Town of Shelburne

Request for Proposal – RFP 09-2024

Natasha Paterson Memorial Park - Landscape Works

340 Gordon Street, Shelburne, ON

Prepared for:

Town of Shelburne

203 Main Street East

Shelburne, ON, L9V 3K7

Prepared by:

GSP Group Inc.

72-201 Victoria Street South

Kitchener, ON, N2G 4Y9

August 2024

SECTION NO.	TITLE	NO. OF PAGES

INTRODUCTORY INFORMATION, BIDDING AND CONTRACTING REQUIREMENTS

TECHNICAL SPECIFICATIONS

DRAWING LIST

TIMELINE

August 19, 2024	Request for Proposal Issued
August 28, 2024, by 4:30 pm *(questions & addendums (if any))*	Deadline for questions to Municipality (wthomson@shelburne.ca) from Interested Suppliers; Replies will be circulated to all Suppliers: Addendums (if necessary) will be the responsibility of the bidder to download from the town website at shelburne.ca or merx.com
September 06, 2024 (2:00 pm)	Closing date for Proposal Submissions
September 13, 2024	The Municipality will award the Request for Proposal and notify the successful Proponent

1 General

1.1 Project Overview

.1 The project shall be designated for official record purposes as:

Natasha Paterson Memorial Park Landscape Works

.2 The owner shall be interchangeably referred to as:

Town of Shelburne

.3 RFP Submission Deadline:

September 6th, 2024 at 2:00pm.

1.2 Description of Work:

To supply all labour, equipment, and materials for the installation of an asphalt trail, playground concrete curbing, concrete bench pads, excavation and drainage of playground area, fine grading, tree installation and seed.

1.3 Owner:

Town of Shelburne
203 Main Street East
Shelburne, ON.
L9V 3K7

Consultant:

GSP Group Inc.
72 Victoria Street S.
Suite 201
Kitchener, ON.
N2G 4Y9

1.4 Contract Documents

.1 Instructions to Bidders.

.2 Bid Form.

.3 Unit Price Form.

.4 General Conditions.

.5 Technical Specifications

.6 Drawings;

L0.0 Context Plan
L1.0 Hardscape Plan
L1.1 Hardscape Plan
L1.2 Hardscape Plan
L2.0 Grading Plan

L2.1 Grading Plan
L2.2 Grading Plan
L3.0 Details
L3.1 Details
L3.2 Details

1.5 Examination of Site

.1 It is recommended that bidders visit the site for the purpose of reviewing existing site conditions prior to submitting their bids.

1.6 Examination of Documents

.1 Examine the bid documents thoroughly. Report to the Consultant, all conflicts, ambiguities, discrepancies, errors, and omissions.

.2 In submitting a bid, the Contractor shall not be obligated to take into account any verbal instructions given by the Consultant, other than those issued for general clarification of the bid documents.

.3 Modifications to the bid documents will be made by the Owner/Consultant, and only by written addendum.

1.7 Addenda

.1 It is the responsibility of all subtrades to obtain all addenda from a Construction Association or from a General Contractor who has the Bid Documents. The Owner will not forward addenda to subtrades.

1.8 Questions

.1 Should a Bidder find discrepancies in, or omissions from the specifications, drawings, or other documentation, or should the Bidder be in doubt as to their meaning, the Bidder should notify the Owner in writing.

.2 All inquiries regarding this Contract shall be made directly to the town contact, Will Thomson, via email, wthomson@shelburne.ca or office phone, 519 925 2600 ext 258 by 4:30pm on August 28, 2024.

.3 Should any discrepancies or omissions go unreported to the Owner by the closing date, the proper interpretation shall be at the discretion of the Consultant.

1.9 Permits and Fees

The contractor is responsible for all permits and fees associated with the scope of work defined in the RFP documents.

1.10 Taxes & Duties

Include all Sales Tax and Customs Duty on all materials quoted in the Stipulated Sum (but excluding) Harmonized Sales Tax (H.S.T.)

1.11 Delays in Commencement of Construction Date

.1 Commencement of construction is subject to the approvals being received from the necessary Governmental and Municipal Agencies as well the condition of the site. The Owner will consider no claims by the successful bidder for compensation for any losses resulting from a delay in construction start date.

1.12 Bidder Qualification

.1 The acceptance or rejection of a bidders proposal, on the basis of past performance remains the prerogative of the Owner without cause for explanation.

1.13 Construction Schedule

.1 Bidders shall indicate the anticipated duration of construction of each part to substantial completion.

.2 Preferred completion date for the work covered in this document is by the end of **June, 2025**.

.3 The successful bidder will be required to coordinate construction start-up with the contractor awarded completion of the site works.

1.14 Withdrawal of Proposals

.1 Once submitted, a proposal is irrevocable and may be withdrawn or altered only before the time indicated for delivery of proposals.

1.15 Submittals

.1 Proposals are to be addressed by email to Carey Holmes, Treasurer at treasurer@shelburne.ca with the subject line clearly stating RFP 09-2024 Submission. Proposal submissions must include:

- Completed Bid Form - Unit Price and Unit Price Form.
- Company Profile including Certifications and Accreditations along with relevant experience.
- References of similar projects from previous/existing Vendors.
- Copy of Contractor's current Insurance Certificates and WSIB Clearance Certificate.

1.16 Evaluation

.1 Proposals will be assessed on the information provided in the proposal. Evaluation will be based upon the following items:

- Price - 30%
- Conformity to Specification - 20%
- Experience of Personnel - 30%
- References - 10%
- Value added features or Options - 10%

Note: Lowest or Any Proposal not necessarily accepted.

1.17 Terms and Conditions

.1 The Town of Shelburne's Terms and Conditions are the General Conditions between the Owner and the Contractor. Terms and Conditions provide here in.

ADDENDUM

If an addendum is found to be necessary, it will be released to all companies that have requested a copy of the RFP, or already submitted a proposal for the RFP. If the Town revises this RFP, any revisions will be included on this Addendum. The Addendum shall advise any changes to the Proposal submission date if more time is allowed for all Proponents to revise their proposals. It will be the responsibility of all Proponents to download from Town website or Merx.com.

CONFIDENTIALITY

In accordance with the Municipal Freedom of Information and Protection of Privacy Act. R.S.O. 1990, as amended, Proponents are advised that all correspondence provided by a Proponent responding to this RFP as hereby collected under the authority of the Municipal Act, 2001 and will be used exclusively in the RFP process. The Town will treat all proposals as confidential within the boundaries of the Municipal Freedom of Information and Protection of Privacy Act (MFIPPA) but may be released pursuant to the Act.

All public reports approved by the Town of Shelburne will become public information. Notwithstanding the foregoing, Proponents recognize and agree that the Town will not be liable in any way for any losses that the Proponent may suffer from the disclosure of information to third parties.

CONFLICT OF INTEREST

The Proponent must disclose to the Town any potential conflict of interest that might compromise the project. In the case where there might be a conflict of interest, the Town may refuse to consider the proponent. The proponent must fully disclose any potential conflict of interest with a Town employer, board member or commission that may have a financial gain with the awarding of the contract and state the nature of that interest.

FAILURE OR DEFAULT OF PROPONENT

If the Proponent, for any reason, fails or defaults in respect of any matter or thing which is an obligation of the Proponent under the terms of the RFP, the Town may disqualify the Proponent from the RFP and/or from competing for future bid opportunities (RFTs/RFQs/RFPs/etc.) issued by the Town. In addition, the Town may at its option either: 1. Consider that the Proponent has withdrawn any offer made, or abandoned the Agreement if the offer has been accepted, whereupon the acceptance, if any, of the Town shall be null and void; or 2. Require the Proponent to pay the Town the difference between its Proposal and any other Proposal which the Town accepts, if the latter is for a greater amount and, in addition, pay the Town any cost which the Town may have incurred, by reason of the Proponent's failure or default, and further, the Proponent will indemnify and save harmless the Town its officers, employees and agents from all loss, damage, liability, cost, charge and expense whatever, which it, they or any of them may suffer, incur due to the failure of the proponent.

INDEMNIFICATION

The Proponent shall indemnify and save harmless the Corporation of the Town of Shelburne, it's elected officials, officers, employees and agents from and against all losses and all claims, demands, payments, suits, actions, recoveries and judgements of every nature and description made, brought or recovered against the Town by reason of any act or omission of the Proponent, his agents or employees, in the execution of his work. This indemnity shall be in addition to and not in lieu of any insurance to be provided by the successful proponent in accordance with the RFP.

INSURANCE

The party to whom this Contract is awarded shall supply the Town with proof of insurance and a copy of the policy, prior to signing of the Proponent by Town officials, and provide coverage throughout the term of the Proposal in the amounts outlined below.

Comprehensive General Liability Insurance with a minimum limit of liability of $5,000,000.00 inclusive of any one occurrence. Comprehensive General Liability Insurance shall cover all operations and liability assumed under the Contract with the Town. The Comprehensive General Liability Insurance shall include premises and operations liability, Proponent's contingency liability with respect to the operations of Sub-contractors completed operations liability and automobile liability (owned, non- owned or hired units).

All premiums and expense incurred with this insurance shall be paid for by the Contractor. Failure to maintain adequate insurance, the Proponent shall be totally responsible for all claims for damage.

LIMITS AND LAWS/CONFORMITY TO LEGISLATION

The Proponent shall obtain, and pay for all required permits from Federal, Provincial and Municipal Authorities having jurisdiction over the work. The Proponent shall comply with all applicable laws, ordinances, rules and regulations including but not limited to, Occupational Health and Safety Act, the Labour Act, Environmental Protection Act and Highway Traffic Act.

NON-COLLUSION

A Proponent is prohibited from any communication, directly or indirectly, with any other Proponent/Agent or representative of the Proposal. If a breach is discovered, the Town reserves the right to disqualify the Proposal.

PROCUREMENT POLICY

Contract Award and Execution shall be in accordance with the Town's Municipal Procurement Policy 2019-05. A copy of the Procurement Policy is available on the Town's website: https://www.shelburne.ca/en/town-hall/resources/Documents/AMENDED-Municipal-Procurement-Policy-2019-05.pdf

TOWN'S RIGHT TO ACCEPT OR REJECT

The Town of Shelburne reserves the right to accept any proposal or proposals or any portion of any proposal that the Town determines is in the Town's best interests, even if that proposal is not the lowest in dollar amounts. Such decisions of the Town are final and binding.

The Town of Shelburne reserves the right to reject any proposal, even if that proposal is the lowest in dollar amounts and may award the contract to the Proponent that the evaluation team finds the most appropriate. The Town will not be liable for any incurred costs that may arise from submitting the proposal.

It is not the intention of the Town to award this RFP to any Supplier who does not furnish satisfactory evidence that he/she has the ability and experience in this class of work, and that he has sufficient capital and plant to enable him to prosecute and complete the same successfully, and to complete it in the time stated in this Proposal. It will be the Supplier's responsibility to clarify any details in questions before submitting a proposal. The Town of Shelburne will not bear any fault for any oral communications. The Town reserves the right to re-tender the Project or potentially negotiate a contract with a suitable Proponent.

Proponents are required to disclose their legal status as to whether they are a Federal, Provincial or Foreign Corporation, a partnership or an individual and to state the names and addresses of the responsible officers or partners as the case may be.

TOWN'S AUTHORITY

The Director of Development & Operations shall be the Contract Administrator as identified in Ontario Provincial Standards (O.P.S.) Section GC 3.01 of the General Conditions. It is mutually agreed between the parties of this Contract that the Town's Director of Development & Operations or designated representative, shall supervise, direct and approve all work included herein, and in all cases shall decide every question which may arise relative to the execution of the work to be performed under this Contract as per Section GC 7.0 – Contractor's Responsibilities and Control of the work.

WORKPLACE SAFETY AND INSURANCE BOARD

A Certificate of Clearance from the Workplace Safety and Insurance Board (WSIB) must be provided prior to the commencement of the project, providing adequate proof that all payment by the Proponent have been made.

The Proponent clearly understands and agrees that they are not, nor is anyone hired by the Proponent, covered by the Corporation of the Town of Shelburne under the Workplace Safety & Insurance Board Act, The Unemployment Act, or any other Act, whether Provincial or Dominion, in respect of the Proponent, their employees and operations, and shall upon request furnish the Town with such satisfactory evidence that the Proponent has complied with the provisions of any such Acts.

The Town of Shelburne is not to be deemed the employer of the supplier or their personnel under any circumstances whatsoever.

END OF SECTION

SUBMITTED TO: **Town of Shelburne**
203 Main Street East
Shelburne, Ontario
L9V 3K7

Attn: Carey Holmes, Treasurer

UNIT BID PRICE

We,

_____

(Registered Company Name)

of, _____

(Registered Address and Postal Code)

Business: Phone Number _____

Fax Number _____

Bid Contact Name _____

Email Address _____

Website _____

having visited the Place of the Work and carefully examined the Bidding Requirements, Contract Forms and Conditions of the Contract, along with Specifications, Drawings and Addenda No's _____ to _____ inclusive for:

NATASHA PATTERSON MEMORIAL PARK
340 Gordon Street
Shelburne, Ontario

We hereby offer to enter into a Contract to perform the Work required by the Bid Documents of the Project for the stipulated sum of:

_____

($ _____) In Canadian Dollars

which amount includes the specified cash and contingency Allowance, Itemized Prices,

application taxes and duties in force at this date, and taxes known to be applicable during the construction period. Value Added Taxes, such as the Federal Government's Goods and Services Tax are included in the Bid Price.

Interest: Should either party fail to make payments as they become due under the terms of the Contract or in an award by arbitration or court, interest at two percent *(2%)* per annum above the bank rate on such unpaid amounts shall also become due and payable until payment. Such interest shall be compounded on a monthly basis. The bank rate shall be the rate established by the Bank of Canada as the minimum rate at which the Bank of Canada makes short term advances to the chartered banks.

**** BRING FORWARD SUBTOTAL FROM SECTION 00 43 22 UNIT PRICES FORM**

Form of Tender Summary

TOTAL NOT INCLUDING HST $ _____

APPLICABLE (HST) TAX
(13% of Total Above)

GRAND TOTAL TENDER PRICE $ _____

(CARRY THIS GRAND TOTAL TENDER PRICE FORWARD TO PAGE 1)

DECLARATIONS

We hereby declare that:

1. This Bid along with the Bid Form Supplements are irrevocable and open to acceptance for a period of Sixty (60) days from the date of Bid closing.

2. We agree to perform the work in compliance with the required completion date stated in the Bid Documents.

SIGNATURES

Signed, sealed and submitted for and on behalf of:

Registered Company Name	*Witness*
Signature	*Witness*
Name	*Name*
Title	

DATED AT _____ this _____

day of _____, 20_____.

