

December 10, 2021
26629-18

Dave Gillis
309 Daniel Crescent
Elora, ON
N0B 1S0

Dear Sir:

Re: Functional Servicing and Stormwater Management Report
175 Geddes Street
Village of Elora
Township of Centre Wellington

1.0 Introduction

Van Harten Surveying Inc. was retained to prepare a Stormwater Management plan for the proposed construction of a new stacked townhouse development at 175 Geddes Street. The purpose of this study is to provide servicing recommendations for the new structure and analyze pre- and post-development stormwater characteristics and provide recommendations for on-site stormwater management. This work was authorized by Mr. Dave Gillis.

As illustrated on the attached reduced Site Plan in Appendix A, the project involves the proposed construction of a new three-storey plus basement stacked townhouse building containing a total of 12 residential units including below grade basement units, plus a future development extending an existing building fronting Geddes Street. The properties being developed as part of this proposal have frontages on Geddes, Moir and Princess Streets. The focus of this study is the Phase 1 development of the townhouse building fronting Moir Street. Some discussion regarding future servicing of the Phase 2 development will be included here as well. The Servicing and Stormwater Management Brief will describe the servicing design approach for the site and address post development runoff quantities and the proposed method of attenuation of stormwater generated by the proposed development.

2.0 Site and Project Description

The project involves the proposed construction of a new stacked townhouse building with a total footprint of about 266 m². Resident parking is provided to the west of the proposed building in an existing parking lot. Access to the site is from Princess Street or Geddes Street. Municipal water and sanitary servicing currently do not exist but are being constructed as part of overall township improvements and will be provided from Moir Street. Storm servicing at the property will be from an existing municipal storm sewer

572 Weber Street North, Unit 7
Waterloo ON N2L 5C6
519-742-8371

Elmira, ON:
519-669-5070

423 Woolwich Street
Guelph, ON N1H 3X3
519-821-2763

660 Riddell Road, Unit 1
Orangeville, ON L9W 5G5
519-940-4110

Collingwood, ON:
249-499-8359

www.vanharten.com

that runs through the subject property from Princess Street, outletting to Geddes Street, partially through an existing easement.

The area subject to development for Phase 1 is generally vacant. An existing garage is found on the site which will be demolished to make way for the proposed building. The subject property being developed also contains a single-family dwelling on the corner of Moir and Princess Streets. This dwelling will remain following development. Phase 2 of the proposed development would see an expansion of the existing commercial building fronting Geddes Street on an adjacent property, labelled as “Existing Retail Building B” on design drawings, generally within the existing parking lot area for the proposed Phase 1 Development. There is one other building, fronting Geddes Street on the corner of Geddes and Moir, labelled as “Existing Building A” found on the site that will remain following the overall development of the site.

Based on information obtained from the Township of Centre Wellington, and through discussion with township staff, it is understood the Phase 1 stacked townhouse building will be serviced through water and sanitary sewers that are scheduled to be constructed on Moir Street in the spring of 2022. A municipal storm sewer is also known to traverse the subject property, partially through an existing easement, and partially through areas of the subject property not subject to easement, especially when running under the Existing Retail Building B, before outletting to the storm system under Geddes Street. For ease of access, the proposed stormwater outlet for this site will outlet into this existing storm sewer.

Previous private inspection of the municipal storm sewer that runs through the property reveals that large portions of it are in poor condition, especially sections that run under the Existing Retail Building B. As such, this sewer will be replaced as part of this development, and the outlet for the sewer will be re-routed to a new storm sewer being constructed on Moir Street, between the proposed townhouse and Existing Building A. Timing of the re-location and re-construction of this storm sewer will depend on municipal improvements of Moir Street and Princess Street, as well as timing of Phase 2 of this development.

As required by the municipality, the developer of the subject property will be required to implement on-site stormwater management facilities. The runoff rate of stormwater leaving the site is to match pre-development conditions. An analysis of the municipal storm sewer on the subject property has also been completed, noting no known capacity issues based on existing or proposed development conditions.

Soil conditions at the subject property have been assessed by CMT Engineering Inc. as part of a geotechnical study of the subject property and the surrounding streets as part of the proposed development and the municipal street improvements.

3.0 Water Supply

It is proposed to provide water to the proposed development by installing a new 38 mm water service with a connection to a proposed 150 mm watermain to be constructed under Moir Street.

As this is a stacked townhouse development with no common mechanical room, each unit in the building will be provided with individual water services from the common water service installed to the property. This water service will wrap around the proposed building and individual curb stop shutoff valves will be installed outside each unit.

Available water pressure to service this development is currently unknown, as the water service for the subject property has yet to be constructed. However, review of actual available pressures will be provided as part of the proposed watermain construction on Moir Street.

As noted on the Phase 2 development proposal, there is an existing 25 mm water service for the existing building. It is assumed this existing service will need to be upgraded to service this proposed development. Preliminary calculations would indicate a minimum 38 mm service is required. This will be re-examined at the time of the Phase 2 development when more information about the proposal is known.

4.0 Sanitary Servicing

It is proposed to provide sanitary servicing to the proposed development by installing a new 150 mm sanitary service with a connection to a proposed 200 mm sanitary sewer to be constructed under Moir Street.

As this is a stacked townhouse development with no common mechanical room, each unit in the building will be provided with individual sanitary laterals to a common sewer installed on the property. A manhole will be installed at the property line, and sewer lines will be installed to the east and west, providing a connection point for each unit in the proposed building.

As noted on the Phase 2 development proposal, there is an existing 125 mm sanitary service for the existing building. As this service is currently undersized considering the future development and township standards, it will need to be upgraded to service this proposed development. Preliminary calculations would indicate a minimum 150 mm service is required. This will be re-examined at the time of the Phase 2 development when more information about the proposal is known.

5.0 Stormwater Management

As required by the municipality, the developer of the subject property will be required to implement on-site stormwater management facilities such that the runoff rate of stormwater leaving the site following construction does not exceed the pre-development runoff rate. As will be demonstrated in the following sections, following development and implementation of the proposed stormwater management devices, the runoff characteristics of the site will meet or exceed these requirements following development.

5.1 Design Approach

Referring to the attached Site Servicing and Grading Plan in Appendix A, the entire property will drain towards the existing/re-built municipal storm sewer running through the subject property. All hard-surfaced areas including the parking lots and roof area will have runoff directed towards on-site catchbasins. To reduce the runoff rate of stormwater leaving the site to existing conditions, an orifice will

be installed at the outlet of a new catchbasin installed to collect runoff generated by the Phase 1 development. Phase 2 of the development is generally over existing hard surfaces and is not expected to impact stormwater runoff rates, and by removing a significant amount of surface parking, will improve runoff quality directed to the storm system. Drainage from Phase 2 will be directed to a re-constructed catchbasin/catchbasin manhole over the re-built municipal storm sewer.

Roof runoff from the proposed townhouse building will be sent directly to a proposed infiltration gallery located to the south of the proposed building. This infiltration gallery will be sized to completely infiltrate all storms up to and including the 5-year storm, as well as reduce runoff rates for more severe storm events.

Analysis of the site will be completed using 3-hour 5- and 100-year design storms as per Township of Centre Wellington standards. The IDF curves used by the township are obtained from Environment Canada referencing the Shand Dam monitoring station. The site will be designed with stormwater facilities to control runoff rates generated by the by the site during the 5- and 100-year storm to pre-development conditions.

5.2 Infiltration Gallery Design

To achieve some groundwater balance on the property, it is proposed to install an infiltration gallery under the proposed parking lot to the south of the proposed building. Referring to the CMT Engineering Inc. Geotechnical Report provided to support this development, the native soils found on this property comprise mostly of sand to sand and gravel, generally considered suitable for infiltration. Considering approximately 266 m² of roof area and the first 50 mm of each rainfall event to be infiltrated, a total volume of 13.3 m³ must be provided for infiltration. Considering a voids ratio of 0.40 for 20 mm clear stone, the total infiltration gallery volume required will be 33.3 m³. As per equation 4.3 of the MOE Stormwater Management Planning and Design Manual and assuming an infiltration rate of 26 mm/hr is considered for the native sand and a voids ratio of 0.40 for clear stone fill, a base area for the infiltration gallery of 30.2 m² must be provided to infiltrate the design storm event in 48 hours. It is therefore proposed to install a 13.5 m long by 2.3 m wide by 1.20 m deep infiltration gallery. Please refer to Appendix A for details on the construction of the proposed infiltration gallery.

5.2 Hydrologic Analysis

Referring to Appendix B, the hydrologic analysis of the site was carried out with MIDUSS Version 2.25 modelling software using the 2-, 5- and 100-year rainfall event. Rainfall data used in this study is obtained from the Belwood Lake Shand Dam monitoring station, as per township standards. This was used to determine the post-development runoff rates and to determine the total amount of runoff generated by the proposed development. On-site control modelling will be limited to the 5-year and 100-year return period storm events. Details of the design storm are provided in the following table:

Parameter	5-Year Storm	100-Year Storm
a	490.932	6993.020
b	3.202	34.699
c	0.720	0.988
r	0.40	0.40
T _d	180	180
Rainfall Depth (mm)	34.6	104.2

The catchment area of development area in its current condition is modelled as one catchment, with all drainage directed to a catchbasin located just to the north of the municipal storm sewer. This catchment will be referred to as Catchment 1. Following development, for calculation purposes, the property will be divided into two catchments, one being the roof of the proposed building, and the other being the remainder of the development area. Phase 2 of the proposed development was not modelled as part of this study as not enough information is currently available, and as it is understood the entire development would comprise adding building over existing hard surfaced areas, and not impacting runoff characteristics following development. Please refer to Appendix C for pre- and post-development catchment sketches.

Referring to Appendix B, the stormwater runoff characteristics before and following the proposed development will be as following:

	5-Year Storm (m ³ /sec)	100-Year Storm (m ³ /sec)
Pre-Development	0.019	0.049
Post-Development	0.019	0.049

Flow rates from the parking lot will be controlled with the installation of a 4" (102 mm) diameter orifice at the outlet of a catchbasin to be installed behind the proposed building. Overflow from this ponding area will be to a proposed re-built catchbasin manhole to be installed over the municipal storm sewer. per the grading design and ponding calculations, ponding on site will not exceed 241 mm for the 100-year event.

5.3 Maintenance Plan

In order for the stormwater management system to function as designed and constructed, the owner of the facility is required to inspect the works on an annual basis as follows:

- The installed catchbasins and manholes shall be cleared of excess sediment and siltation, as required,

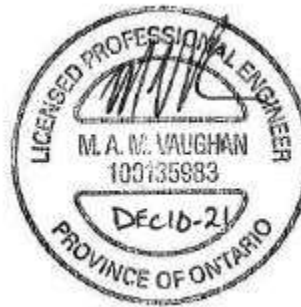
- The storm sewer and appurtenances shall be inspected with accumulated sediment and debris removed and disposed of off-site,
- All storm sewer appurtenances shall be kept in good working order at all times.

6.0 Conclusions

In conclusion, the design completed for the proposed development of this site for the construction of a new stacked townhouse building and expanded parking area will provide water, sanitary and stormwater management capabilities as required by the municipality. The described facilities are adequate to service the proposed building and control stormwater outflow to the 5- and 100-year storm to at or below existing runoff rates.

The completed servicing and stormwater management report is specific to the subject property based on our knowledge of the proposed development. Please contact our office if you have any questions or require further consultation.

Van Harten Surveying Inc.



Mike Vaughan, P. Eng.

- Encl. Appendix A – Engineering Drawings
- Encl. Appendix B – Stormwater Modelling
- Encl. Appendix C – Pre- and Post-Development Catchment Sketches



Appendix A Engineering Drawings

GENERAL NOTES:

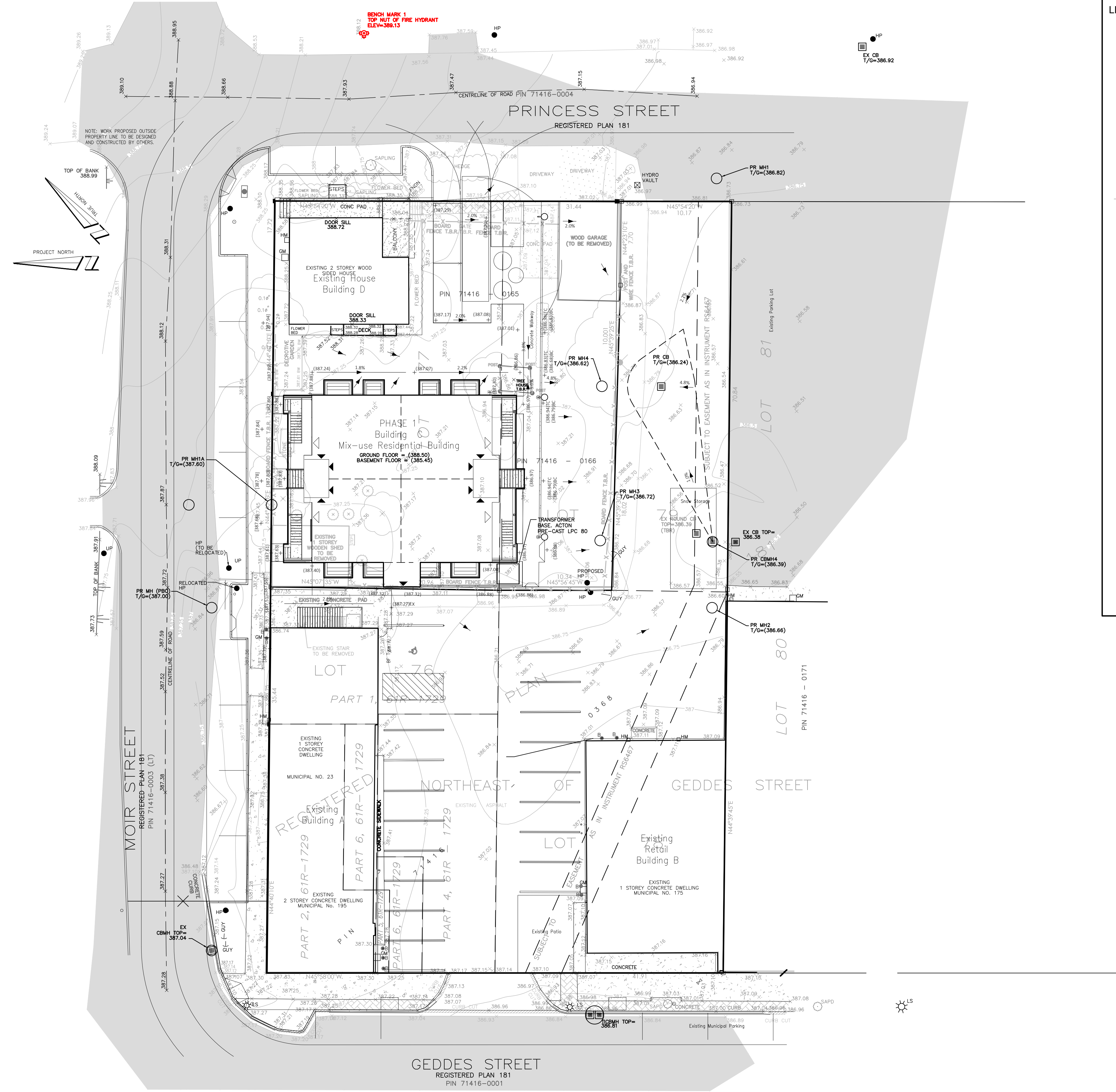
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- OPSS AND OPSS STANDARD DRAWINGS CONSTITUTE PART OF THE SPECIFICATIONS STATED ON THIS DRAWING. ALL UNDERGROUND SERVICE MATERIALS AND INSTALLATIONS TO BE IN ACCORDANCE WITH THE LATEST APPLICABLE CODES AND STANDARDS.
- ALL DIMENSIONS AND LOCATIONS OF EXISTING SERVICES TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO COMMENCING ANY CONSTRUCTION PROPOSED BY THIS DRAWING. ANY DISCREPANCIES ARE TO BE REPORTED TO THE PROJECT ENGINEER IMMEDIATELY.
- THE POSITION OF UNDERGROUND SERVICES AND CONDUITS ARE NOT NECESSARILY SHOWN ON THIS DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES ARE NOT GUARANTEED. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR WILL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND ACCEPT ALL LIABILITY FOR ANY DAMAGE DONE TO THEM.
- THE OWNER IS RESPONSIBLE FOR THE COORDINATION OF ALL REQUIRED UTILITIES. THE OWNER SHALL BE RESPONSIBLE FOR ALL DITCHING, REGRADING AND RESTORATION WORK WITHIN THE TOWNSHIP'S ROAD ALLOWANCE AND TO THE CITY'S SATISFACTION, AS REQUIRED TO ACCOMMODATE THE PROPOSED DEVELOPMENT.
- THE OWNER IS RESPONSIBLE FOR SATISFYING HIMSELF THAT THERE IS ADEQUATE FIRE PROTECTION AVAILABLE FOR HIS PURPOSES.
- ALL ENTRANCE STRUCTURE TO MEET THE TOWNSHIP'S SATISFACTION.
- THE PAVEMENT STRUCTURE FOR THE PARKING AREAS SHALL COMPRISE 40mm HL3, 50mm HL8, 150mm GRANULAR 'A' AND 300mm GRANULAR 'B'.
- HEAVY DUTY ASPHALT WITHIN THE FIRE ROUTE SHALL COMPRISE AT MINIMUM 50mm HL3, 60mm HL8, 150mm GRANULAR 'A' AND 450mm GRANULAR 'B'.
- A GEOTECHNICAL CONSULTANT SHOULD BE RETAINED TO CARRY OUT NECESSARY INSPECTIONS AND TESTING DURING PARKING LOT CONSTRUCTION TO ENSURE PLACEMENT OF PROPER MATERIALS AND ADEQUATE COMPACTION.
- SEDIMENT AND EROSION CONTROLS TO BE PROVIDED DURING CONSTRUCTION.
- ENTRANCE PERMIT WILL BE REQUIRED PRIOR TO CONSTRUCTION OF PROPOSED SITE ENTRANCE.
- THE BOULEVARD AREA WITHIN THE ROAD ALLOWANCE THAT IS NOT COVERED WITH ASPHALT OR GRAVEL SHALL BE FINE GRADED AND COVERED WITH A MINIMUM OF 200mm OF TOPSOIL AND SEEDED.
- ALL PARKING GRANULAR MATERIAL SHALL BE COMPACTED TO 100% AND OTHER MISCELLANEOUS FILL MATERIAL BROUGHT TO THE SITE SHALL BE COMPACTED TO 95% PROCTOR (UNLESS OTHERWISE PRESCRIBED BY GEOTECHNICAL INVESTIGATION).
- FILL MATERIAL SHALL BE FREE OF DEBRIS INCLUDING LARGE ROCKS AND STONES. EXCESS DEBRIS AND MATERIAL SHALL BE REMOVED FROM THE SITE.
- ALL LANDSCAPED AREAS ON SITE SHALL BE PROVIDED WITH A MINIMUM OF 150mm OF TOPSOIL AND SEEDED OR SODDED.
- ANY AREAS NOT UNDER ACTIVE CONSTRUCTION SHALL BE STABILIZED WITH TOPSOIL AND SEED.
- PLAN IS BASED IN TOPOGRAPHIC SURVEY COMPLETED BY VAN HARTEN SURVEYING INC. DATED JANUARY 15, 2020.
- THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR TRANSACTION OR MORTGAGE PURPOSES.

