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**MAIN OFFICE DARTMOUTH      BRANCH OFFICE NORTH SHORE (MALAGASH):**

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HRM Development Services

March 8, 2024

RE: Proposed Stormwater Management Plan  
for Parcel MF9-1 PID 40204133  
Nova Scotia Housing Dev Corporation.  
Karen Drive, Westphal, HRM, NS.

Dear Development Services,

I have prepared this report as part of the requirements of the Concept Schematic development at the above noted property. I have included the stormwater management plan and the concept development plan with this report.

The stormwater management is intended to be controlled on site by the use of a detention pond created from a wetland alteration permit process. The basic principles are to slow-release stormwater from the site in pre conditions as denoted on the stormwater management plan, dated March 8, 2024. Wetland delineation has been prepared by Englobe Corp.

The contributing combined drainage area has been denoted as Area "A" and evaluated for pre and post development of Area "B" by the SCS TR-20 Modified Chicago Storm Distribution as required by HRWC. The overall storage difference from pre to post was 350 cubic meters. This represents a pond of 0.5 meters deep by an area of which is considered to be a small functioning detention pond having a radius of 15 meters.

Currently Civtech Engineering & Surveying Limited is also engaged with the developer for PID 00619692 and has prepared plans pursuant to Section 4.1 subdivision grading by-law. As such, it is anticipated that there will be a level of cooperation between both parties in regards to any beneficial interest of the parties in cost saving measures of the overall stormwater management in this area of Westphal.

The overall development is as shown on proposed schematic dated March 8, 2024. A traffic impact study has been done and we have elected to consider Karen Drive as the entrance to the development. As such, we have utilized HRM standard detail as close as possible for a Suburban Residential Local Street, Figure HRM 2 for the proposed driveway.

The proposed parking for the site has been adopted from CMHC Parking Areas Advisory Document as reference on the plan. The parking configuration is based on the client's preferences.

The goals and objective of the project is based on the developers target demographics as per an attachment regarding same. The overall concept is to provide foundation styles/slab on grade that step with natural grading of the property as well as the roof lines etc.

As this is a concept report of the development, consideration must be taken in regards to the servicing connections to Main Street as gravity flow. There exists manholes adjacent to the right of way leading to Main Street. The connection to Main Street likely has to be blown out as there was difficulty in conducting a video inspection of the pipes. Future clarification is required on the specify requirements generated on standard servicing requirements of the building code, Etc. As such, when the concept plans are acceptable the final drawings can be prepared.

In any event we appreciate the HRM's time and consideration while reviewing this information.

Yours truly,

Thomas F. Giovannetti, P. Eng., NSLS

## **DRAINAGE REFERENCES**

Section 5.3.3 (Halifax Water) Discharge to adjacent Properties specifies:

- The subdivision grading along the limits of the subdivision is to avoid disturbance of adjacent properties or increase the discharge of storm water to those properties.
- The subdivision grading is to provide for drainage from adjacent properties where no alternative exists, this may be achieved by utilizing an interceptor swale or other system components.

As part of the deliverable for building approvals it is apparent that the Design Specifications for Storm water Systems as regulated by Halifax Water, more particularly, Design Specification Section 5.1 of which a short list of the objectives are to:

- Adequately convey storm water flow from upstream sources;

- Mitigate the adverse effects of storm water flow, such as flooding and erosion on downstream properties;
- Provide safe, accessible outlet.

## **LOT GRADING**

The objectives of the Lot Grading By-law L-400 may also apply where lot grading is regulated by a Development Agreement. The general specifications or objectives of the lot grading buy law more particularly but not limited to:

