FUNCTIONAL SERVICING & MASTER DRAINAGE PLAN
PHASE 1 – EXISTING CONDITIONS

FAREWELL HEIGHTS SECONDARY PLAN

MUNICIPALITY OF CLARINGTON

PROJECT: 2021-5136 **NOVEMBER 2024**

Revision	Description	Prepared By	Prepared Date	Checked By	Checked Date
0.0	Original Submission	A. Mahfouz M. Singh	May 2024	K. Shahbikian	May 2024
1.0	Second Submission	A. Mahfouz M. Singh	November 2024	K. Shahbikian	November 2024

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1.0 INTRODUCTION

1.1 Purpose

Schaeffers Consulting Engineers (SCE) has been retained by the Municipality of Clarington and the Farewell Heights Landowners Group (LOG) to complete the Master Environmental Servicing Plan (MESP) for the Farewell Heights Secondary Plan Area (herein referred to as the FHSPA) in the community of Courtice located in the Municipality of Clarington. As per the Clarington Official Plan June 2018 Consolidation, the subject development requires a Secondary Plan. In preparation of the Secondary Plan and as stated in the previously prepared Terms of Reference (April 2024), this report is Phase 1 of the MESP which will discuss existing site conditions. This will include topics such as existing topography, land use, and hydrology (drainage conditions, watercourses). This report will also discuss existing municipal servicing which encompasses storm, water supply, and sanitary infrastructure. While a preliminary analysis regarding post-development conditions will be discussed, a detailed analysis shall be completed for the Phase 2 report.

1.2 Site Location & Existing Land Use

The secondary plan area (FHSPA) is located in the community of Courtice, the Municipality of Clarington (Municipality), part of the Regional Municipality of Durham (Region). The FHSPA resides within the jurisdictional boundary of the Central Lake Ontario Conservation Authority (CLOCA). The lands are bounded by:

- Adelaide Avenue to the south
- Tooley Road to the west
- Pebblestone Road to the north
- Agricultural lands to the east

There is a variety of existing land uses of the approximate 107ha property, consisting of natural features such as woodlots, wetlands, and Farewell Creek, as well as rural residential, agricultural lands, and a commercial garden center.

The location plan is illustrated in **Figure 1-1**.

Phil Golfried

PEBBLESTONE ROAD

TOOLEY ROAD

COURTICE ROAD

ADELAIDE AV

NIDDERY ST

TRULLS RD

FAREWELL HEIGHTS
LANDOWNER GROUP

LEGEND

SUBJECT LOCATION

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FIGURE 1.1
LOCATION PLAN

2023-5136	NOVEMBER 2024	SCALE: N.T.S.

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1.3 Supporting Documents

In preparation of this Phase 1 report, the following background studies were reviewed:

- Policy and Procedural Document for Land Use Planning and Regulation, Central Lake Ontario Conservation Authority (March 2024)
- Technical Guidelines for Stormwater Management Submissions, Central Lake Ontario Conservation Authority (October 2020)
- Black/Harmony/Farewell Creek 2020 Watershed Plan Update, Central Lake Ontario Conservation Authority (June 2020)
- Hydraulic Modeling for Black, Harmony and Farewell Creeks Documentation, Central Lake Ontario Conservation Authority (June 2015)
- Black, Harmony, and Farewell Creeks Floodplain Mapping Study, Central Lake Ontario Conservation Authority (June 2010)
- Municipality of Clarington Official Plan 2018 Consolidation (June 2018)
- Floodplain Mapping Analysis Report, R.J. Burnside & Associates Ltd. (March 2024)
- Terms of Reference, Schaeffers Consulting Engineers (April 2024)

1.4 Existing Site Topography

The existing topography of the FHSPA is consistent and generally flat. There is an overall gentle 1.0% slope with the highest elevation at the northeast corner (148.50 masl) and the lowest elevation at the southwest corner (130.50 masl).

The topography of the existing boundary conditions are as follows:

- Adelaide Avenue slopes westerly along the southern boundary. There are local low points where the ROW crosses the tributaries of Farewell Creek.
- Tooley Road slopes southerly along the western boundary
- Pebblestone Road slopes westerly along the northern boundary
- Agricultural lands slope southerly along the eastern boundary

2.0 HYDROLOGY

2.1 Existing Infrastructure

Existing drainage infrastructure across the FHSPA is limited. Culvert inventory surveys were completed as part of the Floodplain Mapping Analysis Report (Burnside, 2024) in support of the FHSPA. As per their findings, four (4) road crossing culverts are known to exist within the floodplain study area however only one (1) culvert is located within the FHSPA boundaries. Full details can be found in R.J. Burnside's report. In addition to this, a survey of the site was completed in 2024 which identified multiple road crossing culverts. Information on the culverts is summarized in **Table 2-1**. The culverts are also labeled by number on **Figure 2-1**. The survey can be referenced for more details. No other built infrastructure from a drainage perspective has been identified.

Table 2-1: Existing Culverts

Number	Location	Size	Shape	Material
1	Pebblestone Road & Trulls Road	0.4m diameter	Circular	CSP
2	Sherry Lane	0.6m diameter	Circular	CSP
3	Sherry Lane & Trulls Road	0.4m diameter	Circular	CSP
4	Trulls Road	0.9m diameter	Circular	CSP

2.2 Existing Drainage Conditions

The FHSPA lies within the Farewell Creek watershed, which is a part of the Black, Harmony, and Farewell Creeks watershed as identified by CLOCA. Multiple reaches of Farewell Creek, which have been defined by R.J. Burnside in their report, drain through the subject lands in a general southwesterly direction towards Lake Ontario. The existing drainage areas and reaches are illustrated on **Figure 2-1** and a brief description of the reaches is provided in **Table 2-2**.