(Affix Company Seal Hereto).

1 SCHEDULE OF UNIT PRICES

The Items listed below shall be in full compensation for the specific work described herein and as included in the drawings and specifications. These prices shall include all labour, equipment and material necessary or incidental to the item, all applicable taxes (excluding HST) necessary to complete the specified work. These prices shall include all overhead and profit.

This Schedule must be completed in its entirety. The Contractor may add to it at their discretion. All quantities provided are for information only. It shall be the responsibility of the contractor to verify all quantities and notify the landscape architect or owner of any discrepancies prior to submitting their tender.

UNIT PRICES

ITEM NO.	ITEM DESCRIPTION		QTY		UNIT		UNIT PRICE		TOTAL COST
1.00	**SITE WORKS**								
1.01	Mobilization and Site Preparation, including Bonds and Insurance, Temporary Signage, Access Gates, Mud Mat and Tree Protection Fencing				L.S.	$		$	
1.02	Site Construction Fencing *Note Provide a unit cost/lin. metre for reference*				L.S.	$		$	
1.03	Excavation to required depth for playground area.				L.S.	$		$	
1.04	Excavation to required depth for Drive aisle				L.S.	$		$	
1.05	Supply and install 100mm diameter perforated drain tile wrapped in non-woven geotextile, including daylight to ditch. Daylight to capped with rodent grate.		90		Lin.m.	$		$	
1.06	Supply and install clear stone base for play equipment area as per drawings, details, and specifications.		120		m^3	$		$	
1.07	Fine grade and hydro seed around areas disturbed due to excavation and construction.				L.S.	$		$	
1.08	Supply and install new trees as indicated on plans.		5		Qty	$			
2.00	**HARDSCAPE**								
2.01	Supply and install 3m wide asphalt trail, including granular 'A' at 100mm depth and Granular ‘B’ at 200mm depth.		690		m^2	$		$	
2.02	Supply and install asphalt access ramp at parking surfacing, including granular 'A' at 100mm depth and Granular ‘B’ at 200mm depth.		30		m^2	$		$	
2.03	Supply and install 150mm wide concrete curb, including granular 'B' at 200mm depth.		30		m^2	$		$	
2.04	Supply and install concrete footings for play structures. To be installed as per manufacturers specifications and installation requirements.				L.S.	$		$	
2.05	Supply and install asphalt drive aisle, including granular ‘A’ at 150mm depth and granular ‘B’ 300mm depth.		1000		m^2	$		$	

2.06	Supply and install concrete pad for benches complete with 250mm of granular 'A'.		15		m^2	$		$	
2.07	Supply and install benches to manufacturers specifications		4		Qty	$		$	
2.08	Supply and install dry well with cleanout port				L.S.	$		$	
2.09	Supply and install bollards pedestrian safety bollards		5		Qty:	$		$	
2.10	Supply and place painted pedestrian asphalt for enhanced safety		30		m^2	$		$	
	SUBTOTAL					**$**		**$**	

1 GENERAL

1.1 PRE-CONSTRUCTION PHOTOGRAPHS

.1 The Contractor is encouraged to procure video footage and still photographs of the existing site conditions prior to the start of construction. Photos should be retained for future reference should it be required.

1.2 INCIDENTAL ITEMS

.1 The following is a partial list of items, the costs of which are to be included in the unit prices of the tender items unless a specific payment item is included in the Unit Price Worksheet. No additional payment will be made for the following:

.1 Cost of permits and fees.
.2 Cost of attendance at site meetings and other emergency meetings that may be necessary over the course of the project to effect proper coordination, dealings with property and business operators/owners, dealing with emergency situations, and other related meeting activities necessary.
.3 Cost of removing and/or relocating to a temporary or final location, when required by the Engineer, small signs, fences, mailboxes, waste containers, or other minor obstructions interfering with the construction.
.4 Cost of coordination of all work with utility companies who may be affected by the project or who may be required to perform work simultaneously with the work of the Contractor, except as specified elsewhere in these Contract documents.
.5 Cost of supporting and protecting all existing utilities and coordinating this work with utility representatives as noted elsewhere.
.6 Cost of normal roadway maintenance on existing roads and streets which may be affected by the Contractor's operations for the duration of the Contract.
.7 Cost of providing temporary signage and closure of trails during construction.

.2 The Client, at its sole discretion, may limit the type and/or size of any equipment used in order to protect the environment, public safety and / or the integrity of the work and / or adjacent facilities during the project. No claims by the Contractor for compensation for any losses resulting from a delay in construction will be considered.

1.3 TESTING FEES AND INSPECTION

.1 The following tests, unless otherwise specified in the Special Provisions, which may be called for by the Town, will be paid for, independent of this Contract, by the Town. The Town will pay for the first test or the first round of testing (watermains) of a given section of work or material sample. Where a re-test is called for or necessitated by failure to meet tolerances or inconclusiveness of testing, the Town will pay only for "passed" testing. Payments for any additional tests of the same material which has failed to meet the required tolerances will be the full responsibility of the Contractor.

.1 Air entrainment tests during concrete work.
.2 Slump testing during concrete work.
.3 Casting and compression testing of concrete cylinders.
.4 Compaction testing.
.5 Analysis of aggregates for asphalt and pavement testing.
.6 Other tests as deemed necessary by the Owner(s).

.2 The Contractor shall cooperate at all times with individuals who may be on-site to carry out the above testing. The Town may require documentary evidence, from time to time, to the effect that materials supplied by the Contractor comply with the Contract Documents. The Contractor shall comply at all times with such requests.

1.4 SPECIALIZED EQUIPMENT

.1 The Contractor shall utilize appropriate types and sizes of equipment so as to not increase the risk of damage to existing sewers, watermains, utilities, trees or any other existing feature not mentioned that will be encountered over the course of the project.

1.5 TRESPASS

.1 The Contractor shall be responsible using its own forces, during all stages of the work, for protecting excavations, trenches, stockpiles and abutting lands from trespass, and shall erect snow fencing, without charge, where and when required by the Engineer to ensure same. The Contractor shall not dispute or contest direction from the Engineer, if in the opinion of the aforementioned protection and fencing is required to mitigate safety risks. All private property restorations not specifically called for in an item in the Schedule of Unit Prices shall be rectified to existing or better condition at the Contractor's expense.

1.6 REPLACEMENT OF PRIVATE DRIVEWAYS BY REQUEST OF HOME OWNER

.1 Replacement of any private driveway at the request of the property owner / homeowner that was not damaged due to works of this Contractor is not part of this Contract and is not to be undertaken by the Contractor during project normal working hours. Payment for these works shall be the sole responsibility of the property owner / homeowner except that the Town will pay for that portion of the driveway that was removed for the road/sewer reconstruction as noted on the contract drawings. The Town will not accept any claims as a result of extra work undertaken by the Contractor on behalf of the property owner / homeowner.

1.7 COOPERATION WITH OTHER UTILITIES, LOCATES, AND PROTECTION

.1 Cooperation

.1 It may be necessary for utility providers such as Hydro One, Bell, Rogers, Union Gas, or other third-party service providers to carry out relocation, upgrades or maintenance of their overhead or underground services. The Contractor shall be required to facilitate such relocation, upgrades or maintenance conducted by utility providers and to cooperate with their scheduling to the greatest extent possible.

.2 Locates

.1 The approximate locations of existing services may be shown on the drawings to assist the Contractor. Such information is provided as a general indication of what may be present and is not necessarily accurate or complete. The Contractor must satisfy himself as to the existence and location of all utilities.

.3 Before commencing excavation in any area, the Contractor shall have the location of all utility services and associated infrastructure properly located by a representative of each utility owner, and shall not proceed with the excavation until the exact location is known, and then only after adequate precautions have been taken to protect the utilities and services that may be present. It shall be the responsibility of the Contractor to request all utility locates and then ensure all utilities are accurately staked out in the field. Proof of locates must be maintained onsite and be made available to Town inspectors upon request.

1.8 PROTECTION

.1 During the course of this project, the Contractor shall assume full responsibility for the protection of all underground and above ground utilities such as water, sewer, natural gas, telecommunications, hydro, street light, telephone and pedestrian light poles, wires and conduits, fibre optic cables, valves, switches, etc. and any other subsurface or above ground structures, foundations or infrastructure that may present hazards. The Contractor will be fully responsible for obtaining all necessary locates and clearances, prior to construction, to determine the location of utilities including but not limited to water, sewer, natural gas, telecommunications, hydro, street light, telephone and pedestrian light poles, wires and conduits, fibre optic cables, valves, switches, etc. and any other subsurface or above ground structures, foundations or infrastructure.

.2 If damage to any structure, utility or service occurs by reason of the Contractor's operation, even though precautions have been employed, the Contractor shall be entirely responsible for such damage whether such operations and the work resulting there from have received the proper approval of the Engineer or not, and all such damage shall be satisfactorily rectified at the Contractor's expense.

.3 Utilities that could potentially be undermined by excavation work shall be adequately supported using appropriate measures acceptable to the utility owner and in compliance with the *Occupational Health and Safety Act, R.S.O., 1990* and associated regulations, as amended. The cost of all utility support and protection shall be deemed to be included in the Contractor's Total Bid Price.

1.9 OPERATION OF WATER VALVES

.1 The Contractor is advised that the operation of any water valves in the Town of Shelburne is restricted to Town of Shelburne personnel only. At no time during the duration of this project shall the Contractor or any of their employees operate a water valve. If it is necessary to operate a water valve, the Contractor is advised to arrange for Town personnel to operate the valve for them. The Town will consider no claims by the Contractor for compensation for any losses resulting from a delay in construction.

1.10 MAINTENANCE OF STORM DRAINAGE

.1 During the whole of the Contract performance period, the Contractor shall be responsible for the protection and maintenance of adequate drainage in and through the site, providing adequate drainage facilities and/or flow controls so that flows from existing watercourses, storm sewers, natural drainage channels or other facilities shall not be impeded.

.2 The Contractor shall be responsible for all temporary ditching, culverts, siltation structures, etc., and other work thereby required through the whole of the working area whether ordered or approved by the Engineer. The Contractor shall further be responsible for the maintenance of all such temporary ditching, culverts and other works, and for rectification or restitution required as the result of erosion or other flood or water damage.

.3 The Contractor must backfill all exposed trenches at the end of each and every workday. No claims by the Contractor for compensation to backfill trenches, expose work the following day or any resulting delay in construction will be considered by the Town.

1.11 MAINTENANCE OF FLOW

.1 Sewage flow shall be maintained at all times by the Contractor and pumped between maintenance holes while working on that section.

1.12 PROTECTION OF DOWNSTREAM SEWERS

.1 Until completion and acceptance of the Contract work, or unless otherwise directed by the Engineer, the Contractor shall supply all materials and construct temporary concrete weir structures inside maintenance holes and maintain at all times as required to control silty material from entering sanitary and storm sewers as a result of construction activity upstream. The Contractor shall be responsible for cleaning silt and debris deposits from the structure as required, at no cost to the Town. All costs for this work are to be included in the appropriate unit prices.

1.13 MAINTENANCE OF EXISTING ROADS

.1 The Contractor shall be responsible for keeping roadways adjacent to the site free and clean from mud, dirt and other debris originating from the work site. All dirt and debris deposited by construction traffic on existing Town streets shall be cleaned up by the Contractor at his own expense on a daily basis, or as directed by the Engineer.

1.14 VEHICLE AND EQUIPMENT ACCESS

.1 The rehabilitation street may be closed to through traffic when the Contractor is working on the street, however, whenever possible, the Contractor shall reinstate local residential vehicular access, particularly during off hours. The Contractor will be responsible for all signing, barricading, etc., in accordance with the Ontario Traffic Manual ("OTM"), adjacent to the actual work area; however, the Town will establish alternative parking, subject to the Contractor's written notice to commence construction. All signing beyond the immediate project limits will be installed and maintained by the Town of Shelburne.

1.15 PEDESTRIAN ACCESS

.1 The Contractor shall, at all times, ensure that reasonable pedestrian access is maintained throughout the work site for the duration of the project. All existing sidewalk is to remain in place except where it conflicts with service installation, until such a time that the construction schedule necessitates sidewalk replacement. The Town will make provisions for local residents to park vehicles on adjacent streets for the duration of the Contract.

1.16 PRIVATE DRIVEWAY ACCESS

.1 The Contractor shall provide full access to private driveways at all times except as follows:

.1 for the 72 hours immediately following the installation of concrete curb and gutters
.2 for the 72 hours immediately following the installation of concrete sidewalks
.3 for the 72 hours immediately following the installation of concrete driveway aprons

1.17 GARBAGE PICKUP

.1 The Contractor is advised that the work of this contract may impede normal garbage collection and recycling operations within the neighbourhoods where work is being conducted. Regional Waste Management staff will not drive a vehicle on a gravel roadway, nor will they back up a vehicle. As a result, the Contractor may have to, at times during construction, deliver all garbage and recyclables, at his own expense, to the closest intersection, by 7:00 a.m. on the morning and after pickup, return the emptied containers to their respective owners on garbage day. The owners will be asked to put their addresses on their containers.

.2 This work is incidental to the contract and there will be no specific payment for this item, the cost of same is deemed to be included in the contract unit prices.

1.18 SIGNS

.1 Signs (other than traffic control signs), which must be removed in order to carry out work under this Contract, shall be delivered to the Town of Shelburne Operations Centre. The Contractor must advise the Engineer where the signs have been removed from so that the Town may replace them at a later date.

.2 At no time shall the Contractor remove traffic controls signs.

1.19 SCALE TICKETS

.1 Contractor must supply all scale tickets for imported granulars, asphalt etc. to the Contract Administrator for verifications of quantities notwithstanding the method of payment for the work. If scale tickets are not supplied within an acceptable period, the Engineer, at his sole discretion, may require that the material thickness be confirmed by core or test dig. The Contractor will be responsible for the cost of these investigations as well as the resulting restoration.

1.20 FRESH CONCRETE

.1 The Contractor is responsible for protecting all freshly poured concrete from inclement weather and vandals. All markings or imprints must be removed at the Contractor's expense and to the satisfaction of the Engineer.

.2 All concrete used for the construction of curb and gutter, sidewalks, and aprons shall have a minimum compressive strength of 32 MPa @ 28 days.

1.21 COMPLETION DATE – LIQUIDATED DAMAGES

.1 The Contractor shall complete this Contract in its entirety by **June 27th, 2025**.

.2 If this limit above specified is not sufficient to permit completion of the work by the Contractor working a normal number of hours each day or week on a single day-light shift basis, it is expected that additional and/or augmented day-light shifts will be required throughout the life of the Contract to the extent deemed necessary by the Contractor to ensure that the work will be completed within the time limit specified. Any additional costs occasioned by compliance with these provisions will be considered to be included in the prices bid for the various items of work and no additional compensation will be allowed therefore.

