

Functional Servicing Report

Serenity Temple - Chippawa Creek Road

City of Niagara Falls, Ontario



Prepared for Niagara Kung Fu Academy
by IBI Group

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1 Introduction

IBI Group Canada (IBI) has been retained by Niagara Kung Fu Academy to prepare a Functional Servicing Report (FSR) to support the Zoning By-law Amendment (ZBA) process for a proposed commercial development located south west of the Chippawa Creek Road and Heartland Forest Road intersection in the City of Niagara Falls. The legal description of the site is Pt Stamford Township Lot 208, Pt3, 59R-10698. Please refer to **Figure 1.1** below for the location of the proposed development.



Figure 1.1: Project Location

The purpose of this report is to provide a municipal servicing strategy for storm drainage and stormwater management, sanitary discharge, and water supply.

The following documents and mapping information has been reviewed in the preparation of this report:

- Available Municipal Servicing Data from the City of Niagara Falls;
- Available Regional Servicing Data from Niagara Region; and
- Topographic Survey completed February 28, 2020 by J.D Barnes Limited
- Site Plans by ACK Architects

1.1 Existing Site Description

The existing 12.8 ha site is bounded by Chippawa Creek Road to the North, Thompson Creek to the East, the Welland River to the South, and a vacant lot to the West. The site currently hosts an abandoned barn with accompanying fields, marsh lands, and wooded areas.

1.2 Proposed Development

The proposed development includes the construction of a multi-use event space which would be constructed in three phases:

- Phase 1 includes 2 dojo spaces and a new student training, office space as well as accommodations.
- Phase 2 of the development includes a Banquet Hall with capacity for 635 people, including storage and an associated kitchen.
- Phase 3 includes a spa space, a yoga studio, 70 seat noodle house and additional guest rooms.

The proposed development has a gross floor area of 3,093 m² and 134 associated paved parking spaces. The **Preliminary Concept Plan** can be found in **Appendix A** following this report.

2 Terms of Reference and Methodology

2.1 Terms of Reference

The terms of reference used for the scope of this report have been based on the City of Niagara Falls Standards for Site Planning, dated April 1992, and the Niagara Region Water-Wastewater project Design Manual, dated August 2019.

2.2 Methodology: Water Supply

The domestic water usage will be calculated based on the following Ontario Building Code design criteria:

Table 2.1 Water Design Parameters

Average Daily Demand		Peaking Factors		
		Land Use	Peak Hour	Max Day
Commercial	250 L/c/day	Commercial	1.50	1.50

Pressure and flow testing to determine the adequacy of the existing watermain to support the development with fire suppression in accordance with the Fire Underwriters Survey (FUS) Guidelines will be discussed in the subsequent sections.

2.3 Methodology: Sanitary Discharge

Sanitary servicing options and criteria will be further discussed in subsequent sections.

2.4 Methodology: Stormwater Management

Quantity Control

As noted in the Regional pre-consultation comments, dated August 6, 2020, the Region does not require peak flow controls. Please refer to **Appendix A** for an excerpt copy of the comments.

Quality Control

As the receiving water body houses a fish habitat removal of 80% of the total suspended solids (TSS) to correspond with Enhanced Water Cleansing is required.

3 Water Supply

3.1 Existing Water Infrastructure

Existing water infrastructure in the area includes:

- A 300mm diameter watermain at Heartland Forest Road and Chippawa Creek Road, extending north and east; and
- a 300mm diameter watermain approximately 835 m west of the site along Chippawa Creek Road.

As there are no existing municipal watermains adjacent to the subject site, a watermain extension will be required. While the Heartland Forest Road watermain is approximately 200m east, this option would require crossing the vehicular bridge at Thompson Creek. It is therefore recommended that the existing 300mm diameter watermain be extended approximately 835 m along Chippawa Creek Road from the Garner Road Biosolids Facility driveway.

There are existing hydrants located on Chippawa Creek Road approximately 40m east of Heartland Forest Road, on Heartland Forest Road approximately 50m north of Chippawa Creek Road, and on Chippawa Creek Road across from the Garner Road Biosolids Facility driveway.

At the time of preparation of this report, a hydrant flow test was not available however a test shall be performed at a later date in order to assess the municipal system can support the proposed development. Once made available, the results can be forwarded under separate cover.