Phil Gotfried

PEBBLESTONE ROAD

TOOLEY ROAD

TIMBERLANE COURT

TRULLS ROAD

COURTICE ROAD

ADELAIDE AVENUE

F12
167.3ha

F9A
4.9ha

F9B
36.6ha

F9C
75.7ha

F9D-F11A
50.2ha

F11B
134.0ha

F9E
5.9ha

F9F
46.1ha

1

2

3

4

REACH F9B

REACH F9C

REACH F9D

REACH F9E

REACH F9F

REACH F10A

REACH F10B

REACH F10C

FAREWELL HEIGHTS
LANDOWNER GROUP

LEGEND

- SUBJECT LOCATION
- EXISTING STORMWATER CATCHMENT AREA
- EXISTING WATERCOURSE
- 100-YR FLOODLINE
- REGIONAL FLOODLINE
- F11B 134.0ha — CATCHMENT AREA ID AREA IN HECTARES
- EXISTING CULVERT

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FIGURE 2.1
EXISTING FLOODPLAIN & DRAINAGE PLAN

2021-5136	NOVEMBER 2024	SCALE: N.T.S.

W:\5100's\5136 - Farewell Heights LOG\Drawing\Drainage\2024-11-04-5136-Drainage Existing.dwg

Table 2-2: Farewell Creek Reaches

Reach	Description
F9C	Reach F9C which commences outside of the FHSPA to the north, traverses the western most portion of the FHSPA. It travels in a southerly direction and exits at the southwest corner at Adelaide Avenue.
F9B	Reach F9B which commences within the FHSPA near the northern boundary at Pebblestone Road, passes approximately through the centre of the FHSPA. It flows in a southwesterly direction. It converges with Reach F9D just north of Adelaide Avenue where the two reaches become Reach F9E.
F9D	Reach F9D commences within the FHSPA, approximately 310m north of Adelaide Avenue at Trulls Road. It passes approximately through the centre of the FHSPA, flowing in a southwesterly direction, eventually converging with Reach F9B just north of Adelaide Avenue. From this point on, the two reaches become Reach F9E.
F9E	Reach F9E begins at the convergence of Reach F9B and F9D, just north of Adelaide Avenue. It flows in a southwesterly direction, exiting the FHSPA at Adelaide Avenue.
F10A	Reach F10A commences within the FHSPA in the southeast portion and flows in a southerly direction. It converges with Reach F10B at the southeast corner of the FHSPA, where the two reaches become Reach F10C.
F10B	Reach F10B commences outside of the FHSPA near the southeast corner. It flows in a southwesterly direction into the FHSPA where it converges with Reach F10A, where the two reaches become Reach F10C.
F10C	Reach F10C begins at the convergence of Reach F10A and F10B at the southeast corner of the FHSPA. It flows in a southerly direction, exiting the FHSPA at the southeast.

Three reaches exit the FHSPA at the south boundary. These are reaches F9C, F9E, and F10C. It should be noted that F9C and F9E converge at a confluence point just south of the FHSPA to become Reach F9F. Further south from that confluence point, Reach F9F converges with Reach F10C at another confluence point which constitutes drainage from the entire FHSPA.

As the catchments draining to the reaches are not entirely contained within the FHSPA, the following table provides a breakdown as to how much of the FHSPA in existing conditions is draining to each respective reach. It should be noted that the reaches and catchments are illustrated on **Figure 2-1**.

Table 2-3: Catchment Areas

Reach	Catchment	Total Area (ha)	Area within FHSPA (ha)
F9C	F9C	75.7	14.9
F9B	F9A	4.9	4.9
F9B	F9B	36.6	27.3
F9D	F9D-F11A	50.2	35.9
F9E	F9E	5.9	2.2
F10A	F11B	134.0	23.2
F10B	F11B	134.0	23.2
F10C	F11B	134.0	23.2

2.3 Receiving Watercourse

The FHSPA lies within the Black/Harmony/Farewell (BHF) watershed, ultimately flowing south into Lake Ontario.

According to the BHF WSP (2020), the BHF watershed encompasses approximately 108km^2 and is entirely located within the Region of Durham and straddles the municipal boundary of the City of Oshawa and the Municipality of Clarington. The Oak Ridges Moraine (ORM) contributes to the headwaters of this watershed. Its watercourses flow through Lake Iroquois Beach and the Oshawa Second Marsh before eventually entering Lake Ontario.

2.4 Erosion Assessment

An erosion assessment will be conducted after consultation with a fluvial geomorphologist. The fluvial geomorphologist will determine which of the reaches within the FHSPA are determined to be sensitive to erosion impacts. Once this has been established, further modelling can be conducted to determine erosion control requirements.