.3 If the Contractor is delayed in the completion of the work,

.1 by reason of changes or alterations made under Section 3.10 of the General Conditions;
.2 by reason of any breach of contract or prevention by the Town, or other Contractor of the Town or any employee of any one of them;
.3 by reason of delay by the Town in issuing instructions or information or in delivering materials;
.4 by any other act or neglect of the Town or any other Contractor of the Town or any employee of any one of them;
.5 for any cause beyond reasonable control of the Contractor; OR,
.6 by Acts of God, or of the Public Enemy including Terrorist Acts, Acts of the Province or any Foreign State, Fire, Floods, Epidemics, Quarantine Restrictions, Embargoes or delays of Sub-Contractors due to such causes;

.4 The time of completion shall be extended in writing at any time on such terms or for such period as shall be determined by the Engineer, and notwithstanding such extensions, time shall continue to be deemed of the essence of this Contract.

.5 An application by the Contractor for an extension of time as herein provided shall be made to the Town in writing on the form prescribed at least 15 days prior to the date of completion fixed by the Contract. All bonds or other surety furnished to the Town by the Contractor shall be amended where necessary at the expense of the Contractor to provide coverage beyond the date of any extension of time granted, and the Contractor shall furnish the Town with evidence of such amendment of the bonds or other surety.

.6 Any extension of time that may be granted to the Contractor shall be so granted and accepted without prejudice to any rights of the Town whatsoever under this Contract, and all of such rights shall continue in full force and effect after the time limited in this Contract for the completion of the work.

.7 It is agreed by the parties to the Contract that in case all the work called for under the Contract is not finished or completed within the date of completion specified previously, damage will be sustained by the Town, and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Town will sustain in the event of and by reason of such delay and the parties hereto agree that the Contractor will pay to the Town the sum of **ONE THOUSAND ($1,000.00) DOLLARS** per day for liquidated damages for each and every calendar day's delay in finishing the work beyond the date of completion prescribed and it is agreed that this amount is an estimate of actual damage to the Town which will accrue during the period in excess of the prescribed date of completion.

.8 The Town may deduct any amount under this paragraph from any monies that may be due or payable to the Contractor on any account whatsoever. The Liquidated Damages payable under this paragraph are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Town.

1.22 EXTENSION AND ESCALATION

.1 The Contractor agrees that the contract unit prices shall remain firm up to and including **June 27th, 2025.**

.2 The unit prices for work required to be done thereafter shall be adjusted by mutual agreement between the Town and Contractor, in accordance with the procedures of GC 3.10.01 of the OPSS General Conditions of Contract.

1.23 CONSTRUCTION SCHEDULE

.1 The Contractor shall submit a detailed construction schedule, for approval by the engineer, seven (7) days in advance of commencement of construction, showing the timing of the Contract.

.2 A preconstruction meeting will be held as soon as practical after Council approval of the award of tender with representatives from the Town, the General Contractor and the Engineer (if applicable) to discuss the following:

.1 Review the contractor's schedule with respect to construction methodology and estimated completion dates for the various portions of the work.
.2 Review safety procedures and operational constraints to establish strict guidelines for work areas, delineation of haul routes, etc., to ensure safe and practical grading and servicing operations.
.3 Review coordination procedures regarding traffic control, protection of the environment and the public.

.3 The Town and the Contractor agree that for this Contract, in the event the work is ordered to commence earlier or later than the commencement date, the completion date will be adjusted by the same number of Working Days.

.4 The Engineer reserves the right to request of the Contractor to work on Saturdays, and/or later hours in order to complete the work within the scheduled time periods. There will be no additional compensation for overtime hours worked.

.5 Should the Contractor, through his own fault (or neglect of this Contract and Specifications) fail to meet the schedules or working day periods allowed above, the Liquidated Damages may be assessed after careful consideration of the facts by the Engineer. The amount assessed as 'Liquidated Damages' on this Contract is defined further in Item 20 above.

1.24 WORKPLACE SAFETY AND INSURANCE BOARD

.1 The Contractor shall at all times pay, or cause to be paid, any assessment or compensation required to be paid pursuant to the Workplace Safety and Insurance Act and upon failure to do so, the Town may pay such assessment or compensation to the Workplace Safety and Insurance Board, and the Contractor shall forthwith reimburse the Town. The Town may at its option deduct such expenses from any monies owed to the Contractor. The Contractor shall, prior to issuance of a purchase order by the Town, provide a certificate of good standing from the Workplace Safety and Insurance Board. The Contractor shall continue to provide a certificate of good standing from the Workplace Safety and Insurance Board, every sixty (60) days during construction, and one at the completion of construction.

1.25 THE OCCUPATIONAL HEALTH AND SAFETY ACT AND TECHNICAL STANDARDS AND SAFETY ACT

.1 The Contractor shall conduct the work such as excavation, trenching, and shoring in accordance with the *Occupational Health and Safety Act, R.S.O. 1990, as amended*. The Contractor must advise the local Ministry of Labour Office of the contract prior to the commencement of any work.

.2 The Contractor shall submit the following information to the Town of Shelburne prior to the start of construction:

.1 A list of the Contractor's first aid certificate holders.
.2 A list of the Contractor's Health and Safety representatives.
.3 A copy of the Contractor's Health and Safety policy.
.4 A list of the Contractor's emergency telephone numbers.

.5 A written emergency plan, which includes a process for addressing a critical injury, accident or incident as defined by the *Occupational Health and Safety Act* and include an emergency contact list and procedure. This plan must be readily available and posted on site prior to work commencement. All subcontractors or persons working on site must be informed of the emergency plan and where it can be accessed.

.3 The Contractor shall provide appropriate first aid facilities, eye wash stations and any measures for emergency uses as identified in the plan.

.4 The Town Representative must be immediately notified verbally, and by a follow up written report of the following incidents/accidents:

.1 ones that required:
- .1 emergency services,
- .2 emergency health care,
- .3 contact/visit with/by the Ministry of Labour, Ministry of Environment;
- .4 contact with a utility.
- .5 when damage occurred to an adjacent structure or private property.

.5 Written notification can be done by a separate report, or by a detailed description in the daily report. Any other health and safety related incidents must be discussed at the next, regularly scheduled, construction site meeting.

.6 The Contractor must also maintain compliance with the *Technical Standards and Safety Act, S.O. 2000*, as amended, and applicable regulations such as O.Reg. 210 concerning Oil and Gas Pipeline Systems. When working around natural gas mains and services, and any utility lines, the Contractor shall adhere to the “Guideline for Excavation in the Vicinity of Utilities Lines, December 2008,” published by the Electrical Safety Authority and the Technical Standards and Safety Authority.

1.26 TREES & SHRUBS

.1 Trees and shrubs, if destroyed during construction, will be replaced using first quality nursery stock (deciduous trees shall be replaced with the same or similar species specimens 2.5 m to 3.0 m in height, coniferous trees are replaced with the same or similar species specimens 1.2 m to 1.5 m in height).

END OF SECTION

TECHNICAL SPECIFICATIONS

1 GENERAL

1.1 INSTRUCTIONS

.1 Comply with the Instructions to Bidders, the General Conditions of the Contract, the Supplementary Conditions and the General Requirements.

.2 Report in writing to the Project Manager any defects of surfaces or work prepared by others which affect the quality or dimensions of the work of this Section. Commencement of work implies complete acceptance of existing conditions and previous work performed by others.

1.2 INTENT

.1 Provide all articles, labour, materials, equipment, transportation, hoisting and incidentals noted, specified or required to complete the work of this Section.

1.3 SECTION INCLUDES

.1 Provide all concrete forms and accessories for concrete.

1.4 WORK EXCLUDED

.1 This Contractor shall not be responsible for the formwork necessary to construct the following:

.1 Light standard bases.

.2 Concrete encasement for electrical duct banks.

.3 Precast concrete items.

.4 All below frost footings and foundations.

.5 All decorative above grade exposed concrete

1.5 MATERIALS INSTALLED IN THIS SECTION BUT FURNISHED BY OTHERS

.1 Build into the concrete forms, all required items furnished by others, including, but not limited to:

.1 Concrete inserts, hangers, anchors, sleeves, bolts, etc.

.2 Drain openings.

.3 Leveller pit frames and conduits.

.4 Rough opening frames and bucks occurring in the concrete work.

.5 Flashing in concrete work.

.6 Grate sinkages, angle frames, nosings, curb channels, etc.

1.6 RELATED SECTIONS

.1 Section 03 20 00 – Concrete Reinforcing.

.2 Section 03 30 00 – Cast-in-Place Concrete.

.3 Section 03 35 00 – Concrete Finishing.

1.7 REFERENCES

.1 CSA A23.1-04: Concrete Materials and Methods of Concrete Construction.

.2 .CSA O121-M1978 (R2003): Douglas Fir Plywood.

.3 CSA S269.1-1975 (R2003): Falsework for Construction Purposes.

.4 CAN/CSA-S269.2-M87 (R2003): Access Scaffolding for Construction Purposes.

.5 CSA S269.3-M92 (R2003): Concrete Formwork.

.6 CGSB 41-GP-35M: Polyvinyl Chloride Waterstop.

2 PRODUCTS

2.1 MATERIALS

.1 Plywood: Douglas Fir species, to CSA O121; Sheathing Grade.

.2 Lumber: SPF species, NLGA Light Framing Grade Category, Utility Grade; with grade stamp clearly visible.

.3 Steel Forms: steel sheet, well matched, tight fitting, and adequately stiffened to support weight of concrete without deflection.

.4 Fibre Glass Reinforced Resin Forms: matched, tight fitting, and adequately stiffened to support weight of concrete without deflection.

.5 Pan Forms: Removable; of sizes and profiles required.

.6 Tubular Column Type Forms: spirally wound, adhesive laminated fibre paper tube forms, coated with hot wax; diameters as required; Handiform or Permaform by Perma Tubes Ltd. or Sonotube by Sonoco Limited.

2.2 ACCESSORIES

.1 Form Ties: removable or snap-off metal type of fixed and adjustable length, with cones and neoprene plugs when used for exposed conditions; to CSA S269.3.

.2 Form Release Agent: colourless mineral oil that will not stain concrete.

.3 Fillets for Chamfered Corners: Rigid formed plastic type; 13 x 13 mm size UNO.

.4 Formed Construction Joints: Premoulded asphaltic board; tongue and groove profile; 6 mm thick; complete with anchorage.

.5 Waterstops: Purpose made polyvinyl chloride, to CGSB 41-GP-35M, Type II; or flexible expanding sodium bentonite based for concrete construction joints.

.6 Dovetail Anchor Slots: Minimum 0.65mm thick galvanized steel; foam-filled; release tape sealed slots; bend tab anchors.

.7 Flashing Reglets: Rigid PVC; longest possible lengths; alignments splines for joints.

.8 Void Forms: Moisture resistant treated paper faces; biodegradable; initial set; 100 mm thick.

.9 Wood Texture Mats: Classic Wood texture mat, 207cm x 55.2cm, product ID FM-8700-S/O by Brickform or approved equal.

3 EXECUTION

3.1 ERECTION

.1 Construct formwork, shoring and bracing in accordance with CSA S269.3 to meet design and code requirements.

.2 Align joints and make watertight. Keep form joints to a minimum.

.3 When using earth forms, hand trim sides and bottoms, and remove loose dirt prior to placing concrete.

.4 Provide bracing to ensure stability of formwork. Shore or strengthen previously constructed formwork liable to be over stressed by construction loads.

.5 Provide chamfer strips on all external corners.

.6 Apply form release agent prior to placing reinforcing steel, anchoring devices, and embedded items. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are affected by agent.

.7 Provide formed openings where required for pipes, conduits, sleeves, and other work to be embedded in and passing through concrete members.

.8 Place items which will be cast directly into concrete.

.9 Coordinate work of other sections involved in forming and setting openings, slots, chases, sleeves, bolts, anchors, and other inserts.

.10 Install waterstops continuous without displacing reinforcement. Heat seal joints watertight.

.11 Place formed construction joints in pattern pouring sequence. Set top screed to required elevations.

.12 Install void forms in accordance with manufacturer's recommendations.

3.2 FORMWORK CLEANING

.1 Clean forms as erection proceeds, to remove foreign matter.

.2 During cold weather, remove ice and snow from within forms. Do not use calcium chloride or other salt-based de-icing compounds.

3.3 FORM REMOVAL

.1 Do not remove forms, shores and bracing until concrete has gained sufficient strength to carry its own weight, and construction and design load which are liable to be imposed upon it.

.2 Remove formwork progressively and in accordance with code requirements.

.3 Store removed forms, for exposed architectural concrete, in manner that surfaces to be in contact with fresh concrete will not be damaged.

.4 Restore structural support members where required due to design requirements or construction conditions and as required to permit progressive construction.

.5 Remove forms not directly supporting weight of concrete as soon as stripping operations will not damage concrete.

END OF SECTION

1 GENERAL

1.1 RELATED SECTIONS

.1 Section 32 11 13 – Aggregate Base Courses

1.2 REFERENCE STANDARDS

.1 Work covered under this section, unless otherwise noted of detailed, shall be in accordance with the following standards and codes:

.1 Ontario Provincial Standard Specifications and Drawings (OPSS, OPSD).

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1, Sieves Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2, Sieves Testing, Woven Wire, Metric.

.3 CAN/CGSB-16.1, Cutback Asphalts for Road Purposes.

.3 American Society for Testing and Materials International, (ASTM)

.1 ASTM C88, Standard Test Method for Soundness of Aggregates by Use of Sodium Sulphate or Magnesium Sulphate.

.2 ASTM C117, Standard Test Method for Material Finer Than 0.075 mm (No. 200) Sieve in Mineral Aggregates by Washing.

.3 ASTM C123, Standard Test Method for Lightweight Particles in Aggregate.

.4 ASTM C127, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate.

.5 ASTM C128, Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.

.6 ASTM C131, Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

.7 ASTM C136, Standard Method for Sieve Analysis of Fine and Coarse Aggregates.

.8 ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3) (600 kN-m/m^3).

.9 ASTM D977 – Standard Specification for Emulsified Asphalt.

.10 ASTM D995, Standard Specification for Requirements Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures.

.11 ASTM D2419, Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate.

.12 ASTM D3203, Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures.

.13 ASTM D4318, Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils.

.14 ASTM D4791, Standard Test Method for Flat Particles or Elongated Particles in Coarse Aggregate.

1.3 PRODUCT DATA:

.1 Submit manufacturer's instructions, printed product literature and data sheets for asphalt mix and include product characteristics, performance criteria, and limitations.

