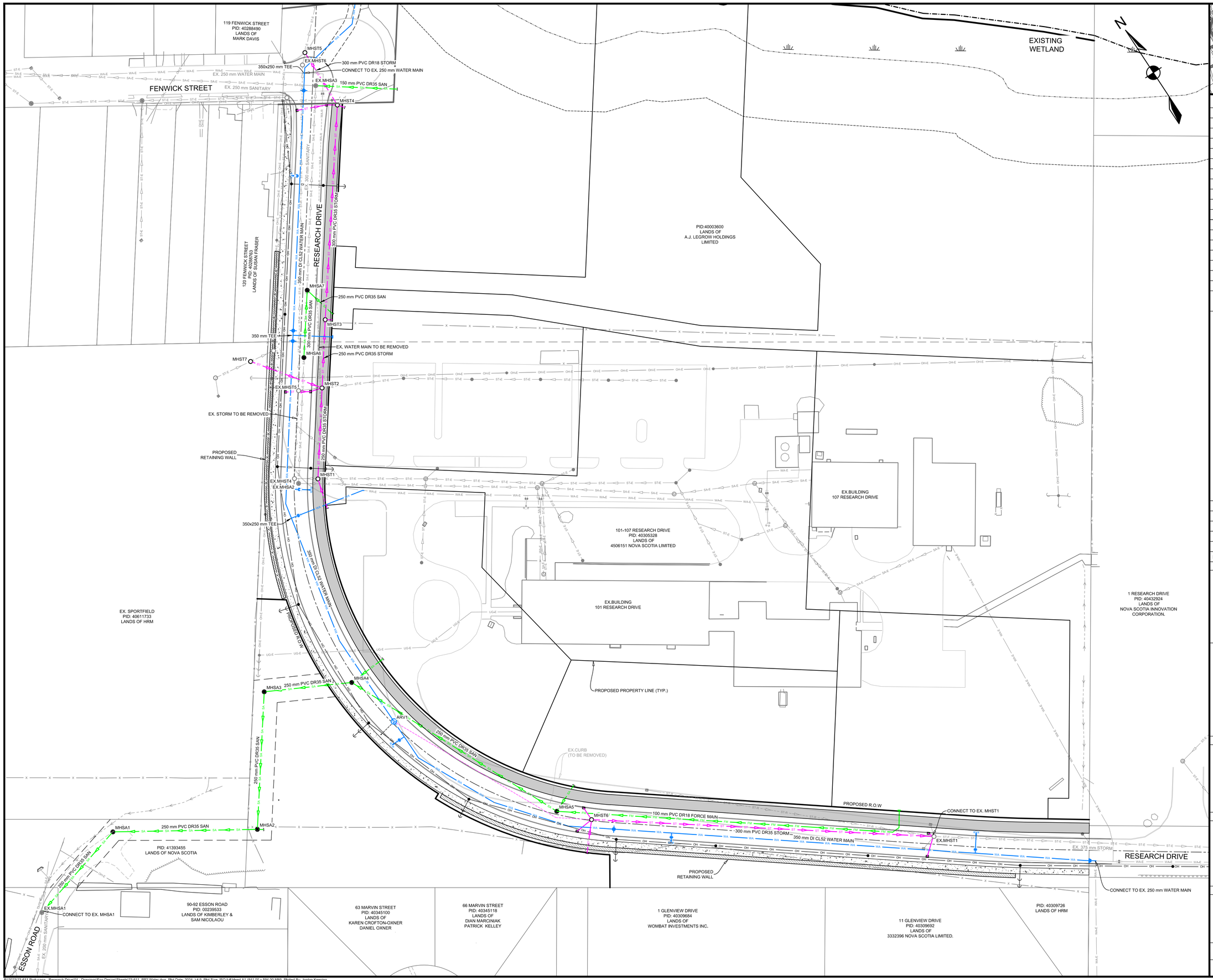


LEGEND

EXISTING		PROPOSED
	EASEMENT	
WA-E	WATER PIPE	WA
SA-E	SANITARY PIPE	SA
ST-E	STORM PIPE	ST
GAS-E	NATURAL GAS MAIN	GAS
	STORM PIPE TO BE REMOVED	ST-R
	WATER PIPE TO BE REMOVED	WA-R
	SIDEWALK	
	WALKWAY/A.T. TRAIL	
	GUARDRAIL	
X	FENCELINE	X