2.5 Downstream Assessment

An analysis was undertaken using the VO hydrology models (existing and future) prepared by CLOCA, accompanied by the summary report titled Hydraulic Modelling for Black, Harmony, and Farewell Creeks Documentation (CLOCA, 2009). The future model prepared by CLOCA was modified by R.J. Burnside to better reflect the FHSPA. The changes are described in the accompanying Floodplain Mapping Analysis Report prepared by R.J. Burnside (2024). This model was again modified by SCE to account for future development areas within the FHSPA for the purposes of the downstream assessment (further discussed in Section 2.5.1). It should be noted that all models analyzed were entirely uncontrolled as is routine with a Regional storm analysis. The purpose of the downstream assessment was to determine if Regional controls are required for the FHSPA. **Table 2.4** summarizes the four (4) scenarios (or models) that were analysed. In addition to this, **Figures 2-2, 2-3, 2-4, and 2-5** provide a schematic of the four scenarios. Please note that a 100-year uncontrolled analysis was also completed on request by CLOCA. This involved the 100-year uncontrolled models for the same four scenarios as shown in **Table 2-4**. It should be noted that for the existing conditions model prepared by CLOCA, an uncontrolled version was not provided. Hence, the controlled version was converted to uncontrolled by removing 1 route reservoir (ID: 9211) upstream of NHYD 20. No other changes were needed.

Table 2-4: Hydrology Models

Model	Prepared By	Year	Figure	Description
Existing Conditions	CLOCA	2015	2-2	Based on existing land uses from 2005. The FHSPA falls primarily in CLOCA catchments F9 and F11, with a small portion in F12.
Future Conditions	CLOCA	2015	2-3	Based on future land uses as per Clarington's and Oshawa's Official Plans.
Modified Future Conditions	R.J. Burnside	2024	2-4	Modified CLOCA future conditions model with discretised areas within the FHSPA. CLOCA catchments F9 and F11 were divided into subcatchments. Reaches were also subdivided to align with the contributing subcatchments.
Post-Development	SCE	2024	2-5	Modified RJB's model to include future development areas within the FHSPA. These areas were taken out of RJB's subcatchments (F9 and F11).

