	I=188.369 m	I=188.35 m	I=188.34 m

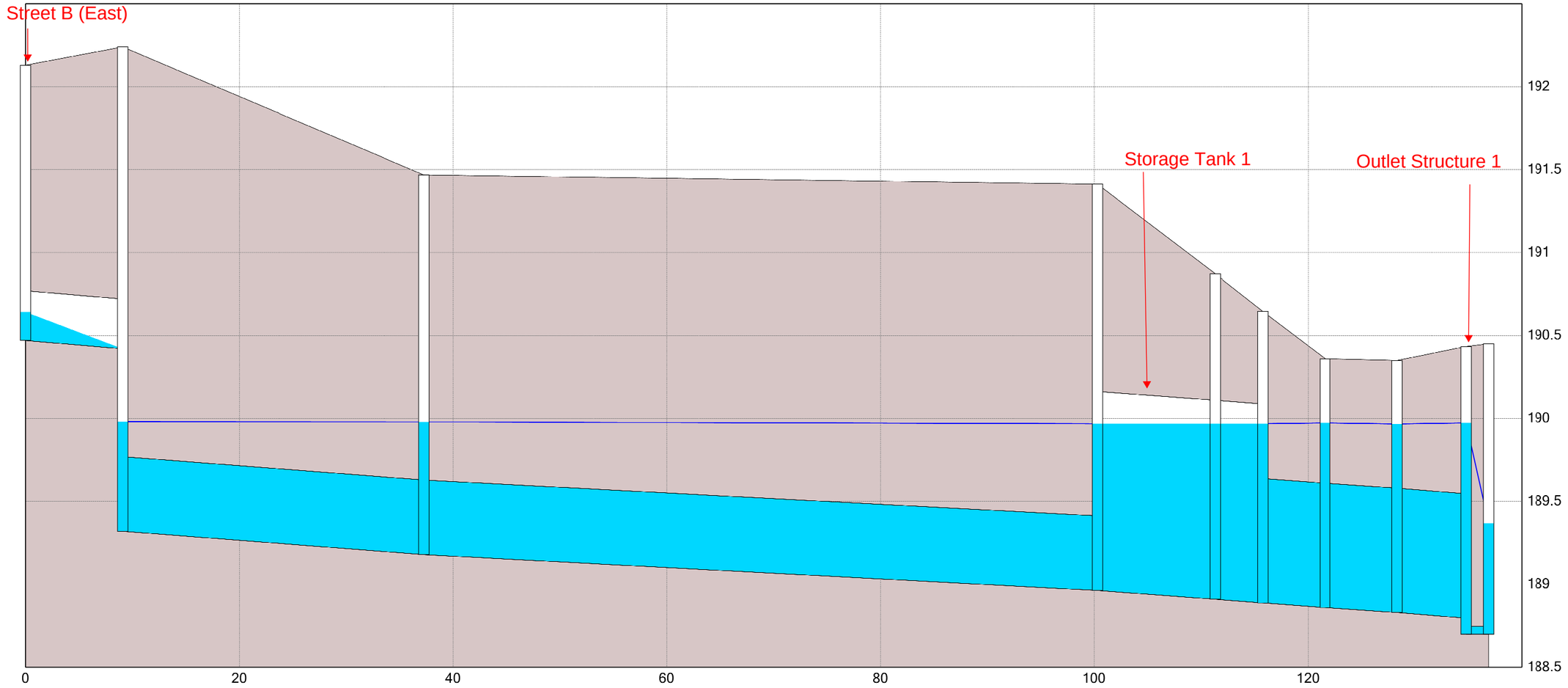
Blackmoor Gates - Internal Storm Sewer HGL2

100 Year 4 Hr CHIC Storm

HGL

Peak values

Links:	C57	C58_1	C50	C50_4	C50_1	C50_5	C52	C53_1	C53_2
	Q=0.046 m³/s	Q=0.082 m³/s	Q=0.093 m³/s	Q=0.064 m³/s	Q=0.075 m³/s	Q=0.078 m³/s	Q=0.081 m³/s	Q=0.09 m³/s	Q=0.09 m³/s
	L=9.105 m	L=28.174 m	L=63.029 m	L=10.979 m	L=4.495 m	L=5.809 m	L=6.723 m	L=6.502 m	
	D=0.3 m	D=0.45 m	D=0.45 m	D=1.2 m	D=1.2 m	D=0.75 m	D=0.75 m	D=0.75 m	
	V=1.128 m/s	V=1.069 m/s	V=0.979 m/s	V=0.075 m/s	V=0.098 m/s	V=0.452 m/s	V=0.429 m/s	V=0.483 m/s	V=0 m/s



Nodes:	CB04	CBMH04	J8	J7	J5	J10	DCBMH3-1	DCBMH03	J9	MH07
	M=190.6414 m	M=189.98 m	M=189.9784 m	M=189.9677 m	M=189.9676 m	M=189.9675 m	M=189.9718 m	M=189.9671 m	M=189.9719 m	M=189.3678 m
	R=192.13 m	R=192.24 m	R=191.468 m	R=191.413 m	R=190.873 m	R=190.645 m	R=190.36 m	R=190.35 m	R=190.434 m	R=190.45 m
	I=190.47 m	I=189.32 m	I=189.179 m	I=188.963 m	I=188.91 m	I=188.888 m	I=188.86 m	I=188.83 m	I=188.7 m	I=188.7 m

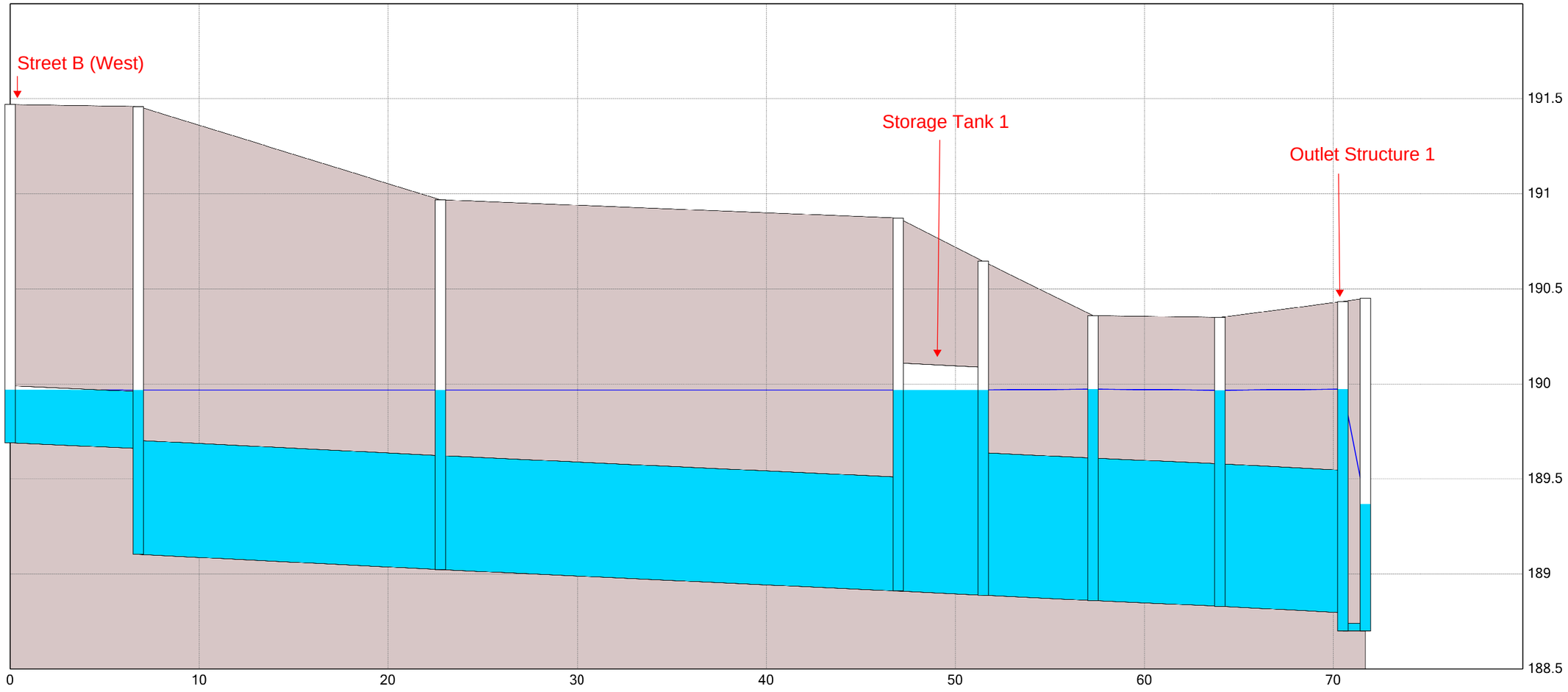
Blackmoor Gates - Internal Storm Sewer HGL3

100 Year 4 Hr CHIC Storm

HGL

Peak values

Links:	C47	C49_1	C49	C50_1	C50_5	C52	C53_1	C53_2
	Q=0.039 m³/s	Q=0.087 m³/s	Q=0.093 m³/s	Q=0.075 m³/s	Q=0.078 m³/s	Q=0.081 m³/s	Q=0.09 m³/s	Q=0.09 m³/s
	L=6.78 m	L=15.972 m	L=24.223 m	L=4.495 m	L=5.809 m	L=6.723 m	L=6.502 m	
	D=0.3 m	D=0.6 m	D=0.6 m	D=1.2 m	D=0.75 m	D=0.75 m	D=0.75 m	
	V=1.055 m/s	V=1.083 m/s	V=0.862 m/s	V=0.098 m/s	V=0.452 m/s	V=0.429 m/s	V=0.483 m/s	V=0 m/s



Nodes:	CB01	CBMH01	J6	J5	J10	DCBMH3-1	DCBMH03	J9	MH07
	M=189.9693 m	M=189.9678 m	M=189.9678 m	M=189.9676 m	M=189.9675 m	M=189.9718 m	M=189.9671 m	M=189.9719 m	M=189.3678 m
	R=191.47 m	R=191.46 m	R=190.969 m	R=190.873 m	R=190.645 m	R=190.36 m	R=190.35 m	R=190.434 m	R=190.45 m
	I=189.69 m	I=189.103 m	I=189.023 m	I=188.91 m	I=188.888 m	I=188.86 m	I=188.83 m	I=188.7 m	I=188.7 m

Blackmoor Gates - Internal Storm Sewer HGL4

100 Year 4 Hr CHIC Storm

HGL

Peak values

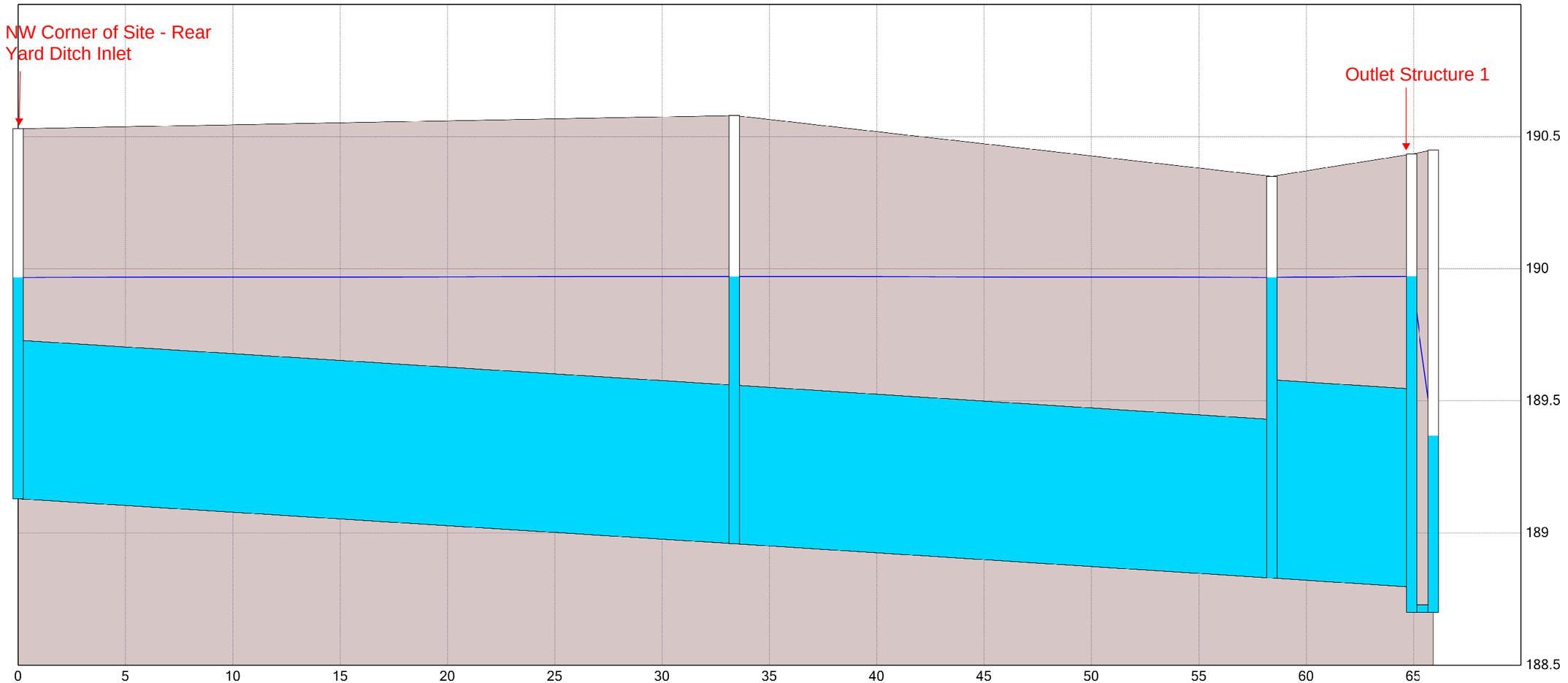
Conduit C48
Flow = 0.033 m³/s
Length = 33.373 m
Depth = 0.6 m
Velocity = 0.257 m/s

Conduit C51
Flow = 0.04 m³/s
Length = 25.032 m
Depth = 0.6 m
Velocity = 0.148 m/s

Conduit C53_1
Flow = 0.09 m³/s
Length = 6.502 m
Depth = 0.75 m
Velocity = 0.483 m/s

Outlet C53_2
Flow = 0.09 m³/s

Velocity = 0 m/s



Junction CB02
Max. CWSEL = 189.9673 m
Rim Elev. = 190.53 m
Invert Elev. = 189.13 m
09/24/2019 01:51AM

Junction MH02
Max. CWSEL = 189.9708 m
Rim Elev. = 190.58 m
Invert Elev. = 188.96 m
09/24/2019 01:54AM

Junction DCBMH03
Max. CWSEL = 189.9671 m
Rim Elev. = 190.35 m
Invert Elev. = 188.83 m
09/24/2019 01:49AM

Junction J9
Max. CWSEL = 189.9719 m
Rim Elev. = 190.434 m
Invert Elev. = 188.7 m
09/24/2019 01:54AM

Junction MH07
Max. CWSEL = 189.3678 m
Rim Elev. = 190.45 m
Invert Elev. = 188.7 m
09/24/2019 02:02AM

Post Development - Chicago 4 Hr 25 mm Storm Event

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
--------------------------------------------------------------

Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
----------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


********************
Subcatchment Summary
********************
Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-------------------------------------------------------------------------------------------------
```

A100	2.11	98.17	37.00	1.7000 25mm	DICB101
A101	1.08	64.95	14.00	2.7500 25mm	MH106
A102	0.31	37.80	38.00	1.0000 25mm	MH43-S
A103	0.08	17.07	15.00	1.8000 25mm	DICB6
A104_2	0.29	28.60	48.00	0.1600 25mm	MH42-S
A104_3	0.28	28.49	48.00	0.1600 25mm	MH42-S
A104_4	0.05	18.54	25.00	2.0000 25mm	MH42-S
A105	0.07	43.35	14.00	4.3000 25mm	DICB7
A106	0.31	22.76	60.00	0.2500 25mm	MH40-S
A107	0.02	10.71	100.00	2.0000 25mm	MH106-S
A108	0.01	9.20	0.00	1.0000 25mm	DICB4
A109	0.12	14.59	79.00	0.5500 25mm	J17-S
A110	0.09	13.90	100.00	1.6000 25mm	CBMH103-S
A111	0.32	56.39	30.00	0.6000 25mm	MH103
A112_1	0.79	75.86	18.00	3.4600 25mm	CB102
A112_3	0.16	15.14	18.00	3.4600 25mm	CB101
A113	0.01	10.18	0.00	1.0000 25mm	DICB99
A114	0.04	11.67	100.00	1.7000 25mm	CBMH101-S
A115	0.08	20.47	0.00	0.3900 25mm	DICB100
A116	0.38	21.55	66.00	1.3400 25mm	STMH201-S
A117	0.26	23.33	29.00	1.3000 25mm	CB32
A118	0.12	15.31	65.00	1.3500 25mm	CBMH30-S
A119	0.11	21.09	44.00	1.3200 25mm	CB19-S
A120	0.41	35.24	71.00	0.3200 25mm	CB16-S
A121	1.03	120.19	25.00	0.3000 25mm	J13
A3	0.81	81.34	8.00	2.0000 25mm	S10
S1	0.09	14.47	22.00	2.0000 25mm	CB02
S10	0.18	19.12	40.00	2.0000 25mm	DCB06
S11	0.06	7.51	67.00	2.0000 25mm	DCBMH08
S12	0.11	10.54	59.00	2.0000 25mm	DCB08
S13	0.00	23.00	100.00	2.0000 25mm	OF2
S14	0.00	5.00	0.00	2.0000 25mm	OF3
S15	0.00	13.50	0.00	2.0000 25mm	OF4
S16	0.17	26.77	38.00	2.0000 25mm	J7
S17	0.03	11.13	56.00	2.0000 25mm	J6
S18	0.07	18.30	43.00	2.0000 25mm	DCBMH3-1
S2	0.06	10.13	37.00	2.0000 25mm	DICB3
S3	0.18	13.04	36.00	2.0000 25mm	CB01
S4	0.16	10.71	39.00	2.0000 25mm	CBMH04
S5	0.15	15.13	52.00	2.0000 25mm	CB04
S6	0.11	12.76	64.00	2.0000 25mm	CBMH01
S7	0.07	8.29	60.00	2.0000 25mm	DCBMH03
S8	0.02	7.73	75.00	2.0000 25mm	J8
S9	0.09	17.25	52.00	2.0000 25mm	DCBMH06

****
LID Control Summary
****

Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

****
Node Summary
****

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

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Transect Summary
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Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

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            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

```
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ..... 8
Number of Threads ........ 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.273	24.999
Evaporation Loss	0.000	0.000
Infiltration Loss	0.179	16.430
Surface Runoff	0.087	7.940
Final Storage	0.008	0.702
Continuity Error (%)	-0.288	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.087	0.867
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.181	1.814
External Outflow	0.273	2.729
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-1.751	

```
Highest Continuity Errors
Node MH102-S (78.43%)
Node MH40-S (-49.16%)
Node DCB65 (16.68%)
Node DCB66 (16.67%)
Node MH42-S (-15.06%)
```

****
Time-Step Critical Elements
****
Link C13 (99.64%)

****
Highest Flow Instability Indexes
****
Link DCB_40A-IC (24)
Link MH40-IC (24)
Link J17-IC (21)
Link DCB66-IC (21)
Link DCB_42A-IC (20)

****
Routing Time Step Summary
****
Minimum Time Step   :   0.50 sec
Average Time Step   :   1.01 sec
Maximum Time Step   :   5.00 sec
Percent in Steady State   :   0.00
Average Iterations per Step :   2.01
Percent Not Converging   :   0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	25.00	0.00	0.00	15.75	8.58	0.00	8.58	0.18	0.13	0.343
A101	25.00	0.00	0.00	21.50	3.24	0.00	3.24	0.04	0.03	0.129
A102	25.00	0.00	0.00	15.50	8.81	0.00	8.81	0.03	0.02	0.352
A103	25.00	0.00	0.00	21.25	3.46	0.00	3.46	0.00	0.00	0.138
A104_2	25.00	0.00	0.00	12.99	11.11	0.01	11.13	0.03	0.02	0.445
A104_3	25.00	0.00	0.00	12.99	11.11	0.01	11.13	0.03	0.02	0.445
A104_4	25.00	0.00	0.00	23.11	5.76	1.56	1.56	0.00	0.00	0.062
A105	25.00	0.00	0.00	21.50	3.23	0.00	3.23	0.00	0.00	0.129
A106	25.00	0.00	0.00	10.00	13.88	0.00	13.88	0.04	0.02	0.555

A107	25.00	0.00	0.00	0.00	23.10	0.00	23.10	0.00	0.00	0.924
A108	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.000
A109	25.00	0.00	0.00	5.25	18.31	0.00	18.31	0.02	0.02	0.732
A110	25.00	0.00	0.00	0.00	23.18	0.00	23.18	0.02	0.02	0.927
A111	25.00	0.00	0.00	17.50	6.95	0.00	6.95	0.02	0.02	0.278
A112_1	25.00	0.00	0.00	20.50	4.16	0.00	4.16	0.03	0.03	0.166
A112_3	25.00	0.00	0.00	20.50	4.16	0.00	4.16	0.01	0.01	0.166
A113	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.000
A114	25.00	0.00	0.00	0.00	23.15	0.00	23.15	0.01	0.01	0.926
A115	25.00	0.00	0.00	25.00	0.00	0.00	0.00	0.00	0.00	0.000
A116	25.00	0.00	0.00	8.50	15.29	0.00	15.29	0.06	0.04	0.612
A117	25.00	0.00	0.00	17.75	6.72	0.00	6.72	0.02	0.01	0.269
A118	25.00	0.00	0.00	8.75	15.07	0.00	15.07	0.02	0.01	0.603
A119	25.00	0.00	0.00	14.00	10.18	0.00	10.18	0.01	0.01	0.407
A120	25.00	0.00	0.00	7.25	16.43	0.00	16.43	0.07	0.04	0.657
A121	25.00	0.00	0.00	18.75	5.80	0.00	5.80	0.06	0.05	0.232
A3	25.00	0.00	0.00	23.31	1.84	1.57	1.57	0.01	0.01	0.063
S1	25.00	0.00	0.00	20.66	5.08	4.02	4.02	0.00	0.00	0.161
S10	25.00	7.04	0.00	19.20	10.56	7.86	12.29	0.02	0.01	0.384
S11	25.00	0.00	0.00	7.70	15.53	0.58	16.11	0.01	0.01	0.644
S12	25.00	0.00	0.00	11.88	13.68	5.32	12.16	0.01	0.01	0.486
S13	25.00	0.00	0.00	0.00	23.06	0.00	23.06	0.00	0.00	0.923
S14	25.00	0.00	0.00	22.20	0.00	3.79	3.79	0.00	0.00	0.152
S15	25.00	0.00	0.00	22.20	0.00	3.79	3.79	0.00	0.00	0.152
S16	25.00	0.00	0.00	17.45	8.79	7.01	7.01	0.01	0.01	0.280
S17	25.00	0.00	0.00	11.88	12.93	5.94	12.40	0.00	0.00	0.496
S18	25.00	0.00	0.00	14.34	9.93	3.01	9.97	0.01	0.01	0.399
S2	25.00	0.00	0.00	14.81	8.55	0.99	9.54	0.01	0.00	0.382
S3	25.00	0.00	0.00	17.53	8.34	2.69	6.86	0.01	0.01	0.274
S4	25.00	0.00	0.00	16.01	9.04	1.53	8.31	0.01	0.01	0.333
S5	25.00	0.00	0.00	13.54	12.05	4.58	10.61	0.02	0.01	0.424
S6	25.00	0.00	0.00	8.44	14.84	0.58	15.42	0.02	0.01	0.617
S7	25.00	0.00	0.00	9.38	13.91	0.65	14.56	0.01	0.01	0.582
S8	25.00	0.00	0.00	6.86	17.34	4.00	17.01	0.00	0.00	0.680
S9	25.00	0.00	0.00	13.34	12.03	6.07	10.88	0.01	0.01	0.435

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	30.20	0.00	30.20	0.00	0.00	0.00	0.00	0.00

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.08	193.61	0 01:40	0.08
CB_43B	JUNCTION	0.00	0.07	193.92	0 01:40	0.07
CB01	JUNCTION	0.00	0.06	189.75	0 01:40	0.06
CB02	JUNCTION	0.00	0.08	189.21	0 02:23	0.08
CB04	JUNCTION	0.00	0.07	190.54	0 01:40	0.07
CB100	JUNCTION	0.00	0.07	189.64	0 01:40	0.07
CB101	JUNCTION	0.00	0.03	191.26	0 01:40	0.03
CB102	JUNCTION	0.00	0.05	191.28	0 01:40	0.05
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.09	187.37	0 01:41	0.09
CB16	JUNCTION	0.10	0.53	187.89	0 01:44	0.53
CB16-S	JUNCTION	0.00	0.00	188.68	0 01:40	0.00
CB19	JUNCTION	0.05	0.25	187.99	0 01:42	0.25
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:40	0.00
CB32	JUNCTION	0.13	0.19	188.60	0 01:40	0.19
CB4	JUNCTION	0.00	0.14	188.01	0 01:42	0.14
CBMH01	JUNCTION	0.01	0.10	189.21	0 02:18	0.10
CBMH04	JUNCTION	0.00	0.09	189.41	0 01:40	0.09
CBMH100	JUNCTION	0.05	0.23	189.26	0 01:42	0.23
CBMH101	JUNCTION	0.04	0.20	190.69	0 01:42	0.20
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:40	0.00
CBMH103	JUNCTION	0.01	0.33	191.06	0 01:42	0.33
CBMH103-S	JUNCTION	0.00	0.00	193.35	0 01:40	0.00
CBMH105	JUNCTION	0.00	0.03	191.42	0 01:40	0.03
CBMH30	JUNCTION	0.06	0.29	188.25	0 01:42	0.29
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:40	0.00
CBMH31	JUNCTION	0.16	0.22	188.60	0 01:40	0.22
DCB_40A	JUNCTION	0.00	0.04	193.34	0 01:40	0.04
DCB_40B	JUNCTION	0.00	0.03	193.29	0 01:40	0.03
DCB_42A	JUNCTION	0.00	0.07	193.44	0 01:40	0.07
DCB_42B	JUNCTION	0.00	0.05	193.39	0 01:40	0.05
DCB06	JUNCTION	0.00	0.07	188.98	0 01:55	0.07
DCB08	JUNCTION	0.02	0.19	188.61	0 02:14	0.19
DCB65	JUNCTION	0.00	0.15	191.38	0 01:41	0.15
DCB66	JUNCTION	0.00	0.15	191.38	0 01:41	0.15

DCBMH03	JUNCTION	0.03	0.39	189.22	0	02:18	0.38
DCBMH06	JUNCTION	0.00	0.06	188.94	0	01:45	0.06
DCBMH08	JUNCTION	0.06	0.23	188.61	0	02:14	0.23
DCBMH3-1	JUNCTION	0.03	0.36	189.22	0	02:18	0.36
DICB100	JUNCTION	0.00	0.06	190.69	0	01:42	0.06
DICB101	JUNCTION	0.01	0.33	193.09	0	01:40	0.32
DICB3	JUNCTION	0.01	0.17	189.21	0	02:21	0.17
DICB4	JUNCTION	0.00	0.00	192.24	0	00:00	0.00
DICB6	JUNCTION	0.00	0.03	193.71	0	01:40	0.03
DICB7	JUNCTION	0.00	0.03	193.22	0	01:40	0.03
DICB99	JUNCTION	0.00	0.13	190.69	0	01:42	0.13
J1	JUNCTION	0.01	0.14	188.61	0	02:14	0.14
J10	JUNCTION	0.03	0.32	189.21	0	02:20	0.32
J12	JUNCTION	0.10	0.53	187.88	0	01:43	0.53
J13	JUNCTION	0.09	0.52	187.81	0	01:43	0.52
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.18	191.38	0	01:41	0.18
J17-S	JUNCTION	0.00	0.00	194.63	0	17:19	0.00
J2	JUNCTION	0.08	0.28	191.00	0	01:42	0.27
J3	JUNCTION	0.00	0.00	189.27	0	00:00	0.00
J5	JUNCTION	0.02	0.30	189.21	0	02:22	0.30
J6	JUNCTION	0.01	0.18	189.20	0	02:18	0.18
J7	JUNCTION	0.02	0.24	189.21	0	02:20	0.24
J8	JUNCTION	0.00	0.11	189.29	0	01:40	0.11
J9	JUNCTION	0.05	0.55	189.25	0	02:09	0.54
MH02	JUNCTION	0.02	0.25	189.21	0	02:21	0.25
MH07	JUNCTION	0.00	0.01	188.71	0	01:47	0.01
MH102	JUNCTION	0.07	0.34	190.99	0	01:42	0.34
MH102-S	JUNCTION	0.00	0.00	193.27	0	02:33	0.00
MH103	JUNCTION	0.08	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.01	0.34	192.74	0	01:40	0.34
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:40	0.00
MH15	JUNCTION	0.00	0.36	187.89	0	01:44	0.36
MH18	JUNCTION	0.00	0.21	188.01	0	01:43	0.18
MH40	JUNCTION	0.01	0.30	192.74	0	01:40	0.30
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:40	0.00
MH41	JUNCTION	0.01	0.20	192.97	0	01:41	0.20
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.18	193.20	0	01:40	0.18
MH42-S	JUNCTION	0.00	0.00	194.65	0	01:40	0.00
MH43	JUNCTION	0.00	0.12	193.56	0	01:40	0.12
MH43-S	JUNCTION	0.00	0.00	194.94	0	01:40	0.00
MH54	JUNCTION	0.08	0.15	191.50	0	00:00	0.13
MH61	JUNCTION	0.00	0.00	191.49	0	00:00	0.00
MH62	JUNCTION	0.02	0.33	191.38	0	01:41	0.33

OGS	JUNCTION	0.04	0.14	188.49	0	02:14	0.14	
OS2	JUNCTION	0.07	0.24	188.61	0	02:14	0.24	
STMH201	JUNCTION	0.05	0.23	189.26	0	01:42	0.23	
STMH201-S	JUNCTION	0.00	0.00	190.85	0	01:40	0.00	
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00	
J14	OUTFALL	0.09	0.52	187.80	0	01:43	0.52	
J4	OUTFALL	0.01	0.10	188.44	0	02:15	0.10	
OF1	OUTFALL	0.00	0.00	188.60	0	01:40	0.00	
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min		Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.013	0	01:40	0	0.0171	1.627	
CB_43B	JUNCTION	0.000	0.011	0	01:40	0	0.0144	1.884	
CB01	JUNCTION	0.007	0.007	0	01:40	0.0123	0.0123	0.005	
CB02	JUNCTION	0.002	0.002	0	01:56	0.00372	0.00454	-0.775	
CB04	JUNCTION	0.008	0.008	0	01:40	0.016	0.016	0.003	
CB100	JUNCTION	0.000	0.019	0	01:40	0	0.0294	0.460	
CB101	JUNCTION	0.006	0.006	0	01:40	0.00654	0.00654	-0.000	
CB102	JUNCTION	0.028	0.028	0	01:40	0.0328	0.0328	-0.001	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.020	0	01:40	0	0.0342	0.745	
CB16	JUNCTION	0.000	0.393	0	01:42	0	2.48	0.019	
CB16-S	JUNCTION	0.040	0.040	0	01:40	0.0672	0.0672	-1.858	
CB19	JUNCTION	0.000	0.381	0	01:42	0	2.44	-0.002	
CB19-S	JUNCTION	0.010	0.010	0	01:40	0.0116	0.0116	-0.301	
CB32	JUNCTION	0.014	0.014	0	01:40	0.0172	0.019	0.804	
CB4	JUNCTION	0.000	0.006	0	01:43	0	0.00636	-0.279	
CBMH01	JUNCTION	0.014	0.020	0	01:40	0.0177	0.03	-0.081	
CBMH04	JUNCTION	0.009	0.017	0	01:40	0.0134	0.0294	0.004	
CBMH100	JUNCTION	0.000	0.019	0	01:40	0	0.0299	0.136	
CBMH101	JUNCTION	0.000	0.319	0	01:42	0	2.34	0.051	
CBMH101-S	JUNCTION	0.007	0.007	0	01:40	0.0081	0.0081	-0.261	
CBMH103	JUNCTION	0.000	0.266	0	01:42	0	0.439	0.031	
CBMH103-S	JUNCTION	0.016	0.016	0	01:40	0.0216	0.0216	-0.565	

CBMH105	JUNCTION	0.000	0.004	0	01:40	0	0.0043	1.090	
CBMH30	JUNCTION	0.000	0.370	0	01:42	0	2.43	-0.003	
CBMH30-S	JUNCTION	0.014	0.014	0	01:40	0.0178	0.0178	-1.060	
CBMH31	JUNCTION	0.000	0.021	0	01:40	0	0.0279	0.767	
DCB_40A	JUNCTION	0.000	0.019	0	01:35	0	0.0325	12.542	
DCB_40B	JUNCTION	0.000	0.019	0	01:35	0	0.0325	12.703	
DCB_42A	JUNCTION	0.000	0.020	0	01:40	0	0.037	4.608	
DCB_42B	JUNCTION	0.000	0.020	0	01:40	0	0.037	4.652	
DCB06	JUNCTION	0.007	0.007	0	01:55	0.0223	0.0223	0.002	
DCB08	JUNCTION	0.007	0.007	0	01:40	0.0133	0.0133	0.030	
DCB65	JUNCTION	0.000	0.016	0	01:40	0	0.0205	20.024	
DCB66	JUNCTION	0.000	0.016	0	01:40	0	0.0205	20.011	
DCBMH03	JUNCTION	0.008	0.070	0	02:02	0.00965	0.209	-0.385	
DCBMH06	JUNCTION	0.006	0.011	0	01:45	0.00976	0.0321	-0.008	
DCBMH08	JUNCTION	0.008	0.017	0	02:12	0.00992	0.16	0.058	
DCBMH3-1	JUNCTION	0.005	0.033	0	02:03	0.0073	0.109	0.064	
DICB100	JUNCTION	0.000	0.001	0	01:39	0	0.000109	0.192	
DICB101	JUNCTION	0.135	0.135	0	01:40	0.181	0.181	0.009	
DICB3	JUNCTION	0.004	0.036	0	01:41	0.00531	0.024	0.005	
DICB4	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
DICB6	JUNCTION	0.002	0.002	0	01:40	0.00266	0.00266	0.001	
DICB7	JUNCTION	0.002	0.002	0	01:40	0.00238	0.00238	0.023	
DICB99	JUNCTION	0.000	0.001	0	00:01	0	0.000198	0.358	
J1	JUNCTION	0.000	0.019	0	01:47	0	0.137	0.028	
J10	JUNCTION	0.000	0.040	0	02:05	0	0.102	-0.057	
J12	JUNCTION	0.000	0.394	0	01:44	0	2.47	-0.010	
J13	JUNCTION	0.048	0.419	0	01:43	0.0599	2.53	0.012	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.015	0	01:40	0	0.0341	-0.187	
J17-S	JUNCTION	0.015	0.015	0	01:40	0.0222	0.0222	-45.802	
J2	JUNCTION	0.000	0.176	0	00:00	0	1.89	0.028	
J3	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
J5	JUNCTION	0.000	0.046	0	01:41	0	0.112	0.069	
J6	JUNCTION	0.002	0.023	0	01:40	0.00331	0.0334	-0.187	
J7	JUNCTION	0.007	0.051	0	01:41	0.0116	0.0812	0.322	
J8	JUNCTION	0.003	0.020	0	01:40	0.00395	0.0333	-0.807	
J9	JUNCTION	0.000	0.057	0	02:03	0	0.19	0.442	
MH02	JUNCTION	0.000	0.008	0	01:43	0	0.00899	0.325	
MH07	JUNCTION	0.000	0.019	0	01:44	0	0.136	0.005	
MH102	JUNCTION	0.000	0.314	0	01:42	0	2.33	-0.000	
MH102-S	JUNCTION	0.000	0.000	0	01:40	0	4.15e-06	3.256	ltr
MH103	JUNCTION	0.019	0.027	0	01:40	0.0223	1.89	1.838	
MH106	JUNCTION	0.030	0.243	0	01:40	0.0351	0.378	-0.005	
MH106-S	JUNCTION	0.004	0.004	0	01:40	0.0042	0.0042	-2.254	
MH15	JUNCTION	0.000	0.003	0	01:44	0	0.000619	-0.002	

MH18	JUNCTION	0.000	0.012	0	01:43	0	0.00742	0.104	
MH40	JUNCTION	0.000	0.087	0	01:41	0	0.162	-0.058	
MH40-S	JUNCTION	0.024	0.024	0	01:40	0.0436	0.0436	-32.958	
MH41	JUNCTION	0.000	0.065	0	01:40	0	0.104	-0.005	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.064	0	01:40	0	0.102	-0.192	
MH42-S	JUNCTION	0.041	0.041	0	01:40	0.0643	0.0643	-13.092	
MH43	JUNCTION	0.000	0.025	0	01:40	0	0.031	0.393	
MH43-S	JUNCTION	0.022	0.022	0	01:40	0.0276	0.0276	-4.301	
MH54	JUNCTION	0.021	0.080	0	00:00	1.81	1.82	0.011	
MH61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH62	JUNCTION	0.000	0.255	0	01:41	0	0.417	-0.007	
OGS	JUNCTION	0.000	0.017	0	02:14	0	0.159	0.014	
OS2	JUNCTION	0.000	0.017	0	02:14	0	0.159	0.040	
STMH201	JUNCTION	0.000	0.351	0	01:42	0	2.39	-0.041	
STMH201-S	JUNCTION	0.038	0.039	0	01:40	0.058	0.058	-1.574	
CB7	OUTFALL	0.000	0.018	0	01:41	0	0.034	0.000	
J14	OUTFALL	0.000	0.417	0	01:43	0	2.53	0.000	
J4	OUTFALL	0.000	0.017	0	02:15	0	0.159	0.000	
OF1	OUTFALL	0.000	0.000	0	01:40	0	8.32e-07	0.000	ltr
OF2	OUTFALL	0.001	0.001	0	01:40	0.00106	0.00106	0.000	
OF3	OUTFALL	0.000	0.000	0	01:40	3.79e-05	3.79e-05	0.000	
OF4	OUTFALL	0.000	0.000	0	01:40	0.000102	0.000102	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
MH103	JUNCTION	0.01	0.000	1.410

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Node Flooding Summary
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No nodes were flooded.

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	17.26	0.002	0.018	0.034
J14	99.94	0.019	0.417	2.534
J4	29.03	0.005	0.017	0.159
OF1	0.00	0.000	0.000	0.000
OF2	6.68	0.000	0.001	0.001
OF3	0.74	0.000	0.000	0.000
OF4	1.20	0.000	0.000	0.000
System	22.12	0.026	0.000	2.729

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.007	0 01:40	0.28	0.16	0.83
C10	CONDUIT	0.370	0 01:42	1.87	0.47	0.44
C10-S	CHANNEL	0.000	0 01:40	0.00	0.00	0.00
C11	CONDUIT	0.377	0 01:42	1.16	0.33	0.64
C11-S	CHANNEL	0.000	0 01:40	0.00	0.00	0.01
C12	CONDUIT	0.003	0 01:44	0.04	0.01	1.00
C13	CONDUIT	0.394	0 01:44	1.19	0.98	0.70
C14	CONDUIT	0.388	0 01:43	1.01	0.65	0.58
C15	CONDUIT	0.417	0 01:43	1.08	0.64	0.58
C16	CONDUIT	0.000	0 00:00	0.00	0.00	0.49
C17	CONDUIT	0.009	0 01:42	0.34	0.10	0.52
C18	CONDUIT	0.009	0 01:42	0.19	0.09	0.76
C19	CONDUIT	0.014	0 01:40	0.27	0.21	0.70
C2	CONDUIT	0.130	0 01:40	1.25	1.06	0.89
C20	CONDUIT	0.021	0 01:40	0.54	0.10	0.57
C21	CONDUIT	0.019	0 01:40	1.64	0.11	0.22
C22	CONDUIT	0.019	0 01:40	0.54	0.01	0.22
C23	CONDUIT	0.001	0 01:39	0.03	0.01	0.43

C24	CONDUIT	0.001	0	00:01	0.14	0.01	0.54
C25	CONDUIT	0.242	0	01:40	1.65	0.78	0.64
C26	CONDUIT	0.028	0	01:40	0.84	0.07	0.53
C27	CONDUIT	0.012	0	01:40	1.93	0.05	0.15
C28	CONDUIT	0.090	0	01:41	0.78	0.39	0.71
C28-S	CHANNEL	0.000	0	01:31	0.00	0.00	0.01
C29	CONDUIT	0.012	0	01:40	0.51	0.02	0.55
C3	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C30	CONDUIT	0.006	0	01:40	0.19	0.02	0.50
C30_1	CONDUIT	0.002	0	01:40	0.27	0.02	0.18
C30_2	CONDUIT	0.013	0	01:40	0.79	0.14	0.29
C31	CONDUIT	0.011	0	01:40	0.86	0.13	0.24
C32	CONDUIT	0.024	0	01:40	0.78	0.32	0.45
C32-S	CHANNEL	0.000	0	01:40	0.00	0.00	0.01
C33	CONDUIT	0.020	0	01:40	1.57	0.12	0.26
C34	CONDUIT	0.020	0	01:40	2.31	0.06	0.23
C35	CONDUIT	0.063	0	01:40	1.18	0.48	0.49
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C36	CONDUIT	0.002	0	01:40	0.54	0.02	0.10
C37	CONDUIT	0.064	0	01:41	0.83	0.54	0.67
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.56
C39_2	CONDUIT	0.093	0	00:01	1.22	0.55	0.66
C4	CONDUIT	0.004	0	01:40	0.45	0.01	0.23
C40	CONDUIT	0.007	0	01:40	0.33	0.00	0.17
C41	CONDUIT	0.007	0	01:40	0.32	0.00	0.17
C42	CONDUIT	0.018	0	01:41	0.81	0.12	0.24
C42_1	CONDUIT	0.000	0	00:00	0.00	0.00	0.14
C42_2	CONDUIT	0.019	0	01:44	0.52	0.04	0.30
C42_2-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.00
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.06
C45	CHANNEL	0.000	0	01:40	0.00	0.00	0.01
C46	CONDUIT	0.000	0	01:40	0.02	0.00	0.01
C47	CONDUIT	0.007	0	01:40	0.62	0.10	0.21
C48	CONDUIT	0.003	0	01:55	0.08	0.01	0.27
C49	CONDUIT	0.022	0	01:40	0.69	0.05	0.40
C49_1	CONDUIT	0.020	0	01:40	0.75	0.05	0.24
C5	CONDUIT	0.253	0	01:42	1.51	0.48	0.48
C50	CONDUIT	0.020	0	01:41	0.98	0.12	0.32
C50_1	CONDUIT	0.040	0	02:05	0.09	0.00	0.26
C50_3	CONDUIT	0.032	0	01:41	0.14	0.00	0.17
C50_4	CONDUIT	0.028	0	01:41	0.07	0.00	0.22
C50_5	CONDUIT	0.022	0	02:05	0.46	0.03	0.45