	EXISTING	PROPOSED		EXISTING	PROPOSED
CURB CUT/RAMP			AIR RELEASE VALVE		
CURBSTOP			WATER VALVE		
REDUCER			HYDRANT		
PRECAST HEADWALL			CATCHBASIN		
STREET SIGN			UTILITY POLE w/ GUY WIRE		
STREET TREE					

ISSUE	DATE	DESCRIPTION	INT.
A	JUL. 9, 2024	ISSUED FOR REVIEW	JK

CONSULTANT

DESIGNPOINT
engineering • surveying • solutions
902.832.5597 designpoint.ca

REGISTERED PROFESSIONAL ENGINEER
DATE: JULY 9, 2024
Neil Fougere
N.T. FOUGERE
9050
PROVINCE OF NOVA SCOTIA

CLIENT

PORTUCANA
HOLDINGS LTD.

PROJECT DESCRIPTION

RESEARCH DRIVE
DEVELOPMENT

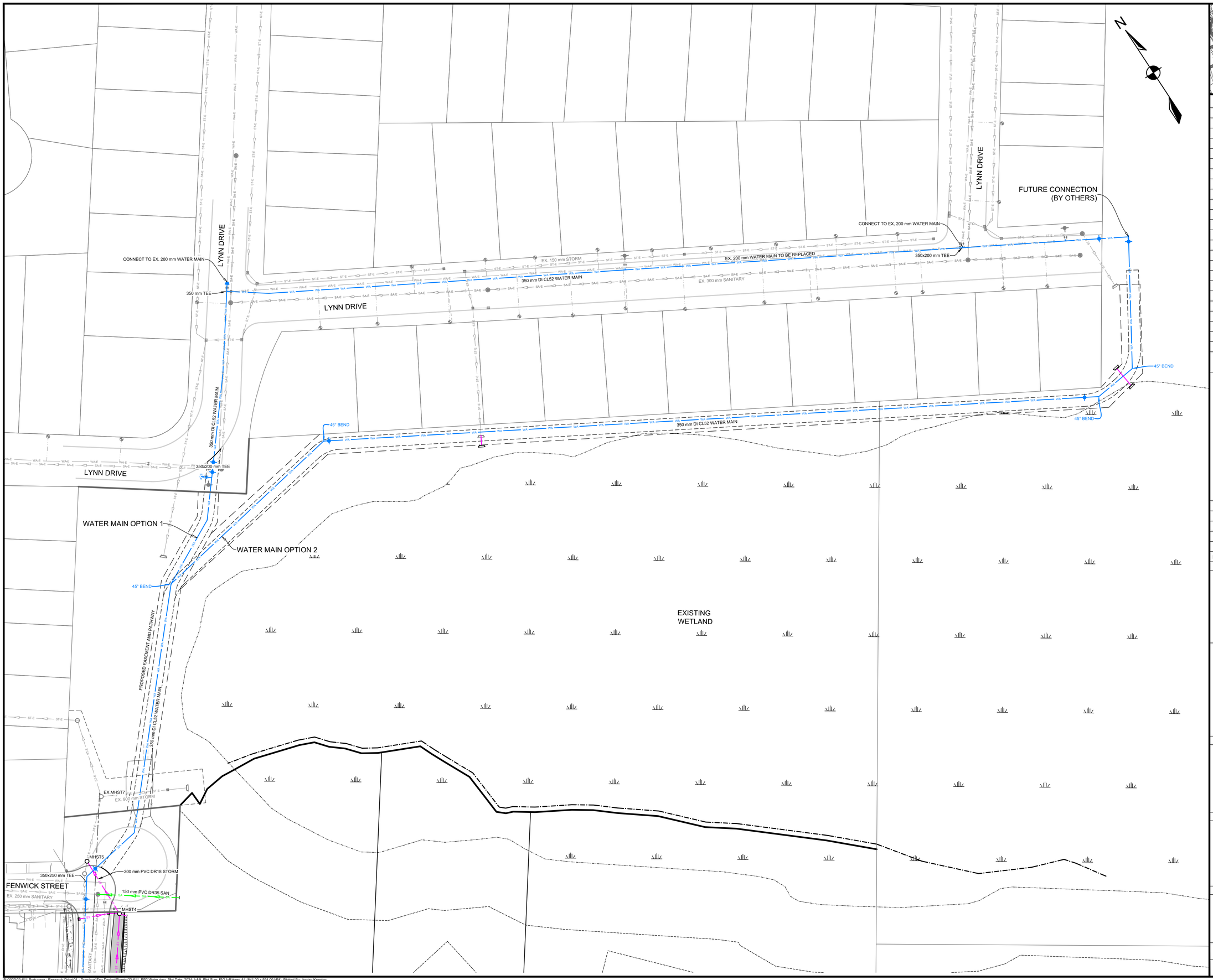
DARTMOUTH, NOVA SCOTIA

SHEET DESCRIPTION

SERVICING SCHEMATIC
RESEARCH DRIVE

Drawn	Engineer	Project No.	Drawing No.
J.KEEPING	N. FOUGERE	23-611	C-01
Scale	Filename		1 of 3
1:500	23-611_PP2 Water.dwg		

P:\2023\23-611 Portucana - Research Drive\01 - Drawings\Eng Design\Sheets\23-611_PP2 Water.dwg, Plot Date: 2024-Jul-9, Plot Size: ISO full bleed A1 (841.00 x 594.00 MM), Plotted By: Jordan Keeping