3.2 Domestic Water Supply System

The Average Daily Demand (ADD), Peak Hour Demand (PHD), and Max Day Demand (MDD) for the subject site have been calculated using the criteria set in Section 2.4 and are summarized as follows:

Table 3.1 Domestic Water Demands

	No. Units	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Accessory Accommodations	10 Rooms	20	0.07	0.14	0.10
Assembly Hall	635 Seats	635	2.20	4.41	3.31
Assembly Storage	255 sq.m	6	0.02	0.04	0.03
Assembly Kitchen	204 sq. m	22	0.08	0.15	0.11
Office	2 People	4	0.01	0.03	0.02
Restaurant	70 Seats	70	0.24	0.49	0.36
Dojo/Yoga	74 Students	74	0.26	0.51	0.39
Spa	12 Guests	12	0.04	0.08	0.06
Total		842	2.93	5.85	4.39

The domestic supply line for the building will be designed based on PHD while maintaining a minimum available pressure of 40 psi (275 kPa) at the face of the building. Please see Appendix D for the detailed calculations.

3.3 Fire Supply Demands

The recommended fire flow demand for the subject site has been calculated using the design criteria outlined in the Water Supply for Public Fire Protection Manual, 1999 by the Fire Underwriters Survey (FUS).

As the building will be constructed using non-combustible materials, the effective floor area is taken as the total floor area 3,093 m².

The anticipated corresponding floor area and FUS factors will be applied as follows:

Table 3.2 Fire Underwriters Survey Factors

Construction Coefficient	Building Occupancy	Sprinkler Adjustment	Proximity Factor
1.0 (Ordinary)	- 15 % (limited)	0 %	0 %

Using the effective floor area for each building and the appropriate FUS factors, the required fire flow is calculated as follows:

Table 3.3 Fire Demand Calculations

Fire Flow (F) Calculation	Applying FUS factors	Adjusted Fire Flow	Total Demand (TD)
$F = 220 \cdot 1.0 \sqrt{\text{Area}}$	$F_1 = F \cdot 0.85 = 10,200 \text{ L/min}$	Fire Flow = $F_1 - F_2 + F_3$	TD = FF + MDD
$F = 220 \cdot 1.0 \sqrt{3,093 \text{ m}^2}$	$F_2 = F_1 \cdot 0 = 0 \text{ L/min}$	FF = 12,000 L/min (md'd)	TD = 166.7 L/s + 4.49 L/s
$F = 12,000 \text{ L/min (md'd)}$	$F_3 = F_1 \cdot 0 = 0 \text{ L/min}$	FF = 166.7 L/s	TD = 171.2 L/s

As the building will not be sprinkled, no fire service line to the building will be required. A private on-site fire service completed with private hydrants may be required to achieve the required coverage.

As previously mentioned, a hydrant flow test shall be performed at a later date in order to establish the static pressure in the area, and to assess the system's ability to support the proposed development from a fire fighting perspective.

3.4 Hydrant Coverage

There are no hydrants within close proximity of the site to provide fire fighting flows, as such new municipal fire hydrants shall be installed along Chippawa Creek Road to service the proposed development.

4 Sanitary Infrastructure

4.1 Existing Sanitary Infrastructure

Existing sanitary sewer infrastructure within the area includes:

- 200mm diameter sewer at 0.8%, approximately 200m north of Chippawa Creek Road on Heartland Forest Road.
- 250mm diameter sewer at 0.4%, approximately 70m north of Chippawa Creek Road on Montrose Road.
- 150mm diameter Regional forcemain on Chippawa Creek Road. It should be noted that this forcemain is not to be disturbed per the Region.

4.2 Proposed Sanitary Infrastructure

Based on our review of the available topographic data, the location and depths of existing sanitary infrastructure, a gravity sewer connection is not feasible for the site. It is therefore proposed that private on-site sanitary holding tanks be installed, the on-site sanitary sewage system, holding tank, and emptying schedule shall be established by a mechanical consultant.

5 Storm Water Management

5.1 Existing Infrastructure

The surrounding area is serviced by roadside ditches draining to Thompson Creek and ultimately the Welland River. The proposed site is located adjacent to both Thompson Creek and the Welland River. Under pre-development conditions, storm flows are conveyed in a southeasterly direction to both the Welland River and to Thompson Creek.

5.2 Proposed Conditions

As noted in Section 2.4, quantity controls are not required however stormwater runoff shall be treated to an Enhanced standard prior to discharge to Thompson Creek or to the Welland River.