C51	CONDUIT	0.007	0	01:43	0.10	0.02	0.53
C52	CONDUIT	0.032	0	02:02	0.43	0.04	0.48
C53_1	CONDUIT	0.057	0	02:03	0.49	0.07	0.54
C54	CONDUIT	0.011	0	01:45	1.53	0.02	0.06
C55	CONDUIT	0.007	0	01:55	0.72	0.18	0.26
C57	CONDUIT	0.008	0	01:40	0.69	0.12	0.23
C58_1	CONDUIT	0.017	0	01:40	0.68	0.08	0.22
C59_1	CONDUIT	0.019	0	01:47	0.13	0.00	0.08
C59_2	CONDUIT	0.015	0	02:24	0.37	0.05	0.35
C6	CONDUIT	0.266	0	01:42	1.56	0.50	0.48
C60	CONDUIT	0.000	0	00:00	0.00	0.00	0.07
C60_2	CONDUIT	0.017	0	02:15	0.74	0.37	0.36
C60_3	CONDUIT	0.017	0	02:14	0.26	0.09	0.44
C6-S	CHANNEL	0.000	0	01:40	0.00	0.00	0.01
C7	CONDUIT	0.314	0	01:42	2.35	0.51	0.40
C7-S	CHANNEL	0.000	0	01:46	0.00	0.00	0.00
C8	CONDUIT	0.318	0	01:42	2.70	0.24	0.36
C8-S	CHANNEL	0.000	0	01:40	0.00	0.00	0.01
C9	CONDUIT	0.350	0	01:42	2.26	0.28	0.38
C9-S	CHANNEL	0.000	0	01:40	0.00	0.00	0.01
C53_2	DUMMY	0.009	0	02:09			
C60_4	DUMMY	0.017	0	02:14			
CB_43A-IC	DUMMY	0.011	0	01:40			
CB100-IC	DUMMY	0.019	0	01:40			
CB16-IC	DUMMY	0.020	0	01:40			
CB19-IC	DUMMY	0.005	0	01:40			
CB4-IC	DUMMY	0.005	0	01:40			
CBMH101-IC	DUMMY	0.007	0	01:40			
CBMH30-IC	DUMMY	0.007	0	01:40			
CBMH31-IC	DUMMY	0.007	0	01:40			
DCB_40A-IC	DUMMY	0.019	0	01:35			
DCB_42A-IC	DUMMY	0.020	0	01:40			
DCB66-IC	DUMMY	0.016	0	01:40			
J17-IC	DUMMY	0.016	0	01:40			
MH40-IC	DUMMY	0.019	0	01:35			
MH42-IC	DUMMY	0.020	0	01:40			
MH43-IC	DUMMY	0.011	0	01:40			
OL1	DUMMY	0.004	0	01:40			
OL2	DUMMY	0.016	0	01:40			
OL3	DUMMY	0.020	0	01:40			
STMH201-IC	DUMMY	0.019	0	01:40			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.39	0.61	0.00	0.00	0.01	0.00
C10-S	1.00	0.89	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C11-S	1.00	0.83	0.09	0.00	0.08	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.95	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C16	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C17	1.00	0.00	0.01	0.00	0.98	0.01	0.00	0.00	0.11	0.00
C18	1.00	0.00	0.66	0.00	0.34	0.00	0.00	0.00	0.93	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.97	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.00	0.54	0.00	0.46	0.00	0.00	0.00	0.98	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.11	0.00	0.82	0.00	0.08	0.00	0.01	0.00
C23	1.00	0.00	0.97	0.00	0.03	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.94	0.00	0.06	0.00	0.00	0.00	0.97	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.98	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C28-S	1.00	0.86	0.01	0.00	0.12	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.03	0.00	0.91	0.04	0.00	0.00	0.98	0.00
C3	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.98	0.00
C30_1	1.00	0.01	0.21	0.00	0.78	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.01	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00
C35	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C35-S	1.00	0.87	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.93	0.00
C37-S	1.00	0.88	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C39_2	1.00	0.00	0.00	0.00	0.06	0.00	0.00	0.94	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.97	0.01	0.00
C40	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C42_2	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.96	0.00	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.99	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.06	0.00	0.06	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C48	1.00	0.88	0.03	0.00	0.09	0.00	0.00	0.00	0.93	0.00
C49	1.00	0.01	0.00	0.00	0.97	0.01	0.00	0.00	0.02	0.00
C49_1	1.00	0.01	0.10	0.00	0.88	0.00	0.00	0.00	0.94	0.00
C5	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C50	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.07	0.00
C50_1	1.00	0.02	0.45	0.00	0.53	0.00	0.00	0.00	0.89	0.00
C50_3	1.00	0.63	0.17	0.00	0.20	0.00	0.00	0.00	0.13	0.00
C50_4	1.00	0.45	0.18	0.00	0.37	0.00	0.00	0.00	0.69	0.00
C50_5	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.00	0.84	0.00
C51	1.00	0.01	0.86	0.00	0.12	0.00	0.00	0.00	0.89	0.00
C52	1.00	0.01	0.44	0.00	0.54	0.00	0.00	0.00	0.90	0.00
C53_1	1.00	0.01	0.00	0.00	0.12	0.00	0.00	0.86	0.00	0.00
C54	1.00	0.01	0.00	0.00	0.89	0.10	0.00	0.00	0.06	0.00
C55	1.00	0.01	0.00	0.00	0.96	0.03	0.00	0.00	0.00	0.00
C57	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C58_1	1.00	0.01	0.07	0.00	0.91	0.00	0.00	0.00	0.98	0.00
C59_1	1.00	0.02	0.51	0.00	0.48	0.00	0.00	0.00	0.97	0.00
C59_2	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.00	0.95	0.00
C6	1.00	0.00	0.00	0.00	0.70	0.00	0.00	0.30	0.65	0.00
C60	1.00	0.80	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C60_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.02	0.86	0.00	0.11	0.01	0.00	0.00	0.96	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.01	0.00
C7-S	1.00	0.02	0.02	0.00	0.96	0.01	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C8-S	1.00	0.85	0.05	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C9-S	1.00	0.84	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C12	0.10	0.10	0.35	0.01	0.01
C2	0.01	0.01	0.01	0.03	0.01
C29	0.01	0.01	0.01	0.01	0.01
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.01	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01

Analysis begun on: Thu Dec 12 11:31:06 2019
Analysis ended on: Thu Dec 12 11:31:17 2019
Total elapsed time: 00:00:11

Post Development - Chicago 2 Year Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-------------------------------------------------------------------------------------------------
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A100	2.11	98.17	37.00	1.7000	Chicago_4h_2yr	DICB101
A101	1.08	64.95	14.00	2.7500	Chicago_4h_2yr	MH106
A102	0.31	37.80	38.00	1.0000	Chicago_4h_2yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_2yr	DICB6
A104_2	0.29	28.60	48.00	0.1600	Chicago_4h_2yr	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Chicago_4h_2yr	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Chicago_4h_2yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_2yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_2yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_2yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_2yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_2yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_2yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_2yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_2yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_2yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_2yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_2yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_2yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_2yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_2yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_2yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_2yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_2yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_2yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_2yr	S10
S1	0.09	14.47	22.00	2.0000	Chicago_4h_2yr	CB02
S10	0.18	19.12	40.00	2.0000	Chicago_4h_2yr	DCB06
S11	0.06	7.51	67.00	2.0000	Chicago_4h_2yr	DCBMH08
S12	0.11	10.54	59.00	2.0000	Chicago_4h_2yr	DCB08
S13	0.00	23.00	100.00	2.0000	Chicago_4h_2yr	OF2
S14	0.00	5.00	0.00	2.0000	Chicago_4h_2yr	OF3
S15	0.00	13.50	0.00	2.0000	Chicago_4h_2yr	OF4
S16	0.17	26.77	38.00	2.0000	Chicago_4h_2yr	J7
S17	0.03	11.13	56.00	2.0000	Chicago_4h_2yr	J6
S18	0.07	18.30	43.00	2.0000	Chicago_4h_2yr	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Chicago_4h_2yr	DICB3
S3	0.18	13.04	36.00	2.0000	Chicago_4h_2yr	CB01
S4	0.16	10.71	39.00	2.0000	Chicago_4h_2yr	CBMH04
S5	0.15	15.13	52.00	2.0000	Chicago_4h_2yr	CB04
S6	0.11	12.76	64.00	2.0000	Chicago_4h_2yr	CBMH01
S7	0.07	8.29	60.00	2.0000	Chicago_4h_2yr	DCBMH03
S8	0.02	7.73	75.00	2.0000	Chicago_4h_2yr	J8
S9	0.09	17.25	52.00	2.0000	Chicago_4h_2yr	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

```
            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
```

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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

```
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ..... 8
Number of Threads ........ 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.368	33.740
Evaporation Loss	0.000	0.000
Infiltration Loss	0.232	21.281
Surface Runoff	0.130	11.892
Final Storage	0.008	0.702
Continuity Error (%)	-0.400	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.130	1.298
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.181	1.814
External Outflow	0.316	3.161
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-1.539	

```
Highest Continuity Errors
Node MH40-S (-34.54%)
Node MH102-S (24.50%)
Node DCB65 (14.70%)
Node DCB66 (14.69%)
Node MH42-S (-9.90%)
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****
Time-Step Critical Elements
****
Link C13 (99.45%)

****
Highest Flow Instability Indexes
****
Link DCB_40A-IC (24)
Link MH40-IC (24)
Link J17-IC (22)
Link DCB66-IC (22)
Link DCB_42A-IC (19)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 1.01 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.01
Percent Not Converging : 0.00

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	33.74	0.00	0.00	21.26	11.87	0.00	11.87	0.25	0.19	0.352
A101	33.74	0.00	0.00	29.02	4.46	0.00	4.46	0.05	0.04	0.132
A102	33.74	0.00	0.00	20.92	12.17	0.00	12.17	0.04	0.03	0.361
A103	33.74	0.00	0.00	28.68	4.77	0.00	4.77	0.00	0.00	0.141
A104_2	33.74	0.00	0.00	17.22	15.38	0.35	15.73	0.04	0.03	0.466
A104_3	33.74	0.00	0.00	17.22	15.38	0.35	15.73	0.04	0.03	0.466
A104_4	33.74	0.00	0.00	27.33	7.95	6.17	6.17	0.00	0.00	0.183
A105	33.74	0.00	0.00	29.01	4.45	0.00	4.45	0.00	0.00	0.132
A106	33.74	0.00	0.00	13.50	19.21	0.00	19.21	0.06	0.03	0.569

A107	33.74	0.00	0.00	0.00	31.86	0.00	31.86	0.01	0.01	0.944
A108	33.74	0.00	0.00	33.74	0.00	0.00	0.00	0.00	0.00	0.000
A109	33.74	0.00	0.00	7.09	25.34	0.00	25.34	0.03	0.02	0.751
A110	33.74	0.00	0.00	0.00	32.09	0.00	32.09	0.03	0.02	0.951
A111	33.74	0.00	0.00	23.62	9.59	0.00	9.59	0.03	0.03	0.284
A112_1	33.74	0.00	0.00	27.67	5.73	0.00	5.73	0.05	0.04	0.170
A112_3	33.74	0.00	0.00	27.67	5.73	0.00	5.73	0.01	0.01	0.170
A113	33.74	0.00	0.00	33.74	0.00	0.00	0.00	0.00	0.00	0.000
A114	33.74	0.00	0.00	0.00	31.98	0.00	31.98	0.01	0.01	0.948
A115	33.74	0.00	0.00	33.74	0.00	0.00	0.00	0.00	0.00	0.000
A116	33.74	0.00	0.00	11.47	21.16	0.00	21.16	0.08	0.05	0.627
A117	33.74	0.00	0.00	23.96	9.28	0.00	9.29	0.02	0.02	0.275
A118	33.74	0.00	0.00	11.81	20.85	0.00	20.85	0.02	0.02	0.618
A119	33.74	0.00	0.00	18.89	14.06	0.00	14.06	0.02	0.01	0.417
A120	33.74	0.00	0.00	9.78	22.74	0.00	22.74	0.09	0.05	0.674
A121	33.74	0.00	0.00	25.30	8.02	0.00	8.02	0.08	0.07	0.238
A3	33.74	0.00	0.00	26.52	2.54	7.16	7.16	0.06	0.02	0.212
S1	33.74	0.00	0.00	22.69	7.00	10.84	10.84	0.01	0.01	0.321
S10	33.74	32.08	0.00	23.09	23.54	32.13	42.32	0.08	0.02	0.643
S11	33.74	0.00	0.00	8.61	21.48	2.62	24.10	0.01	0.01	0.714
S12	33.74	0.00	0.00	12.87	18.92	10.61	20.07	0.02	0.01	0.595
S13	33.74	0.00	0.00	0.00	31.77	0.00	31.77	0.00	0.00	0.942
S14	33.74	0.00	0.00	24.71	0.00	11.62	11.62	0.00	0.00	0.344
S15	33.74	0.00	0.00	24.71	0.00	11.62	11.62	0.00	0.00	0.344
S16	33.74	0.00	0.00	18.96	12.13	14.38	14.38	0.02	0.01	0.426
S17	33.74	0.00	0.00	13.00	17.83	11.31	20.22	0.01	0.00	0.599
S18	33.74	0.00	0.00	15.75	13.70	7.85	17.45	0.01	0.01	0.517
S2	33.74	0.00	0.00	16.63	11.80	4.77	16.57	0.01	0.01	0.491
S3	33.74	0.00	0.00	19.41	11.54	8.05	13.82	0.02	0.01	0.410
S4	33.74	0.00	0.00	17.99	12.51	5.79	15.17	0.02	0.01	0.450
S5	33.74	0.00	0.00	14.71	16.67	9.99	18.32	0.03	0.01	0.543
S6	33.74	0.00	0.00	9.47	20.52	2.76	23.28	0.03	0.02	0.690
S7	33.74	0.00	0.00	10.52	19.23	3.08	22.30	0.01	0.01	0.661
S8	33.74	0.00	0.00	7.50	23.93	7.33	25.28	0.01	0.00	0.749
S9	33.74	0.00	0.00	14.53	16.61	11.95	18.60	0.02	0.01	0.551

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	45.33	0.00	43.51	1.82	0.00	0.00	0.00	0.00

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.10	193.63	0 01:25	0.10
CB_43B	JUNCTION	0.00	0.09	193.94	0 01:25	0.09
CB01	JUNCTION	0.00	0.08	189.77	0 01:25	0.08
CB02	JUNCTION	0.02	0.26	189.39	0 02:20	0.26
CB04	JUNCTION	0.00	0.09	190.56	0 01:30	0.09
CB100	JUNCTION	0.00	0.08	189.65	0 01:25	0.08
CB101	JUNCTION	0.00	0.04	191.27	0 01:25	0.04
CB102	JUNCTION	0.00	0.06	191.29	0 01:25	0.06
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.13	187.41	0 01:29	0.13
CB16	JUNCTION	0.10	0.66	188.02	0 01:28	0.66
CB16-S	JUNCTION	0.00	0.01	188.69	0 01:25	0.01
CB19	JUNCTION	0.05	0.29	188.03	0 01:28	0.29
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:25	0.00
CB32	JUNCTION	0.13	0.21	188.62	0 01:25	0.21
CB4	JUNCTION	0.00	0.17	188.04	0 01:28	0.16
CBMH01	JUNCTION	0.03	0.28	189.38	0 02:17	0.28
CBMH04	JUNCTION	0.01	0.11	189.43	0 01:25	0.11
CBMH100	JUNCTION	0.05	0.27	189.30	0 01:27	0.27
CBMH101	JUNCTION	0.04	0.23	190.72	0 01:27	0.23
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.02	0.39	191.12	0 01:27	0.38
CBMH103-S	JUNCTION	0.00	0.00	193.35	0 01:25	0.00
CBMH105	JUNCTION	0.00	0.05	191.44	0 01:27	0.05
CBMH30	JUNCTION	0.06	0.35	188.31	0 01:27	0.35
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:25	0.00
CBMH31	JUNCTION	0.16	0.24	188.61	0 01:25	0.24
DCB_40A	JUNCTION	0.00	0.05	193.35	0 01:25	0.05
DCB_40B	JUNCTION	0.00	0.03	193.29	0 01:25	0.03
DCB_42A	JUNCTION	0.00	0.08	193.45	0 01:25	0.08
DCB_42B	JUNCTION	0.00	0.06	193.40	0 01:25	0.06
DCB06	JUNCTION	0.01	0.14	189.05	0 01:45	0.14
DCB08	JUNCTION	0.03	0.36	188.78	0 02:15	0.36
DCB65	JUNCTION	0.00	0.21	191.44	0 01:26	0.21
DCB66	JUNCTION	0.00	0.21	191.44	0 01:26	0.21

DCBMH03	JUNCTION	0.07	0.57	189.40	0	02:22	0.56
DCBMH06	JUNCTION	0.00	0.10	188.98	0	01:41	0.10
DCBMH08	JUNCTION	0.07	0.40	188.78	0	02:15	0.40
DCBMH3-1	JUNCTION	0.06	0.54	189.40	0	02:22	0.53
DICB100	JUNCTION	0.00	0.09	190.72	0	01:27	0.09
DICB101	JUNCTION	0.01	0.60	193.36	0	01:27	0.60
DICB3	JUNCTION	0.03	0.34	189.38	0	02:21	0.34
DICB4	JUNCTION	0.00	0.00	192.24	0	01:40	0.00
DICB6	JUNCTION	0.00	0.03	193.71	0	01:25	0.03
DICB7	JUNCTION	0.00	0.04	193.23	0	01:25	0.04
DICB99	JUNCTION	0.00	0.16	190.72	0	01:27	0.16
J1	JUNCTION	0.03	0.30	188.78	0	02:15	0.30
J10	JUNCTION	0.06	0.50	189.38	0	02:22	0.50
J12	JUNCTION	0.10	0.66	188.01	0	01:28	0.66
J13	JUNCTION	0.10	0.66	187.95	0	01:28	0.66
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.25	191.44	0	01:26	0.24
J17-S	JUNCTION	0.00	0.00	194.63	1	23:04	0.00
J2	JUNCTION	0.08	0.35	191.07	0	01:27	0.35
J3	JUNCTION	0.01	0.11	189.38	0	02:19	0.11
J5	JUNCTION	0.06	0.47	189.38	0	02:21	0.47
J6	JUNCTION	0.04	0.36	189.38	0	02:18	0.36
J7	JUNCTION	0.05	0.42	189.38	0	02:21	0.42
J8	JUNCTION	0.02	0.20	189.38	0	02:20	0.20
J9	JUNCTION	0.09	0.72	189.42	0	02:25	0.71
MH02	JUNCTION	0.05	0.43	189.39	0	02:13	0.43
MH07	JUNCTION	0.00	0.08	188.78	0	02:16	0.08
MH102	JUNCTION	0.07	0.42	191.07	0	01:27	0.41
MH102-S	JUNCTION	0.00	0.00	193.27	0	01:29	0.00
MH103	JUNCTION	0.08	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.02	0.40	192.80	0	01:26	0.40
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.01	0.49	188.02	0	01:28	0.49
MH18	JUNCTION	0.01	0.24	188.04	0	01:27	0.23
MH40	JUNCTION	0.01	0.37	192.81	0	01:26	0.37
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:25	0.00
MH41	JUNCTION	0.01	0.25	193.02	0	01:26	0.25
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.23	193.24	0	01:25	0.23
MH42-S	JUNCTION	0.00	0.00	194.65	0	01:25	0.00
MH43	JUNCTION	0.01	0.14	193.58	0	01:25	0.14
MH43-S	JUNCTION	0.00	0.00	194.94	0	01:25	0.00
MH54	JUNCTION	0.08	0.15	191.50	0	00:00	0.13
MH61	JUNCTION	0.00	0.00	191.49	0	00:00	0.00
MH62	JUNCTION	0.02	0.39	191.44	0	01:27	0.39

OGS	JUNCTION	0.04	0.16	188.51	0	02:14	0.16	
OS2	JUNCTION	0.08	0.41	188.78	0	02:15	0.41	
STMH201	JUNCTION	0.05	0.27	189.30	0	01:27	0.27	
STMH201-S	JUNCTION	0.00	0.01	190.86	0	01:25	0.01	
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00	
J14	OUTFALL	0.10	0.66	187.94	0	01:28	0.66	
J4	OUTFALL	0.02	0.12	188.46	0	02:15	0.12	
OF1	OUTFALL	0.00	0.01	188.61	0	01:25	0.01	
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.020	0	01:25	0	0.0233	1.135	
CB_43B	JUNCTION	0.000	0.017	0	01:25	0	0.0197	1.292	
CB01	JUNCTION	0.010	0.010	0	01:25	0.0249	0.0249	0.002	
CB02	JUNCTION	0.005	0.007	0	01:33	0.01	0.0157	-0.361	
CB04	JUNCTION	0.013	0.013	0	01:30	0.0277	0.0277	0.001	
CB100	JUNCTION	0.000	0.027	0	01:25	0	0.0406	0.330	
CB101	JUNCTION	0.008	0.008	0	01:25	0.00902	0.00902	-0.000	
CB102	JUNCTION	0.041	0.041	0	01:25	0.0452	0.0452	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.038	0	01:28	0	0.0503	0.494	
CB16	JUNCTION	0.000	0.548	0	01:28	0	2.71	0.017	
CB16-S	JUNCTION	0.054	0.054	0	01:25	0.093	0.093	-1.343	
CB19	JUNCTION	0.000	0.526	0	01:27	0	2.67	-0.001	
CB19-S	JUNCTION	0.014	0.014	0	01:25	0.016	0.016	-0.452	
CB32	JUNCTION	0.021	0.021	0	01:25	0.0238	0.0256	0.596	
CB4	JUNCTION	0.000	0.007	0	01:25	0	0.00835	0.040	
CBMH01	JUNCTION	0.020	0.030	0	01:25	0.0267	0.0517	-0.073	
CBMH04	JUNCTION	0.013	0.026	0	01:25	0.0244	0.0521	-0.116	
CBMH100	JUNCTION	0.000	0.027	0	01:25	0	0.041	0.097	
CBMH101	JUNCTION	0.000	0.435	0	01:27	0	2.52	0.056	
CBMH101-S	JUNCTION	0.010	0.010	0	01:25	0.0112	0.0112	-0.224	
CBMH103	JUNCTION	0.000	0.360	0	01:27	0	0.599	0.022	
CBMH103-S	JUNCTION	0.024	0.024	0	01:25	0.0299	0.0299	-0.397	

CBMH105	JUNCTION	0.000	0.005	0	01:25	0	0.00588	0.585	
CBMH30	JUNCTION	0.000	0.513	0	01:27	0	2.65	-0.003	
CBMH30-S	JUNCTION	0.020	0.020	0	01:25	0.0246	0.0246	-0.740	
CBMH31	JUNCTION	0.000	0.031	0	01:25	0	0.0378	0.564	
DCB_40A	JUNCTION	0.000	0.020	0	01:20	0	0.0406	9.682	
DCB_40B	JUNCTION	0.000	0.020	0	01:20	0	0.0406	9.800	
DCB_42A	JUNCTION	0.000	0.029	0	01:25	0	0.0511	3.114	
DCB_42B	JUNCTION	0.000	0.029	0	01:25	0	0.0511	3.141	
DCB06	JUNCTION	0.025	0.025	0	01:45	0.0768	0.0768	0.080	
DCB08	JUNCTION	0.011	0.011	0	01:30	0.022	0.022	-0.004	
DCB65	JUNCTION	0.000	0.027	0	01:25	0	0.0261	17.228	
DCB66	JUNCTION	0.000	0.027	0	01:25	0	0.0261	17.217	
DCBMH03	JUNCTION	0.011	0.081	0	01:38	0.0148	0.267	-0.163	
DCBMH06	JUNCTION	0.010	0.032	0	01:43	0.0167	0.0935	-0.093	
DCBMH08	JUNCTION	0.012	0.026	0	02:16	0.0148	0.318	0.027	
DCBMH3-1	JUNCTION	0.008	0.040	0	01:41	0.0128	0.181	0.030	
DICB100	JUNCTION	0.000	0.001	0	01:24	4.19e-07	0.000181	0.202	
DICB101	JUNCTION	0.195	0.195	0	01:25	0.251	0.251	0.064	
DICB3	JUNCTION	0.007	0.059	0	01:26	0.00923	0.082	0.005	
DICB4	JUNCTION	0.000	0.000	0	01:30	2.98e-07	2.98e-07	0.298	ltr
DICB6	JUNCTION	0.003	0.003	0	01:25	0.00366	0.00366	0.001	
DICB7	JUNCTION	0.003	0.003	0	01:25	0.00328	0.00328	0.015	
DICB99	JUNCTION	0.000	0.001	0	00:01	3.28e-07	0.000248	0.292	
J1	JUNCTION	0.000	0.041	0	02:00	0	0.281	0.017	
J10	JUNCTION	0.000	0.060	0	01:36	0	0.176	-0.020	
J12	JUNCTION	0.000	0.532	0	01:28	0	2.71	-0.009	
J13	JUNCTION	0.070	0.574	0	01:28	0.0829	2.79	0.011	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.029	0	01:24	0	0.0454	-0.154	
J17-S	JUNCTION	0.022	0.022	0	01:25	0.0307	0.0307	-41.201	
J2	JUNCTION	0.000	0.176	0	00:00	0	1.91	0.028	
J3	JUNCTION	0.000	0.026	0	01:40	0	0.0203	0.023	
J5	JUNCTION	0.000	0.072	0	01:26	0	0.193	0.050	
J6	JUNCTION	0.004	0.034	0	01:25	0.0054	0.0571	-0.111	
J7	JUNCTION	0.014	0.077	0	01:25	0.0239	0.167	0.222	
J8	JUNCTION	0.005	0.030	0	01:25	0.00586	0.058	-0.549	
J9	JUNCTION	0.000	0.059	0	01:42	0	0.241	0.171	
MH02	JUNCTION	0.000	0.013	0	01:28	0	0.0295	0.211	
MH07	JUNCTION	0.000	0.039	0	01:45	0	0.279	0.011	
MH102	JUNCTION	0.000	0.428	0	01:27	0	2.51	0.000	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	1.35e-05	3.305	ltr
MH103	JUNCTION	0.027	0.035	0	01:25	0.0308	1.89	1.829	
MH106	JUNCTION	0.044	0.316	0	01:26	0.0484	0.518	-0.020	
MH106-S	JUNCTION	0.005	0.005	0	01:25	0.0058	0.0058	-1.424	
MH15	JUNCTION	0.000	0.014	0	01:28	0	0.00396	0.013	

MH18	JUNCTION	0.000	0.009	0	01:25	0	0.00926	0.068	
MH40	JUNCTION	0.000	0.125	0	01:26	0	0.219	-0.037	
MH40-S	JUNCTION	0.033	0.033	0	01:25	0.0603	0.0603	-25.671	
MH41	JUNCTION	0.000	0.094	0	01:26	0	0.145	-0.011	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.093	0	01:25	0	0.142	-0.118	
MH42-S	JUNCTION	0.058	0.058	0	01:25	0.093	0.093	-9.010	
MH43	JUNCTION	0.000	0.036	0	01:25	0	0.0425	0.263	
MH43-S	JUNCTION	0.033	0.033	0	01:25	0.0382	0.0382	-2.984	
MH54	JUNCTION	0.021	0.080	0	00:00	1.81	1.82	0.011	
MH61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH62	JUNCTION	0.000	0.346	0	01:26	0	0.569	-0.006	
OGS	JUNCTION	0.000	0.025	0	02:15	0	0.316	0.007	
OS2	JUNCTION	0.000	0.025	0	02:16	0	0.316	0.020	
STMH201	JUNCTION	0.000	0.482	0	01:27	0	2.6	-0.042	
STMH201-S	JUNCTION	0.054	0.054	0	01:25	0.0803	0.0803	-1.126	
CB7	OUTFALL	0.000	0.037	0	01:29	0	0.0501	0.000	
J14	OUTFALL	0.000	0.572	0	01:28	0	2.79	0.000	
J4	OUTFALL	0.000	0.025	0	02:15	0	0.316	0.000	
OF1	OUTFALL	0.000	0.000	0	01:25	0	2.33e-06	0.000	ltr
OF2	OUTFALL	0.001	0.001	0	01:25	0.00146	0.00146	0.000	
OF3	OUTFALL	0.000	0.000	0	01:25	0.000116	0.000116	0.000	
OF4	OUTFALL	0.000	0.000	0	01:25	0.000314	0.000314	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
DCB08	JUNCTION	1.68	0.106	0.614
DICB101	JUNCTION	0.13	0.220	0.000
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	0.15	0.116	0.704

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DICB101	0.13	0.041	0 01:25	0.005	0.005

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	18.11	0.003	0.037	0.050
J14	99.94	0.022	0.572	2.793
J4	34.22	0.008	0.025	0.316
OF1	0.00	0.000	0.000	0.000
OF2	8.24	0.000	0.001	0.001
OF3	1.36	0.000	0.000	0.000
OF4	1.93	0.000	0.000	0.000
System	23.40	0.033	0.000	3.161

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.011	0 01:30	0.35	0.24	1.00
C10	CONDUIT	0.513	0 01:27	2.08	0.65	0.52
C10-S	CHANNEL	0.000	0 01:25	0.00	0.00	0.01
C11	CONDUIT	0.523	0 01:28	1.37	0.46	0.74
C11-S	CHANNEL	0.000	0 01:25	0.01	0.00	0.01
C12	CONDUIT	0.014	0 01:28	0.20	0.08	1.00
C13	CONDUIT	0.532	0 01:28	1.33	1.32	0.88
C14	CONDUIT	0.526	0 01:28	1.08	0.89	0.73

C15	CONDUIT	0.572	0	01:28	1.15	0.88	0.73
C16	CONDUIT	0.014	0	01:28	0.33	0.08	0.59
C17	CONDUIT	0.009	0	01:25	0.36	0.10	0.65
C18	CONDUIT	0.009	0	01:26	0.19	0.09	0.88
C19	CONDUIT	0.021	0	01:25	0.37	0.31	0.74
C2	CONDUIT	0.164	0	01:24	1.49	1.33	1.00
C20	CONDUIT	0.031	0	01:25	0.69	0.15	0.63
C21	CONDUIT	0.027	0	01:25	1.81	0.15	0.26
C22	CONDUIT	0.026	0	01:25	0.54	0.01	0.25
C23	CONDUIT	0.001	0	01:24	0.06	0.02	0.53
C24	CONDUIT	0.001	0	00:01	0.14	0.01	0.65
C25	CONDUIT	0.316	0	01:26	1.82	1.02	0.75
C26	CONDUIT	0.041	0	01:25	1.07	0.10	0.60
C27	CONDUIT	0.017	0	01:25	2.11	0.06	0.17
C28	CONDUIT	0.126	0	01:26	0.92	0.54	0.86
C28-S	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C29	CONDUIT	0.017	0	01:25	0.58	0.03	0.56
C3	CONDUIT	0.000	0	00:00	0.00	0.00	0.00
C30	CONDUIT	0.008	0	01:25	0.24	0.03	0.56
C30_1	CONDUIT	0.003	0	01:25	0.30	0.03	0.22
C30_2	CONDUIT	0.020	0	01:25	0.85	0.21	0.37
C31	CONDUIT	0.017	0	01:25	0.97	0.18	0.29
C32	CONDUIT	0.035	0	01:25	0.85	0.47	0.57
C32-S	CHANNEL	0.000	0	01:25	0.09	0.00	0.02
C33	CONDUIT	0.029	0	01:25	1.63	0.16	0.36
C34	CONDUIT	0.029	0	01:25	2.44	0.09	0.32
C35	CONDUIT	0.091	0	01:26	1.32	0.69	0.60
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C36	CONDUIT	0.003	0	01:25	0.60	0.03	0.12
C37	CONDUIT	0.093	0	01:26	0.96	0.79	0.83
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.56
C39_2	CONDUIT	0.093	0	00:01	1.22	0.55	0.83
C4	CONDUIT	0.006	0	01:28	0.47	0.02	0.33
C40	CONDUIT	0.012	0	01:25	0.40	0.01	0.23
C41	CONDUIT	0.012	0	01:25	0.38	0.01	0.23
C42	CONDUIT	0.037	0	01:29	0.99	0.24	0.34
C42_1	CONDUIT	0.000	0	00:00	0.00	0.00	0.18
C42_2	CONDUIT	0.030	0	01:32	0.52	0.06	0.40
C42_2-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.00
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.12
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C46	CONDUIT	0.000	0	01:25	0.02	0.00	0.02

C47	CONDUIT	0.010	0	01:25	0.70	0.16	0.26
C48	CONDUIT	0.010	0	01:40	0.19	0.02	0.57
C49	CONDUIT	0.033	0	01:25	0.80	0.08	0.69
C49_1	CONDUIT	0.031	0	01:25	0.85	0.07	0.53
C5	CONDUIT	0.341	0	01:27	1.65	0.64	0.56
C50	CONDUIT	0.030	0	01:27	1.04	0.18	0.69
C50_1	CONDUIT	0.060	0	01:36	0.09	0.00	0.40
C50_3	CONDUIT	0.053	0	01:26	0.19	0.00	0.32
C50_4	CONDUIT	0.042	0	01:25	0.08	0.00	0.37
C50_5	CONDUIT	0.031	0	01:41	0.46	0.04	0.69
C51	CONDUIT	0.012	0	01:43	0.13	0.03	0.83
C52	CONDUIT	0.042	0	01:38	0.43	0.06	0.72
C53_1	CONDUIT	0.059	0	01:42	0.50	0.07	0.78
C54	CONDUIT	0.030	0	01:41	2.10	0.05	0.12
C55	CONDUIT	0.027	0	01:45	1.25	0.69	0.47
C57	CONDUIT	0.013	0	01:30	0.78	0.18	0.29
C58_1	CONDUIT	0.026	0	01:25	0.77	0.13	0.29
C59_1	CONDUIT	0.041	0	02:00	0.14	0.00	0.21
C59_2	CONDUIT	0.024	0	02:28	0.37	0.08	0.67
C6	CONDUIT	0.360	0	01:27	1.72	0.68	0.57
C60	CONDUIT	0.026	0	01:40	0.05	0.00	0.19
C60_2	CONDUIT	0.025	0	02:15	0.83	0.55	0.44
C60_3	CONDUIT	0.025	0	02:16	0.27	0.13	0.76
C6-S	CHANNEL	0.000	0	01:25	0.27	0.00	0.01
C7	CONDUIT	0.428	0	01:27	2.54	0.70	0.48
C7-S	CHANNEL	0.000	0	01:29	0.00	0.00	0.01
C8	CONDUIT	0.435	0	01:27	2.87	0.33	0.42
C8-S	CHANNEL	0.000	0	01:25	0.04	0.00	0.01
C9	CONDUIT	0.482	0	01:27	2.47	0.39	0.44
C9-S	CHANNEL	0.000	0	01:25	0.30	0.00	0.01
C53_2	DUMMY	0.010	0	01:44			
C60_4	DUMMY	0.025	0	02:15			
CB_43A-IC	DUMMY	0.017	0	01:25			
CB100-IC	DUMMY	0.027	0	01:25			
CB16-IC	DUMMY	0.027	0	01:25			
CB19-IC	DUMMY	0.007	0	01:25			
CB4-IC	DUMMY	0.007	0	01:25			
CBMH101-IC	DUMMY	0.010	0	01:25			
CBMH30-IC	DUMMY	0.010	0	01:25			
CBMH31-IC	DUMMY	0.010	0	01:25			
DCB_40A-IC	DUMMY	0.020	0	01:20			
DCB_42A-IC	DUMMY	0.029	0	01:25			
DCB66-IC	DUMMY	0.027	0	01:25			
J17-IC	DUMMY	0.027	0	01:25			
MH40-IC	DUMMY	0.020	0	01:20			
MH42-IC	DUMMY	0.029	0	01:25			

MH43-IC	DUMMY	0.017	0	01:25
OL1	DUMMY	0.005	0	01:25
OL2	DUMMY	0.024	0	01:25
OL3	DUMMY	0.027	0	01:25
STMH201-IC	DUMMY	0.027	0	01:25

****
Flow Classification Summary
****

	Adjusted	Fraction of Time in Flow Class								
	/Actual		Up	Down	Sub	Sup	Up	Down	Norm	Inlet
Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd	Ctrl
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.38	0.62	0.00	0.00	0.01	0.00
C10-S	1.00	0.88	0.00	0.00	0.11	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
C11-S	1.00	0.82	0.08	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.94	0.00	0.06	0.00	0.00	0.00	0.95	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.04	0.00
C16	1.00	0.97	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C17	1.00	0.00	0.01	0.00	0.98	0.01	0.00	0.00	0.11	0.00
C18	1.00	0.00	0.65	0.00	0.35	0.00	0.00	0.00	0.92	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.00	0.53	0.00	0.47	0.00	0.00	0.00	0.98	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.10	0.00	0.82	0.00	0.08	0.00	0.00	0.00
C23	1.00	0.00	0.96	0.00	0.04	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.92	0.00	0.08	0.00	0.00	0.00	0.96	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.98	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C28-S	1.00	0.85	0.02	0.00	0.13	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.03	0.00	0.91	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.77	0.00	0.23	0.00	0.00	0.00	0.98	0.00
C30_1	1.00	0.01	0.20	0.00	0.79	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00

C32	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C32-S	1.00	0.83	0.05	0.00	0.12	0.00	0.00	0.00	0.98	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.93	0.00
C37-S	1.00	0.87	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C39_2	1.00	0.00	0.00	0.00	0.07	0.00	0.00	0.93	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.97	0.01	0.00
C40	1.00	0.01	0.46	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.44	0.00	0.54	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C42_2	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C42_2-S	1.00	0.88	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.87	0.06	0.00	0.07	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.82	0.00	0.00	0.18	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C48	1.00	0.82	0.03	0.00	0.15	0.00	0.00	0.00	0.89	0.00
C49	1.00	0.01	0.00	0.00	0.97	0.01	0.00	0.00	0.02	0.00
C49_1	1.00	0.01	0.11	0.00	0.88	0.00	0.00	0.00	0.89	0.00
C5	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C50	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.05	0.00
C50_1	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.85	0.00
C50_3	1.00	0.62	0.14	0.00	0.24	0.00	0.00	0.00	0.09	0.00
C50_4	1.00	0.45	0.18	0.00	0.37	0.00	0.00	0.00	0.64	0.00
C50_5	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.79	0.00
C51	1.00	0.01	0.81	0.00	0.18	0.00	0.00	0.00	0.85	0.00
C52	1.00	0.01	0.44	0.00	0.55	0.00	0.00	0.00	0.86	0.00
C53_1	1.00	0.01	0.00	0.00	0.18	0.00	0.00	0.81	0.00	0.00
C54	1.00	0.01	0.00	0.00	0.90	0.09	0.00	0.00	0.11	0.00
C55	1.00	0.01	0.00	0.00	0.93	0.06	0.00	0.00	0.01	0.00
C57	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C58_1	1.00	0.01	0.07	0.00	0.92	0.00	0.00	0.00	0.96	0.00
C59_1	1.00	0.01	0.50	0.00	0.49	0.00	0.00	0.00	0.95	0.00
C59_2	1.00	0.01	0.00	0.00	0.98	0.00	0.00	0.00	0.92	0.00
C6	1.00	0.00	0.00	0.00	0.70	0.00	0.00	0.30	0.64	0.00
C60	1.00	0.76	0.11	0.00	0.13	0.00	0.00	0.00	0.91	0.00
C60_2	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00

C60_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.01	0.86	0.00	0.12	0.01	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.02	0.00
C7-S	1.00	0.01	0.01	0.00	0.95	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.00	0.00
C8-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C9-S	1.00	0.84	0.00	0.00	0.14	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	1.68	1.68	1.97	0.01	0.01
C11	0.01	0.01	0.08	0.01	0.01
C12	0.21	0.21	0.45	0.01	0.01
C13	0.01	0.01	0.01	0.14	0.01
C16	0.01	0.01	46.56	0.01	0.01
C2	0.10	0.13	0.10	0.14	0.10
C20	0.01	0.01	0.14	0.01	0.01
C25	0.01	0.01	0.01	0.04	0.01
C26	0.01	0.01	0.12	0.01	0.01
C29	0.01	0.01	0.14	0.01	0.01
C30	0.01	0.01	0.12	0.01	0.01
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.01	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01

Analysis begun on: Thu Dec 12 11:27:38 2019
Analysis ended on: Thu Dec 12 11:27:50 2019
Total elapsed time: 00:00:12

Post Development - Chicago 5 Year Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
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A100	2.11	98.17	37.00	1.7000	Chicago_4h_5yr	DICB101
A101	1.08	64.95	14.00	2.7500	Chicago_4h_5yr	MH106
A102	0.31	37.80	38.00	1.0000	Chicago_4h_5yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_5yr	DICB6
A104_2	0.29	28.60	48.00	0.1600	Chicago_4h_5yr	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Chicago_4h_5yr	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Chicago_4h_5yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_5yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_5yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_5yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_5yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_5yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_5yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_5yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_5yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_5yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_5yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_5yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_5yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_5yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_5yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_5yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_5yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_5yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_5yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_5yr	S10
S1	0.09	14.47	22.00	2.0000	Chicago_4h_5yr	CB02
S10	0.18	19.12	40.00	2.0000	Chicago_4h_5yr	DCB06
S11	0.06	7.51	67.00	2.0000	Chicago_4h_5yr	DCBMH08
S12	0.11	10.54	59.00	2.0000	Chicago_4h_5yr	DCB08
S13	0.00	23.00	100.00	2.0000	Chicago_4h_5yr	OF2
S14	0.00	5.00	0.00	2.0000	Chicago_4h_5yr	OF3
S15	0.00	13.50	0.00	2.0000	Chicago_4h_5yr	OF4
S16	0.17	26.77	38.00	2.0000	Chicago_4h_5yr	J7
S17	0.03	11.13	56.00	2.0000	Chicago_4h_5yr	J6
S18	0.07	18.30	43.00	2.0000	Chicago_4h_5yr	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Chicago_4h_5yr	DICB3
S3	0.18	13.04	36.00	2.0000	Chicago_4h_5yr	CB01
S4	0.16	10.71	39.00	2.0000	Chicago_4h_5yr	CBMH04
S5	0.15	15.13	52.00	2.0000	Chicago_4h_5yr	CB04
S6	0.11	12.76	64.00	2.0000	Chicago_4h_5yr	CBMH01
S7	0.07	8.29	60.00	2.0000	Chicago_4h_5yr	DCBMH03
S8	0.02	7.73	75.00	2.0000	Chicago_4h_5yr	J8
S9	0.09	17.25	52.00	2.0000	Chicago_4h_5yr	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

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Transect Summary
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Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

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            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

```
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.481	44.077
Evaporation Loss	0.000	0.000
Infiltration Loss	0.286	26.236
Surface Runoff	0.189	17.351
Final Storage	0.008	0.702
Continuity Error (%)	-0.481	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.189	1.895
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.363	3.628
External Outflow	0.556	5.560
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.671	