1.4 OPSS FORMS

.1 The Contractor shall have the current copies of all OPSS forms and details mentioned in this specification on the site for the duration of this work.

1.5 DELIVERY AND STORAGE OF MATERIALS

.1 Deliver and stockpile aggregates in accordance with Section 31 05 16 – Aggregate Materials

.2 Coarse and fine aggregates shall be stored separately, in free draining stockpiles and in such a manner as to prevent contamination and segregation.

.3 When necessary to blend aggregates from one or more sources to produce required gradation, do not blend in stockpiles.

.4 Stockpile fine aggregate separately from coarse aggregate, although separate stockpiles for more than two mix components are permitted.

.5 Provide approved storage, heating tanks and pumping facilities for asphalt cement.

.6 Submit to Contract Administrator copes of freight and waybills for asphalt cement as shipments are received. Contract Administrator reserves right to check weights as material is received.

1.6 PROTECTION

.1 Keep vehicular traffic off newly paved areas until paving surface temperature has cooled below 38 degrees C. Do not permit stationary loads on pavement until 24 hours after placement.

1.7 QUALITY ASSURANCE AND TESTING

.1 The asphalt contractor shall have a minimum of five (5) years of experience in asphalt trail paving work.

.2 Asphalt plants, spreading equipment and rollers and asphalt paving to meet the requirements of the current applicable OPSS sections.

.1 Haul trucks to be of adequate size, spread and condition to ensure orderly and continuous operation. Employ suitable hand tools.

.2 It is the responsibility of the Contractor to contact the testing laboratory for tests and to give them timely notice.

.3 If any test does not meet the specifications, it will be the Contractor's responsibility to remedy the work and pay for all subsequent testing necessary to achieve the specified results.

.4 Testing to be conducted for this section of work is as follows:

.1 Subgrade to be minimum 98% Standard Proctor Maximum Dry Density.

.2 Granular A compacted to 100% Standard Proctor Maximum Dry Density.

.3 Granular B compacted to 100% Standard Proctor Maximum Dry Density.

.4 Asphalt to be tested for content and grain size and mix.

2 PRODUCTS

2.1 MATERIALS

.1 Granular Base

.1 Granular 'A' per OPSS 1010.

.2 Clean, hard, durable sand, gravel or crushed stone, free from shale, clay, friable materials, organic matter and other deleterious substances and graded within the following limits when tested and giving a smooth curve without sharp breaks when plotting a semi-log grading chart:

.3 Table:

Sieve Designation	% Passing
26.5 mm	100
19.0 mm	85-100
13.2 mm	65-90
9.5 mm	50-73
4.75 mm	35-55
1.18 mm	15-40
0.300 mm	5-22

Sieve Designation	% Passing
0.075 mm	2-8

.2 Prime Coat: MTO Primer or SS-1 to OPSS 1103.

.3 Tack Coat: SS-1 to OPSS 1103.

.4 Asphalt: to OPSS 1150.

.1 Hot mix, hot laid HL3 as indicated on drawings.

.5 Asphalt cement: to conform to OPSS 1150.

2.2 EQUIPMENT

.1 Pavers: mechanical grade controlled self-powered pavers capable of spreading mix within specified tolerances, true to line, grade and crown indicated.

.2 Rollers: sufficient number of rollers of type and weight to obtain specified density of compacted mix.

.3 Vibratory rollers for parking lots and driveway:

.1 Minimum drum diameter: 750mm.

.2 Maximum amplitude of vibration (machine setting): 0.5mm for lifts less than 40mm thick.

.4 Haul trucks: of sufficient number and of adequate size, speed and condition to ensure orderly and continuous operation and as follows:

.1 Boxes with tight metal bottoms.

.2 Covers of sufficient size and weight to completely cover and protect asphalt mix when truck fully loaded.

.3 In cool weather or for long hauls, insulate entire contact area of each truck box.

.5 Suitable hand tools

2.3 MIX DESIGN

.1 Job mix formula to be approved by Owner.

.2 Design of mix: by Marshall method to requirements below:

.1 Compaction blows on each face of test specimens: 50.

.2 Mix physical requirements:

Property	Asphalt / Concrete
Marshall Stability at 60°kN minimum	5.5
Flow Value, mm.	2 - 4
Air Voids in Mixture, %	3 - 5
Voids in Mineral Aggregate, % minimum	15
Index of Retained Stability, % minimum	75

.3 Measure physical requirements as follows:

.1 Marshall load and flow value.

.2 Compute void properties on basis of bulk specific gravity of aggregate to ASTM C127, and ASTM C128. Make allowance for volume of asphalt absorbed into pores of aggregate.

.3 Air voids: to ASTM D3203.

.4 Voids in mineral aggregate: to Asphalt Institute, MS-2 chapter 4.

.5 Index of Retained Stability.

.4 Do not change job-mix without prior approval of Owner. When change in material source proposed, new job-mix formula to be approved by Owner.

.5 Return plant dust collected during processing to mix in quantities acceptable to Owner.

3 EXECUTION

3.1 SITE PREPARATION

.1 Set out work to lines and levels shown on Drawings. Gain approval from Consultant of all works prior to installation. Maintain such lines and levels for duration of work.

.2 Excavate and prepare all bases as noted on details. Remove and dispose of existing unsuitable subgrade materials off site.

.3 Verify grades of subgrade for conformity with elevations and sections before placing base material.

.4 Disturbed subgrade or clean fill shall be compacted to 98% of Standard Proctor Density in accordance with ASTM D698-70.

.5 If required, place sub-base material in 300 mm lifts, compacting each lift to 98% S.P.D.

.6 Gain final sub-grade approval by the Consultant prior to placing base material.

3.2 ASPHALT PAVING – GENERAL

.1 On the base course, lay a hot mix, hot laid asphaltic binder course finished to the required thickness.

.2 All paving shall have a uniform grade to adequately surface drain the area and be free from depressions in excess of 3mm under a 3m straight edge.

.3 Over the base paving course install a hot mix, hot laid asphaltic cement surface course finished to the required thickness.

.4 Joints between old and new pavement or between successive day's work shall be carefully made in such a manner to ensure a thorough and continuous bond between the old and new surfaces. Joints between surface courses shall be staggered from the joints in the underlying course. Make keyed or butt joints, feathering will not be permitted.

.5 Hand tamp the asphalt with hot tampers adjacent trees, sidewalks, landscape features, etc.

.6 Finish asphalt surfaces straight and true to established levels, free from cracks undrained areas of depressions exceeding 3mm as measured with a 3m straight edge paralleling the center line of the crowned profile. Asphalt shall not vary more than 6mm from the specified thickness. Crown changes in slopes to a gradual curve.

.7 Remove any asphalt materials and stains from adjacent finished surfaces.

3.3 GRANULAR BASE

.1 Exercise due care at all times to prevent base material from becoming contaminated by clay or other types of deleterious materials.

.2 Place base and sub-base material only on clean unfrozen surface, properly shaped and compacted, and free from snow and ice.

.3 Place granular base to compacted thickness as indicated on drawings.

.4 Place in layers not exceeding 150mm compacted thickness. Compact to density not less than 100% Standard Proctor Maximum Dry Density with ASTM D698-78.

.5 Finish base surface to be within 10mm of specified grade and shall not deviate more than 3mm on a 3m template.

.6 Gain approval from the Consultant of the installed base course. Approval to place asphalt shall be contingent upon the condition of base test results indicating that the required compaction has been achieved.

3.4 TRANSPORTATION OF MIX

.1 Transport mix to job site in vehicles cleaned of foreign material.

.2 Paint or spray truck beds with light oil, limewater, soap or detergent solution, at least once a day or as required. Elevate truck bed and thoroughly drain. No excess solution will be permitted.

.3 Schedule delivery of material for placing during daylight hours.

.4 Deliver material to pave at a uniform rate and in an amount within the capacity of the paving and compacting equipment.

.5 Deliver loads continuously in covered vehicles and immediately spread and compact. Deliver and place mixes at a temperatures recommended by OPSS documents.

.6 Air temperature during placing of mixture shall be minimum 7ºC (45ºF) and rising. Temperature of mixture when spread shall be not less than 120ºC (245ºF) nor more than 150ºC (300ºF). Do not increase temperature of mixture to offset long distance hauling.

3.5 PLACING

.1 Place asphalt mix only when base or previous course is dry and air temperature is above 7 degrees C (44 degrees F).

.2 When temperature of surface on which material is top be placed falls below 10 degrees C (50 degrees F), provide extra rollers as necessary to obtain required compaction before cooling.

.3 Do not place hot mix asphalt when pools of standing water exist on surface to be paved, during rain, or when surface is damp.

.4 Place asphalt in compacted layers not exceeding 55mm to thickness, lines and grades indicated on drawings.

.5 Minimum 120 degrees C (248 degrees F) temperature required when spreading.

.6 Maximum 160 degrees C (320 degrees F) temperature permitted at any time.

.7 Compact each course with roller as soon as it can support roller weight without undue cracking or displacement.

.8 Overlap successive passes of roller by at least one-half width of roller and vary pass lengths.

.9 Roll until roller marks are eliminated. Compact to 92.0 to 96.5 % of the Maximum Relative Density.

.10 Keep roller speed slow enough to avoid mix displacement and do not stop roller on fresh pavement.

.11 Moisten roller wheels with water to prevent mix adhesion but do not overwater.

.12 Where rolling causes displacement of material, loosen affected areas at once with lutes of shovels and restore to original grade of loose material before rerolling.

.13 Carry out compaction in three operations in close sequence:

.1 "Breakdown" rolling with two wheeled rollers as soon as possible after spreading.

.2 Rolling with pneumatic tired or tandem rollers immediately after the first rolling to achieve the minimum specified density.

.3 Final rolling with two or three axle tandem rollers to remove roller marks.

.4 Compact mix with hot tampers or other equipment approved by the City in areas inaccessible to rollers.

3.6 COMPACTING

.1 Do not change rolling pattern unless mix changes or lift thickness changes.

.1 Inform City Representative prior to making changes to rolling pattern.

.2 General:

.1 Provide at least 2 rollers and as many additional rollers as necessary to achieve specified pavement density.

.2 Start rolling operations as soon as placed mix can bear weight of roller without excess displacement of material or cracking of surface.

.3 Operate roller slowly initially to avoid displacement of material. Do not exceed 5km/h for breakdown and intermediate rolling for static steel-wheeled and pneumatic tired rollers. Do not exceed 8km/h for finish rolling.

.4 For lifts 50mm thick and greater, adjust speed and vibration frequency of vibratory rollers to produce minimum 25 impacts per metre of travel. For lifts less than 50mm thick, impact spacing not to exceed compacted lift thickness.

.5 Overlap successive passes of roller by at least one-half width of roller and vary pass lengths.

.6 Keep wheels of roller slightly moistened with water to prevent pick-up of material but do not over-water and do not use diesel fuel.

.7 Do not stop vibratory rollers on pavement that is being compacted with vibratory mechanism operating.

.8 Do not permit heavy equipment or rollers to stand on finished surface before it has been compacted and has thoroughly cooled.

.9 After traverse and longitudinal joints and outside edge have been compacted, start rolling longitudinally at low side and progress to high side.

.1 Ensure that all points across width of pavement receive essentially equal numbers of passes of compactors.

.10 Where rolling causes displacement of material, loosen affected areas at once with lutes or shovels and restore to original grade of loose material before re-rolling.

.11 Do not refuel rollers on fresh asphalt concrete.

.3 Breakdown rolling:

.1 Begin breakdown rolling with vibratory roller immediately following rolling of transverse and longitudinal joint edges.

.2 Operate rollers as close to paver as necessary to obtain adequate density without causing undue displacement.

.3 Operate breakdown roller with drive roll or wheel nearest finishing machine. Exceptions may be made when working on steep slopes or super-elevated sections.

.4 Use only experienced roller operators.

.4 Intermediate rolling:

.1 Use pneumatic-tired, steel wheel or vibratory rollers and follow breakdown rolling as closely as possible and while paving mix temperature allows maximum density from this operation.

.2 Rolling to be continuous after initial rolling until mix placed has been thoroughly compacted.

.3 Conduct rolling operations in close sequence.

.5 Finish rolling:

.1 Use static finish roller to remove roller marks and achieve smooth surface.

.6 All asphalt concrete shall be compacted to 92.5% of Theoretical Maximum Relative Density (TMRD) in accordance with ASTM D 3203

.7 The Contractor will supply additional compaction equipment if required density is not achieved.

.8 Gutters will be compacted with vibratory compactors which operate perpendicular to the direction of the gutter.

.9 Upon completion of placing and shaping, the asphalt concrete for gutter shall be compacted to 94% of the theoretical maximum relative density of to the satisfaction of the City Representative.

3.7 JOINTS

.1 Cut bituminous course to full depth, unless otherwise noted, in neat lines to expose fresh vertical surfaces. Remove broken and loose material.

.2 Paint exposed vertical edge of asphaltic joints, edges of manholes and catch basin frames, curbs and similar items with hot asphalt cement of emulsified asphalt prime prior to placing asphalt courses.

.3 Where paving comprises two courses, overlap longitudinal joints minimum 150mm.

.4 Carefully place and compact hot asphaltic material against joints.

.5 Cold plane all asphalt joints to width of 750mm and depth of 40mm.

3.8 PAVEMENT CONSTRUCTION

.1 Application of prime coat: OPSS 302.

.2 Construction of asphalt: OPSS 310.

.3 Performance Graded Asphalt Cement designation for asphaltic: 58-28.

3.9 FINISH TOLERANCES

.1 Upon completion of compaction each pavement course shall be:

.1 Smooth and true to crown and grade with variation not more than 3 mm from thickness shown on Drawing. Do not place any asphaltic course less than 25 mm thick or more than 75 mm thick.

.2 Finished asphalt surface to be within 10 mm of design elevation but not uniformly high or low, and with no irregularities greater than 10 mm in 4.5m.

.3 Compacted to a density not less than 98% of density of laboratory compacted mixture.

3.10 DEFECTIVE WORK

.1 Correct irregularities which develop before completion of rolling by loosening surface mix and removing or adding material as required. If irregularities or defects remain after final compaction, remove surface course promptly and lay new material to form a true and even surface and compact immediately to specified density.

.2 Repair areas showing checking or rippling.

.3 Adjust roller operation and screed settings on paver to prevent further defects such as rippling and checking of pavement.

3.11 QUALITY ASSURANCE/PAYMENT ADJUSTMENT

.1 Quality assurance testing for payment adjustment to be performed by City Representative.

.2 Mix Tolerance:

.1 Loose mix samples will be collected every 800 tonnes by City Representative, with a minimum of one (1) per day.

.2 City representative will determine sampling locations.