KEY PLAN 1:20,000

LEGEND

EXISTING		PROPOSED
	VERTICAL PROFILE	
	APPROXIMATE 1 IN 100 YEAR FLOOD LIMIT	100 YR
	EASEMENT	
WA-E	WATER PIPE	WA
SA-E	SANITARY PIPE	SA
ST-E	STORM PIPE	ST
GAS-E	NATURAL GAS MAIN	GAS
	WATER LATERAL	
	SANITARY LATERAL	
	STORM LATERAL	
	NATURAL GAS LATERAL	
	SIDEWALK	
	WALKWAY/A.T. TRAIL	
	GUARDRAIL	
	TOP OF SLOPE	
	BOTTOM OF SLOPE	
X	FENCELINE	X

	EXISTING	PROPOSED		EXISTING	PROPOSED
CURB CUT/RAMP			AIR RELEASE VALVE		
CURBSTOP			WATER VALVE		
REDUCER			HYDRANT		
PRECAST HEADWALL			CATCHBASIN		
STREET SIGN			UTILITY POLE w/ GUY WIRE		
STREET TREE			GLB		
			URD		

10 0 METRES 20 30

1:500

ISSUE	DATE	DESCRIPTION	INT.
A	JUL. 9, 2024	ISSUED FOR REVIEW	JK

CONSULTANT

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REGISTERED PROFESSIONAL ENGINEER
DATE JULY 9, 2024
Neil Fougere
N.T. FOUGERE
9050
PROVINCE OF NOVA SCOTIA

CLIENT

PORTUCANA HOLDINGS LTD.