```
Highest Continuity Errors
Node MH40-S (-12.79%)
Node DCB65 (12.15%)
Node DCB66 (12.14%)
Node MH102-S (10.98%)
Node DCB_40A (3.97%)
```

****
Time-Step Critical Elements
****
Link C13 (99.20%)

****
Highest Flow Instability Indexes
****
Link DCB66-IC (21)
Link J17-IC (21)
Link DCB_40A-IC (20)
Link MH40-IC (20)
Link DCB_42A-IC (13)

****
Routing Time Step Summary
****
Minimum Time Step : 0.13 sec
Average Time Step : 0.85 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.02
Percent Not Converging : 0.01

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	44.08	0.00	0.00	27.29	15.73	0.49	16.22	0.34	0.26	0.368
A101	44.08	0.00	0.00	37.15	5.91	0.78	6.70	0.07	0.06	0.152
A102	44.08	0.00	0.00	25.97	16.12	1.41	17.53	0.05	0.04	0.398
A103	44.08	0.00	0.00	34.93	6.32	2.67	9.00	0.01	0.00	0.204
A104_2	44.08	0.00	0.00	21.16	20.39	1.79	22.19	0.06	0.04	0.503
A104_3	44.08	0.00	0.00	21.16	20.39	1.79	22.19	0.06	0.04	0.503
A104_4	44.08	0.00	0.00	30.82	10.54	13.26	13.26	0.01	0.01	0.301
A105	44.08	0.00	0.00	33.91	5.91	4.49	10.40	0.01	0.01	0.236
A106	44.08	0.00	0.00	17.11	25.47	0.54	26.01	0.08	0.05	0.590

A107	44.08	0.00	0.00	0.00	42.21	0.00	42.21	0.01	0.01	0.958
A108	44.08	0.00	0.00	40.25	0.00	4.12	4.12	0.00	0.00	0.094
A109	44.08	0.00	0.00	8.57	33.58	0.72	34.31	0.04	0.03	0.778
A110	44.08	0.00	0.00	0.00	42.50	0.00	42.50	0.04	0.03	0.964
A111	44.08	0.00	0.00	29.32	12.70	1.60	14.29	0.05	0.04	0.324
A112_1	44.08	0.00	0.00	35.82	7.59	0.34	7.93	0.06	0.05	0.180
A112_3	44.08	0.00	0.00	35.82	7.59	0.34	7.93	0.01	0.01	0.180
A113	44.08	0.00	0.00	39.85	0.00	4.58	4.58	0.00	0.00	0.104
A114	44.08	0.00	0.00	0.00	42.34	0.00	42.34	0.01	0.01	0.961
A115	44.08	0.00	0.00	42.10	0.00	2.06	2.06	0.00	0.00	0.047
A116	44.08	0.00	0.00	14.24	28.05	0.77	28.83	0.11	0.08	0.654
A117	44.08	0.00	0.00	30.00	12.29	1.35	13.64	0.04	0.03	0.310
A118	44.08	0.00	0.00	14.28	27.61	1.21	28.82	0.03	0.03	0.654
A119	44.08	0.00	0.00	22.95	18.62	1.83	20.45	0.02	0.02	0.464
A120	44.08	0.00	0.00	12.20	30.15	0.61	30.75	0.13	0.08	0.698
A121	44.08	0.00	0.00	32.55	10.61	0.53	11.14	0.12	0.09	0.253
A3	44.08	0.00	0.00	28.81	3.37	15.33	15.33	0.12	0.05	0.348
S1	44.08	0.00	0.00	24.41	9.28	19.63	19.63	0.02	0.01	0.445
S10	44.08	68.66	0.00	26.94	41.64	67.31	85.58	0.16	0.05	0.759
S11	44.08	0.00	0.00	9.36	28.44	5.40	33.84	0.02	0.02	0.768
S12	44.08	0.00	0.00	13.69	25.06	17.20	29.73	0.03	0.02	0.674
S13	44.08	0.00	0.00	0.00	42.23	0.00	42.23	0.00	0.00	0.958
S14	44.08	0.00	0.00	27.09	0.00	20.46	20.46	0.00	0.00	0.464
S15	44.08	0.00	0.00	27.09	0.00	20.46	20.46	0.00	0.00	0.464
S16	44.08	0.00	0.00	20.26	16.06	23.59	23.59	0.04	0.02	0.535
S17	44.08	0.00	0.00	13.97	23.62	17.98	29.79	0.01	0.01	0.676
S18	44.08	0.00	0.00	17.04	18.15	14.03	26.74	0.02	0.01	0.607
S2	44.08	0.00	0.00	18.08	15.63	10.02	25.65	0.01	0.01	0.582
S3	44.08	0.00	0.00	20.86	15.28	15.18	22.82	0.04	0.02	0.518
S4	44.08	0.00	0.00	19.45	16.56	11.73	24.15	0.04	0.02	0.548
S5	44.08	0.00	0.00	15.71	22.07	16.76	27.80	0.04	0.02	0.631
S6	44.08	0.00	0.00	10.30	27.18	5.77	32.95	0.04	0.03	0.747
S7	44.08	0.00	0.00	11.43	25.46	6.42	31.88	0.02	0.02	0.723
S8	44.08	0.00	0.00	8.04	31.69	11.39	35.16	0.01	0.01	0.798
S9	44.08	0.00	0.00	15.55	21.99	19.30	28.09	0.03	0.02	0.637

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	64.58	0.00	59.77	4.82	0.00	0.00	0.00	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.12	193.65	0 01:25	0.12
CB_43B	JUNCTION	0.00	0.10	193.95	0 01:25	0.10
CB01	JUNCTION	0.00	0.10	189.79	0 01:30	0.10
CB02	JUNCTION	0.05	0.49	189.62	0 02:31	0.49
CB04	JUNCTION	0.00	0.11	190.58	0 01:30	0.11
CB100	JUNCTION	0.00	0.09	189.66	0 01:25	0.09
CB101	JUNCTION	0.00	0.04	191.27	0 01:25	0.04
CB102	JUNCTION	0.00	0.07	191.30	0 01:25	0.07
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.24	187.52	0 01:30	0.24
CB16	JUNCTION	0.13	0.81	188.17	0 01:28	0.81
CB16-S	JUNCTION	0.00	0.01	188.69	0 01:25	0.01
CB19	JUNCTION	0.07	0.50	188.24	0 01:29	0.50
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:25	0.00
CB32	JUNCTION	0.13	0.22	188.63	0 01:25	0.22
CB4	JUNCTION	0.00	0.37	188.24	0 01:29	0.37
CBMH01	JUNCTION	0.06	0.51	189.61	0 02:26	0.51
CBMH04	JUNCTION	0.02	0.29	189.61	0 02:28	0.29
CBMH100	JUNCTION	0.07	0.30	189.33	0 01:27	0.30
CBMH101	JUNCTION	0.06	0.25	190.74	0 01:27	0.25
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.03	0.43	191.16	0 01:27	0.43
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.10	191.49	0 01:28	0.09
CBMH30	JUNCTION	0.08	0.41	188.37	0 01:29	0.41
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:25	0.00
CBMH31	JUNCTION	0.16	0.25	188.63	0 01:25	0.25
DCB_40A	JUNCTION	0.00	0.06	193.36	0 01:25	0.06
DCB_40B	JUNCTION	0.00	0.04	193.30	0 01:25	0.04
DCB_42A	JUNCTION	0.00	0.10	193.47	0 01:25	0.10
DCB_42B	JUNCTION	0.00	0.07	193.41	0 01:27	0.07
DCB06	JUNCTION	0.01	0.20	189.11	0 01:51	0.20
DCB08	JUNCTION	0.06	0.56	188.98	0 02:23	0.56
DCB65	JUNCTION	0.00	0.25	191.48	0 01:27	0.25
DCB66	JUNCTION	0.00	0.25	191.48	0 01:27	0.25

DCBMH03	JUNCTION	0.12	0.78	189.61	0	02:32	0.78
DCBMH06	JUNCTION	0.01	0.13	189.01	0	01:35	0.13
DCBMH08	JUNCTION	0.10	0.60	188.98	0	02:23	0.60
DCBMH3-1	JUNCTION	0.11	0.75	189.61	0	02:28	0.75
DICB100	JUNCTION	0.00	0.11	190.74	0	01:27	0.11
DICB101	JUNCTION	0.02	0.62	193.38	0	01:31	0.62
DICB3	JUNCTION	0.07	0.57	189.61	0	02:27	0.57
DICB4	JUNCTION	0.00	0.01	192.25	0	01:30	0.01
DICB6	JUNCTION	0.00	0.04	193.72	0	01:25	0.04
DICB7	JUNCTION	0.00	0.05	193.24	0	01:30	0.05
DICB99	JUNCTION	0.00	0.18	190.74	0	01:27	0.18
J1	JUNCTION	0.05	0.51	188.98	0	02:23	0.50
J10	JUNCTION	0.11	0.72	189.61	0	02:28	0.72
J12	JUNCTION	0.13	0.81	188.17	0	01:28	0.81
J13	JUNCTION	0.13	0.82	188.11	0	01:29	0.82
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.29	191.48	0	01:27	0.28
J17-S	JUNCTION	0.00	0.00	194.63	0	01:26	0.00
J2	JUNCTION	0.11	0.41	191.13	0	01:26	0.41
J3	JUNCTION	0.03	0.34	189.61	0	02:27	0.34
J5	JUNCTION	0.10	0.70	189.61	0	02:28	0.70
J6	JUNCTION	0.08	0.59	189.61	0	02:26	0.59
J7	JUNCTION	0.09	0.65	189.61	0	02:28	0.64
J8	JUNCTION	0.05	0.43	189.61	0	02:30	0.43
J9	JUNCTION	0.15	0.91	189.61	0	02:28	0.91
MH02	JUNCTION	0.09	0.65	189.61	0	02:32	0.65
MH07	JUNCTION	0.02	0.28	188.98	0	02:24	0.28
MH102	JUNCTION	0.10	0.47	191.12	0	01:27	0.47
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:27	0.01
MH103	JUNCTION	0.11	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.02	0.45	192.85	0	01:26	0.45
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.01	0.62	188.15	0	01:28	0.62
MH18	JUNCTION	0.01	0.44	188.24	0	01:29	0.44
MH40	JUNCTION	0.01	0.42	192.86	0	01:26	0.42
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:27	0.00
MH41	JUNCTION	0.01	0.45	193.22	0	01:27	0.45
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.34	193.35	0	01:27	0.33
MH42-S	JUNCTION	0.00	0.00	194.65	0	01:25	0.00
MH43	JUNCTION	0.01	0.17	193.61	0	01:25	0.17
MH43-S	JUNCTION	0.00	0.00	194.94	0	01:25	0.00
MH54	JUNCTION	0.11	0.15	191.50	0	00:00	0.15
MH61	JUNCTION	0.00	0.00	191.49	0	00:00	0.00
MH62	JUNCTION	0.02	0.43	191.48	0	01:27	0.43

OGS	JUNCTION	0.05	0.18	188.53	0	02:23	0.18	
OS2	JUNCTION	0.11	0.61	188.98	0	02:23	0.61	
STMH201	JUNCTION	0.07	0.30	189.33	0	01:27	0.30	
STMH201-S	JUNCTION	0.00	0.01	190.86	0	01:25	0.01	
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00	
J14	OUTFALL	0.13	0.90	188.18	0	01:27	0.86	
J4	OUTFALL	0.02	0.14	188.48	0	02:23	0.14	
OF1	OUTFALL	0.00	0.01	188.61	0	01:25	0.01	
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	

****
Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.027	0	01:25	0	0.0346	0.260	
CB_43B	JUNCTION	0.000	0.022	0	01:25	0	0.0277	0.310	
CB01	JUNCTION	0.016	0.016	0	01:30	0.0411	0.0411	0.001	
CB02	JUNCTION	0.010	0.015	0	01:37	0.0182	0.0318	-0.190	
CB04	JUNCTION	0.021	0.021	0	01:30	0.0421	0.0421	0.001	
CB100	JUNCTION	0.000	0.037	0	01:25	0	0.055	0.206	
CB101	JUNCTION	0.011	0.011	0	01:25	0.0125	0.0125	-0.000	
CB102	JUNCTION	0.053	0.053	0	01:25	0.0626	0.0626	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.100	0	01:29	0	0.0923	0.218	
CB16	JUNCTION	0.000	0.665	0	01:29	0	4.86	0.012	
CB16-S	JUNCTION	0.076	0.076	0	01:25	0.126	0.126	-0.740	
CB19	JUNCTION	0.000	0.651	0	01:27	0	4.79	-0.000	
CB19-S	JUNCTION	0.019	0.019	0	01:25	0.0233	0.0233	-0.309	
CB32	JUNCTION	0.028	0.028	0	01:25	0.035	0.0368	0.413	
CB4	JUNCTION	0.000	0.010	0	01:25	0	0.0117	0.107	
CBMH01	JUNCTION	0.029	0.044	0	01:25	0.0378	0.0791	-0.058	
CBMH04	JUNCTION	0.019	0.039	0	01:25	0.0388	0.0809	-0.111	
CBMH100	JUNCTION	0.000	0.037	0	01:25	0	0.0557	0.071	
CBMH101	JUNCTION	0.000	0.548	0	01:27	0	4.59	0.024	
CBMH101-S	JUNCTION	0.013	0.013	0	01:25	0.0148	0.0148	-0.161	
CBMH103	JUNCTION	0.000	0.421	0	01:27	0	0.814	0.014	
CBMH103-S	JUNCTION	0.032	0.032	0	01:25	0.0396	0.0396	-0.272	

CBMH105	JUNCTION	0.000	0.007	0	01:25	0	0.00831	0.078	
CBMH30	JUNCTION	0.000	0.646	0	01:27	0	4.77	-0.008	
CBMH30-S	JUNCTION	0.028	0.028	0	01:25	0.034	0.034	-0.451	
CBMH31	JUNCTION	0.000	0.042	0	01:25	0	0.0537	0.388	
DCB_40A	JUNCTION	0.000	0.036	0	01:28	0	0.0461	4.131	
DCB_40B	JUNCTION	0.000	0.036	0	01:28	0	0.046	4.115	
DCB_42A	JUNCTION	0.000	0.042	0	01:25	0	0.0691	1.319	
DCB_42B	JUNCTION	0.000	0.042	0	01:25	0	0.0691	1.317	
DCB06	JUNCTION	0.053	0.053	0	01:45	0.155	0.155	0.106	
DCB08	JUNCTION	0.017	0.017	0	01:30	0.0326	0.0326	-0.013	
DCB65	JUNCTION	0.000	0.032	0	01:23	0	0.0319	13.829	
DCB66	JUNCTION	0.000	0.032	0	01:23	0	0.0319	13.813	
DCBMH03	JUNCTION	0.016	0.090	0	01:31	0.0211	0.338	-0.044	
DCBMH06	JUNCTION	0.017	0.064	0	01:40	0.0252	0.18	-0.151	
DCBMH08	JUNCTION	0.016	0.032	0	02:23	0.0208	0.528	0.016	
DCBMH3-1	JUNCTION	0.013	0.043	0	01:39	0.0196	0.269	-0.002	
DICB100	JUNCTION	0.001	0.002	0	01:23	0.0016	0.00175	0.078	
DICB101	JUNCTION	0.263	0.263	0	01:25	0.342	0.342	0.051	
DICB3	JUNCTION	0.010	0.087	0	01:32	0.0143	0.188	0.003	
DICB4	JUNCTION	0.001	0.001	0	01:30	0.000569	0.000569	0.059	
DICB6	JUNCTION	0.005	0.005	0	01:25	0.00691	0.00691	0.000	
DICB7	JUNCTION	0.006	0.006	0	01:30	0.00766	0.00766	0.058	
DICB99	JUNCTION	0.001	0.001	0	00:01	0.000513	0.000782	0.088	
J1	JUNCTION	0.000	0.096	0	02:05	0	0.499	0.011	
J10	JUNCTION	0.000	0.061	0	01:36	0	0.261	0.003	
J12	JUNCTION	0.000	0.620	0	01:27	0	4.83	-0.008	
J13	JUNCTION	0.093	0.672	0	01:27	0.115	4.94	0.011	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.034	0	01:29	0	0.0569	-0.120	
J17-S	JUNCTION	0.030	0.030	0	01:25	0.0415	0.0415	-34.887	
J2	JUNCTION	0.000	0.176	0	00:00	0	3.76	0.013	
J3	JUNCTION	0.000	0.052	0	01:32	0	0.0584	0.013	
J5	JUNCTION	0.000	0.102	0	01:27	0	0.292	0.033	
J6	JUNCTION	0.006	0.050	0	01:25	0.00796	0.0877	-0.066	
J7	JUNCTION	0.024	0.104	0	01:27	0.0392	0.301	0.128	
J8	JUNCTION	0.007	0.045	0	01:25	0.00816	0.0891	-0.345	
J9	JUNCTION	0.000	0.062	0	01:41	0	0.309	0.023	
MH02	JUNCTION	0.000	0.022	0	01:34	0	0.0532	0.147	
MH07	JUNCTION	0.000	0.073	0	01:50	0	0.494	0.023	
MH102	JUNCTION	0.000	0.522	0	01:26	0	4.58	0.001	
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	3.11e-05	3.417	ltr
MH103	JUNCTION	0.037	0.054	0	01:25	0.0459	3.72	0.924	
MH106	JUNCTION	0.058	0.364	0	01:26	0.0726	0.71	-0.017	
MH106-S	JUNCTION	0.007	0.007	0	01:25	0.00768	0.00768	-0.688	
MH15	JUNCTION	0.000	0.068	0	01:29	0	0.0297	-0.020	

MH18	JUNCTION	0.000	0.012	0	01:25	0	0.0119	-0.066	
MH40	JUNCTION	0.000	0.171	0	01:28	0	0.295	-0.002	
MH40-S	JUNCTION	0.047	0.047	0	01:25	0.0817	0.0817	-11.338	
MH41	JUNCTION	0.000	0.134	0	01:25	0	0.206	-0.165	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.131	0	01:25	0	0.198	0.083	
MH42-S	JUNCTION	0.085	0.085	0	01:25	0.134	0.134	-3.353	
MH43	JUNCTION	0.000	0.049	0	01:25	0	0.0621	0.197	
MH43-S	JUNCTION	0.044	0.044	0	01:25	0.055	0.055	-0.643	
MH54	JUNCTION	0.042	0.080	0	00:00	3.63	3.63	0.005	
MH61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH62	JUNCTION	0.000	0.401	0	01:26	0	0.775	0.004	
OGS	JUNCTION	0.000	0.032	0	02:23	0	0.522	0.004	
OS2	JUNCTION	0.000	0.032	0	02:23	0	0.522	0.012	
STMH201	JUNCTION	0.000	0.600	0	01:27	0	4.7	-0.004	
STMH201-S	JUNCTION	0.075	0.075	0	01:25	0.109	0.109	-0.653	
CB7	OUTFALL	0.000	0.098	0	01:30	0	0.0921	0.000	
J14	OUTFALL	0.000	0.693	0	01:31	0	4.94	0.000	
J4	OUTFALL	0.000	0.032	0	02:23	0	0.522	0.000	
OF1	OUTFALL	0.000	0.000	0	01:25	0	5.64e-06	0.000	ltr
OF2	OUTFALL	0.002	0.002	0	01:25	0.00194	0.00194	0.000	
OF3	OUTFALL	0.000	0.000	0	01:25	0.000205	0.000205	0.000	
OF4	OUTFALL	0.001	0.001	0	01:25	0.000553	0.000553	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB16	JUNCTION	0.11	0.062	0.508
CB4	JUNCTION	0.09	0.075	0.850
DCB08	JUNCTION	3.25	0.307	0.413
DCBMH03	JUNCTION	1.02	0.031	0.739
DCBMH08	JUNCTION	1.23	0.072	0.413
DCBMH3-1	JUNCTION	0.01	0.000	0.750
DICB101	JUNCTION	0.31	0.244	0.000
J9	JUNCTION	1.61	0.065	0.823
MH02	JUNCTION	1.37	0.054	0.966
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	0.30	0.249	0.571

MH18	JUNCTION	0.14	0.137	0.890
OS2	JUNCTION	1.28	0.078	0.436

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DICB101	0.31	0.114	0 01:25	0.029	0.029

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	17.09	0.005	0.098	0.092
J14	99.95	0.035	0.693	4.943
J4	39.85	0.010	0.032	0.522
OF1	0.00	0.000	0.000	0.000
OF2	9.25	0.000	0.002	0.002
OF3	1.39	0.000	0.000	0.000
OF4	1.99	0.000	0.001	0.001
System	24.22	0.051	0.001	5.560

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth

C1	CONDUIT	0.017	0	01:30	0.42	0.39	1.00
C10	CONDUIT	0.635	0	01:26	2.13	0.80	0.75
C10-S	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C11	CONDUIT	0.633	0	01:29	1.44	0.55	0.91
C11-S	CHANNEL	0.000	0	01:25	0.02	0.00	0.02
C12	CONDUIT	0.068	0	01:29	0.96	0.37	1.00
C13	CONDUIT	0.620	0	01:27	1.40	1.53	1.00
C14	CONDUIT	0.597	0	01:29	1.08	1.01	0.90
C15	CONDUIT	0.693	0	01:31	1.16	1.07	0.95
C16	CONDUIT	0.068	0	01:29	1.28	0.36	0.71
C17	CONDUIT	0.012	0	01:25	0.34	0.13	1.00
C18	CONDUIT	0.011	0	01:25	0.17	0.11	1.00
C19	CONDUIT	0.028	0	01:25	0.47	0.42	0.79
C2	CONDUIT	0.167	0	01:40	1.52	1.35	1.00
C20	CONDUIT	0.042	0	01:25	0.86	0.20	0.65
C21	CONDUIT	0.037	0	01:25	1.98	0.21	0.31
C22	CONDUIT	0.037	0	01:25	0.54	0.02	0.28
C23	CONDUIT	0.002	0	01:35	0.06	0.02	0.60
C24	CONDUIT	0.001	0	01:29	0.14	0.01	0.72
C25	CONDUIT	0.364	0	01:27	1.93	1.18	0.81
C26	CONDUIT	0.053	0	01:25	1.16	0.13	0.62
C27	CONDUIT	0.024	0	01:25	2.21	0.09	0.27
C28	CONDUIT	0.168	0	01:28	1.07	0.72	0.97
C28-S	CHANNEL	0.000	0	01:28	0.00	0.00	0.02
C29	CONDUIT	0.024	0	01:28	0.58	0.04	0.57
C3	CONDUIT	0.001	0	01:30	0.90	0.00	0.02
C30	CONDUIT	0.011	0	01:25	0.26	0.04	0.57
C30_1	CONDUIT	0.005	0	01:25	0.38	0.04	0.26
C30_2	CONDUIT	0.027	0	01:25	0.89	0.28	0.45
C31	CONDUIT	0.022	0	01:25	1.05	0.25	0.34
C32	CONDUIT	0.048	0	01:25	0.87	0.64	0.77
C32-S	CHANNEL	0.000	0	01:25	0.11	0.00	0.03
C33	CONDUIT	0.042	0	01:25	1.68	0.24	0.56
C34	CONDUIT	0.042	0	01:25	2.51	0.12	0.52
C35	CONDUIT	0.128	0	01:25	1.40	0.97	0.95
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C36	CONDUIT	0.006	0	01:30	0.74	0.07	0.38
C37	CONDUIT	0.124	0	01:28	1.13	1.05	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.64
C39_2	CONDUIT	0.106	0	01:25	1.22	0.62	0.95
C4	CONDUIT	0.008	0	01:28	0.44	0.03	0.42
C40	CONDUIT	0.017	0	01:29	0.38	0.01	0.27

C41	CONDUIT	0.017	0	01:30	0.37	0.01	0.27
C42	CONDUIT	0.098	0	01:30	1.31	0.65	0.58
C42_1	CONDUIT	0.000	0	00:00	0.00	0.00	0.21
C42_2	CONDUIT	0.036	0	01:30	0.52	0.07	0.45
C42_2-S	CHANNEL	0.000	0	01:23	0.00	0.00	0.01
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.29
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.01
C46	CONDUIT	0.000	0	01:25	0.03	0.00	0.03
C47	CONDUIT	0.016	0	01:30	0.81	0.25	0.33
C48	CONDUIT	0.020	0	01:35	0.18	0.05	0.91
C49	CONDUIT	0.049	0	01:25	0.80	0.12	0.99
C49_1	CONDUIT	0.044	0	01:25	0.93	0.10	0.91
C5	CONDUIT	0.396	0	01:28	1.72	0.75	0.61
C50	CONDUIT	0.045	0	01:26	0.94	0.27	0.98
C50_1	CONDUIT	0.061	0	01:36	0.12	0.00	0.59
C50_3	CONDUIT	0.080	0	01:32	0.21	0.01	0.50
C50_4	CONDUIT	0.051	0	01:25	0.08	0.00	0.56
C50_5	CONDUIT	0.035	0	01:35	0.46	0.04	0.98
C51	CONDUIT	0.021	0	01:35	0.13	0.05	1.00
C52	CONDUIT	0.048	0	01:34	0.43	0.06	1.00
C53_1	CONDUIT	0.062	0	01:41	0.49	0.08	1.00
C54	CONDUIT	0.060	0	01:40	2.56	0.10	0.32
C55	CONDUIT	0.057	0	01:44	1.71	1.45	0.65
C57	CONDUIT	0.021	0	01:30	0.89	0.30	0.37
C58_1	CONDUIT	0.039	0	01:25	0.87	0.19	0.79
C59_1	CONDUIT	0.096	0	02:05	0.14	0.01	0.43
C59_2	CONDUIT	0.030	0	02:24	0.37	0.10	0.98
C6	CONDUIT	0.421	0	01:27	1.81	0.80	0.62
C60	CONDUIT	0.052	0	01:32	0.09	0.00	0.38
C60_2	CONDUIT	0.032	0	02:23	0.90	0.70	0.50
C60_3	CONDUIT	0.032	0	02:23	0.27	0.16	1.00
C6-S	CHANNEL	0.000	0	01:25	0.29	0.00	0.02
C7	CONDUIT	0.537	0	01:27	2.78	0.87	0.53
C7-S	CHANNEL	0.000	0	01:27	0.32	0.00	0.01
C8	CONDUIT	0.533	0	01:27	2.96	0.40	0.46
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.02
C9	CONDUIT	0.599	0	01:27	2.57	0.48	0.50
C9-S	CHANNEL	0.000	0	01:25	0.37	0.00	0.02
C53_2	DUMMY	0.011	0	02:28			
C60_4	DUMMY	0.032	0	02:23			
CB_43A-IC	DUMMY	0.022	0	01:25			
CB100-IC	DUMMY	0.037	0	01:25			
CB16-IC	DUMMY	0.038	0	01:25			
CB19-IC	DUMMY	0.010	0	01:25			
CB4-IC	DUMMY	0.010	0	01:25			

CBMH101-IC	DUMMY	0.013	0	01:25
CBMH30-IC	DUMMY	0.014	0	01:25
CBMH31-IC	DUMMY	0.014	0	01:25
DCB_40A-IC	DUMMY	0.036	0	01:28
DCB_42A-IC	DUMMY	0.042	0	01:25
DCB66-IC	DUMMY	0.032	0	01:23
J17-IC	DUMMY	0.032	0	01:23
MH40-IC	DUMMY	0.036	0	01:28
MH42-IC	DUMMY	0.042	0	01:25
MH43-IC	DUMMY	0.022	0	01:25
OL1	DUMMY	0.007	0	01:25
OL2	DUMMY	0.032	0	01:25
OL3	DUMMY	0.038	0	01:25
STMH201-IC	DUMMY	0.037	0	01:25

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.17	0.83	0.00	0.00	0.02	0.00
C10-S	1.00	0.88	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.83	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.89	0.00	0.11	0.00	0.00	0.00	0.91	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C16	1.00	0.97	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.02	0.27	0.00	0.71	0.01	0.00	0.00	0.97	0.00
C18	1.00	0.00	0.40	0.00	0.60	0.00	0.00	0.00	0.51	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.00	0.53	0.00	0.47	0.00	0.00	0.00	0.98	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.04	0.00	0.92	0.00	0.03	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.75	0.00	0.25	0.00	0.00	0.00	0.81	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.99	0.00

C27	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.95	0.00
C28-S	1.00	0.85	0.02	0.00	0.13	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.02	0.00	0.93	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.20	0.00	0.79	0.00	0.00	0.00	0.99	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.12	0.00	0.00	0.00	0.01	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.90	0.00
C37-S	1.00	0.87	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.53	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.97	0.01	0.00
C40	1.00	0.01	0.48	0.00	0.51	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.46	0.00	0.53	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C42_2	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.87	0.05	0.00	0.07	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C48	1.00	0.76	0.03	0.00	0.21	0.00	0.00	0.00	0.83	0.00
C49	1.00	0.01	0.00	0.00	0.98	0.01	0.00	0.00	0.02	0.00
C49_1	1.00	0.01	0.12	0.00	0.87	0.00	0.00	0.00	0.82	0.00
C5	1.00	0.01	0.00	0.00	0.14	0.01	0.00	0.84	0.00	0.00
C50	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.05	0.00
C50_1	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.80	0.00
C50_3	1.00	0.61	0.10	0.00	0.29	0.00	0.00	0.00	0.08	0.00
C50_4	1.00	0.45	0.17	0.00	0.38	0.00	0.00	0.00	0.51	0.00
C50_5	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.75	0.00
C51	1.00	0.01	0.75	0.00	0.24	0.00	0.00	0.00	0.80	0.00
C52	1.00	0.01	0.44	0.00	0.55	0.00	0.00	0.00	0.81	0.00
C53_1	1.00	0.01	0.00	0.00	0.24	0.00	0.00	0.75	0.00	0.00

C54	1.00	0.01	0.03	0.00	0.93	0.03	0.00	0.00	0.17	0.00
C55	1.00	0.01	0.00	0.00	0.93	0.06	0.00	0.00	0.01	0.00
C57	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C58_1	1.00	0.01	0.09	0.00	0.90	0.00	0.00	0.00	0.88	0.00
C59_1	1.00	0.01	0.50	0.00	0.49	0.00	0.00	0.00	0.92	0.00
C59_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C6	1.00	0.00	0.00	0.00	0.86	0.00	0.00	0.14	0.25	0.00
C60	1.00	0.71	0.10	0.00	0.19	0.00	0.00	0.00	0.86	0.00
C60_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.01	0.86	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.03	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.01	0.00
C8-S	1.00	0.85	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C9-S	1.00	0.84	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	3.25	3.25	3.50	0.01	0.01
C11	0.01	0.01	0.21	0.01	0.01
C12	0.35	0.35	0.63	0.01	0.01
C13	0.10	0.11	0.10	0.29	0.10
C14	0.01	0.01	0.01	0.03	0.01
C15	0.01	0.01	0.05	0.05	0.01
C16	0.01	0.01	46.58	0.01	0.01
C17	0.09	0.09	0.14	0.01	0.01
C18	0.14	0.14	0.17	0.01	0.01
C2	0.23	0.31	0.23	0.31	0.23
C20	0.01	0.01	0.28	0.01	0.01
C25	0.01	0.01	0.01	0.17	0.01
C26	0.01	0.01	0.25	0.01	0.01
C29	0.01	0.01	0.31	0.01	0.01
C30	0.01	0.01	0.25	0.01	0.01
C32	0.01	0.01	0.02	0.01	0.01
C35	0.01	0.01	0.06	0.01	0.01
C37	0.09	0.09	0.15	0.08	0.08

C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.01	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01
C48	0.01	0.01	1.37	0.01	0.01
C49	0.01	0.01	2.15	0.01	0.01
C50	0.01	0.01	3.39	0.01	0.01
C50_5	0.01	0.01	0.01	0.01	0.01
C51	1.37	1.37	3.17	0.01	0.01
C52	0.01	0.01	1.02	0.01	0.01
C53_1	1.02	1.02	1.61	0.01	0.01
C55	0.01	0.01	0.01	0.40	0.01
C59_2	0.01	0.01	1.23	0.01	0.01
C60_3	1.23	1.23	1.28	0.01	0.01

Analysis begun on: Thu Dec 12 11:23:58 2019
Analysis ended on: Thu Dec 12 11:24:11 2019
Total elapsed time: 00:00:13

Post Development - Chicago 10 Year Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
-------------------------------------------------------------------------------------------------
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A100	2.11	98.17	37.00	1.7000	Chicago_4h_10yr	DICB101
A101	1.08	64.95	14.00	2.7500	Chicago_4h_10yr	MH106
A102	0.31	37.80	38.00	1.0000	Chicago_4h_10yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_10yr	DICB6
A104_2	0.29	28.60	48.00	0.1600	Chicago_4h_10yr	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Chicago_4h_10yr	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Chicago_4h_10yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_10yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_10yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_10yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_10yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_10yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_10yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_10yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_10yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_10yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_10yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_10yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_10yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_10yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_10yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_10yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_10yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_10yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_10yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_10yr	S10
S1	0.09	14.47	22.00	2.0000	Chicago_4h_10yr	CB02
S10	0.18	19.12	40.00	2.0000	Chicago_4h_10yr	DCB06
S11	0.06	7.51	67.00	2.0000	Chicago_4h_10yr	DCBMH08
S12	0.11	10.54	59.00	2.0000	Chicago_4h_10yr	DCB08
S13	0.00	23.00	100.00	2.0000	Chicago_4h_10yr	OF2
S14	0.00	5.00	0.00	2.0000	Chicago_4h_10yr	OF3
S15	0.00	13.50	0.00	2.0000	Chicago_4h_10yr	OF4
S16	0.17	26.77	38.00	2.0000	Chicago_4h_10yr	J7
S17	0.03	11.13	56.00	2.0000	Chicago_4h_10yr	J6
S18	0.07	18.30	43.00	2.0000	Chicago_4h_10yr	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Chicago_4h_10yr	DICB3
S3	0.18	13.04	36.00	2.0000	Chicago_4h_10yr	CB01
S4	0.16	10.71	39.00	2.0000	Chicago_4h_10yr	CBMH04
S5	0.15	15.13	52.00	2.0000	Chicago_4h_10yr	CB04
S6	0.11	12.76	64.00	2.0000	Chicago_4h_10yr	CBMH01
S7	0.07	8.29	60.00	2.0000	Chicago_4h_10yr	DCBMH03
S8	0.02	7.73	75.00	2.0000	Chicago_4h_10yr	J8
S9	0.09	17.25	52.00	2.0000	Chicago_4h_10yr	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