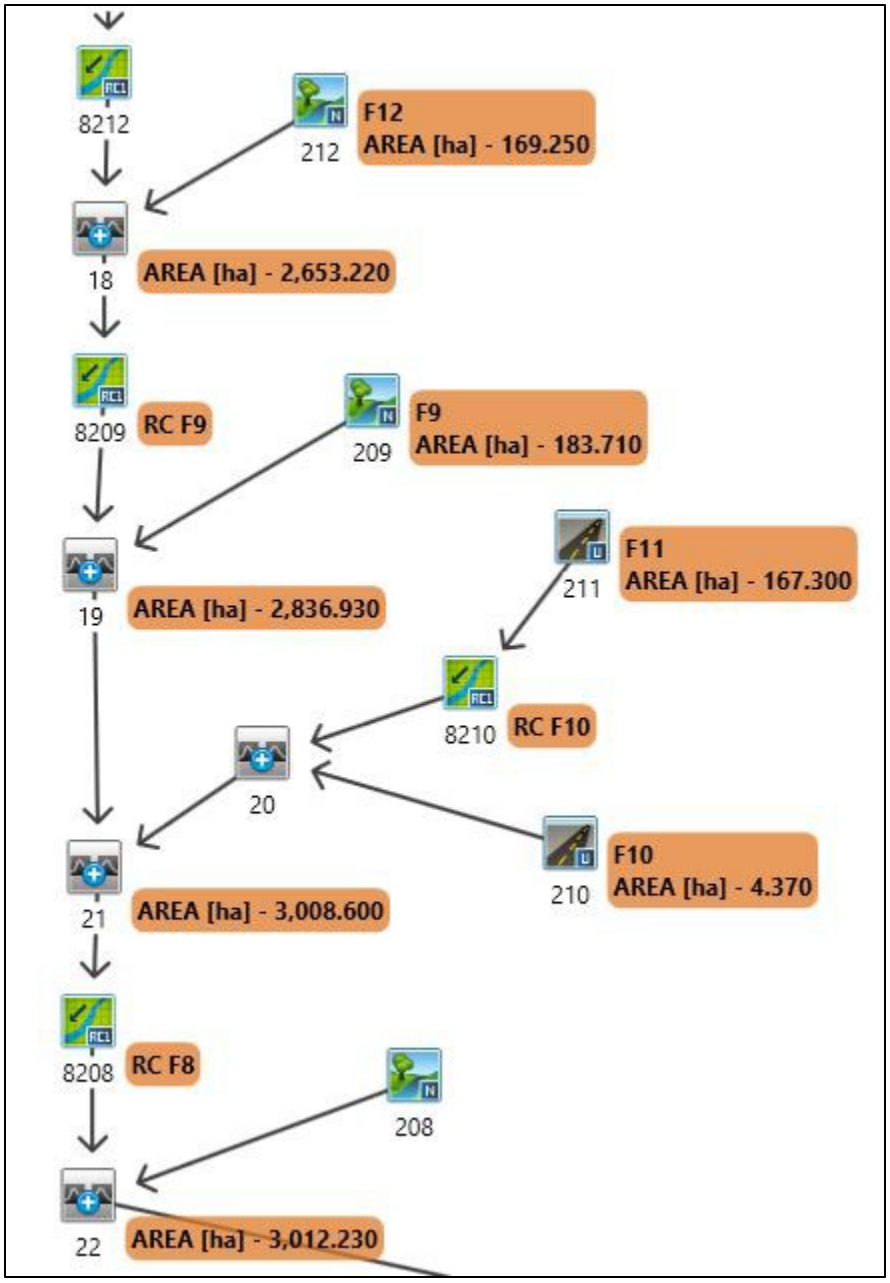

Figure 2-2: Existing Conditions

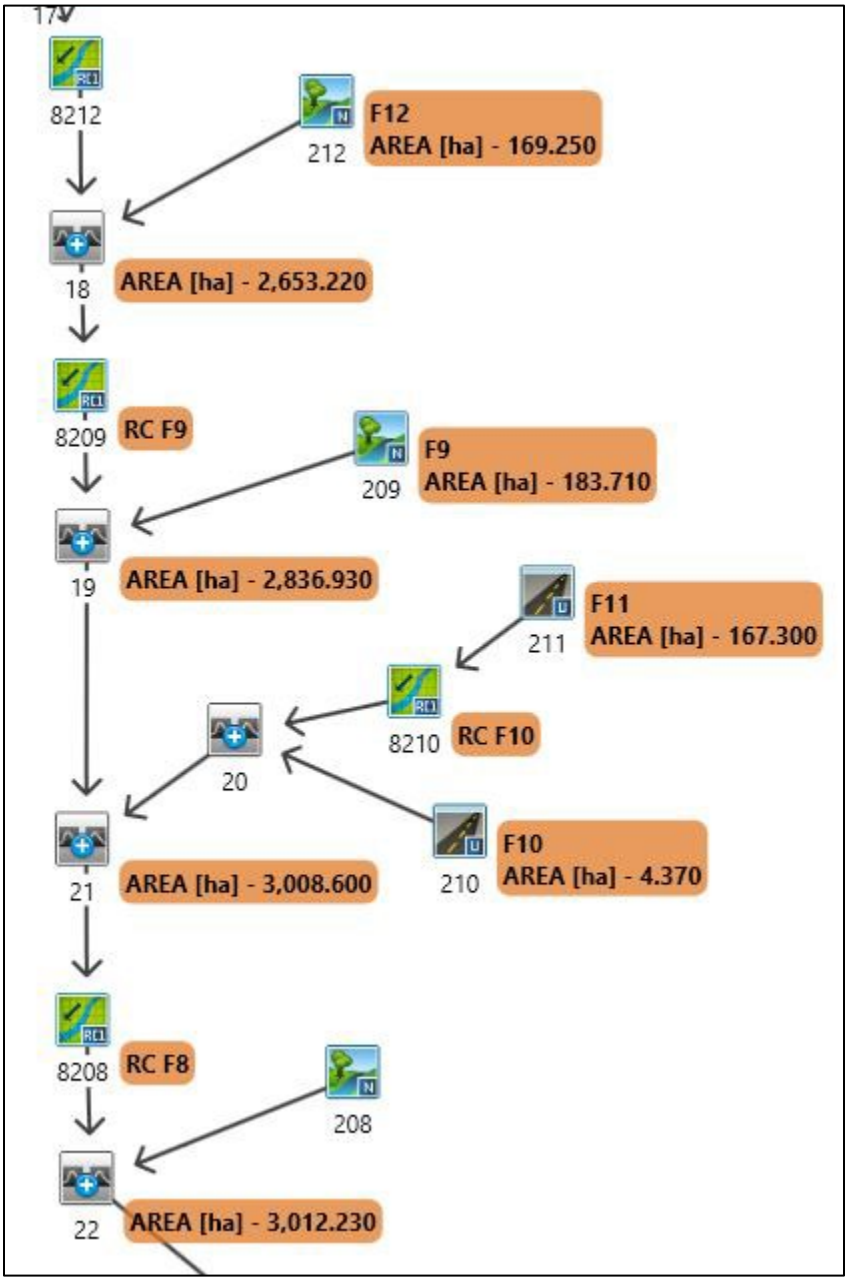

Figure 2-3: Future Conditions

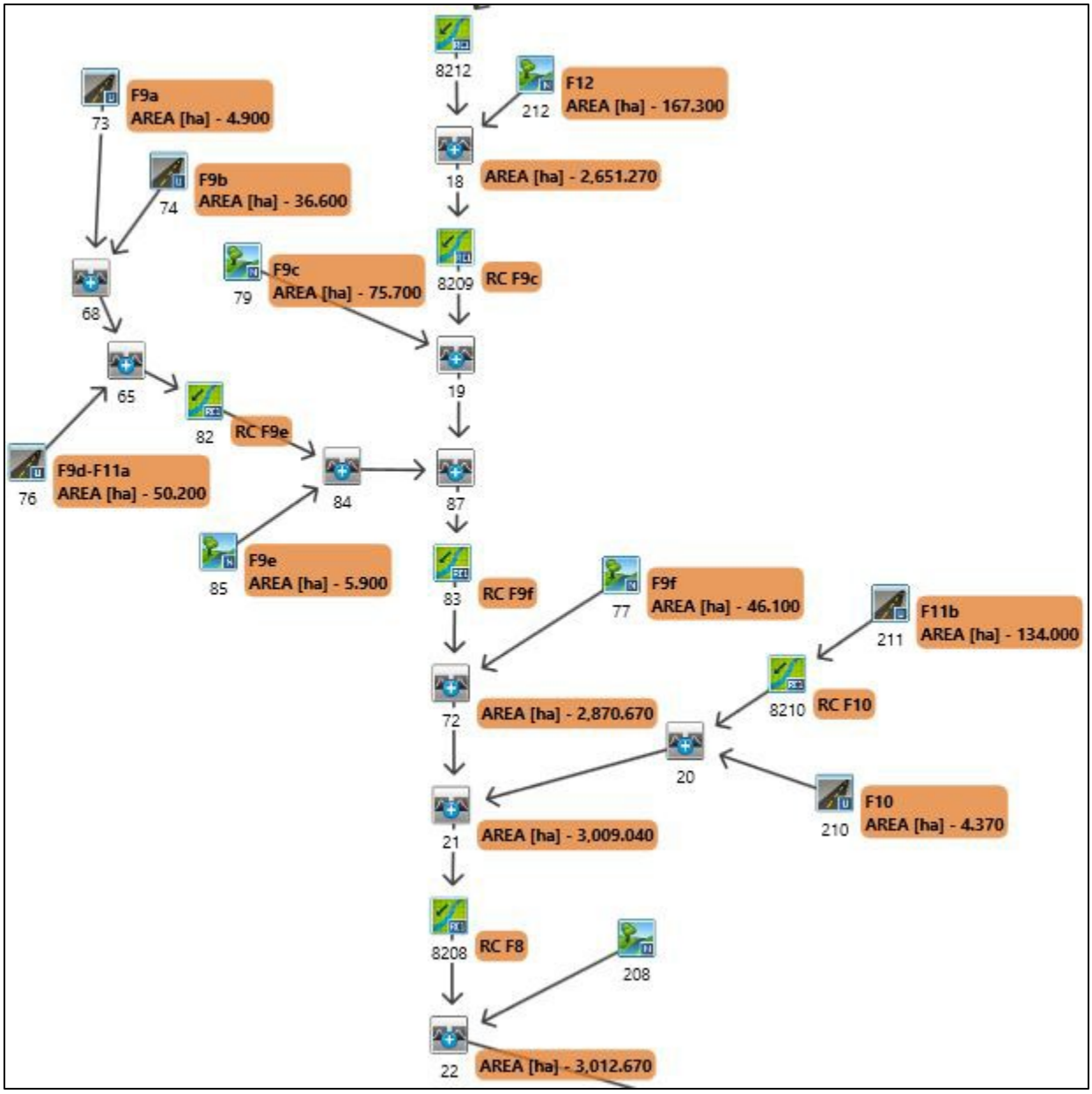

Figure 2-4: Modified Future Conditions

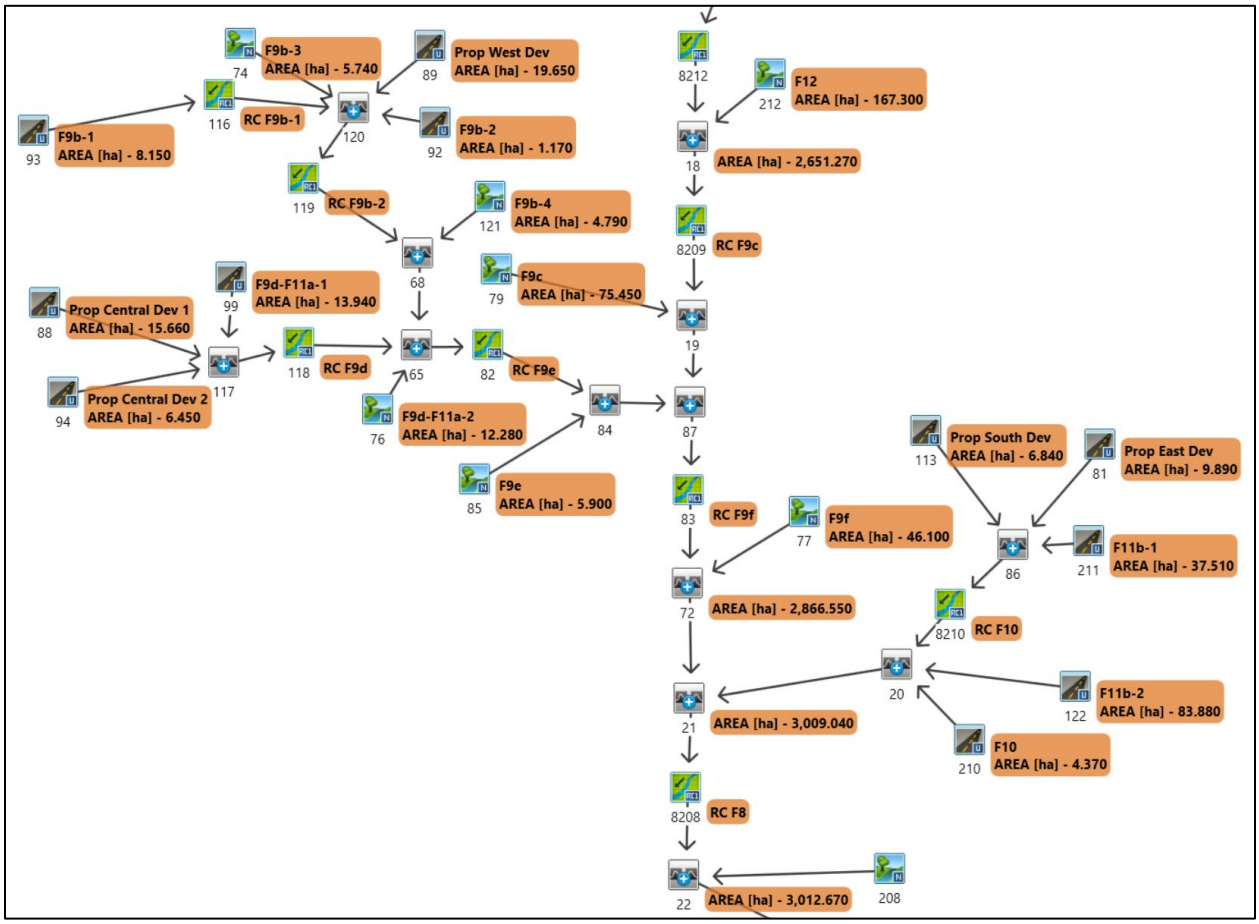

Figure 2-5: Post-Development

2.5.1 VO Inputs

To create the post-development VO scenario, five (5) post-development catchment areas within the secondary plan area were delineated to represent the future development areas. These post-development catchments were created out of the pre-defined catchments as determined by R.J. Burnside. The catchments are illustrated in **Figure 2-6** and a detailed summary of the area discretization including associated calculations is provided in **Appendix A**. Total areas between the two scenarios were maintained to ensure consistency in the modeling.