PROJECT DESCRIPTION

RESEARCH DRIVE DEVELOPMENT

DARTMOUTH, NOVA SCOTIA

SHEET DESCRIPTION

SERVICING SCHEMATIC LYNN DRIVE

Drawn	Engineer	Project No.	Drawing No.
J.KEEPING	N. FOUGERE	23-611	C-02
Scale	Filename		2 OF 3
1:500	23-611_PP2 Water.dwg		

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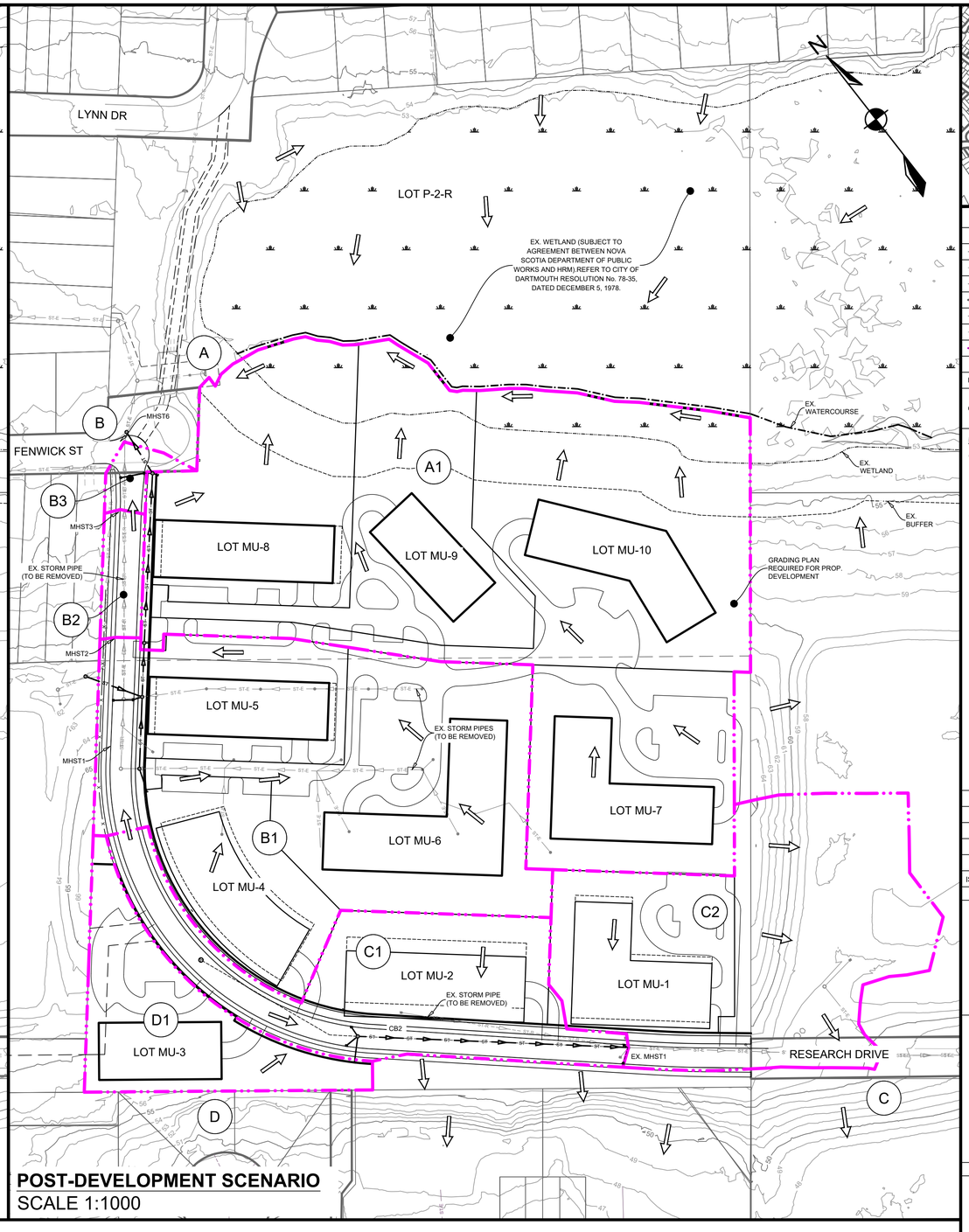
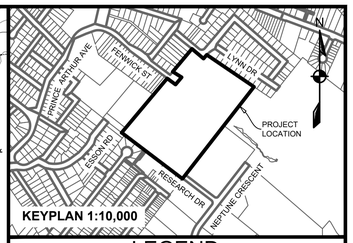
PRE-DEVELOPMENT SCENARIO
SCALE 1:1000