It is anticipated that low impact development stormwater cleansing features such as infiltration galleries, vegetation filter strips, and enhanced grass swales can be incorporated into the site plan to meet these criteria. These features will be advanced at the Site Plan Application stage.

6 Conclusion

Sanitary Sewers

A private on-site holding tank shall be utilized to detain sanitary flows. It is noted that the sanitary system will be designed by others and forwarded once made available.

Water Supply

It is anticipated that the development can be supported by extending the local municipal water supply network which will be verified by further investigation.

Storm Sewer and Stormwater Management

As previously noted, the site is not subject to quantity control requirements, however by installing LID measures, the Town's criteria for quality control will be satisfied.

Respectfully Submitted,

IBI Group



Jason Jenkins, P.Eng, P.E.
Associate Manager
Land Engineering

Appendix A: Background Information

Topographic Survey

Pre-Consultation Comments

Preliminary Concept Plan

SS Chippawa Creek Road, West of Montrose Road

Monday, August 24, 2020 3:26 PM

Meeting Date:	August 6, 2020
Name of Applicant(s):	Nickel Developments
Consultant(s):	

Brief description of proposed development:

Zoning By-law Amendment and Site Plan Approval for proposed addition of a Health Centre, Commercial School (for martial arts) & an Ancillary Restaurant & Inn (10 rooms) to these uses.

Application Type:

- Regional Official Plan Amendment
- Official Plan Amendment
- Zoning By-law Amendment
- Plan of Subdivision
- Vacant Land Condominium
- Standard/Common Element Condominium
- Site Plan
- Minor Variance
- Consent
- Other: _____

Site Designation:

Provincial Policy Statement:	Settlement Area
Greenbelt Plan:	NA
Provincial Growth Plan:	Greenfield Area
Niagara Escarpment Plan:	NA
Regional Official Plan:	Urban Area (Greenfield Area)

Reports/Studies/Plans Required for Regional Review

- Planning Justification Report
- Environmental Impact Study
- Environmental Site Assessment
- Record of Site Condition
- Hydrogeological Study
- Archaeological Assessment
- Urban Design Brief
- Air Quality/Noise Study (can be included in Land Use Compatibility Assessment based on D6)
- Stormwater Management Report (with SPA)
- Minimum Distance Separation (MDS)
- Transportation Impact Study
- Plan Drawing/Survey Sketch (show road widening)
- Function Servicing Report
- Site Line Study
- Environmental Compliance Approval (for extension of services)

Regional Development Application Fees	Fees effective until December 31, 2020
ZBA	\$1300 + \$2245 (EIS review) + \$615 (urban design review)
SPA	\$525 + \$1870 (SWM review)

*Regional Development Charges apply above and beyond Planning Act fees. Current Regional Development Charge rates can be found at <https://www.niagararegion.ca/business/property/current-fees.aspx> *

Regional Comments

- Planning
 - The property is located within a Settlement Area under the 2020 Provincial Policy Statement (PPS) and within the Greenfield Area under the 2019 A Place to Grow: Growth

Plan for the Greater Golden Horseshoe (Growth Plan).

- A Greenfield Density Target of 50 people and jobs per hectare applies to Greenfield lands per Provincial and Regional policy.
- The property is designated Urban Area in the Regional Official Plan (ROP). The property is also designated as part of the Niagara Economic Gateway Centre in the ROP, being employment lands within the settlement areas of the City of Niagara Falls, and is identified as a Strategic Location for Investment under Section 3 of the ROP. A full range of residential, commercial and industrial uses are permitted generally within the Urban Area designation of the ROP, subject to the availability of adequate municipal services and infrastructure, and local Official Plan policies and compatibility concerns. The ROP also promotes higher density development in Urban Areas.
- The subject lands are not considered to be within an Employment Area as defined and by Provincial policy, where conversion and non-employment uses are restricted. However, the lands are considered Employment Lands, as defined by the Growth Plan, as they are designated for industrial uses in the City's Official Plan. Growth Plan Policy 2.2.5.14 states:

"outside of employment areas, development criteria should be established to ensure that the redevelopment of any employment lands will retain space for a similar number of jobs to remain accommodated on site."

If an Official Plan Amendment is required for the proposed uses, justification relative to this policy should be included in the Planning Justification Report. If the uses contemplated fall within the existing OP use permissions, this justification is not required.