For all five (5) catchments representing the development area, the total imperviousness (TIMP) was set to 75% and the directly connected imperviousness (XIMP) was set to 50%. These numbers are considered conservative and reasonable for residential developments which typically contain a mix of impervious (roofs and driveways) and pervious areas (lawns and parks). Given these numbers are logical assumptions, detailed calculations can be done at a later stage when more information is known regarding the land uses. In regards to the loss parameters, the CN numbers were increased and converted to CNIII for the Regional scenario, consistent with compacted and/or imported soils (as a result of development activities) and saturated soils (Regional storm conditions). The initial abstraction value was assumed to be 2mm instead of 5mm for all five catchments to accommodate possible hard landscaping.

Due to the creation of the development catchments, the existing catchments as created by R.J. Burnside were consequently split up. These were reassigned with their revised areas to the same outlets as in the R.J. Burnside model (i.e., they are flowing into the same reach) to ensure consistency. In regards to the reaches, the reach lengths as found in R.J. Burnside's model (near the proposed development) were revised for accuracy purposes. In addition to this, Reach F9B and Reach F9D were introduced into the model. These were not present in the R.J. Burnside model which was only considering the downstream reach, F9E, because the existing catchment areas were modelled to include the upstream reaches. For the post-development scenario, since the developed catchments are being discharged upstream of the reach, further discretization of the NHS areas within the FHSPA was required. This is illustrated on **Figure 2-6**.

All changes in regards to the catchments and reaches are summarized in **Table 2.5 and 2.6** respectively. It should be noted that the total development area as defined by the five catchments is consistent with the constraints map prepared by other consultants. The catchment areas shall be refined when the block plan is finalized and as the grading design progresses. Also, the total area between the post-development model prepared by SCE and the Modified CLOCA Future model prepared by R.J. Burnside is identical.

Table 2-5: Summary of Revisions – Catchments

Existing Catchment (RJB)	Post Development Catchment	CN - Existing (1)	CN - Post REGIONAL (1)	CN - Post 100 Year (1)	IA – Existing (2)	IA – Post (2)
F9B	WEST	76	93	85	4.8	2
F9D-F11A	CENTRAL 1	74	93	85	4.2	2
F9D-F11A	CENTRAL 2	74	93	85	4.2	2
F9D-F11A/F11B	EAST	74/73	93	85	4.2/2.7	2
F11B	SOUTH	73	93	85	2.7	2

(1) – AMC III Soil Conditions

(2) – IA is in millimeters

Table 2-6: Summary of Revisions – Reaches

Reach	NHYD	Length (RJB Model) (m)	Revised Length (m)
F12	8212	2336	2261
F9C	8209	1927	2026
F9F	83	1219	1045
F9E	82	432	501
F9B-1	116	Not Defined in RJB Model	685
F9B-2	119	Not Defined in RJB Model	321
F9D	118	Not Defined in RJB Model	632
F10	8210	272	2268

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FAREWELL HEIGHTS
LANDOWNER GROUP

LEGEND

- SUBJECT LOCATION
- PROPOSED DEVELOPMENT TRIBUTARY BOUNDARY
- EXISTING STORMWATER TRIBUTARY BOUNDARY
- EXISTING WATERCOURSE
- EAST / 10 ha — PROP. CATCHMENT AREA ID AREA IN HECTARES
- F11B / 100 ha — EXISTING CATCHMENT AREA ID AREA IN HECTARES

PEBBLESTONE ROAD

TIMBERLANE COURT

TOOLEY ROAD

TRULLS ROAD

COURTICE ROAD

ADELAIDE AVENUE

F12 / 167.30ha

F9B-1 / 8.15ha

F9D-F11A-1 / 13.94ha

F9B-2 / 1.17ha

F9C / 75.43ha

F9B-3 / 5.74ha

F9B-4 / 4.79ha

F9E / 5.90ha

F9D-F11A-2 / 12.28ha

F9F / 46.10ha

F11B-1 / 37.51ha

F11B-2 / 83.88ha

WEST / 19.65ha

EAST / 9.89ha

CENTRAL 1 / 15.66ha

CENTRAL 2 / 6.45ha

SOUTH / 6.84ha

REACH F9B

REACH F9C

REACH F9D

REACH F9E

REACH F9F

REACH F10A

REACH F10B

REACH F10C

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FIGURE 2.6
DOWNSTREAM
ASSESSMENT CATCHMENT AREAS

2021-5136 | NOVEMBER 2024 | SCALE: N.T.S.

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2.5.2 Analysis Results

A summary of flows based on the four VO scenarios for the Regional and 100-year cases is presented in

Table 2-7, **Table 2.8**, and **Appendix A**. The downstream assessment was conducted in regards to four (4) key nodes.