```
            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
```

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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

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Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ..... 8
Number of Threads ........ 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.552	50.595
Evaporation Loss	0.000	0.000
Infiltration Loss	0.311	28.521
Surface Runoff	0.236	21.642
Final Storage	0.008	0.702
Continuity Error (%)	-0.532	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.236	2.363
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.432	4.320
External Outflow	0.672	6.724
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.621	

Highest Continuity Errors

Node MH40-S (-10.38%)
Node DCB65 (10.23%)
Node DCB66 (10.23%)
Node MH102-S (7.52%)
Node MH42-S (-4.23%)

****
Time-Step Critical Elements
****
Link C13 (99.09%)

****
Highest Flow Instability Indexes
****
Link J17-IC (21)
Link DCB66-IC (21)
Link DCB_40A-IC (15)
Link MH40-IC (15)
Link DCB_42A-IC (12)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 0.81 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.02
Percent Not Converging : 0.04

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	50.59	0.00	0.00	30.21	18.16	1.71	19.86	0.42	0.31	0.393
A101	50.59	0.00	0.00	40.95	6.82	2.62	9.45	0.10	0.07	0.187
A102	50.60	0.00	0.00	28.00	18.60	3.49	22.09	0.07	0.05	0.437
A103	50.60	0.00	0.00	37.26	7.30	6.03	13.33	0.01	0.01	0.263
A104_2	50.59	0.00	0.00	23.04	23.55	3.33	26.88	0.08	0.05	0.531
A104_3	50.59	0.00	0.00	23.04	23.55	3.33	26.88	0.08	0.05	0.531
A104_4	50.60	0.00	0.00	32.64	12.16	18.10	18.10	0.01	0.01	0.358
A105	50.59	0.00	0.00	35.79	6.81	8.74	15.55	0.01	0.01	0.307
A106	50.59	0.00	0.00	18.77	29.42	1.51	30.93	0.10	0.06	0.611

A107	50.59	0.00	0.00	0.00	48.72	0.00	48.72	0.01	0.01	0.963
A108	50.60	0.00	0.00	42.64	0.00	8.57	8.57	0.00	0.00	0.169
A109	50.60	0.00	0.00	9.12	38.78	1.59	40.37	0.05	0.04	0.798
A110	50.59	0.00	0.00	0.00	49.06	0.00	49.06	0.05	0.04	0.970
A111	50.59	0.00	0.00	31.61	14.65	3.94	18.59	0.06	0.04	0.368
A112_1	50.60	0.00	0.00	39.59	8.76	1.94	10.70	0.08	0.06	0.212
A112_3	50.59	0.00	0.00	39.59	8.76	1.94	10.70	0.02	0.01	0.212
A113	50.59	0.00	0.00	42.15	0.00	9.24	9.24	0.00	0.00	0.183
A114	50.59	0.00	0.00	0.00	48.86	0.00	48.86	0.02	0.02	0.966
A115	50.59	0.00	0.00	45.56	0.00	5.21	5.21	0.00	0.00	0.103
A116	50.60	0.00	0.00	15.36	32.40	1.91	34.31	0.13	0.09	0.678
A117	50.59	0.00	0.00	32.54	14.18	3.49	17.67	0.05	0.03	0.349
A118	50.60	0.00	0.00	15.20	31.86	2.66	34.52	0.04	0.03	0.682
A119	50.60	0.00	0.00	24.47	21.49	4.08	25.57	0.03	0.02	0.505
A120	50.60	0.00	0.00	13.20	34.82	1.53	36.35	0.15	0.09	0.718
A121	50.59	0.00	0.00	36.12	12.25	1.86	14.11	0.15	0.11	0.279
A3	50.59	0.00	0.00	29.76	3.89	20.97	20.97	0.17	0.07	0.415
S1	50.59	0.00	0.00	25.17	10.71	25.48	25.48	0.02	0.01	0.504
S10	50.60	93.95	0.00	29.12	53.93	91.49	115.32	0.21	0.07	0.798
S11	50.59	0.00	0.00	9.69	32.83	7.28	40.11	0.02	0.02	0.793
S12	50.59	0.00	0.00	14.04	28.92	21.50	35.96	0.04	0.02	0.711
S13	50.60	0.00	0.00	0.00	48.62	0.00	48.62	0.00	0.00	0.961
S14	50.60	0.00	0.00	28.14	0.00	25.57	25.57	0.00	0.00	0.505
S15	50.60	0.00	0.00	28.14	0.00	25.57	25.57	0.00	0.00	0.505
S16	50.59	0.00	0.00	20.81	18.54	29.62	29.62	0.05	0.03	0.585
S17	50.60	0.00	0.00	14.36	27.26	22.23	35.86	0.01	0.01	0.709
S18	50.60	0.00	0.00	17.61	20.95	18.12	32.79	0.02	0.02	0.648
S2	50.60	0.00	0.00	18.71	18.04	13.60	31.64	0.02	0.01	0.625
S3	50.59	0.00	0.00	21.48	17.63	19.96	28.77	0.05	0.02	0.569
S4	50.60	0.00	0.00	20.06	19.11	15.79	30.12	0.05	0.02	0.595
S5	50.59	0.00	0.00	16.16	25.47	21.21	33.94	0.05	0.03	0.671
S6	50.59	0.00	0.00	10.66	31.37	7.82	39.19	0.04	0.03	0.775
S7	50.60	0.00	0.00	11.83	29.38	8.70	38.08	0.03	0.02	0.753
S8	50.59	0.00	0.00	8.25	36.58	13.93	41.36	0.01	0.01	0.818
S9	50.59	0.00	0.00	15.97	25.38	24.07	34.22	0.03	0.02	0.676

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	77.16	0.00	69.87	7.29	0.00	0.00	0.00	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.00	0.32	193.85	0 01:28	0.32
CB_43B	JUNCTION	0.00	0.11	193.96	0 01:25	0.11
CB01	JUNCTION	0.00	0.12	189.81	0 01:30	0.12
CB02	JUNCTION	0.07	0.62	189.75	0 02:11	0.61
CB04	JUNCTION	0.00	0.13	190.60	0 01:30	0.13
CB100	JUNCTION	0.00	0.10	189.67	0 01:25	0.10
CB101	JUNCTION	0.00	0.04	191.27	0 01:25	0.04
CB102	JUNCTION	0.00	0.08	191.31	0 01:25	0.08
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.32	187.60	0 01:29	0.32
CB16	JUNCTION	0.15	0.93	188.29	0 01:27	0.92
CB16-S	JUNCTION	0.00	0.01	188.69	0 01:25	0.01
CB19	JUNCTION	0.08	0.94	188.68	0 01:27	0.70
CB19-S	JUNCTION	0.00	0.00	189.09	0 01:25	0.00
CB32	JUNCTION	0.13	0.23	188.64	0 01:25	0.23
CB4	JUNCTION	0.01	0.80	188.67	0 01:27	0.57
CBMH01	JUNCTION	0.07	0.63	189.73	0 02:12	0.63
CBMH04	JUNCTION	0.04	0.42	189.74	0 02:13	0.42
CBMH100	JUNCTION	0.07	0.32	189.35	0 01:27	0.32
CBMH101	JUNCTION	0.06	0.27	190.76	0 01:28	0.27
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.03	0.46	191.19	0 01:27	0.46
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.13	191.52	0 01:27	0.12
CBMH30	JUNCTION	0.09	0.66	188.62	0 01:29	0.66
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 01:25	0.00
CBMH31	JUNCTION	0.16	0.26	188.64	0 01:25	0.26
DCB_40A	JUNCTION	0.00	0.07	193.37	0 01:25	0.07
DCB_40B	JUNCTION	0.00	0.05	193.31	0 01:28	0.05
DCB_42A	JUNCTION	0.00	0.33	193.70	0 01:27	0.32
DCB_42B	JUNCTION	0.00	0.36	193.70	0 01:26	0.34
DCB06	JUNCTION	0.01	0.23	189.14	0 01:49	0.23
DCB08	JUNCTION	0.07	0.64	189.06	0 02:11	0.64
DCB65	JUNCTION	0.01	0.29	191.52	0 01:29	0.29
DCB66	JUNCTION	0.01	0.29	191.52	0 01:27	0.29

DCBMH03	JUNCTION	0.14	0.90	189.73	0	02:14	0.90
DCBMH06	JUNCTION	0.01	0.20	189.08	0	02:09	0.19
DCBMH08	JUNCTION	0.11	0.68	189.06	0	02:11	0.68
DCBMH3-1	JUNCTION	0.13	0.87	189.73	0	02:14	0.87
DICB100	JUNCTION	0.00	0.13	190.76	0	01:27	0.13
DICB101	JUNCTION	0.02	0.65	193.41	0	01:34	0.65
DICB3	JUNCTION	0.09	0.69	189.73	0	02:13	0.69
DICB4	JUNCTION	0.00	0.01	192.25	0	01:30	0.01
DICB6	JUNCTION	0.00	0.17	193.85	0	01:28	0.17
DICB7	JUNCTION	0.00	0.27	193.46	0	01:27	0.27
DICB99	JUNCTION	0.01	0.20	190.76	0	01:28	0.20
J1	JUNCTION	0.06	0.59	189.06	0	02:11	0.59
J10	JUNCTION	0.12	0.85	189.73	0	02:15	0.84
J12	JUNCTION	0.15	0.93	188.29	0	01:27	0.92
J13	JUNCTION	0.14	0.93	188.22	0	01:27	0.90
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.32	191.52	0	01:28	0.32
J17-S	JUNCTION	0.00	0.00	194.63	0	01:26	0.00
J2	JUNCTION	0.12	0.46	191.18	0	01:26	0.46
J3	JUNCTION	0.04	0.46	189.73	0	02:13	0.46
J5	JUNCTION	0.12	0.82	189.73	0	02:15	0.82
J6	JUNCTION	0.09	0.71	189.73	0	02:12	0.71
J7	JUNCTION	0.11	0.77	189.73	0	02:15	0.77
J8	JUNCTION	0.06	0.56	189.73	0	02:14	0.55
J9	JUNCTION	0.17	1.03	189.73	0	02:14	1.03
MH02	JUNCTION	0.11	0.78	189.74	0	02:11	0.78
MH07	JUNCTION	0.02	0.36	189.06	0	02:11	0.36
MH102	JUNCTION	0.11	0.51	191.16	0	01:27	0.50
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:27	0.01
MH103	JUNCTION	0.12	0.52	191.57	0	00:00	0.21
MH106	JUNCTION	0.02	0.49	192.89	0	01:27	0.49
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.01	0.70	188.23	0	01:27	0.70
MH18	JUNCTION	0.02	0.83	188.64	0	01:27	0.63
MH40	JUNCTION	0.01	0.48	192.92	0	01:26	0.48
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:27	0.00
MH41	JUNCTION	0.01	1.11	193.88	0	01:26	0.69
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	0.66	193.68	0	01:26	0.66
MH42-S	JUNCTION	0.00	0.01	194.66	0	01:25	0.01
MH43	JUNCTION	0.01	0.40	193.84	0	01:28	0.40
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:25	0.01
MH54	JUNCTION	0.12	0.16	191.51	0	03:35	0.16
MH61	JUNCTION	0.00	0.04	191.53	0	01:28	0.04
MH62	JUNCTION	0.02	0.47	191.52	0	01:28	0.47

OGS	JUNCTION	0.06	0.26	188.61	0	02:11	0.26	
OS2	JUNCTION	0.12	0.69	189.06	0	02:11	0.69	
STMH201	JUNCTION	0.07	0.32	189.35	0	01:27	0.32	
STMH201-S	JUNCTION	0.00	0.01	190.86	0	01:25	0.01	
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00	
J14	OUTFALL	0.14	0.90	188.18	0	01:25	0.90	
J4	OUTFALL	0.03	0.19	188.53	0	02:12	0.19	
OF1	OUTFALL	0.00	0.01	188.61	0	01:25	0.01	
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.033	0	01:25	0	0.0453	0.472	
CB_43B	JUNCTION	0.000	0.027	0	01:25	0	0.0351	0.614	
CB01	JUNCTION	0.021	0.021	0	01:30	0.0518	0.0518	0.017	
CB02	JUNCTION	0.013	0.019	0	01:36	0.0236	0.0268	-0.171	
CB04	JUNCTION	0.027	0.027	0	01:30	0.0514	0.0514	0.001	
CB100	JUNCTION	0.000	0.045	0	01:25	0	0.0653	0.164	
CB101	JUNCTION	0.012	0.012	0	01:25	0.0168	0.0168	-0.000	
CB102	JUNCTION	0.063	0.063	0	01:25	0.0844	0.0844	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.148	0	01:27	0	0.148	0.135	
CB16	JUNCTION	0.000	0.769	0	01:29	0	5.84	0.009	
CB16-S	JUNCTION	0.092	0.092	0	01:25	0.149	0.149	-0.580	
CB19	JUNCTION	0.000	0.731	0	01:29	0	5.77	-0.005	
CB19-S	JUNCTION	0.023	0.023	0	01:25	0.0291	0.0291	-0.246	
CB32	JUNCTION	0.034	0.034	0	01:25	0.0454	0.0472	0.322	
CB4	JUNCTION	0.000	0.017	0	01:25	0	0.0147	0.055	
CBMH01	JUNCTION	0.035	0.054	0	01:25	0.045	0.0968	-0.079	
CBMH04	JUNCTION	0.024	0.048	0	01:25	0.0484	0.0997	-0.097	
CBMH100	JUNCTION	0.000	0.045	0	01:25	0	0.0662	0.060	
CBMH101	JUNCTION	0.000	0.638	0	01:27	0	5.52	0.016	
CBMH101-S	JUNCTION	0.015	0.015	0	01:25	0.0171	0.0171	-0.131	
CBMH103	JUNCTION	0.000	0.473	0	01:28	0	1.01	0.067	
CBMH103-S	JUNCTION	0.037	0.037	0	01:25	0.0457	0.0457	-0.227	

CBMH105	JUNCTION	0.000	0.009	0	01:25	0	0.0101	0.015
CBMH30	JUNCTION	0.000	0.741	0	01:27	0	5.74	-0.008
CBMH30-S	JUNCTION	0.033	0.033	0	01:25	0.0407	0.0408	-0.349
CBMH31	JUNCTION	0.000	0.050	0	01:25	0	0.0675	0.305
DCB_40A	JUNCTION	0.000	0.040	0	01:27	0	0.0536	3.143
DCB_40B	JUNCTION	0.000	0.040	0	01:27	0	0.0536	3.116
DCB_42A	JUNCTION	0.000	0.052	0	01:25	0	0.0849	1.436
DCB_42B	JUNCTION	0.000	0.052	0	01:25	0	0.0849	1.435
DCB06	JUNCTION	0.073	0.073	0	01:40	0.209	0.209	0.036
DCB08	JUNCTION	0.022	0.022	0	01:30	0.0394	0.0394	-0.012
DCB65	JUNCTION	0.000	0.033	0	01:27	0	0.036	11.398
DCB66	JUNCTION	0.000	0.033	0	01:27	0	0.036	11.396
DCBMH03	JUNCTION	0.019	0.089	0	01:28	0.0252	0.386	-0.043
DCBMH06	JUNCTION	0.021	0.084	0	01:40	0.0307	0.24	-0.086
DCBMH08	JUNCTION	0.020	0.061	0	02:11	0.0247	0.668	0.014
DCBMH3-1	JUNCTION	0.016	0.051	0	01:35	0.024	0.329	-0.006
DICB100	JUNCTION	0.003	0.003	0	01:35	0.00405	0.00414	0.042
DICB101	JUNCTION	0.312	0.312	0	01:25	0.419	0.419	0.025
DICB3	JUNCTION	0.012	0.125	0	01:30	0.0176	0.187	0.004
DICB4	JUNCTION	0.001	0.001	0	01:30	0.00118	0.00118	0.029
DICB6	JUNCTION	0.007	0.007	0	01:25	0.0102	0.0102	0.004
DICB7	JUNCTION	0.010	0.015	0	01:25	0.0115	0.0115	0.205
DICB99	JUNCTION	0.001	0.003	0	01:32	0.00103	0.00184	0.054
J1	JUNCTION	0.000	0.141	0	01:53	0	0.61	0.010
J10	JUNCTION	0.000	0.062	0	01:28	0	0.316	0.005
J12	JUNCTION	0.000	0.661	0	01:30	0	5.77	-0.009
J13	JUNCTION	0.110	0.732	0	01:29	0.146	5.91	0.009
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000
J17	JUNCTION	0.000	0.040	0	01:26	0	0.066	-0.124
J17-S	JUNCTION	0.036	0.036	0	01:25	0.0489	0.0489	-32.014
J2	JUNCTION	0.000	0.176	0	00:00	0	4.49	0.010
J3	JUNCTION	0.000	0.082	0	01:30	0	0.0533	0.017
J5	JUNCTION	0.000	0.120	0	01:26	0	0.347	0.026
J6	JUNCTION	0.007	0.061	0	01:25	0.00958	0.106	-0.068
J7	JUNCTION	0.032	0.140	0	01:30	0.0492	0.338	0.110
J8	JUNCTION	0.008	0.056	0	01:25	0.0096	0.109	-0.292
J9	JUNCTION	0.000	0.061	0	01:29	0	0.371	0.015
MH02	JUNCTION	0.000	0.020	0	01:44	0	0.0339	0.091
MH07	JUNCTION	0.000	0.120	0	01:50	0	0.601	0.024
MH102	JUNCTION	0.000	0.596	0	01:28	0	5.5	0.002
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	4.82e-05	8.134
MH103	JUNCTION	0.045	0.065	0	01:25	0.0598	4.43	0.777
MH106	JUNCTION	0.070	0.407	0	01:26	0.102	0.885	-0.012
MH106-S	JUNCTION	0.008	0.008	0	01:25	0.00887	0.00887	-0.453
MH15	JUNCTION	0.000	0.108	0	01:29	0	0.074	-0.022

MH18	JUNCTION	0.000	0.032	0	01:25	0	0.015	-0.997	
MH40	JUNCTION	0.000	0.206	0	01:27	0	0.363	0.002	
MH40-S	JUNCTION	0.057	0.057	0	01:25	0.0971	0.0971	-9.401	
MH41	JUNCTION	0.000	0.158	0	01:25	0	0.259	-0.252	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.162	0	01:25	0	0.247	0.049	
MH42-S	JUNCTION	0.103	0.103	0	01:25	0.163	0.163	-4.062	
MH43	JUNCTION	0.000	0.060	0	01:25	0	0.08	0.163	
MH43-S	JUNCTION	0.053	0.053	0	01:25	0.0693	0.0693	-1.323	
MH54	JUNCTION	0.050	0.080	0	00:00	4.32	4.32	0.003	
MH61	JUNCTION	0.000	0.005	0	01:26	0	0.000515	5.802	
MH62	JUNCTION	0.000	0.450	0	01:28	0	0.961	-0.081	
OGS	JUNCTION	0.000	0.062	0	02:12	0	0.659	0.003	
OS2	JUNCTION	0.000	0.062	0	02:11	0	0.66	0.018	
STMH201	JUNCTION	0.000	0.688	0	01:27	0	5.65	-0.001	
STMH201-S	JUNCTION	0.090	0.090	0	01:25	0.13	0.13	-0.519	
CB7	OUTFALL	0.000	0.146	0	01:30	0	0.148	0.000	
J14	OUTFALL	0.000	0.732	0	01:29	0	5.91	0.000	
J4	OUTFALL	0.000	0.062	0	02:12	0	0.659	0.000	
OF1	OUTFALL	0.000	0.000	0	01:25	0	9.23e-06	0.000	ltr
OF2	OUTFALL	0.002	0.002	0	01:25	0.00224	0.00224	0.000	
OF3	OUTFALL	0.000	0.000	0	01:25	0.000256	0.000256	0.000	
OF4	OUTFALL	0.001	0.001	0	01:25	0.000691	0.000691	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.02	0.020	1.090
CB02	JUNCTION	0.15	0.019	0.781
CB16	JUNCTION	0.21	0.181	0.389
CB19	JUNCTION	0.12	0.332	0.408
CB4	JUNCTION	0.20	0.503	0.422
DCB_42A	JUNCTION	0.03	0.026	0.954
DCB_42B	JUNCTION	0.05	0.061	0.949
DCB08	JUNCTION	3.66	0.389	0.331
DCBMH03	JUNCTION	2.29	0.154	0.616
DCBMH08	JUNCTION	1.81	0.155	0.330
DCBMH3-1	JUNCTION	1.93	0.124	0.626

DICB101	JUNCTION	0.44	0.271	0.000
J12	JUNCTION	0.11	0.027	0.000
J13	JUNCTION	0.11	0.031	0.619
J2	JUNCTION	0.05	0.012	0.000
J6	JUNCTION	1.76	0.111	1.235
J8	JUNCTION	1.69	0.105	1.734
J9	JUNCTION	2.68	0.188	0.700
MH02	JUNCTION	2.52	0.180	0.840
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	0.39	0.335	0.485
MH18	JUNCTION	0.23	0.533	0.494
MH41	JUNCTION	0.10	0.528	0.952
MH42	JUNCTION	0.14	0.268	1.001
OS2	JUNCTION	1.85	0.160	0.354

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DICB101	0.44	0.166	0 01:25	0.056	0.056

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	16.93	0.007	0.146	0.148
J14	99.95	0.041	0.732	5.914
J4	41.59	0.012	0.062	0.659
OF1	0.00	0.000	0.000	0.000
OF2	9.63	0.000	0.002	0.002
OF3	1.44	0.000	0.000	0.000
OF4	2.09	0.000	0.001	0.001

System	24.52	0.061	0.001	6.724

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.022	0 01:29	0.46	0.50	1.00
C10	CONDUIT	0.716	0 01:30	2.13	0.90	1.00
C10-S	CHANNEL	0.000	0 01:25	0.00	0.00	0.01
C11	CONDUIT	0.731	0 01:30	1.55	0.64	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.02
C12	CONDUIT	0.108	0 01:29	1.53	0.59	1.00
C13	CONDUIT	0.661	0 01:30	1.50	1.64	1.00
C14	CONDUIT	0.662	0 01:29	1.08	1.12	1.00
C15	CONDUIT	0.732	0 01:29	1.16	1.13	1.00
C16	CONDUIT	0.108	0 01:29	1.85	0.57	0.77
C17	CONDUIT	0.030	0 01:25	0.49	0.31	1.00
C18	CONDUIT	0.027	0 01:25	0.39	0.27	1.00
C19	CONDUIT	0.034	0 01:25	0.54	0.51	0.82
C2	CONDUIT	0.169	0 01:46	1.54	1.37	1.00
C20	CONDUIT	0.050	0 01:25	1.01	0.24	0.66
C21	CONDUIT	0.045	0 01:25	2.09	0.26	0.34
C22	CONDUIT	0.044	0 01:25	0.54	0.02	0.31
C23	CONDUIT	0.003	0 01:30	0.08	0.04	0.66
C24	CONDUIT	0.004	0 01:32	0.14	0.02	0.78
C25	CONDUIT	0.407	0 01:27	2.02	1.31	0.88
C26	CONDUIT	0.063	0 01:25	1.33	0.15	0.63
C27	CONDUIT	0.029	0 01:25	2.20	0.11	0.38
C28	CONDUIT	0.203	0 01:28	1.28	0.87	1.00
C28-S	CHANNEL	0.000	0 01:27	0.00	0.00	0.02
C29	CONDUIT	0.030	0 01:26	0.72	0.05	0.58
C3	CONDUIT	0.001	0 01:30	1.10	0.00	0.03
C30	CONDUIT	0.012	0 01:25	0.30	0.05	0.57
C30_1	CONDUIT	0.009	0 01:27	0.46	0.07	0.79
C30_2	CONDUIT	0.033	0 01:25	0.91	0.34	1.00
C31	CONDUIT	0.027	0 01:25	1.10	0.30	0.37
C32	CONDUIT	0.057	0 01:25	0.91	0.77	1.00
C32-S	CHANNEL	0.000	0 01:25	0.13	0.00	0.03
C33	CONDUIT	0.059	0 01:25	1.71	0.33	1.00

C34	CONDUIT	0.061	0	01:25	2.52	0.18	1.00
C35	CONDUIT	0.150	0	01:25	1.39	1.13	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C36	CONDUIT	0.014	0	01:26	0.83	0.15	0.95
C37	CONDUIT	0.150	0	01:28	1.36	1.27	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C38	CONDUIT	0.080	0	00:00	1.01	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.70
C39_2	CONDUIT	0.132	0	01:26	1.22	0.77	1.00
C4	CONDUIT	0.011	0	01:26	0.43	0.04	0.50
C40	CONDUIT	0.022	0	01:26	0.33	0.01	0.31
C41	CONDUIT	0.019	0	01:28	0.31	0.01	0.31
C42	CONDUIT	0.146	0	01:30	1.46	0.97	0.74
C42_1	CONDUIT	0.005	0	01:26	0.07	0.01	0.27
C42_2	CONDUIT	0.041	0	01:29	0.52	0.08	0.51
C42_2-S	CHANNEL	0.000	0	01:27	0.00	0.00	0.01
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.43
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C46	CONDUIT	0.000	0	01:25	0.03	0.00	0.03
C47	CONDUIT	0.021	0	01:30	0.87	0.33	0.38
C48	CONDUIT	0.020	0	01:44	0.20	0.05	1.00
C49	CONDUIT	0.061	0	01:25	0.83	0.14	1.00
C49_1	CONDUIT	0.054	0	01:25	0.99	0.12	1.00
C5	CONDUIT	0.447	0	01:28	1.78	0.85	0.67
C50	CONDUIT	0.056	0	01:25	0.95	0.33	1.00
C50_1	CONDUIT	0.063	0	01:27	0.13	0.00	0.70
C50_3	CONDUIT	0.115	0	01:30	0.22	0.01	0.61
C50_4	CONDUIT	0.057	0	01:41	0.08	0.00	0.66
C50_5	CONDUIT	0.038	0	01:35	0.46	0.05	1.00
C51	CONDUIT	0.025	0	01:35	0.12	0.06	1.00
C52	CONDUIT	0.040	0	01:35	0.43	0.05	1.00
C53_1	CONDUIT	0.061	0	01:29	0.49	0.08	1.00
C54	CONDUIT	0.084	0	01:40	2.72	0.14	0.47
C55	CONDUIT	0.073	0	01:40	1.92	1.87	0.80
C57	CONDUIT	0.027	0	01:30	0.96	0.38	0.42
C58_1	CONDUIT	0.048	0	01:25	0.93	0.24	0.96
C59_1	CONDUIT	0.141	0	01:53	0.14	0.01	0.52
C59_2	CONDUIT	0.058	0	02:14	0.39	0.19	1.00
C6	CONDUIT	0.477	0	01:28	1.88	0.90	0.68
C60	CONDUIT	0.082	0	01:30	0.14	0.01	0.48
C60_2	CONDUIT	0.062	0	02:12	1.13	1.35	0.72
C60_3	CONDUIT	0.062	0	02:11	0.28	0.32	1.00
C6-S	CHANNEL	0.000	0	01:25	0.30	0.00	0.03
C7	CONDUIT	0.624	0	01:27	2.96	1.02	0.57

C7-S	CHANNEL	0.000	0	01:27	0.37	0.00	0.02
C8	CONDUIT	0.610	0	01:28	3.07	0.46	0.50
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.02
C9	CONDUIT	0.684	0	01:27	2.62	0.55	0.73
C9-S	CHANNEL	0.000	0	01:25	0.42	0.00	0.02
C53_2	DUMMY	0.024	0	02:14			
C60_4	DUMMY	0.062	0	02:12			
CB_43A-IC	DUMMY	0.027	0	01:25			
CB100-IC	DUMMY	0.045	0	01:25			
CB16-IC	DUMMY	0.046	0	01:25			
CB19-IC	DUMMY	0.012	0	01:25			
CB4-IC	DUMMY	0.012	0	01:25			
CBMH101-IC	DUMMY	0.015	0	01:25			
CBMH30-IC	DUMMY	0.017	0	01:25			
CBMH31-IC	DUMMY	0.017	0	01:25			
DCB_40A-IC	DUMMY	0.040	0	01:27			
DCB_42A-IC	DUMMY	0.052	0	01:25			
DCB66-IC	DUMMY	0.033	0	01:27			
J17-IC	DUMMY	0.033	0	01:27			
MH40-IC	DUMMY	0.040	0	01:27			
MH42-IC	DUMMY	0.052	0	01:25			
MH43-IC	DUMMY	0.027	0	01:25			
OL1	DUMMY	0.008	0	01:25			
OL2	DUMMY	0.037	0	01:25			
OL3	DUMMY	0.046	0	01:25			
STMH201-IC	DUMMY	0.045	0	01:25			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.14	0.86	0.00	0.00	0.02	0.00
C10-S	1.00	0.88	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.83	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.82	0.00	0.18	0.00	0.00	0.00	0.85	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00

C16	1.00	0.96	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.03	0.35	0.00	0.62	0.00	0.00	0.00	0.96	0.00
C18	1.00	0.00	0.32	0.00	0.68	0.00	0.00	0.00	0.43	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.01	0.00	0.98	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.00	0.54	0.00	0.46	0.00	0.00	0.00	0.98	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.02	0.00	0.94	0.00	0.04	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.60	0.00	0.40	0.00	0.00	0.00	0.69	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.99	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.00	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C28-S	1.00	0.84	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.02	0.00	0.94	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.18	0.00	0.81	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.02	0.00
C33	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C34	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.89	0.00
C37-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.44	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C40	1.00	0.01	0.49	0.00	0.50	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.95	0.00	0.04	0.00	0.00	0.00	0.97	0.00
C42_2	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C42_2-S	1.00	0.89	0.04	0.00	0.07	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.05	0.00	0.07	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.01	0.00	0.00	0.02	0.00	0.00	0.97	0.01	0.00

C48	1.00	0.75	0.03	0.00	0.23	0.00	0.00	0.00	0.82	0.00
C49	1.00	0.01	0.00	0.00	0.98	0.01	0.00	0.00	0.02	0.00
C49_1	1.00	0.01	0.12	0.00	0.87	0.00	0.00	0.00	0.80	0.00
C5	1.00	0.01	0.00	0.00	0.31	0.00	0.00	0.68	0.24	0.00
C50	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.05	0.00
C50_1	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.78	0.00
C50_3	1.00	0.61	0.09	0.00	0.31	0.00	0.00	0.00	0.08	0.00
C50_4	1.00	0.45	0.16	0.00	0.39	0.00	0.00	0.00	0.49	0.00
C50_5	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.74	0.00
C51	1.00	0.01	0.74	0.00	0.25	0.00	0.00	0.00	0.79	0.00
C52	1.00	0.01	0.45	0.00	0.55	0.00	0.00	0.00	0.79	0.00
C53_1	1.00	0.01	0.00	0.00	0.26	0.00	0.00	0.74	0.00	0.00
C54	1.00	0.01	0.04	0.00	0.92	0.03	0.00	0.00	0.17	0.00
C55	1.00	0.01	0.00	0.00	0.96	0.03	0.00	0.00	0.01	0.00
C57	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C58_1	1.00	0.01	0.10	0.00	0.89	0.00	0.00	0.00	0.86	0.00
C59_1	1.00	0.01	0.50	0.00	0.49	0.00	0.00	0.00	0.91	0.00
C59_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.88	0.00
C6	1.00	0.00	0.00	0.00	0.88	0.00	0.00	0.12	0.21	0.00
C60	1.00	0.69	0.10	0.00	0.21	0.00	0.00	0.00	0.85	0.00
C60_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.01	0.87	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.06	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.02	0.00	0.98	0.01	0.00
C8-S	1.00	0.85	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C9-S	1.00	0.85	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	3.66	3.66	3.91	0.01	0.01
C10	0.05	0.05	0.12	0.01	0.01
C11	0.12	0.12	0.30	0.01	0.01
C12	0.48	0.48	0.79	0.01	0.01
C13	0.20	0.21	0.20	0.39	0.20
C14	0.10	0.11	0.10	0.15	0.10

C15	0.10	0.10	0.17	0.17	0.10
C16	0.01	0.01	46.60	0.01	0.01
C17	0.20	0.20	0.23	0.01	0.01
C18	0.23	0.23	0.26	0.01	0.01
C2	0.32	0.44	0.32	0.45	0.32
C20	0.01	0.01	0.37	0.01	0.01
C25	0.01	0.01	0.01	0.26	0.01
C26	0.01	0.01	0.36	0.01	0.01
C28	0.11	0.11	0.15	0.01	0.01
C29	0.01	0.01	0.44	0.01	0.01
C30	0.01	0.01	0.36	0.01	0.01
C30_1	0.01	0.01	0.02	0.01	0.01
C30_2	0.02	0.02	0.06	0.01	0.01
C32	0.07	0.07	0.16	0.01	0.01
C33	0.03	0.03	0.14	0.01	0.01
C34	0.05	0.05	0.14	0.01	0.01
C35	0.15	0.15	0.17	0.10	0.09
C36	0.01	0.01	0.10	0.01	0.01
C37	0.19	0.19	0.25	0.18	0.18
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.05	0.01	0.01
C39_2	0.05	0.05	0.12	0.01	0.01
C43	0.01	0.01	0.01	0.01	0.01
C48	0.15	0.15	2.52	0.01	0.01
C49	1.76	1.76	3.06	0.01	0.01
C49_1	0.71	0.71	1.76	0.01	0.01
C50	1.69	1.69	4.19	0.01	0.01
C50_5	1.58	1.58	1.93	0.01	0.01
C51	2.52	2.52	3.99	0.01	0.01
C52	1.93	1.93	2.29	0.01	0.01
C53_1	2.29	2.29	2.68	0.01	0.01
C55	0.01	0.01	0.01	0.60	0.01
C58_1	0.01	0.01	1.69	0.01	0.01
C59_2	0.93	0.93	1.81	0.01	0.01
C60_2	0.01	0.01	0.01	0.76	0.01
C60_3	1.81	1.81	1.85	0.01	0.06
C7	0.01	0.01	0.01	0.01	0.01

Analysis begun on: Thu Dec 12 11:22:30 2019
Analysis ended on: Thu Dec 12 11:22:44 2019
Total elapsed time: 00:00:14

Post Development - Chicago 25 Year Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
------------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                        Area     Width    %Imperv    %Slope Rain Gage            Outlet
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A100	2.11	98.17	37.00	1.7000	Chicago_4h_25yr	DICB101
A101	1.08	64.95	14.00	2.7500	Chicago_4h_25yr	MH106
A102	0.31	37.80	38.00	1.0000	Chicago_4h_25yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_25yr	DICB6
A104_2	0.29	28.60	48.00	0.1600	Chicago_4h_25yr	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Chicago_4h_25yr	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Chicago_4h_25yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_25yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_25yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_25yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_25yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_25yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_25yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_25yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_25yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_25yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_25yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_25yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_25yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_25yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_25yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_25yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_25yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_25yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_25yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_25yr	S10
S1	0.09	14.47	22.00	2.0000	Chicago_4h_25yr	CB02
S10	0.18	19.12	40.00	2.0000	Chicago_4h_25yr	DCB06
S11	0.06	7.51	67.00	2.0000	Chicago_4h_25yr	DCBMH08
S12	0.11	10.54	59.00	2.0000	Chicago_4h_25yr	DCB08
S13	0.00	23.00	100.00	2.0000	Chicago_4h_25yr	OF2
S14	0.00	5.00	0.00	2.0000	Chicago_4h_25yr	OF3
S15	0.00	13.50	0.00	2.0000	Chicago_4h_25yr	OF4
S16	0.17	26.77	38.00	2.0000	Chicago_4h_25yr	J7
S17	0.03	11.13	56.00	2.0000	Chicago_4h_25yr	J6
S18	0.07	18.30	43.00	2.0000	Chicago_4h_25yr	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Chicago_4h_25yr	DICB3
S3	0.18	13.04	36.00	2.0000	Chicago_4h_25yr	CB01
S4	0.16	10.71	39.00	2.0000	Chicago_4h_25yr	CBMH04
S5	0.15	15.13	52.00	2.0000	Chicago_4h_25yr	CB04
S6	0.11	12.76	64.00	2.0000	Chicago_4h_25yr	CBMH01
S7	0.07	8.29	60.00	2.0000	Chicago_4h_25yr	DCBMH03
S8	0.02	7.73	75.00	2.0000	Chicago_4h_25yr	J8
S9	0.09	17.25	52.00	2.0000	Chicago_4h_25yr	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

```
            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
```

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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

```
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ........ 5.00 sec
Variable Time Step ....... YES
Maximum Trials ..... 8
Number of Threads ........ 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.645	59.087
Evaporation Loss	0.000	0.000
Infiltration Loss	0.338	30.955
Surface Runoff	0.303	27.775
Final Storage	0.008	0.702
Continuity Error (%)	-0.583	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.303	3.033
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.510	5.097
External Outflow	0.817	8.174
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.540	

Highest Continuity Errors

Node MH40-S (-8.39%)
Node DCB66 (8.34%)
Node DCB65 (8.34%)
Node MH102-S (5.21%)
Node MH42-S (-3.20%)

****
Time-Step Critical Elements
****
Link C13 (98.96%)

****
Highest Flow Instability Indexes
****
Link DCB66-IC (20)
Link J17-IC (20)
Link DCB_40A-IC (15)
Link MH40-IC (15)
Link DCB_42A-IC (12)

****
Routing Time Step Summary
****
Minimum Time Step : 0.45 sec
Average Time Step : 0.78 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.03
Percent Not Converging : 0.09

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	59.09	0.00	0.00	33.26	21.32	4.04	25.36	0.54	0.38	0.429
A101	59.09	0.00	0.00	44.89	8.01	6.05	14.06	0.15	0.09	0.238
A102	59.09	0.00	0.00	30.17	21.84	6.67	28.51	0.09	0.07	0.482
A103	59.09	0.00	0.00	39.91	8.58	10.80	19.37	0.01	0.01	0.328
A104_2	59.09	0.00	0.00	25.10	27.67	5.71	33.38	0.10	0.06	0.565
A104_3	59.09	0.00	0.00	25.10	27.67	5.71	33.38	0.10	0.06	0.565
A104_4	59.09	0.00	0.00	34.81	14.30	24.57	24.57	0.01	0.01	0.416
A105	59.09	0.00	0.00	38.27	8.01	14.18	22.18	0.02	0.02	0.375
A106	59.09	0.00	0.00	20.51	34.56	3.19	37.76	0.12	0.07	0.639

A107	59.09	0.00	0.00	0.00	57.22	0.00	57.22	0.01	0.01	0.968
A108	59.09	0.00	0.00	45.55	0.00	14.53	14.53	0.00	0.00	0.246
A109	59.09	0.00	0.00	9.76	45.55	2.79	48.34	0.06	0.04	0.818
A110	59.09	0.00	0.00	0.00	57.60	0.00	57.60	0.05	0.04	0.975
A111	59.09	0.00	0.00	34.06	17.21	7.53	24.74	0.08	0.06	0.419
A112_1	59.09	0.00	0.00	43.32	10.30	5.25	15.54	0.12	0.08	0.263
A112_3	59.09	0.00	0.00	43.32	10.30	5.25	15.54	0.02	0.02	0.263
A113	59.09	0.00	0.00	45.05	0.00	15.35	15.35	0.00	0.00	0.260
A114	59.09	0.00	0.00	0.00	57.37	0.00	57.37	0.02	0.02	0.971
A115	59.09	0.00	0.00	49.21	0.00	10.17	10.17	0.01	0.00	0.172
A116	59.09	0.00	0.00	16.55	38.05	3.65	41.71	0.16	0.11	0.706
A117	59.09	0.00	0.00	35.21	16.65	6.92	23.57	0.06	0.04	0.399
A118	59.09	0.00	0.00	16.26	37.41	4.66	42.07	0.05	0.04	0.712
A119	59.09	0.00	0.00	26.18	25.23	7.25	32.48	0.04	0.03	0.550
A120	59.09	0.00	0.00	14.25	40.91	2.97	43.89	0.18	0.11	0.743
A121	59.09	0.00	0.00	39.91	14.38	4.49	18.87	0.20	0.13	0.319
A3	59.09	0.00	0.00	31.00	4.57	28.30	28.30	0.23	0.10	0.479
S1	59.09	0.00	0.00	26.18	12.58	33.04	33.04	0.03	0.02	0.559
S10	59.09	126.74	0.00	31.69	69.90	122.83	154.18	0.28	0.10	0.830
S11	59.09	0.00	0.00	10.15	38.54	9.69	48.24	0.03	0.02	0.816
S12	59.09	0.00	0.00	14.52	33.96	27.05	44.03	0.05	0.03	0.745
S13	59.09	0.00	0.00	0.00	57.20	0.00	57.20	0.00	0.00	0.968
S14	59.09	0.00	0.00	29.57	0.00	31.82	31.82	0.00	0.00	0.539
S15	59.09	0.00	0.00	29.57	0.00	31.82	31.82	0.00	0.00	0.539
S16	59.09	0.00	0.00	21.56	21.77	37.41	37.41	0.06	0.04	0.633
S17	59.09	0.00	0.00	14.90	32.03	27.72	43.74	0.01	0.01	0.740
S18	59.09	0.00	0.00	18.38	24.61	23.35	40.58	0.03	0.02	0.687
S2	59.09	0.00	0.00	19.57	21.18	18.20	39.38	0.02	0.02	0.666
S3	59.09	0.00	0.00	22.29	20.70	26.16	36.51	0.07	0.03	0.618
S4	59.09	0.00	0.00	20.87	22.44	21.04	37.87	0.06	0.03	0.641
S5	59.09	0.00	0.00	16.73	29.90	26.95	41.90	0.06	0.03	0.709
S6	59.09	0.00	0.00	11.15	36.82	10.45	47.27	0.05	0.04	0.800
S7	59.09	0.00	0.00	12.38	34.49	11.62	46.11	0.03	0.02	0.780
S8	59.09	0.00	0.00	8.54	42.95	17.31	49.52	0.01	0.01	0.838
S9	59.09	0.00	0.00	16.55	29.80	30.24	42.16	0.04	0.03	0.714

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	93.51	0.00	81.31	12.21	0.00	0.00	0.00	-0.00

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.01	1.07	194.60	0 01:25	0.79
CB_43B	JUNCTION	0.00	0.99	194.84	0 01:25	0.47
CB01	JUNCTION	0.01	0.15	189.84	0 02:00	0.14
CB02	JUNCTION	0.07	0.70	189.83	0 02:00	0.70
CB04	JUNCTION	0.00	0.15	190.62	0 01:30	0.15
CB100	JUNCTION	0.00	0.11	189.68	0 01:24	0.11
CB101	JUNCTION	0.00	0.05	191.28	0 01:25	0.05
CB102	JUNCTION	0.00	0.11	191.34	0 01:26	0.10
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.40	187.68	0 01:29	0.40
CB16	JUNCTION	0.16	1.18	188.54	0 01:26	1.02
CB16-S	JUNCTION	0.00	0.05	188.73	0 01:27	0.05
CB19	JUNCTION	0.08	1.40	189.14	0 01:25	0.88
CB19-S	JUNCTION	0.00	0.00	189.10	0 01:25	0.00
CB32	JUNCTION	0.13	1.40	189.81	0 01:26	0.53
CB4	JUNCTION	0.01	1.33	189.19	0 01:25	0.76
CBMH01	JUNCTION	0.08	0.73	189.83	0 02:00	0.73
CBMH04	JUNCTION	0.04	0.52	189.84	0 01:56	0.52
CBMH100	JUNCTION	0.08	0.36	189.39	0 01:27	0.36
CBMH101	JUNCTION	0.07	0.30	190.79	0 01:28	0.29
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.04	0.53	191.26	0 01:27	0.53
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.20	191.59	0 01:28	0.18
CBMH30	JUNCTION	0.10	2.10	190.06	0 01:26	0.93
CBMH30-S	JUNCTION	0.00	0.01	189.81	0 01:26	0.00
CBMH31	JUNCTION	0.16	1.67	190.04	0 01:26	0.55
DCB_40A	JUNCTION	0.00	0.07	193.37	0 01:26	0.07
DCB_40B	JUNCTION	0.00	0.05	193.31	0 01:26	0.05
DCB_42A	JUNCTION	0.01	1.22	194.59	0 01:24	0.81
DCB_42B	JUNCTION	0.01	1.22	194.56	0 01:24	0.82
DCB06	JUNCTION	0.01	0.38	189.29	0 01:40	0.38
DCB08	JUNCTION	0.07	0.76	189.18	0 02:06	0.76
DCB65	JUNCTION	0.01	0.35	191.58	0 01:28	0.35
DCB66	JUNCTION	0.01	0.35	191.58	0 01:28	0.35

DCBMH03	JUNCTION	0.15	1.00	189.83	0	02:00	1.00
DCBMH06	JUNCTION	0.01	0.31	189.19	0	02:05	0.31
DCBMH08	JUNCTION	0.11	0.80	189.18	0	02:06	0.80
DCBMH3-1	JUNCTION	0.14	0.97	189.83	0	02:00	0.97
DICB100	JUNCTION	0.00	0.17	190.80	0	01:28	0.16
DICB101	JUNCTION	0.02	0.69	193.45	0	01:37	0.69
DICB3	JUNCTION	0.09	0.79	189.83	0	02:00	0.79
DICB4	JUNCTION	0.00	0.01	192.25	0	01:30	0.01
DICB6	JUNCTION	0.00	0.64	194.32	0	01:29	0.64
DICB7	JUNCTION	0.00	1.24	194.43	0	01:24	0.65
DICB99	JUNCTION	0.01	0.24	190.80	0	01:28	0.22
J1	JUNCTION	0.06	0.72	189.19	0	02:06	0.71
J10	JUNCTION	0.13	0.94	189.83	0	02:00	0.94
J12	JUNCTION	0.16	1.17	188.52	0	01:25	1.02
J13	JUNCTION	0.15	1.02	188.31	0	01:26	0.92
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.38	191.58	0	01:28	0.38
J17-S	JUNCTION	0.00	0.00	194.63	0	01:25	0.00
J2	JUNCTION	0.13	0.55	191.27	0	01:28	0.53
J3	JUNCTION	0.05	0.56	189.83	0	02:00	0.56
J5	JUNCTION	0.13	0.92	189.83	0	02:00	0.92
J6	JUNCTION	0.10	0.81	189.83	0	02:00	0.81
J7	JUNCTION	0.11	0.87	189.83	0	02:00	0.87
J8	JUNCTION	0.07	0.66	189.84	0	01:59	0.66
J9	JUNCTION	0.18	1.13	189.83	0	02:00	1.13
MH02	JUNCTION	0.11	0.87	189.83	0	02:00	0.87
MH07	JUNCTION	0.03	0.49	189.19	0	02:05	0.49
MH102	JUNCTION	0.11	0.57	191.22	0	01:28	0.55
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:26	0.01
MH103	JUNCTION	0.13	0.52	191.57	0	00:00	0.23
MH106	JUNCTION	0.02	0.60	193.00	0	01:24	0.58
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.02	0.88	188.41	0	01:25	0.77
MH18	JUNCTION	0.03	1.30	189.11	0	01:25	0.82
MH40	JUNCTION	0.02	0.59	193.03	0	01:26	0.59
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:25	0.00
MH41	JUNCTION	0.01	1.56	194.33	0	01:24	1.06
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.01	1.52	194.54	0	01:24	1.14
MH42-S	JUNCTION	0.00	0.01	194.66	0	01:25	0.01
MH43	JUNCTION	0.01	1.40	194.84	0	01:25	0.87
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:25	0.01
MH54	JUNCTION	0.13	0.18	191.53	0	03:35	0.18
MH61	JUNCTION	0.00	0.10	191.59	0	01:27	0.10
MH62	JUNCTION	0.02	0.53	191.58	0	01:28	0.52

OGS	JUNCTION	0.06	0.41	188.76	0	02:07	0.41
OS2	JUNCTION	0.12	0.81	189.18	0	02:06	0.81
STMH201	JUNCTION	0.08	0.36	189.39	0	01:27	0.36
STMH201-S	JUNCTION	0.00	0.03	190.88	0	01:26	0.03
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.15	0.90	188.18	0	01:24	0.90
J4	OUTFALL	0.03	0.25	188.59	0	02:06	0.25
OF1	OUTFALL	0.00	0.05	188.65	0	01:27	0.05
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.052	0	01:33	0	0.0617	0.224	
CB_43B	JUNCTION	0.000	0.033	0	01:25	0	0.0452	0.405	
CB01	JUNCTION	0.028	0.028	0	01:30	0.0657	0.0657	0.054	
CB02	JUNCTION	0.018	0.019	0	01:34	0.0306	0.0307	-0.216	
CB04	JUNCTION	0.035	0.035	0	01:30	0.0634	0.0634	0.000	
CB100	JUNCTION	0.000	0.050	0	01:24	0	0.0792	0.128	
CB101	JUNCTION	0.015	0.015	0	01:25	0.0245	0.0245	0.000	
CB102	JUNCTION	0.077	0.077	0	01:25	0.123	0.123	-0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.196	0	01:26	0	0.208	0.096	
CB16	JUNCTION	0.000	0.957	0	01:27	0	7.05	0.003	
CB16-S	JUNCTION	0.113	0.113	0	01:25	0.179	0.179	-0.443	
CB19	JUNCTION	0.000	0.907	0	01:27	0	6.96	-0.004	
CB19-S	JUNCTION	0.029	0.057	0	01:25	0.037	0.037	-0.222	
CB32	JUNCTION	0.041	0.041	0	01:25	0.0605	0.0623	0.213	
CB4	JUNCTION	0.000	0.020	0	01:25	0	0.0186	0.172	
CBMH01	JUNCTION	0.042	0.067	0	01:25	0.0543	0.12	-0.093	
CBMH04	JUNCTION	0.030	0.061	0	01:25	0.0608	0.124	-0.082	
CBMH100	JUNCTION	0.000	0.050	0	01:24	0	0.0801	0.050	
CBMH101	JUNCTION	0.000	0.767	0	01:27	0	6.65	-0.012	
CBMH101-S	JUNCTION	0.018	0.018	0	01:25	0.0201	0.0202	-0.129	
CBMH103	JUNCTION	0.000	0.545	0	01:28	0	1.29	0.020	
CBMH103-S	JUNCTION	0.044	0.044	0	01:25	0.0536	0.0536	-0.197	

CBMH105	JUNCTION	0.000	0.011	0	01:25	0	0.0125	-0.056
CBMH30	JUNCTION	0.000	0.883	0	01:27	0	6.92	-0.013
CBMH30-S	JUNCTION	0.040	0.041	0	01:25	0.0496	0.0501	-0.284
CBMH31	JUNCTION	0.000	0.069	0	01:26	0	0.0873	0.251
DCB_40A	JUNCTION	0.000	0.052	0	01:26	0	0.0643	2.491
DCB_40B	JUNCTION	0.000	0.050	0	01:26	0	0.0642	2.445
DCB_42A	JUNCTION	0.000	0.064	0	01:25	0	0.105	1.087
DCB_42B	JUNCTION	0.000	0.064	0	01:25	0	0.105	1.067
DCB06	JUNCTION	0.103	0.103	0	01:40	0.28	0.28	-0.001
DCB08	JUNCTION	0.027	0.027	0	01:30	0.0483	0.0483	-0.009
DCB65	JUNCTION	0.000	0.032	0	01:34	0	0.0412	9.097
DCB66	JUNCTION	0.000	0.032	0	01:34	0	0.0412	9.104
DCBMH03	JUNCTION	0.024	0.098	0	01:27	0.0306	0.472	-0.030
DCBMH06	JUNCTION	0.026	0.115	0	01:40	0.0378	0.318	-0.054
DCBMH08	JUNCTION	0.024	0.107	0	02:06	0.0297	0.852	0.010
DCBMH3-1	JUNCTION	0.021	0.063	0	01:31	0.0297	0.412	-0.006
DICB100	JUNCTION	0.005	0.005	0	01:35	0.00791	0.00796	0.015
DICB101	JUNCTION	0.376	0.376	0	01:25	0.535	0.535	0.011
DICB3	JUNCTION	0.016	0.173	0	01:28	0.0219	0.221	0.002
DICB4	JUNCTION	0.002	0.002	0	01:30	0.00201	0.00201	0.019
DICB6	JUNCTION	0.009	0.045	0	01:25	0.0149	0.0165	-0.057
DICB7	JUNCTION	0.016	0.036	0	01:24	0.0164	0.0165	-0.002
DICB99	JUNCTION	0.002	0.010	0	01:33	0.00172	0.00388	0.090
J1	JUNCTION	0.000	0.207	0	01:47	0	0.779	0.008
J10	JUNCTION	0.000	0.069	0	01:27	0	0.395	0.003
J12	JUNCTION	0.000	0.834	0	01:27	0	6.93	-0.006
J13	JUNCTION	0.133	0.946	0	01:27	0.195	7.12	0.008
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000
J17	JUNCTION	0.000	0.054	0	01:28	0	0.0783	-0.097
J17-S	JUNCTION	0.043	0.043	0	01:25	0.0585	0.0585	-28.905
J2	JUNCTION	0.000	0.176	0	00:00	0	5.34	0.006
J3	JUNCTION	0.000	0.101	0	01:28	0	0.0655	0.018
J5	JUNCTION	0.000	0.144	0	01:25	0	0.429	0.021
J6	JUNCTION	0.009	0.077	0	01:25	0.0117	0.132	-0.053
J7	JUNCTION	0.041	0.190	0	01:28	0.0621	0.409	0.081
J8	JUNCTION	0.009	0.071	0	01:25	0.0115	0.136	-0.221
J9	JUNCTION	0.000	0.063	0	01:27	0	0.457	0.015
MH02	JUNCTION	0.000	0.032	0	01:33	0	0.0361	0.056
MH07	JUNCTION	0.000	0.169	0	01:42	0	0.766	0.021
MH102	JUNCTION	0.000	0.720	0	01:27	0	6.62	0.004
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	7.65e-05	5.495
MH103	JUNCTION	0.056	0.079	0	01:25	0.0795	5.23	0.659
MH106	JUNCTION	0.087	0.467	0	01:26	0.153	1.14	-0.009
MH106-S	JUNCTION	0.009	0.009	0	01:25	0.0104	0.0104	-0.309
MH15	JUNCTION	0.000	0.146	0	01:26	0	0.12	-0.002

MH18	JUNCTION	0.000	0.034	0	01:24	0	0.0189	-0.791	
MH40	JUNCTION	0.000	0.257	0	01:26	0	0.455	0.001	
MH40-S	JUNCTION	0.070	0.070	0	01:25	0.119	0.119	-7.737	
MH41	JUNCTION	0.000	0.184	0	01:26	0	0.329	-0.218	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.171	0	01:24	0	0.312	0.043	
MH42-S	JUNCTION	0.128	0.128	0	01:25	0.203	0.203	-3.100	
MH43	JUNCTION	0.000	0.078	0	01:25	0	0.105	0.124	
MH43-S	JUNCTION	0.065	0.065	0	01:25	0.0894	0.0894	-0.982	
MH54	JUNCTION	0.059	0.080	0	00:00	5.1	5.1	0.002	
MH61	JUNCTION	0.000	0.017	0	01:26	0	0.00195	2.011	
MH62	JUNCTION	0.000	0.518	0	01:28	0	1.23	-0.056	
OGS	JUNCTION	0.000	0.107	0	02:06	0	0.838	0.003	
OS2	JUNCTION	0.000	0.107	0	02:06	0	0.838	0.014	
STMH201	JUNCTION	0.000	0.815	0	01:27	0	6.81	0.020	
STMH201-S	JUNCTION	0.110	0.110	0	01:25	0.158	0.158	-0.402	
CB7	OUTFALL	0.000	0.168	0	01:29	0	0.208	0.000	
J14	OUTFALL	0.000	0.948	0	01:27	0	7.12	0.000	
J4	OUTFALL	0.000	0.107	0	02:06	0	0.838	0.000	
OF1	OUTFALL	0.000	0.002	0	01:27	0	0.000377	0.000	
OF2	OUTFALL	0.002	0.002	0	01:25	0.00263	0.00263	0.000	
OF3	OUTFALL	0.000	0.000	0	01:25	0.000318	0.000318	0.000	
OF4	OUTFALL	0.001	0.001	0	01:25	0.000859	0.000859	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.17	0.767	0.343
CB_43B	JUNCTION	0.13	0.694	0.096
CB02	JUNCTION	1.02	0.102	0.698
CB16	JUNCTION	0.31	0.428	0.142
CB19	JUNCTION	0.23	0.792	0.000
CB32	JUNCTION	0.08	1.105	0.000
CB4	JUNCTION	0.30	1.025	0.000
CBMH30	JUNCTION	0.11	1.402	0.000
CBMH31	JUNCTION	0.03	1.206	0.000
DCB_42A	JUNCTION	0.17	0.917	0.063
DCB_42B	JUNCTION	0.17	0.924	0.086

DCB06	JUNCTION	0.83	0.128	1.052
DCB08	JUNCTION	3.90	0.507	0.213
DCBMH03	JUNCTION	2.63	0.252	0.518
DCBMH08	JUNCTION	2.14	0.272	0.213
DCBMH3-1	JUNCTION	2.31	0.222	0.528
DICB101	JUNCTION	0.64	0.317	0.000
DICB6	JUNCTION	0.15	0.342	0.000
DICB7	JUNCTION	0.16	0.935	0.000
J12	JUNCTION	0.22	0.265	0.000
J13	JUNCTION	0.22	0.124	0.526
J2	JUNCTION	0.19	0.098	0.000
J6	JUNCTION	2.15	0.210	1.136
J8	JUNCTION	2.10	0.207	1.632
J9	JUNCTION	2.98	0.286	0.602
MH02	JUNCTION	2.84	0.272	0.748
MH103	JUNCTION	0.01	0.000	1.410
MH106	JUNCTION	0.15	0.073	1.002
MH15	JUNCTION	0.52	0.513	0.307
MH18	JUNCTION	0.33	1.000	0.027
MH41	JUNCTION	0.20	0.978	0.502
MH42	JUNCTION	0.23	1.128	0.141
MH43	JUNCTION	0.13	0.713	0.127
OGS	JUNCTION	0.64	0.094	0.637
OS2	JUNCTION	2.18	0.276	0.238

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
CB32	0.01	0.013	0 01:26	0.000	0.255
CBMH30	0.01	0.106	0 01:26	0.000	0.255
DICB101	0.64	0.238	0 01:25	0.103	0.102
DICB6	0.13	0.044	0 01:25	0.003	0.032
DICB7	0.01	0.025	0 01:24	0.000	0.255
J12	0.01	0.020	0 01:25	0.000	0.255

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	16.81	0.009	0.168	0.208
J14	99.95	0.049	0.948	7.124
J4	42.02	0.016	0.107	0.838
OF1	0.26	0.001	0.002	0.000
OF2	9.61	0.000	0.002	0.003
OF3	1.45	0.000	0.000	0.000
OF4	2.17	0.000	0.001	0.001
System	24.61	0.075	0.001	8.174

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.027	0 01:30	0.56	0.63	1.00
C10	CONDUIT	0.883	0 01:27	2.13	1.11	1.00
C10-S	CHANNEL	0.000	0 01:26	0.29	0.00	0.02
C11	CONDUIT	0.907	0 01:27	1.92	0.79	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.10
C12	CONDUIT	0.146	0 01:26	2.06	0.79	1.00
C13	CONDUIT	0.834	0 01:27	1.89	2.06	1.00
C14	CONDUIT	0.835	0 01:27	1.31	1.41	1.00
C15	CONDUIT	0.948	0 01:27	1.49	1.46	1.00
C16	CONDUIT	0.146	0 01:26	2.33	0.77	0.83
C17	CONDUIT	0.032	0 01:24	0.51	0.33	1.00
C18	CONDUIT	0.028	0 01:24	0.39	0.28	1.00
C19	CONDUIT	0.042	0 01:26	0.64	0.64	1.00
C2	CONDUIT	0.173	0 01:53	1.58	1.40	1.00
C20	CONDUIT	0.067	0 01:26	1.20	0.31	1.00
C21	CONDUIT	0.050	0 01:24	2.17	0.28	0.37
C22	CONDUIT	0.051	0 01:27	0.54	0.02	0.35
C23	CONDUIT	0.009	0 01:30	0.17	0.10	0.77