SERVICING NOTES:

- SERVICING DETAILS SHOWN ON THIS PLAN ARE PRELIMINARY PENDING VERIFICATION OF PROPOSED SERVICING DESIGN OF MOIR STREET (PREPARED BY OTHERS).
- ALL UTILITIES TO BE CONFIRMED BY THE OWNER PRIOR TO CONSTRUCTION.
- ALL SERVICES ARE TO BE INSTALLED TO APPROPRIATE OPSS AND TOWNSHIP OF CENTRE WELLINGTON STANDARDS.
- SANITARY SEWER PIPING TO BE 150mmØ PVC DR 28.
- MANHOLE JOINTS ON ALL SANITARY SEWER CONNECTIONS TO BE WRAPPED TO PREVENT GROUNDWATER INFILTRATION WITH PETROLATUM TAPE.
- ALL STORM SEWERS TO BE PVC PIPE AND CONFORM TO OPSS 1820 AND ANY APPLICABLE CSA STANDARDS.
- ALL CATCHBASINS SHALL BE 600mm x 600mm PRECAST CONCRETE AS PER OPSS 705.010 - TYPE A.
- ALL MANHOLES AND CATCHBASIN MANHOLES SHOWN ON THIS DRAWING TO BE MINIMUM 1200mmØ PRECAST CONCRETE AND CONFORM TO THE APPLICABLE OPSS.
- ALL WATERMANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSS 441.
- ALL MUNICIPAL OWNED WATER VALVES SHALL BE OPERATED BY THE TOWNSHIP. THE CONTRACTOR SHALL COORDINATE ALL NECESSARY VALVE OPERATIONS WITH THE TOWNSHIP PUBLIC WORKS DEPARTMENT.
- WHERE EXISTING WATERMANS ARE TAPPED, THE PIPE SURFACE AT THE LOCATION OF THE TAP SHALL BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION, WHERE APPLICABLE. THE DRILL/CUTTING/TAPPING BITS AND ALL SURFACES OF MANHOLES, SERVICES SADES, TAPPING SLEEVES AND VALVES WHICH WILL COME INTO CONTACT WITH DRINKING WATER SHALL LIKEWISE BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION IMMEDIATELY PRIOR TO INSTALLATION. IF ANY OF THE DISINFECTED SURFACES COME INTO CONTACT WITH THE SOIL AND/OR WATER IN THE EXCAVATION PRIOR TO USE, THE CLEANING AND DISINFECTION PROCEDURE SHALL BE REPEATED.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY WATER SUPPLY TO BUILDINGS AT ALL TIMES. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE QUALITY TESTING OF THE TEMPORARY SUPPLY IN ACCORDANCE WITH TESTING PROCEDURES TO THE SATISFACTION OF THE CENTRE WELLINGTON ENVIRONMENTAL SERVICES DEPARTMENT.
- CONNECTION OF PROPOSED WATERMAIN TO MUNICIPAL WATERMAIN TO BE IN ACCORDANCE WITH TOWNSHIP OF CENTRE WELLINGTON STANDARDS.

SEDIMENT AND EROSION CONTROL NOTES:

- ALL SILT FENCING TO BE INSPECTED AND INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING OR EXCAVATING.
- EROSION PROTECTION TO BE PROVIDED AROUND ALL SWALES AND DITCHES.
- ALL PROPOSED AND EXISTING CATCHBASINS AND OTHER UTILITY STRUCTURES TO BE PROVIDED WITH SILT SACS DURING CONSTRUCTION.
- ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY ADDITIONAL EROSION CONTROL STRUCTURES.
- EROSION CONTROL STRUCTURES ARE TO BE MONITORED ON A WEEKLY BASIS, BEFORE AND AFTER SIGNIFICANT RAINFALL EVENTS. ANY DAMAGE TO STRUCTURES REPAIRED IMMEDIATELY. SEDIMENTS ARE TO BE REMOVED WHEN THE HEIGHT OF ACCUMULATION REACHES A MAXIMUM FOR THE FENCE AND THE CLOGGED FILTER MATERIALS MUST BE REPLACED AS NEEDED OR AS REQUESTED BY THE TOWN.
- ALL EROSION CONTROL STRUCTURES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- DE-WATERING WILL NOT BE PERMITTED DURING CONSTRUCTION. SHOULD DE-WATERING BE REQUIRED, A SEPARATE PLAN AND APPROVAL FROM THE GRCA SHALL BE OBTAINED.
- NO ALTERNATIVE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE DESIGN CONSULTANT AND THE CITY OF GUELPH.
- THE CONTRACTOR IS TO ENSURE THE SILT FENCING IS FUNCTIONING AS INTENDED.
- ANY DAMAGED ESC MEASURES ARE TO BE REPLACED IMMEDIATELY WITHIN 48 HOURS OF INSPECTION.
- SEDIMENT TO BE REMOVED FROM THE SEDIMENT BARRIER ONCE IT HAS REACHED A DEPTH OF 300 mm. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO REMOVING THE SILT FENCING.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING MUNICIPAL ROADWAYS AND SIDEWALKS ARE CLEANED OF ALL SEDIMENTS FROM VEHICULAR TRACKING ETC. TO AND FROM THE SITE AT THE END OF EACH WORKING DAY.
- EROSION AND SEDIMENT CONTROL (ESC) PLAN IS A DYNAMIC DOCUMENT, WHICH MAY BE SUBJECT TO CHANGE OR MODIFICATIONS AS A RESULT OF SITE DEVELOPMENTS OR CHANGES ON SITE. ANY DEVIATION FROM APPROVED PLANS MUST BE DESIGNED BY A QUALIFIED PROFESSIONAL.
- IT IS EVERYONE'S RESPONSIBILITY TO PREVENT CONSTRUCTION RELATED SEDIMENT FROM IMPACTING AQUATIC RESOURCES AND OTHER NATURAL FEATURES.
- NO PUMPING OF SEDIMENT LADEN RUNOFF FROM ONSITE TO THE WETLAND IS ALLOWED AT ANY TIME.
- ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE, OR OTHER DELETERIOUS SUBSTANCES IN THE WATER. VEHICULAR RE-FUELLING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30 m FROM THE WATER.
- AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.
- ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTRE) AT 1-800-268-6060.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (IE SILT FENCE, STRAW BALES, CLEAR STONES... ETC.) ARE TO BE KEPT ON SITE FOR EMERGENCIES AND REPAIRS.



LEGEND

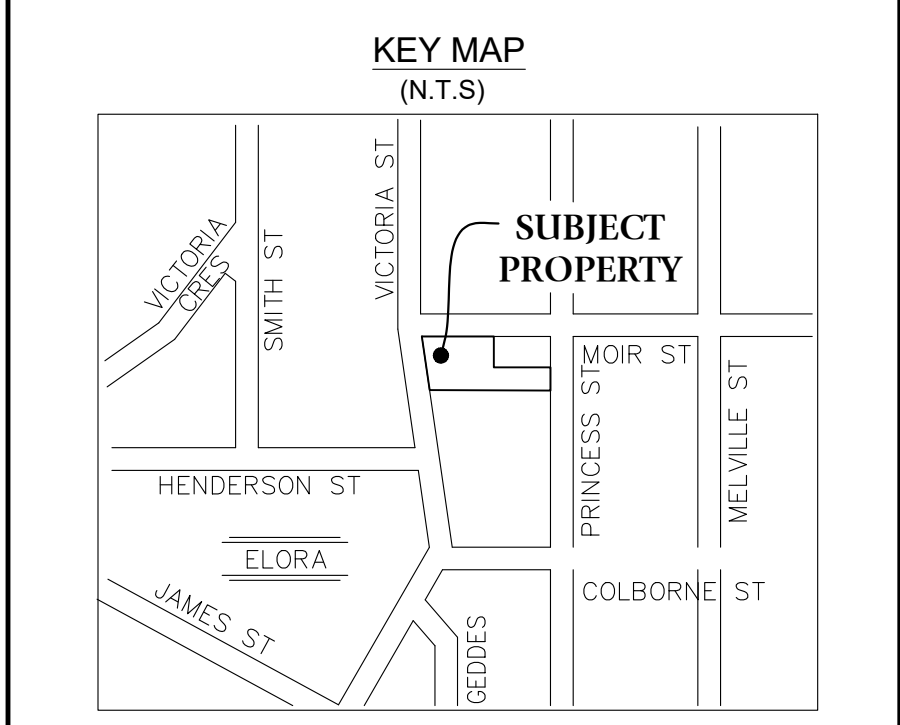
- FIBRE - FIBRE
- OH - OH
- UH - UH
- GAS - GAS
- SM - SM
- W - W

+ (325.09)
 + (325.09)

x 206.55
 GUY
 HP
 GM
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 BELL
 DECIDUOUS TREE
 DECIDUOUS TREE TO BE REMOVED
 HP
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 T.B.R.
 P.B.O.
 L.A.

EXISTING PAVESTONE
 EXISTING GRAVEL
 PHASE 1
 PHASE 2

EXISTING ASPHALT
 EXISTING CONCRETE
 EXISTING CURB CUT



CAUTION:

- THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR TRANSACTION OR MORTGAGE PURPOSES.
- THIS SKETCH IS PROTECTED BY COPYRIGHT. ©

BENCHMARK:

- ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS IN THE NAD83 (CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTV2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.
- SITE BENCH MARK 1: TOP NUT OF FIRE HYDRANT, ELEV=389.13m.
- SITE BENCH MARK 2: TOP OF 0.7x0.7 CATCH BASIN, ELEV=386.52m.

PROPERTY DESCRIPTION:

- PIN 71416-0168, PIN 71416-0169, & PIN 71416-0170
- 23, 175, & 195 GEDDES STREET
- REGISTERED PLAN 181
- (GEOGRAPHIC VILLAGE OF ELORA)
- TOWNSHIP OF CENTRE WELLINGTON
- COUNTY OF WELLINGTON

BOUNDARY NOTE:

BOUNDARY BEARINGS AND DISTANCES AS PER SURVEYOR'S REAL PROPERTY REPORT BY VAN HARTEN SURVEYING INC., PROJECT 26629-18.

NO.	REVISION	BY	DATE
2	INITIAL SUBMISSION	MAMV	DEC 8-21
1	FOR COORDINATION	MAMV	SEP 21-21

DRAWING REVISION SCHEDULE

NO.	REVISION	BY	DATE
2	INITIAL SUBMISSION	MAMV	DEC 8-21
1	FOR COORDINATION	MAMV	SEP 21-21

LOT DEVELOPMENT PLAN FOR:

23, 175, & 195 GEDDES STREET

ALL OF LOTS 76, & 78

PART OF LOT 79

REGISTERED PLAN 181

TOWNSHIP OF CENTRE WELLINGTON

COUNTY OF WELLINGTON

PROJECT No. 26629-18

DRAWING SCALE 1 : 200

METRIC:

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

GRADING: PHASE 1

SHEET 1 OF 5

PREPARED FOR:

DAVE GILLIS

Van Harten SURVEYING INC.

LAND SURVEYORS and ENGINEERS

Kitchener/Waterloo Ph: 519-742-8371 Guelph Ph: 519-821-2763 Orangeville Ph: 519-940-4110

www.vanharten.com info@vanharten.com

DRAWN BY: RKH DESIGN BY: MAMV CHECKED BY: MAMV

Dec 08, 2021-12:20pm
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CALL BEFORE YOU DIG

THE LOCATION OF SERVICES ON THIS DRAWING ARE ONLY APPROXIMATE AND BASED ON SURFACE FEATURES LOCATED AT THE TIME OF THE TOPOGRAPHIC SURVEY. PRIOR TO ANY CONSTRUCTION IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE EXACT LOCATION OF ALL UTILITIES.

GENERAL NOTES:

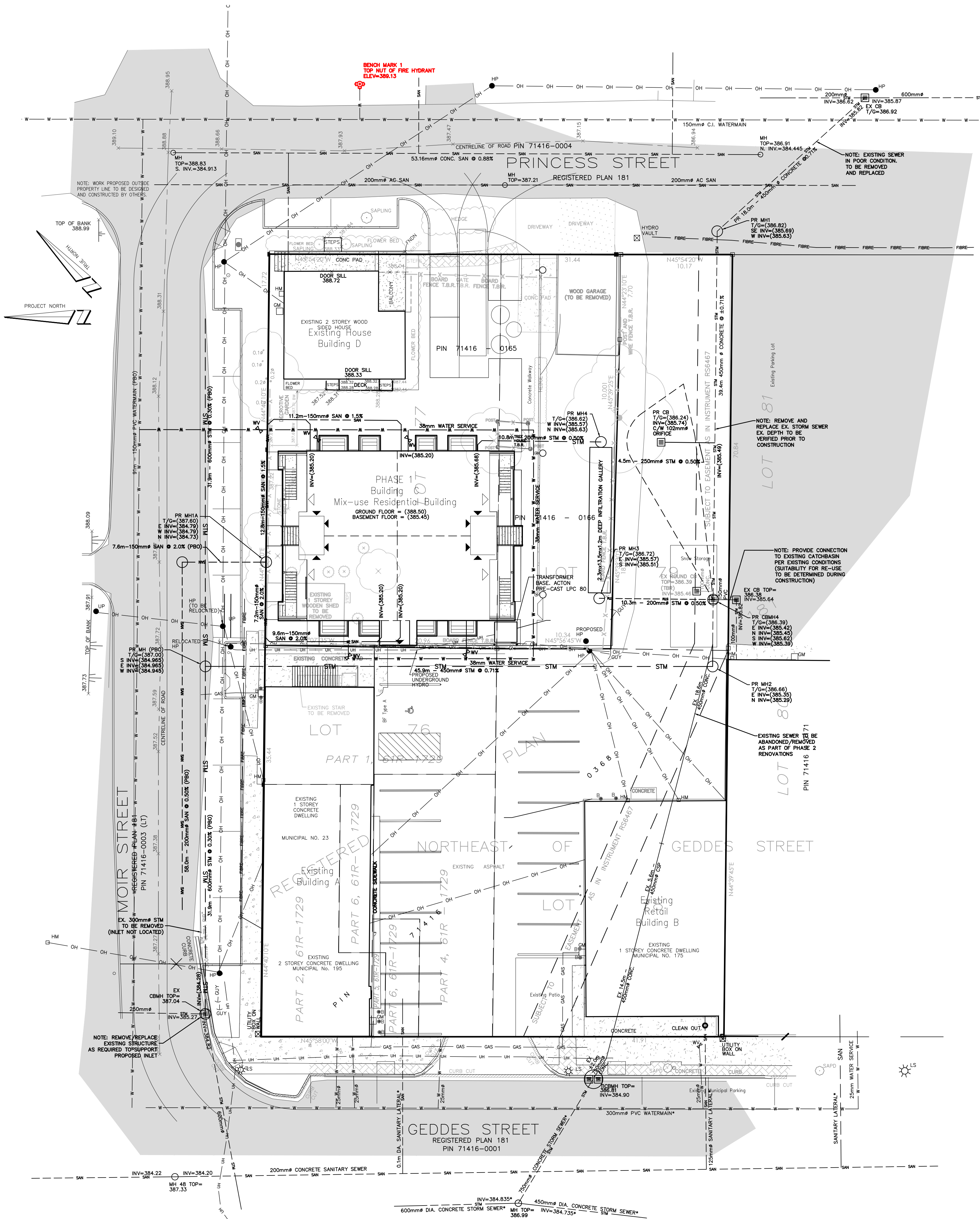
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- ALL PARKING GRANULAR MATERIAL SHALL BE COMPACTED TO 100% AND OTHER MISCELLANEOUS FILL MATERIAL BROUGHT TO THE SITE SHALL BE COMPACTED TO 95% PROCTOR (UNLESS OTHERWISE PRESCRIBED BY GEOTECHNICAL INVESTIGATION).
- FILL MATERIAL SHALL BE FREE OF DEBRIS INCLUDING LARGE ROCKS AND STONES. EXCESS DEBRIS AND MATERIAL SHALL BE REMOVED FROM THE SITE.
- ALL LANDSCAPED AREAS ON SITE SHALL BE PROVIDED WITH A MINIMUM OF 150mm OF TOPSOIL AND SEED OR SODDED.
- ANY AREAS NOT UNDER ACTIVE CONSTRUCTION SHALL BE STABILIZED WITH TOPSOIL AND SEED.
- PLAN IS BASED IN TOPOGRAPHIC SURVEY COMPLETED BY VAN HARTEN SURVEYING INC. DATED JANUARY 15, 2020.
- THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR TRANSACTION OR MORTGAGE PURPOSES.