### **1.2 Objectives**

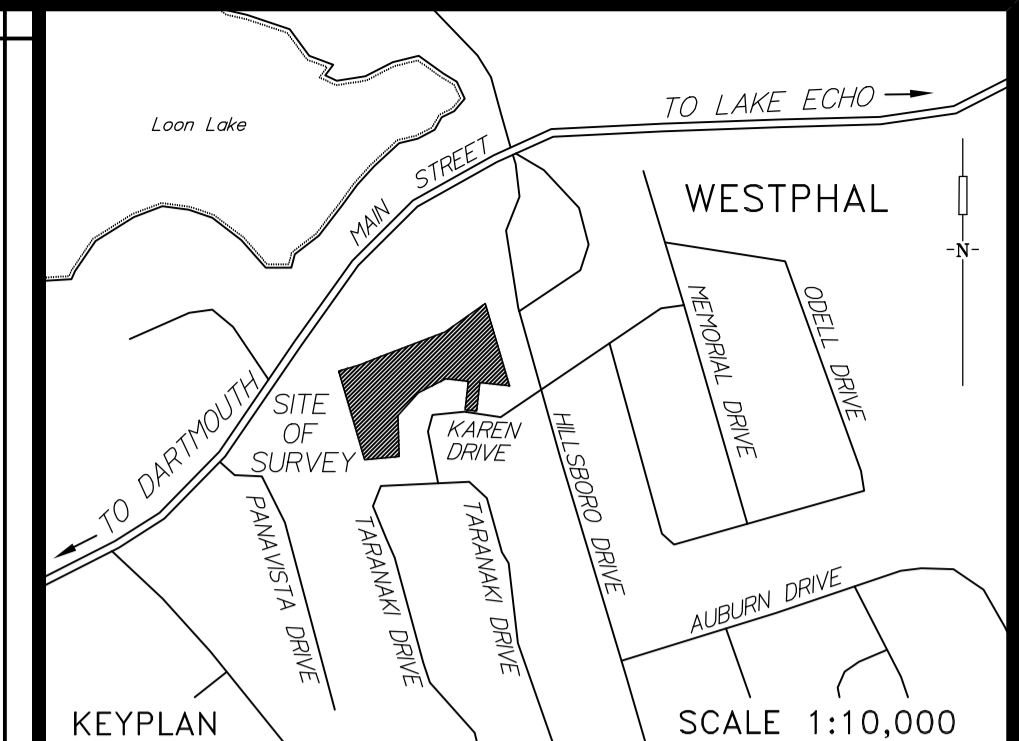
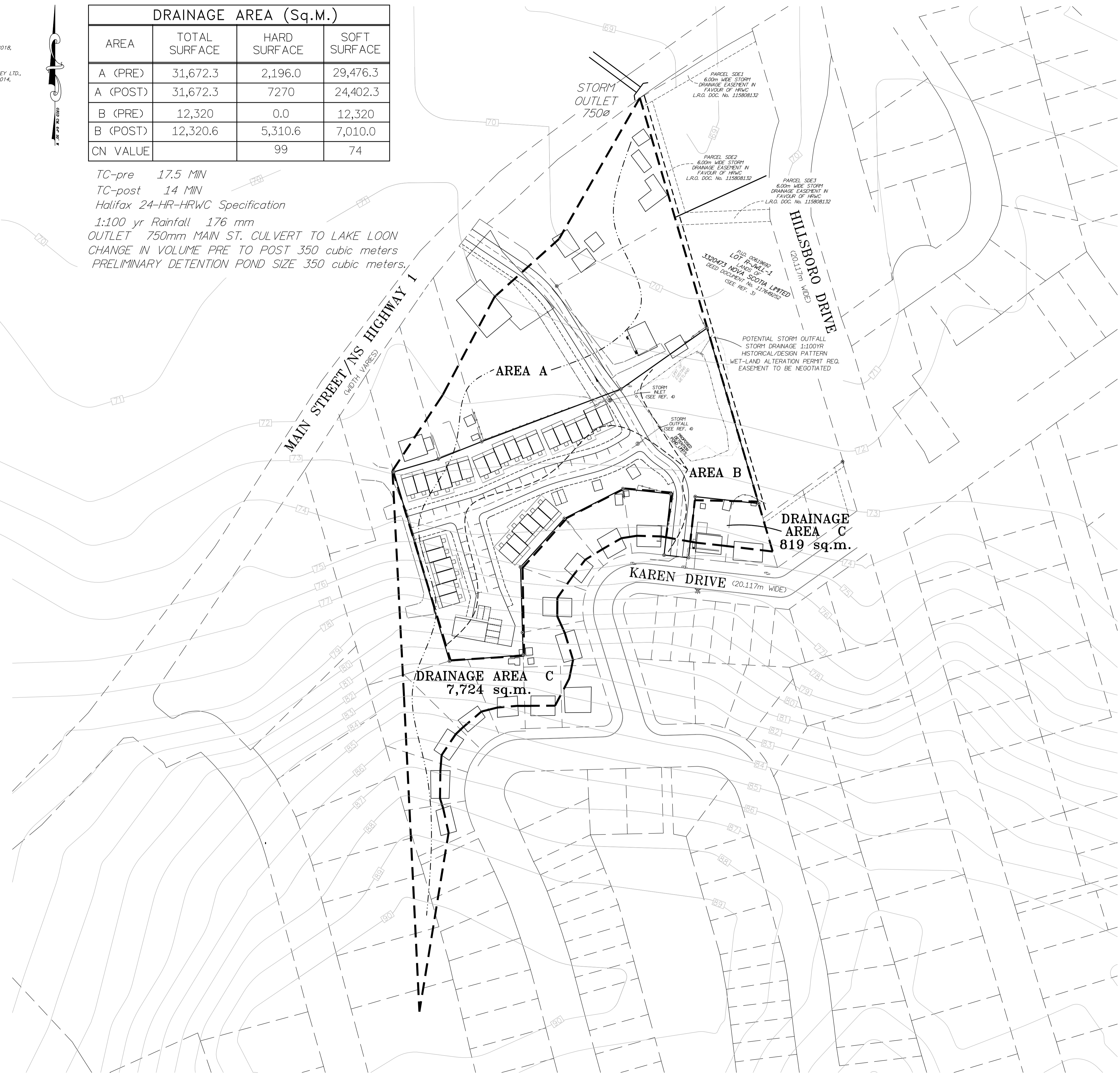
- To prevent standing water and soil saturation....
- To adequately convey flow from upstream sources
- To prevent and mitigate the adverse effects of storm water on downstream or adjacent properties.....
- To maintain pre-development drainage patterns....