C24	CONDUIT	0.012	0	01:30	0.19	0.07	0.89
C25	CONDUIT	0.467	0	01:26	2.22	1.51	0.93
C26	CONDUIT	0.079	0	01:24	1.59	0.19	0.68
C27	CONDUIT	0.037	0	01:26	2.23	0.14	0.56
C28	CONDUIT	0.253	0	01:26	1.59	1.08	1.00
C28-S	CHANNEL	0.000	0	01:26	0.09	0.00	0.02
C29	CONDUIT	0.037	0	01:26	0.87	0.06	0.59
C3	CONDUIT	0.002	0	01:30	1.28	0.00	0.03
C30	CONDUIT	0.015	0	01:25	0.36	0.06	0.58
C30_1	CONDUIT	0.035	0	01:25	0.51	0.27	1.00
C30_2	CONDUIT	0.052	0	01:33	0.93	0.54	1.00
C31	CONDUIT	0.036	0	01:25	1.16	0.41	1.00
C32	CONDUIT	0.070	0	01:33	1.00	0.95	1.00
C32-S	CHANNEL	0.000	0	01:25	0.14	0.00	0.04
C33	CONDUIT	0.065	0	01:24	1.73	0.37	1.00
C34	CONDUIT	0.069	0	01:24	2.47	0.20	1.00
C35	CONDUIT	0.168	0	01:26	1.53	1.27	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C36	CONDUIT	0.020	0	01:24	0.89	0.22	1.00
C37	CONDUIT	0.184	0	01:26	1.67	1.56	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C38	CONDUIT	0.080	0	00:00	1.06	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.76
C39_2	CONDUIT	0.163	0	01:25	1.22	0.96	1.00
C4	CONDUIT	0.014	0	01:27	0.42	0.05	0.64
C40	CONDUIT	0.026	0	01:30	0.33	0.01	0.37
C41	CONDUIT	0.024	0	01:26	0.31	0.01	0.36
C42	CONDUIT	0.168	0	01:29	1.48	1.11	0.86
C42_1	CONDUIT	0.017	0	01:26	0.19	0.03	0.35
C42_2	CONDUIT	0.056	0	01:29	0.51	0.10	0.60
C42_2-S	CHANNEL	0.000	0	01:28	0.00	0.00	0.01
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C46	CONDUIT	0.002	0	01:27	0.09	0.01	0.17
C47	CONDUIT	0.028	0	01:30	0.95	0.44	0.53
C48	CONDUIT	0.032	0	01:33	0.24	0.07	1.00
C49	CONDUIT	0.076	0	01:25	0.86	0.18	1.00
C49_1	CONDUIT	0.068	0	01:25	1.05	0.16	1.00
C5	CONDUIT	0.514	0	01:28	1.82	0.97	0.75
C50	CONDUIT	0.070	0	01:26	0.97	0.42	1.00
C50_1	CONDUIT	0.080	0	01:31	0.14	0.01	0.78
C50_3	CONDUIT	0.160	0	01:28	0.22	0.01	0.69
C50_4	CONDUIT	0.090	0	01:31	0.09	0.01	0.75
C50_5	CONDUIT	0.055	0	01:28	0.46	0.07	1.00

C51	CONDUIT	0.033	0	01:35	0.12	0.07	1.00
C52	CONDUIT	0.046	0	01:31	0.43	0.06	1.00
C53_1	CONDUIT	0.063	0	01:27	0.49	0.08	1.00
C54	CONDUIT	0.115	0	01:39	2.92	0.19	0.66
C55	CONDUIT	0.103	0	01:40	2.28	2.63	1.00
C57	CONDUIT	0.035	0	01:30	1.03	0.48	0.48
C58_1	CONDUIT	0.062	0	01:25	1.00	0.31	1.00
C59_1	CONDUIT	0.207	0	01:47	0.14	0.01	0.66
C59_2	CONDUIT	0.101	0	02:07	0.47	0.34	1.00
C6	CONDUIT	0.579	0	01:29	2.02	1.10	0.77
C60	CONDUIT	0.101	0	01:28	0.16	0.01	0.56
C60_2	CONDUIT	0.107	0	02:06	1.57	2.34	0.92
C60_3	CONDUIT	0.107	0	02:06	0.49	0.55	1.00
C6-S	CHANNEL	0.000	0	01:25	0.31	0.00	0.03
C7	CONDUIT	0.748	0	01:27	3.18	1.22	0.63
C7-S	CHANNEL	0.000	0	01:26	0.42	0.00	0.02
C8	CONDUIT	0.722	0	01:28	3.21	0.55	0.56
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.06
C9	CONDUIT	0.814	0	01:27	2.61	0.66	0.80
C9-S	CHANNEL	0.003	0	01:26	1.00	0.00	0.06
C53_2	DUMMY	0.050	0	02:00			
C60_4	DUMMY	0.107	0	02:06			
CB_43A-IC	DUMMY	0.033	0	01:25			
CB100-IC	DUMMY	0.050	0	01:24			
CB16-IC	DUMMY	0.050	0	01:24			
CB19-IC	DUMMY	0.029	0	01:25			
CB4-IC	DUMMY	0.020	0	01:25			
CBMH101-IC	DUMMY	0.018	0	01:25			
CBMH30-IC	DUMMY	0.026	0	01:26			
CBMH31-IC	DUMMY	0.027	0	01:26			
DCB_40A-IC	DUMMY	0.052	0	01:26			
DCB_42A-IC	DUMMY	0.064	0	01:25			
DCB66-IC	DUMMY	0.032	0	01:34			
J17-IC	DUMMY	0.032	0	01:34			
MH40-IC	DUMMY	0.050	0	01:26			
MH42-IC	DUMMY	0.064	0	01:25			
MH43-IC	DUMMY	0.033	0	01:25			
OL1	DUMMY	0.009	0	01:25			
OL2	DUMMY	0.044	0	01:25			
OL3	DUMMY	0.050	0	01:24			
STMH201-IC	DUMMY	0.050	0	01:24			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.12	0.88	0.00	0.00	0.02	0.00
C10-S	1.00	0.89	0.00	0.00	0.10	0.01	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.83	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.67	0.00	0.33	0.00	0.00	0.00	0.72	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C16	1.00	0.95	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.10	0.41	0.00	0.49	0.00	0.00	0.00	0.96	0.00
C18	1.00	0.00	0.26	0.00	0.74	0.00	0.00	0.00	0.37	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.00	0.53	0.00	0.47	0.00	0.00	0.00	0.98	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.02	0.00	0.95	0.00	0.03	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.96	0.00
C24	1.00	0.00	0.49	0.00	0.51	0.00	0.00	0.00	0.58	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.99	0.00
C27	1.00	0.01	0.00	0.00	0.00	0.01	0.00	0.98	0.01	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.93	0.00
C28-S	1.00	0.84	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.01	0.00	0.94	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.18	0.00	0.81	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.02	0.00	0.97	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.04	0.00	0.11	0.00	0.00	0.00	0.98	0.00
C33	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.98	0.01	0.00
C34	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.87	0.00
C37-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00

C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.38	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C40	1.00	0.01	0.49	0.00	0.50	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.95	0.00	0.05	0.00	0.00	0.00	0.97	0.00
C42_2	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.01	0.00
C42_2-S	1.00	0.89	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.05	0.00	0.08	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.01	0.00
C48	1.00	0.74	0.03	0.00	0.23	0.00	0.00	0.00	0.81	0.00
C49	1.00	0.01	0.00	0.00	0.98	0.01	0.00	0.00	0.02	0.00
C49_1	1.00	0.01	0.13	0.00	0.87	0.00	0.00	0.00	0.80	0.00
C5	1.00	0.01	0.00	0.00	0.44	0.00	0.00	0.55	0.36	0.00
C50	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.05	0.00
C50_1	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.78	0.00
C50_3	1.00	0.60	0.09	0.00	0.31	0.00	0.00	0.00	0.08	0.00
C50_4	1.00	0.44	0.16	0.00	0.39	0.00	0.00	0.00	0.48	0.00
C50_5	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.73	0.00
C51	1.00	0.01	0.73	0.00	0.26	0.00	0.00	0.00	0.78	0.00
C52	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.79	0.00
C53_1	1.00	0.01	0.00	0.00	0.26	0.00	0.00	0.73	0.00	0.00
C54	1.00	0.01	0.04	0.00	0.92	0.03	0.00	0.00	0.17	0.00
C55	1.00	0.01	0.00	0.00	0.97	0.02	0.00	0.00	0.01	0.00
C57	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C58_1	1.00	0.01	0.10	0.00	0.89	0.00	0.00	0.00	0.86	0.00
C59_1	1.00	0.01	0.50	0.00	0.49	0.00	0.00	0.00	0.90	0.00
C59_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.88	0.00
C6	1.00	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.18	0.00
C60	1.00	0.69	0.10	0.00	0.21	0.00	0.00	0.00	0.84	0.00
C60_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.01	0.87	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.06	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.02	0.00	0.98	0.01	0.00
C8-S	1.00	0.85	0.05	0.00	0.11	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.01	0.00
C9-S	1.00	0.85	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	3.90	3.90	4.15	0.01	0.01
C10	0.18	0.18	0.23	0.08	0.07
C11	0.23	0.23	0.40	0.01	0.01
C12	0.67	0.67	1.00	0.01	0.01
C13	0.31	0.31	0.31	0.51	0.30
C14	0.21	0.22	0.22	0.25	0.21
C15	0.22	0.22	0.27	0.27	0.21
C16	0.01	0.01	46.61	0.01	0.01
C17	0.30	0.30	0.33	0.01	0.01
C18	0.33	0.33	0.36	0.01	0.01
C19	0.08	0.08	0.09	0.01	0.01
C2	0.43	0.64	0.43	0.65	0.43
C20	0.03	0.03	0.50	0.01	0.01
C25	0.01	0.15	0.01	0.36	0.01
C26	0.01	0.01	0.51	0.01	0.01
C28	0.22	0.22	0.26	0.09	0.09
C29	0.01	0.01	0.61	0.01	0.01
C30	0.01	0.01	0.51	0.01	0.01
C30_1	0.15	0.15	0.17	0.01	0.01
C30_2	0.17	0.17	0.18	0.01	0.01
C31	0.13	0.13	0.13	0.01	0.01
C32	0.19	0.19	0.25	0.01	0.01
C33	0.17	0.17	0.23	0.01	0.01
C34	0.17	0.17	0.23	0.01	0.01
C35	0.24	0.24	0.26	0.20	0.19
C36	0.16	0.16	0.20	0.01	0.01
C37	0.28	0.28	0.33	0.26	0.26
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.19	0.01	0.01
C39_2	0.19	0.19	0.24	0.01	0.01
C42	0.01	0.01	0.01	0.12	0.01
C43	0.01	0.01	0.01	0.01	0.01
C48	1.02	1.02	2.84	0.01	0.01
C49	2.15	2.15	3.35	0.01	0.01
C49_1	1.27	1.27	2.15	0.01	0.01
C50	2.10	2.10	4.44	0.01	0.01

C50_5	1.99	1.99	2.31	0.01	0.01
C51	2.84	2.84	4.24	0.01	0.01
C52	2.31	2.31	2.63	0.01	0.01
C53_1	2.63	2.63	2.98	0.01	0.01
C55	0.48	0.83	0.55	0.78	0.31
C58_1	0.70	0.70	2.10	0.01	0.01
C59_2	1.37	1.37	2.14	0.01	0.01
C6	0.01	0.01	0.01	0.05	0.01
C60_2	0.01	0.64	0.01	1.24	0.01
C60_3	2.14	2.14	2.18	0.01	0.04
C7	0.01	0.01	0.01	0.13	0.01
C9	0.01	0.01	0.11	0.01	0.01

Analysis begun on: Thu Dec 12 11:21:00 2019
Analysis ended on: Thu Dec 12 11:21:14 2019
Total elapsed time: 00:00:14

Post Development - Chicago 50 Year Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
----------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                        Area     Width    %Imperv    %Slope Rain Gage            Outlet
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A100	2.11	98.17	37.00	1.7000	Chicago_4h_50yr	DICB101
A101	1.08	64.95	14.00	2.7500	Chicago_4h_50yr	MH106
A102	0.31	37.80	38.00	1.0000	Chicago_4h_50yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_50yr	DICB6
A104_2	0.29	28.60	48.00	0.1600	Chicago_4h_50yr	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Chicago_4h_50yr	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Chicago_4h_50yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_50yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_50yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_50yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_50yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_50yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_50yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_50yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_50yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_50yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_50yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_50yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_50yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_50yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_50yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_50yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_50yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_50yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_50yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_50yr	S10
S1	0.09	14.47	22.00	2.0000	Chicago_4h_50yr	CB02
S10	0.18	19.12	40.00	2.0000	Chicago_4h_50yr	DCB06
S11	0.06	7.51	67.00	2.0000	Chicago_4h_50yr	DCBMH08
S12	0.11	10.54	59.00	2.0000	Chicago_4h_50yr	DCB08
S13	0.00	23.00	100.00	2.0000	Chicago_4h_50yr	OF2
S14	0.00	5.00	0.00	2.0000	Chicago_4h_50yr	OF3
S15	0.00	13.50	0.00	2.0000	Chicago_4h_50yr	OF4
S16	0.17	26.77	38.00	2.0000	Chicago_4h_50yr	J7
S17	0.03	11.13	56.00	2.0000	Chicago_4h_50yr	J6
S18	0.07	18.30	43.00	2.0000	Chicago_4h_50yr	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Chicago_4h_50yr	DICB3
S3	0.18	13.04	36.00	2.0000	Chicago_4h_50yr	CB01
S4	0.16	10.71	39.00	2.0000	Chicago_4h_50yr	CBMH04
S5	0.15	15.13	52.00	2.0000	Chicago_4h_50yr	CB04
S6	0.11	12.76	64.00	2.0000	Chicago_4h_50yr	CBMH01
S7	0.07	8.29	60.00	2.0000	Chicago_4h_50yr	DCBMH03
S8	0.02	7.73	75.00	2.0000	Chicago_4h_50yr	J8
S9	0.09	17.25	52.00	2.0000	Chicago_4h_50yr	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

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Transect Summary
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Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

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            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


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NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
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Analysis Options
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Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
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Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.717	65.661
Evaporation Loss	0.000	0.000
Infiltration Loss	0.354	32.450
Surface Runoff	0.359	32.902
Final Storage	0.008	0.702
Continuity Error (%)	-0.597	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.359	3.593
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.562	5.615
External Outflow	0.925	9.251
Flooding Loss	0.000	0.003
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.001
Continuity Error (%)	-0.489	

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*************************
Highest Continuity Errors
*************************
Node DCB65 (7.70%)
Node DCB66 (7.69%)
Node MH40-S (-7.52%)
Node MH102-S (4.14%)
Node DCB_42A (2.95%)
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****
Time-Step Critical Elements
****
Link C13 (98.81%)

****
Highest Flow Instability Indexes
****
Link J17-IC (20)
Link DCB66-IC (20)
Link DCB_40A-IC (15)
Link MH40-IC (15)
Link DCB_42A-IC (12)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 0.76 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : -0.00
Average Iterations per Step : 2.08
Percent Not Converging : 0.48

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	65.66	0.00	0.00	35.15	23.76	6.32	30.08	0.63	0.42	0.458
A101	65.66	0.00	0.00	47.31	8.93	9.33	18.26	0.20	0.10	0.278
A102	65.66	0.00	0.00	31.53	24.33	9.46	33.79	0.11	0.07	0.515
A103	65.66	0.00	0.00	41.61	9.56	14.84	24.39	0.02	0.01	0.371
A104_2	65.66	0.00	0.00	26.42	30.85	7.82	38.67	0.11	0.07	0.589
A104_3	65.66	0.00	0.00	26.42	30.85	7.82	38.67	0.11	0.07	0.589
A104_4	65.66	0.00	0.00	36.16	15.93	29.81	29.81	0.02	0.01	0.454
A105	65.66	0.00	0.00	39.91	8.92	18.58	27.50	0.02	0.02	0.419
A106	65.66	0.00	0.00	21.58	38.54	4.77	43.31	0.14	0.08	0.660

A107	65.66	0.00	0.00	0.00	63.78	0.00	63.78	0.01	0.01	0.971
A108	65.66	0.00	0.00	47.49	0.00	19.48	19.48	0.00	0.00	0.297
A109	65.66	0.00	0.00	10.18	50.77	3.80	54.57	0.07	0.05	0.831
A110	65.66	0.00	0.00	0.00	64.19	0.00	64.19	0.06	0.05	0.978
A111	65.66	0.00	0.00	35.60	19.17	10.68	29.85	0.10	0.06	0.455
A112_1	65.66	0.00	0.00	45.54	11.48	8.48	19.95	0.16	0.09	0.304
A112_3	65.66	0.00	0.00	45.54	11.48	8.48	19.95	0.03	0.02	0.304
A113	65.66	0.00	0.00	46.96	0.00	20.36	20.36	0.00	0.00	0.310
A114	65.66	0.00	0.00	0.00	63.93	0.00	63.93	0.02	0.02	0.974
A115	65.66	0.00	0.00	51.47	0.00	14.57	14.57	0.01	0.01	0.222
A116	65.66	0.00	0.00	17.29	42.42	5.18	47.60	0.18	0.12	0.725
A117	65.66	0.00	0.00	36.88	18.56	9.98	28.54	0.07	0.05	0.435
A118	65.66	0.00	0.00	16.95	41.69	6.35	48.04	0.06	0.05	0.732
A119	65.66	0.00	0.00	27.29	28.11	9.92	38.04	0.04	0.03	0.579
A120	65.66	0.00	0.00	14.90	45.61	4.25	49.87	0.20	0.13	0.759
A121	65.66	0.00	0.00	42.25	16.03	7.10	23.13	0.24	0.15	0.352
A3	65.66	0.00	0.00	31.69	5.10	34.21	34.21	0.28	0.12	0.521
S1	65.66	0.00	0.00	26.75	14.03	39.06	39.06	0.04	0.02	0.595
S10	65.66	153.21	0.00	33.42	82.69	148.07	185.58	0.34	0.13	0.848
S11	65.66	0.00	0.00	10.41	42.95	11.62	54.57	0.03	0.03	0.831
S12	65.66	0.00	0.00	14.77	37.84	31.48	50.40	0.06	0.03	0.768
S13	65.66	0.00	0.00	0.00	63.73	0.00	63.73	0.00	0.00	0.971
S14	65.66	0.00	0.00	30.39	0.00	36.70	36.70	0.00	0.00	0.559
S15	65.66	0.00	0.00	30.39	0.00	36.70	36.70	0.00	0.00	0.559
S16	65.66	0.00	0.00	21.94	24.26	43.64	43.64	0.07	0.05	0.665
S17	65.66	0.00	0.00	15.17	35.70	32.20	50.05	0.01	0.01	0.762
S18	65.66	0.00	0.00	18.81	27.42	27.50	46.69	0.03	0.02	0.711
S2	65.66	0.00	0.00	20.06	23.61	21.88	45.49	0.03	0.02	0.693
S3	65.66	0.00	0.00	22.76	23.06	31.11	42.64	0.08	0.03	0.649
S4	65.66	0.00	0.00	21.32	25.01	25.26	44.01	0.07	0.03	0.670
S5	65.66	0.00	0.00	17.05	33.32	31.54	48.20	0.07	0.04	0.734
S6	65.66	0.00	0.00	11.43	41.04	12.55	53.59	0.06	0.05	0.816
S7	65.66	0.00	0.00	12.70	38.43	13.95	52.39	0.03	0.03	0.798
S8	65.66	0.00	0.00	8.68	47.87	20.05	55.95	0.01	0.01	0.852
S9	65.66	0.00	0.00	16.84	33.21	35.19	48.48	0.04	0.03	0.738

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LID Performance Summary
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Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	106.38	0.00	89.24	17.15	0.00	0.00	0.00	-0.00

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.01	1.35	194.88	0 01:24	0.87
CB_43B	JUNCTION	0.01	1.19	195.04	0 01:24	0.55
CB01	JUNCTION	0.01	0.22	189.91	0 01:54	0.21
CB02	JUNCTION	0.08	0.78	189.91	0 01:55	0.78
CB04	JUNCTION	0.01	0.16	190.63	0 01:30	0.16
CB100	JUNCTION	0.00	0.11	189.68	0 01:23	0.11
CB101	JUNCTION	0.00	0.06	191.29	0 01:28	0.05
CB102	JUNCTION	0.00	0.13	191.36	0 01:28	0.13
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.01	0.46	187.74	0 01:30	0.46
CB16	JUNCTION	0.17	1.19	188.55	0 01:25	1.02
CB16-S	JUNCTION	0.00	0.08	188.76	0 01:29	0.08
CB19	JUNCTION	0.09	1.42	189.16	0 01:25	0.91
CB19-S	JUNCTION	0.00	0.01	189.10	0 01:25	0.00
CB32	JUNCTION	0.13	1.40	189.81	0 01:25	0.62
CB4	JUNCTION	0.01	1.40	189.26	0 01:25	0.80
CBMH01	JUNCTION	0.08	0.81	189.91	0 01:54	0.80
CBMH04	JUNCTION	0.04	0.59	189.91	0 01:53	0.59
CBMH100	JUNCTION	0.08	0.42	189.45	0 01:29	0.42
CBMH101	JUNCTION	0.07	0.31	190.80	0 01:28	0.31
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.05	0.57	191.30	0 01:28	0.56
CBMH103-S	JUNCTION	0.00	0.01	193.36	0 01:25	0.01
CBMH105	JUNCTION	0.00	0.24	191.63	0 01:27	0.22
CBMH30	JUNCTION	0.11	2.10	190.06	0 01:25	1.01
CBMH30-S	JUNCTION	0.00	0.01	189.82	0 01:25	0.01
CBMH31	JUNCTION	0.16	1.57	189.95	0 01:25	0.65
DCB_40A	JUNCTION	0.00	0.08	193.38	0 01:25	0.08
DCB_40B	JUNCTION	0.00	0.05	193.31	0 01:25	0.05
DCB_42A	JUNCTION	0.01	1.53	194.91	0 01:24	1.53
DCB_42B	JUNCTION	0.01	1.27	194.61	0 01:24	0.94
DCB06	JUNCTION	0.02	0.52	189.43	0 01:46	0.52
DCB08	JUNCTION	0.08	0.84	189.26	0 02:03	0.84
DCB65	JUNCTION	0.01	0.38	191.61	0 01:28	0.38
DCB66	JUNCTION	0.01	0.38	191.61	0 01:28	0.38

DCBMH03	JUNCTION	0.15	1.08	189.91	0	01:54	1.07
DCBMH06	JUNCTION	0.02	0.40	189.28	0	02:02	0.40
DCBMH08	JUNCTION	0.12	0.88	189.26	0	02:01	0.88
DCBMH3-1	JUNCTION	0.14	1.05	189.91	0	01:56	1.04
DICB100	JUNCTION	0.00	0.19	190.82	0	01:28	0.16
DICB101	JUNCTION	0.02	0.74	193.50	0	01:40	0.74
DICB3	JUNCTION	0.10	0.86	189.90	0	01:54	0.86
DICB4	JUNCTION	0.00	0.02	192.26	0	01:30	0.02
DICB6	JUNCTION	0.01	0.72	194.40	0	01:32	0.72
DICB7	JUNCTION	0.01	1.24	194.43	0	01:24	0.77
DICB99	JUNCTION	0.01	0.26	190.82	0	01:28	0.25
J1	JUNCTION	0.07	0.81	189.28	0	02:01	0.81
J10	JUNCTION	0.14	1.02	189.91	0	01:54	1.01
J12	JUNCTION	0.17	1.17	188.52	0	01:25	1.01
J13	JUNCTION	0.16	0.95	188.24	0	01:25	0.92
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.01	0.42	191.61	0	01:28	0.41
J17-S	JUNCTION	0.00	0.00	194.63	0	01:26	0.00
J2	JUNCTION	0.14	0.59	191.31	0	01:28	0.55
J3	JUNCTION	0.05	0.64	189.91	0	01:54	0.64
J5	JUNCTION	0.13	1.00	189.91	0	01:54	0.99
J6	JUNCTION	0.10	0.89	189.92	0	01:54	0.88
J7	JUNCTION	0.12	0.94	189.90	0	01:54	0.94
J8	JUNCTION	0.07	0.74	189.92	0	01:54	0.73
J9	JUNCTION	0.18	1.21	189.91	0	01:56	1.20
MH02	JUNCTION	0.12	0.95	189.91	0	01:56	0.94
MH07	JUNCTION	0.03	0.58	189.28	0	02:02	0.58
MH102	JUNCTION	0.12	0.61	191.26	0	01:28	0.57
MH102-S	JUNCTION	0.00	0.01	193.28	0	01:26	0.01
MH103	JUNCTION	0.14	0.52	191.57	0	00:00	0.29
MH106	JUNCTION	0.02	0.61	193.01	0	01:25	0.61
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.02	0.90	188.43	0	01:25	0.76
MH18	JUNCTION	0.03	1.47	189.28	0	01:25	0.86
MH40	JUNCTION	0.02	0.62	193.06	0	01:25	0.62
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:29	0.00
MH41	JUNCTION	0.02	1.85	194.62	0	01:24	1.15
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.02	1.57	194.59	0	01:24	1.25
MH42-S	JUNCTION	0.00	0.03	194.68	0	01:26	0.02
MH43	JUNCTION	0.01	1.65	195.09	0	01:24	0.95
MH43-S	JUNCTION	0.00	0.01	194.95	0	01:24	0.01
MH54	JUNCTION	0.13	0.19	191.54	0	03:34	0.19
MH61	JUNCTION	0.00	0.13	191.62	0	01:26	0.13
MH62	JUNCTION	0.02	0.56	191.61	0	01:28	0.56

OGS	JUNCTION	0.06	0.58	188.93	0	02:03	0.57	
OS2	JUNCTION	0.13	0.89	189.26	0	02:01	0.89	
STMH201	JUNCTION	0.08	0.42	189.45	0	01:29	0.41	
STMH201-S	JUNCTION	0.00	0.04	190.89	0	01:27	0.04	
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00	
J14	OUTFALL	0.16	0.90	188.18	0	01:24	0.90	
J4	OUTFALL	0.03	0.28	188.62	0	02:01	0.28	
OF1	OUTFALL	0.00	0.08	188.68	0	01:29	0.08	
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00	

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days	hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.067	0	01:39	0	0.0792	0.183	
CB_43B	JUNCTION	0.000	0.048	0	01:24	0	0.0534	0.333	
CB01	JUNCTION	0.034	0.034	0	01:30	0.0768	0.0768	0.067	
CB02	JUNCTION	0.021	0.030	0	01:33	0.0362	0.0365	-0.250	
CB04	JUNCTION	0.041	0.041	0	01:30	0.0729	0.0729	0.000	
CB100	JUNCTION	0.000	0.050	0	01:23	0	0.0892	0.113	
CB101	JUNCTION	0.018	0.018	0	01:25	0.0314	0.0314	-0.001	
CB102	JUNCTION	0.089	0.089	0	01:25	0.157	0.157	-0.001	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.206	0	01:25	0	0.257	0.078	
CB16	JUNCTION	0.000	1.039	0	01:27	0	7.92	0.004	
CB16-S	JUNCTION	0.128	0.128	0	01:25	0.204	0.204	-0.338	
CB19	JUNCTION	0.000	0.989	0	01:27	0	7.82	-0.005	
CB19-S	JUNCTION	0.033	0.080	0	01:25	0.0433	0.0434	-0.182	
CB32	JUNCTION	0.047	0.047	0	01:25	0.0732	0.075	0.203	
CB4	JUNCTION	0.000	0.026	0	01:25	0	0.0219	-0.202	
CBMH01	JUNCTION	0.048	0.078	0	01:25	0.0615	0.138	-0.095	
CBMH04	JUNCTION	0.035	0.072	0	01:30	0.0707	0.144	-0.072	
CBMH100	JUNCTION	0.000	0.050	0	01:23	0	0.0902	0.045	
CBMH101	JUNCTION	0.000	0.863	0	01:28	0	7.47	-0.013	
CBMH101-S	JUNCTION	0.019	0.019	0	01:25	0.0224	0.0225	-0.156	
CBMH103	JUNCTION	0.000	0.592	0	01:28	0	1.52	0.001	
CBMH103-S	JUNCTION	0.049	0.049	0	01:25	0.0598	0.0598	-0.172	

CBMH105	JUNCTION	0.000	0.013	0	01:24	0	0.0143	-0.113
CBMH30	JUNCTION	0.000	0.960	0	01:27	0	7.78	-0.014
CBMH30-S	JUNCTION	0.045	0.076	0	01:25	0.0566	0.0594	-0.204
CBMH31	JUNCTION	0.000	0.086	0	01:25	0	0.104	0.081
DCB_40A	JUNCTION	0.000	0.047	0	01:31	0	0.0732	2.370
DCB_40B	JUNCTION	0.000	0.046	0	01:31	0	0.0731	2.355
DCB_42A	JUNCTION	0.000	0.088	0	01:25	0	0.112	3.038
DCB_42B	JUNCTION	0.000	0.100	0	01:24	0	0.131	-0.435
DCB06	JUNCTION	0.127	0.127	0	01:40	0.337	0.337	-0.002
DCB08	JUNCTION	0.032	0.032	0	01:30	0.0552	0.0552	-0.019
DCB65	JUNCTION	0.000	0.038	0	01:25	0	0.0456	8.344
DCB66	JUNCTION	0.000	0.038	0	01:25	0	0.0456	8.333
DCBMH03	JUNCTION	0.027	0.105	0	01:26	0.0347	0.544	-0.028
DCBMH06	JUNCTION	0.029	0.141	0	01:40	0.0435	0.38	-0.050
DCBMH08	JUNCTION	0.027	0.148	0	02:01	0.0336	0.998	0.007
DCBMH3-1	JUNCTION	0.025	0.084	0	01:30	0.0342	0.477	-0.006
DICB100	JUNCTION	0.007	0.007	0	01:35	0.0113	0.0114	0.006
DICB101	JUNCTION	0.423	0.423	0	01:25	0.635	0.635	0.001
DICB3	JUNCTION	0.018	0.199	0	01:28	0.0253	0.252	0.002
DICB4	JUNCTION	0.002	0.002	0	01:30	0.00269	0.00269	0.013
DICB6	JUNCTION	0.012	0.076	0	01:24	0.0187	0.0256	-0.147
DICB7	JUNCTION	0.021	0.053	0	01:24	0.0203	0.0205	0.231
DICB99	JUNCTION	0.002	0.015	0	01:33	0.00228	0.00548	0.066
J1	JUNCTION	0.000	0.254	0	01:44	0	0.914	0.006
J10	JUNCTION	0.000	0.075	0	01:30	0	0.457	0.003
J12	JUNCTION	0.000	0.910	0	01:27	0	7.77	-0.006
J13	JUNCTION	0.150	1.032	0	01:27	0.239	8.01	0.007
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000
J17	JUNCTION	0.000	0.059	0	01:27	0	0.088	-0.096
J17-S	JUNCTION	0.049	0.049	0	01:25	0.0661	0.0661	-27.513
J2	JUNCTION	0.000	0.179	0	01:27	0	5.91	0.005
J3	JUNCTION	0.000	0.140	0	01:37	0	0.0776	0.011
J5	JUNCTION	0.000	0.172	0	01:27	0	0.495	0.016
J6	JUNCTION	0.010	0.088	0	01:25	0.0134	0.152	-0.051
J7	JUNCTION	0.048	0.225	0	01:34	0.0725	0.466	0.062
J8	JUNCTION	0.011	0.082	0	01:25	0.013	0.157	-0.209
J9	JUNCTION	0.000	0.073	0	01:55	0	0.526	0.010
MH02	JUNCTION	0.000	0.041	0	01:34	0	0.0423	-0.108
MH07	JUNCTION	0.000	0.207	0	01:41	0	0.897	0.020
MH102	JUNCTION	0.000	0.799	0	01:28	0	7.43	0.006
MH102-S	JUNCTION	0.000	0.000	0	01:25	0	0.000103	4.320
MH103	JUNCTION	0.064	0.090	0	01:25	0.0959	5.76	0.598
MH106	JUNCTION	0.101	0.494	0	01:25	0.198	1.36	-0.006
MH106-S	JUNCTION	0.010	0.010	0	01:25	0.0116	0.0116	-0.176
MH15	JUNCTION	0.000	0.155	0	01:25	0	0.157	-0.009

MH18	JUNCTION	0.000	0.046	0	01:24	0	0.0226	-1.051	
MH40	JUNCTION	0.000	0.268	0	01:25	0	0.526	-0.012	
MH40-S	JUNCTION	0.080	0.080	0	01:25	0.136	0.136	-6.990	
MH41	JUNCTION	0.000	0.193	0	01:28	0	0.383	-0.241	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.209	0	01:29	0	0.363	0.233	
MH42-S	JUNCTION	0.146	0.146	0	01:25	0.236	0.236	-2.691	
MH43	JUNCTION	0.000	0.089	0	01:24	0	0.125	0.059	
MH43-S	JUNCTION	0.074	0.074	0	01:25	0.106	0.106	-0.797	
MH54	JUNCTION	0.065	0.080	0	00:00	5.62	5.62	0.001	
MH61	JUNCTION	0.000	0.024	0	01:25	0	0.00286	1.520	
MH62	JUNCTION	0.000	0.558	0	01:27	0	1.46	-0.044	
OGS	JUNCTION	0.000	0.148	0	02:01	0	0.981	0.002	
OS2	JUNCTION	0.000	0.148	0	02:01	0	0.981	0.013	
STMH201	JUNCTION	0.000	0.915	0	01:28	0	7.65	0.021	
STMH201-S	JUNCTION	0.124	0.124	0	01:25	0.181	0.181	-0.328	
CB7	OUTFALL	0.000	0.177	0	01:30	0	0.257	0.000	
J14	OUTFALL	0.000	1.032	0	01:27	0	8.01	0.000	
J4	OUTFALL	0.000	0.148	0	02:01	0	0.981	0.000	
OF1	OUTFALL	0.000	0.006	0	01:29	0	0.00263	0.000	
OF2	OUTFALL	0.003	0.003	0	01:25	0.00293	0.00293	0.000	
OF3	OUTFALL	0.001	0.001	0	01:25	0.000367	0.000367	0.000	
OF4	OUTFALL	0.001	0.001	0	01:25	0.000991	0.000991	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.27	1.046	0.064
CB_43B	JUNCTION	0.25	0.891	0.000
CB02	JUNCTION	1.22	0.183	0.617
CB16	JUNCTION	0.39	0.439	0.131
CB19	JUNCTION	0.32	0.813	0.000
CB32	JUNCTION	0.16	1.105	0.000
CB4	JUNCTION	0.38	1.097	0.000
CBMH30	JUNCTION	0.19	1.402	0.000
CBMH31	JUNCTION	0.11	1.113	0.000
DCB_42A	JUNCTION	0.27	1.235	0.000
DCB_42B	JUNCTION	0.27	0.974	0.036

DCB06	JUNCTION	1.05	0.272	0.908
DCB08	JUNCTION	4.02	0.595	0.125
DCBMH03	JUNCTION	2.77	0.330	0.440
DCBMH08	JUNCTION	2.29	0.358	0.127
DCBMH3-1	JUNCTION	2.47	0.303	0.447
DICB101	JUNCTION	0.82	0.361	0.000
DICB6	JUNCTION	0.26	0.420	0.000
DICB7	JUNCTION	0.26	0.935	0.000
J12	JUNCTION	0.30	0.265	0.000
J13	JUNCTION	0.30	0.052	0.598
J2	JUNCTION	0.28	0.138	0.000
J6	JUNCTION	2.33	0.292	1.054
J8	JUNCTION	2.27	0.291	1.548
J9	JUNCTION	3.11	0.366	0.522
MH02	JUNCTION	2.98	0.354	0.666
MH103	JUNCTION	0.01	0.000	1.410
MH106	JUNCTION	0.25	0.087	0.988
MH15	JUNCTION	0.63	0.525	0.295
MH18	JUNCTION	0.41	1.174	0.000
MH40	JUNCTION	0.01	0.004	1.586
MH41	JUNCTION	0.29	1.270	0.210
MH42	JUNCTION	0.31	1.179	0.090
MH43	JUNCTION	0.25	0.956	0.000
OGS	JUNCTION	0.92	0.261	0.470
OS2	JUNCTION	2.33	0.360	0.154

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
CB32	0.01	0.021	0 01:25	0.000	0.255
CBMH30	0.01	0.182	0 01:25	0.000	0.255
DCB_42A	0.03	0.071	0 01:25	0.002	0.255
DICB101	0.81	0.294	0 01:25	0.146	0.146
DICB6	0.25	0.075	0 01:24	0.011	0.110
DICB7	0.01	0.040	0 01:24	0.000	0.255
J12	0.01	0.083	0 01:25	0.000	0.255

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	16.74	0.011	0.177	0.257
J14	99.95	0.054	1.032	8.006
J4	42.23	0.018	0.148	0.981
OF1	0.46	0.004	0.006	0.003
OF2	9.56	0.000	0.003	0.003
OF3	1.50	0.000	0.001	0.000
OF4	2.29	0.000	0.001	0.001
System	24.68	0.088	0.001	9.251

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.032	0 01:29	0.65	0.73	1.00
C10	CONDUIT	0.961	0 01:27	2.12	1.21	1.00
C10-S	CHANNEL	0.000	0 01:25	0.45	0.00	0.03
C11	CONDUIT	0.989	0 01:27	2.09	0.86	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.17
C12	CONDUIT	0.155	0 01:25	2.20	0.84	1.00
C13	CONDUIT	0.910	0 01:27	2.06	2.25	1.00
C14	CONDUIT	0.908	0 01:27	1.43	1.53	1.00
C15	CONDUIT	1.032	0 01:27	1.62	1.59	1.00
C16	CONDUIT	0.156	0 01:25	2.45	0.82	0.85
C17	CONDUIT	0.038	0 01:23	0.70	0.40	1.00
C18	CONDUIT	0.036	0 01:23	0.52	0.36	1.00
C19	CONDUIT	0.050	0 01:25	0.70	0.75	1.00
C2	CONDUIT	0.177	0 01:58	1.61	1.44	1.00
C20	CONDUIT	0.089	0 01:25	1.32	0.42	1.00
C21	CONDUIT	0.050	0 01:23	2.19	0.28	0.38

C22	CONDUIT	0.053	0	01:28	0.54	0.02	0.40
C23	CONDUIT	0.011	0	01:30	0.19	0.13	0.81
C24	CONDUIT	0.016	0	01:33	0.25	0.10	0.94
C25	CONDUIT	0.494	0	01:25	2.34	1.59	0.94
C26	CONDUIT	0.089	0	01:24	1.69	0.21	0.72
C27	CONDUIT	0.040	0	01:25	2.26	0.15	0.63
C28	CONDUIT	0.267	0	01:25	1.68	1.15	1.00
C28-S	CHANNEL	0.000	0	01:25	0.08	0.00	0.02
C29	CONDUIT	0.040	0	01:25	0.92	0.07	0.59
C3	CONDUIT	0.002	0	01:30	1.38	0.00	0.04
C30	CONDUIT	0.018	0	01:25	0.41	0.07	0.59
C30_1	CONDUIT	0.065	0	01:24	0.92	0.49	1.00
C30_2	CONDUIT	0.067	0	01:39	0.94	0.69	1.00
C31	CONDUIT	0.046	0	01:24	1.18	0.52	1.00
C32	CONDUIT	0.082	0	01:39	1.16	1.10	1.00
C32-S	CHANNEL	0.000	0	01:24	0.26	0.00	0.10
C33	CONDUIT	0.071	0	01:24	1.73	0.40	1.00
C34	CONDUIT	0.118	0	01:24	2.30	0.35	1.00
C35	CONDUIT	0.176	0	01:30	1.59	1.33	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.08
C36	CONDUIT	0.036	0	01:24	0.92	0.38	1.00
C37	CONDUIT	0.193	0	01:30	1.74	1.63	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C38	CONDUIT	0.080	0	00:00	1.09	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.82
C39_2	CONDUIT	0.179	0	01:27	1.22	1.05	1.00
C4	CONDUIT	0.018	0	01:28	0.42	0.06	0.72
C40	CONDUIT	0.029	0	01:30	0.33	0.01	0.40
C41	CONDUIT	0.025	0	01:28	0.31	0.01	0.40
C42	CONDUIT	0.177	0	01:30	1.51	1.17	0.88
C42_1	CONDUIT	0.024	0	01:25	0.23	0.04	0.40
C42_2	CONDUIT	0.057	0	01:27	0.57	0.11	0.65
C42_2-S	CHANNEL	0.000	0	01:31	0.00	0.00	0.02
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C46	CONDUIT	0.006	0	01:29	0.13	0.03	0.28
C47	CONDUIT	0.034	0	01:30	1.01	0.53	0.78
C48	CONDUIT	0.041	0	01:34	0.25	0.09	1.00
C49	CONDUIT	0.086	0	01:25	0.86	0.21	1.00
C49_1	CONDUIT	0.078	0	01:25	1.07	0.18	1.00
C5	CONDUIT	0.555	0	01:28	1.82	1.05	0.81
C50	CONDUIT	0.081	0	01:26	0.97	0.49	1.00
C50_1	CONDUIT	0.100	0	01:27	0.14	0.01	0.84
C50_3	CONDUIT	0.183	0	01:28	0.20	0.01	0.75

C50_4	CONDUIT	0.128	0	01:34	0.09	0.01	0.81
C50_5	CONDUIT	0.075	0	01:30	0.46	0.10	1.00
C51	CONDUIT	0.042	0	01:32	0.16	0.10	1.00
C52	CONDUIT	0.064	0	01:56	0.43	0.09	1.00
C53_1	CONDUIT	0.073	0	01:55	0.49	0.09	1.00
C54	CONDUIT	0.142	0	01:40	3.05	0.23	0.82
C55	CONDUIT	0.127	0	01:40	2.74	3.26	1.00
C57	CONDUIT	0.041	0	01:30	1.08	0.57	0.52
C58_1	CONDUIT	0.072	0	01:25	1.04	0.36	1.00
C59_1	CONDUIT	0.254	0	01:44	0.14	0.02	0.77
C59_2	CONDUIT	0.140	0	02:02	0.65	0.47	1.00
C6	CONDUIT	0.624	0	01:28	2.04	1.18	0.83
C60	CONDUIT	0.140	0	01:37	0.18	0.01	0.62
C60_2	CONDUIT	0.148	0	02:01	2.11	3.24	0.97
C60_3	CONDUIT	0.148	0	02:01	0.68	0.76	1.00
C6-S	CHANNEL	0.000	0	01:25	0.31	0.00	0.04
C7	CONDUIT	0.845	0	01:28	3.37	1.38	0.67
C7-S	CHANNEL	0.000	0	01:26	0.46	0.00	0.03
C8	CONDUIT	0.816	0	01:28	3.24	0.62	0.62
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.09
C9	CONDUIT	0.884	0	01:29	2.60	0.71	0.84
C9-S	CHANNEL	0.010	0	01:27	1.46	0.00	0.10
C53_2	DUMMY	0.073	0	01:55			
C60_4	DUMMY	0.148	0	02:01			
CB_43A-IC	DUMMY	0.050	0	01:24			
CB100-IC	DUMMY	0.050	0	01:23			
CB16-IC	DUMMY	0.050	0	01:23			
CB19-IC	DUMMY	0.047	0	01:25			
CB4-IC	DUMMY	0.026	0	01:25			
CBMH101-IC	DUMMY	0.019	0	01:25			
CBMH30-IC	DUMMY	0.047	0	01:25			
CBMH31-IC	DUMMY	0.044	0	01:25			
DCB_40A-IC	DUMMY	0.047	0	01:31			
DCB_42A-IC	DUMMY	0.088	0	01:25			
DCB66-IC	DUMMY	0.038	0	01:25			
J17-IC	DUMMY	0.038	0	01:25			
MH40-IC	DUMMY	0.046	0	01:31			
MH42-IC	DUMMY	0.100	0	01:24			
MH43-IC	DUMMY	0.048	0	01:24			
OL1	DUMMY	0.010	0	01:25			
OL2	DUMMY	0.048	0	01:25			
OL3	DUMMY	0.050	0	01:23			
STMH201-IC	DUMMY	0.050	0	01:23			

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.11	0.89	0.00	0.00	0.02	0.00
C10-S	1.00	0.89	0.00	0.00	0.10	0.01	0.00	0.00	0.96	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.82	0.07	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.59	0.00	0.41	0.00	0.00	0.00	0.65	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.02	0.00
C16	1.00	0.94	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00
C17	1.00	0.03	0.44	0.00	0.52	0.00	0.00	0.00	0.96	0.00
C18	1.00	0.00	0.23	0.00	0.77	0.00	0.00	0.00	0.33	0.00
C19	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.00	0.52	0.00	0.48	0.00	0.00	0.00	0.98	0.00
C21	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C22	1.00	0.00	0.01	0.00	0.96	0.00	0.03	0.00	0.00	0.00
C23	1.00	0.00	0.95	0.00	0.05	0.00	0.00	0.00	0.95	0.00
C24	1.00	0.00	0.43	0.00	0.57	0.00	0.00	0.00	0.53	0.00
C25	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C26	1.00	0.00	0.71	0.00	0.29	0.00	0.00	0.00	0.98	0.00
C27	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.01	0.00
C28	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.94	0.00
C28-S	1.00	0.84	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00
C29	1.00	0.01	0.01	0.00	0.94	0.04	0.00	0.00	0.98	0.00
C3	1.00	0.03	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00
C30	1.00	0.00	0.78	0.00	0.22	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.01	0.17	0.00	0.83	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.01	0.00	0.00	0.01	0.02	0.00	0.96	0.00	0.00
C31	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.99	0.00	0.00
C32	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.02	0.00
C32-S	1.00	0.84	0.05	0.00	0.11	0.00	0.00	0.00	0.02	0.00
C33	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.98	0.00	0.00
C34	1.00	0.01	0.00	0.00	0.01	0.01	0.00	0.97	0.01	0.00
C35	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C35-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.01	0.00	0.00	0.01	0.00	0.00	0.98	0.00	0.00
C37	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.86	0.00