SERVICING NOTES:

- SERVICING DETAILS SHOWN ON THIS PLAN ARE PRELIMINARY PENDING VERIFICATION OF PROPOSED SERVICING DESIGN OF MOIR STREET (PREPARED BY OTHERS).
- ALL UTILITIES TO BE CONFIRMED BY THE OWNER PRIOR TO CONSTRUCTION.
- ALL SERVICES ARE TO BE INSTALLED TO APPROPRIATE OPSS AND TOWNSHIP OF CENTRE WELLINGTON STANDARDS.
- SANITARY SEWER PIPING TO BE 150mm Ø PVC DR 28.
- MANHOLE JOINTS ON ALL SANITARY SEWER CONNECTIONS TO BE WRAPPED TO PREVENT GROUNDWATER INFILTRATION WITH PETROLIUM TAPE.
- ALL STORM SEWERS TO BE PVC PIPE AND CONFORM TO OPSS 1820 AND ANY APPLICABLE CSA STANDARDS.
- ALL CATCHBASINS SHALL BE 600mm x 600mm PRECAST CONCRETE AS PER OPSS 705.010 - TYPE A.
- ALL MANHOLES AND CATCHBASIN MANHOLES SHOWN ON THIS DRAWING TO BE MINIMUM 1200mm Ø PRECAST CONCRETE AND CONFORM TO THE APPLICABLE OPSS.
- ALL WATERMANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSS 441.
- ALL MUNICIPAL OWNED WATER VALVES SHALL BE OPERATED BY THE TOWNSHIP, THE CONTRACTOR SHALL COORDINATE ALL NECESSARY VALVE OPERATIONS WITH THE TOWNSHIP PUBLIC WORKS DEPARTMENT.
- WHERE EXISTING WATERMANS ARE TAPPED, THE PIPE SURFACE AT THE LOCATION OF THE TAP SHALL BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION, WHERE APPLICABLE, THE DRILL/CUTTING/TAPPING BITS AND ALL SURFACES OF MAINSTOPS, SERVICE SADDLES, TAPPING SLEEVES AND VALVES WHICH WILL COME INTO CONTACT WITH DRINKING WATER SHALL LIKEWISE BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION IMMEDIATELY PRIOR TO INSTALLATION, IF ANY OF THE DISINFECTED SURFACES COME INTO CONTACT WITH THE SOIL AND/OR WATER IN THE EXCAVATION PRIOR TO USE, THE CLEANING AND DISINFECTION PROCEDURE SHALL BE REPEATED.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY WATER SUPPLY TO BUILDINGS AT ALL TIMES. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE QUALITY TESTING OF THE TEMPORARY SUPPLY IN ACCORDANCE WITH TESTING PROCEDURES TO THE SATISFACTION OF THE CENTRE WELLINGTON ENVIRONMENTAL SERVICES DEPARTMENT.
- CONNECTION OF PROPOSED WATERMAIN TO MUNICIPAL WATERMAIN TO BE IN ACCORDANCE WITH TOWNSHIP OF CENTRE WELLINGTON STANDARDS.

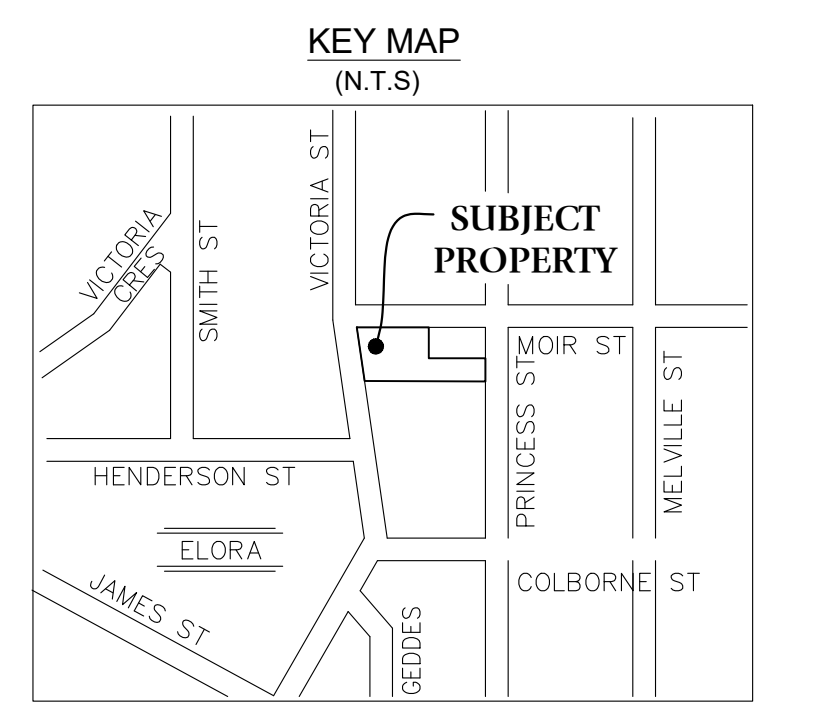
SEDIMENT AND EROSION CONTROL NOTES:

- ALL SILT FENCING TO BE INSPECTED AND INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING OR EXCAVATING.
- EROSION PROTECTION TO BE PROVIDED AROUND ALL SWALES AND DITCHES.
- ALL PROPOSED AND EXISTING CATCHBASINS AND OTHER UTILITY STRUCTURES TO BE PROVIDED WITH SILT SACS DURING CONSTRUCTION.
- ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY ADDITIONAL EROSION CONTROL STRUCTURES.
- EROSION CONTROL STRUCTURES ARE TO BE MONITORED ON A WEEKLY BASIS, BEFORE AND AFTER SIGNIFICANT RAINFALL EVENTS. ANY DAMAGE TO STRUCTURES REPAIRED IMMEDIATELY. SEDIMENTS ARE TO BE REMOVED WHEN THE HEIGHT OF ACCUMULATION REACHES A MAXIMUM FOR THE FENCE AND THE LOGGED FILTER MATERIALS MUST BE REPLACED AS NEEDED OR AS REQUESTED BY THE TOWN.
- ALL EROSION CONTROL STRUCTURES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- DE-WATERING WILL NOT BE PERMITTED DURING CONSTRUCTION. SHOULD DE-WATERING BE REQUIRED, A SEPARATE PLAN AND APPROVAL FROM THE GRCA SHALL BE OBTAINED.
- NO ALTERNATIVE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE DESIGN CONSULTANT AND THE CITY OF GUELPH.
- THE CONTRACTOR IS TO ENSURE THE SILT FENCING IS FUNCTIONING AS INTENDED.
- ANY DAMAGED ESC MEASURES ARE TO BE REPLACED IMMEDIATELY WITHIN 48 HOURS OF INSPECTION.
- SEDIMENT TO BE REMOVED FROM THE SEDIMENT BARRIER ONCE IT HAS REACHED A DEPTH OF 300 mm. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO REMOVING THE SILT FENCING.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING MUNICIPAL ROADWAYS AND SIDEWALKS ARE CLEANED OF ALL SEDIMENTS FROM VEHICULAR TRACKING ETC. TO AND FROM THE SITE AT THE END OF EACH WORKING DAY.
- EROSION AND SEDIMENT CONTROL (ESC) PLAN IS A DYNAMIC DOCUMENT, WHICH MAY BE SUBJECT TO CHANGE OR MODIFICATIONS AS A RESULT OF SITE DEVELOPMENTS OR CHANGES ON SITE. ANY DEVIATION FROM APPROVED PLANS MUST BE DESIGNED BY A QUALIFIED PROFESSIONAL.
- IT IS EVERYONE'S RESPONSIBILITY TO PREVENT CONSTRUCTION RELATED SEDIMENT FROM IMPACTING AQUATIC RESOURCES AND OTHER NATURAL FEATURES.
- NO PUMPING OF SEDIMENT LADEN RUNOFF FROM ONSITE TO THE WETLAND IS ALLOWED AT ANY TIME.
- ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE, OR OTHER DELETERIOUS SUBSTANCES IN THE WATER. VEHICULAR RE-FUELLING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30 m FROM THE WATER.
- AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.
- ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTRE) AT 1-800-268-0060.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (IE SILT FENCE, STRAW BALES, CLEAR STONES ... ETC.) ARE TO BE KEPT ON SITE FOR EMERGENCIES AND REPAIRS.



LEGEND

- FIBRE — LIGHT STANDARD
- OH — OH — UNDERGROUND FIBRE
- OH — OH — OVERHEAD HYDRO
- GAS — GAS — UNDERGROUND HYDRO
- STM — STM — GAS LINE
- W — W — W — STORM SEWER
- W — W — W — SANITARY SEWER
- W — W — W — WATERMAIN
- X — X — X — FENCE
- (325.09) — VHS PROPOSED GRADE
- (325.09) — TRITON PROPOSED GRADE
- SLOPE — SLOPE
- DIRECTION OF FLOW — DIRECTION OF FLOW
- CENTRELINE OF ROAD — CENTRELINE OF ROAD
- EXISTING ELEVATION — EXISTING ELEVATION
- GUY WIRE — GUY WIRE
- HP — HYDRO POLE
- GM — GAS METER
- HM — HYDRO METER
- BELL — BELL PEDESTAL
- DECIDUOUS TREE — DECIDUOUS TREE
- DECIDUOUS TREE TO BE REMOVED — DECIDUOUS TREE TO BE REMOVED
- HP — HYDRO POLE
- MB — CATCH BASIN
- MH — MANHOLE
- WH — WATER VALVE
- BOLLARD — BOLLARD
- BENCH MARK — BENCH MARK
- SAPLING — SAPLING
- SIGN — SIGN
- T.B.R. — DENOTES TO BE REMOVED
- P.B.O. — DENOTES PROPOSED BY OTHERS
- L.A. — DENOTES PROPOSED LANDSCAPE AREA BY OTHERS
- EXISTING PAVEMENTONE — EXISTING ASPHALT
- EXISTING GRAVEL — EXISTING CONCRETE
- PHASE 1 — EXISTING CURB CUT
- PHASE 2 — EXISTING CURB CUT



CAUTION:
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 - THIS SKETCH IS PROTECTED BY COPYRIGHT.

BENCHMARK:
 ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS IN THE NAD83 (CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTV2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.
 SITE BENCH MARK 1: TOP NUT OF FIRE HYDRANT, ELEV=389.13m.
 SITE BENCH MARK 2: TOP OF 0.7x0.7 CATCH BASIN, ELEV=386.52m.

PROPERTY DESCRIPTION:
 • PIN 71416-0168, PIN 71416-0169, & PIN 71416-0170
 • REGISTERED PLAN 181
 • (GEOGRAPHIC VILLAGE OF ELORA)
 • TOWNSHIP OF CENTRE WELLINGTON
 • COUNTY OF WELLINGTON

BOUNDARY NOTE:
 BOUNDARY BEARINGS AND DISTANCES AS PER SURVEYOR'S REAL PROPERTY REPORT BY VAN HARTEN SURVEYING INC., PROJECT 26629-18.

NO.	REVISION	BY	DATE
2	INITIAL SUBMISSION	MAMV	DEC 8-21
1	FOR COORDINATION	MAMV	SEP 21-21
	REVISION		

DRAWING REVISION SCHEDULE

LOT DEVELOPMENT PLAN FOR:
23, 175, & 195 GEDDES STREET
ALL OF LOTS 76, & 78
PART OF LOT 79
REGISTERED PLAN 181
TOWNSHIP OF CENTRE WELLINGTON
COUNTY OF WELLINGTON

PROJECT No. 26629-18
 DRAWING SCALE 1 : 200

METRIC:
 DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SERVICING: PHASE 1

SHEET
2
 OF
5

PREPARED FOR:
DAVE GILLIS

Van Harten SURVEYING INC.
 LAND SURVEYORS AND ENGINEERS

Kitchener/Waterloo Ph: 519-742-8371 Guelph Ph: 519-821-2763 Orangeville Ph: 519-940-4110

www.vanharten.com info@vanharten.com

DRAWN BY: RKH DESIGN BY: MAMV CHECKED BY: MAMV

CALL BEFORE YOU DIG
 THE LOCATION OF SERVICES ON THIS DRAWING ARE ONLY APPROXIMATE AND BASED ON SURFACE FEATURES LOCATED AT THE TIME OF THE TOPOGRAPHIC SURVEY. PRIOR TO ANY CONSTRUCTION IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE EXACT LOCATION OF ALL UTILITIES.

GENERAL NOTES:

- PROPOSED GRADING AND ELEVATIONS ARE SUBJECT TO CHANGE PENDING VERIFICATION OF STREET RECONSTRUCTION PLANS OF MOIR STREET (PLANS PREPARED BY OTHERS).
- OPSS AND OPSS STANDARD DRAWINGS CONSTITUTE PART OF THE SPECIFICATIONS STATED ON THIS DRAWING. ALL UNDERGROUND SERVICE MATERIALS AND INSTALLATIONS TO BE IN ACCORDANCE WITH THE LATEST APPLICABLE CODES AND STANDARDS.
- ALL DIMENSIONS AND LOCATIONS OF EXISTING SERVICES TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO COMMENCING ANY CONSTRUCTION PROPOSED BY THIS DRAWING. ANY DISCREPANCIES ARE TO BE REPORTED TO THE PROJECT ENGINEER IMMEDIATELY.
- THE POSITION OF UNDERGROUND SERVICES AND CONDUITS ARE NOT NECESSARILY SHOWN ON THIS DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES ARE NOT GUARANTEED. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR WILL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND ACCEPT ALL LIABILITY FOR ANY DAMAGE DONE TO THEM.
- THE OWNER IS RESPONSIBLE FOR THE COORDINATION OF ALL REQUIRED UTILITIES. THE OWNER SHALL BE RESPONSIBLE FOR ALL DITCHING, REGRADING AND RESTORATION WORK WITHIN THE TOWNSHIP'S ROAD ALLOWANCE AND TO THE CITY'S SATISFACTION, AS REQUIRED TO ACCOMMODATE THE PROPOSED DEVELOPMENT.
- THE OWNER IS RESPONSIBLE FOR SATISFYING HIMSELF THAT THERE IS ADEQUATE FIRE PROTECTION AVAILABLE FOR HIS PURPOSES.
- ALL ENTRANCES TO MEET THE TOWNSHIP'S SATISFACTION.
- THE PAVEMENT STRUCTURE FOR THE PARKING AREAS SHALL COMPRISE 40mm HL3, 50mm HL8, 150mm GRANULAR 'A' AND 300mm GRANULAR 'B'.
- HEAVY DUTY ASPHALT WITHIN THE FIRE ROUTE SHALL COMPRISE AT MINIMUM 50mm HL3, 60mm HL8, 150mm GRANULAR 'A' AND 450mm GRANULAR 'B'.
- A GEOTECHNICAL CONSULTANT SHOULD BE RETAINED TO CARRY OUT NECESSARY INSPECTIONS AND TESTING DURING PARKING LOT CONSTRUCTION TO ENSURE PLACEMENT OF PROPER MATERIALS AND ADEQUATE COMPACTION.
- SEDIMENT AND EROSION CONTROLS TO BE PROVIDED DURING CONSTRUCTION.
- ENTRANCE PERMIT WILL BE REQUIRED PRIOR TO CONSTRUCTION OF PROPOSED SITE ENTRANCE.
- THE BOULEVARD AREA WITHIN THE ROAD ALLOWANCE THAT IS NOT COVERED WITH ASPHALT OR GRAVEL SHALL BE FINE GRADED AND COVERED WITH A MINIMUM OF 200mm OF TOPSOIL AND SEEDED.
- ALL PARKING GRANULAR MATERIAL SHALL BE COMPACTED TO 100% AND OTHER MISCELLANEOUS FILL MATERIAL BROUGHT TO THE SITE SHALL BE COMPACTED TO 95% PROCTOR (UNLESS OTHERWISE PRESCRIBED BY GEOTECHNICAL INVESTIGATION).
- FILL MATERIAL SHALL BE FREE OF DEBRIS INCLUDING LARGE ROCKS AND STONES. EXCESS DEBRIS AND MATERIAL SHALL BE REMOVED FROM THE SITE.
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- SANITARY SEWER PIPING TO BE 150mmØ PVC DN 28.
- MANHOLE JOINTS ON ALL SANITARY SEWER CONNECTIONS TO BE WRAPPED TO PREVENT GROUNDWATER INFILTRATION WITH PETROLATUM TAPE.
- ALL STORM SEWERS TO BE PVC PIPE AND CONFORM TO OPSS 1820 AND ANY APPLICABLE CSA STANDARDS.
- ALL CATCHBASINS SHALL BE 600mm x 600mm PRECAST CONCRETE AS PER OPSS 705.010 - TYPE A.
- ALL MANHOLES AND CATCHBASIN MANHOLES SHOWN ON THIS DRAWING TO BE MINIMUM 1200mmØ PRECAST CONCRETE AND CONFORM TO THE APPLICABLE OPSS.
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- ALL MUNICIPAL OWNED WATER VALVES SHALL BE OPERATED BY THE TOWNSHIP. THE CONTRACTOR SHALL COORDINATE ALL NECESSARY VALVE OPERATIONS WITH THE TOWNSHIP PUBLIC WORKS DEPARTMENT.
- WHERE EXISTING WATERMANS ARE TAPPED, THE PIPE SURFACE AT THE LOCATION OF THE TAP SHALL BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION, WHERE APPLICABLE. THE DRILL/CUTTING/TAPPING BITS AND ALL SURFACES OF MANHOLES, SERVICE SADES, TAPPING SLEEVES AND VALVES WHICH WILL COME INTO CONTACT WITH DRINKING WATER SHALL LIKEWISE BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION IMMEDIATELY PRIOR TO INSTALLATION. IF ANY OF THE DISINFECTED SURFACES COME INTO CONTACT WITH THE SOIL AND/OR WATER IN THE EXCAVATION PRIOR TO USE, THE CLEANING AND DISINFECTION PROCEDURE SHALL BE REPEATED.
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- CONNECTION OF PROPOSED WATERMAIN TO MUNICIPAL WATERMAIN TO BE IN ACCORDANCE WITH TOWNSHIP OF CENTRE WELLINGTON STANDARDS.