.3 Asphalt Compaction:

.1 Compaction will be based on the average compaction of three (3) cores from stratified random locations each day of paving as determined by the City Representative.

.2 Theoretical maximum density will be based on the average of the day's loose mix samples.

.3 Rejected hot mix asphalt will not be paid by City and Contractor will bear the cost of repairs.

.4 Rejected asphalt to be removed and replaced.

3.12 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 – Environmental Protection, Cleaning and Dust Control.

.1 Leave work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Environmental Protection, Cleaning and Dust Control.

END OF SECTION

1 GENERAL

INSTRUCTIONS

.1 Comply with the Instructions to Bidders, the General Conditions of the Contract and Supplementary Conditions.

.2 Report in writing to the Project Manager any defects of surfaces or work prepared by others which affect the quality or dimensions of the work of this Section. Commencement of work implies complete acceptance of existing conditions and work by others.

INTENT

.3 Provide all articles, labour, materials, equipment, transportation, hoisting and incidentals noted, specified or required to complete the work of this Section.

SECTION INCLUDES

.4 Provide concrete required to complete the Work in accordance with the Contract Documents, including, but not limited to:

.1 Footings under columns, signage and walls;

.2 Sidewalks and curbs;

.3 Control joints and construction joints;

.4 Expansion joints;

.5 Admixtures;

.6 Crushed stone under slabs, and

.7 Granular 'A' fill under slabs.

.5 The summarized breakdown of the above-mentioned work does not set out all the work under this Section of the Contract, but rather outlines the essentials. Any concrete work indicated on the drawings or hereinafter specified, whether enumerated above or not, shall be carried out under this Section of work.

WORK EXCLUDED

.6 Any work in future phases.

RELATED SECTIONS

.7 03 10 00 – Concrete Forming.

REFERENCES

.8 ACI 544.3R-93: Guide for Specifying, Mixing, Placing and Finishing Steel Fibre Reinforced Concrete.

.9 ASTM C1059-99: Standard Specification for Latex Agents for Bonding Fresh To Hardened Concrete.

.10 CSA A23.1-04: Concrete Materials and Methods of Concrete Construction.

.11 CSA A23.2-04: Methods of Test and Standard Practices for Concrete.

.12 CSA A23.3-04: Design of Concrete Structures.

SUBMITTALS

.13 All test reports as requested.

RECORD DOCUMENTS

.14 Submit record documents as per the General Requirements.

.15 Record Documents: A set of drawings and specifications shall be kept at the Place of the Work, upon which the Contractor shall record the progress of the concrete installation, giving the time and date of each pour, the date of form removal and a daily record of the environmental conditions.

DELIVERY, STORAGE AND HANDLING

.16 Store Products to CSA A23.1.

.17 Store cement and aggregates in a manner to prevent deterioration or intrusion of foreign matter.

.18 Protect liquid mixtures from freezing and from settling out of solution.

.19 Do not use deteriorated or damaged Products for concrete.

ENVIRONMENTAL REQUIREMENTS

.20 Cold Weather Requirements

.1 When the air temperature is at or below 5°C, or when in the opinion of the Consultant there is a probability of its falling below 5°C within 24 hours of placing, protection for the concrete shall be required for the duration of the curing period by means of heated enclosures, coverings, insulation, or a suitable combination of these methods.

.2 Unvented salamanders or other heaters which produce carbon dioxide as a by-product shall not be permitted in the building during the casting operations or for the following 7 days. Properly vented heaters shall be placed in the building prior to concreting and used to maintain the temperature above 10°C during placing and finishing operations.

.3 When cold weather protection is required for slabs, a thermometer, accurate to plus or minus 2°C, shall be placed on top of the slab near a corner of the pour under the curing blanket to measure the temperature. If the temperature at this position falls below 10°C additional insulating materials and/or heaters shall be used to maintain the temperature above 10°C.

.4 If heaters are used, precautions shall be taken to prevent drying of the slab. During concrete placing, maintain the relative humidity of the atmosphere as high as possible.

.5 No dependence shall be placed on salt or other chemicals for the prevention of freezing.

.6 All reinforcement, forms, and ground with which the concrete is to come in contact shall be free from snow and ice. Concrete shall not be placed on, or against, any surface that will lower the temperature of the concrete in contact with the surface below 10°C.

.7 To avoid a sudden temperature change near the end of the curing period, the protection shall not be completely removed until the concrete has cooled to a temperature differential not greater than 17°C.

.21 Hot Weather Requirements

.1 When the air temperature is at or above 27°C, or when in the opinion of the Consultant there is the probability of it rising above 27°C within 24 hours of placing, facilities shall be provided for the protection of the concrete from the effects of hot and/or drying weather conditions.

.2 The temperature of the concrete when deposited shall not exceed 30°C.

.3 When the rate of evaporation exceeds the limits specified in CSA A23.1/A23.2-non-combined. Provide sufficient measures to prevent rapid loss of moisture from the surface of the concrete.

2 PRODUCTS

MATERIALS

.1 Portland Cement: to CAN/CSA-A3001, Type GU.

.2 Blended Hydraulic Cement: to Can/CSA-A3001, Type GUb.

.3 Integral Colour Admixture: Chamois 0.5%.

.4 Aggregate: Coarse and fine aggregates to CSA A23.1 and to the concrete mix designs given in this Section.

.5 Water: potable, to CSA A23.1.

ACCESSORIES

.6 Concrete Reinforcement: as specified in Section 03 20 00.

.7 Curing Compound: Meeting ASTM C309, water-based emulsion, and be approved by colour additive manufacturer for use with coloured concrete.

.8 Form release agent: As acceptable to concrete colorant manufacturer, non-staining, dissipative type.

.9 Grout: Masterflow 928 by Degussa or Sealtight V-3 Non-Metallic Grout by W. R. Meadows of Canada Limited.

ADMIXTURES

.10 Air entrainment: chemical and super plasticizing admixtures, to CSA A23.1.

.11 Integral Coloring Admixture: Integral Mix, synthetic oxide pigment, meeting ASTM C979 and C494, type A, cement dispersing/water reducing, in:

.1 Colour: U49 - Deep Charcoal

.1 Available from Butterfield Color, or approved alternate.

GRANULAR BASE AND SUB-BASE COURSES

.12 Granular Blanket: to OPSS 1010, Granular A; free of organic and other deleterious matter; maximum particle size of 20 mm and no more than 15% passing the No. 200 sieve; moisture content within plus or minus 2% of the Moisture Density Relations of Soils to ASTM D698.

.13 Crushed Stone: 12 to 38 mm size, well graded.

.14 Granular Fill: to OPSS 1010, Granular B, Type 1 or 2; moisture content within plus or minus 2% of the Moisture Density Relations of Soils to ASTM D698.

SEALANTS

.15 Normal Temperature Areas: eg. Loadflex by Sika Canada Inc.

.16 Refrigerated and Freezer Areas: eg. Chemtron 2035 by Chemtron Polymer Inc.

.17 Construction and Expansion Joints in Concrete Walls: Tremco Dymeric or Dow Corning 790 Silicone.

3 EXECUTION

GENERAL

.1 Relation to Other Sections:

.1 Review drawings and specifications for other Sections which will affect the placement of concrete.

.2 Form openings and build in anchors, rolled steel sections, sleeves, inserts, subframes or finished work supplied by other Sections as indicated in the Contract Documents and on Shop Drawings and as required for the proper completion of the Work and Project. These locations are the responsibility of the Trade for whom the sleeve, etc. has been placed.

.3 The Consultant's approval shall be obtained for the size and location of holes which are required in beams for the passage of pipe or ducts but which are not noted on the Drawings.

.4 Provide grout for setting column and beam bearing plates and co-operate with other Sections in placing thereof. Grout shall be installed in a manner that will ensure positive bearing of the full area of the steel plate on top of the bearing surface.

.5 At the junction of block walls with concrete walls or columns. Provide a continuous vertical dovetail anchor slot in the concrete on the centerline of the wall for its full height.

.6 Housekeeping Pads and Curbs: 100 mm thick, unless otherwise noted, with pad reinforcing of 10M at 300 mm on centres each way and curb reinforcing of 2-15M bars. Dowel pads and curbs to the floor or roof slab with 10M at 300 mm OC each way.

.2 Construction Joints, Control Joints, and Saw Cuts

.1 Provide construction joints, control joints and saw cuts as shown on the Drawings or in consultation with the Consultant.

.2 All saw cuts shall be made on the day of the finishing operations using “soft-cut” saws. Where saw cuts are not shown on the drawings, maximum grid spacing shall be 5 metres.

.3 At least 5-6 days after placing slab on grade, prior to occupancy, clean all dust and debris from the saw cuts and immediate area and fill the saw cuts with the specified joint filler.

.4 Clean construction joints of dirt and laitance. Saturate joint with water before placing adjacent concrete.

.5 Where shown, at construction joints and control joints in all walls retaining grade, a PVC waterstop shall be provided for the full length of the joint, wired to reinforcing to ensure proper alignment in the concrete and heat welded at all laps and splices in accordance with manufacturer's recommendations. Coordinate placement with Section 03 10 00.

.6 Granular Blanket: Provide a 150 mm layer of Granular 'A' below slab on fill and compact to 98% Standard Proctor maximum dry density.

CONCRETE

.3 Concrete Proportioning

.1 Proportion concrete to CSA A23.1; Alternative Number 1 of Table 11 as follows:

.1 Proportion normal density concrete to meet the following criteria for concrete in all exterior slabs on grade, and sidewalks.

Cement:	Type GUL
Supplementary Cementing Materials:	None
Minimum 56 Day Compressive Strength:	32 MPa
Minimum Cementitious Content:	as required
Nominal Size of Coarse Aggregate:	28 mm
Slump Range at Point of Discharge:	50 to 100 mm
Air content:	5 to 8%
Water/Cementing Materials Ratio:	0.45
Exposure Class:	C-2

.2 Proportion normal density concrete to meet the following criteria for concrete in all exterior heavy-duty concrete pavement slabs & curbs.

Cement:	Type GUL
Supplementary Cementing Materials:	None
Minimum 56 Day Compressive Strength:	35 MPa
Minimum Cementitious Content:	335 kg/m3
Nominal Size of Coarse Aggregate:	28 mm
Slump Range at Point of Discharge:	50 to 100 mm
Air content:	5 to 8%
Water/Cementing Materials Ratio:	0.45

.3 Submit mix designs to the Consultant for review. Number each design to conform to the design requirement numbering above. Where the use of supplementary cementing materials is permitted, specify which materials and what quantities are proposed.

.4 The use of supplementary cementing materials, where permitted by the mix design, shall conform to CAN/CSA-A3001.

.5 Where a high range water reducing admixture (superplasticizer) is used, the slump shall not exceed 240 mm.

.6 Mix design for concrete placed by pump shall take into consideration the pump equipment and shall not exceed the specified water/cementing materials ratio.

.4 Admixtures

.1 An approved water reducing admixture may be used in all concrete if compatible with all other specified admixtures. The use of a high range water reducing admixture (superplasticizer) is required for steel fibre reinforced concrete.

.2 Entrained air in non-air entrained concrete shall be less than 3%.

.3 An air entraining agent shall be used in all concrete which will be exposed to freeze-thaw conditions and for the action of road salt to CSA A23.1.

.4 All admixtures shall be used according to the manufacturer's recommendations and shall be identified in the submitted mix design.

.5 Preparation of Equipment and Place of Deposit

.1 A slump cone shall be made available at the delivery point and slump tests taken whenever requested. No concrete shall be poured unless a slump cone is on the site.

.2 Equipment for the mixing and transportation of concrete and the place of deposition shall be cleaned of all debris and ice. Masonry that will be in contact with concrete shall be well drenched (except in freezing weather). The reinforcement shall be thoroughly cleaned of ice, dirt, oil, scale or the coatings that tend to reduce the bond.

.3 Water shall be removed from place of deposit before concrete is placed unless otherwise permitted by the Consultant. All laitance and other unsound material shall be removed from hardened concrete before additional concrete is added.

.4 Prepare concrete slabs designated to receive bonded topping slabs to CSA A23.1.

.6 Mixing: Mix and deliver ready-mixed concrete to CSA A23.1.

.7 Conveying: Convey concrete to CSA A23.1

.1 Convey concrete from the mixer to the place of final deposit by methods that will prevent separation or loss of materials.

.2 Equipment for chuting, pumping and pneumatically conveying concrete shall be such size and design as to ensure a practically continuous flow of concrete at the delivery end without separation of materials.

.3 When conveying concrete by pump, the slump, as measured at delivery to the pump, shall not be increased by more than 25 mm above the maximum slump given. Maintain specified water-to-cement ratio.

.8 Placing

.1 Placing concrete to CSA A23.1.

.2 Place bonded topping slabs to CSA A23.1.

.3 Notify Consultant at least 24 hours in advance of the proposed time of commencement of concreting.

.4 Conform to ACI 544.3R-93 for placing and finishing steel fibre reinforced concrete.

.5 Deposit concrete as nearly as practicable in its final position to avoid segregation due to re-handling or flowing. The placing of concrete shall be carried on at such a rate that concrete is at all times plastic and flows readily into the spaces between the bars. No concrete that has been contaminated by foreign material shall be used, nor shall retempered concrete be used unless approved by the Consultant.

.6 Once placing has started, it shall be carried on as a continuous operation until placement of the panel or section is completed. Construct construction joints as indicated on Drawings.

.7 Thoroughly consolidate concrete by vibration or suitable means during placement. It shall be thoroughly worked around reinforcement and embedded fixtures and into the corners of the forms. Vibrators shall not be used to move concrete horizontally.

.8 Beams and girders, column capitals and haunches shall be placed monolithically without horizontal joints in their depths unless specifically indicated otherwise on the drawings.

.9 After suitable bulkheads, screeds and, if specified, jointing materials have been positioned, the concrete shall be placed continuously between construction joints, beginning at a bulkhead, edge form or corner. Each batch shall be placed into the edge of the previously placed concrete to avoid stone pockets and segregation. If there is a delay in casting, the concrete placed after the delay shall be thoroughly spaded and consolidated at the edge of the previously placed to avoid cold joints. Concrete shall be distributed by shovels and consolidated by vibration or other suitable means. The concrete shall then be brought to correct level with a straight-edge and struck off. Bullfloats or darbies shall be used to smooth the surface leaving it free of bumps or hollows.

.9 Curing

.1 Cure concrete to CSA A23.1.

.2 Refer to Section 03 35 00 for curing horizontal concrete surfaces.