C37-S	1.00	0.85	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.35	0.00
C39_2	1.00	0.00	0.00	0.00	0.05	0.00	0.00	0.95	0.00	0.00
C4	1.00	0.01	0.00	0.00	0.03	0.00	0.00	0.96	0.01	0.00
C40	1.00	0.01	0.49	0.00	0.50	0.00	0.00	0.00	0.97	0.00
C41	1.00	0.01	0.47	0.00	0.52	0.00	0.00	0.00	0.97	0.00
C42	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C42_1	1.00	0.01	0.95	0.00	0.05	0.00	0.00	0.00	0.97	0.00
C42_2	1.00	0.01	0.00	0.00	0.04	0.00	0.00	0.95	0.01	0.00
C42_2-S	1.00	0.89	0.05	0.00	0.06	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.98	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.88	0.05	0.00	0.08	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.83	0.00	0.00	0.17	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.01	0.00	0.00	0.05	0.00	0.00	0.95	0.01	0.00
C48	1.00	0.74	0.03	0.00	0.23	0.00	0.00	0.00	0.81	0.00
C49	1.00	0.01	0.00	0.00	0.98	0.01	0.00	0.00	0.02	0.00
C49_1	1.00	0.01	0.13	0.00	0.86	0.00	0.00	0.00	0.80	0.00
C5	1.00	0.01	0.00	0.00	0.50	0.00	0.00	0.50	0.42	0.00
C50	1.00	0.01	0.00	0.00	0.98	0.02	0.00	0.00	0.05	0.00
C50_1	1.00	0.01	0.45	0.00	0.54	0.00	0.00	0.00	0.78	0.00
C50_3	1.00	0.60	0.09	0.00	0.31	0.00	0.00	0.00	0.08	0.00
C50_4	1.00	0.44	0.16	0.00	0.39	0.00	0.00	0.00	0.46	0.00
C50_5	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.73	0.00
C51	1.00	0.01	0.73	0.00	0.26	0.00	0.00	0.00	0.78	0.00
C52	1.00	0.01	0.45	0.00	0.55	0.00	0.00	0.00	0.78	0.00
C53_1	1.00	0.01	0.00	0.00	0.26	0.00	0.00	0.73	0.00	0.00
C54	1.00	0.01	0.05	0.00	0.92	0.03	0.00	0.00	0.17	0.00
C55	1.00	0.01	0.00	0.00	0.98	0.02	0.00	0.00	0.01	0.00
C57	1.00	0.01	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00
C58_1	1.00	0.01	0.10	0.00	0.89	0.00	0.00	0.00	0.85	0.00
C59_1	1.00	0.01	0.50	0.00	0.49	0.00	0.00	0.00	0.90	0.00
C59_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.88	0.00
C6	1.00	0.00	0.00	0.00	0.91	0.00	0.00	0.09	0.16	0.00
C60	1.00	0.69	0.10	0.00	0.21	0.00	0.00	0.00	0.84	0.00
C60_2	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.01	0.00	0.00	0.99	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.01	0.87	0.00	0.12	0.00	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.08	0.00
C7-S	1.00	0.01	0.02	0.00	0.96	0.02	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.02	0.00	0.98	0.01	0.00
C8-S	1.00	0.85	0.05	0.00	0.10	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.01	0.00	0.00	0.99	0.01	0.00
C9-S	1.00	0.85	0.00	0.00	0.13	0.02	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	4.02	4.02	4.27	0.01	0.01
C10	0.26	0.26	0.32	0.16	0.16
C11	0.32	0.32	0.49	0.01	0.01
C12	0.83	0.83	1.15	0.01	0.01
C13	0.39	0.39	0.39	0.61	0.37
C14	0.30	0.30	0.30	0.34	0.29
C15	0.30	0.30	0.36	0.36	0.30
C16	0.01	0.01	46.62	0.01	0.01
C17	0.38	0.38	0.41	0.01	0.01
C18	0.41	0.41	0.44	0.01	0.01
C19	0.16	0.16	0.17	0.01	0.01
C2	0.53	0.82	0.53	0.82	0.53
C20	0.11	0.11	0.61	0.01	0.01
C23	0.01	0.01	0.08	0.01	0.01
C24	0.01	0.01	0.08	0.01	0.01
C25	0.01	0.25	0.01	0.45	0.01
C26	0.01	0.01	0.63	0.01	0.01
C27	0.01	0.01	0.01	0.01	0.01
C28	0.31	0.31	0.35	0.15	0.15
C29	0.01	0.01	0.72	0.01	0.01
C30	0.01	0.01	0.63	0.01	0.01
C30_1	0.26	0.26	0.27	0.01	0.01
C30_2	0.27	0.27	0.28	0.01	0.01
C31	0.25	0.25	0.25	0.01	0.01
C32	0.28	0.28	0.33	0.07	0.07
C33	0.26	0.26	0.31	0.01	0.04
C34	0.27	0.27	0.31	0.01	0.01
C35	0.32	0.32	0.34	0.29	0.28
C36	0.26	0.26	0.29	0.01	0.01
C37	0.35	0.35	0.41	0.34	0.34
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.28	0.01	0.01
C39_2	0.28	0.28	0.33	0.07	0.08
C42	0.01	0.13	0.01	0.18	0.01

C43	0.01	0.01	0.01	0.01	0.01
C48	1.22	1.22	2.98	0.01	0.01
C49	2.33	2.33	3.48	0.01	0.01
C49_1	1.45	1.45	2.33	0.01	0.01
C5	0.01	0.01	0.01	0.06	0.01
C50	2.27	2.27	4.56	0.01	0.01
C50_5	2.16	2.16	2.47	0.01	0.01
C51	2.98	2.98	4.36	0.01	0.01
C52	2.47	2.47	2.77	0.01	0.01
C53_1	2.77	2.77	3.11	0.01	0.01
C55	0.78	1.05	0.84	0.86	0.51
C58_1	0.94	0.94	2.27	0.01	0.01
C59_2	1.54	1.54	2.29	0.01	0.01
C6	0.01	0.01	0.01	0.13	0.01
C60_2	0.01	0.92	0.01	1.43	0.01
C60_3	2.29	2.29	2.33	0.01	0.04
C7	0.01	0.01	0.01	0.23	0.01
C9	0.01	0.01	0.19	0.01	0.01

Analysis begun on: Thu Dec 12 11:19:22 2019
Analysis ended on: Thu Dec 12 11:19:38 2019
Total elapsed time: 00:00:16

Post Development - Chicago 100 Year Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
----------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
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Name                        Area     Width    %Imperv    %Slope Rain Gage            Outlet
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A100	2.11	98.17	37.00	1.7000	Chicago_4h_100yr	DICB101
A101	1.08	64.95	14.00	2.7500	Chicago_4h_100yr	MH106
A102	0.31	37.80	38.00	1.0000	Chicago_4h_100yr	MH43-S
A103	0.08	17.07	15.00	1.8000	Chicago_4h_100yr	DICB6
A104_2	0.29	28.60	48.00	0.1600	Chicago_4h_100yr	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Chicago_4h_100yr	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Chicago_4h_100yr	MH42-S
A105	0.07	43.35	14.00	4.3000	Chicago_4h_100yr	DICB7
A106	0.31	22.76	60.00	0.2500	Chicago_4h_100yr	MH40-S
A107	0.02	10.71	100.00	2.0000	Chicago_4h_100yr	MH106-S
A108	0.01	9.20	0.00	1.0000	Chicago_4h_100yr	DICB4
A109	0.12	14.59	79.00	0.5500	Chicago_4h_100yr	J17-S
A110	0.09	13.90	100.00	1.6000	Chicago_4h_100yr	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Chicago_4h_100yr	MH103
A112_1	0.79	75.86	18.00	3.4600	Chicago_4h_100yr	CB102
A112_3	0.16	15.14	18.00	3.4600	Chicago_4h_100yr	CB101
A113	0.01	10.18	0.00	1.0000	Chicago_4h_100yr	DICB99
A114	0.04	11.67	100.00	1.7000	Chicago_4h_100yr	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Chicago_4h_100yr	DICB100
A116	0.38	21.55	66.00	1.3400	Chicago_4h_100yr	STMH201-S
A117	0.26	23.33	29.00	1.3000	Chicago_4h_100yr	CB32
A118	0.12	15.31	65.00	1.3500	Chicago_4h_100yr	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Chicago_4h_100yr	CB19-S
A120	0.41	35.24	71.00	0.3200	Chicago_4h_100yr	CB16-S
A121	1.03	120.19	25.00	0.3000	Chicago_4h_100yr	J13
A3	0.81	81.34	8.00	2.0000	Chicago_4h_100yr	S10
S1	0.09	14.47	22.00	2.0000	Chicago_4h_100yr	CB02
S10	0.18	19.12	40.00	2.0000	Chicago_4h_100yr	DCB06
S11	0.06	7.51	67.00	2.0000	Chicago_4h_100yr	DCBMH08
S12	0.11	10.54	59.00	2.0000	Chicago_4h_100yr	DCB08
S13	0.00	23.00	100.00	2.0000	Chicago_4h_100yr	OF2
S14	0.00	5.00	0.00	2.0000	Chicago_4h_100yr	OF3
S15	0.00	13.50	0.00	2.0000	Chicago_4h_100yr	OF4
S16	0.17	26.77	38.00	2.0000	Chicago_4h_100yr	J7
S17	0.03	11.13	56.00	2.0000	Chicago_4h_100yr	J6
S18	0.07	18.30	43.00	2.0000	Chicago_4h_100yr	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Chicago_4h_100yr	DICB3
S3	0.18	13.04	36.00	2.0000	Chicago_4h_100yr	CB01
S4	0.16	10.71	39.00	2.0000	Chicago_4h_100yr	CBMH04
S5	0.15	15.13	52.00	2.0000	Chicago_4h_100yr	CB04
S6	0.11	12.76	64.00	2.0000	Chicago_4h_100yr	CBMH01
S7	0.07	8.29	60.00	2.0000	Chicago_4h_100yr	DCBMH03
S8	0.02	7.73	75.00	2.0000	Chicago_4h_100yr	J8
S9	0.09	17.25	52.00	2.0000	Chicago_4h_100yr	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

****
Cross Section Summary
****

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

```
            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

```
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	0.784	71.774
Evaporation Loss	0.000	0.000
Infiltration Loss	0.367	33.575
Surface Runoff	0.414	37.951
Final Storage	0.008	0.702
Continuity Error (%)	-0.632	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.414	4.144
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.050	0.504
External Outflow	0.470	4.704
Flooding Loss	0.000	0.005
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.000	0.000
Continuity Error (%)	-1.281	

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Highest Continuity Errors
Node MH40-S (-11.76%)
Node DCB65 (7.38%)
Node DCB66 (7.38%)
Node MH103 (5.14%)
Node MH42-S (-4.32%)
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****
Time-Step Critical Elements
****
Link C13 (44.96%)
Link C34 (31.28%)
Link C60_3 (20.91%)
Link C26 (2.28%)

****
Highest Flow Instability Indexes
****
Link J17-IC (55)
Link DCB66-IC (55)
Link DCB_40A-IC (38)
Link MH40-IC (38)
Link DCB_42A-IC (30)

****
Routing Time Step Summary
****
Minimum Time Step : 0.50 sec
Average Time Step : 2.16 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.35
Percent Not Converging : 2.96

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	71.77	0.00	0.00	36.54	26.04	8.82	34.86	0.74	0.48	0.486
A101	71.77	0.00	0.00	49.08	9.79	12.86	22.65	0.25	0.12	0.316
A102	71.77	0.00	0.00	32.53	26.66	12.31	38.97	0.12	0.08	0.543
A103	71.77	0.00	0.00	42.90	10.49	18.89	29.38	0.02	0.01	0.409
A104_2	71.77	0.00	0.00	27.40	33.81	10.03	43.85	0.13	0.08	0.611
A104_3	71.77	0.00	0.00	27.40	33.81	10.03	43.85	0.12	0.08	0.611

A104_4	71.77	0.00	0.00	37.33	17.47	34.85	34.85	0.02	0.02	0.486
A105	71.77	0.00	0.00	41.21	9.79	22.88	32.67	0.02	0.03	0.455
A106	71.77	0.00	0.00	22.38	42.25	6.45	48.69	0.15	0.09	0.678
A107	71.77	0.00	0.00	0.00	69.91	0.00	69.91	0.01	0.01	0.974
A108	71.77	0.00	0.00	48.98	0.00	24.38	24.38	0.00	0.00	0.340
A109	71.77	0.00	0.00	10.49	55.65	4.81	60.46	0.07	0.05	0.842
A110	71.77	0.00	0.00	0.00	70.34	0.00	70.34	0.07	0.05	0.980
A111	71.77	0.00	0.00	36.73	21.01	13.90	34.91	0.11	0.07	0.486
A112_1	71.77	0.00	0.00	47.14	12.58	11.95	24.53	0.19	0.10	0.342
A112_3	71.77	0.00	0.00	47.14	12.58	11.95	24.53	0.04	0.02	0.342
A113	71.77	0.00	0.00	48.48	0.00	25.32	25.32	0.00	0.00	0.353
A114	71.77	0.00	0.00	0.00	70.05	0.00	70.05	0.02	0.02	0.976
A115	71.77	0.00	0.00	53.15	0.00	19.10	19.10	0.01	0.01	0.266
A116	71.77	0.00	0.00	17.85	46.50	6.74	53.24	0.20	0.14	0.742
A117	71.77	0.00	0.00	38.10	20.34	13.16	33.50	0.09	0.05	0.467
A118	71.77	0.00	0.00	17.47	45.68	8.04	53.72	0.06	0.05	0.748
A119	71.77	0.00	0.00	28.14	30.81	12.61	43.42	0.05	0.04	0.605
A120	71.77	0.00	0.00	15.39	50.00	5.57	55.57	0.23	0.15	0.774
A121	71.77	0.00	0.00	43.98	17.56	9.99	27.55	0.28	0.17	0.384
A3	71.77	0.00	0.00	32.36	5.59	39.70	39.70	0.32	0.14	0.553
S1	71.77	0.00	0.00	27.28	15.38	44.72	44.72	0.04	0.02	0.623
S10	71.77	177.83	0.00	34.85	94.59	171.56	215.01	0.39	0.15	0.861
S11	71.77	0.00	0.00	10.65	47.06	13.40	60.46	0.04	0.03	0.842
S12	71.77	0.00	0.00	15.02	41.47	35.58	56.31	0.06	0.04	0.785
S13	71.77	0.00	0.00	0.00	69.96	0.00	69.96	0.00	0.00	0.975
S14	71.77	0.00	0.00	31.15	0.00	41.28	41.28	0.00	0.00	0.575
S15	71.77	0.00	0.00	31.15	0.00	41.28	41.28	0.00	0.00	0.575
S16	71.77	0.00	0.00	22.33	26.59	49.43	49.43	0.08	0.06	0.689
S17	71.77	0.00	0.00	15.43	39.14	36.35	55.92	0.01	0.01	0.779
S18	71.77	0.00	0.00	19.22	30.06	31.41	52.45	0.04	0.03	0.731
S2	71.77	0.00	0.00	20.52	25.88	25.29	51.17	0.03	0.02	0.713
S3	71.77	0.00	0.00	23.20	25.27	35.73	48.36	0.09	0.04	0.674
S4	71.77	0.00	0.00	21.75	27.40	29.18	49.74	0.08	0.04	0.693
S5	71.77	0.00	0.00	17.35	36.52	35.81	54.07	0.08	0.05	0.753
S6	71.77	0.00	0.00	11.69	44.97	14.50	59.47	0.07	0.05	0.829
S7	71.77	0.00	0.00	12.99	42.12	16.12	58.24	0.04	0.03	0.811
S8	71.77	0.00	0.00	8.82	52.47	22.57	61.92	0.01	0.01	0.863
S9	71.77	0.00	0.00	17.13	36.40	39.79	54.35	0.05	0.03	0.757

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LID Performance Summary
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	Total	Evap	Infil	Surface	Drain	Initial	Final	Continuity

Subcatchment	LID Control	Inflow mm	Loss mm	Loss mm	Outflow mm	Outflow mm	Storage mm	Storage mm	Error %
S10	Perm_Pav	118.36	0.00	95.49	22.87	0.00	0.00	0.00	-0.00

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Node Depth Summary
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Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.03	1.32	194.85	0 01:24	0.99
CB_43B	JUNCTION	0.02	1.10	194.95	0 01:24	0.66
CB01	JUNCTION	0.03	0.29	189.98	0 01:51	0.28
CB02	JUNCTION	0.18	0.85	189.98	0 01:53	0.84
CB04	JUNCTION	0.01	0.17	190.64	0 01:30	0.17
CB100	JUNCTION	0.01	0.11	189.68	0 01:28	0.11
CB101	JUNCTION	0.01	0.09	191.32	0 01:27	0.09
CB102	JUNCTION	0.01	0.16	191.39	0 01:27	0.15
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.03	0.53	187.81	0 01:30	0.53
CB16	JUNCTION	0.12	1.21	188.57	0 01:25	1.05
CB16-S	JUNCTION	0.00	0.11	188.79	0 01:30	0.11
CB19	JUNCTION	0.07	1.60	189.35	0 01:24	1.01
CB19-S	JUNCTION	0.00	0.01	189.10	0 01:25	0.00
CB32	JUNCTION	0.14	1.40	189.81	0 01:25	0.81
CB4	JUNCTION	0.03	1.48	189.35	0 01:24	0.88
CBMH01	JUNCTION	0.19	0.87	189.98	0 01:53	0.86
CBMH04	JUNCTION	0.12	0.66	189.98	0 01:50	0.66
CBMH100	JUNCTION	0.07	0.53	189.56	0 01:28	0.52
CBMH101	JUNCTION	0.04	0.33	190.82	0 01:27	0.32
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 01:25	0.00
CBMH103	JUNCTION	0.06	0.60	191.33	0 01:27	0.58
CBMH103-S	JUNCTION	0.00	0.02	193.37	0 01:25	0.02
CBMH105	JUNCTION	0.01	0.27	191.66	0 01:27	0.27
CBMH30	JUNCTION	0.08	2.10	190.06	0 01:25	1.16
CBMH30-S	JUNCTION	0.00	0.01	189.82	0 01:25	0.01
CBMH31	JUNCTION	0.17	1.68	190.06	0 01:25	0.81
DCB_40A	JUNCTION	0.01	0.08	193.38	0 01:25	0.08
DCB_40B	JUNCTION	0.01	0.06	193.32	0 01:25	0.06
DCB_42A	JUNCTION	0.03	1.53	194.91	0 01:23	1.50
DCB_42B	JUNCTION	0.03	1.30	194.64	0 01:23	1.03
DCB06	JUNCTION	0.06	0.71	189.62	0 01:45	0.71

DCB08	JUNCTION	0.19	0.92	189.34	0	02:01	0.92
DCB65	JUNCTION	0.02	0.42	191.65	0	01:27	0.42
DCB66	JUNCTION	0.02	0.42	191.65	0	01:27	0.42
DCBMH03	JUNCTION	0.31	1.16	189.99	0	01:52	1.14
DCBMH06	JUNCTION	0.05	0.49	189.37	0	01:59	0.49
DCBMH08	JUNCTION	0.23	0.96	189.34	0	02:00	0.96
DCBMH3-1	JUNCTION	0.30	1.12	189.98	0	01:53	1.11
DICB100	JUNCTION	0.01	0.19	190.82	0	01:27	0.19
DICB101	JUNCTION	0.08	0.78	193.54	0	01:43	0.78
DICB3	JUNCTION	0.22	0.93	189.97	0	01:52	0.93
DICB4	JUNCTION	0.00	0.02	192.26	0	01:30	0.02
DICB6	JUNCTION	0.02	0.84	194.52	0	01:35	0.84
DICB7	JUNCTION	0.02	1.24	194.43	0	01:23	0.79
DICB99	JUNCTION	0.02	0.27	190.83	0	01:27	0.25
J1	JUNCTION	0.17	0.90	189.37	0	02:00	0.90
J10	JUNCTION	0.28	1.08	189.97	0	01:52	1.08
J12	JUNCTION	0.12	1.17	188.52	0	01:24	1.04
J13	JUNCTION	0.11	0.97	188.26	0	01:24	0.92
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.03	0.45	191.65	0	01:27	0.45
J17-S	JUNCTION	0.00	0.00	194.63	0	01:25	0.00
J2	JUNCTION	0.07	0.62	191.34	0	01:27	0.60
J3	JUNCTION	0.13	0.71	189.98	0	01:52	0.70
J5	JUNCTION	0.27	1.06	189.97	0	01:52	1.06
J6	JUNCTION	0.23	0.96	189.98	0	01:53	0.94
J7	JUNCTION	0.25	1.01	189.97	0	01:52	1.00
J8	JUNCTION	0.17	0.81	189.99	0	01:52	0.80
J9	JUNCTION	0.37	1.29	189.99	0	01:53	1.27
MH02	JUNCTION	0.25	1.02	189.98	0	01:52	1.01
MH07	JUNCTION	0.09	0.67	189.37	0	01:59	0.67
MH102	JUNCTION	0.08	0.62	191.27	0	01:27	0.59
MH102-S	JUNCTION	0.00	0.02	193.29	0	01:26	0.02
MH103	JUNCTION	0.05	0.52	191.57	0	00:00	0.35
MH106	JUNCTION	0.06	0.66	193.06	0	01:24	0.64
MH106-S	JUNCTION	0.00	0.00	194.47	0	01:25	0.00
MH15	JUNCTION	0.06	0.90	188.43	0	01:24	0.78
MH18	JUNCTION	0.05	1.53	189.33	0	01:25	0.95
MH40	JUNCTION	0.05	0.69	193.13	0	01:24	0.66
MH40-S	JUNCTION	0.00	0.00	194.57	0	01:25	0.00
MH41	JUNCTION	0.05	2.02	194.79	0	01:23	1.20
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.05	1.53	194.55	0	01:24	1.32
MH42-S	JUNCTION	0.00	0.07	194.72	0	01:29	0.07
MH43	JUNCTION	0.04	1.72	195.16	0	01:24	1.07
MH43-S	JUNCTION	0.00	0.02	194.96	0	01:24	0.01

MH54	JUNCTION	0.04	0.19	191.54	0	03:34	0.19
MH61	JUNCTION	0.00	0.16	191.65	0	01:26	0.16
MH62	JUNCTION	0.06	0.60	191.65	0	01:28	0.59
OGS	JUNCTION	0.12	0.78	189.13	0	01:55	0.76
OS2	JUNCTION	0.24	0.96	189.33	0	02:00	0.96
STMH201	JUNCTION	0.05	0.53	189.56	0	01:28	0.52
STMH201-S	JUNCTION	0.00	0.05	190.90	0	01:27	0.05
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.11	0.90	188.18	0	01:23	0.90
J4	OUTFALL	0.07	0.30	188.64	0	01:51	0.30
OF1	OUTFALL	0.00	0.11	188.71	0	01:30	0.11
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min		Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.082	0	01:24	0	0.0998	0.238	
CB_43B	JUNCTION	0.000	0.050	0	01:24	0	0.0617	0.504	
CB01	JUNCTION	0.040	0.040	0	01:30	0.0871	0.0871	0.079	
CB02	JUNCTION	0.025	0.035	0	01:32	0.0414	0.0417	-0.279	
CB04	JUNCTION	0.046	0.046	0	01:30	0.0818	0.0818	-0.001	
CB100	JUNCTION	0.000	0.050	0	01:23	0	0.098	0.279	
CB101	JUNCTION	0.021	0.021	0	01:25	0.0386	0.0386	0.000	
CB102	JUNCTION	0.103	0.103	0	01:25	0.194	0.194	-0.001	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.206	0	01:25	0	0.306	0.177	
CB16	JUNCTION	0.000	1.129	0	01:28	0	3.18	0.009	
CB16-S	JUNCTION	0.145	0.145	0	01:25	0.227	0.227	-1.339	
CB19	JUNCTION	0.000	1.079	0	01:28	0	3.07	-0.007	
CB19-S	JUNCTION	0.038	0.064	0	01:25	0.0495	0.0495	-0.430	
CB32	JUNCTION	0.054	0.054	0	01:25	0.086	0.0872	0.157	
CB4	JUNCTION	0.000	0.027	0	01:25	0	0.025	0.272	
CBMH01	JUNCTION	0.054	0.089	0	01:25	0.0683	0.155	-0.100	
CBMH04	JUNCTION	0.040	0.082	0	01:25	0.0799	0.162	-0.062	
CBMH100	JUNCTION	0.000	0.050	0	01:23	0	0.0981	0.032	
CBMH101	JUNCTION	0.000	0.929	0	01:27	0	2.67	-0.035	

CBMH101-S	JUNCTION	0.021	0.022	0	01:25	0.0245	0.0247	-0.233
CBMH103	JUNCTION	0.000	0.622	0	01:27	0	1.77	0.020
CBMH103-S	JUNCTION	0.054	0.054	0	01:25	0.0655	0.0655	-0.332
CBMH105	JUNCTION	0.000	0.018	0	01:24	0	0.0162	-0.150
CBMH30	JUNCTION	0.000	1.048	0	01:28	0	3.02	-0.039
CBMH30-S	JUNCTION	0.051	0.112	0	01:25	0.0633	0.0711	-0.504
CBMH31	JUNCTION	0.000	0.121	0	01:25	0	0.123	0.195
DCB_40A	JUNCTION	0.000	0.045	0	01:25	0	0.0855	3.377
DCB_40B	JUNCTION	0.000	0.045	0	01:25	0	0.0854	3.398
DCB_42A	JUNCTION	0.000	0.075	0	01:33	0	0.119	4.162
DCB_42B	JUNCTION	0.000	0.100	0	01:23	0	0.161	-1.190
DCB06	JUNCTION	0.152	0.152	0	01:40	0.39	0.39	-0.002
DCB08	JUNCTION	0.036	0.036	0	01:30	0.0617	0.0617	-0.034
DCB65	JUNCTION	0.000	0.039	0	01:25	0	0.0505	7.970
DCB66	JUNCTION	0.000	0.039	0	01:25	0	0.0505	7.963
DCBMH03	JUNCTION	0.030	0.114	0	01:26	0.0386	0.606	-0.026
DCBMH06	JUNCTION	0.033	0.167	0	01:40	0.0488	0.439	-0.045
DCBMH08	JUNCTION	0.030	0.184	0	02:00	0.0372	1.14	0.007
DCBMH3-1	JUNCTION	0.028	0.091	0	01:29	0.0384	0.536	-0.006
DICB100	JUNCTION	0.009	0.009	0	01:35	0.0149	0.0149	0.000
DICB101	JUNCTION	0.477	0.477	0	01:25	0.736	0.736	-0.005
DICB3	JUNCTION	0.021	0.223	0	01:27	0.0285	0.283	0.002
DICB4	JUNCTION	0.003	0.003	0	01:30	0.00336	0.00336	0.011
DICB6	JUNCTION	0.015	0.096	0	01:24	0.0226	0.0371	-0.100
DICB7	JUNCTION	0.026	0.056	0	01:23	0.0241	0.0243	0.372
DICB99	JUNCTION	0.003	0.010	0	01:31	0.00284	0.00424	0.025
J1	JUNCTION	0.000	0.314	0	01:47	0	1.04	0.006
J10	JUNCTION	0.000	0.083	0	01:31	0	0.512	0.003
J12	JUNCTION	0.000	0.992	0	01:28	0	2.99	-0.009
J13	JUNCTION	0.169	1.127	0	01:27	0.285	3.27	0.012
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000
J17	JUNCTION	0.000	0.067	0	01:24	0	0.099	-0.089
J17-S	JUNCTION	0.055	0.055	0	01:25	0.0732	0.0732	-27.546
J2	JUNCTION	0.000	0.208	0	01:27	0	0.862	0.053
J3	JUNCTION	0.000	0.155	0	01:34	0	0.0915	0.008
J5	JUNCTION	0.000	0.195	0	01:27	0	0.552	0.015
J6	JUNCTION	0.011	0.100	0	01:25	0.0149	0.17	-0.062
J7	JUNCTION	0.055	0.253	0	01:27	0.0821	0.517	0.047
J8	JUNCTION	0.012	0.094	0	01:25	0.0144	0.176	-0.186
J9	JUNCTION	0.000	0.091	0	01:47	0	0.588	-0.026
MH02	JUNCTION	0.000	0.041	0	01:33	0	0.047	-0.182
MH07	JUNCTION	0.000	0.255	0	01:40	0	1.02	0.022
MH102	JUNCTION	0.000	0.893	0	01:27	0	2.63	0.007
MH102-S	JUNCTION	0.000	0.002	0	01:25	0	0.000219	3.271
MH103	JUNCTION	0.074	0.101	0	01:25	0.112	0.666	5.415

MH106	JUNCTION	0.118	0.522	0	01:25	0.246	1.59	-0.001	
MH106-S	JUNCTION	0.011	0.011	0	01:25	0.0127	0.0127	-0.197	
MH15	JUNCTION	0.000	0.156	0	01:25	0	0.195	0.002	
MH18	JUNCTION	0.000	0.044	0	01:23	0	0.0253	-0.818	
MH40	JUNCTION	0.000	0.281	0	01:25	0	0.607	-0.005	
MH40-S	JUNCTION	0.090	0.090	0	01:25	0.153	0.153	-10.520	
MH41	JUNCTION	0.000	0.194	0	01:32	0	0.441	-0.259	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.204	0	01:35	0	0.419	0.660	
MH42-S	JUNCTION	0.166	0.166	0	01:25	0.268	0.269	-4.138	
MH43	JUNCTION	0.000	0.103	0	01:24	0	0.146	-0.056	
MH43-S	JUNCTION	0.085	0.085	0	01:25	0.122	0.122	-0.956	
MH54	JUNCTION	0.070	0.080	0	00:00	0.504	0.506	-0.000	
MH61	JUNCTION	0.000	0.031	0	01:25	0	0.00397	1.203	
MH62	JUNCTION	0.000	0.599	0	01:28	0	1.7	-0.063	
OGS	JUNCTION	0.000	0.184	0	02:00	0	1.11	0.001	
OS2	JUNCTION	0.000	0.184	0	02:00	0	1.11	0.011	
STMH201	JUNCTION	0.000	0.991	0	01:27	0	2.87	0.044	
STMH201-S	JUNCTION	0.140	0.140	0	01:25	0.202	0.202	-0.899	
CB7	OUTFALL	0.000	0.186	0	01:30	0	0.306	0.000	
J14	OUTFALL	0.000	1.127	0	01:27	0	3.27	0.000	
J4	OUTFALL	0.000	0.184	0	02:00	0	1.11	0.000	
OF1	OUTFALL	0.000	0.013	0	01:30	0	0.00716	0.000	
OF2	OUTFALL	0.003	0.003	0	01:25	0.00322	0.00322	0.000	
OF3	OUTFALL	0.001	0.001	0	01:25	0.000413	0.000413	0.000	
OF4	OUTFALL	0.002	0.002	0	01:25	0.00111	0.00111	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB_43A	JUNCTION	0.37	1.016	0.094
CB_43B	JUNCTION	0.35	0.796	0.000
CB02	JUNCTION	1.34	0.253	0.547
CB16	JUNCTION	0.47	0.459	0.111
CB19	JUNCTION	0.39	0.995	0.000
CB32	JUNCTION	0.23	1.105	0.000
CB4	JUNCTION	0.46	1.180	0.000
CBMH01	JUNCTION	0.16	0.015	1.485

CBMH30	JUNCTION	0.25	1.402	0.000
CBMH31	JUNCTION	0.18	1.225	0.000
DCB_42A	JUNCTION	0.37	1.235	0.000
DCB_42B	JUNCTION	0.37	1.000	0.010
DCB06	JUNCTION	1.18	0.459	0.721
DCB08	JUNCTION	4.13	0.671	0.049
DCBMH03	JUNCTION	2.89	0.408	0.362
DCBMH08	JUNCTION	2.40	0.434	0.051
DCBMH3-1	JUNCTION	2.60	0.374	0.376
DICB101	JUNCTION	0.98	0.410	0.000
DICB6	JUNCTION	0.36	0.538	0.000
DICB7	JUNCTION	0.34	0.935	0.000
J12	JUNCTION	0.37	0.265	0.000
J13	JUNCTION	0.38	0.066	0.584
J2	JUNCTION	0.37	0.166	0.000
J6	JUNCTION	2.46	0.358	0.988
J8	JUNCTION	2.40	0.358	1.481
J9	JUNCTION	3.22	0.443	0.445
MH02	JUNCTION	3.08	0.424	0.596
MH103	JUNCTION	0.01	0.000	1.410
MH106	JUNCTION	0.33	0.131	0.944
MH15	JUNCTION	0.71	0.534	0.286
MH18	JUNCTION	0.49	1.225	0.000
MH40	JUNCTION	0.15	0.065	1.525
MH41	JUNCTION	0.38	1.441	0.039
MH42	JUNCTION	0.40	1.137	0.132
MH43	JUNCTION	0.35	1.031	0.000
OGS	JUNCTION	1.07	0.458	0.273
OS2	JUNCTION	2.44	0.434	0.080

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
CB19	0.01	0.133	0 01:24	0.000	0.255
CB32	0.01	0.023	0 01:25	0.000	0.255
CB4	0.01	0.008	0 01:24	0.000	0.255
CBMH30	0.01	0.208	0 01:25	0.000	0.255

CBMH31	0.01	0.077	0	01:25	0.000	0.255
DCB_42A	0.09	0.043	0	01:24	0.004	0.255
DICB101	0.98	0.354	0	01:25	0.196	0.195
DICB6	0.36	0.095	0	01:24	0.023	0.228
DICB7	0.01	0.045	0	01:23	0.000	0.255
J12	0.01	0.113	0	01:24	0.001	0.255

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	42.79	0.014	0.186	0.306
J14	66.91	0.106	1.127	3.273
J4	58.14	0.037	0.184	1.114
OF1	1.84	0.008	0.013	0.007
OF2	27.61	0.000	0.003	0.003
OF3	4.54	0.000	0.001	0.000
OF4	6.94	0.000	0.002	0.001
System	29.82	0.166	0.002	4.704

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.036	0 01:30	0.73	0.82	1.00
C10	CONDUIT	1.048	0 01:28	2.22	1.32	1.00
C10-S	CHANNEL	0.000	0 01:25	0.44	0.00	0.03
C11	CONDUIT	1.079	0 01:28	2.28	0.94	1.00
C11-S	CHANNEL	0.000	0 01:25	0.02	0.00	0.23
C12	CONDUIT	0.156	0 01:25	2.21	0.84	1.00
C13	CONDUIT	0.992	0 01:28	2.24	2.45	1.00
C14	CONDUIT	0.989	0 01:28	1.56	1.67	1.00
C15	CONDUIT	1.127	0 01:27	1.77	1.73	1.00

C16	CONDUIT	0.156	0	01:25	2.45	0.82	0.85
C17	CONDUIT	0.039	0	01:23	0.69	0.41	1.00
C18	CONDUIT	0.036	0	01:23	0.53	0.37	1.00
C19	CONDUIT	0.063	0	01:25	0.89	0.94	1.00
C2	CONDUIT	0.182	0	02:04	1.65	1.47	1.00
C20	CONDUIT	0.099	0	01:25	1.40	0.46	1.00
C21	CONDUIT	0.050	0	01:23	2.15	0.28	0.57
C22	CONDUIT	0.057	0	01:27	0.54	0.03	0.51
C23	CONDUIT	0.013	0	01:32	0.22	0.15	0.82
C24	CONDUIT	0.014	0	01:31	0.20	0.08	0.96
C25	CONDUIT	0.522	0	01:25	2.46	1.69	0.95
C26	CONDUIT	0.105	0	01:25	1.89	0.25	0.77
C27	CONDUIT	0.045	0	01:25	2.28	0.17	0.64
C28	CONDUIT	0.282	0	01:25	1.77	1.21	1.00
C28-S	CHANNEL	0.000	0	01:25	0.00	0.00	0.02
C29	CONDUIT	0.045	0	01:25	1.03	0.08	0.59
C3	CONDUIT	0.003	0	01:30	1.47	0.00	0.04
C30	CONDUIT	0.025	0	01:30	0.56	0.10	0.65
C30_1	CONDUIT	0.084	0	01:24	1.18	0.64	1.00
C30_2	CONDUIT	0.075	0	01:45	1.06	0.77	1.00
C31	CONDUIT	0.054	0	01:24	1.19	0.60	1.00
C32	CONDUIT	0.088	0	01:45	1.24	1.18	1.00
C32-S	CHANNEL	0.000	0	01:24	0.27	0.00	0.24
C33	CONDUIT	0.074	0	01:35	1.73	0.42	1.00
C34	CONDUIT	0.116	0	01:34	2.29	0.34	1.00
C35	CONDUIT	0.181	0	01:35	1.64	1.37	1.00
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.22
C36	CONDUIT	0.036	0	01:23	0.94	0.39	1.00
C37	CONDUIT	0.194	0	01:32	1.76	1.64	1.00
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.02
C38	CONDUIT	0.080	0	00:00	1.11	0.44	0.51
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.89
C39_2	CONDUIT	0.208	0	01:28	1.31	1.22	1.00
C4	CONDUIT	0.023	0	01:24	0.42	0.08	0.79
C40	CONDUIT	0.031	0	01:25	0.32	0.02	0.44
C41	CONDUIT	0.030	0	01:25	0.31	0.02	0.44
C42	CONDUIT	0.186	0	01:30	1.58	1.23	0.89
C42_1	CONDUIT	0.031	0	01:25	0.26	0.06	0.44
C42_2	CONDUIT	0.067	0	01:30	0.58	0.12	0.70
C42_2-S	CHANNEL	0.000	0	01:25	0.04	0.00	0.02
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C45	CHANNEL	0.000	0	01:25	0.00	0.00	0.04
C46	CONDUIT	0.013	0	01:30	0.16	0.07	0.37
C47	CONDUIT	0.040	0	01:30	1.06	0.61	0.98

C48	CONDUIT	0.041	0	01:33	0.26	0.09	1.00
C49	CONDUIT	0.095	0	01:25	0.87	0.23	1.00
C49_1	CONDUIT	0.089	0	01:25	1.08	0.20	1.00
C5	CONDUIT	0.582	0	01:28	1.85	1.10	0.86
C50	CONDUIT	0.093	0	01:26	0.98	0.56	1.00
C50_1	CONDUIT	0.108	0	01:27	0.14	0.01	0.89
C50_3	CONDUIT	0.207	0	01:33	0.18	0.01	0.81
C50_4	CONDUIT	0.117	0	01:31	0.08	0.01	0.86
C50_5	CONDUIT	0.083	0	01:31	0.46	0.11	1.00
C51	CONDUIT	0.047	0	01:29	0.17	0.11	1.00
C52	CONDUIT	0.082	0	01:58	0.43	0.11	1.00
C53_1	CONDUIT	0.091	0	01:47	0.49	0.11	1.00
C54	CONDUIT	0.170	0	01:42	3.17	0.28	0.91
C55	CONDUIT	0.152	0	01:40	3.18	3.89	1.00
C57	CONDUIT	0.046	0	01:30	1.13	0.65	0.56
C58_1	CONDUIT	0.083	0	01:25	1.08	0.41	1.00
C59_1	CONDUIT	0.314	0	01:47	0.14	0.02	0.86
C59_2	CONDUIT	0.175	0	02:01	0.81	0.58	1.00
C6	CONDUIT	0.686	0	01:27	2.14	1.30	0.85
C60	CONDUIT	0.155	0	01:34	0.19	0.01	0.68
C60_2	CONDUIT	0.184	0	02:00	2.61	4.05	1.00
C60_3	CONDUIT	0.184	0	02:00	0.85	0.95	1.00
C6-S	CHANNEL	0.002	0	01:25	0.48	0.00	0.07
C7	CONDUIT	0.909	0	01:27	3.48	1.48	0.69
C7-S	CHANNEL	0.001	0	01:26	0.78	0.00	0.04
C8	CONDUIT	0.893	0	01:27	3.27	0.68	0.73
C8-S	CHANNEL	0.000	0	01:25	0.05	0.00	0.11
C9	CONDUIT	0.948	0	01:29	2.60	0.76	0.93
C9-S	CHANNEL	0.023	0	01:27	1.86	0.00	0.12
C53_2	DUMMY	0.090	0	01:46			
C60_4	DUMMY	0.184	0	02:00			
CB_43A-IC	DUMMY	0.050	0	01:24			
CB100-IC	DUMMY	0.050	0	01:23			
CB16-IC	DUMMY	0.050	0	01:23			
CB19-IC	DUMMY	0.031	0	01:25			
CB4-IC	DUMMY	0.027	0	01:25			
CBMH101-IC	DUMMY	0.021	0	01:25			
CBMH30-IC	DUMMY	0.050	0	01:25			
CBMH31-IC	DUMMY	0.044	0	01:25			
DCB_40A-IC	DUMMY	0.045	0	01:25			
DCB_42A-IC	DUMMY	0.075	0	01:23			
DCB66-IC	DUMMY	0.039	0	01:25			
J17-IC	DUMMY	0.039	0	01:25			
MH40-IC	DUMMY	0.045	0	01:25			
MH42-IC	DUMMY	0.100	0	01:23			
MH43-IC	DUMMY	0.050	0	01:24			

OL1	DUMMY	0.011	0	01:25
OL2	DUMMY	0.050	0	01:24
OL3	DUMMY	0.050	0	01:23
STMH201-IC	DUMMY	0.050	0	01:23

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Flow Classification Summary
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Conduit	Adjusted /Actual Length	Fraction of Time in Flow Class: Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.74	0.26	0.00	0.00	0.02	0.00
C10-S	1.00	0.68	0.01	0.00	0.28	0.03	0.00	0.00	0.00	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C11-S	1.00	0.59	0.12	0.00	0.29	0.00	0.00	0.00	0.97	0.00
C12	1.00	0.00	0.72	0.00	0.28	0.00	0.00	0.00	0.92	0.00
C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.85	0.00
C16	1.00	0.79	0.17	0.00	0.00	0.00	0.05	0.00	0.00	0.00
C17	1.00	0.00	0.02	0.00	0.97	0.01	0.00	0.00	0.18	0.00
C18	1.00	0.00	0.20	0.00	0.80	0.00	0.00	0.00	0.93	0.00
C19	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.97	0.00
C20	1.00	0.00	0.03	0.00	0.56	0.00	0.00	0.41	0.31	0.00
C21	1.00	0.02	0.00	0.00	0.00	0.01	0.00	0.97	0.00	0.00
C22	1.00	0.00	0.12	0.00	0.32	0.00	0.56	0.00	0.00	0.00
C23	1.00	0.00	0.84	0.00	0.16	0.00	0.00	0.00	0.95	0.00
C24	1.00	0.00	0.70	0.00	0.30	0.00	0.00	0.00	0.93	0.00
C25	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C26	1.00	0.00	0.02	0.00	0.95	0.02	0.00	0.00	0.98	0.00
C27	1.00	0.02	0.00	0.00	0.03	0.01	0.00	0.94	0.01	0.00
C28	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.94	0.00
C28-S	1.00	0.62	0.03	0.00	0.33	0.02	0.00	0.00	0.00	0.00
C29	1.00	0.02	0.08	0.00	0.87	0.03	0.00	0.00	0.99	0.00
C3	1.00	0.08	0.00	0.00	0.00	0.00	0.00	0.92	0.00	0.00
C30	1.00	0.00	0.04	0.00	0.96	0.00	0.00	0.00	0.99	0.00
C30_1	1.00	0.02	0.37	0.00	0.62	0.00	0.00	0.00	0.98	0.00
C30_2	1.00	0.02	0.00	0.00	0.03	0.05	0.00	0.89	0.00	0.00
C31	1.00	0.02	0.00	0.00	0.02	0.00	0.00	0.96	0.00	0.00
C32	1.00	0.02	0.00	0.00	0.13	0.00	0.00	0.85	0.02	0.00