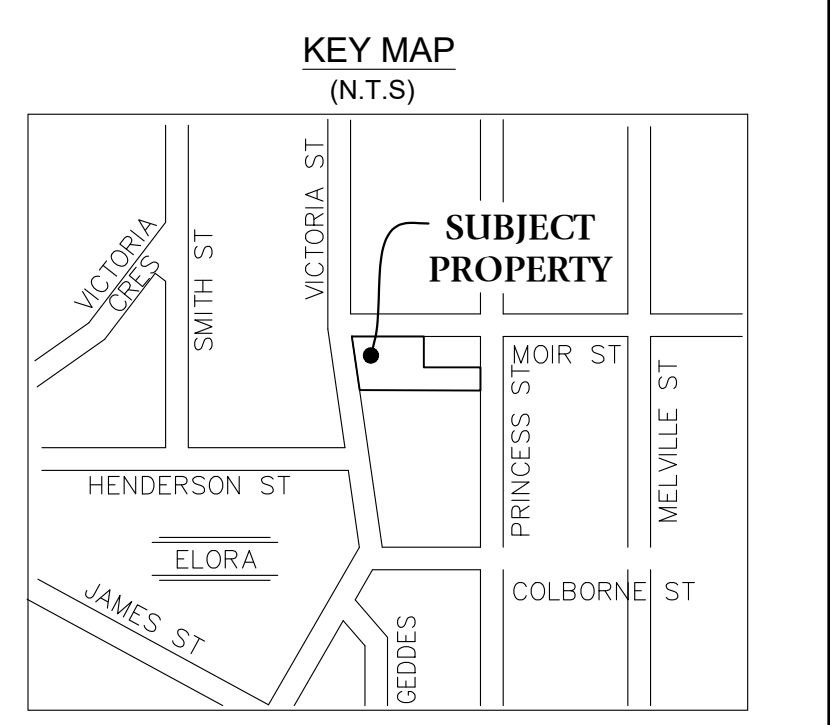
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LEGEND

- FIBRE - FIBRE
- OH - OH
- UH - UH
- GAS - GAS
- W - W
- Light Standard
- Underground Fibre
- Overhead Hydro
- Underground Hydro
- Gas Line
- Storm Sewer
- Sanitary Sewer
- Watermain
- Fence
- VHS Proposed Grade
- Triton Proposed Grade
- Slope
- Direction of Flow
- Centreline of Road
- Existing Elevation
- Guy Wire
- Hydro Pole
- Gas Meter
- Hydro Meter
- Bell Pedestal
- Deciduous Tree
- Deciduous Tree to be Removed
- Hydro Pole
- Catch Basin
- Manhole
- Water Valve
- Bollard
- Bench Mark
- Sapling
- Sign
- Denotes to be Removed
- Denotes Proposed by Others
- Denotes Proposed Landscape Area by Others
- Existing Pavestone
- Existing Gravel
- Phase 1
- Phase 2
- Existing Asphalt
- Existing Concrete
- Existing Curb Cut



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BENCHMARK:

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SITE BENCH MARK 1: TOP NUT OF FIRE HYDRANT, ELEV=389.13m.

SITE BENCH MARK 2: TOP OF 0.7X0.7 CATCH BASIN, ELEV=386.52m.

PROPERTY DESCRIPTION:

- PIN 71416-0168, PIN 71416-0169, & PIN 71416-0170
- 23, 175, & 195 GEDDES STREET
- REGISTERED PLAN 181
- (GEOGRAPHIC VILLAGE OF ELORA)
- TOWNSHIP OF CENTRE WELLINGTON
- COUNTY OF WELLINGTON

BOUNDARY NOTE:

BOUNDARY BEARINGS AND DISTANCES AS PER SURVEYOR'S REAL PROPERTY REPORT BY VAN HARTEN SURVEYING INC., PROJECT 26629-18.

NO.	REVISION	BY	DATE
2	INITIAL SUBMISSION	MAMV	DEC 8-21
1	FOR COORDINATION	MAMV	SEP 21-21

DRAWING REVISION SCHEDULE

LOT DEVELOPMENT PLAN FOR:

23, 175, & 195 GEDDES STREET

ALL OF LOTS 76, & 78

PART OF LOT 79

REGISTERED PLAN 181

TOWNSHIP OF CENTRE WELLINGTON

COUNTY OF WELLINGTON

PROJECT No. 26629-18

DRAWING SCALE 1 : 200

METRIC:

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

GRADING: PHASE 2

SHEET 3 OF 5

PREPARED FOR:

DAVE GILLIS

Van Harten SURVEYING INC.

LAND SURVEYORS and ENGINEERS

Kitchener/Waterloo Ph: 519-742-8371 Guelph Ph: 519-821-2763 Orangeville Ph: 519-940-4110

www.vanharten.com info@vanharten.com

DRAWN BY: RKH DESIGN BY: MAMV CHECKED BY: MAMV

Dec 08, 2021 12:20pm

C:\Users\MIKE-1\VAU\AppData\Local\Temp\AcPublish_44616\SP.LOTS 76,78,79.GLLS (2)

CALL BEFORE YOU DIG

THE LOCATION OF SERVICES ON THIS DRAWING ARE ONLY APPROXIMATE AND BASED ON SURFACE FEATURES LOCATED AT THE TIME OF THE TOPOGRAPHIC SURVEY. PRIOR TO ANY CONSTRUCTION IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE EXACT LOCATION OF ALL UTILITIES.

GENERAL NOTES:

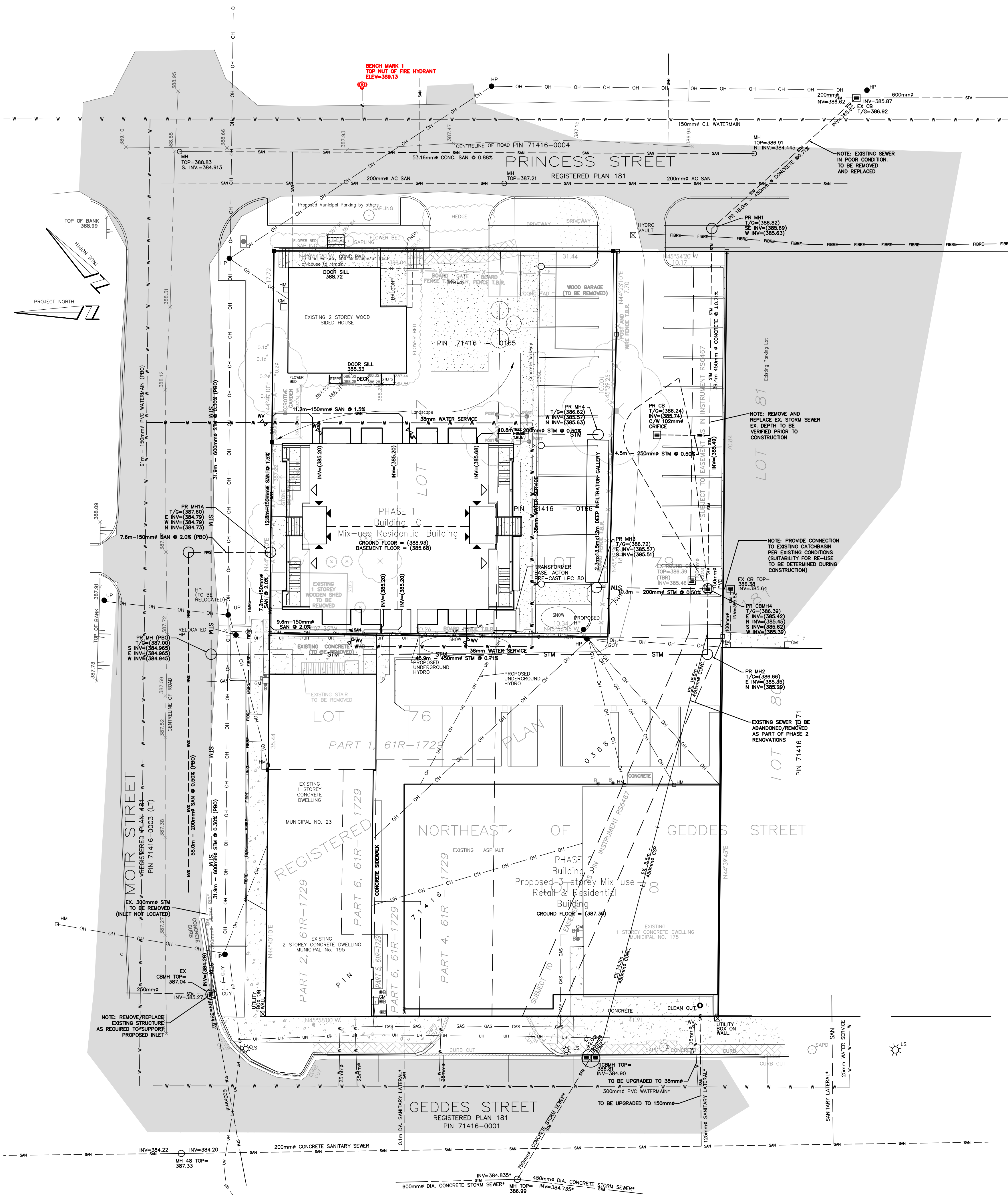
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- ALL ENTRANCE WORK TO MEET THE TOWNSHIP'S SATISFACTION.
- THE PAVEMENT STRUCTURE FOR THE PARKING AREAS SHALL COMPRISE 40mm HL3, 50mm HL8, 150mm GRANULAR 'A' AND 300mm GRANULAR 'B'.
- HEAVY DUTY ASPHALT WITHIN THE FIRE ROUTE SHALL COMPRISE AT MINIMUM 50mm HL3, 60mm HL8, 150mm GRANULAR 'A' AND 450mm GRANULAR 'B'.
- A GEOTECHNICAL CONSULTANT SHOULD BE RETAINED TO CARRY OUT NECESSARY INSPECTIONS AND TESTING DURING PARKING LOT CONSTRUCTION TO ENSURE PLACEMENT OF PROPER MATERIALS AND ADEQUATE COMPACTION.
- SEDIMENT AND EROSION CONTROLS TO BE PROVIDED DURING CONSTRUCTION.
- ENTRANCE PERMIT WILL BE REQUIRED PRIOR TO CONSTRUCTION OF PROPOSED SITE ENTRANCE.
- THE BOULEVARD AREA WITHIN THE ROAD ALLOWANCE THAT IS NOT COVERED WITH ASPHALT OR GRAVEL SHALL BE FIRE GRADED AND COVERED WITH A MINIMUM OF 200mm OF TOPSOIL AND SEED.
- ALL PARKING GRANULAR MATERIAL SHALL BE COMPACTED TO 100% AND OTHER MISCELLANEOUS FILL MATERIAL BROUGHT TO THE SITE SHALL BE COMPACTED TO 95% PROCTOR (UNLESS OTHERWISE PRESCRIBED BY GEOTECHNICAL INVESTIGATION).
- FILL MATERIAL SHALL BE FREE OF DEBRIS INCLUDING LARGE ROCKS AND STONES. EXCESS DEBRIS AND MATERIAL SHALL BE REMOVED FROM THE SITE.
- ALL LANDSCAPED AREAS ON SITE SHALL BE PROVIDED WITH A MINIMUM OF 150mm OF TOPSOIL AND SEED OR SODDED.
- ANY AREAS NOT UNDER ACTIVE CONSTRUCTION SHALL BE STABILIZED WITH TOPSOIL AND SEED.
- PLAN IS BASED IN TOPOGRAPHIC SURVEY COMPLETED BY VAN HARTEN SURVEYING INC. DATED JANUARY 15, 2020.
- THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED FOR TRANSACTION OR MORTGAGE PURPOSES.

SERVICING NOTES:

- SERVICING DETAILS SHOWN ON THIS PLAN ARE PRELIMINARY PENDING VERIFICATION OF PROPOSED SERVICING DESIGN OF MOIR STREET (PREPARED BY OTHERS).
- ALL UTILITIES TO BE CONFIRMED BY THE OWNER PRIOR TO CONSTRUCTION.
- ALL SERVICES ARE TO BE INSTALLED TO APPROPRIATE OPSS AND TOWNSHIP OF CENTRE WELLINGTON STANDARDS.
- SANITARY SEWER PIPING TO BE 150mmØ PVC DR 28.
- MANHOLE JOINTS ON ALL SANITARY SEWER CONNECTIONS TO BE WRAPPED TO PREVENT GROUNDWATER INFILTRATION WITH PETROLIUM TAPE.
- ALL STORM SEWERS TO BE PVC PIPE AND CONFORM TO OPSS 1820 AND ANY APPLICABLE CSA STANDARDS.
- ALL CATCHBASINS SHALL BE 600mm x 600mm PRECAST CONCRETE AS PER OPSS 705.010 - TYPE A.
- ALL MANHOLES AND CATCHBASIN MANHOLES SHOWN ON THIS DRAWING TO BE MINIMUM 1200mmØ PRECAST CONCRETE AND CONFORM TO THE APPLICABLE OPSS.
- ALL WATERMANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSS 441.
- ALL MUNICIPAL OWNED WATER VALVES SHALL BE OPERATED BY THE TOWNSHIP, THE CONTRACTOR SHALL COORDINATE ALL NECESSARY VALVE OPERATIONS WITH THE TOWNSHIP PUBLIC WORKS DEPARTMENT.
- WHERE EXISTING WATERMANS ARE TAPPED, THE PIPE SURFACE AT THE LOCATION OF THE TAP SHALL BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION, WHERE APPLICABLE. THE DRILL/CUTTING/TAPPING BITS AND ALL SURFACES OF MAINSTOPS, SERVICE SADDLES, TAPPING SLEEVES AND VALVES WHICH WILL COME INTO CONTACT WITH DRINKING WATER SHALL LIKEWISE BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION IMMEDIATELY PRIOR TO INSTALLATION, IF ANY OF THE DISINFECTED SURFACES COME INTO CONTACT WITH THE SOIL AND/OR WATER IN THE EXCAVATION PRIOR TO USE, THE CLEANING AND DISINFECTING PROCEDURE SHALL BE REPEATED.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY WATER SUPPLY TO BUILDINGS AT ALL TIMES. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE QUALITY TESTING OF THE TEMPORARY SUPPLY IN ACCORDANCE WITH TESTING PROCEDURES TO THE SATISFACTION OF THE CENTRE WELLINGTON ENVIRONMENTAL SERVICES DEPARTMENT.
- CONNECTION OF PROPOSED WATERMAIN TO MUNICIPAL WATERMAIN TO BE IN ACCORDANCE WITH TOWNSHIP OF CENTRE WELLINGTON STANDARDS.