.3 Curing exposed surfaces shall commence as soon as the concrete has hardened sufficiently to prevent surface damage. Curing of concrete surfaces shall be achieved using one or more of the following methods:

.1 ponding or continuous sprinkling;
.2 absorptive mat or fabric kept continuously wet;
.3 4 mil polyethylene plastic film;
.4 forms in contact with concrete surface; or
.5 other moisture-retaining methods as approved by the Consultant.

.4 Film forming curing compound is not an acceptable substitute for the methods noted above.

.5 All concrete surfaces shall be moist cured for a basic curing period of either three days at a minimum temperature of 10 °C or for the time necessary to attain 35% of the specified 28-day compressive strength of the concrete.

.6 Cure air-entrained concrete an additional four consecutive days (for a total of seven days) at a minimum temperature of 10°C or for the time necessary to attain 70% of the specified 28-day compressive strength of the concrete.

.7 The basic curing time shall be extended on all structural concrete until the concrete has achieved sufficient strength for structural safety. (70% of the specified 28-day compressive strength of the concrete unless otherwise directed by the Consultant.)

.8 When the air temperature is above 27°C, cure concrete to CSA A23.1.

.9 During freezing weather, water curing of concrete shall be terminated 12 hours before the end of the protection period.

CLEANING

.10 Concrete which is to be covered by other material shall have all wires and large fins cut off, projecting metal ties cut back 25 mm behind the surface. Void holes and cavities shall be filled with mortar, honeycomb shall be cut out and spaced filled with concrete. Serious honeycomb shall be inspected by the Consultant and the method of rectifying the condition approved before it is repaired. The surface shall be left reasonably smooth and even.

.11 The surface of all exposed concrete walls, columns, and beams (interior and exterior) shall be treated as specified above. In addition, immediately after the forms have been removed, grind the surface using only carborundum brick and cement slurry to take out marks and other irregularities. Leave the surface in a condition equivalent to a finish coat of cement plaster.

PROTECTION

.12 Protect freshly cast concrete from surrounding environment, and from future construction operations, to CSA A23.1.

.13 Provide necessary protection to maintain concrete temperature above 10°C for the curing period.

.14 During extremes in weather, floors shall not be placed unless the slab is protected by a roof and other suitable protective measures can be taken.

FIELD QUALITY CONTROL

.15 Routine testing of materials, of proposed mix designs and of resulting concrete for compliance with technical requirements of the Specifications will be carried out by the Inspection and Testing Company appointed by the Consultant.

.16 If instructed by the Consultant, the Inspection Company shall secure production samples of materials at the plant or stock piles during the course of the work and test for compliance with the Contract Documents.

GENERAL

.17 Sample and test concrete to CSA A23.2.

.18 Do not add water after the initial introduction of the mixing water for the batch, except at the start of discharge, when the measured slump of the concrete is less than that specified and no more than 60 minutes have elapsed from the time of batching to the start of discharge. In this case, an amount not exceeding 16 L/m or 10% of the mix design water may be added. The drum or blades shall then be turned an additional 30 revolutions or more if necessary, at mixing speed. Water shall not be added to the batch at any later time.

.19 Do not add water to concrete in agitators that are not equipped as mixers.

.20 Concrete may be used as long as it is of such slump that, in the opinion of the Consultant, it can be placed and properly consolidated without the addition of water to the batch, but in no case shall the time between batching and complete discharge exceed 120 min.

.21 The Inspection and Testing Company shall report the details of each occurrence to the Consultant whenever concrete that does not meet the Contract Documents is placed.

.22 Concrete that is rejected by the Inspection and Testing Company that has not had water added or which had water added by the concrete Supplier shall be at the expense of the Supplier. Concrete that is rejected after water is added at the Contractor’s insistence shall be at the Contractor's expense.

CONCRETE COMPRESSIVE STRENGTH TESTS

.23 A technician shall make at least three (3) compression-test specimens for each day's concrete placement but not less than three (3) cylinders for each 100 cu.m. of individual placement. There shall be no less than one set of three cylinders for each concrete mix design placed on any one day. One cylinder shall be tested at seven (7) days and one at twenty-eight (28) days. Additional test specimens may be taken at the discretion of the Consultant.

.24 If either of the two (2) of the 28-day tests do not meet specified requirements, then the third cylinder should be tested at 56 days.

.25 Additional cylinders may be cast at the expense of the Contractor if the Contractor requests them. The timing of tests on these extra cylinders shall be as required by the Contractor.

.26 The results of the tests shall conform to strength requirements outlined in Clause 17.5 of CSA A23.1 and if they fail to do so the Consultant may require one or more of the procedures outlined in Clause 17.5.8 of the same standard.

CONCRETE SLUMP TESTS

.27 A technician shall make standard slump tests as directed by the Consultant. A slump test shall be made with every strength test.

.28 Water may be added to any concrete whose slump is less than the specified slump, however, the Inspection and Testing Company shall reject any concrete that has, after the addition of water, a slump greater than the specified slump.

.29 Any concrete to which water has been added shall have its slump checked and the water quantity and slump shall be recorded by the Inspection and Testing Company.

.30 Any concrete with a slump greater than that specified shall have a set of three cylinders cast and the exact location of the concrete in the structure recorded by the Inspection and Testing Company.

.31 Any concrete failing to meet the specified slump requirements shall be rejected by the Inspection and Testing Company.

ENTRAINED AIR TESTS

.32 Air content measurements of air-entrained concrete shall be made for each load of air entrained concrete deposited.

.33 Concrete subject to exposure classifications F-1 and C-1 when exposed to freezing and thawing and C-2 of Tables 7 and 8 of CSA A23.1 shall be retested for conformance to air content requirements when more than 90 minutes have elapsed since batching.

CONCRETE SLAB QUALITY CONTROL

.34 The Inspection and Testing Company shall be on-site full time during the pouring of all slabs to ensure the quality of the concrete being installed. In addition to the requirements of Clause 3.3.2 - Concrete Strength Tests, a slump test shall be made for each truck.

.35 For slabs on grade containing steel fibres, the Inspection and Testing Company shall monitor on site, to ensure that the amount of fibres added meets the specification.

.36 For concrete to which a high range water reducing admixture (superplasticizer) is to be added, the Inspection and Testing Company shall take a slump test on a sample obtained before the superplasticizer is added. Should the slump be outside the specified range, the Supplier has the following options:

.1 If the slump is less than the specified range;

.1 water may be added to increase the slump to the lower slump range value after which the superplasticizer is added, or
.2 additional superplasticizer alone may be added to bring the concrete up to the desired consistency.

.2 If the slump is greater than the specified range;

.1 the batch can be allowed to dry in the truck if sufficient time remains from the batch time and weather conditions are conducive, after which another slump test shall be taken, or
.2 the supplier may elect to discharge to a container (loader bucket, etc.) or waste the first 10% of the load after which another sample shall be taken and slump test performed.

.3 Failure of the option 2(b) slump test does not prevent subsequently utilizing option 2(a), however, any cost of clean-up of the discharged concrete shall be borne by the supplier.

.37 For the first loads deposited that contain steel fibres, a sample shall be taken from the first quarter of the load and the steel fibres, washed out, collected and weighed to ensure proper distribution of the fibres throughout the concrete.

.38 Should the steel fibre density fall outside 10% of the required value, adjustments shall be made to the method of addition, to the duration of mixing or as required to achieve proper distribution.

.39 Adjustments and samples shall be taken from each load until two successive loads are mixed within the specified tolerance.

END OF SECTION

1 GENERAL

1.1 DESCRIPTION

.1 This section specifies the supply and installation of play area subsurface drainage.

1.2 DELIVERY AND STORAGE OF MATERIAL

.1 Coarse and fine aggregates shall be stored separately in free draining stockpiles and in such manner as to prevent contamination and segregation.

1.3 INSPECTION

.1 The contractor shall notify the Project Manager prior to placing drainage layer materials to inspect slope of subgrade and installation of drain pipes.
.2 Do not place drainage layer stone until subgrade and drain pipes have been approved.

2 PRODUCTS

2.1 FILTER FABRIC

.1 Non-woven geotextile. Please refer to the Construction and Material Specification Manual (latest edition) for the Approved Products List, Section 5 – Parks Construction Products.

2.2 DRAINAGE PIPE

.1 Perforated Polyethylene drain pipe shall be in accordance with OPSS.MUNI 405 as amended by the Construction and Materials Specifications Manual (latest edition), this specification, and the Contract Documents.
.2 Perforated Polyethylene Drainage Tile: 100mm (4”) diameter rigid perforated poly drain pipe (Big “O”) in continuous filter sock.

2.3 DRAINAGE STONE

.1 19mm dia. clear natural stone.

3 EXECUTION

3.1 SITE PREPARATION

.1 Stake out all play areas and proposed drainage pipe locations to the Project Manager’s approval.
.2 Excavate to the minimum specified depth, after compaction with minimum 1% sloped subgrades to weeping tiles as detailed.
.3 Remove all excavated material from the site and dispose of it, unless approved for backfilling.
.4 Compact subgrade uniformly to a minimum 95% Standard Proctor Density.

3.2 SUBSURFACE DRAINAGE

.1 Identify where play equipment footings will be installed. Locate drainage tile to avoid play equipment footings. Install drainage tiles and related 19mm diameter clear crushed stone encasement, as detailed. Ensure drain tiles slope to drain towards a catch basin at minimum 1%, unless shown otherwise on the drawings.
.2 Discharge drainage pipe as shown on drawings. Drainage pipe to be connected to nearest catch basin.
.3 Install clear stone drainage course as detailed.
.4 Cover entire drainage course with filter fabric.

3.3 EXCAVATION AND BACKFILLING

.1 Excavate all trenches to the depth specified on the drawings, allowing for the placement of the bedding material, so as to provide a uniform and continuous bearing and support for the pipe.
.2 Erect warning signs and protective barriers in accordance with local municipal and provincial regulations and as directed by the Project Manager.
.3 Where trenches run under soft landscaped areas, backfill trenches above the pipe bedding with native material in 300mm layers. Compact each layer with approved vibratory compaction machinery to 95% Standard Proctor Density.
.4 Where trenches run under sidewalks or other hard surfaces, backfill trenches above the pipe bedding entirely with Granular "A" material in 300mm layers. Compact each layer to 95% Standard Proctor Density and top layer to 98% S.P.D.

3.4 DRAIN PIPE INSTALLATION

.1 Install drain pipe in accordance with manufacturer's instructions.
.2 Lay pipe straight and in true alignment to the slopes and elevations indicated on the Drawings and fully supported by the bedding material.
.3 Lay all lines with a uniform grade between given elevations and draining to the outfall ditch as indicated on the drawings. Ensure pipe slopes a minimum of 1% (1cm/100cm) unless shown otherwise.
.4 Install each pipe length as soon as the preceding section has been properly jointed, embedded and secured in place. Protect exposed ends of pipe to prevent earth and other debris from entering pipe. Keep pipe interior clean. Install pipe carefully to avoid damage.
.5 Install 100mm dia. perforated drainage tile on compacted sub-grade and connect to rigid pipe as shown on drawing.
.6 Install rigid pipe on compacted sub-grade and have discharge end of pipe connected to Flowell and soak-away pit as detailed.
.7 Have completed pipe installation inspected by the Project Manager.

3.5 MAINTENANCE AND GUARANTEE

.1 Protect and maintain all work of this section from time of installation until acceptance of all works.
.2 At the completion of the contract, and prior to acceptance of the work by the Project Manager, clean and flush the drain pipe.
.3 Keep the backfill in repair at all times, correct settlement and erosion, to the satisfaction of the Project Manager.

.4 Guarantee all workmanship and materials for a period of one (1) year, commencing on the date of Substantial Performance of all Works.

3.6 RESTORATION

.1 Restore all disturbed areas to original state of finish and to the satisfaction of the Project Manager.

END OF SECTION

1 GENERAL

1.1 WORK INCLUDED

.1 Supply and installation of benches, garbage receptacles, tables and chairs, lounge chairs, side tables, group seating, bicycle racks and repair station.

.2 Maintenance and Warranty.

1.2 REFERENCES

.1 ASTM Testing Standards:

.1 ASTM B 108 – Standard Specification for Aluminum-Alloy Permanent Mold Castings.
.2 ASTM B 117 – Standard Practice for Operating Salt Spray (Fog) Apparatus.
.3 ASTM B 221 – Standard Specification for Aluminum-Alloy and Aluminum-Alloy Extruded Bars, Rod, Wire, Profiles and Tubes.
.4 ASTM D 522 – Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
.5 ASTM D 523 – Standard Test Method for Specular Gloss.
.6 ASTM D 2247 – Standard Practice for Testing Water Resistance of Coatings in 100% Relative Humidity.
.7 ASTM D 2794 – Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
.8 ASTM D 3359 – Standard Test Methods for Measuring Adhesion by Tape Test.
.9 ASTM D 3363 – Standard Test Method for Film Hardness by Pencil Test.
.10 ASTM G 155 – Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

.2 ISO Testing Standards:

.1 ISO 1520 – Paints and Varnishes – Cupping Test.
.2 ISO 2815 – Paints and Varnishes – Buchholz Indentation Test.
.3 ANSI/BIFMA Testing Standards:
.4 ANSI/BIFMA X5.5-2008– Standard Test for Desk / Tables.

1.3 SUBMITTALS

.1 Product Data: Supply manufacturer’s product data, storage and handling requirements and recommendations, installation methods and available colours, patterns and textures for approval by the Consultant.

.2 Shop drawings: Submit manufacturer’s shop drawings, including plans and elevations, indicating overall dimensions, for approval by the Consultant.

.3 Samples: Submit manufacturer’s samples of materials, finishes, colours and anchoring systems for approval by the Consultant.

.4 Warranty: Submit Manufacturer's standard warranty.

1.4 QUALITY ASSURANCE

.1 Manufacturer's Qualifications: Manufacturer regularly engaged in manufacture of site furnishings for a minimum of 30 years.

.2 Product Support: Products are supported with complete engineering drawings and design patents.

.3 Production: Orders are filled within a 40-day schedule.

.4 Facility Operator: Welders and machine operators are certified.

1.5 DELIVERY, STORAGE, AND HANDLING

.1 Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

.2 Storage: Store materials in clean, dry area in accordance with manufacturer's instructions. Keep materials in manufacturer's original, unopened containers and packaging until installation.

.3 Handling: Protect materials and finish during handling and installation to prevent damage.

1.6 WARRANTY

.1 Warranty Information:

.1 Products will be free from defects in material and/or workmanship for period of three (3) years from the date of invoice.

.2 The warranty does not apply to damage resulting from accident, alteration, misuse, tampering, negligence, or abuse.

.3 The Manufacturer shall, at its option, repair, replace, or refund the purchase price of any items found defective upon inspection by an authorized Manufacturer's service representative.