Table 2-7: Summary of Flows at Downstream Nodes (Regional)

Description	NHYD	CLOCA Existing Regional Flow[1] [A]	CLOCA Future Regional Flow[1] [B]	Modified CLOCA Future Regional Flow[1] [C]	Post-Development Regional Flow[1] [D]	D/S Assessment – Change[1] [E = D – C]	D/S Assessment – Change[2] [F = D/B]
Downstream of F9 *(Reach F9F prior to confluence with Reach F10C)*	19/72*	190.09	192.63	187.60	188.02	0.41	0%
Downstream of F11 *(Reach F10C prior to confluence with Reach F9F)*	20	20.35	19.38	15.67	16.34	0.67	4%
Confluence of Farewell Heights Development *(Confluence of Reaches F9F and F10C)*	21	193.11	195.34	189.14	189.78	0.63	0%
Farewell, before Black confluence	22	193.21	195.45	189.17	189.87	0.69	0%

* – NHYD 19 in CLOCA Existing/Future is equivalent to NHYD 72 in Modified CLOCA Future and Post-Development.

(1) – Displayed in m^3/s

(2) – Displayed in %

Table 2-8: Summary of Flows at Downstream Nodes (100yr)

Description	NHYD	CLOCA Existing Regional Flow(1) ** [A]	CLOCA Future Regional Flow(1) [B]	Modified CLOCA Future Regional Flow(1) [C]	Post-Development Regional Flow(1) [D]	D/S Assessment – Change(1) [E = D – C]	D/S Assessment – Change(2) [F = D/B]
Downstream of F9 *(Reach F9F prior to confluence with Reach F10C)*	19/72*	47.04	49.26	48.34	48.46	0.12	0%
Downstream of F11 *(Reach F10C prior to confluence with Reach F9F)*	20	26.18	23.37	18.90	17.16	-1.74	-9%
Confluence of Farewell Heights Development *(Confluence of Reaches F9F and F10C)*	21	47.59	49.75	48.71	48.96	0.25	1%
Farewell, before Black confluence	22	47.63	49.75	48.76	48.98	0.22	0%

** – NHYD 19 in CLOCA Existing/Future is equivalent to NHYD 72 in Modified CLOCA Future and Post-Development.*

*** – CLOCA existing model contains ponds, no uncontrolled version was provided. Uncontrolled version was created with removal of 1 route reservoir upstream of NHYD 20.*

(1) – Displayed in m^3/s

(2) – Displayed in %

When looking at the modeling results summarized in **Table 2.7**, it can be seen that the flows generally increase from the CLOCA Existing model to the CLOCA Future model. This is expected as the CLOCA Future model considers additional development area which would increase runoff. A decrease at NHYD 20 is noted which is due to Catchment F11 (draining to NHYD 20) being modeled with lower loss parameters (CN, IA) despite a higher TIMP in the future scenario.

When comparing the Modified CLOCA Future model (prepared by R.J. Burnside) to the CLOCA Future model, it can be seen that the flows have decreased for all nodes. Generally speaking, this can be attributed to the detailed discretization of the CLOCA Future model including the introduction of additional routing as done by R.J. Burnside. While overall areas have been generally maintained between the two scenarios, the combination of discretizing the CLOCA catchments and defining additional reaches (route channels) results in lower peak flows. In other words, by splitting areas and directing them through route channels, flows are essentially being attenuated and time to peaks are being shifted, leading to a net reduction in flows.

When comparing the Modified CLOCA Future model with the Post-Development model (prepared by SCE), flows have increased at all nodes, albeit three of the increases are negligible. The increases are expected given that the development area with a high imperviousness is being introduced into the model. A more notable increase of 4% is evident at NHYD 20. This increase can be explained due to the fact that approximately 4.1 ha (net) is being diverted from Reach F9 to Reach F10, leading to the increase in

flows. The increase in flows dissipates at the following node (NHYD 21) where Reach F9 and F10 combine to become Reach F8 downstream of the FHSPA, just south of Nash Road. It should be noted that all flows are below the CLOCA Existing and CLOCA Future models.

Based on this assessment, it can be concluded that regional controls are not required for the Farewell Heights Development. However, please note that a post-development floodplain analysis will be conducted during Phase 2 of the MESP to determine the change in water surface elevations as a result of the findings from the hydrologic analysis, as well as to identify flood-prone areas. If the proposed land use within the FHSPA causes or increases the risk of flooding and property damage, regional control requirements can be revisited.

On request by CLOCA, the 100-year scenario was also evaluated for which results are provided in **Table 2.8**. The 12-hour Chicago storm associated with CLOCA's BHF model was run for this analysis. The pattern of changes between the different models generally follows the Regional storm scenario. Flow increases can be attributed to the introduction of development area whereas decreases can be attributed to modelling parameters and characteristics. A maximum flow increase of 1% (0.25 cms when comparing the Post-Development model to the Modified CLOCA Future model) is observed at NHYD 21 which can be considered insignificant. More notably however, a 9% decrease is observed at NHYD 20. In the Regional storm scenario, a 4% increase was noted due to additional area being diverted to this node. This is not the case for the 100-year scenario due to model discretization as well as differences in times to peak for the upstream catchments. For all 4 models analyzed, NHYD 20 experiences higher flows during the 100-year event than the Regional event. This is not the case for the other three nodes which have higher Regional flows. Although 2 to 100-year controls will be pursued for the FHSPA as part of Phase 2 of the MESP which is consistent with CLOCA standards, as mentioned before, a post-development floodplain analysis will be conducted to determine if development within the FHSPA causes or increases the risk of flooding and property damage. Control requirements can be revisited at this time.