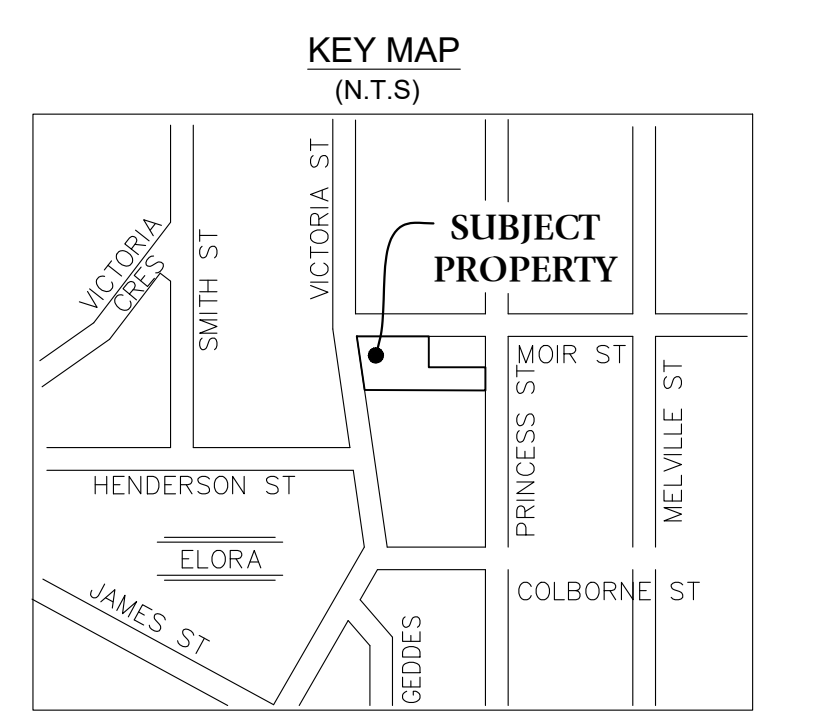
SEDIMENT AND EROSION CONTROL NOTES:

- ALL SILT FENCING TO BE INSPECTED AND INSTALLED PRIOR TO THE COMMENCEMENT OF ANY GRADING OR EXCAVATING.
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- ALL PROPOSED AND EXISTING CATCHBASINS AND OTHER UTILITY STRUCTURES TO BE PROVIDED WITH SILT SACS DURING CONSTRUCTION.
- ADDITIONAL EROSION CONTROL MEASURES MAY BE REQUIRED AS SITE DEVELOPMENT PROGRESSES. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ANY ADDITIONAL EROSION CONTROL STRUCTURES.
- EROSION CONTROL STRUCTURES ARE TO BE MONITORED ON A WEEKLY BASIS, BEFORE AND AFTER SIGNIFICANT RAINFALL EVENTS. ANY DAMAGE TO STRUCTURES REPAIRED IMMEDIATELY. SEDIMENTS ARE TO BE REMOVED WHEN THE HEIGHT OF ACCUMULATION REACHES A MAXIMUM FOR THE FENCE AND THE CLOGGED FILTER MATERIALS MUST BE REPLACED AS NEEDED OR AS REQUESTED BY THE TOWN.
- ALL EROSION CONTROL STRUCTURES ARE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- DE-WATERING WILL NOT BE PERMITTED DURING CONSTRUCTION. SHOULD DE-WATERING BE REQUIRED, A SEPARATE PLAN AND APPROVAL FROM THE GRCA SHALL BE OBTAINED.
- NO ALTERNATIVE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE DESIGN CONSULTANT AND THE CITY OF GUELPH.
- THE CONTRACTOR IS TO ENSURE THE SILT FENCING IS FUNCTIONING AS INTENDED.
- ANY DAMAGED ESC MEASURES ARE TO BE REPLACED IMMEDIATELY WITHIN 48 HOURS OF INSPECTION.
- SEDIMENT TO BE REMOVED FROM THE SEDIMENT BARRIER ONCE IT HAS REACHED A DEPTH OF 300 mm. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO REMOVING THE SILT FENCING.
- THE CONTRACTOR IS RESPONSIBLE FOR ENSURING MUNICIPAL ROADWAYS AND SIDEWALKS ARE CLEANED OF ALL SEDIMENTS FROM VEHICULAR TRACKING ETC. TO AND FROM THE SITE AT THE END OF EACH WORKING DAY.
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- NO PUMPING OF SEDIMENT LADEN RUNOFF FROM ONSITE TO THE WETLAND IS ALLOWED AT ANY TIME.
- ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL BE CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE, OR OTHER DELETERIOUS SUBSTANCES IN THE WATER. VEHICULAR RE-FUELLING AND MAINTENANCE WILL BE CONDUCTED A MINIMUM OF 30 m FROM THE WATER.
- AN AFTER-HOURS CONTACT NUMBER IS TO BE VISIBLY POSTED ON-SITE FOR EMERGENCIES. ALL THE PLANS SHOULD HAVE NAME AND CONTACT INFO OF THE PERSON RESPONSIBLE FOR ESC MEASURES.
- ANY SEDIMENT SPILL FROM THE SITE SHOULD BE REPORTED TO MINISTRY OF ENVIRONMENT (SPILL ACTION CENTRE) AT 1-800-268-0060.
- ADDITIONAL EROSION AND SEDIMENT CONTROL MATERIALS (IE SILT FENCE, STRAW BALES, CLEAR STONES ... ETC.) ARE TO BE KEPT ON SITE FOR EMERGENCIES AND REPAIRS.



LEGEND

- Light Standard
- Underground Fibre
- Overhead Hydro
- Underground Hydro
- Gas Line
- Storm Sewer
- Sanitary Sewer
- Watermain
- Fence
- VHS Proposed Grade
- Triton Proposed Grade
- Slope
- Direction of Flow
- Centreline of Road
- Existing Elevation
- Guy Wire
- Hydro Pole
- Gas Meter
- Hydro Meter
- Bell Pedestal
- Deciduous Tree
- Deciduous Tree to be Removed
- Hydro Pole Catch Basin
- Manhole
- Water Valve
- Bollard
- Bench Mark
- Sapling
- Sign
- Denotes to be Removed
- Denotes Proposed by Others
- Denotes Proposed Landscape Area by Others
- Existing Pavestone
- Existing Asphalt
- Existing Gravel
- Existing Concrete
- Phase 1 Existing Curb Cut
- Phase 2 Existing Curb Cut



CAUTION:
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- THIS SKETCH IS PROTECTED BY COPYRIGHT.

BENCHMARK:
ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS IN THE NAD83 (CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTV2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.

SITE BENCH MARK 1: TOP NUT OF FIRE HYDRANT, ELEV=389.13m.
SITE BENCH MARK 2: TOP OF 0.7x0.7 CATCH BASIN, ELEV=386.52m.

PROPERTY DESCRIPTION:

- PIN 71416-0168, PIN 71416-0169, & PIN 71416-0170
- 23, 175, & 195 GEDDES STREET
- REGISTERED PLAN 181
- (GEOGRAPHIC VILLAGE OF ELORA)
- TOWNSHIP OF CENTRE WELLINGTON
- COUNTY OF WELLINGTON

BOUNDARY NOTE:
BOUNDARY BEARINGS AND DISTANCES AS PER SURVEYOR'S REAL PROPERTY REPORT BY VAN HARTEN SURVEYING INC., PROJECT 26629-18.

NO.	REVISION	BY	DATE
2	INITIAL SUBMISSION	MAMV	DEC 8-21
1	FOR COORDINATION	MAMV	SEP 21-21

DRAWING REVISION SCHEDULE

LOT DEVELOPMENT PLAN FOR:
23, 175, & 195 GEDDES STREET
ALL OF LOTS 76, & 78
PART OF LOT 79
REGISTERED PLAN 181
TOWNSHIP OF CENTRE WELLINGTON
COUNTY OF WELLINGTON

PROJECT No. 26629-18
DRAWING SCALE 1: 200

METRIC:
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SERVICING: PHASE 2

SHEET 4 OF 5

PREPARED FOR:
DAVE GILLIS

Van Harten SURVEYING INC.
LAND SURVEYORS AND ENGINEERS

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www.vanharten.com info@vanharten.com

DRAWN BY: RKH DESIGN BY: MAMV CHECKED BY: MAMV

Dec 08, 2021 12:20pm
C:\Users\MIKE~1\WAU\AppData\Local\Temp\AcPublish_44616\SP.LOTS.76,78,79.GILLIS (2)

CALL BEFORE YOU DIG

THE LOCATION OF SERVICES ON THIS DRAWING ARE ONLY APPROXIMATE AND BASED ON SURFACE FEATURES LOCATED AT THE TIME OF THE TOPOGRAPHIC SURVEY. PRIOR TO ANY CONSTRUCTION IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE EXACT LOCATION OF ALL UTILITIES.

GENERAL NOTES:

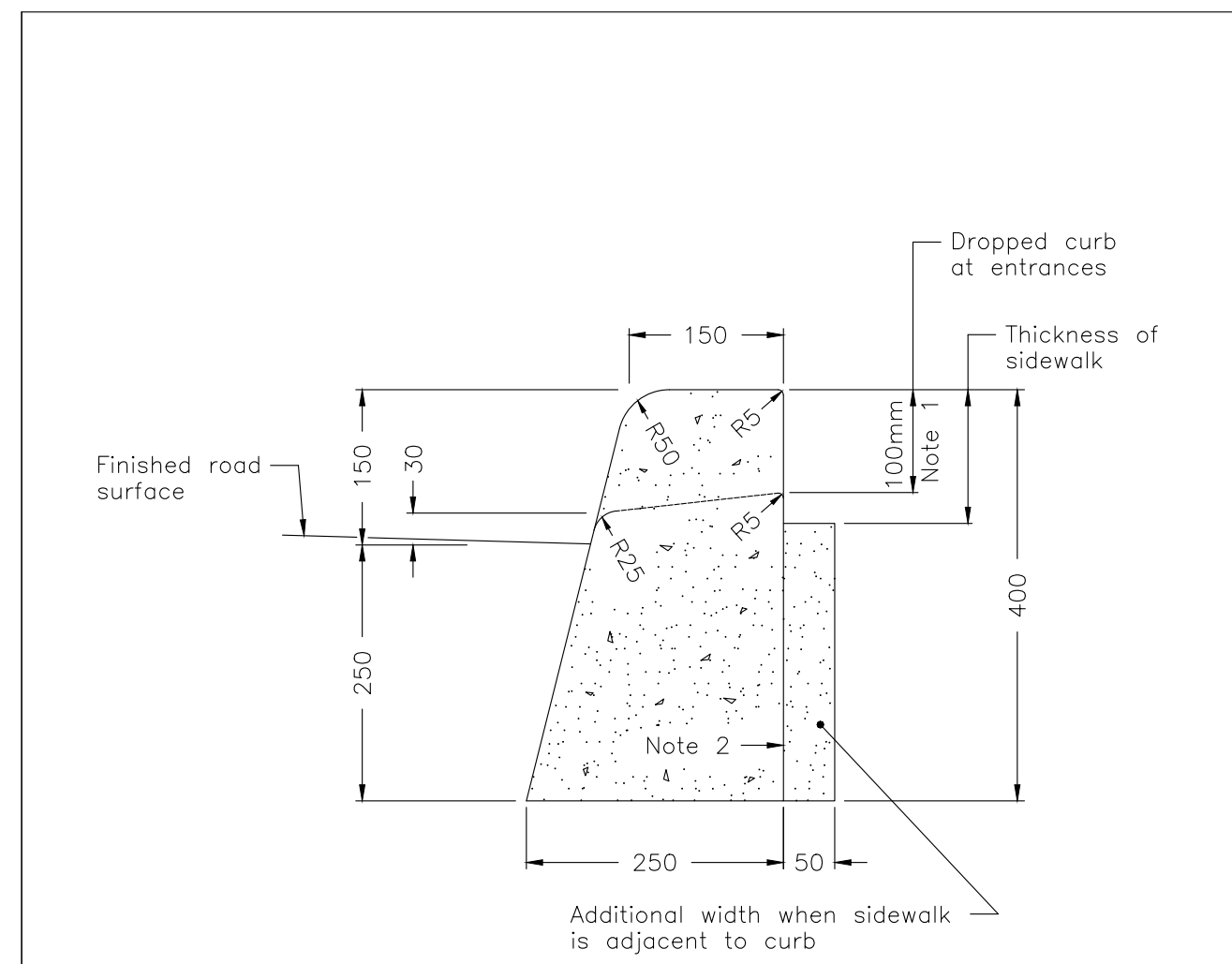
- PROPOSED GRADING AND ELEVATIONS ARE SUBJECT TO CHANGE PENDING VERIFICATION OF STREET RECONSTRUCTION PLANS OF MOIR STREET (PLANS PREPARED BY OTHERS).
- OPSS AND OPSD STANDARD DRAWINGS CONSTITUTE PART OF THE SPECIFICATIONS STATED ON THIS DRAWING. ALL UNDERGROUND SERVICE MATERIALS AND INSTALLATIONS TO BE IN ACCORDANCE WITH THE LATEST APPLICABLE CODES AND STANDARDS.
- ALL DIMENSIONS AND LOCATIONS OF EXISTING SERVICES TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO COMMENCING ANY CONSTRUCTION PROPOSED BY THIS DRAWING. ANY DISCREPANCIES ARE TO BE REPORTED TO THE PROJECT ENGINEER IMMEDIATELY.
- THE POSITION OF UNDERGROUND SERVICES AND CONDUITS ARE NOT NECESSARILY SHOWN ON THIS DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES ARE NOT GUARANTEED. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR WILL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND ACCEPT ALL LIABILITY FOR ANY DAMAGE DONE TO THEM.
- THE OWNER IS RESPONSIBLE FOR THE COORDINATION OF ALL REQUIRED UTILITIES. THE OWNER SHALL BE RESPONSIBLE FOR ALL DITCHING, REGRADING AND RESTORATION WORK WITHIN THE TOWNSHIP'S ROAD ALLOWANCE AND TO THE CITY'S SATISFACTION, AS REQUIRED TO ACCOMMODATE THE PROPOSED DEVELOPMENT.
- THE OWNER IS RESPONSIBLE FOR SATISFYING HIMSELF THAT THERE IS ADEQUATE FIRE PROTECTION AVAILABLE FOR HIS PURPOSES.
- ALL ENTRANCE WORK TO MEET THE TOWNSHIP'S SATISFACTION.
- THE PAVEMENT STRUCTURE FOR THE PARKING AREAS SHALL COMPRISE 40mm HL3, 50mm HL8, 150mm GRANULAR 'A' AND 300mm GRANULAR 'B'.
- HEAVY DUTY ASPHALT WITHIN THE FIRE ROUTE SHALL COMPRISE AT MINIMUM 50mm HL3, 60mm HL8, 150mm GRANULAR 'A' AND 450mm GRANULAR 'B'.
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- SANITARY SEWER PIPING TO BE 150mmØ PVC DR 28.
- MANHOLE JOINTS ON ALL SANITARY SEWER CONNECTIONS TO BE WRAPPED TO PREVENT GROUNDWATER INFILTRATION WITH PETROLIUM TAPE.
- ALL STORM SEWERS TO BE PVC PIPE AND CONFORM TO OPSS 1820 AND ANY APPLICABLE CSA STANDARDS.
- ALL CATCHBASINS SHALL BE 600mm x 600mm PRECAST CONCRETE AS PER OPSS 705.010 - TYPE A.
- ALL MANHOLES AND CATCHBASIN MANHOLES SHOWN ON THIS DRAWING TO BE MINIMUM 1200mmØ PRECAST CONCRETE AND CONFORM TO THE APPLICABLE OPSS.
- ALL WATERMANS SHALL BE CONSTRUCTED IN ACCORDANCE WITH OPSS 441.
- ALL MUNICIPAL OWNED WATER VALVES SHALL BE OPERATED BY THE TOWNSHIP. THE CONTRACTOR SHALL COORDINATE ALL NECESSARY VALVE OPERATIONS WITH THE TOWNSHIP PUBLIC WORKS DEPARTMENT.
- WHERE EXISTING WATERMANS ARE TAPPED, THE PIPE SURFACE AT THE LOCATION OF THE TAP SHALL BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION. WHERE APPLICABLE, THE DRILL/CUTTING/TAPPING BITS AND ALL SURFACES OF MAINSTOPS, SERVICE SADDLES, TAPPING SLEEVES AND VALVES WHICH WILL COME INTO CONTACT WITH DRINKING WATER SHALL LIKEWISE BE CLEANED AND DISINFECTED USING A MINIMUM 1% SODIUM HYPOCHLORITE SOLUTION IMMEDIATELY PRIOR TO INSTALLATION, IF ANY OF THE DISINFECTED SURFACES COME INTO CONTACT WITH THE SOIL AND/OR WATER IN THE EXCAVATION PRIOR TO USE, THE CLEANING AND DISINFECTION PROCEDURE SHALL BE REPEATED.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN TEMPORARY WATER SUPPLY TO BUILDINGS AT ALL TIMES. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE QUALITY TESTING OF THE TEMPORARY SUPPLY IN ACCORDANCE WITH TESTING PROCEDURES TO THE SATISFACTION OF THE CENTRE WELLINGTON ENVIRONMENTAL SERVICES DEPARTMENT.
- CONNECTION OF PROPOSED WATERMAIN TO MUNICIPAL WATERMAIN TO BE IN ACCORDANCE WITH TOWNSHIP OF CENTRE WELLINGTON STANDARDS.