**PLAN REFERENCES:**

1. PLAN SHOWING SUBDIVISION OF LANDS OWNED BY JOHN GORDON BELL, AT WESTPHAL, HALIFAX COUNTY, SIGNED BY L. R. FEETHAM, P.L.S., DATED JULY 6, 1967, AND REGISTERED AS PLAN NUMBER 8377.
2. PLAN OF SURVEY OF LOT 15, BEING A SUBDIVISION OF LOT R-JML-1, LANDS OF HILLSBORO HOLDINGS INC., SIGNED BY THOMAS F. GIOVANNETTI, N.S.L.S., DATED FEBRUARY 22, 2018, AND REGISTERED AS PLAN NUMBER 112623567.
3. PLAN OF SURVEY OF LOT 1, LOT 2, LOT 3, & LOT 4, BEING A SUBDIVISION OF LOT JML-1 (PID 0819892) AND REMAINDER LOT R-JML-2 (PID 40720153), LANDS CONVEYED TO J. WALTER LAHEY LTD., SIGNED BY THOMAS F. GIOVANNETTI, N.S.L.S., DATED FEBRUARY 14, 2014, AND REGISTERED AS PLAN NUMBER 103225967.
4. PLAN SHOWING SUBDIVISION, PHASE 9, FOREST HILLS LAND ASSEMBLY, THE NOVA SCOTIA HOUSING COMMISSION (REVISED), SIGNED BY FRANK LONGSTAFF, N.S.L.S., DATED FEBRUARY 10, 1977, AND REGISTERED AS PLAN NUMBER 18969.
5. PLAN SHOWING SUBDIVISION, PHASE 9, FOREST HILLS LAND ASSEMBLY, THE NOVA SCOTIA HOUSING COMMISSION (REVISED), SIGNED BY FRANK LONGSTAFF, N.S.L.S., DATED MAY 6, 1982, AND REGISTERED AS PLAN NUMBER 20125.
6. SUBDIVISION PLAN SHOWING A PORTION OF THE ESTATE OF THOMAS BELL, SIGNED BY H. K. WEDLOCK, P.L.S., DATED APRIL 16, 1960, AND REGISTERED AS PLAN NUMBER 4807.
7. PLAN SHOWING SUBDIVISION OF LANDS OWNED BY MR. JOHN G. BELL, AT WESTPHAL, HALIFAX COUNTY, SIGNED BY L. R. FEETHAM, P.L.S., DATED OCTOBER 26, 1963, AND REGISTERED AS PLAN NUMBER 7657.
8. PLAN SHOWING SUBDIVISION OF LANDS OWNED BY JOHN GORDON BELL, AT WESTPHAL, HALIFAX COUNTY, SIGNED BY L. R. FEETHAM, P.L.S., DATED JULY 6, 1967, AND REGISTERED AS PLAN NUMBER 8378.
9. PLAN SHOWING SUBDIVISION, PHASE 9, FOREST HILLS LAND ASSEMBLY, THE NOVA SCOTIA HOUSING COMMISSION, SIGNED BY FRANK LONGSTAFF, N.S.L.S., DATED NOVEMBER 3, 1976, AND REGISTERED AS PLAN NUMBER 18204.

DRAINAGE AREA (Sq.M.)			
AREA	TOTAL SURFACE	HARD SURFACE	SOFT SURFACE
A (PRE)	31,672.3	2,196.0	29,476.3
A (POST)	31,672.3	7270	24,402.3
B (PRE)	12,320	0.0	12,320
B (POST)	12,320.6	5,310.6	7,010.0
CN VALUE		99	74

TC-pre 17.5 MIN  
 TC-post 14 MIN  
 Halifax 24-HR-HRWC Specification  
 1:100 yr Rainfall 176 mm  
 OUTLET 750mm MAIN ST. CULVERT TO LAKE LOON  
 CHANGE IN VOLUME PRE TO POST 350 cubic meters  
 PRELIMINARY DETENTION POND SIZE 350 cubic meters.