3.0 WATER SUPPLY SERVICING

3.1 Existing Infrastructure

The FHSPA is located in Water Pressure Zone (WPZ) WO2 of the Whitby-Oshawa-Courtice system. The top water level of the Zone 2 reservoirs is 187.5 m. As per Region of Durham Open Data and Public Works Map, there are no planned capital projects for the watermains in the vicinity of the FHSPA. The existing infrastructure within the vicinity includes:

- 300mm diameter PVC watermain along Trulls Road
- 300mm diameter PVC watermain along Adelaide Avenue

The existing water infrastructure is presented in **Figure 3-1**.

Potential service connections to the existing watermains can be established for water servicing, as shown in the **Figure 3-1.** Further details of the proposed servicing plan will be analyzed and discussed in the Phase 2 report.

Phil Gotfried

PEBBLESTONE ROAD

TIMBERLANE COURT

TOOLEY ROAD

TRULLS ROAD

COURTICE ROAD

OPPORTUNITY FOR CONNECTION VIA EX. 300mm MAIN

OPPORTUNITY FOR CONNECTION VIA EX. 300mm MAIN

ADELAIDE AVENUE

TOOLEY ROAD

NASH ROAD

TRULLS ROAD

NASH ROAD

FAREWELL HEIGHTS
LANDOWNER GROUP

LEGEND

SUBJECT LOCATION

EXISTING WATERMAIN
ASSUMED OR IN SERVICE

EXISTING FEEDER WATERMAIN
ASSUMED OR IN SERVICE

OPPORTUNITY FOR
WATER CONNECTION

WATER PRESSURE ZONE
WO2

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FIGURE 3.1
EXISTING WATER SUPPLY SERVICING

2021-5136	NOVEMBER 2024	SCALE: N.T.S.

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4.0 SANITARY SERVICING

4.1 Existing Infrastructure

The following describes the existing sanitary infrastructure within the vicinity of the FHSPA:

- 200mm sanitary sewer on Niddery Street which runs south and ultimately discharges to the existing Regional sanitary trunk sewer at Nash Road and George Reynolds Drive intersection
- 300mm sanitary sewer on Trulls Street which runs south and ultimately discharges to the existing Regional sanitary trunk sewer at Nash Road and Goldpine Avenue intersection.

It is noted that the Region proposed a new Regional sanitary trunk sewer adjacent to the FHSPA. The Courtice Trunk Sanitary Sewer will run west along Adelaide Avenue and south along Trulls Road. As per the Region's 2023 Plans and Budget, the construction of the new trunk sewer was split into phases. The construction of the new trunk sewer on Trulls Road from Bloor Street to Adelaide Avenue was scheduled in 2024 while the new trunk sewer on Adelaide Road from Trulls Road to Townline Road was scheduled in 2026.

The existing sanitary infrastructure and the new Regional sanitary trunk sewer are illustrated in **Figure 4-1**.

The theoretical capacity analysis of the existing sanitary network reveals that the existing downstream sewers of Niddery Street and Trulls Road had residual capacity for servicing 1,306 and 1,457 people respectively. The FHSPA could make connections to these two existing sewers as shown on **Figure 4-1** for servicing till the new Regional trunk sewer is built.

The theoretical capacity analysis is provided for reference in **Appendix B.**

Phil Gotfried

PEBBLESTONE ROAD

TIMBERLANE COURT

TRULLS ROAD

COURTICE ROAD

TOOLEY ROAD

OPPORTUNITY FOR CONNECTION VIA EX. 200MM SEWER

OPPORTUNITY FOR CONNECTION VIA EX. 300MM SEWER

ADELAIDE AVENUE

TOOLEY ROAD

NASH ROAD

TRULLS ROAD

NASH ROAD

FAREWELL HEIGHTS
LANDOWNER GROUP

LEGEND

- SUBJECT LOCATION
- EXISTING SANITARY SEWERS
- EXISTING SANITARY FORCEMAIN
- OPPORTUNITY FOR SANITARY CONNECTION
- FUTURE SANITARY TRUNK

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FIGURE 4.1
EXISTING SANITARY SERVICING PLAN

2021-5136	NOVEMBER 2024	SCALE: N.T.S.

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5.0 CLOSING REMARKS

This Functional Servicing and Master Drainage Plan provides an overview of the existing hydrology and servicing infrastructure with respect to the Farewell Heights Secondary Plan Area (FHSPA). A downstream assessment based on theoretical post-development areas was completed as part of this Phase 1 report. Refinements to this study and additional analysis shall be completed during Phase 2 as planning and development progresses.

We trust that this report is satisfactory for your needs. Should you have any questions or comments, please do not hesitate to contact the undersigned.

Respectfully Submitted,

SCHAEFFER & ASSOCIATES LTD.

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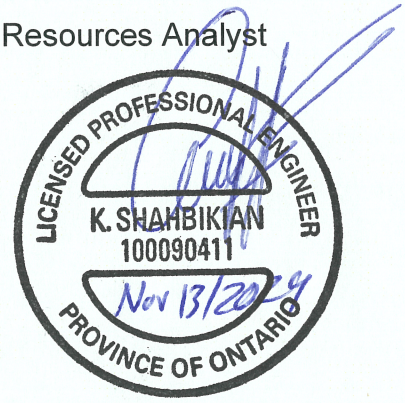

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