SEDIMENT AND EROSION CONTROL NOTES:

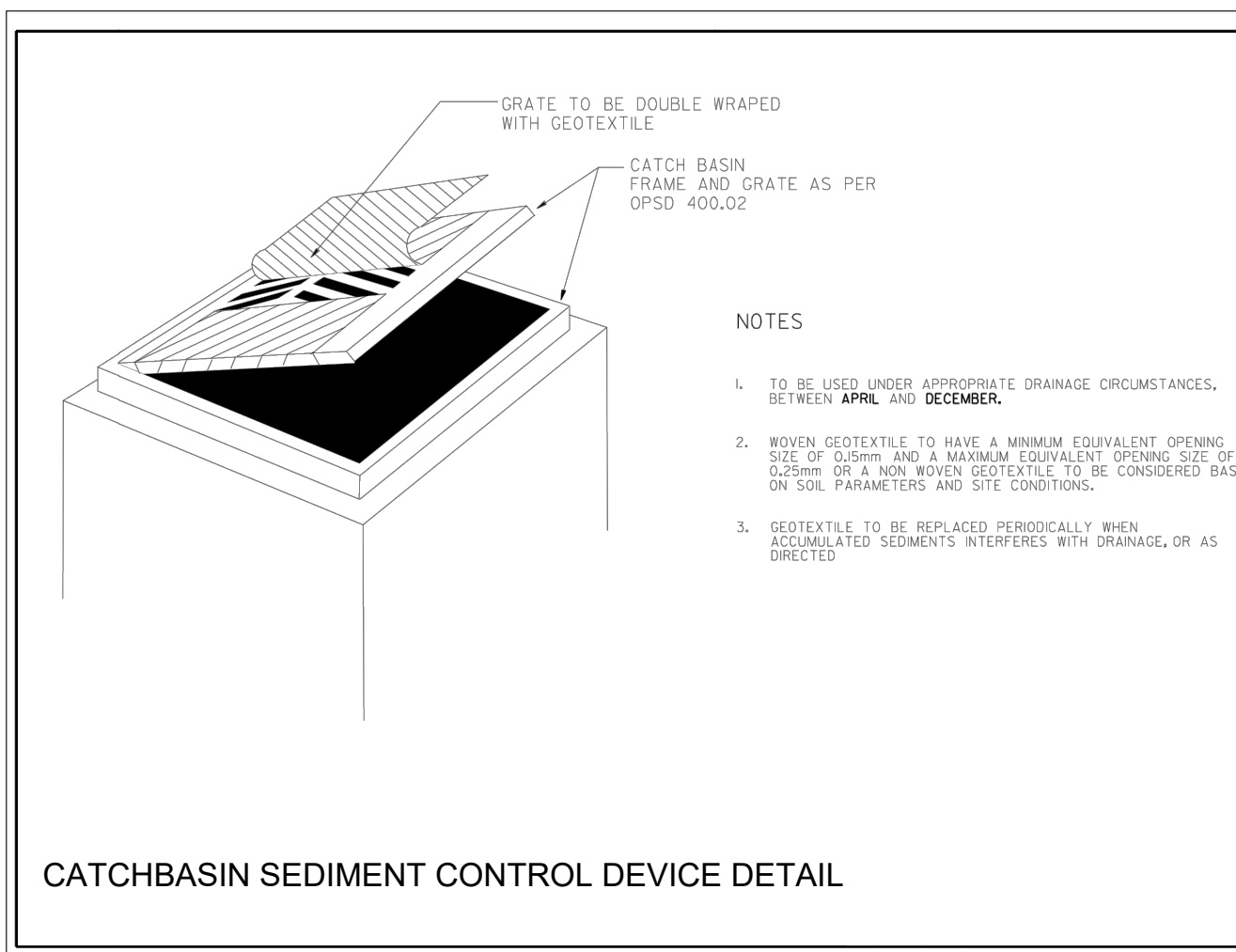
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NOTES:

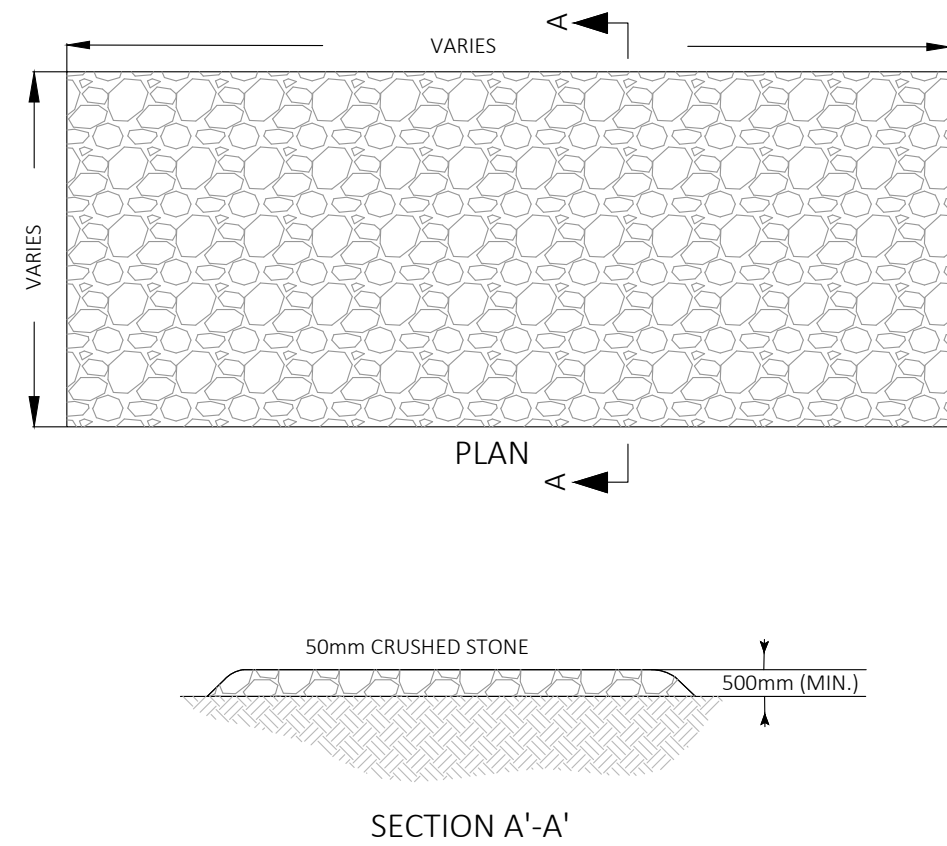
- When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
- For slipforming procedure a 5% batter is acceptable.
- Treatment at entrances shall be according to OPSS 351.010.
- Outlet treatment shall be according to the OPSS 610 Series.
- The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSS 900 Series.
- All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2	
CONCRETE BARRIER CURB			
OPSD 600.110			

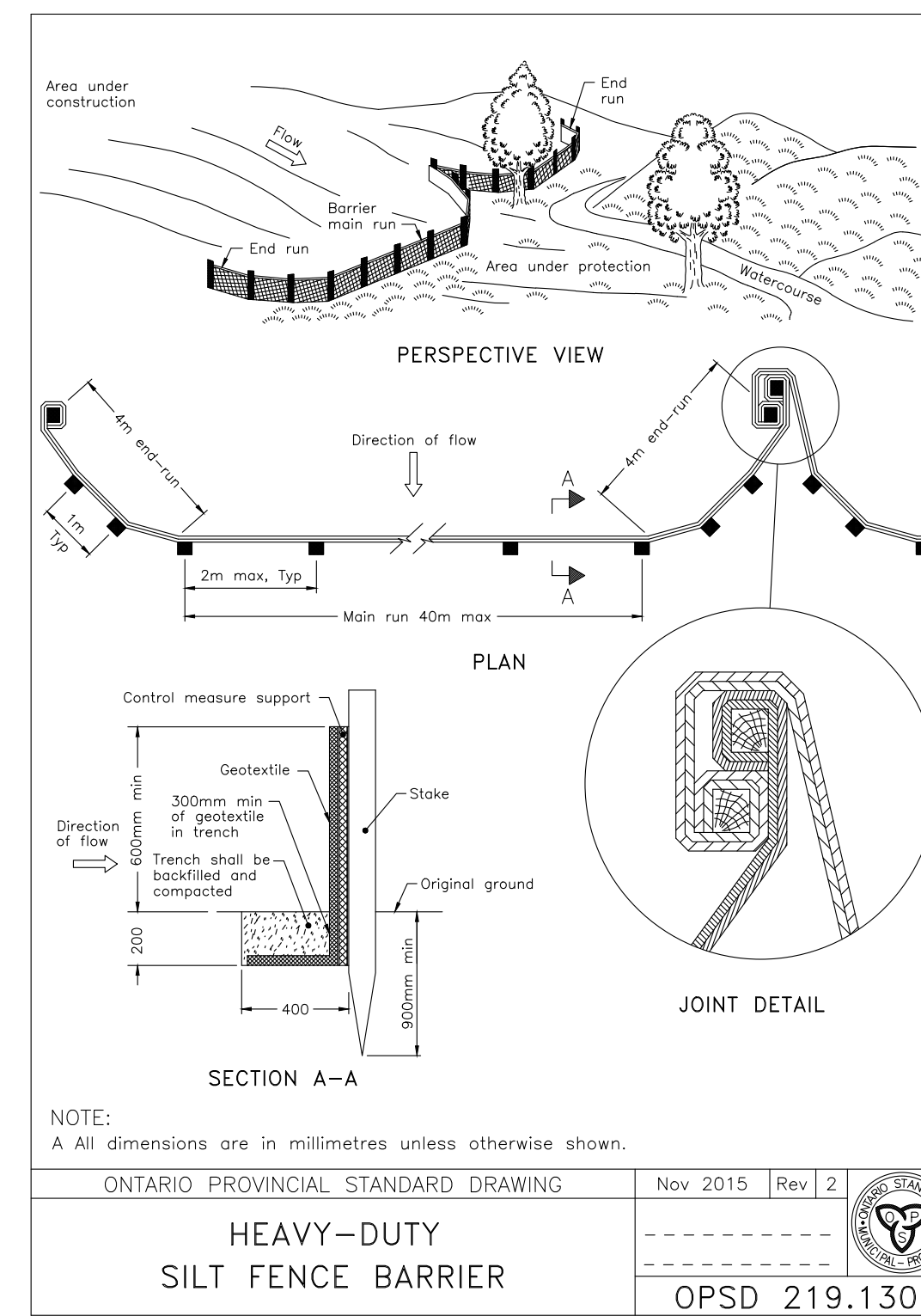


CATCHBASIN SEDIMENT CONTROL DEVICE DETAIL

TEMPORARY GRAVEL MUD MAT DETAIL

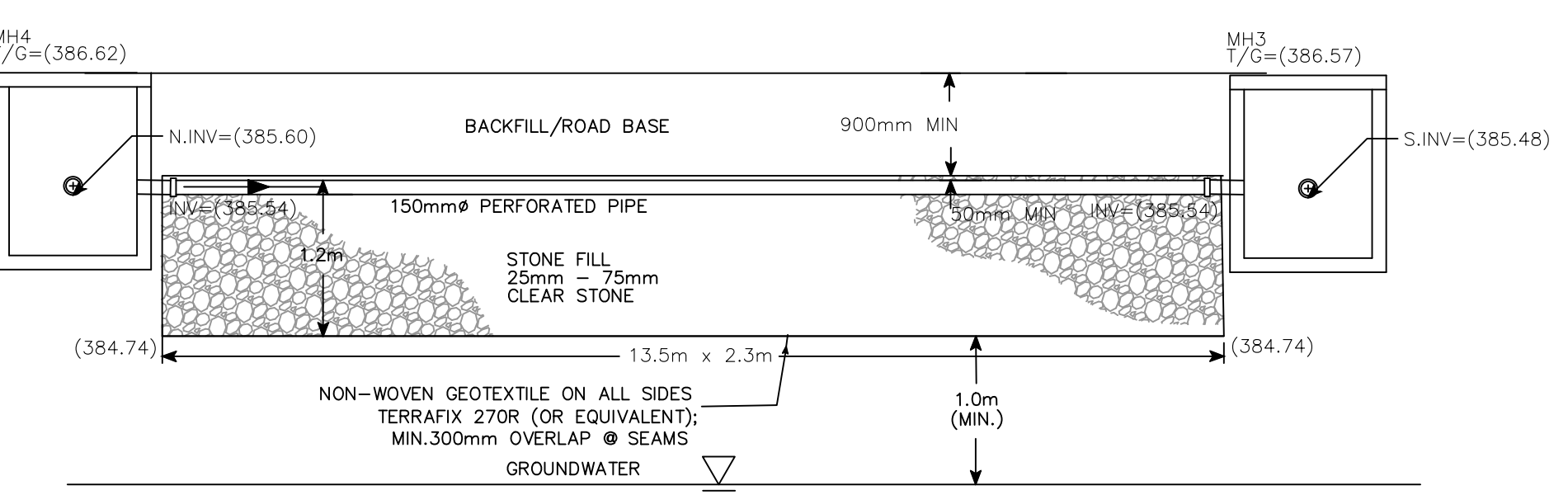


SECTION A-A'

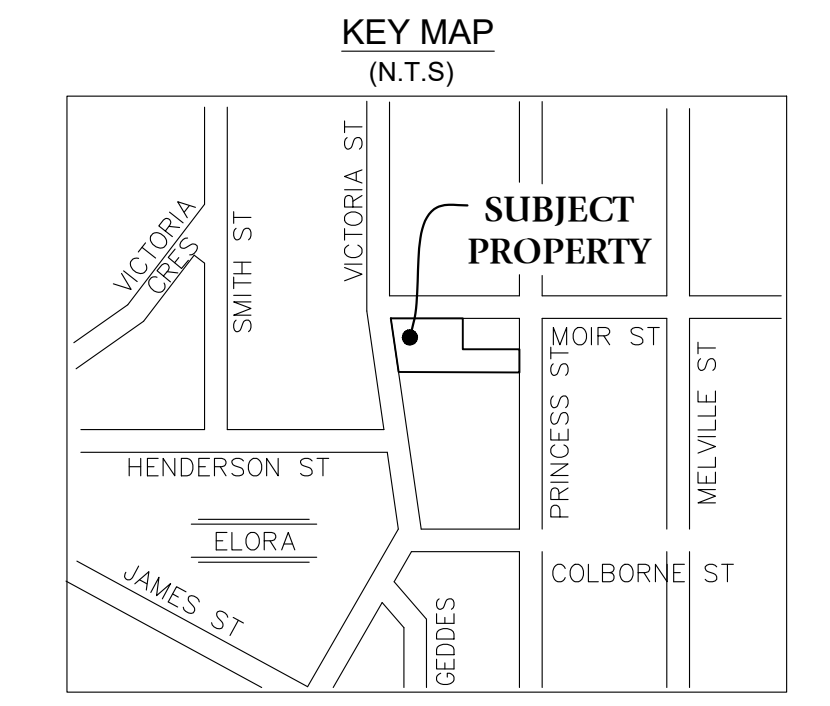
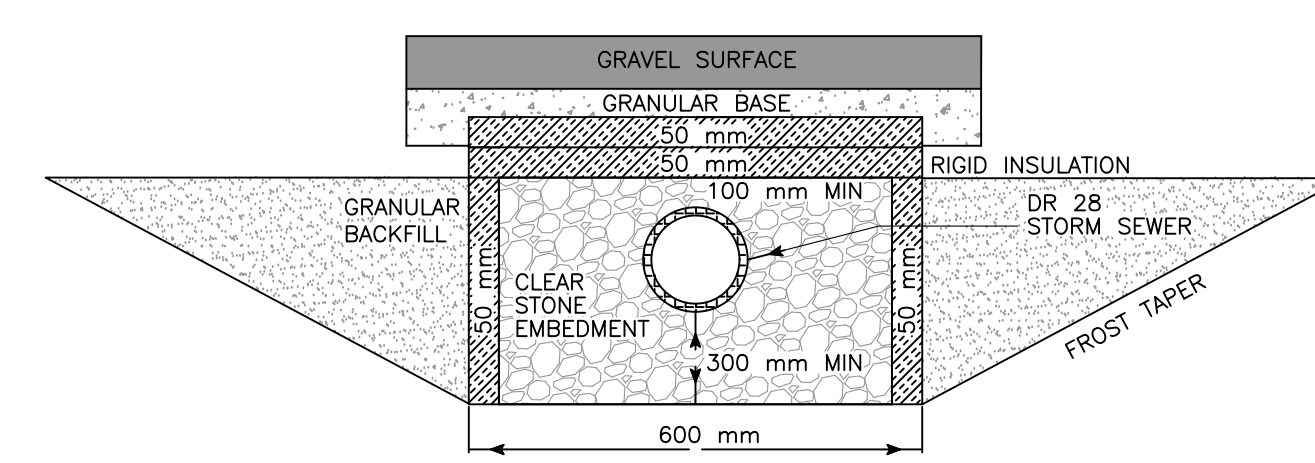


ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2	
HEAVY-DUTY SILT FENCE BARRIER			
OPSD 219.130			

INFILTRATION GALLERY DETAIL (N.T.S.)



SHALLOW STORM SEWER INSTALLATION DETAIL (N.T.S.)



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BENCHMARK:
ELEVATIONS ARE BASED ON GPS OBSERVATIONS TO PERMANENT REFERENCE STATIONS IN THE NAD83 (CSRS-2010) COORDINATE SYSTEM AND HAVE BEEN CORRECTED TO ORTHOMETRIC ELEVATIONS ON THE CGVD28 DATUM (1978 ADJUSTMENT) WITH GEOID MODEL HTV2.0, AS SUPPLIED BY NATURAL RESOURCES CANADA.
SITE BENCH MARK 1: TOP NUT OF FIRE HYDRANT, ELEV=389.13m.
SITE BENCH MARK 2: TOP OF 0.7x0.7 CATCH BASIN, ELEV=386.52m.