C32-S	1.00	0.62	0.07	0.00	0.31	0.00	0.00	0.00	0.02	0.00
C33	1.00	0.02	0.00	0.00	0.03	0.02	0.00	0.93	0.00	0.00
C34	1.00	0.02	0.00	0.00	0.03	0.03	0.00	0.92	0.01	0.00
C35	1.00	0.02	0.00	0.00	0.03	0.00	0.00	0.95	0.00	0.00
C35-S	1.00	0.63	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.02	0.00	0.00	0.03	0.00	0.00	0.95	0.00	0.00
C37	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.91	0.00
C37-S	1.00	0.65	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.02	0.00	0.00	0.98	0.01	0.00
C39	1.00	0.01	0.99	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.01	0.00	0.99	0.00	0.00	0.00	0.97	0.00
C39_2	1.00	0.00	0.00	0.00	0.25	0.00	0.00	0.75	0.04	0.00
C4	1.00	0.02	0.00	0.00	0.10	0.00	0.00	0.87	0.01	0.00
C40	1.00	0.02	0.27	0.00	0.71	0.00	0.00	0.00	0.96	0.00
C41	1.00	0.02	0.26	0.00	0.72	0.00	0.00	0.00	0.96	0.00
C42	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C42_1	1.00	0.02	0.84	0.00	0.14	0.00	0.00	0.00	0.96	0.00
C42_2	1.00	0.02	0.00	0.00	0.13	0.00	0.00	0.85	0.01	0.00
C42_2-S	1.00	0.70	0.13	0.00	0.17	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.01	0.98	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.93	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C45	1.00	0.67	0.11	0.00	0.22	0.00	0.00	0.00	0.97	0.00
C46	1.00	0.59	0.00	0.00	0.41	0.00	0.00	0.00	0.97	0.00
C47	1.00	0.02	0.00	0.00	0.14	0.00	0.00	0.84	0.01	0.00
C48	1.00	0.56	0.03	0.00	0.41	0.00	0.00	0.00	0.81	0.00
C49	1.00	0.02	0.00	0.00	0.95	0.03	0.00	0.00	0.03	0.00
C49_1	1.00	0.02	0.02	0.00	0.96	0.00	0.00	0.00	0.80	0.00
C5	1.00	0.02	0.00	0.00	0.03	0.00	0.00	0.95	0.00	0.00
C50	1.00	0.02	0.00	0.00	0.93	0.05	0.00	0.00	0.05	0.00
C50_1	1.00	0.02	0.30	0.00	0.68	0.00	0.00	0.00	0.78	0.00
C50_3	1.00	0.44	0.05	0.00	0.51	0.00	0.00	0.00	0.07	0.00
C50_4	1.00	0.32	0.13	0.00	0.55	0.00	0.00	0.00	0.61	0.00
C50_5	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.72	0.00
C51	1.00	0.02	0.54	0.00	0.44	0.00	0.00	0.00	0.78	0.00
C52	1.00	0.02	0.21	0.00	0.77	0.00	0.00	0.00	0.78	0.00
C53_1	1.00	0.02	0.00	0.00	0.46	0.00	0.00	0.52	0.00	0.00
C54	1.00	0.02	0.04	0.00	0.87	0.08	0.00	0.00	0.45	0.00
C55	1.00	0.02	0.00	0.00	0.94	0.04	0.00	0.00	0.01	0.00
C57	1.00	0.02	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
C58_1	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.86	0.00
C59_1	1.00	0.02	0.18	0.00	0.80	0.00	0.00	0.00	0.90	0.00
C59_2	1.00	0.02	0.01	0.00	0.97	0.00	0.00	0.00	0.88	0.00
C6	1.00	0.00	0.00	0.00	0.17	0.00	0.00	0.83	0.01	0.00
C60	1.00	0.49	0.13	0.00	0.38	0.00	0.00	0.00	0.84	0.00
C60_2	1.00	0.03	0.00	0.00	0.97	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.02	0.00	0.00	0.98	0.00	0.00	0.00	0.00	0.00

C6-S	1.00	0.02	0.64	0.00	0.32	0.01	0.00	0.00	0.97	0.00
C7	1.00	0.00	0.00	0.00	0.53	0.47	0.00	0.00	0.05	0.00
C7-S	1.00	0.02	0.05	0.00	0.87	0.06	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.06	0.00	0.94	0.01	0.00
C8-S	1.00	0.62	0.09	0.00	0.29	0.00	0.00	0.00	0.97	0.00
C9	1.00	0.00	0.00	0.00	0.02	0.01	0.00	0.97	0.01	0.00
C9-S	1.00	0.61	0.01	0.00	0.31	0.07	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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Conduit	Hours Full: Both Ends	Hours Full: Upstream	Hours Full: Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C1	4.13	4.13	4.36	0.01	0.01
C10	0.33	0.33	0.39	0.23	0.23
C11	0.39	0.39	0.57	0.01	0.01
C12	0.94	0.94	1.29	0.01	0.01
C13	0.47	0.47	0.47	0.70	0.40
C14	0.37	0.37	0.37	0.40	0.37
C15	0.37	0.37	0.44	0.44	0.37
C16	0.01	0.01	46.63	0.01	0.01
C17	0.46	0.46	0.49	0.01	0.01
C18	0.49	0.49	0.52	0.01	0.01
C19	0.23	0.23	0.24	0.01	0.01
C2	0.62	0.98	0.62	0.98	0.61
C20	0.18	0.18	0.69	0.01	0.01
C23	0.01	0.01	0.18	0.01	0.01
C24	0.01	0.01	0.18	0.01	0.01
C25	0.01	0.33	0.01	0.53	0.01
C26	0.01	0.01	0.74	0.01	0.01
C27	0.01	0.01	0.15	0.01	0.01
C28	0.41	0.41	0.44	0.20	0.20
C29	0.01	0.01	0.82	0.01	0.01
C30	0.01	0.01	0.74	0.01	0.01
C30_1	0.36	0.36	0.37	0.01	0.01
C30_2	0.37	0.37	0.38	0.01	0.01
C31	0.35	0.35	0.35	0.01	0.01
C32	0.38	0.38	0.41	0.15	0.16
C33	0.37	0.37	0.40	0.01	0.09
C34	0.37	0.37	0.40	0.01	0.01
C35	0.40	0.40	0.42	0.39	0.37

C36	0.34	0.34	0.38	0.01	0.01
C37	0.43	0.43	0.49	0.42	0.42
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.37	0.01	0.01
C39_2	0.37	0.37	0.42	0.21	0.21
C4	0.01	0.01	0.01	0.01	0.01
C42	0.01	0.20	0.01	0.24	0.01
C43	0.01	0.01	0.01	0.01	0.01
C47	0.01	0.01	0.16	0.01	0.01
C48	1.34	1.34	3.08	0.01	0.01
C49	2.46	2.46	3.58	0.01	0.01
C49_1	1.58	1.58	2.46	0.01	0.01
C5	0.01	0.01	0.01	0.17	0.01
C50	2.40	2.40	4.65	0.01	0.01
C50_5	2.28	2.28	2.60	0.01	0.01
C51	3.08	3.08	4.46	0.01	0.01
C52	2.60	2.60	2.88	0.01	0.01
C53_1	2.88	2.88	3.22	0.01	0.01
C54	0.01	0.01	0.43	0.01	0.01
C55	0.93	1.18	1.00	0.93	0.62
C58_1	1.09	1.09	2.40	0.01	0.01
C59_2	1.66	1.66	2.40	0.01	0.01
C6	0.01	0.01	0.01	0.20	0.01
C60_2	0.31	1.07	0.31	1.55	0.31
C60_3	2.40	2.40	2.44	0.01	0.12
C7	0.01	0.01	0.01	0.31	0.01
C9	0.01	0.01	0.25	0.01	0.01

Analysis begun on: Wed Dec 11 13:39:25 2019
Analysis ended on: Wed Dec 11 13:39:31 2019
Total elapsed time: 00:00:06

Post Development - Timmins Storm Event

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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.1 (Build 5.1.013)
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Connection to Hurontario Street
Subsurface Storage on Site


*************
Element Count
*************
Number of rain gages ...... 14
Number of subcatchments ... 44
Number of nodes ........... 92
Number of links ........... 105
Number of pollutants ...... 0
Number of land uses ....... 0


****************
Raingage Summary
****************
                                                  Data       Recording
Name                 Data Source                  Type       Interval
----------------------------------------------------------------------
25mm                 25mm                         INTENSITY    5 min.
Chicago_4h_100yr     Chicago_4h_100yr             INTENSITY    5 min.
Chicago_4h_10yr      Chicago_4h_10yr              INTENSITY    5 min.
Chicago_4h_25yr      Chicago_4h_25yr              INTENSITY    5 min.
Chicago_4h_2yr       Chicago_4h_2yr               INTENSITY    5 min.
Chicago_4h_50yr      Chicago_4h_50yr              INTENSITY    5 min.
Chicago_4h_5yr       Chicago_4h_5yr               INTENSITY    5 min.
SCS_Type_II_46.7mm_2Yr SCS_Type_II_46.7mm_2Yr       INTENSITY    6 min.
SCS_Type_II_59.3mm_5yr SCS_Type_II_59.3mm_5yr       INTENSITY    6 min.
SCS_Type_II_67.7mm_10yr SCS_Type_II_67.7mm_10yr      INTENSITY    6 min.
SCS_Type_II_78.3mm_25yr SCS_Type_II_78.3mm_25yr      INTENSITY    6 min.
SCS_Type_II_86.1mm_50yr SCS_Type_II_86.1mm_50yr      INTENSITY    6 min.
SCS_Type_II_93.9mm_100yr SCS_Type_II_93.9mm_100yr     INTENSITY    6 min.
Timmins_Storm_(0-25) Timmins_Storm_(0-25)         INTENSITY   60 min.


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Subcatchment Summary
********************
Name                         Area     Width    %Imperv    %Slope Rain Gage            Outlet
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A100	2.11	98.17	37.00	1.7000	Timmins_Storm_(0-25)	DICB101
A101	1.08	64.95	14.00	2.7500	Timmins_Storm_(0-25)	MH106
A102	0.31	37.80	38.00	1.0000	Timmins_Storm_(0-25)	MH43-S
A103	0.08	17.07	15.00	1.8000	Timmins_Storm_(0-25)	DICB6
A104_2	0.29	28.60	48.00	0.1600	Timmins_Storm_(0-25)	MH42-S
A104_3	0.28	28.49	48.00	0.1600	Timmins_Storm_(0-25)	MH42-S
A104_4	0.05	18.54	25.00	2.0000	Timmins_Storm_(0-25)	MH42-S
A105	0.07	43.35	14.00	4.3000	Timmins_Storm_(0-25)	DICB7
A106	0.31	22.76	60.00	0.2500	Timmins_Storm_(0-25)	MH40-S
A107	0.02	10.71	100.00	2.0000	Timmins_Storm_(0-25)	MH106-S
A108	0.01	9.20	0.00	1.0000	Timmins_Storm_(0-25)	DICB4
A109	0.12	14.59	79.00	0.5500	Timmins_Storm_(0-25)	J17-S
A110	0.09	13.90	100.00	1.6000	Timmins_Storm_(0-25)	CBMH103-S
A111	0.32	56.39	30.00	0.6000	Timmins_Storm_(0-25)	MH103
A112_1	0.79	75.86	18.00	3.4600	Timmins_Storm_(0-25)	CB102
A112_3	0.16	15.14	18.00	3.4600	Timmins_Storm_(0-25)	CB101
A113	0.01	10.18	0.00	1.0000	Timmins_Storm_(0-25)	DICB99
A114	0.04	11.67	100.00	1.7000	Timmins_Storm_(0-25)	CBMH101-S
A115	0.08	20.47	0.00	0.3900	Timmins_Storm_(0-25)	DICB100
A116	0.38	21.55	66.00	1.3400	Timmins_Storm_(0-25)	STMH201-S
A117	0.26	23.33	29.00	1.3000	Timmins_Storm_(0-25)	CB32
A118	0.12	15.31	65.00	1.3500	Timmins_Storm_(0-25)	CBMH30-S
A119	0.11	21.09	44.00	1.3200	Timmins_Storm_(0-25)	CB19-S
A120	0.41	35.24	71.00	0.3200	Timmins_Storm_(0-25)	CB16-S
A121	1.03	120.19	25.00	0.3000	Timmins_Storm_(0-25)	J13
A3	0.81	81.34	8.00	2.0000	Timmins_Storm_(0-25)	S10
S1	0.09	14.47	22.00	2.0000	Timmins_Storm_(0-25)	CB02
S10	0.18	19.12	40.00	2.0000	Timmins_Storm_(0-25)	DCB06
S11	0.06	7.51	67.00	2.0000	Timmins_Storm_(0-25)	DCBMH08
S12	0.11	10.54	59.00	2.0000	Timmins_Storm_(0-25)	DCB08
S13	0.00	23.00	100.00	2.0000	Timmins_Storm_(0-25)	OF2
S14	0.00	5.00	0.00	2.0000	Timmins_Storm_(0-25)	OF3
S15	0.00	13.50	0.00	2.0000	Timmins_Storm_(0-25)	OF4
S16	0.17	26.77	38.00	2.0000	Timmins_Storm_(0-25)	J7
S17	0.03	11.13	56.00	2.0000	Timmins_Storm_(0-25)	J6
S18	0.07	18.30	43.00	2.0000	Timmins_Storm_(0-25)	DCBMH3-1
S2	0.06	10.13	37.00	2.0000	Timmins_Storm_(0-25)	DICB3
S3	0.18	13.04	36.00	2.0000	Timmins_Storm_(0-25)	CB01
S4	0.16	10.71	39.00	2.0000	Timmins_Storm_(0-25)	CBMH04
S5	0.15	15.13	52.00	2.0000	Timmins_Storm_(0-25)	CB04
S6	0.11	12.76	64.00	2.0000	Timmins_Storm_(0-25)	CBMH01
S7	0.07	8.29	60.00	2.0000	Timmins_Storm_(0-25)	DCBMH03
S8	0.02	7.73	75.00	2.0000	Timmins_Storm_(0-25)	J8
S9	0.09	17.25	52.00	2.0000	Timmins_Storm_(0-25)	DCBMH06

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LID Control Summary
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Subcatchment	LID Control	No. of Units	Unit Area	Unit Width	% Area Covered	% Imperv Treated	% Perv Treated
S10	Perm_Pav	1	295.00	0.00	16.24	16.00	0.00

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Node Summary
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Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
CB_43A	JUNCTION	193.53	1.41	0.0	
CB_43B	JUNCTION	193.85	1.09	0.0	
CB01	JUNCTION	189.69	1.78	0.0	
CB02	JUNCTION	189.13	1.40	0.0	
CB04	JUNCTION	190.47	1.66	0.0	
CB100	JUNCTION	189.57	1.28	0.0	
CB101	JUNCTION	191.23	1.33	0.0	
CB102	JUNCTION	191.23	1.15	0.0	
CB13	JUNCTION	187.84	1.00	0.0	
CB14	JUNCTION	187.28	1.30	0.0	
CB16	JUNCTION	187.36	1.32	0.0	
CB16-S	JUNCTION	188.68	0.30	0.0	
CB19	JUNCTION	187.74	1.35	0.0	
CB19-S	JUNCTION	189.09	0.26	0.0	
CB32	JUNCTION	188.41	1.15	0.0	
CB4	JUNCTION	187.87	1.23	0.0	
CBMH01	JUNCTION	189.10	2.36	0.0	
CBMH04	JUNCTION	189.32	2.92	0.0	
CBMH100	JUNCTION	189.03	2.15	0.0	
CBMH101	JUNCTION	190.49	2.40	0.0	
CBMH101-S	JUNCTION	192.89	0.26	0.0	
CBMH103	JUNCTION	190.73	2.62	0.0	
CBMH103-S	JUNCTION	193.35	0.26	0.0	
CBMH105	JUNCTION	191.39	1.53	0.0	
CBMH30	JUNCTION	187.96	1.85	0.0	
CBMH30-S	JUNCTION	189.81	0.26	0.0	
CBMH31	JUNCTION	188.38	1.43	0.0	
DCB_40A	JUNCTION	193.30	1.26	0.0	
DCB_40B	JUNCTION	193.26	1.30	0.0	
DCB_42A	JUNCTION	193.37	1.28	0.0	
DCB_42B	JUNCTION	193.34	1.31	0.0	

DCB06	JUNCTION	188.91	1.43	0.0
DCB08	JUNCTION	188.42	0.97	0.0
DCB65	JUNCTION	191.23	3.40	0.0
DCB66	JUNCTION	191.23	3.40	0.0
DCBMH03	JUNCTION	188.83	1.52	100.0
DCBMH06	JUNCTION	188.88	1.46	100.0
DCBMH08	JUNCTION	188.38	1.01	0.0
DCBMH3-1	JUNCTION	188.86	1.50	0.0
DICB100	JUNCTION	190.63	1.22	0.0
DICB101	JUNCTION	192.76	0.59	1000.0
DICB3	JUNCTION	189.04	3.15	0.0
DICB4	JUNCTION	192.24	1.26	0.0
DICB6	JUNCTION	193.68	0.61	100.0
DICB7	JUNCTION	193.19	0.98	0.0
DICB99	JUNCTION	190.56	1.83	0.0
J1	JUNCTION	188.47	1.16	0.0
J10	JUNCTION	188.89	1.76	0.0
J12	JUNCTION	187.36	0.91	0.0
J13	JUNCTION	187.29	1.55	0.0
J15	JUNCTION	192.31	0.38	0.0
J16	JUNCTION	192.21	0.38	0.0
J17	JUNCTION	191.20	3.55	0.0
J17-S	JUNCTION	194.63	0.20	0.0
J2	JUNCTION	190.72	0.46	0.0
J3	JUNCTION	189.27	4.23	0.0
J5	JUNCTION	188.91	1.96	0.0
J6	JUNCTION	189.02	1.95	0.0
J7	JUNCTION	188.96	2.45	0.0
J8	JUNCTION	189.18	2.29	0.0
J9	JUNCTION	188.70	1.73	0.0
MH02	JUNCTION	188.96	1.62	0.0
MH07	JUNCTION	188.70	1.75	0.0
MH102	JUNCTION	190.65	2.76	0.0
MH102-S	JUNCTION	193.27	0.26	0.0
MH103	JUNCTION	191.05	1.93	0.0
MH106	JUNCTION	192.40	1.60	0.0
MH106-S	JUNCTION	194.47	0.26	0.0
MH15	JUNCTION	187.53	1.19	0.0
MH18	JUNCTION	187.80	1.33	0.0
MH40	JUNCTION	192.44	2.21	0.0
MH40-S	JUNCTION	194.56	0.26	0.0
MH41	JUNCTION	192.77	2.06	0.0
MH41-S	JUNCTION	194.83	0.26	0.0
MH42	JUNCTION	193.02	1.66	0.0
MH42-S	JUNCTION	194.65	0.26	0.0
MH43	JUNCTION	193.44	1.53	0.0

MH43-S	JUNCTION	194.94	0.26	0.0	
MH54	JUNCTION	191.35	1.97	0.0	Yes
MH61	JUNCTION	191.49	3.61	0.0	
MH62	JUNCTION	191.05	3.64	0.0	
OGS	JUNCTION	188.35	1.05	0.0	
OS2	JUNCTION	188.37	1.04	0.0	
STMH201	JUNCTION	189.03	1.82	0.0	
STMH201-S	JUNCTION	190.85	0.26	0.0	
CB7	OUTFALL	186.85	0.42	0.0	
J14	OUTFALL	187.28	0.90	0.0	
J4	OUTFALL	188.34	0.30	0.0	
OF1	OUTFALL	188.60	0.30	0.0	
OF2	OUTFALL	0.00	0.00	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
OF4	OUTFALL	0.00	0.00	0.0	

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Link Summary
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Name	From Node	To Node	Type	Length	%Slope	Roughness
C1	DCB08	DCBMH08	CONDUIT	7.4	0.5384	0.0130
C10	CBMH30	CB19	CONDUIT	48.1	0.4474	0.0130
C10-S	CBMH30-S	CB19-S	CONDUIT	46.6	1.5343	0.0100
C11	CB19	CB16	CONDUIT	40.8	0.9368	0.0130
C11-S	CB19-S	CB16-S	CONDUIT	39.8	1.0340	0.0100
C12	MH15	CB16	CONDUIT	4.6	3.6599	0.0130
C13	CB16	J12	CONDUIT	1.5	0.1318	0.0130
C14	J12	J13	CONDUIT	63.5	0.1071	0.0130
C15	J13	J14	CONDUIT	7.8	0.1288	0.0130
C16	CB14	MH15	CONDUIT	8.8	3.8534	0.0130
C17	CB4	MH18	CONDUIT	6.2	1.0018	0.0130
C18	MH18	CB19	CONDUIT	6.0	1.0454	0.0130
C19	CB32	CBMH31	CONDUIT	6.4	0.4711	0.0130
C2	DICB101	MH106	CONDUIT	72.8	0.4946	0.0130
C20	CBMH31	CBMH30	CONDUIT	11.8	4.8837	0.0130
C21	CB100	CBMH100	CONDUIT	7.2	3.3264	0.0130
C22	CBMH100	STMH201	CONDUIT	3.6	-0.8427	0.0130
C23	DICB100	CBMH101	CONDUIT	16.6	0.8409	0.0130
C24	DICB99	CBMH101	CONDUIT	2.5	2.8306	0.0130
C25	MH106	MH62	CONDUIT	17.3	0.5189	0.0130
C26	CB102	J2	CONDUIT	2.7	18.9442	0.0130
C27	DCB_40A	MH40	CONDUIT	7.0	7.7074	0.0130
C28	MH40	MH106	CONDUIT	6.0	0.6709	0.0130
C28-S	MH40-S	MH106-S	CONDUIT	17.0	0.5875	0.0100

C29	DCB_40B	MH40	CONDUIT	2.4	36.0991	0.0130
C3	DICB4	CBMH105	CONDUIT	3.9	14.1230	0.0130
C30	CB101	J2	CONDUIT	7.0	7.3230	0.0130
C30_1	DICB6	CB_43A	CONDUIT	8.1	1.8453	0.0130
C30_2	CB_43A	MH43	CONDUIT	7.0	0.9981	0.0130
C31	CB_43B	MH43	CONDUIT	2.3	0.8533	0.0130
C32	MH43	MH42	CONDUIT	66.8	0.5896	0.0130
C32-S	MH43-S	MH42-S	CONDUIT	65.8	0.4406	0.0100
C33	DCB_42A	MH42	CONDUIT	7.7	3.3455	0.0130
C34	DCB_42B	MH42	CONDUIT	1.9	12.4130	0.0130
C35	MH42	MH41	CONDUIT	34.5	0.5686	0.0130
C35-S	MH42-S	MH41-S	CONDUIT	35.0	-0.5148	0.0100
C36	DICB7	MH41	CONDUIT	14.8	0.9442	0.0130
C37	MH41	MH40	CONDUIT	72.6	0.4544	0.0130
C37-S	MH41-S	MH40-S	CONDUIT	71.0	0.3731	0.0100
C38	MH54	MH103	CONDUIT	57.0	0.4037	0.0130
C39	J16	MH103	CONDUIT	4.3	28.0435	0.0130
C39_1	MH103	J2	CONDUIT	87.1	0.3788	0.0130
C39_2	J2	MH102	CONDUIT	14.0	0.3568	0.0130
C4	CBMH105	MH62	CONDUIT	18.8	1.0109	0.0130
C40	DCB65	J17	CONDUIT	4.7	0.6959	0.0130
C41	DCB66	J17	CONDUIT	6.2	0.5318	0.0130
C42	CB14	CB7	CONDUIT	78.2	0.5240	0.0130
C42_1	MH61	J17	CONDUIT	70.2	0.4175	0.0130
C42_2	J17	MH62	CONDUIT	11.2	0.4202	0.0130
C42_2-S	J17-S	MH106-S	CONDUIT	22.1	0.7460	0.0100
C43	J15	MH103	CONDUIT	6.2	20.7348	0.0130
C44	CB13	CB14	CONDUIT	6.2	8.0751	0.0130
C45	MH106-S	CBMH103-S	CONDUIT	71.9	1.5515	0.0100
C46	CB16-S	OF1	CONDUIT	75.5	0.1060	0.0300
C47	CB01	CBMH01	CONDUIT	6.8	0.4425	0.0130
C48	CB02	MH02	CONDUIT	33.4	0.5094	0.0130
C49	J6	J5	CONDUIT	24.2	0.4665	0.0130
C49_1	CBMH01	J6	CONDUIT	16.0	0.5009	0.0130
C5	MH62	CBMH103	CONDUIT	73.3	0.3955	0.0130
C50	J8	J7	CONDUIT	63.0	0.3427	0.0130
C50_1	J5	J10	CONDUIT	4.5	0.4894	0.0130
C50_3	DICB3	J7	CONDUIT	15.6	0.4942	0.0130
C50_4	J7	J5	CONDUIT	11.0	0.4827	0.0130
C50_5	J10	DCBMH3-1	CONDUIT	5.8	0.4820	0.0130
C51	MH02	DCBMH03	CONDUIT	25.0	0.5193	0.0130
C52	DCBMH3-1	DCBMH03	CONDUIT	6.7	0.4462	0.0130
C53_1	DCBMH03	J9	CONDUIT	6.5	0.5229	0.0130
C54	DCBMH06	MH07	CONDUIT	17.9	1.0074	0.0130
C55	DCB06	DCBMH06	CONDUIT	6.9	0.4324	0.0130
C57	CB04	CBMH04	CONDUIT	9.1	0.5492	0.0130

C58_1	CBMH04	J8	CONDUIT	28.2	0.5005	0.0130
C59_1	MH07	J1	CONDUIT	58.0	0.3928	0.0130
C59_2	J1	DCBMH08	CONDUIT	18.9	0.4858	0.0130
C6	CBMH103	MH102	CONDUIT	7.6	0.3945	0.0130
C60	J3	DICB3	CONDUIT	45.9	0.5011	0.0130
C60_2	OGS	J4	CONDUIT	13.1	0.2215	0.0130
C60_3	DCBMH08	OS2	CONDUIT	2.9	0.2047	0.0130
C6-S	CBMH103-S	MH102-S	CONDUIT	8.0	0.9941	0.0100
C7	MH102	CBMH101	CONDUIT	30.0	0.5330	0.0130
C7-S	MH102-S	CBMH101-S	CONDUIT	28.7	1.3223	0.0100
C8	CBMH101	STMH201	CONDUIT	73.5	1.9471	0.0130
C8-S	CBMH101-S	STMH201-S	CONDUIT	79.4	2.5711	0.0100
C9	STMH201	CBMH30	CONDUIT	89.7	1.0929	0.0130
C9-S	STMH201-S	CBMH30-S	CONDUIT	85.8	1.2151	0.0100
C53_2	J9	MH07	OUTLET			
C60_4	OS2	OGS	OUTLET			
CB_43A-IC	MH43-S	CB_43A	OUTLET			
CB100-IC	STMH201-S	CB100	OUTLET			
CB16-IC	CB16-S	CB16	OUTLET			
CB19-IC	CB19-S	CB19	OUTLET			
CB4-IC	CB19-S	CB4	OUTLET			
CBMH101-IC	CBMH101-S	CBMH101	OUTLET			
CBMH30-IC	CBMH30-S	CBMH30	OUTLET			
CBMH31-IC	CBMH30-S	CBMH31	OUTLET			
DCB_40A-IC	MH40-S	DCB_40A	OUTLET			
DCB_42A-IC	MH42-S	DCB_42A	OUTLET			
DCB66-IC	J17-S	DCB66	OUTLET			
J17-IC	J17-S	DCB65	OUTLET			
MH40-IC	MH40-S	DCB_40B	OUTLET			
MH42-IC	MH42-S	DCB_42B	OUTLET			
MH43-IC	MH43-S	CB_43B	OUTLET			
OL1	MH106-S	CBMH105	OUTLET			
OL2	CBMH103-S	CBMH103	OUTLET			
OL3	CB16-S	CB14	OUTLET			
STMH201-IC	STMH201-S	STMH201	OUTLET			

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Cross Section Summary
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Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C1	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C10	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	0.79
C10-S	Street2	0.25	2.94	0.11	26.00	1	8.45

C11	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.15
C11-S	Street2	0.25	2.94	0.11	26.00	1	6.93
C12	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C13	CIRCULAR	0.75	0.44	0.19	0.75	1	0.40
C14	CIRCULAR	0.90	0.64	0.23	0.90	1	0.59
C15	CIRCULAR	0.90	0.64	0.23	0.90	1	0.65
C16	CIRCULAR	0.30	0.07	0.07	0.30	1	0.19
C17	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C18	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C19	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C2	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C20	CIRCULAR	0.30	0.07	0.07	0.30	1	0.21
C21	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C22	CIRCULAR	1.00	0.79	0.25	1.00	1	2.20
C23	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C24	CIRCULAR	0.30	0.07	0.07	0.30	1	0.16
C25	CIRCULAR	0.53	0.22	0.13	0.53	1	0.31
C26	CIRCULAR	0.30	0.07	0.07	0.30	1	0.42
C27	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C28	CIRCULAR	0.45	0.16	0.11	0.45	1	0.23
C28-S	Street1	0.17	1.49	0.07	20.00	1	2.02
C29	CIRCULAR	0.30	0.07	0.07	0.30	1	0.58
C3	CIRCULAR	0.45	0.16	0.11	0.45	1	1.07
C30	CIRCULAR	0.30	0.07	0.07	0.30	1	0.26
C30_1	CIRCULAR	0.30	0.07	0.07	0.30	1	0.13
C30_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.10
C31	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C32	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C32-S	Street1	0.17	1.49	0.07	20.00	1	1.75
C33	CIRCULAR	0.30	0.07	0.07	0.30	1	0.18
C34	CIRCULAR	0.30	0.07	0.07	0.30	1	0.34
C35	CIRCULAR	0.38	0.11	0.09	0.38	1	0.13
C35-S	Street1	0.17	1.49	0.07	20.00	1	1.89
C36	CIRCULAR	0.30	0.07	0.07	0.30	1	0.09
C37	CIRCULAR	0.38	0.11	0.09	0.38	1	0.12
C37-S	Street1	0.17	1.49	0.07	20.00	1	1.61
C38	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39	CIRCULAR	0.38	0.11	0.09	0.38	1	0.93
C39_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.18
C39_2	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C4	CIRCULAR	0.45	0.16	0.11	0.45	1	0.29
C40	CIRCULAR	1.00	0.79	0.25	1.00	1	2.00
C41	CIRCULAR	1.00	0.79	0.25	1.00	1	1.75
C42	CIRCULAR	0.40	0.13	0.10	0.40	1	0.15
C42_1	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54
C42_2	CIRCULAR	0.68	0.36	0.17	0.68	1	0.54

C42_2-S	Street1	0.17	1.49	0.07	20.00	1	2.28
C43	CIRCULAR	0.38	0.11	0.09	0.38	1	0.80
C44	CIRCULAR	0.30	0.07	0.07	0.30	1	0.27
C45	Street2	0.25	2.94	0.11	26.00	1	8.49
C46	TRIANGULAR	0.30	0.60	0.15	4.00	1	0.18
C47	CIRCULAR	0.30	0.07	0.07	0.30	1	0.06
C48	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C49	CIRCULAR	0.60	0.28	0.15	0.60	1	0.42
C49_1	CIRCULAR	0.60	0.28	0.15	0.60	1	0.43
C5	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C50	CIRCULAR	0.45	0.16	0.11	0.45	1	0.17
C50_1	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.43
C50_3	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.50
C50_4	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.32
C50_5	CIRCULAR	0.75	0.44	0.19	0.75	1	0.77
C51	CIRCULAR	0.60	0.28	0.15	0.60	1	0.44
C52	CIRCULAR	0.75	0.44	0.19	0.75	1	0.74
C53_1	CIRCULAR	0.75	0.44	0.19	0.75	1	0.81
C54	CIRCULAR	0.60	0.28	0.15	0.60	1	0.62
C55	CIRCULAR	0.25	0.05	0.06	0.25	1	0.04
C57	CIRCULAR	0.30	0.07	0.07	0.30	1	0.07
C58_1	CIRCULAR	0.45	0.16	0.11	0.45	1	0.20
C59_1	RECT_CLOSED	0.90	5.40	0.39	6.00	1	13.93
C59_2	CIRCULAR	0.53	0.22	0.13	0.53	1	0.30
C6	CIRCULAR	0.68	0.36	0.17	0.68	1	0.53
C60	RECT_CLOSED	1.20	4.80	0.46	4.00	1	15.61
C60_2	CIRCULAR	0.30	0.07	0.07	0.30	1	0.05
C60_3	CIRCULAR	0.53	0.22	0.13	0.53	1	0.19
C6-S	Street2	0.25	2.94	0.11	26.00	1	6.80
C7	CIRCULAR	0.68	0.36	0.17	0.68	1	0.61
C7-S	Street2	0.25	2.94	0.11	26.00	1	7.84
C8	HORIZ_ELLIPSE	0.56	0.40	0.17	0.86	1	1.32
C8-S	Street2	0.25	2.94	0.11	26.00	1	10.93
C9	HORIZ_ELLIPSE	0.61	0.47	0.19	0.96	1	1.24
C9-S	Street2	0.25	2.94	0.11	26.00	1	7.52

****
Transect Summary
****

Transect Street1
Area:

0.0001	0.0003	0.0007	0.0012	0.0019
0.0028	0.0038	0.0050	0.0063	0.0081

```
            0.0107     0.0141     0.0183     0.0233     0.0291
            0.0357     0.0431     0.0513     0.0606     0.0714
            0.0837     0.0975     0.1128     0.1295     0.1478
            0.1676     0.1889     0.2116     0.2359     0.2616
            0.2889     0.3176     0.3478     0.3796     0.4127
            0.4466     0.4813     0.5167     0.5529     0.5898
            0.6274     0.6658     0.7050     0.7449     0.7855
            0.8269     0.8691     0.9120     0.9556     1.0000
Hrad:
            0.0220     0.0439     0.0659     0.0878     0.1098
            0.1317     0.1537     0.1756     0.1960     0.1619
            0.1576     0.1645     0.1766     0.1918     0.2088
            0.2271     0.2461     0.2658     0.2688     0.2758
            0.2864     0.2994     0.3142     0.3302     0.3473
            0.3651     0.3836     0.4025     0.4219     0.4416
            0.4616     0.4818     0.5023     0.5229     0.5504
            0.5827     0.6145     0.6460     0.6771     0.7078
            0.7383     0.7684     0.7982     0.8277     0.8570
            0.8861     0.9149     0.9435     0.9718     1.0000
Width:
            0.0035     0.0069     0.0104     0.0138     0.0173
            0.0208     0.0242     0.0277     0.0314     0.0492
            0.0671     0.0849     0.1028     0.1206     0.1385
            0.1563     0.1742     0.1920     0.2246     0.2580
            0.2914     0.3248     0.3582     0.3916     0.4250
            0.4584     0.4918     0.5252     0.5586     0.5920
            0.6254     0.6588     0.6922     0.7256     0.7495
            0.7662     0.7829     0.7996     0.8163     0.8330
            0.8497     0.8664     0.8831     0.8998     0.9165
            0.9332     0.9499     0.9666     0.9833     1.0000

Transect Street2
Area:
            0.0001     0.0004     0.0009     0.0017     0.0026
            0.0041     0.0064     0.0096     0.0137     0.0186
            0.0243     0.0309     0.0384     0.0467     0.0559
            0.0659     0.0768     0.0886     0.1012     0.1147
            0.1290     0.1441     0.1602     0.1771     0.1948
            0.2134     0.2328     0.2532     0.2743     0.2963
            0.3202     0.3457     0.3729     0.4018     0.4324
            0.4643     0.4970     0.5306     0.5651     0.6003
            0.6365     0.6735     0.7113     0.7500     0.7895
            0.8299     0.8712     0.9133     0.9562     1.0000
Hrad:
            0.0210     0.0420     0.0630     0.0840     0.1050
            0.0922     0.1006     0.1154     0.1328     0.1518
```

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             0.1715     0.1918     0.2125     0.2334     0.2545
             0.2757     0.2971     0.3185     0.3400     0.3616
             0.3832     0.4049     0.4266     0.4483     0.4700
             0.4918     0.5136     0.5354     0.5572     0.5790
             0.5703     0.5766     0.5848     0.5945     0.6057
             0.6334     0.6609     0.6881     0.7151     0.7418
             0.7684     0.7947     0.8209     0.8469     0.8728
             0.8985     0.9240     0.9495     0.9748     1.0000
Width:
             0.0047     0.0095     0.0142     0.0190     0.0237
             0.0431     0.0624     0.0818     0.1012     0.1205
             0.1399     0.1592     0.1786     0.1979     0.2173
             0.2367     0.2560     0.2754     0.2947     0.3141
             0.3335     0.3528     0.3722     0.3915     0.4109
             0.4303     0.4496     0.4690     0.4883     0.5077
             0.5577     0.5962     0.6346     0.6731     0.7115
             0.7308     0.7500     0.7692     0.7885     0.8077
             0.8269     0.8462     0.8654     0.8846     0.9038
             0.9231     0.9423     0.9615     0.9808     1.0000


*********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
*********************************************************

****************
Analysis Options
****************
Flow Units ............... CMS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ YES
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... DYNWAVE
Surcharge Method ......... EXTRAN
Starting Date ............ 09/24/2019 00:00:00
Ending Date .............. 09/26/2019 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
```

```
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 4
Head Tolerance ..... 0.001500 m
```

Runoff Quantity Continuity	Volume hectare-m	Depth mm
Total Precipitation	2.107	193.000
Evaporation Loss	0.000	0.000
Infiltration Loss	0.996	91.220
Surface Runoff	1.100	100.775
Final Storage	0.012	1.128
Continuity Error (%)	-0.064	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.100	11.004
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.672	6.715
External Outflow	1.783	17.832
Flooding Loss	0.001	0.014
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.001
Final Stored Volume	0.001	0.008
Continuity Error (%)	-0.756	

```
Highest Continuity Errors
Node MH40-S (-23.36%)
Node MH102-S (12.37%)
Node DCB65 (8.52%)
Node DCB66 (8.51%)
Node DCB_40B (5.07%)
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****
Time-Step Critical Elements
****
Link C13 (98.47%)
Link C34 (1.29%)

****
Highest Flow Instability Indexes
****
Link DCB66-IC (58)
Link J17-IC (58)
Link C40 (44)
Link C41 (43)
Link DCB_40A-IC (37)

****
Routing Time Step Summary
****
Minimum Time Step : 0.19 sec
Average Time Step : 0.72 sec
Maximum Time Step : 5.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 2.19
Percent Not Converging : 0.14

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff CMS	Runoff Coeff
A100	193.00	0.00	0.00	99.77	70.74	21.84	92.59	1.95	0.17	0.480
A101	193.00	0.00	0.00	135.67	26.79	30.35	57.13	0.62	0.08	0.296
A102	193.00	0.00	0.00	96.01	72.68	23.69	96.37	0.30	0.03	0.499
A103	193.00	0.00	0.00	130.97	28.72	33.16	61.88	0.05	0.01	0.321
A104_2	193.00	0.00	0.00	79.14	91.75	21.24	112.99	0.32	0.03	0.585
A104_3	193.00	0.00	0.00	79.14	91.75	21.24	112.99	0.32	0.03	0.585
A104_4	193.00	0.00	0.00	123.89	47.88	68.83	68.83	0.04	0.00	0.357
A105	193.00	0.00	0.00	131.30	26.84	34.85	61.68	0.05	0.01	0.320

A106	193.00	0.00	0.00	62.61	114.67	14.60	129.27	0.41	0.03	0.670
A107	193.00	0.00	0.00	0.00	191.35	0.00	191.35	0.03	0.00	0.991
A108	193.00	0.00	0.00	153.30	0.00	39.83	39.83	0.01	0.00	0.206
A109	193.00	0.00	0.00	32.30	151.02	8.25	159.27	0.19	0.01	0.825
A110	193.00	0.00	0.00	0.00	191.21	0.00	191.21	0.18	0.01	0.991
A111	193.00	0.00	0.00	108.40	57.39	26.75	84.13	0.27	0.03	0.436
A112_1	193.00	0.00	0.00	130.46	34.46	27.83	62.29	0.49	0.06	0.323
A112_3	193.00	0.00	0.00	130.46	34.46	27.83	62.29	0.10	0.01	0.323
A113	193.00	0.00	0.00	153.01	0.00	40.14	40.14	0.00	0.00	0.208
A114	193.00	0.00	0.00	0.00	191.29	0.00	191.29	0.07	0.00	0.991
A115	193.00	0.00	0.00	155.14	0.00	37.92	37.92	0.03	0.01	0.196
A116	193.00	0.00	0.00	52.65	126.16	12.99	139.15	0.53	0.04	0.721
A117	193.00	0.00	0.00	110.31	55.47	26.76	82.23	0.21	0.02	0.426
A118	193.00	0.00	0.00	53.83	124.30	13.75	138.06	0.16	0.01	0.715
A119	193.00	0.00	0.00	86.23	84.25	21.91	106.15	0.12	0.01	0.550
A120	193.00	0.00	0.00	44.98	135.70	11.01	146.71	0.60	0.04	0.760
A121	193.00	0.00	0.00	119.12	47.81	25.65	73.46	0.76	0.07	0.381
A3	193.00	0.00	0.00	75.08	15.32	117.86	117.86	0.96	0.09	0.611
S1	193.00	0.00	0.00	62.96	42.10	129.77	129.77	0.12	0.01	0.672
S10	193.00	527.89	0.00	69.47	275.24	508.56	625.45	1.14	0.10	0.868
S11	193.00	0.00	0.00	26.00	128.13	37.73	165.87	0.10	0.01	0.859
S12	193.00	0.00	0.00	33.42	112.83	102.18	158.59	0.17	0.01	0.822
S13	193.00	0.00	0.00	0.00	191.68	0.00	191.68	0.01	0.00	0.993
S14	193.00	0.00	0.00	77.18	0.00	116.22	116.22	0.00	0.00	0.602
S15	193.00	0.00	0.00	77.18	0.00	116.22	116.22	0.00	0.00	0.602
S16	193.00	0.00	0.00	50.17	72.70	142.29	142.29	0.24	0.02	0.737
S17	193.00	0.00	0.00	34.77	107.17	103.85	157.44	0.04	0.00	0.816
S18	193.00	0.00	0.00	45.16	82.28	89.63	147.23	0.11	0.01	0.763
S2	193.00	0.00	0.00	49.85	70.79	71.81	142.60	0.08	0.01	0.739
S3	193.00	0.00	0.00	52.68	68.85	105.32	139.74	0.25	0.02	0.724
S4	193.00	0.00	0.00	49.99	74.58	86.43	142.37	0.23	0.02	0.738
S5	193.00	0.00	0.00	39.06	99.45	103.36	153.09	0.23	0.02	0.793
S6	193.00	0.00	0.00	28.45	122.39	41.07	163.47	0.19	0.01	0.847
S7	193.00	0.00	0.00	31.60	114.75	45.64	160.40	0.11	0.01	0.831
S8	193.00	0.00	0.00	19.72	143.49	64.47	172.09	0.04	0.00	0.892
S9	193.00	0.00	0.00	38.49	99.48	113.93	153.72	0.14	0.01	0.796

****
LID Performance Summary
****

Subcatchment	LID Control	Total Inflow mm	Evap Loss mm	Infil Loss mm	Surface Outflow mm	Drain Outflow mm	Initial Storage mm	Final Storage mm	Continuity Error %

S10	Perm_Pav	328.55	0.00	163.20	7.95	0.00	0.00	157.68	-0.09

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
CB_43A	JUNCTION	0.01	0.10	193.63	0 07:00	0.10
CB_43B	JUNCTION	0.01	0.08	193.93	0 07:00	0.08
CB01	JUNCTION	0.04	0.51	190.20	0 07:05	0.51
CB02	JUNCTION	0.22	1.06	190.19	0 07:05	1.06
CB04	JUNCTION	0.02	0.10	190.57	0 07:00	0.10
CB100	JUNCTION	0.01	0.07	189.64	0 07:00	0.07
CB101	JUNCTION	0.01	0.04	191.27	0 07:00	0.04
CB102	JUNCTION	0.01	0.08	191.31	0 07:00	0.08
CB13	JUNCTION	0.00	0.00	187.84	0 00:00	0.00
CB14	JUNCTION	0.02	0.26	187.54	0 07:00	0.26
CB16	JUNCTION	0.22	0.87	188.23	0 07:00	0.87
CB16-S	JUNCTION	0.00	0.00	188.68	0 07:00	0.00
CB19	JUNCTION	0.12	0.62	188.36	0 07:00	0.62
CB19-S	JUNCTION	0.00	0.00	189.09	0 07:00	0.00
CB32	JUNCTION	0.14	0.21	188.61	0 07:00	0.21
CB4	JUNCTION	0.03	0.50	188.36	0 07:00	0.50
CBMH01	JUNCTION	0.23	1.09	190.20	0 07:05	1.09
CBMH04	JUNCTION	0.14	0.88	190.20	0 07:05	0.88
CBMH100	JUNCTION	0.11	0.31	189.34	0 07:00	0.31
CBMH101	JUNCTION	0.09	0.26	190.75	0 07:00	0.26
CBMH101-S	JUNCTION	0.00	0.00	192.89	0 07:00	0.00
CBMH103	JUNCTION	0.09	0.45	191.18	0 07:00	0.45
CBMH103-S	JUNCTION	0.00	0.00	193.35	0 06:59	0.00
CBMH105	JUNCTION	0.01	0.08	191.47	0 07:00	0.08
CBMH30	JUNCTION	0.14	0.50	188.46	0 07:01	0.50
CBMH30-S	JUNCTION	0.00	0.00	189.81	0 07:00	0.00
CBMH31	JUNCTION	0.17	0.23	188.61	0 07:00	0.23
DCB_40A	JUNCTION	0.01	0.05	193.35	0 06:59	0.05
DCB_40B	JUNCTION	0.01	0.03	193.29	0 06:59	0.03
DCB_42A	JUNCTION	0.02	0.08	193.45	0 07:00	0.08
DCB_42B	JUNCTION	0.01	0.06	193.40	0 07:00	0.06
DCB06	JUNCTION	0.07	0.73	189.64	0 07:00	0.73
DCB08	JUNCTION	0.22	0.97	189.39	0 06:53	0.97
DCB65	JUNCTION	0.02	0.24	191.47	0 07:00	0.24