2 PRODUCTS

.1 BENCHES

.1 BACKED BENCH

.1 Manufacturer: Maglin Furniture Systems Ltd. 113 Wennett Street, Woodstock, ON. 1-519-539-6676

.2 Model: MBE-0310-00030 300 Series Bench

.3 Finish: HDPE slats and Powder Coat Black Metal Finish

.4 Mounting: Surface Mount onto paving as specified by manufacturer – refer to drawings.

.5 Quantity: 4.

3 EXECUTION

3.1 INSTALLATION

.1 Notify Consultant of source of material at least 7 days in advance of commencement of work to approve materials and layout of site furnishings. No work is to proceed without Consultant's approval.

.2 Install furnishings square and plumb as shown on the drawing. All locations to be staked out and approved by the landscape architect prior to installation.

.3 Use stainless steel vandal proof nuts.

END OF SECTION

1 GENERAL

1.1 WORK INCLUDED

.1 Preparation of planting beds, spreading of topsoil and planting mix prior to planting operations.

.2 Plant material including trees, shrubs, and perennials.

.3 Pruning, guying and mulching of trees, shrubs and perennials.

.4 Protection of trees, shrubs and surrounding areas.

.5 Cleaning and reinstatement of the area of Work.

.6 Warranty of plant material.

1.2 RELATED SECTIONS

.1 Section 32 91 19 – Topsoil and Fine Grading

.2 Section 32 92 20 - Seeding

.3 Section 32 92 23 – Sodding

1.3 REFERENCES

.1 Canadian Nursery and Landscape Association: Canadian Standards for Nursery Stock 9th Edition, 2017.

.2 ANSI Z-133-1; American Standards for Tree Care Operations.

.3 ANSI A-300; Tree Pruning Guidelines.

.4 Landscape Ontario Horticultural Trades Association, Landscape Standards.

1.4 QUALITY ASSURANCE

.1 Soil media (Topsoil; Growing Medium) and organic amendments must be tested prior to supply and installation on site. Refer to Section 32 91 19 for requirements.

.2 The Work shall be carried out by specialist firms engaged in installing and planting landscape products with minimum 5 years experience performing landscape work and using workers skilled in the various aspects of such work.

.3 No substitutions for plant material as indicated on planting plan will be allowed unless written approval has been obtained from the Consultant as to type, variety and size. Proposed substitutions must be of similar species and of equal size as those originally specified.

1.5 DELIVERY

.1 Plant material should be protected during delivery to prevent damage to branches, root ball or desiccation of leaves.

.2 Adequate protection and spacing shall be placed between trees so that trunks are not scarred, and branches are not broken.

.3 Plants should be transported in enclosed trucks or covered with a tarpaulin. For large material transported in open trucks, the trees shall be wrapped to prevent damage and windburn.

.4 Movement of container grown, ball and burlap (B&B) and wire-basketed (WB) plants should be restricted to closed van or well-covered trucks with mesh tarpaulin or similar material to protect the leaves or needles from windburn or desiccation.

.5 Dormant plants

.1 Deciduous – bare roots (only in dormant period or condition): Adequate protection shall be given to preserve the moisture around the root system. For short transit periods of 4 hours or less, the maximum temperature in the truck should not exceed 20' Celsius. In all cases and at all times, roots should be protected from frost, wind and sun, by such means as a closed van or tarped vehicle with wet straw or other suitable moisture-holding materials placed over the roots. The temperature shall be maintained as uniformly as possible at all times by mechanical or other means.

.2 Evergreens: It is recommended that rootballs not be subjected to freezing temperatures below -5 degrees Celsius for a period longer than 4 hours and that adequate protection from wind and sun be given to prevent desiccation.

.6 Non-Dormant Plants: Deciduous and Evergreens:

.1 Movement of container grown, ball and burlap (B&B) and wire-basketed (WB) plants should be restricted to closed van or well-covered truck with mesh tarpaulin or similar material to protect the leaves or needles from windburn or desiccation. If plants will be in transit for more than one day, they should be unloaded at interim points and stored away from direct sun for 24 hours at each interim point to avoid burning. When plants may be subject to wind during transportation and storage, tarpaulins and other protective measures may be supplemented by spraying the foliage with an antidesiccant prior to shipping.

.7 Unloading Procedures:

.1 BR (Bare Root): Roots should be covered and protected from frost, freezing, sun, and wind.

.2 Pots / Containers: Should be handled by the container only in order to reduce breakage of branches or leaves. Container plants shall not be held by the tops, stems or trunks.

.3 Ball & Burlap: Should be handled with caution to maintain the firmness of the root balls. Protect against damage to trunk, stems and branches.

.4 Trees should not be lifted by the trunk. Lift by attachments to the basket at three to four points or by supporting the tree below the rootball. Support the trunk as necessary to hold it in relation to the rootball to prevent tearing of roots or loosening of the rootball. Support shall be such that the cambium is not damaged.

.5 All plants should be unloaded and checked immediately upon arrival and watered if necessary. The supplier should be notified immediately both verbally and in writing of any plant damage.

.6 Plant material shall not be dropped, thrown or handled roughly.

1.6 HANDLING AND STORAGE

.1 Plants and roots shall be kept in a moist condition at all times. All plants shall be well protected against damage, extreme temperatures, desiccation and theft.

.2 Protection Against Stem and Branch Damage

.1 During loading and unloading, transportation and planting, all trees should be protected against damage to the stems and branches. This is applicable especially to large wire-basketed trees.

.2 The bark should be protected against chafing from chains, cables, equipment or other trees by a wrapping of cardboard or burlap.

.3 Sudden or rapid movement of trees in transit or off-loading should be avoided. If the tree's branches are entangled with those of other trees, care shall be taken to separate them without damage to branches.

.4 If damage occurs, it shall be reported to the Consultant immediately. If the Consultant determines that the plant is acceptable despite the damage, proposed corrective measures should be carried out in accordance with arboricultural practices recognized by the International Society of Arboriculture. Shattered bark should be removed and broken branches should be pruned back to the appropriate branch collar or bud, with care to avoid the tearing of the stem bark.

.3 During Growing Season

.1 All plants in Containers, Balled & Burlapped, or Wire Basket, if not planted immediately, shall be stored in a secure upright position. Care should be taken to provide enough space between plants so that light reaches all around to the bottom of the plant in order to avoid sunscald or burning when the plants are planted out.

.2 Balled & Burlapped Plants: Special attention should be given to the rootball, and unless weather is rainy or cool, rootballs shall be protected by heeling-in into material suitable (examples: straw, peat moss, topsoil) to protect them from drying out. Plants intended to be planted in the open shall not be kept stored in a building or any area of low light intensity for a prolonged period. All plants shall be kept well-watered and protected from extreme temperatures.

.3 Containerized plants shall be covered in a protective medium such as straw, peat moss or topsoil in extreme weather such as freezing or high dry heat. Plants shall not be kept stored in a building, truck, or any area of low light intensity for a prolonged period during the growing season.

.4 Plants shall not be taken directly from the greenhouse and planted in a drastically different environment. Such plants shall be acclimatized or "hardened off' against

the environmental conditions of their final planting location (including plants originating from different geographical sources).

.5 Preparation for the new environment should include an appropriate period of storage in an intermediate environment, managing fertilizer applications to avoid excessive growth, and a graduated watering program.

.4 During Dormant Period

.1 Plants shall be cared for according to the species requirements for winter protection, geographic location and hardiness.

1.7 ACCEPTANCE

.1 Growing medium, fertility levels, depths and surface grading are as specified.

.2 Plant quantities, species, sizes, quality and locations are as shown in the contract documents or as otherwise specified. All approved substitutions shall be noted. An approved list of substitutions shall be provided to the Consultant at the time of acceptance.

.3 Install all plants properly, vertical and at the correct level relative to finished grade.

.4 Trees are to be staked as shown on drawings, and otherwise as and where site conditions require.

.5 Pruning is completed where required. All pruning cuts shall be made with a sharp tool.

.6 Mulch is in place to the proper depth as required. Un-mulched areas are cultivated to leave a loose, friable, water-permeable surface. All planted areas are free of visible weeds, and substantially free of underground weed parts.

.7 Garbage, paper, construction debris, broken branches and similar materials have been removed from all planting areas.

.8 Only plant material that exhibits healthy growth, good leafing and branching habit, and are true to the botanical name, size and condition indicated on the plan, and are free from pests, disease, or damage shall be accepted.

1.8 WARRANTY

.1 The Contractor shall warranty all plant materials for two (2) full growing seasons from date of Substantial Performance. The Consultant reserves the right to review all plant material any time during the warranty period and require replacements at that time, at the sole discretion of the Owner/Consultant.

.2 All new plant materials used as replacement for unacceptable plant materials shall be of the same species, quality, size and requirements prescribed in the contract documents.

.3 A plant shall be assumed to be acceptable when it is structurally sound, when it is well furnished with living foliage, when it has normal colour, when it shows adequate annual growth and formation of buds and when it is free from blight of any description.

Plant material which exhibits die back of more than 10% of its branch area or has regrown from a bud or shoot shall be considered dead and unacceptable.

.4 Plants which have died during the period of warranty shall be replaced at no cost to the Owner. Dead plant material replaced under warranty shall be removed from the Work site at the Contractor's expense.

.5 Plant material replaced under warranty shall conform to all requirements of the original contract including the warranty of 24 months from the date of Substantial Performance.

.6 Replacement of materials removed, broken or damaged due to circumstances beyond the Contractor's control after completion shall not be an obligation under this warranty.

1.9 REQUIRED TASKS DURING WARRANTY PERIOD

.1 Refer to Section 32 93 40 – Planting Maintenance.

2 PRODUCTS

2.1 PLANT MATERIAL

.1 Plant material: comply with Canadian Nursery and Landscape Association: Canadian Standards for Nursery Stock (latest edition), referring to:

.1 Standard container sizes.

.2 Digging standards.

.3 Rootball diameters, depths, weights.

.4 Recommended container sizes by plant type.

.5 Height relationship to caliper by type size and development of plant material and root ball.

.6 Age of plant.

.2 All trees, shrubs and perennials to be No. 1 Grade. Plant material obtained from areas with milder climatic conditions from those of the site are only acceptable when used for spring planting.

2.2 TOPSOIL AND GROWING MEDIUM

.1 Topsoil and growing medium – refer to Section 32 91 19.

2.3 FERTILIZER AND AMENDMENTS

.1 Organic components and fertilizers per Section 32 91 19.

2.4 FASTENING ACCESSORIES

.1 Tree supports

.1 Steel Stakes: T-rail iron stakes 38 x 38 x 5 mm, 2000 mm high, primed with 1 brush coat of black zinc rich paint, to CGSB 1-GP-181M.

.2 Wood Stakes: 2400 or 600 x 50 x 50mm spruce survey stakes pointed at bottom end.

.3 Anchors: For support of large trees over 100 mm in caliper use “Duckbill” anchors, #68 or 88 as required.

.2 Wire: new and free from bends or kinks, No. 10 galvanized steel wire for guying of trees. Wire shall not be used in conjunction with any tree ties that require the wire to encircle the trunk (encased or otherwise).

.3 Turnbuckle: appropriate wire tightener by Spannfix, Langer or an accepted alternate, for use when guying.

.4 Tree Fasteners: two-ply reinforced 13 mm diameter rubber garden hose, folded burlap strips or proprietary devises that do not encircle the trunk with wire.

2.5 MAINTENANCE MATERIALS

.1 Tree Wrapping: Dewitt Tree Wrap (white polypropylene fabric).

.2 Anti-Desiccant: wax-like emulsion to provide film over plant surfaces reducing evaporation but permeable enough to permit transpiration.

.3 Wound dressing: horticulturally accepted non-toxic, non-hardening emulsion.

.4 Organic Mulch: “Gro-Bark” Classic Cedar shredded bark mulch or accepted alternate.

.5 Water: potable; on site.

.6 Rodent Protection: ArborGuard Tree Protector.

2.6 SOURCE QUALITY CONTROL

.1 General

.1 Notify Consultant of source of material at least 7 days in advance of commencement of work and arrange plant material to be inspected, approved and tagged by the Consultant at the source. No work is to proceed without Consultant’s approval.

.2 Plant material must be approved by Consultant prior to planting.

.3 Acceptance of plant material at its source does not prevent rejection on site prior to or after planting operations.

.2 Plant Material

.1 Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and from branch tip to branch tip. Measure caliper 150 mm above ground level. Use trees and shrubs of No. 1 grade.

.2 Label each plant as to type, grade and size.

.3 All plant material shall be true to type and structurally sound. It shall be structurally sound, well- branched, healthy, vigorous, have a strong fibrous root system and be free of disease, insect infestation, rodent damage, sun scald, frost cracks, defects or injuries. Use trees with straight stems well and characteristically branched for species. Plants must have been transplanted or root pruned regularly but not later than 9 months prior to arrival on site.

.4 Collected material dug from native stands or established wood lots shall not be accepted unless prior approval has been granted by the Consultant.

.5 Trees of 3000mm height and larger and all conifers shall be delivered balled and burlapped or in wire baskets. Deciduous trees up to 3000 mm height and all shrubs shall not be supplied bare root unless noted on the plant material list. Plants which have been cut back from larger sizes to meet these specifications will not be accepted.

.6 Plant material that has come out of dormant stage and is too far advanced will not be accepted unless due to special circumstances and Consultant's approval has been obtained.

.7 The use of plant material that has been held in “cold storage” requires prior approval of the Consultant.

.8 Plant material grown in more moderate hardiness zones than those in this contract will not be accepted.

.3 Bare Root Stock

.1 Dig and move all bare root stock while dormant with the major portion of the fibrous root system provided.

.2 All material shall be suitably packed for shipment to ensure that injury and drying out does not occur. Roots shall be packed in moist straw or another suitable material and wrapped with burlap or heavy paper.

.4 Bare root material shall not be stored anywhere in excess of 24 hours unless properly "heeled in" and kept moist. All deciduous material which has started to "leaf out" shall be sprayed with an approved anti-desiccant according to manufacturer's instructions.

.5 Root Balled Stock

.1 All conifer, broad leaf evergreens and trees in excess of 3 metres height must have been dug with large firm ball. Base size of root ball for trees on caliper taken at 300 mm above ground level. A tree with 75 mm caliper requires root ball of 1 meter diameter. Increase diameter of root ball by 250 mm with each increase of 25 mm in caliper.

.2 Root balls of proper size must include 75 percent of fibrous and feeder root system. This excludes use of native trees grown in light sandy or rocky soil.

.3 Secure root balls with burlap, heavy twine and rope. Use 5 oz. Hessian burlap.

.4 Frozen root balls will be permitted, provided root balls are sufficiently protected to prevent breakage. Protect root balls against sudden changes in temperatures and exposure to heavy rainfall.