- NOTES:**
1. CONCEPT PLAN TO BE USED FOR INITIAL HRY DISCUSSIONS ONLY
  2. FINAL DESIGN TO BE A REFLECTION OF THE INTENDED DEVELOPMENT PERMIT PROCESS
  3. BUILDING FOOTPRINT ONLY SHOWS FINAL GRADE OF FOUNDATION STEPS/DOWNS TO BE DETERMINED
  4. ARCHITECTURAL AND LANDSCAPE SITE ELEMENTS TO BE DETERMINED BASED ON FINAL GRADES
  5. ALL ELEVATIONS ARE CGVD013
  6. CONTOUR INTERVALS AT 0.25m
  7. TRANSDUCER LOCATE REQUIRED FOR PIPE LOCATION TOWARDS MAIN STREET. STORM AND SEWER MANHOLES TO BE CONFIRMED
  8. POST-FLOWS TO EQUAL PRE-FLOWS, ACCOMMODATED BY THE RETENTION/DETENTION POND
  9. THE SURVEY WAS EXECUTED DURING THE PERIOD OF JULY 25, 2023 TO OCTOBER 2, 2023.
  10. DISTANCES SHOWN ON THIS PLAN ARE GRID DISTANCES AS DERIVED FROM GNSS OBSERVATIONS
  11. 1:100 YEAR FLOOD LIMITS OF ANY AREA PRONE TO FLOODING CAN NOT BE MADE UNDER THE CERTIFICATION OR SEAL OF A NS LAND SURVEYOR AS IT IS CONSIDERED TO BE PROFESSIONAL ENGINEERING.
  12. OCCUPATION PREScriptive RIGHTS UNKNOWN
  13. UTILITY LOCATIONS SHOWN ARE PROPOSED ONLY. WATER MAIN TO BE 200mm, STORM AND SANITARY SEWER TO BE 300mm IN DEVELOPMENT PROCESS.

- REFERENCES:**
1. CPMC PARKING AREAS ADVISORY DOCUMENT, ISBN 0-660-10199-8
  2. HALIFAX REGIONAL MUNICIPALITY PUBLIC WORKS AND TRANSPORTATION SERVICES - DESIGN GUIDELINES
  3. SITE PLAN FOR TOPIC: REMOVAL OF OVERHEAD ENGINEERING - JUNE 17, 2022
  4. CONCEPT SCHEMATIC FOR PARCEL MF9-1 (P.I.D. 40204133) - CIVTECH ENGINEERING - MARCH 8, 2024

**LEGEND:**

LANDS DEALT WITH BY THIS SURVEY	NSHP/PL
OTHER LANDS	SM
NOVA SCOTIA HIGH PRECISION MONUMENT	NL
SURVEY MARKER	Fd
CONCRETE NAIL	P.R.
FOUND	P.I.D.
PLAN REFERENCE	NOT TO SCALE
PROPERTY IDENTIFICATION NUMBER	UNKNOWN
UNKNOWN	CS2#D
SERVANT DUNBRACK MACKENZIE & MACDONALD LTD.	CGV
CIVTECH ENGINEERING AND SURVEYING LTD.	LS
FRANK LONGSTAFF, N.S.L.S.	(S79)
FRED HUTCHINSON, N.S.L.S.	P.O.L.
PROPERTY ONLINE	
BUILDING	
WATER VALVE, HYDRANT	
UTILITY POLE	
NOVA SCOTIA LAND SURVEYOR	
SEWER MAIN	
STORM MAIN	
WATER MAIN	
STORM MANHOLE, SEWER MANHOLE	

GNSS SURVEY TYPE:	NRTK	SOURCE:	CarNet
COORDINATE SYSTEM INFORMATION			
HORIZONTAL DATUM:	NAD83 (CSRS)	EPOCH:	2010.0
VERTICAL DATUM:	CGVD2013	CALCULATED OFFSET BETWEEN CGVD28/CGVD2013	0.589m
M.T.M. ZONE 5 CENTRAL MERIDIAN 64° 30'			
COMBINED SCALE FACTOR AT THE SITE OF SURVEY: 0.999967			

PROPOSED STORMWATER MANAGEMENT PLAN FOR  
**PARCEL MF9-1 (P.I.D. 40204133)**  
 LANDS CONVEYED TO  
**THE NOVA SCOTIA HOUSING DEVELOPMENT CORPORATION**  
 KAREN DRIVE, WESTPHAL  
 HALIFAX REGIONAL MUNICIPALITY, NOVA SCOTIA

DATED THIS 8th DAY OF MARCH, 2024

**CIVTECH ENGINEERING & SURVEYING LIMITED**  
 P.O. Box 3237, D.E.P.S., DARTMOUTH  
 NOVA SCOTIA, B2W 5G2, 434-4600

GRAPHIC SCALE  
 1 : 1000

No.	REVISION/REMARKS	DATE	SCALE:
			1:1000
DRAWN BY: K. SHEFFER		CHECKED BY: T. GIOVANNETTI	23192DRG

Original Signed