DCB66	JUNCTION	0.02	0.24	191.47	0	07:00	0.24
DCBMH03	JUNCTION	0.37	1.36	190.19	0	07:05	1.36
DCBMH06	JUNCTION	0.06	0.56	189.44	0	07:00	0.56
DCBMH08	JUNCTION	0.26	1.01	189.39	0	06:59	1.01
DCBMH3-1	JUNCTION	0.36	1.33	190.19	0	07:05	1.33
DICB100	JUNCTION	0.01	0.12	190.75	0	06:59	0.12
DICB101	JUNCTION	0.06	0.60	193.36	0	07:02	0.60
DICB3	JUNCTION	0.26	1.15	190.19	0	07:05	1.15
DICB4	JUNCTION	0.00	0.01	192.25	0	07:00	0.01
DICB6	JUNCTION	0.01	0.05	193.73	0	07:00	0.05
DICB7	JUNCTION	0.01	0.05	193.24	0	07:00	0.05
DICB99	JUNCTION	0.04	0.19	190.75	0	07:00	0.19
J1	JUNCTION	0.20	0.96	189.43	0	07:00	0.96
J10	JUNCTION	0.34	1.31	190.19	0	07:05	1.31
J12	JUNCTION	0.22	0.87	188.23	0	07:00	0.87
J13	JUNCTION	0.22	0.88	188.17	0	06:59	0.88
J15	JUNCTION	0.00	0.03	192.34	0	00:00	0.00
J16	JUNCTION	0.00	0.00	192.21	0	00:00	0.00
J17	JUNCTION	0.03	0.27	191.47	0	07:00	0.27
J17-S	JUNCTION	0.00	0.00	194.63	1	06:02	0.00
J2	JUNCTION	0.16	0.50	191.22	0	07:00	0.50
J3	JUNCTION	0.16	0.92	190.19	0	07:05	0.92
J5	JUNCTION	0.33	1.28	190.19	0	07:05	1.28
J6	JUNCTION	0.27	1.17	190.20	0	07:05	1.17
J7	JUNCTION	0.30	1.23	190.19	0	07:05	1.23
J8	JUNCTION	0.20	1.02	190.20	0	07:05	1.02
J9	JUNCTION	0.44	1.49	190.19	0	07:05	1.49
MH02	JUNCTION	0.30	1.23	190.19	0	07:05	1.23
MH07	JUNCTION	0.10	0.73	189.43	0	07:00	0.73
MH102	JUNCTION	0.16	0.50	191.15	0	07:00	0.50
MH102-S	JUNCTION	0.00	0.00	193.27	0	07:00	0.00
MH103	JUNCTION	0.15	0.52	191.57	0	00:00	0.30
MH106	JUNCTION	0.07	0.44	192.84	0	07:00	0.44
MH106-S	JUNCTION	0.00	0.00	194.47	0	06:59	0.00
MH15	JUNCTION	0.08	0.66	188.19	0	07:00	0.66
MH18	JUNCTION	0.06	0.56	188.36	0	07:00	0.56
MH40	JUNCTION	0.06	0.41	192.85	0	07:00	0.41
MH40-S	JUNCTION	0.00	0.00	194.57	0	06:56	0.00
MH41	JUNCTION	0.04	0.27	193.04	0	07:00	0.27
MH41-S	JUNCTION	0.00	0.00	194.83	0	00:00	0.00
MH42	JUNCTION	0.04	0.23	193.25	0	07:00	0.23
MH42-S	JUNCTION	0.00	0.00	194.65	0	07:00	0.00
MH43	JUNCTION	0.02	0.15	193.59	0	07:00	0.15
MH43-S	JUNCTION	0.00	0.00	194.94	0	07:00	0.00
MH54	JUNCTION	0.15	0.23	191.58	0	07:01	0.23
MH61	JUNCTION	0.00	0.00	191.49	0	00:00	0.00

MH62	JUNCTION	0.07	0.42	191.47	0	07:00	0.42
OGS	JUNCTION	0.14	0.84	189.19	0	06:59	0.84
OS2	JUNCTION	0.27	1.02	189.39	0	06:59	1.02
STMH201	JUNCTION	0.11	0.31	189.34	0	07:00	0.31
STMH201-S	JUNCTION	0.00	0.00	190.85	0	07:00	0.00
CB7	OUTFALL	0.00	0.00	186.85	0	00:00	0.00
J14	OUTFALL	0.22	0.90	188.18	0	06:41	0.90
J4	OUTFALL	0.08	0.30	188.64	0	06:39	0.30
OF1	OUTFALL	0.00	0.00	188.60	0	07:00	0.00
OF2	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
OF3	OUTFALL	0.00	0.00	0.00	0	00:00	0.00
OF4	OUTFALL	0.00	0.00	0.00	0	00:00	0.00

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Node Inflow Summary
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Node	Type	Maximum Lateral Inflow CMS	Maximum Total Inflow CMS	Time of Max Occurrence days hr:min		Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent	
CB_43A	JUNCTION	0.000	0.021	0	07:00	0	0.199	0.128	
CB_43B	JUNCTION	0.000	0.015	0	07:00	0	0.152	0.166	
CB01	JUNCTION	0.020	0.020	0	07:00	0.252	0.252	0.005	
CB02	JUNCTION	0.010	0.010	0	07:00	0.12	0.122	-0.020	
CB04	JUNCTION	0.018	0.018	0	07:00	0.232	0.232	0.000	
CB100	JUNCTION	0.000	0.020	0	07:00	0	0.264	0.036	
CB101	JUNCTION	0.012	0.012	0	07:00	0.098	0.098	0.000	
CB102	JUNCTION	0.059	0.059	0	07:00	0.491	0.491	0.000	
CB13	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
CB14	JUNCTION	0.000	0.115	0	06:59	0	0.451	0.041	
CB16	JUNCTION	0.000	0.695	0	07:01	0	13.6	0.021	
CB16-S	JUNCTION	0.045	0.045	0	07:00	0.6	0.6	-0.118	
CB19	JUNCTION	0.000	0.674	0	07:01	0	13.3	0.002	
CB19-S	JUNCTION	0.011	0.011	0	07:00	0.121	0.121	0.005	
CB32	JUNCTION	0.022	0.022	0	07:00	0.211	0.212	0.071	
CB4	JUNCTION	0.000	0.012	0	06:31	0	0.0711	-0.063	
CBMH01	JUNCTION	0.014	0.034	0	06:59	0.188	0.439	-0.019	
CBMH04	JUNCTION	0.018	0.036	0	07:00	0.229	0.46	-0.016	
CBMH100	JUNCTION	0.000	0.020	0	07:00	0	0.265	0.017	
CBMH101	JUNCTION	0.000	0.623	0	07:00	0	12.3	0.002	
CBMH101-S	JUNCTION	0.004	0.004	0	07:00	0.067	0.067	-0.028	
CBMH103	JUNCTION	0.000	0.387	0	07:00	0	4.59	-0.029	

CBMH103-S	JUNCTION	0.011	0.011	0	06:59	0.178	0.178	-0.055	
CBMH105	JUNCTION	0.000	0.003	0	06:59	0	0.0403	-0.060	
CBMH30	JUNCTION	0.000	0.668	0	07:00	0	13.2	0.001	
CBMH30-S	JUNCTION	0.013	0.013	0	07:00	0.163	0.163	-0.069	
CBMH31	JUNCTION	0.000	0.029	0	07:00	0	0.294	0.068	
DCB_40A	JUNCTION	0.000	0.026	0	06:59	0	0.251	5.148	
DCB_40B	JUNCTION	0.000	0.026	0	06:59	0	0.25	5.336	
DCB_42A	JUNCTION	0.000	0.029	0	07:00	0	0.344	0.340	
DCB_42B	JUNCTION	0.000	0.029	0	07:00	0	0.344	0.344	
DCB06	JUNCTION	0.101	0.101	0	07:00	1.14	1.14	0.013	
DCB08	JUNCTION	0.013	0.023	0	06:59	0.174	0.179	-0.006	
DCB65	JUNCTION	0.000	0.019	0	06:59	0	0.13	9.319	
DCB66	JUNCTION	0.000	0.019	0	06:59	0	0.13	9.307	
DCBMH03	JUNCTION	0.008	0.092	0	06:42	0.106	1.7	-0.011	
DCBMH06	JUNCTION	0.010	0.111	0	07:00	0.138	1.27	-0.025	
DCBMH08	JUNCTION	0.007	0.209	0	07:00	0.102	3.17	0.003	
DCBMH3-1	JUNCTION	0.008	0.083	0	07:32	0.108	1.42	-0.001	
DICB100	JUNCTION	0.006	0.006	0	07:00	0.0295	0.0296	0.001	
DICB101	JUNCTION	0.171	0.171	0	07:00	1.95	1.95	-0.011	
DICB3	JUNCTION	0.006	0.043	0	06:09	0.0794	0.383	0.001	
DICB4	JUNCTION	0.001	0.001	0	07:00	0.0055	0.0055	0.007	
DICB6	JUNCTION	0.007	0.007	0	07:00	0.0475	0.0475	0.000	
DICB7	JUNCTION	0.006	0.006	0	07:00	0.0455	0.0455	0.001	
DICB99	JUNCTION	0.001	0.001	0	00:01	0.0045	0.0051	0.013	
J1	JUNCTION	0.000	0.203	0	06:59	0	2.91	-0.011	
J10	JUNCTION	0.000	0.079	0	07:23	0	1.31	-0.001	
J12	JUNCTION	0.000	0.661	0	06:38	0	13.4	-0.013	
J13	JUNCTION	0.073	0.673	0	06:59	0.759	14.2	0.010	
J15	JUNCTION	0.000	0.041	0	00:00	0	4.96e-05	5.318	
J16	JUNCTION	0.000	0.000	0	00:00	0	0	-100.000	
J17	JUNCTION	0.000	0.021	0	06:42	0	0.237	-0.174	
J17-S	JUNCTION	0.014	0.014	0	07:00	0.193	0.193	-25.531	
J2	JUNCTION	0.000	0.195	0	07:00	0	7.59	0.011	
J3	JUNCTION	0.000	0.020	0	06:06	0	0.0962	0.006	
J5	JUNCTION	0.000	0.078	0	07:21	0	1.35	-0.002	
J6	JUNCTION	0.003	0.037	0	06:59	0.042	0.481	-0.014	
J7	JUNCTION	0.019	0.057	0	06:58	0.236	1.06	0.015	
J8	JUNCTION	0.003	0.038	0	06:58	0.0399	0.5	-0.042	
J9	JUNCTION	0.000	0.091	0	06:42	0	1.69	0.014	
MH02	JUNCTION	0.000	0.010	0	06:59	0	0.128	-0.032	
MH07	JUNCTION	0.000	0.202	0	06:59	0	2.91	0.005	
MH102	JUNCTION	0.000	0.583	0	07:00	0	12.2	0.005	
MH102-S	JUNCTION	0.000	0.000	0	06:59	0	3.03e-05	3.752	ltr
MH103	JUNCTION	0.029	0.125	0	07:00	0.27	7.03	0.496	
MH106	JUNCTION	0.075	0.355	0	07:00	0.62	4.13	0.001	
MH106-S	JUNCTION	0.002	0.002	0	06:59	0.0348	0.0348	-0.014	

MH15	JUNCTION	0.000	0.093	0	07:00	0	0.164	-0.005	
MH18	JUNCTION	0.000	0.021	0	06:30	0	0.0864	0.049	
MH40	JUNCTION	0.000	0.133	0	06:59	0	1.56	-0.043	
MH40-S	JUNCTION	0.031	0.031	0	07:00	0.406	0.406	-18.937	
MH41	JUNCTION	0.000	0.100	0	07:00	0	1.08	0.002	
MH41-S	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH42	JUNCTION	0.000	0.094	0	07:00	0	1.04	-0.031	
MH42-S	JUNCTION	0.058	0.058	0	07:00	0.681	0.681	-1.067	
MH43	JUNCTION	0.000	0.036	0	07:00	0	0.35	0.081	
MH43-S	JUNCTION	0.030	0.030	0	07:00	0.302	0.302	-0.381	
MH54	JUNCTION	0.096	0.096	0	06:39	6.72	6.72	0.013	
MH61	JUNCTION	0.000	0.000	0	00:00	0	0	0.000	ltr
MH62	JUNCTION	0.000	0.376	0	07:00	0	4.41	0.049	
OGS	JUNCTION	0.000	0.198	0	06:59	0	3.17	0.000	
OS2	JUNCTION	0.000	0.198	0	06:59	0	3.17	0.007	
STMH201	JUNCTION	0.000	0.635	0	07:00	0	12.8	0.011	
STMH201-S	JUNCTION	0.041	0.041	0	07:00	0.528	0.528	-0.110	
CB7	OUTFALL	0.000	0.114	0	07:00	0	0.451	0.000	
J14	OUTFALL	0.000	0.699	0	07:01	0	14.2	0.000	
J4	OUTFALL	0.000	0.198	0	06:59	0	3.17	0.000	
OF1	OUTFALL	0.000	0.000	0	07:00	0	9.45e-06	0.000	ltr
OF2	OUTFALL	0.001	0.001	0	06:05	0.00882	0.00882	0.000	
OF3	OUTFALL	0.000	0.000	0	07:00	0.00116	0.00116	0.000	
OF4	OUTFALL	0.000	0.000	0	07:00	0.00314	0.00314	0.000	

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Node Surcharge Summary
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Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
CB01	JUNCTION	1.14	0.207	1.273
CB02	JUNCTION	5.59	0.464	0.336
CB16	JUNCTION	0.43	0.121	0.449
CB19	JUNCTION	0.06	0.010	0.730
CB4	JUNCTION	0.41	0.195	0.730
CBMH01	JUNCTION	1.29	0.235	1.265
DCB06	JUNCTION	3.26	0.478	0.702
DCB08	JUNCTION	12.07	0.720	0.000
DCBMH03	JUNCTION	7.47	0.614	0.156
DCBMH08	JUNCTION	6.68	0.488	0.000

DCBMH3-1	JUNCTION	7.12	0.585	0.165
DICB101	JUNCTION	0.62	0.228	0.000
J1	JUNCTION	0.61	0.062	0.194
J10	JUNCTION	0.64	0.107	0.450
J2	JUNCTION	0.41	0.046	0.000
J5	JUNCTION	0.53	0.085	0.678
J6	JUNCTION	6.97	0.572	0.774
J7	JUNCTION	0.26	0.032	1.218
J8	JUNCTION	6.91	0.571	1.268
J9	JUNCTION	7.89	0.648	0.240
MH02	JUNCTION	7.71	0.634	0.386
MH103	JUNCTION	0.01	0.000	1.410
MH15	JUNCTION	1.23	0.288	0.532
MH18	JUNCTION	0.55	0.257	0.770
OGS	JUNCTION	3.42	0.522	0.209
OS2	JUNCTION	6.72	0.487	0.027

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Node Flooding Summary
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Flooding refers to all water that overflows a node, whether it ponds or not.

Node	Hours Flooded	Maximum Rate CMS	Time of Max Occurrence days hr:min	Total Flood Volume 10^6 ltr	Maximum Ponded Depth Meters
DCB08	0.28	0.023	0 06:59	0.014	0.000
DICB101	0.49	0.022	0 07:00	0.013	0.013

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Outfall Loading Summary
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Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
CB7	42.31	0.008	0.114	0.451
J14	99.96	0.109	0.699	14.201
J4	68.32	0.037	0.198	3.167
OF1	0.00	0.000	0.000	0.000

OF2	32.29	0.000	0.001	0.009
OF3	12.96	0.000	0.000	0.001
OF4	22.70	0.000	0.000	0.003
System	39.79	0.154	0.000	17.832

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Link Flow Summary
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Link	Type	Maximum |Flow| CMS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.013	0 06:42	0.26	0.30	1.00
C10	CONDUIT	0.664	0 07:01	2.08	0.84	0.91
C10-S	CHANNEL	0.000	0 07:00	0.00	0.00	0.00
C11	CONDUIT	0.674	0 07:01	1.43	0.59	1.00
C11-S	CHANNEL	0.000	0 07:00	0.00	0.00	0.01
C12	CONDUIT	0.093	0 07:00	1.32	0.50	1.00
C13	CONDUIT	0.661	0 06:38	1.52	1.63	1.00
C14	CONDUIT	0.604	0 07:03	1.07	1.02	0.97
C15	CONDUIT	0.699	0 07:01	1.16	1.08	0.99
C16	CONDUIT	0.093	0 07:00	1.64	0.49	0.75
C17	CONDUIT	0.017	0 06:32	0.44	0.17	1.00
C18	CONDUIT	0.014	0 06:30	0.25	0.14	1.00
C19	CONDUIT	0.022	0 07:00	0.40	0.34	0.73
C2	CONDUIT	0.155	0 07:09	1.40	1.26	1.00
C20	CONDUIT	0.029	0 07:00	0.62	0.13	0.62
C21	CONDUIT	0.020	0 07:00	1.66	0.12	0.23
C22	CONDUIT	0.020	0 06:57	0.54	0.01	0.29
C23	CONDUIT	0.006	0 06:59	0.12	0.07	0.64
C24	CONDUIT	0.002	0 06:48	0.14	0.01	0.76
C25	CONDUIT	0.355	0 07:00	1.91	1.15	0.80
C26	CONDUIT	0.059	0 07:00	1.25	0.14	0.64
C27	CONDUIT	0.017	0 06:58	2.02	0.06	0.23
C28	CONDUIT	0.131	0 07:00	0.85	0.56	0.94
C28-S	CHANNEL	0.000	0 06:59	0.00	0.00	0.01
C29	CONDUIT	0.017	0 06:59	0.72	0.03	0.56
C3	CONDUIT	0.001	0 07:00	1.08	0.00	0.02
C30	CONDUIT	0.012	0 07:00	0.28	0.05	0.57
C30_1	CONDUIT	0.007	0 07:00	0.49	0.05	0.25
C30_2	CONDUIT	0.021	0 07:00	0.86	0.22	0.38
C31	CONDUIT	0.015	0 07:00	0.93	0.17	0.27

C32	CONDUIT	0.036	0	07:00	0.84	0.49	0.58
C32-S	CHANNEL	0.000	0	07:00	0.00	0.00	0.02
C33	CONDUIT	0.029	0	07:00	1.58	0.16	0.37
C34	CONDUIT	0.029	0	07:00	2.34	0.09	0.33
C35	CONDUIT	0.094	0	07:00	1.33	0.71	0.61
C35-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C36	CONDUIT	0.006	0	07:00	0.76	0.07	0.18
C37	CONDUIT	0.100	0	07:00	0.99	0.85	0.86
C37-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.01
C38	CONDUIT	0.096	0	07:03	1.22	0.53	0.52
C39	CONDUIT	0.000	0	00:00	0.00	0.00	0.50
C39_1	CONDUIT	0.176	0	00:00	1.97	1.00	0.84
C39_2	CONDUIT	0.195	0	07:00	1.26	1.15	1.00
C4	CONDUIT	0.005	0	06:41	0.41	0.02	0.39
C40	CONDUIT	0.011	0	06:42	0.32	0.01	0.26
C41	CONDUIT	0.011	0	06:42	0.31	0.01	0.26
C42	CONDUIT	0.114	0	07:00	1.37	0.76	0.63
C42_1	CONDUIT	0.000	0	00:00	0.00	0.00	0.20
C42_2	CONDUIT	0.024	0	07:10	0.51	0.04	0.44
C42_2-S	CHANNEL	0.000	0	00:00	0.00	0.00	0.00
C43	CONDUIT	0.041	0	00:00	0.72	0.05	0.54
C44	CONDUIT	0.000	0	00:00	0.00	0.00	0.34
C45	CHANNEL	0.000	0	06:59	0.00	0.00	0.01
C46	CONDUIT	0.000	0	07:00	0.02	0.00	0.01
C47	CONDUIT	0.020	0	06:59	0.73	0.32	1.00
C48	CONDUIT	0.010	0	06:59	0.06	0.02	1.00
C49	CONDUIT	0.037	0	06:59	0.79	0.09	1.00
C49_1	CONDUIT	0.034	0	06:59	0.50	0.08	1.00
C5	CONDUIT	0.376	0	07:00	1.63	0.71	0.62
C50	CONDUIT	0.038	0	06:58	0.83	0.23	1.00
C50_1	CONDUIT	0.079	0	07:23	0.10	0.01	1.00
C50_3	CONDUIT	0.038	0	06:09	0.05	0.00	0.98
C50_4	CONDUIT	0.060	0	07:33	0.08	0.00	1.00
C50_5	CONDUIT	0.080	0	07:32	0.47	0.10	1.00
C51	CONDUIT	0.010	0	06:41	0.07	0.02	1.00
C52	CONDUIT	0.083	0	07:33	0.44	0.11	1.00
C53_1	CONDUIT	0.091	0	06:42	0.51	0.11	1.00
C54	CONDUIT	0.111	0	06:59	1.96	0.18	0.97
C55	CONDUIT	0.101	0	07:00	2.05	2.58	1.00
C57	CONDUIT	0.018	0	07:00	0.85	0.25	0.34
C58_1	CONDUIT	0.035	0	06:58	0.61	0.18	1.00
C59_1	CONDUIT	0.203	0	06:59	0.17	0.01	0.91
C59_2	CONDUIT	0.202	0	07:01	0.93	0.67	1.00
C6	CONDUIT	0.388	0	07:00	1.55	0.74	0.66
C60	CONDUIT	0.020	0	06:06	0.03	0.00	0.87
C60_2	CONDUIT	0.198	0	06:59	2.81	4.36	1.00

C60_3	CONDUIT	0.198	0	06:59	0.92	1.02	1.00
C6-S	CHANNEL	0.000	0	06:59	0.00	0.00	0.01
C7	CONDUIT	0.612	0	07:00	2.94	1.00	0.57
C7-S	CHANNEL	0.000	0	07:00	0.00	0.00	0.01
C8	CONDUIT	0.595	0	07:00	3.09	0.45	0.48
C8-S	CHANNEL	0.000	0	07:00	0.00	0.00	0.01
C9	CONDUIT	0.633	0	07:00	2.55	0.51	0.59
C9-S	CHANNEL	0.000	0	07:00	0.00	0.00	0.01
C53_2	DUMMY	0.091	0	06:43			
C60_4	DUMMY	0.198	0	06:59			
CB_43A-IC	DUMMY	0.015	0	07:00			
CB100-IC	DUMMY	0.020	0	07:00			
CB16-IC	DUMMY	0.022	0	07:00			
CB19-IC	DUMMY	0.006	0	07:00			
CB4-IC	DUMMY	0.006	0	07:00			
CBMH101-IC	DUMMY	0.004	0	07:00			
CBMH30-IC	DUMMY	0.006	0	07:00			
CBMH31-IC	DUMMY	0.006	0	07:00			
DCB_40A-IC	DUMMY	0.026	0	06:59			
DCB_42A-IC	DUMMY	0.029	0	07:00			
DCB66-IC	DUMMY	0.019	0	06:59			
J17-IC	DUMMY	0.019	0	06:59			
MH40-IC	DUMMY	0.026	0	06:59			
MH42-IC	DUMMY	0.029	0	07:00			
MH43-IC	DUMMY	0.015	0	07:00			
OL1	DUMMY	0.002	0	06:59			
OL2	DUMMY	0.011	0	06:59			
OL3	DUMMY	0.022	0	07:00			
STMH201-IC	DUMMY	0.020	0	07:00			

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Flow Classification Summary
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	Adjusted	Fraction of Time in Flow Class								
Conduit	/Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C10	1.00	0.00	0.00	0.00	0.28	0.72	0.00	0.00	0.19	0.00
C10-S	1.00	0.63	0.00	0.00	0.34	0.02	0.00	0.00	0.85	0.00
C11	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
C11-S	1.00	0.57	0.09	0.00	0.34	0.00	0.00	0.00	0.98	0.00
C12	1.00	0.00	0.39	0.00	0.61	0.00	0.00	0.00	0.53	0.00

C13	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.01	0.00
C14	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C15	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.03	0.00
C16	1.00	0.66	0.32	0.00	0.00	0.00	0.03	0.00	0.00	0.00
C17	1.00	0.00	0.13	0.00	0.86	0.00	0.00	0.00	0.77	0.00
C18	1.00	0.00	0.30	0.00	0.70	0.00	0.00	0.00	0.45	0.00
C19	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.98	0.00
C20	1.00	0.00	0.32	0.00	0.68	0.00	0.00	0.00	1.00	0.00
C21	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C22	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C23	1.00	0.00	0.80	0.00	0.20	0.00	0.00	0.00	0.77	0.00
C24	1.00	0.00	0.34	0.00	0.66	0.00	0.00	0.00	0.50	0.00
C25	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C26	1.00	0.00	0.46	0.00	0.53	0.00	0.00	0.00	1.00	0.00
C27	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.01	0.00
C28	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.77	0.00
C28-S	1.00	0.61	0.07	0.00	0.32	0.00	0.00	0.00	0.00	0.00
C29	1.00	0.00	0.02	0.00	0.96	0.02	0.00	0.00	1.00	0.00
C3	1.00	0.17	0.00	0.00	0.00	0.00	0.00	0.83	0.00	0.00
C30	1.00	0.00	0.53	0.00	0.47	0.00	0.00	0.00	1.00	0.00
C30_1	1.00	0.00	0.14	0.00	0.86	0.00	0.00	0.00	1.00	0.00
C30_2	1.00	0.00	0.00	0.00	0.02	0.14	0.00	0.84	0.04	0.00
C31	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C32	1.00	0.00	0.00	0.00	0.27	0.00	0.00	0.73	0.18	0.00
C32-S	1.00	0.59	0.05	0.00	0.36	0.00	0.00	0.00	0.17	0.00
C33	1.00	0.00	0.00	0.00	0.00	0.03	0.00	0.97	0.02	0.00
C34	1.00	0.00	0.00	0.00	0.00	0.08	0.00	0.92	0.06	0.00
C35	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C35-S	1.00	0.59	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C36	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C37	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.99	0.00
C37-S	1.00	0.67	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C38	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C39	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C39_1	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.67	0.00
C39_2	1.00	0.00	0.00	0.00	0.26	0.00	0.00	0.74	0.00	0.00
C4	1.00	0.00	0.00	0.00	0.19	0.02	0.00	0.79	0.14	0.00
C40	1.00	0.00	0.27	0.00	0.73	0.00	0.00	0.00	0.93	0.00
C41	1.00	0.00	0.25	0.00	0.75	0.00	0.00	0.00	0.93	0.00
C42	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C42_1	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C42_2	1.00	0.00	0.00	0.00	0.26	0.00	0.00	0.74	0.09	0.00
C42_2-S	1.00	0.63	0.27	0.00	0.10	0.00	0.00	0.00	0.00	0.00
C43	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
C44	1.00	0.86	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00

C45	1.00	0.62	0.06	0.00	0.32	0.00	0.00	0.00	0.87	0.00
C46	1.00	0.57	0.00	0.00	0.43	0.00	0.00	0.00	0.87	0.00
C47	1.00	0.00	0.00	0.00	0.18	0.00	0.00	0.81	0.01	0.00
C48	1.00	0.46	0.04	0.00	0.50	0.00	0.00	0.00	0.64	0.00
C49	1.00	0.00	0.00	0.00	0.99	0.01	0.00	0.00	0.03	0.00
C49_1	1.00	0.00	0.07	0.00	0.93	0.00	0.00	0.00	0.63	0.00
C5	1.00	0.00	0.00	0.00	0.34	0.00	0.00	0.66	0.26	0.00
C50	1.00	0.00	0.00	0.00	0.99	0.01	0.00	0.00	0.07	0.00
C50_1	1.00	0.00	0.25	0.00	0.75	0.00	0.00	0.00	0.59	0.00
C50_3	1.00	0.35	0.06	0.00	0.58	0.00	0.00	0.00	0.07	0.00
C50_4	1.00	0.24	0.11	0.00	0.64	0.00	0.00	0.00	0.43	0.00
C50_5	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.55	0.00
C51	1.00	0.00	0.46	0.00	0.54	0.00	0.00	0.00	0.60	0.00
C52	1.00	0.00	0.24	0.00	0.76	0.00	0.00	0.00	0.60	0.00
C53_1	1.00	0.00	0.00	0.00	0.54	0.00	0.00	0.46	0.00	0.00
C54	1.00	0.00	0.05	0.00	0.83	0.12	0.00	0.00	0.21	0.00
C55	1.00	0.00	0.00	0.00	0.88	0.12	0.00	0.00	0.02	0.00
C57	1.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
C58_1	1.00	0.00	0.05	0.00	0.95	0.00	0.00	0.00	0.69	0.00
C59_1	1.00	0.00	0.28	0.00	0.72	0.00	0.00	0.00	0.76	0.00
C59_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.70	0.00
C6	1.00	0.00	0.00	0.00	0.91	0.00	0.00	0.09	0.44	0.00
C60	1.00	0.42	0.12	0.00	0.46	0.00	0.00	0.00	0.66	0.00
C60_2	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C60_3	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00
C6-S	1.00	0.00	0.62	0.00	0.30	0.08	0.00	0.00	0.86	0.00
C7	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.35	0.00
C7-S	1.00	0.00	0.17	0.00	0.75	0.08	0.00	0.00	0.00	0.00
C8	1.00	0.00	0.00	0.00	0.00	0.05	0.00	0.95	0.02	0.00
C8-S	1.00	0.59	0.05	0.00	0.36	0.00	0.00	0.00	0.87	0.00
C9	1.00	0.00	0.00	0.00	0.00	0.01	0.00	0.99	0.01	0.00
C9-S	1.00	0.59	0.00	0.00	0.28	0.13	0.00	0.00	0.00	0.00

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Conduit Surcharge Summary
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	Hours Full			Hours Above Full	Hours Capacity
Conduit	Both Ends	Upstream	Dnstream	Normal Flow	Limited
C1	12.07	12.07	12.93	0.01	0.01
C10	0.01	0.01	0.06	0.01	0.01
C11	0.06	0.06	0.89	0.01	0.01

C12	3.01	3.01	8.03	0.01	0.01
C13	0.43	0.43	0.43	1.19	0.42
C14	0.01	0.01	0.01	0.25	0.01
C15	0.01	0.01	0.27	0.27	0.01
C16	0.01	0.01	41.74	0.01	0.01
C17	0.41	0.41	0.55	0.01	0.01
C18	0.55	0.55	0.69	0.01	0.01
C2	0.62	0.62	0.65	0.69	0.60
C20	0.01	0.01	1.16	0.01	0.01
C25	0.01	0.01	0.01	0.48	0.01
C26	0.01	0.01	2.92	0.01	0.01
C29	0.01	0.01	0.83	0.01	0.01
C30	0.01	0.01	2.92	0.01	0.01
C37	0.01	0.01	0.39	0.01	0.01
C38	0.01	0.01	0.01	0.01	0.01
C39	0.01	0.01	48.00	0.01	0.01
C39_1	0.01	0.01	0.41	0.01	0.01
C39_2	0.40	0.41	0.40	0.46	0.40
C43	0.01	0.01	0.01	0.01	0.01
C47	1.14	1.14	1.29	0.01	0.01
C48	5.59	5.59	7.71	0.01	0.01
C49	6.97	6.97	8.96	0.01	0.01
C49_1	6.12	6.12	6.97	0.01	0.01
C50	6.91	6.91	12.60	0.01	0.01
C50_1	0.53	0.53	0.64	0.01	0.01
C50_3	0.01	0.01	0.26	0.01	0.01
C50_4	0.26	0.26	0.53	0.01	0.01
C50_5	6.81	6.81	7.12	0.01	0.01
C51	7.71	7.71	12.31	0.01	0.01
C52	7.12	7.12	7.47	0.01	0.01
C53_1	7.47	7.47	7.89	0.01	0.01
C54	0.01	0.01	1.24	0.01	0.01
C55	3.21	3.26	3.30	3.14	2.84
C58_1	4.62	4.62	6.91	0.01	0.01
C59_1	0.01	0.01	0.61	0.01	0.01
C59_2	5.89	5.89	6.68	0.01	0.01
C60_2	0.96	3.42	0.96	5.61	0.96
C60_3	6.68	6.68	6.72	0.42	0.51

Analysis begun on: Thu Dec 12 11:29:10 2019
Analysis ended on: Thu Dec 12 11:29:26 2019
Total elapsed time: 00:00:16

CDS Average Annual Efficiency For TSS Removal & Total Annual Volume Treated

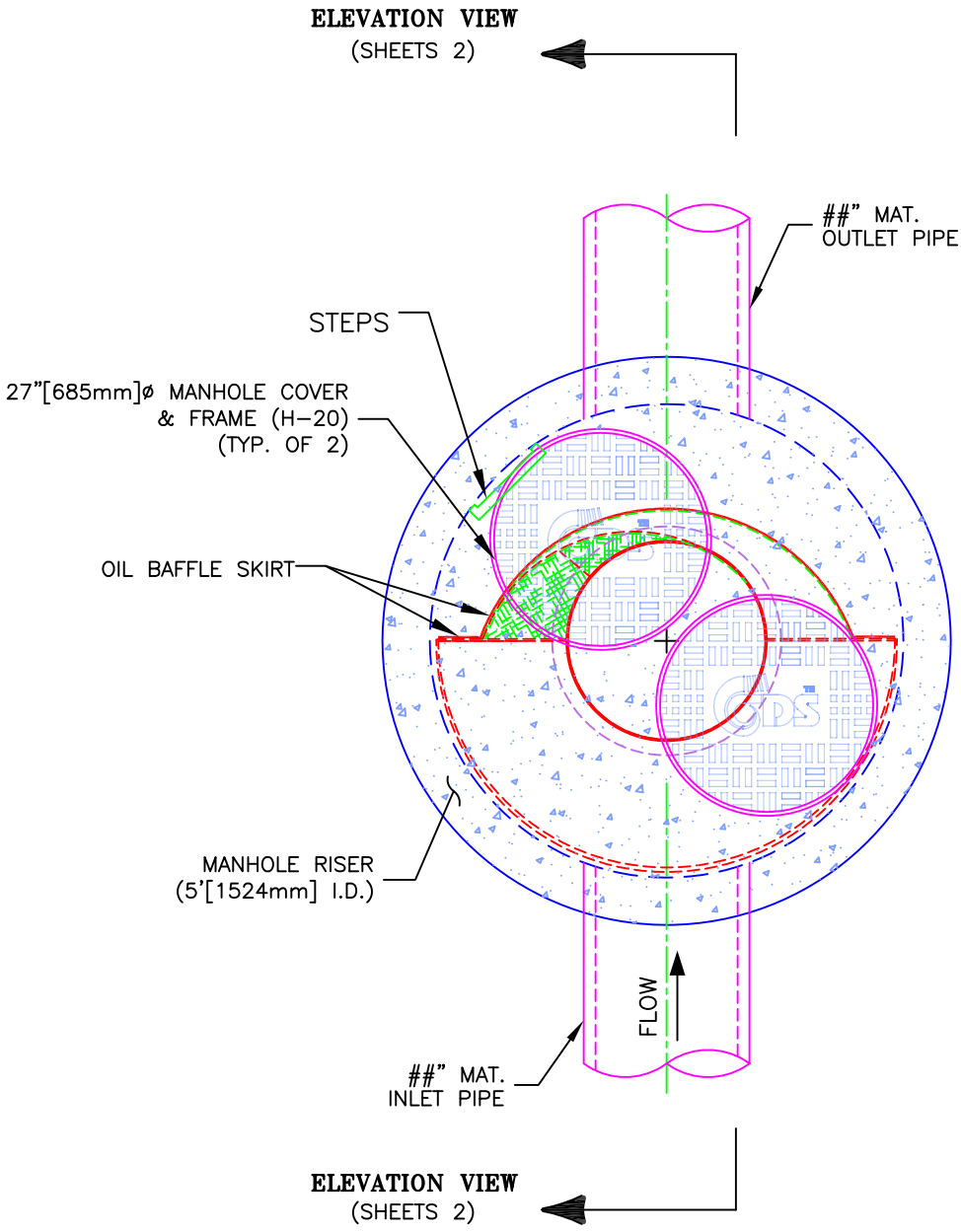
Project:	Blackmoor Gates			
Location:	Collingwood, ON			
Date:	12/3/2019			
By:	PG	Upstream Storage:	N/A	m3
PSD:	Fine	Area:	2.39	ha
CDS Model:	PMSU20_15_5	Imperviousness:	46	%
CDS Design Flow:	20 l/s	IDF Data:	Collingwood	

Return Period		Peak Flow	TSS Percentage Captured	Treated Flow Volume	Total Flow Volume	Annual Exceedance Probability	System Flow	CDS Flow	By-Pass Flow	Volume Percentage Treated
month / yr	Yr	l/s	%	litres	litres	%	l/s	l/s	l/s	%
1-M	0.08	6.47	92.65	19596	19596	**100.00**	6.47	6.47	0.00	100.00
2-M	0.17	9.24	90.02	27923	27923	**99.75**	9.24	9.24	0.00	100.00
3-M	0.25	11.52	87.82	34905	34905	**98.17**	11.52	11.52	0.00	100.00
4-M	0.33	13.57	85.83	41292	41292	**95.04**	13.57	13.57	0.00	100.00
5-M	0.42	15.12	84.30	46268	46268	**90.91**	15.12	15.12	0.00	100.00
6-M	0.50	16.68	82.77	51244	51244	**86.47**	16.68	16.68	0.00	100.00
7-M	0.58	17.83	81.62	54983	55008	**82.01**	17.83	17.83	0.00	99.96
8-M	0.67	18.97	80.47	58723	58772	**77.67**	18.97	18.97	0.00	99.92
9-M	0.75	20.11	79.31	62462	62537	**73.64**	20.11	19.82	0.29	99.88
10-M	0.83	21.00	78.03	64694	65517	**69.90**	21.00	19.82	1.17	98.84
11-M	0.92	21.88	76.74	66926	68497	**66.40**	21.88	19.82	2.06	97.80
1-Yr	1	22.76	75.46	69157	71478	**63.21**	22.76	19.82	2.94	96.75
2-Yr	2	29.76	65.39	83256	96488	**39.35**	29.76	19.82	9.94	86.29
5-Yr	5	45.59	47.72	106369	162233	**18.13**	45.59	19.82	25.77	65.57
10-Yr	10	55.32	39.10	116583	212704	**9.52**	55.32	19.82	35.50	54.81
25-Yr	25	63.26	32.61	121592	262662	**3.92**	63.26	19.82	43.44	46.29
50-Yr	50	83.91	21.71	122545	396918	**1.98**	83.91	19.82	64.09	30.87
100-Yr	100	107.51	18.10	122818	477039	**1.00**	107.51	19.82	87.69	25.75

Average Annual TSS Removal Efficiency [%]: **84.1** Ave. Ann. T. Volume [%]: **96%**

ECHELON ENVIRONMENTAL

PLAN VIEW

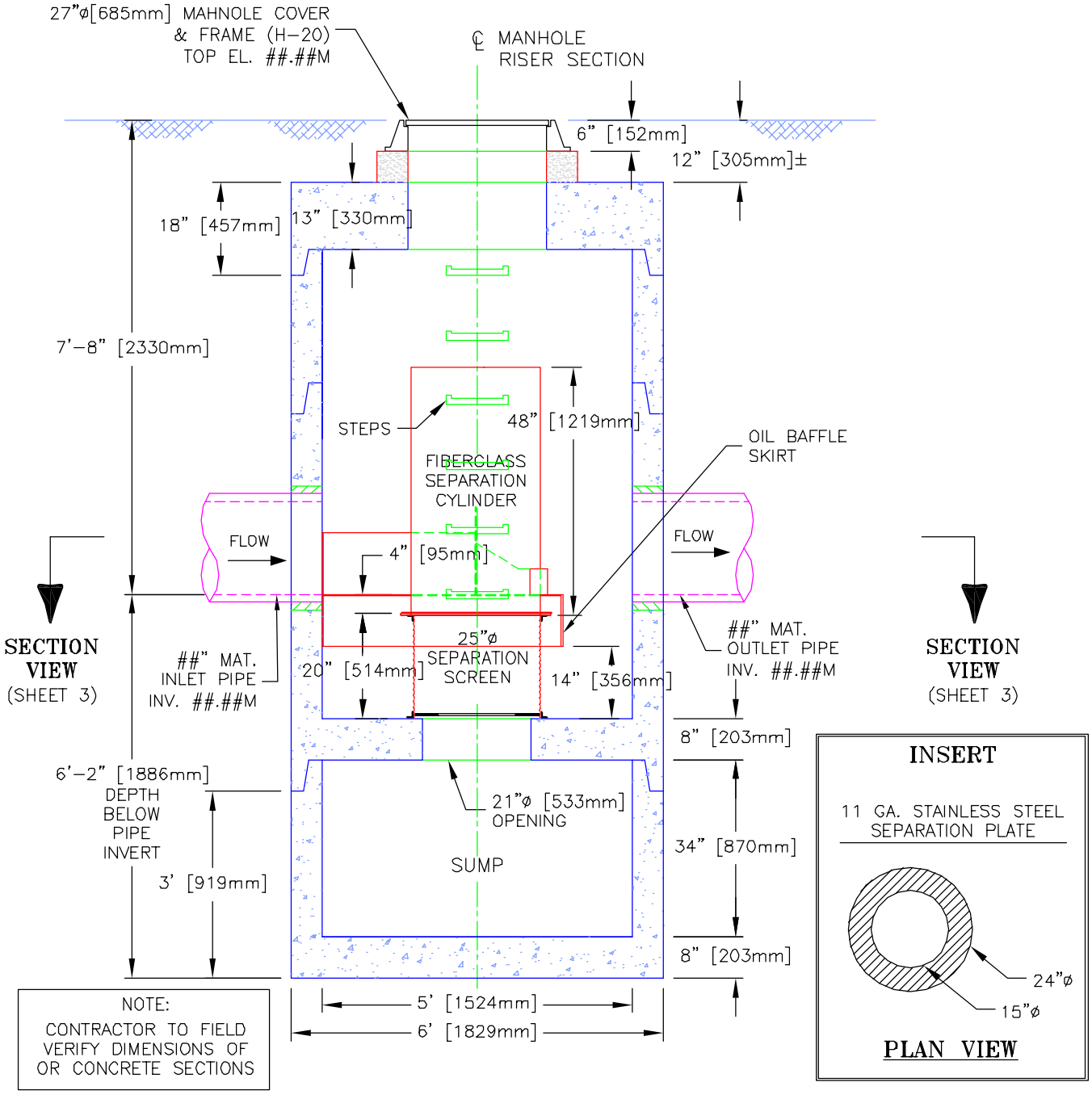


CDS MODEL PMSU20_15m, 0.7 CFS TREATMENT CAPACITY STORM WATER TREATMENT UNIT

CONTECH STORMWATER SOLUTIONS	PROJECT NAME CITY, STATE	JOB# XX-##-###	SCALE 1" = 2'
		DATE ##/##/##	SHEET 1
		DRAWN INITIALS	
		APPROV.	

Echelon Environmental 505 Hood Road, Unit 26, Markham, Ontario L3R 5V6 Tel: (905) 948-0000 Fax: (905) 948-0577
CONTECH Stormwater Solutions Inc. 200 Enterprise Drive, Scarborough, Maine 04074 Tel: (877) 907-8676 Fax: (207) 885-9825

ELEVATION VIEW



CDS MODEL PMSU20_15m, 0.7 CFS TREATMENT CAPACITY STORM WATER TREATMENT UNIT

CONTECH STORMWATER SOLUTIONS

PROJECT NAME
CITY, STATE

JOB#	XX-##-###	SCALE 1" = 2.5'
DATE	##/##/##	SHEET 2
DRAWN	INITIALS	
APPROV.		

Echelon Environmental 505 Hood Road, Unit 26, Markham, Ontario L3R 5V6 Tel: (905) 948-0000 Fax: (905) 948-0577
CONTECH Stormwater Solutions Inc. 200 Enterprise Drive, Scarborough, Maine 04074 Tel: (877) 907-8676 Fax: (207) 885-9825

ECHELON ENVIRONMENTAL

Phone: 905-948-0000
Fax: 905-948-0577
info@echelonenvironmental.ca
www.echelonenvironmental.ca

Estimate of Annual Grit Collection

Engineer:	CAPES Engineering Ltd.
Contact:	Clayton Capes, MSc., P.Eng
Report Date:	31-May-18

Project:	Blackmoor Gate
CDS Model:	20_15_5
OGS Location:	Collingwood, ON

Area :	2.39	ha
Imperviousness :	46	%
Runoff Coefficient :	0.55	

Assumptions:

1. Annual Rainfall	932.9	mm	
2. Typical Grit Concentration	150	mg/l	
3. Apparent Grit Density	1.4	kg/l	(estimated)
4. Grit Capture Efficiency	80%		

Runoff Volume = Area x Rainfall Depth x Runoff Coefficient = 12,241 cu.m

Grit Collected = Grit Concentration x Runoff Volume x Grit Capture Efficiency = 1,469 kg

Grit Volume = Mass / Apparent Density = 1,049 litres or 1.049 cu.m

Therefore it can be expected that this site will generate approximately 1.049cu.m of grit annually.

Sump Capacity of CDS unit = 1.668 cu.m

Therefore the design sump capacity will accommodate a cleaning frequency of one time per 18 to 24 months.