PLAN
GRADING & SERVICING
1:80

Full Site Area	**0.0742**	**ha**
Allowable C	**0.15**	

Area Takeoff

Catchment	m2	acre	C	% Area	Weighted C
C1: Asphalt & Concrete	215	0.05	0.90	28.9%	0.26
C1: Roof	60	0.01	0.95	8.1%	0.08
C1: Gravel	24	0.01	0.50	3.3%	0.02
C1: Landscaping	443	0.11	0.25	59.7%	0.15
UNC: Asphalt & Concrete	47	0.01	0.90	55.5%	0.50
UNC: Roof	0	0.00	0.95		
UNC: Gravel	0	0.00	0.90		
UNC: Landscaping	37	0.01	0.25	44.5%	0.11
Summary			Catch. C		Overall C
Catchment 1	742	0.18	0.50	89.8%	0.45
Uncontrolled	84	0.02	0.61	10.2%	0.06
Subtotal	**826**	**0.20**		**100.0%**	**0.51**

Site	Site Area (Ha)	C	5-yr (lps)	25-yr (lps)	Resticted Discharge (lps)	Req'd Storage (m3)
Catchment 1	0.074	0.15	3.36	4.74	2.30	28.7
Uncontrolled	0.008	0.61	0.38	0.54		
Subtotal	**0.08**		**3.74**	**5.27**	**2.30**	**28.70**

Orifice Calculation

Location	Flood	Orifice El	Q-Restricted	H-E	A	Co	Req'd Orifice
Catchment 1	231.37	228.12	**2.30**	3.250	0.0005	0.61	**25**

$$Q = C_o A_o \sqrt{2g(H - E_o)}$$

Provided Storage

Location	Surface Ponding	Roof	CB	Pipe	Subtotal
C1	28.48	0.00	1.84	0.90	31.22
Subtotal	**28.48**	**0.00**	**1.84**	**0.90**	**31.22**

WWS Flow Estimation - Post-Development

Site Information		
Area	0.0742	ha
Use	Public W/R	
Persons	300.00	
Residential		
ADWF	0.0417	lps
Peak Factor	4.08	
PDWF	0.170	lps
Non-Residential		
ADWF	0.00	lps
PDWF	0.00	lps
Extraneous		
Groundwater	0.002	lps
Post Peak WW Flow	**0.17**	lps
WWF Increase	**0.17**	lps

WWS Flow Estimation - Pre-Development

Site Information		
Area	0.0742	
Use	Vacant	
Vacant Land		
ADWF	0.00	lps
PDWF	0.00	lps
Extraneous		
Weeping Tile	0.000	lps
Groundwater	0.000	lps
Pre Peak WW Flow	**0.00**	lps

Design Criteria

Public Lavatory	12	l/p/day	0.00014 l/s

Source: Metcalf & Eddy, Wastewater Engineering: Treatment & Resource Recovery

Extraneous Flows

Weeping Tile	4.5	L/MH/Min	0.075 L/Connect/s
MH/CB	12	L/MH/Min	0.200 L/MH/s
Groundwater	2200	L/Ha/Day	0.025 L/Ha/s

Source: City of Winnipeg, Wastewater Flow Estimation Guidelines

Development Summary

Criteria	Pre-Dev	Post-Dev	
Wastewater	0.00	0.17	lps
Surface Runoff			
CB/MH*	0.00	0.20	lps
Allowable 5YR	3.74		lps
Restricted Discharge		2.30	lps
Uncontrolled (25-Yr)		0.54	lps
Subtotal	**3.74**	**3.21**	**lps**
Required Storage		**28.70**	**m3**
Provided Storage		**31.22**	**m3**

Combined Sewer District	Yes
Clause 8 Met	Yes

**Shallow catchpits are assumed above the groundwater table*

1.
DESIGN TABLES

Construction Specifications

1. Where indicated, construction must conform to the City of Winnipeg, *Standard Construction Specifications* and all references contained herein refer to these specifications. "SD" refers to City of Winnipeg standard details.
2. All materials used for construction must conform to City of Winnipeg, *Approved Products for Underground Use Within the City of Winnipeg* except as indicated otherwise.

3. Water & Wastewater Services

3.1.1. No new water or wastewater services proposed.

4. Gravit Sewer Service to CW-2030

4.1. All gravity sewer installation shall be in accordance with CW 2030/2130, SD-014

4.2. Gravity service pipe shall be in accordance with CAN/CSA B182.2 and ASTM D3034, SDR-35.

4.3. All pipe installations through road right of way shall be completed with trenchless methods. Any open trench construction on site shall be as follows:

4.3.1. Class 'B' Bedding to SD-001

4.5.2. Backfill to SD-002: Class '2' Type 2 Backfill in gravel, hard-surfaced & traveled areas and all areas within 2.0m of Edge of Road Shoulder.

4.5.3. Class '5' in landscaped and untraveled areas.

4.5.4. To CW2030/2130, Detail SD-014

Surface Drainage

5. All flows restricted to the 1-in-5yr storm and detention storage provided for up to the 25-yr design storm as shown in the design tables.

General Notes

6. Contractor to obtain all necessary permits.
7. Contractor to obtain clearances from all utilities before excavating. Confirm all existing infrastructure information in field before construction. Notify the Engineer immediately of any discrepancies that affect installation or design.
8. Confirm all dimensions before beginning construction.
9. Consult Geotechnical Report and geotechnical engineer to confirm the suitability of native soils for backfill. Consult Geotechnical Engineer for erosion control measures including riprap in swale along building. Riprap detail provided as-is and should be reviewed by Geotechnical Engineer.
10. Civil drawings are to be read in coordination with Architectural, Structural, and Mechanical disciplines. Where a discrepancy is found between these plans and coordinated disciplines, notify the Engineer immediately.

Existing		Proposed	Existing		Proposed	Existing	Proposed
EG -0.68%	Slope Direction	2.98%		Hydrant		Contour	
(394.98)	Surface Elev.	239.45		Curb Stop		Ponding Area	
150 WM	Watermain	150 WM		Valve			
250 WWS	Wastewater Sewer	250 WWS		Manhole			
300 LDS	Land Drainage Sewer	300 LDS		Catchbasin		Topo Survey Point	

This is not a legal plan.
Contours shown are approximated for reference only.
Whole numbers are millimetres (mm)
Decimal numbers are metres (m)
Convert Metric to Standard 1.0m = 3.2808ft
This plan is prepared only for the Client and may not be used by any other party without written consent.

Sandbox DESIGN & CONSULTING
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Building Verification Survey

1. By Stevens Surveys, File 23-135, dated 20th April, 2023.
2. Elevations have been derived by GPS observations. Vertical Datum CGVD28.

Coordination

Civil design is based on coordinated design files provided by the project manager. Should there be a discrepancy between this and any other plans or design, notify the Project Manager immediately.

PROVINCE OF MANITOBA
D. N. HOINES
Member
32664
REGISTERED PROFESSIONAL ENGINEER

ENGINEERS
GEOSCIENTISTS
MANITOBA
Certificate of Authorization
10133373 Manitoba Inc.,
o/a Sandbox Design & Consulting
No. 8089

R0 2023-07-20
ISSUED FOR CONSTRUCTION

designed: KP
drawn: KP
approved: DH

project code
23-009

sheet title
LOT GRADING & SERVICING

scale
AS SHOWN

PREPARED FOR: BROOK MCILROY

715 MAIN STREET, WINNIPEG, MB

C01

Sheet Size: ARCH D (24x36)