POST-DEVELOPMENT SCENARIO
SCALE 1:1000



LEGEND

EXISTING		PROPOSED
10	MAJOR CONTOUR	10
10	MINOR CONTOUR	10
	EASEMENT	
	RIGHT OF WAY	
	LOT LINE	
ST-E	STORM PIPE	ST ST
	SUBCATCHMENT AREA	

	EXISTING	PROPOSED		EXISTING	PROPOSED
PRECAST HEADWALL			CATCHBASIN		
CATCHMENT ID	A		SUBCATCHMENT ID	A1	

NOTE:

GRADING PLAN WILL BE REQUIRED FOR PROPOSED DEVELOPMENT.

METRES
30 0 30 60
1:1000

ISSUE	DATE	DESCRIPTION	INT.
A	JUL. 09, 2024	ISSUED FOR REVIEW	JK

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REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF NOVA SCOTIA
DATE: JULY 9, 2024
N.T. FOUGERE
9050

CLIENT

PROJECT DESCRIPTION

RESEARCH DRIVE DEVELOPMENT

DARTMOUTH, NOVA SCOTIA

SHEET DESCRIPTION

STORM WATER MANAGEMENT PLAN RESEARCH DRIVE

Drawn	Engineer	Project No.	Drawing No.
A.KITSUTA	N. FOUGERE	23-611	C-ST01
Scale	Filename		3 of 3
1:1000	23-611_ST.dwg		

LOT GROUP A: LOTS MU-7, MU-8, MU-9, AND MU-10.
LOT GROUP B: LOTS MU-4, MU-5, AND MU-6.
LOT GROUP C: LOTS MU-1, AND MU-2.
LOT GROUP D: LOT MU-3.

LOT GRADING FOR EACH LOT MUST ULTIMATELY DIRECT RUNOFF TOWARDS STORM WATER SYSTEM WHICH DRAINS TO CORRESPONDING DOWNSTREAM BALANCE POINT.

FLOW ALLOWANCES FOR EACH LOT GROUP WERE CALCULATED ASSUMING THE FLOW FROM THE RIGHT OF WAY WILL BE UNCONTROLLED. ALL STORM WATER MANAGEMENT INFRASTRUCTURE IS ASSUMED TO BE ON INDIVIDUAL LOTS, SUBJECT TO INDIVIDUAL DETAILED DESIGN..

DESIGN FLOW BASED ON SCS WATERSHED RUNOFF MODEL WITH SYNTHETIC DESIGN STORM AS PER HALIFAX SPECIFICATIONS (2023). 24 HR RAINFALL DEPTHS AS FOLLOWS:

- 5 YEAR RETURN: 124 mm
- 10 YEAR RETURN: 145 mm
- 25 YEAR RETURN: 169 mm
- 50 YEAR RETURN: 188 mm
- 100 YEAR RETURN: 204 mm

ANTECEDENT MOISTURE CONDITION (AMC) = 2

LOW-IMPACT DEVELOPMENT (LID) / BEST MANAGEMENT PRACTICE (BMP) SUBJECT TO INDIVIDUAL DETAILED LOT DESIGN, REQUIRED ON EACH INDIVIDUAL LOT AS PER CURRENT EDITION HALIFAX REGIONAL MUNICIPALITY STORM WATER GUIDELINES. RUNOFF RESULTING FROM 10 mm 10-MINUTE DESIGN STORM FOLLOWING 5-YEAR DISTRIBUTION TO BE CONTAINED ON EACH INDIVIDUAL SITE.