- The property falls within the influence area of several industrial uses, including Cytec and the Garner Road WWTP. To address land use compatibility, either a separate Land Use Compatibility Study or a section in the Planning Justification Report must evaluate the proposal relative to the D6 guidelines. Noise and/or air quality assessments may be required if determined appropriate by the RPP. If submitted, these studies may need to be peer reviewed at the applicant's expense, as Regional staff do not have the expertise to evaluate noise studies for stationary sources or air quality assessments.
 - The PPS and ROP provide direction for the conservation of significant cultural heritage and archaeological resources. Specifically, development and site alteration are not permitted on lands containing archaeological resources or areas of archaeological potential, unless significant archaeological resources have been conserved. The lands have high archaeological potential as a result of proximity (within 300m) to several watercourses and registered archaeological sites. A Stage 1 and 2 Archaeological Assessment is required to be submitted with the application.
- Environmental Planning
 - The subject parcel is located along the Welland River and is impacted by multiple natural heritage features including:
 - Environmental Conservation Area – Significant Woodland
 - Environmental Conservation Area – Significant Valleyland
 - Environmental Protection Area – Provincially Significant Wetland
 - Fish Habitat – Associated with the Welland River
 - Consistent with policy 7.B.1.11 of the Regional Official Plan, an EIS is required when development is proposed within 50 m of a Significant Woodland and Significant Valleyland as well as within 120 metres of a Provincially Significant Wetland and within 30 metres of Fish Habitat. As such, an EIS is required in support of the application and the Terms of Reference should be developed in consultation with the Region, as specified in policy 7.B.2. Regional staff request permission to visit the site in order to develop the scope of the required study. It should be noted that some portions of the development may not be supportable as currently illustrated. For example, Critical Fish Habitat setbacks cannot be reduced to less than 15 metres.
 - Urban Design
 - UD Review fee and materials
 - Zoning application:
 - Please submit an Urban Design brief. Please describe the relationship of the built form and site design with their interfaces to the Regional Road.
 - Please submit the following drawings: Conceptual Site Plan, Conceptual Landscape Plan, Conceptual Ground floor plan, Conceptual Building elevations (for those facades visible from the Regional Road).
 - Site Plan application:
 - Please submit the following drawings: Site Plan, Streetscape & Landscape Plan, Ground floor plan, Building elevations (for those facades visible from the Regional Road).
 - Streetscape along Regional Road (Chippawa Creek Rd)
 - Zoning application:
 - Consider reducing the 2 vehicular entrances down to 1 in order to improve the public realm and pedestrian experience

- Blue/grey –no limit
- Green – no limit
- Waste – (4) containers
- Curbside collection only
- If waste generated exceeds the Regional curbside waste collection limits then waste collection for the site will be the responsibility of the owner through a private waste collection contractor and not Niagara Region.

- | | |
|----------------|---|
| PHASE 1 | <ul style="list-style-type: none"> • LOWER LEVEL KUNG FU AND ACCOMMODATIONS • MAIN LEVEL KUNG FU AND OFFICES • MAIN ENTRY LOBBY AND ELEVATOR • SECOND LEVEL GUEST ROOMS |
| PHASE 2 | <ul style="list-style-type: none"> • LOWER LEVEL BANQUET STORAGE AND LINKWAY • MAIN LEVEL BANQUET HALL KITCHEN AND COURTYARD • SECOND LEVEL BANQUET HALL AND LINKWAY |
| PHASE 3 | <ul style="list-style-type: none"> • LOWER LEVEL SPA • MAIN LEVEL YOGA STUDIO AND NOODLE HOUSE • SECOND LEVEL GUEST ROOMS |



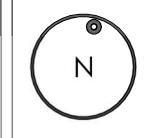
KEY PLAN
1 : 500

GENERAL NOTES

All contractors and/or trades shall verify all dimensions, notes, site and report any discrepancies prior to commencement of the work. This drawing not to be scaled, all drawings, prints and related documents are the property of the architect and must be returned upon request. Reproduction of drawings and related documents in part or in whole is strictly forbidden without written consent. Drawings to be for the purpose for which they are issued.

NO.	DATE	REVISION	BY:

COMMISSION:
PROPOSED NEW SERENITY TEMPLE CONCEPT



SHEET TITLE:
KEY PLAN

Issued for Re-Zoning	
Issued for Site Plan Agreement:	
Issued for Permit:	
Issued for Tender:	
Issued for Construction:	
DRAWN BY:	DWG. No.
CHECKED BY:	SP2
DATE:	
SCALE: AS SHOWN	
PROJECT No.: 2020-139	