PROPERTY DESCRIPTION:
• PIN 71416-0168, PIN 71416-0169, & PIN 71416-0170
• 23, 175, & 195 GEDDES STREET
• REGISTERED PLAN 181
• (GEOGRAPHIC VILLAGE OF ELORA
• TOWNSHIP OF CENTRE WELLINGTON
• COUNTY OF WELLINGTON

BOUNDARY NOTE:
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NO.	REVISION	BY	DATE
2	INITIAL SUBMISSION	MAMV	DEC 8-21
1	FOR COORDINATION	MAMV	SEP 21-21

LOT DEVELOPMENT PLAN FOR:

**23, 175, & 195 GEDDES STREET
ALL OF LOTS 76, & 78
PART OF LOT 79
REGISTERED PLAN 181
TOWNSHIP OF CENTRE WELLINGTON
COUNTY OF WELLINGTON**

PROJECT No. 26629-18
DRAWING SCALE 1 : 200

METRIC:
DISTANCES SHOWN ON THIS SCALE ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

DETAILS

SHEET	
5	
OF	
5	

PREPARED FOR:
DAVE GILLIS

Van Harten SURVEYING INC.
LAND SURVEYORS AND ENGINEERS

Kitchener/Waterloo Ph: 519-742-8371	Guelph Ph: 519-821-2763	Orangeville Ph: 519-940-4110
www.vanharten.com		info@vanharten.com
DRAWN BY: RKH	DESIGN BY: MAMV	CHECKED BY: MAMV

CALL BEFORE YOU DIG
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Appendix B

Stormwater Modelling

5-Year Storm - Existing Condition

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"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25 rev. 473"
"          MIDUSS created                      Sunday, February 7, 2010"
"          10 Units used:                      ie METRIC"
"          Job folder:                          Q:\18-266\"
"          26629-18 (Gillis Geddes Street Elora)\SWM"
"          Output filename:                    5-yr ex.out"
"          Licensee name:                      Mike Vaughan"
"          Company                             Van Harten Surveying"
"          Date & Time last used:              10/28/2021 at 8:32:20 AM"
" 31      TIME PARAMETERS"
"          5.000 Time Step"
"          180.000 Max. Storm length"
"          1500.000 Max. Hydrograph"
" 32      STORM Chicago storm"
"          1 Chicago storm"
"          1166.822 Coefficient A"
"          11.326 Constant B"
"          0.816 Exponent C"
"          0.400 Fraction R"
"          180.000 Duration"
"          1.000 Time step multiplier"
"          Maximum intensity                    119.480 mm/hr"
"          Total depth                          48.106 mm"
"          6 005hyd Hydrograph extension used in this file"
" 33      CATCHMENT 1"
"          1 Triangular SCS"
"          1 Equal length"
"          1 SCS method"
"          1 C1 - EXISTING SITE (PHASE 1 AREA)"
"          40.200 % Impervious"
"          0.164 Total Area"
"          40.000 Flow length"
"          2.800 Overland Slope"
"          0.098 Pervious Area"
"          40.000 Pervious length"
"          2.800 Pervious slope"
"          0.066 Impervious Area"
"          40.000 Impervious length"
"          2.800 Impervious slope"
"          0.250 Pervious Manning 'n'"
"          75.000 Pervious SCS Curve No."
"          0.263 Pervious Runoff coefficient"
"          0.100 Pervious Ia/S coefficient"
"          8.467 Pervious Initial abstraction"
"          0.015 Impervious Manning 'n'"
"          98.000 Impervious SCS Curve No."
"          0.878 Impervious Runoff coefficient"
"          0.100 Impervious Ia/S coefficient"
"          0.518 Impervious Initial abstraction"
"          0.019 0.000 0.000 0.000 c.m/sec"
"          Catchment 1 Pervious Impervious Total Area "
"          Surface Area 0.098 0.066 0.164 hectare"
"          Time of concentration 21.718 2.261 8.252 minutes"
"          Time to Centroid 127.903 90.844 102.255 minutes"
"          Rainfall depth 48.106 48.106 48.106 mm"
"          Rainfall volume 47.32 31.81 79.13 c.m"
"          Rainfall losses 35.475 5.873 23.575 mm"
"          Runoff depth 12.631 42.233 24.531 mm"
"          Runoff volume 12.43 27.93 40.35 c.m"

```

"	Runoff coefficient	0.263	0.878	0.510	"
"	Maximum flow	0.004	0.019	0.019	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.019	0.019	0.000	0.000"	
" 38	START/RE-START TOTALS 1"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area			0.164	hectare"
"	Total Impervious area			0.066	hectare"
"	Total % impervious			40.200"	
" 19	EXIT"				

100-Year Storm - Existing Condition

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25 rev. 473"
"          MIDUSS created                      Sunday, February 7, 2010"
"          10 Units used:                      ie METRIC"
"          Job folder:                         Q:\18-266\"
"          26629-18 (Gillis Geddes Street Elora)\SWM"
"          Output filename:                    100-yr ex.out"
"          Licensee name:                      Mike Vaughan"
"          Company                            Van Harten Surveying"
"          Date & Time last used:              10/28/2021 at 9:20:03 AM"
" 31      TIME PARAMETERS"
"          5.000 Time Step"
"          180.000 Max. Storm length"
"          1500.000 Max. Hydrograph"
" 47      FILEI_O Read/Open FERGUS 100YR STORM.stm"
"          1 1=read/open; 2=write/save"
"          1 1=rainfall; 2=hydrograph"
"          1 1=rain; 2=imperv; 3=perv"
"          FERGUS 100YR STORM.stm"
"          Fergus Shand Dam using Environment Canada IDF curve data"
"          New storm defined"
"          Total depth                        93.224 mm"
"          Maximum intensity                   211.620 mm/hr"
"          Duration                           180.000 minutes"
"          0.000 0.000 0.000 0.000 c.m/sec"
"          6 100hyd Hydrograph extension used in this file"
" 33      CATCHMENT 1"
"          1 Triangular SCS"
"          1 Equal length"
"          1 SCS method"
"          1 C1 - EXISTING SITE (PHASE 1 AREA)"
"          40.200 % Impervious"
"          0.164 Total Area"
"          40.000 Flow length"
"          2.800 Overland Slope"
"          0.098 Pervious Area"
"          40.000 Pervious length"
"          2.800 Pervious slope"
"          0.066 Impervious Area"
"          40.000 Impervious length"
"          2.800 Impervious slope"
"          0.250 Pervious Manning 'n'"
"          75.000 Pervious SCS Curve No."
"          0.453 Pervious Runoff coefficient"
"          0.100 Pervious Ia/S coefficient"
"          8.467 Pervious Initial abstraction"
"          0.015 Impervious Manning 'n'"
"          98.000 Impervious SCS Curve No."
"          0.929 Impervious Runoff coefficient"
"          0.100 Impervious Ia/S coefficient"
"          0.518 Impervious Initial abstraction"
"          0.049 0.000 0.000 0.000 c.m/sec"
"          Catchment 1 Pervious Impervious Total Area "
"          Surface Area 0.098 0.066 0.164 hectare"
"          Time of concentration 13.062 1.776 6.521 minutes"
"          Time to Centroid 110.889 87.269 97.198 minutes"
"          Rainfall depth 93.224 93.224 93.224 mm"
"          Rainfall volume 91.71 61.65 153.35 c.m"
"          Rainfall losses 50.996 6.611 33.154 mm"
"          Runoff depth 42.228 86.613 60.071 mm"

```


"	Runoff volume	41.54	57.28	98.82	c.m"
"	Runoff coefficient	0.453	0.929	0.644	"
"	Maximum flow	0.017	0.034	0.049	c.m/sec"
" 40	HYDROGRAPH Add Runoff "				
"	4 Add Runoff "				
"	0.049 0.049 0.000 0.000"				
" 38	START/RE-START TOTALS 1"				
"	3 Runoff Totals on EXIT"				
"	Total Catchment area			0.164	hectare"
"	Total Impervious area			0.066	hectare"
"	Total % impervious			40.200"	
" 19	EXIT"				

5-Year Storm - Design Condition

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25 rev. 473"
"          MIDUSS created                      Sunday, February 7, 2010"
"          10 Units used:                      ie METRIC"
"          Job folder:                          Q:\18-266\
"
"          26629-18 (Gillis Geddes Street Elora)\SWM"
"          Output filename:                    5-yr PR.out"
"          Licensee name:                      Mike Vaughan"
"          Company                             Van Harten Surveying"
"          Date & Time last used:              10/28/2021 at 9:22:07 AM"
" 31      TIME PARAMETERS"
"          5.000 Time Step"
"          180.000 Max. Storm length"
"          1500.000 Max. Hydrograph"
" 47      FILEI_O Read/Open FERGUS 5YR STORM.stm"
"          1 1=read/open; 2=write/save"
"          1 1=rainfall; 2=hydrograph"
"          1 1=rain; 2=imperv; 3=perv"
"          FERGUS 5YR STORM.stm"
"          5 YRS STORM - FERGUS SHAND DAM"
"          New storm defined"
"          Total depth                          48.106 mm"
"          Maximum intensity                    119.480 mm/hr"
"          Duration                            180.000 minutes"
"          0.000 0.000 0.000 0.000 c.m/sec"
"          6 005hyd Hydrograph extension used in this file"
" 33      CATCHMENT 100"
"          1 Triangular SCS"
"          1 Equal length"
"          1 SCS method"
"          100 C100 - ROOF OF PROPOSED BUILDING"
"          100.000 % Impervious"
"          0.027 Total Area"
"          9.000 Flow length"
"          2.000 Overland Slope"
"          0.000 Pervious Area"
"          9.000 Pervious length"
"          2.000 Pervious slope"
"          0.027 Impervious Area"
"          9.000 Impervious length"
"          2.000 Impervious slope"
"          0.250 Pervious Manning 'n'"
"          75.000 Pervious SCS Curve No."
"          0.000 Pervious Runoff coefficient"
"          0.100 Pervious Ia/S coefficient"
"          8.467 Pervious Initial abstraction"
"          0.015 Impervious Manning 'n'"
"          98.000 Impervious SCS Curve No."
"          0.865 Impervious Runoff coefficient"
"          0.100 Impervious Ia/S coefficient"
"          0.518 Impervious Initial abstraction"
"          0.007 0.000 0.000 0.000 c.m/sec"
"          Catchment 100 Pervious Impervious Total Area "
"          Surface Area 0.000 0.027 0.027 hectare"
"          Time of concentration 9.817 1.022 1.022 minutes"
"          Time to Centroid 0.000 88.926 88.926 minutes"
"          Rainfall depth 48.106 48.106 48.106 mm"
"          Rainfall volume 0.00 12.80 12.80 c.m"
"          Rainfall losses 48.106 6.511 6.511 mm"
"          Runoff depth 0.000 41.595 41.595 mm"

```

```

"          Runoff volume          0.00          11.06          11.06          c.m"
"          Runoff coefficient      0.000          0.865          0.865          "
"          Maximum flow            0.000          0.007          0.007          c.m/sec"
40      HYDROGRAPH Add Runoff "
"          4  Add Runoff "
"              0.007          0.007          0.000          0.000"
57      TRENCH Design d/s of 100"
"          0.007  Peak inflow"
"          11.064  Hydrograph volume"
"          386.570  Ground elevation"
"          384.740  Downstream trench invert"
"          1.200   Trench height"
"          380.000  Water table elevation"
"          2.000   Trench top width"
"          2.000   Trench bottom width"
"          40.000  Voids ratio (%)"
"          26.000  Hydraulic conductivity"
"          0.000   Trench gradient (%)"
"          13.500  Trench length"
"          1.000   Include base width"
"          21.    Number of stages"
"              Level Discharge      Volume"
"              384.740      0.000      0.0"
"              384.831      0.000      1.0"
"              384.923      0.000      2.0"
"              385.014      0.000      3.0"
"              385.106      0.000      4.0"
"              385.198      0.000      4.9"
"              385.289      0.000      5.9"
"              385.380      0.000      6.9"
"              385.472      0.000      7.9"
"              385.540      0.000      8.9"
"              385.655      0.004      9.9"
"              385.746      0.010     10.9"
"              385.838      0.016     11.9"
"              385.930      0.020     12.8"
"              386.021      0.023     13.1"
"              386.113      0.026     13.2"
"              386.204      0.029     13.3"
"              386.296      0.031     13.4"
"              386.387      0.034     13.5"
"              386.479      0.036     13.6"
"              386.570      0.038     13.7"
1.      TRENCH PIPES"
"          Downstream      Pipe      Pipe      Pipe Perf'ted?      Offset"
"          Invert      length      diam.      grade%      0=Yes      distance"
"          385.540      1.000      0.000      1.001      1.000      0.925"
1.      MANHOLE"
"          Access"
"          diameter"
"          1.200"
1.      OUTFLOW PIPE"
0.      Inflow at upstream end of trench: 1=True; 0=False"
"          Upstream Downstr'm      Pipe      Pipe      Manning      Entry"
"          invert      invert      Length      Diameter      'n'      loss Ke"
"          385.540      385.530      1.000      0.150      0.013      0.500"
"          Peak outflow          0.000      c.m/sec"
"          Outflow volume          0.313      c.m"
"          Peak exfiltration          0.000      c.m/sec"
"          Exfiltration volume          10.752      c.m"
"          Maximum level          385.502      metre"
"          Maximum storage          8.338      c.m"
"          Centroidal lag          2.480      hours"

```

```

"          Infiltration area 2 sides    20.568    sq.metre"
"          Infiltration Base area      27.000    sq.metre"
"          0.007    0.007    0.000    0.000 c.m/sec"
" 40      HYDROGRAPH Next link "
"          5    Next link "
"          0.007    0.000    0.000    0.000"
" 33      CATCHMENT 101"
"          1    Triangular SCS"
"          1    Equal length"
"          1    SCS method"
"          101   C101 - PHASE 1 DEVELOPMENT SITE"
"          80.000 % Impervious"
"          0.138   Total Area"
"          40.000   Flow length"
"          2.800   Overland Slope"
"          0.028   Pervious Area"
"          40.000   Pervious length"
"          2.800   Pervious slope"
"          0.110   Impervious Area"
"          40.000   Impervious length"
"          2.800   Impervious slope"
"          0.250   Pervious Manning 'n'"
"          75.000   Pervious SCS Curve No."
"          0.263   Pervious Runoff coefficient"
"          0.100   Pervious Ia/S coefficient"
"          8.467   Pervious Initial abstraction"
"          0.015   Impervious Manning 'n'"
"          98.000   Impervious SCS Curve No."
"          0.878   Impervious Runoff coefficient"
"          0.100   Impervious Ia/S coefficient"
"          0.518   Impervious Initial abstraction"
"          0.029    0.000    0.000    0.000 c.m/sec"
"          Catchment 101      Pervious    Impervious Total Area "
"          Surface Area      0.028      0.110      0.138      hectare"
"          Time of concentration  21.718    2.261    3.614    minutes"
"          Time to Centroid    127.903  90.844  93.422  minutes"
"          Rainfall depth      48.106    48.106    48.106    mm"
"          Rainfall volume     13.27     53.07     66.34     c.m"
"          Rainfall losses     35.475    5.873     11.793    mm"
"          Runoff depth        12.631    42.233    36.313    mm"
"          Runoff volume       3.48      46.59     50.07     c.m"
"          Runoff coefficient   0.263     0.878     0.755     "
"          Maximum flow        0.001     0.029     0.029     c.m/sec"
" 40      HYDROGRAPH Add Runoff "
"          4    Add Runoff "
"          0.029    0.029    0.000    0.000"
" 54      POND DESIGN"
"          0.029   Current peak flow    c.m/sec"
"          0.017   Target outflow      c.m/sec"
"          50.4   Hydrograph volume     c.m"
"          21.   Number of stages"
"          386.240 Minimum water level    metre"
"          386.540 Maximum water level    metre"
"          386.240 Starting water level    metre"
"          0     Keep Design Data: 1 = True; 0 = False"
"          Level Discharge    Volume"
"          386.240    0.000    0.000"
"          386.255    0.01513  0.00340"
"          386.270    0.01538  0.02708"
"          386.285    0.01563  0.09150"
"          386.300    0.01587  0.2167"
"          386.315    0.01611  0.4234"
"          386.330    0.01635  0.7312"

```

```

"          386.345  0.01658  1.162"
"          386.360  0.01681  1.733"
"          386.375  0.01704  2.469"
"          386.390  0.01726  3.387"
"          386.408  0.01975  4.757"
"          386.420  0.02249  5.853"
"          386.435  0.02670  7.439"
"          386.450  0.03166  9.294"
"          386.465  0.03724  11.428"
"          386.480  0.04341  13.872"
"          386.495  0.05007  16.635"
"          386.510  0.05723  19.750"
"          386.525  0.06482  23.224"
"          386.540  0.07284  27.092"
"
" 1. WEIRS"
"      Crest      Weir      Crest      Left      Right"
"      elevation coefficie breadth sideslope sideslope"
"          386.390  0.900      0.600      0.000      0.000"
"
" 1. ORIFICES"
"      Orifice      Orifice      Orifice      Number of"
"      invert coefficie diameter orifices"
"          385.740      0.630      0.1016      1.000"
"
" 1. LAYERS"
"      Bottom      Aspect      Bottom      Top      Average"
"      area      ratio elevation elevation sideslope"
"          0.000      4.844      386.240      386.540      27.430"
"      Peak outflow              0.019      c.m/sec"
"      Maximum level              386.408      metre"
"      Maximum storage              4.788      c.m"
"      Centroidal lag              1.603      hours"
"          0.029      0.029      0.019      0.000 c.m/sec"
" 40 HYDROGRAPH Next link "
" 5 Next link "
"          0.029      0.019      0.019      0.000"
" 38 START/RE-START TOTALS 101"
" 3 Runoff Totals on EXIT"
"      Total Catchment area              0.164      hectare"
"      Total Impervious area              0.137      hectare"
"      Total % impervious              83.234"
" 19 EXIT"

```

100-Year Storm - Design Condition

```

"          MIDUSS Output ----->"
"          MIDUSS version                      Version 2.25 rev. 473"
"          MIDUSS created                      Sunday, February 7, 2010"
"          10 Units used:                      ie METRIC"
"          Job folder:                         Q:\18-266\"
"          26629-18 (Gillis Geddes Street Elora)\SWM"
"          Output filename:                    100-yr PR.out"
"          Licensee name:                     Mike Vaughan"
"          Company                             Van Harten Surveying"
"          Date & Time last used:             10/28/2021 at 10:37:18 AM"
" 31      TIME PARAMETERS"
"          5.000 Time Step"
"          180.000 Max. Storm length"
"          1500.000 Max. Hydrograph"
" 47      FILEI_O Read/Open FERGUS 100YR STORM.stm"
"          1 1=read/open; 2=write/save"
"          1 1=rainfall; 2=hydrograph"
"          1 1=rain; 2=imperv; 3=perv"
"          FERGUS 100YR STORM.stm"
"          Fergus Shand Dam using Environment Canada IDF curve data"
"          New storm defined"
"          Total depth                        93.224 mm"
"          Maximum intensity                  211.620 mm/hr"
"          Duration                          180.000 minutes"
"          0.000 0.000 0.000 0.000 c.m/sec"
"          6 100hyd Hydrograph extension used in this file"
" 33      CATCHMENT 100"
"          1 Triangular SCS"
"          1 Equal length"
"          1 SCS method"
"          100 C100 - ROOF OF PROPOSED BUILDING"
"          100.000 % Impervious"
"          0.027 Total Area"
"          9.000 Flow length"
"          2.000 Overland Slope"
"          0.000 Pervious Area"
"          9.000 Pervious length"
"          2.000 Pervious slope"
"          0.027 Impervious Area"
"          9.000 Impervious length"
"          2.000 Impervious slope"
"          0.250 Pervious Manning 'n'"
"          75.000 Pervious SCS Curve No."
"          0.000 Pervious Runoff coefficient"
"          0.100 Pervious Ia/S coefficient"
"          8.467 Pervious Initial abstraction"
"          0.015 Impervious Manning 'n'"
"          98.000 Impervious SCS Curve No."
"          0.894 Impervious Runoff coefficient"
"          0.100 Impervious Ia/S coefficient"
"          0.518 Impervious Initial abstraction"
"          0.014 0.000 0.000 0.000 c.m/sec"
"          Catchment 100 Pervious Impervious Total Area "
"          Surface Area 0.000 0.027 0.027 hectare"
"          Time of concentration 5.904 0.803 0.803 minutes"
"          Time to Centroid 102.211 86.167 86.167 minutes"
"          Rainfall depth 93.224 93.224 93.224 mm"
"          Rainfall volume 0.00 25.17 25.17 c.m"
"          Rainfall losses 51.157 9.866 9.866 mm"
"          Runoff depth 42.068 83.358 83.358 mm"

```