SURFACE COVERAGE - X1	
DESCRIPTION	AREA (Ha)
BUILDING	0.05
PAVED	0.04
GRASS	0.39
WOODS	2.16

SURFACE COVERAGE - X2	
DESCRIPTION	AREA (Ha)
BUILDING	0.13
PAVED	0.70
GRASS	0.60
WOODS	0.12

SURFACE COVERAGE - X3	
DESCRIPTION	AREA (Ha)
BUILDING	0.13
PAVED	0.45
GRASS	1.40

SURFACE COVERAGE - X4	
DESCRIPTION	AREA (Ha)
GRASS	0.38
WOODS	0.11

PRE-DEVELOPMENT CATCHMENT SCS PARAMETERS			
ID	AREA (Ha)	CN	Tc (min)
X1	2.63	76	15.8
X2	1.59	87	6.9
X3	1.98	81	11.1
X4	0.49	74	5.0

POST-DEVELOPMENT LOT AREAS	
LOT #	AREA (Ha)
MU-1	0.41
MU-2	0.34
MU-3	0.40
MU-4	0.36
MU-5	0.34
MU-6	0.82
MU-7	0.67
MU-8	0.63
MU-9	0.59
MU-10	1.04

RETURN PERIOD	PRE-DEVELOPMENT RUNOFF (m^3/s)			
	X1	X2	X3	X4
5-YR	0.2477	0.2881	0.2559	0.0618
10-YR	0.3153	0.3486	0.3177	0.0803
25-YR	0.3991	0.4229	0.3938	0.1033
50-YR	0.4600	0.4742	0.4478	0.1217
100-YR	0.5223	0.5292	0.5041	0.1394

RETURN PERIOD	ALLOWABLE POST-DEVELOPMENT RUNOFF (m^3/s/Ha)			
	LOT GROUP A	LOT GROUP B	LOT GROUP C	LOT GROUP D
5-YR	0.08	0.15	0.06	0.16
10-YR	0.11	0.19	0.08	0.20
25-YR	0.14	0.23	0.12	0.26
50-YR	0.16	0.25	0.14	0.31
100-YR	0.18	0.28	0.16	0.35

TRIBUTARY AREA	LOTS	LOTS AREA (Ha)	ALLOWABLE RUNOFF 1 IN 5 YR (m^3/s / Ha)	CONTROLLED RUNOFF (m^3/s)	UNCONTROLLED RUNOFF (m^3/s)	TOTAL RUNOFF (m^3/s)
A1	MU-7, MU-8, MU-9, MU-10	2.93	0.08	0.2477	0.0000	0.2477
B1	MU-4, MU-5, MU-6	1.52	0.15	0.2310	0.0300	0.2610
B2	-	-	0.15	0.0000	0.0168	0.0168
B3	-	-	0.15	0.0000	0.0103	0.0103
C1	MU-2	0.34	0.06	0.0193	0.0782	0.0975
C2	MU-1	0.41	0.06	0.0231	0.1353	0.1584
D1	MU-3	0.40	0.16	0.0618	0.0000	0.0618

UPSTREAM DEVICE	DOWNSTREAM DEVICE	TRIBUTARY AREAS	DESIGN EVENT	FLOW TO PIPE (m^3/s)	FLOW TO PIPE (L/s)	PIPE SIZE (mm)	PIPE SLOPE (%)	MANNING'S COEFFICIENT "n"	PIPE CAPACITY (L/s)	PERCENT FULL (%)
CB2	EX.-MHST1	C1	1 IN 5 YR	0.0975	97.5	300	2.50	0.013	153.1	63.7
MHST1	MHST2	B1	1 IN 5 YR	0.2610	261.0	375	7.03	0.013	465.3	56.1
MHST2	MHST3	B1, B2	1 IN 5 YR	0.2778	277.8	375	7.47	0.013	479.7	57.9
MHST3	MHST6	B1, B2, B3	1 IN 5 YR	0.2881	288.1	525	0.62	0.010	440.7	65.4