```

"          Runoff volume          0.00          22.51          22.51          c.m"
"          Runoff coefficient      0.000          0.894          0.894          "
"          Maximum flow            0.000          0.014          0.014          c.m/sec"
" 40      HYDROGRAPH Add Runoff "
"          4      Add Runoff "
"                  0.014          0.014          0.000          0.000"
" 57      TRENCH Design d/s of 100"
"          0.014      Peak inflow"
"          22.507      Hydrograph volume"
"          386.570      Ground elevation"
"          384.740      Downstream trench invert"
"          1.200      Trench height"
"          380.000      Water table elevation"
"          2.000      Trench top width"
"          2.000      Trench bottom width"
"          40.000      Voids ratio (%)"
"          26.000      Hydraulic conductivity"
"          0.000      Trench gradient (%)"
"          13.500      Trench length"
"          1.000      Include base width"
"          21.      Number of stages"
"                  Level Discharge      Volume"
"          384.740      0.000      0.0"
"          384.831      0.000      1.0"
"          384.923      0.000      2.0"
"          385.014      0.000      3.0"
"          385.106      0.000      4.0"
"          385.198      0.000      4.9"
"          385.289      0.000      5.9"
"          385.380      0.000      6.9"
"          385.472      0.000      7.9"
"          385.564      0.000      8.9"
"          385.655      0.004      9.9"
"          385.746      0.010      10.9"
"          385.838      0.016      11.9"
"          385.930      0.020      12.8"
"          386.021      0.023      13.1"
"          386.113      0.026      13.2"
"          386.204      0.029      13.3"
"          386.296      0.031      13.4"
"          386.387      0.034      13.5"
"          386.479      0.036      13.6"
"          386.570      0.038      13.7"
"          1.      TRENCH PIPES"
"          Downstream      Pipe      Pipe      Pipe Perf'ted?      Offset"
"          Invert      length      diam.      grade%      0=Yes      distance"
"          385.540      1.000      0.000      1.001      1.000      0.000"
"          1.      MANHOLE"
"          Access"
"          diameter"
"          1.200"
"          1.      OUTFLOW PIPE"
"          0.      Inflow at upstream end of trench: 1=True; 0=False"
"          Upstream Downstr'm      Pipe      Pipe      Manning      Entry"
"          invert      invert      Length      Diameter      'n'      loss Ke"
"          385.540      385.530      1.000      0.150      0.013      0.500"
"          Peak outflow          0.007      c.m/sec"
"          Outflow volume          10.959      c.m"
"          Peak exfiltration          0.000      c.m/sec"
"          Exfiltration volume          11.645      c.m"
"          Maximum level          385.706      metre"
"          Maximum storage          10.431      c.m"
"          Centroidal lag          1.671      hours"

```

```

"          Infiltration area 2 sides    26.071    sq.metre"
"          Infiltration Base area      27.000    sq.metre"
"              0.014    0.014    0.007    0.000 c.m/sec"
" 40      HYDROGRAPH Combine    34"
"          6  Combine "
"          34 Node #"
"              into storm sewer"
"          Maximum flow                0.007    c.m/sec"
"          Hydrograph volume           10.959    c.m"
"              0.014    0.014    0.007    0.007"
" 40      HYDROGRAPH Start - New Tributary"
"          2  Start - New Tributary"
"              0.014    0.000    0.007    0.007"
" 33      CATCHMENT 101"
"          1  Triangular SCS"
"          1  Equal length"
"          1  SCS method"
"          101 C101 - PHASE 1 DEVELOPMENT SITE"
"          80.000 % Impervious"
"          0.138 Total Area"
"          40.000 Flow length"
"          2.800 Overland Slope"
"          0.028 Pervious Area"
"          40.000 Pervious length"
"          2.800 Pervious slope"
"          0.110 Impervious Area"
"          40.000 Impervious length"
"          2.800 Impervious slope"
"          0.250 Pervious Manning 'n'"
"          75.000 Pervious SCS Curve No."
"          0.453 Pervious Runoff coefficient"
"          0.100 Pervious Ia/S coefficient"
"          8.467 Pervious Initial abstraction"
"          0.015 Impervious Manning 'n'"
"          98.000 Impervious SCS Curve No."
"          0.929 Impervious Runoff coefficient"
"          0.100 Impervious Ia/S coefficient"
"          0.518 Impervious Initial abstraction"
"              0.057    0.000    0.007    0.007 c.m/sec"
"          Catchment 101 Pervious Impervious Total Area "
"          Surface Area    0.028    0.110    0.138    hectare"
"          Time of concentration 13.062    1.776    3.002    minutes"
"          Time to Centroid    110.888    87.269    89.835    minutes"
"          Rainfall depth    93.224    93.224    93.224    mm"
"          Rainfall volume    25.73    102.92    128.65    c.m"
"          Rainfall losses    50.996    6.611    15.488    mm"
"          Runoff depth    42.228    86.613    77.736    mm"
"          Runoff volume    11.65    95.62    107.28    c.m"
"          Runoff coefficient    0.453    0.929    0.834    "
"          Maximum flow    0.005    0.056    0.057    c.m/sec"
" 40      HYDROGRAPH Add Runoff "
"          4  Add Runoff "
"              0.057    0.057    0.007    0.007"
" 54      POND DESIGN"
"          0.057 Current peak flow    c.m/sec"
"          0.033 Target outflow    c.m/sec"
"          107.3 Hydrograph volume    c.m"
"          21. Number of stages"
"          386.240 Minimum water level    metre"
"          386.540 Maximum water level    metre"
"          386.240 Starting water level    metre"
"          0  Keep Design Data: 1 = True; 0 = False"
"              Level Discharge    Volume"

```


"	386.240	0.000	0.000"		
"	386.255	0.01513	0.00340"		
"	386.270	0.01538	0.02708"		
"	386.285	0.01563	0.09150"		
"	386.300	0.01587	0.2167"		
"	386.315	0.01611	0.4234"		
"	386.330	0.01635	0.7312"		
"	386.345	0.01658	1.162"		
"	386.360	0.01681	1.733"		
"	386.375	0.01704	2.469"		
"	386.390	0.01726	3.387"		
"	386.408	0.01975	4.757"		
"	386.420	0.02249	5.853"		
"	386.435	0.02670	7.439"		
"	386.450	0.03166	9.294"		
"	386.465	0.03724	11.428"		
"	386.481	0.04383	14.042"		
"	386.495	0.05007	16.635"		
"	386.510	0.05723	19.750"		
"	386.525	0.06482	23.224"		
"	386.540	0.07284	27.092"		
"	1.	WEIRS"			
"		Crest Weir Crest Left Right			
"		elevation coefficient breadth sideslope sideslope"			
"		386.390 0.900 0.600 0.000 0.000"			
"	1.	ORIFICES"			
"		Orifice Orifice Orifice Number of			
"		invert coefficient diameter orifices"			
"		385.740 0.630 0.1016 1.000"			
"	1.	LAYERS"			
"		Bottom Aspect Bottom Top Average			
"		area ratio elevation elevation sideslope"			
"		0.000 4.844 386.240 386.540 27.430"			
"		Peak outflow 0.043 c.m/sec"			
"		Maximum level 386.481 metre"			
"		Maximum storage 14.081 c.m"			
"		Centroidal lag 1.522 hours"			
"		0.057 0.057 0.043 0.007 c.m/sec"			
" 40		HYDROGRAPH Next link "			
"	5	Next link "			
"		0.057 0.043 0.043 0.007"			
" 40		HYDROGRAPH Copy to Outflow"			
"	8	Copy to Outflow"			
"		0.057 0.043 0.043 0.007"			
" 40		HYDROGRAPH Combine 34"			
"	6	Combine "			
"	34	Node #"			
"		into storm sewer"			
"		Maximum flow 0.049 c.m/sec"			
"		Hydrograph volume 112.426 c.m"			
"		0.057 0.043 0.043 0.049"			
" 40		HYDROGRAPH Confluence 34"			
"	7	Confluence "			
"	34	Node #"			
"		into storm sewer"			
"		Maximum flow 0.049 c.m/sec"			
"		Hydrograph volume 112.426 c.m"			
"		0.057 0.049 0.043 0.000"			
" 38		START/RE-START TOTALS 34"			
"	3	Runoff Totals on EXIT"			
"		Total Catchment area 0.165 hectare"			
"		Total Impervious area 0.137 hectare"			
"		Total % impervious 83.273"			

" 19

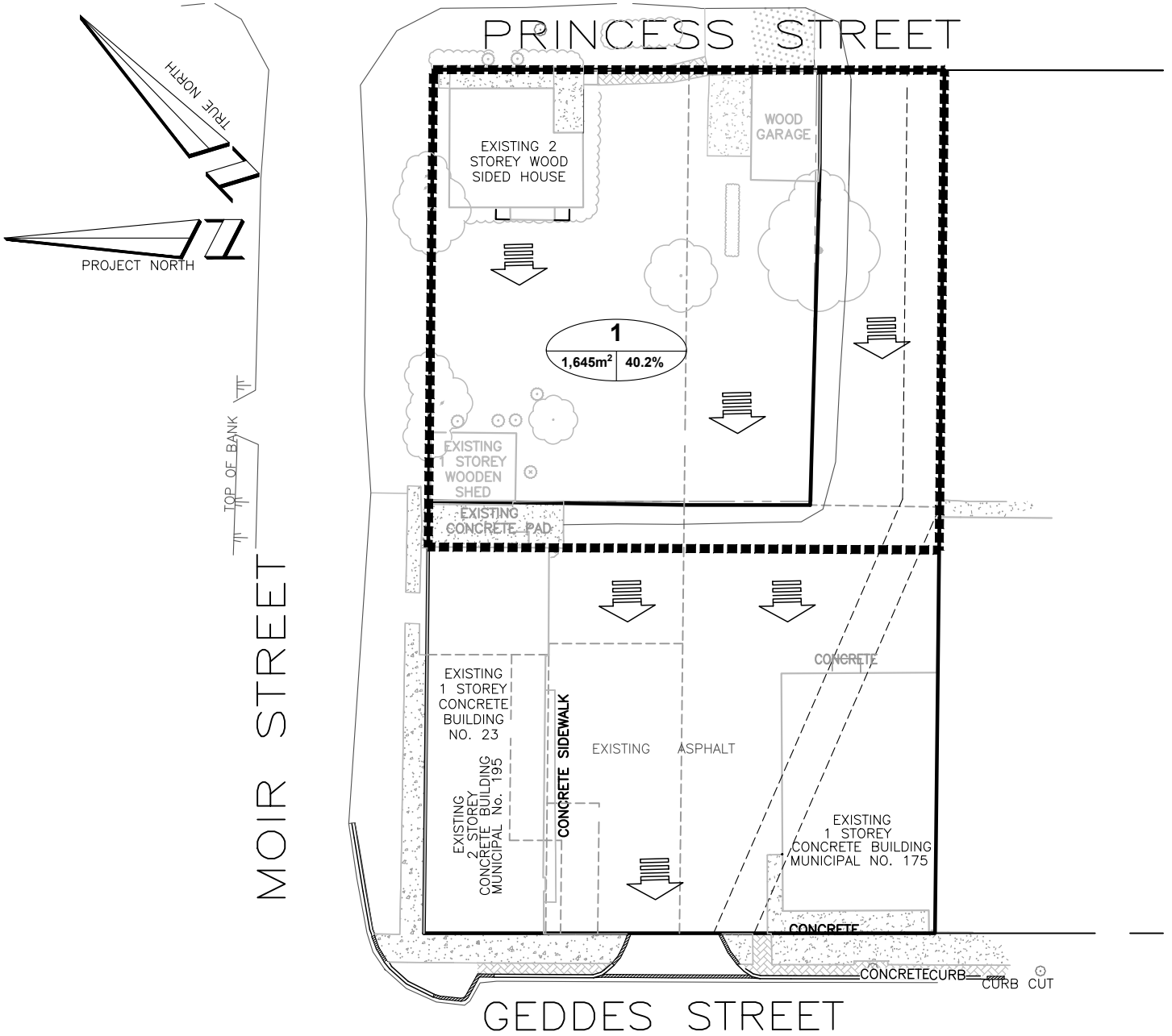
EXIT"



Appendix C

Pre- and Post-Development Catchment Sketches

**PRE-DEVELOPMENT SKETCH
 23, 175, & 195 GEDDES STREET
 ALL OF LOTS 76, & 78
 PART OF LOT 79
 REGISTERED PLAN 181
 TOWNSHIP OF CENTRE WELLINGTON**



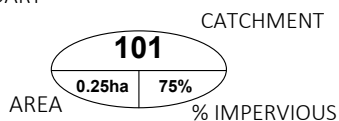
LEGEND



MAJOR STORM OVERLAND FLOW ROUTE



DRAINAGE AREA BOUNDARY



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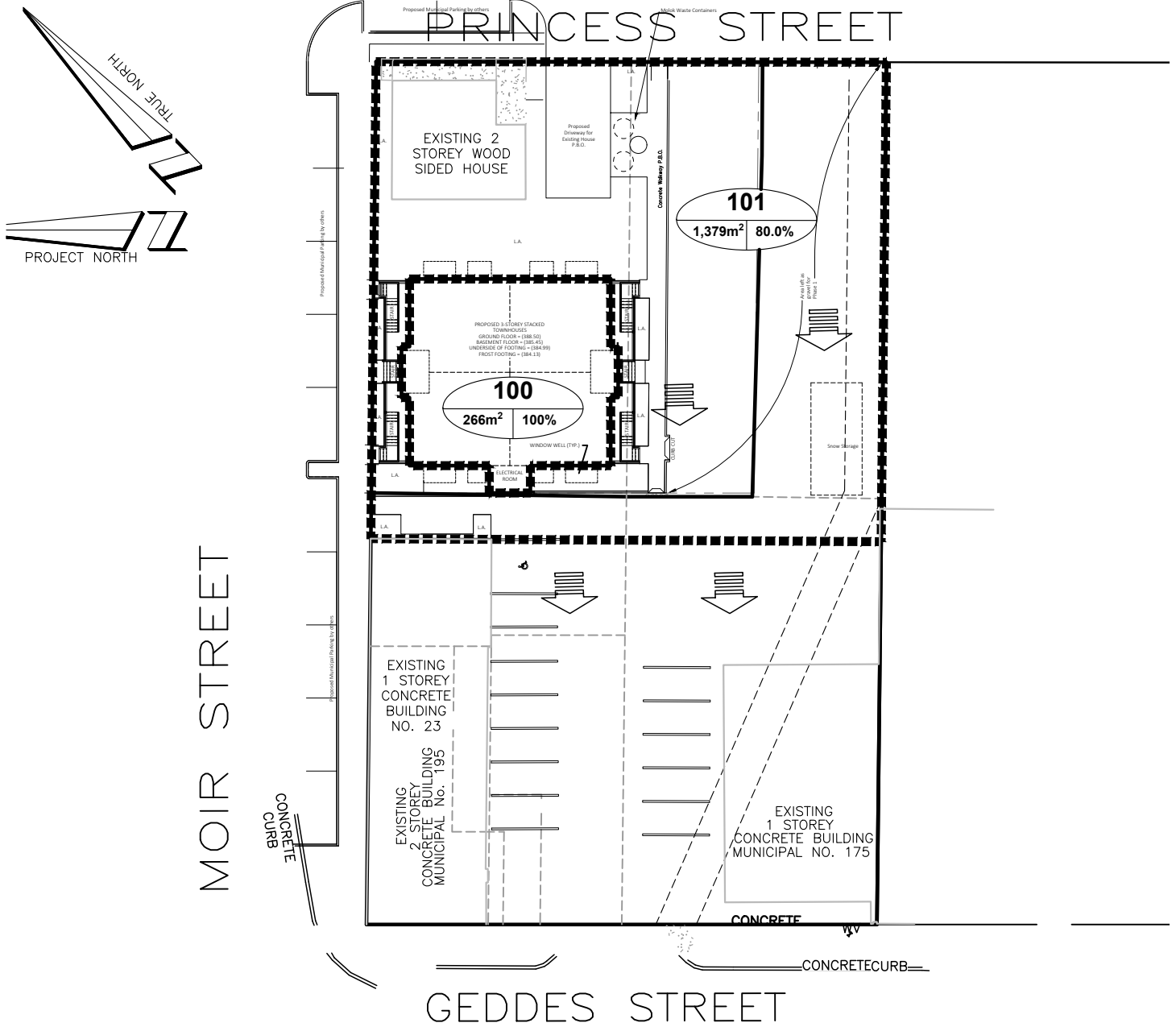
DRAWN BY: MAMV

DESIGN BY: MAMV

CHECKED BY: MMAV

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**POST-DEVELOPMENT SKETCH
23, 175, & 195 GEDDES STREET
ALL OF LOTS 76, & 78
PART OF LOT 79
REGISTERED PLAN 181
TOWNSHIP OF CENTRE WELLINGTON**



LEGEND

MAJOR STORM OVERLAND FLOW ROUTE

DRAINAGE AREA BOUNDARY

CATCHMENT

AREA **101**
0.25ha 75%
% IMPERVIOUS

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DRAWN BY: MAMV	DESIGN BY: MAMV	CHECKED BY: MMAV

Oct 29, 2021-12:34pm
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