.5 Dig trees at their original location with root ball dimensions as specified, and to a depth to include 75 percent of the roots. Cleanly cut all roots at the outer edge of the root ball. Double burlap root balls in excess of 920 mm and drum-lace with 13mm rope at 200mm spacing. Wire baskets are an acceptable alternative.

.6 Root balls, trunks and branches of all trees and shrubs shall be protected from sun and wind while in transit and until planted.

.7 Thoroughly spray all deciduous trees which have broken into bud and all coniferous trees with an approved anti-desiccant to requirements of the manufacturer's instructions immediately upon delivery to the job site.

.8 Balled and burlapped material, or material in wire baskets shall NOT be stored on the site in excess of forty-eight hours without prior permission of the Consultant. If such storage is necessary, the plant material shall be protected with soil or a similar material to prevent drying out and shall be kept moist until it is planted.

.6 Container Grown Stock

.1 Container grown stock is acceptable if containers were large enough for root development. Trees and shrubs must have grown in container for minimum of one growing season but not longer than two. Root system must be able to "hold" soil when removed from container. Plants that have become root bound are not acceptable.

.2 Container stock must have been fertilized with slow-release fertilizer. Soil mixture in container must consist of 6 parts loam soil, 3 parts peat moss and 1 part sand.

3 EXECUTION

3.1 EXAMINATION

.1 Verify field conditions are ready to receive work.

.2 Contractor is responsible for all locates and related costs.

.3 Clearly identify all plant material upon delivery to the site, using labels indicating species, size and supplier.

.4 Beginning of installation implies acceptance of existing conditions.

.5 Co-ordinate operations with appropriate trades and work.

.6 Keep site clean and planting holes drained.

.7 Erect physical protection barriers, silt fences, shade or erosion protection at the edge of the protection boundaries before any work occurs on site.

.8 Physical protection barriers shall meet all applicable municipal by laws and regulatory requirements.

.9 Protect adjacent walls, walks and utilities from damage or staining. Use 1/2" plywood to protect adjacent existing elements. Remove soil and debris spilled onto pavement immediately.

3.2 PLANTING TIME

.1 Perform planting during periods suitable with respect to weather conditions and locally accepted practice. Do not plant bare root plant material until all evidence of frost has left the ground site. Bareroot material shall not be planted between May 15 and October 15. Plant material imported from region with warmer climatic conditions may only be planted in early spring.

.2 When permission has been obtained to plant deciduous plant material after buds have broken, spray plants with anti-desiccant to slow down transpiration.

.3 Planting of coniferous evergreens with root balls may start after middle of August if interference with contract completion is not anticipated. Apply anti-desiccant to all evergreens before digging, where specified.

.4 When permission has been obtained, trees and shrubs growing in containers may be planted throughout growing season.

.5 Ensure that watering facilities are available. Take particular care and use anti-desiccant when planting during heat of summer.

.6 Plant only under conditions that are conducive to health and physical conditions of plants.

.7 Plant material noted by Consultant for spring planting only must be planted in dormant period.

.8 Provide Consultant with planting schedule. Extending planting operations over long period using limited crew will not be acceptable.

.9 Plant material specified, but not available at the time of Contract execution shall be ordered and planted in the fall or in the spring of the following year. Substitutions will only be considered by the Consultant if it is determined that the specified material will not be available at these later dates.

3.3 PREPARATION – LAYOUT AND STAKING

.1 Stake out locations of trees and outlines of areas to be planted with shrubs and perennials.

.2 Do not commence excavation until staked locations have been reviewed and accepted by the Consultant.

.3 Verify location of all underground utilities and services prior to any excavation. Pay for cost of repairs to any damaged utility or service caused by work of this Section, at no additional cost to Owner.

3.4 DIGGING OF PLANTS

.1 Coniferous material shall not be dug bare root.

.2 Plants specified or approved as "'BR" (Bare Root) shall be dug and moved while dormant and in accordance with Canadian Nursery and Landscape Association Canadian Standards for Nursery Stock.

.3 Plants specified or approved as "B&B" (Ball & Burlap) shall be dug and planted in accordance with Canadian Nursery and Landscape Association Canadian Standards for Nursery Stock.

.4 Plants specified or approved as "Machine Dug into Wire Basket" shall be dug and planted in accordance with Canadian Nursery and Landscape Association Canadian Standards for Nursery Stock.

3.5 PREPARING OF ROOTS

.1 Before removing plants from containers for planting, the plants shall be well watered.

.2 Roots have a tendency to grow in a circular pattern within plastic pots. When this is apparent outside roots should be gently loosened or vertically cut with a sharp knife in one or two places.

3.6 PREPARATION FOR PLANTING

.1 Excavate planting beds to a depth of 600mm.

.2 Preparation and depth of growing medium for trees shall follow drawings.

.3 The transition of each tree planting area to shallower growing medium shall have a shallow angle.

.4 Excavation of the subgrade below the root balls of trees shall be only as necessary to permit the bottom of the rootball to sit on undisturbed material or compacted fill such that the top of the rootball remains at the proper finished grade. Disturbed subgrade or fill below the rootball shall be compacted to prevent settlement of the tree after planting. Excess excavated material shall be removed from the site.

.5 Poor drainage or percolation should be reported to the Consultant. Planting pits or areas shall be tested by filling with water. If planting pits or areas do not drain adequately, measures such as penetrating the impervious layers, raising the planting grade, tree wells or adding drain lines should be employed.

.6 Planting pits or areas excavated in fine soils or by mechanical means shall have all bottoms and sides scarified to ensure that they do not have glazed surfaces. Where the growing medium in a planting pit or area is different in texture, structure or organic content from the surrounding soil, the sides and bottom shall be scarified and the two materials thoroughly mixed to avoid an abrupt interface. Growing medium shall be free from interfaces or textural differences that could impede root development.

3.7 PLANTING

.1 Planting shall not be performed during weather conditions that may adversely affect material.

.2 Plants shall be planted so that after settlement the level of the adjacent growing medium surface matches the level of the original growing medium surface in the nursery. The soil mark on the stem or container soil level is an indication of this, and it shall be maintained on the finished level, allowing for settling of the growing medium after planting. The total depth of the root ball shall be planted in growing medium.

.3 Plants shall be set plumb in the planting beds or in the centre of the pits, except where the plant's character requires variation from this.

.4 Root balls shall be placed on the undisturbed subgrade to prevent settling.

.5 If no other factors come into play, the plant should be oriented in the same direction that it was grown in the nursery. Face the lowest branch away from the greatest traffic (pedestrian and vehicular); and position the plant for best viewing.

.6 Growing medium shall be placed preferably by hand in layers around the roots or ball. Each layer shall be carefully tamped so as to avoid injuring the roots or ball, or disturbing the position of the plant. The hole should be backfilled and gently tamped so that no air pockets are left around the ball.

.7 When growing medium is up to about two-thirds of the rootball height, all ties shall be cut and the top one- third of burlap on B&B, plants shall be cut off or folded back carefully, so as not to disturb the rootball integrity. No burlap shall show above grade.

.8 Growing medium should be moist in tree pits and beds at this stage. After the water has been absorbed, the backfilling shall be completed and tamped lightly. Any settling shall be brought up to the intended grade with growing medium.

.9 The trunk flare should be partially visible after the tree has been planted.

.10 All non-biodegradable containers and tying materials shall be removed. Biodegradable containers such as fibre tubs should be removed where possible, but trees dug BR and planted in tubs for summer planting (if not fully established at time of planting) can be planted with the fibre tub if the rim is removed below grade and large holes cut out on the sides.

.11 All string, rope, burlap and other restricting elements shall be cut and removed out to the perimeter of the rootball. For jute burlapped root balls, cut away top one half of wrapping and wire basket without damaging root ball. Do not fold burlap or wire basket into the whole. Contractor to photograph tree planting and have the Consultant inspect planting prior to backfilling.

.12 Top lacing shall not be left in place at the time of planting.

.13 A 100 mm raised saucer should be constructed over the rootball to enhance water infiltration into the rootball.

.14 All planting hole depths should only be dug deep enough to accommodate the root system or root mass at the desired depth relative to the surrounding grade. Plant tree with the root collar at the same level as the surrounding ground.

.15 The planting hole width should be at least 200cm in diameter for all trees and 30 cm wider than the perimeter of the rootball or root system for all shrubs.

3.8 POORLY DRAINED SOILS

.1 Planting holes should only be dug deep enough to accommodate the root system or root mass at the desired depth relative to the surrounding ground. The tree should be planted

with the root collar positioned 75 to 100 mm above the surrounding ground level as settlement may occur.

.2 When planting where drainage correction is impractical or impossible, the root collar should be planted higher in relationship to the surrounding soil surface by 75-100 mm.

.3 Planting Hole Depth: the width of the actual hole should be at least 30 cm wider around the perimeter of the root ball or root system.

3.9 BARE ROOT PLANTING – WHILE DORMANT ONLY

.1 Damaged or broken roots should be cut back to healthy remaining tissue. Roots should be spread evenly in the planting pit.

.2 Growing medium shall be placed around the roots, gently shaking the tree so all the soil particles sift into the root system to ensure close contact with all roots and to prevent air pockets. Ensure adequate watering occurs immediately after planting.

3.10 WATERING

.1 Watering shall be carried out when required and with sufficient quantities relative to specific plant needs to prevent plants and the underlying growing medium from drying out. Plants shall be thoroughly watered at the time of planting and continue throughout the warranty period as required for plant establishment and vigor.

3.11 PRUNING

.1 Pruning at the time of planting, shall be limited to the minimum necessary to remove dead, diseased, broken or injured branches.

.2 Any corrective pruning (double leader) shall be done in such a manner as to preserve the natural character of the plants.

.3 Only clean, sharp tools shall be used. Tools should be sterilized between cuts of different plants.

.4 All cuts shall be clean and cut to the branch collar, leaving no stubs.

3.12 TREE GUARDS

.1 Supply and install tree guards per manufacturer's instructions. Only guards well secured into the soil will be accepted.

3.13 MULCHING

.1 Shrub and perennial planting beds to have 100mm depth of approved mulch supplied and installed continuous across entire planting bed.

.2 Trees installed in lawn areas:

.1 Mulched ring to be 2.0 m in diameter with 100mm mulch depth.

.2 Avoid placing wood chip mulch directly in contact with the trunk. Do not under any circumstances mound mulch up against trunk.

.3 Trees installed in existing turf/meadow areas:

.1 Existing herbaceous and woody plant material to be removed from site, and existing soils to be loosened to 100 mm depth within diameter of mulched ring.

.2 Mulched ring to be 2.0 m in diameter with 100mm mulch depth.

.3 Avoid placing wood chip mulch directly in contact with the trunk. Do not under any circumstances mound mulch up against trunk.

3.14 STABILIZING TREES

.1 Immediately following planting, trees shall be stabilized (when required or specified) using appropriate methods such that the crown of each tree is permitted free movement but normal forces such as wind, snow loading or forces applied by human hands will not disturb the buttress root system or cause the rootball to shift in the growing medium. Securing methods include staking, guying, soil anchors, deadmen, and attachments to fixed elements.

.2 A tree may not need to be stabilized if the subsoil and growing medium are stable and can hold the rootball in place and if the rootball is solid, contained in a wire basket, and shaped such that it can resist shifting.

.3 All tree stabilization methods shall be such that they do not damage the tree.

.4 Attachment to the tree shall be no higher than necessary to stabilize the rootball while permitting free movement of the tree's crown.

.5 Ties shall be secured in position in accordance with manufacturer recommendations. Ties shall form a loose loop around the stake and loop in a figure “8” around the trunk of the tree. Guys shall be sufficiently tight to transfer support from the stake to the tree and to permit some movement for the development of proper trunk taper.

.6 Stakes and anchoring devices shall be set deep enough that they will not move in the soil when subjected to wind and other normal forces. Stakes should be driven a minimum of 300 mm into undisturbed soil.

.7 Stakes or anchors for guy wires shall be set below or flush with the soil surface so that they do not present a hazard, and guy wires shall be used only where they do not present a hazard. Guy wires shall be marked with flagging tape for visibility.

.8 Stakes shall not be driven through or penetrate the rootball of the plant.

.9 The following methods are recommended for staking and guying:

.1 Deciduous trees up to 12-cm caliper and coniferous trees up to 3m height: two stakes per tree.

.2 Deciduous trees larger than 12-cm caliper and coniferous trees larger than 3m height: three guy wires spaced equally around each tree.

.3 Trees installed on roof decks or in planters may require special stabilization methods.

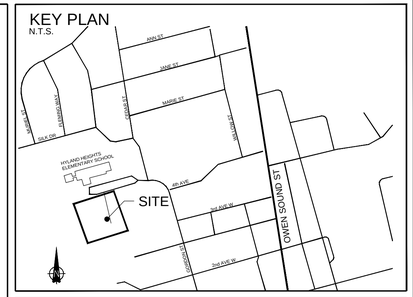
.4 Except where stabilization of plants is directed to remain in place for longer periods due to special considerations, tree ties, stakes, guys etc. shall be removed one year after installation. In some cases (e.g., street trees), stakes might be left in place to protect the trees, but ties shall be removed.

3.15 WINTER WRAPPING

.1 Install Burlap wrap on conifers deemed susceptible to wind stresses between mid-November and mid-December and remove by mid-April.

END OF SECTION

KEY PLAN
N.T.S.



Legend

GENERAL NOTES:

1. DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT
2. CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS PRIOR TO COMMENCEMENT OF THE WORK
3. ALL UTILITY LOCATES ARE THE RESPONSIBILITY OF THE CONTRACTOR. HAND DIG WITHIN THE LIMITS RECOMMENDED BY THE SERVICE UTILITY. UTILITY CONFLICTS WITH PROPOSED TREE LOCATIONS MUST BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT
4. BASE DRAWING PROVIDED BY TOWN OF SHELBURNE.
5. VEGETATION INVENTORY BY TOWN OF SHELBURNE.
6. FOR GRADING INFORMATION REFER TO DRAWING BY VAN HARTEN SURVEYING & GSP GROUP. FOR SERVICING INFORMATION REFER TO DRAWINGS BY TOWN OF SHELBURNE.
7. LANDSCAPE DRAWINGS SHOW ENGINEERING INFORMATION FOR DESIGN PURPOSES ONLY. DO NOT CONSTRUCT ENGINEERING WORKS FROM THESE DRAWINGS.

CONTEXT PLAN

NATASHA PATERSON PARK
340 GORDON ST, SHELBURNE, ON

ISSUED FOR BIDDING, NOT FOR CONSTRUCTION.

DATE	ISSUE	BY
24.08.13	Issued for Bidding	KS

GSP group
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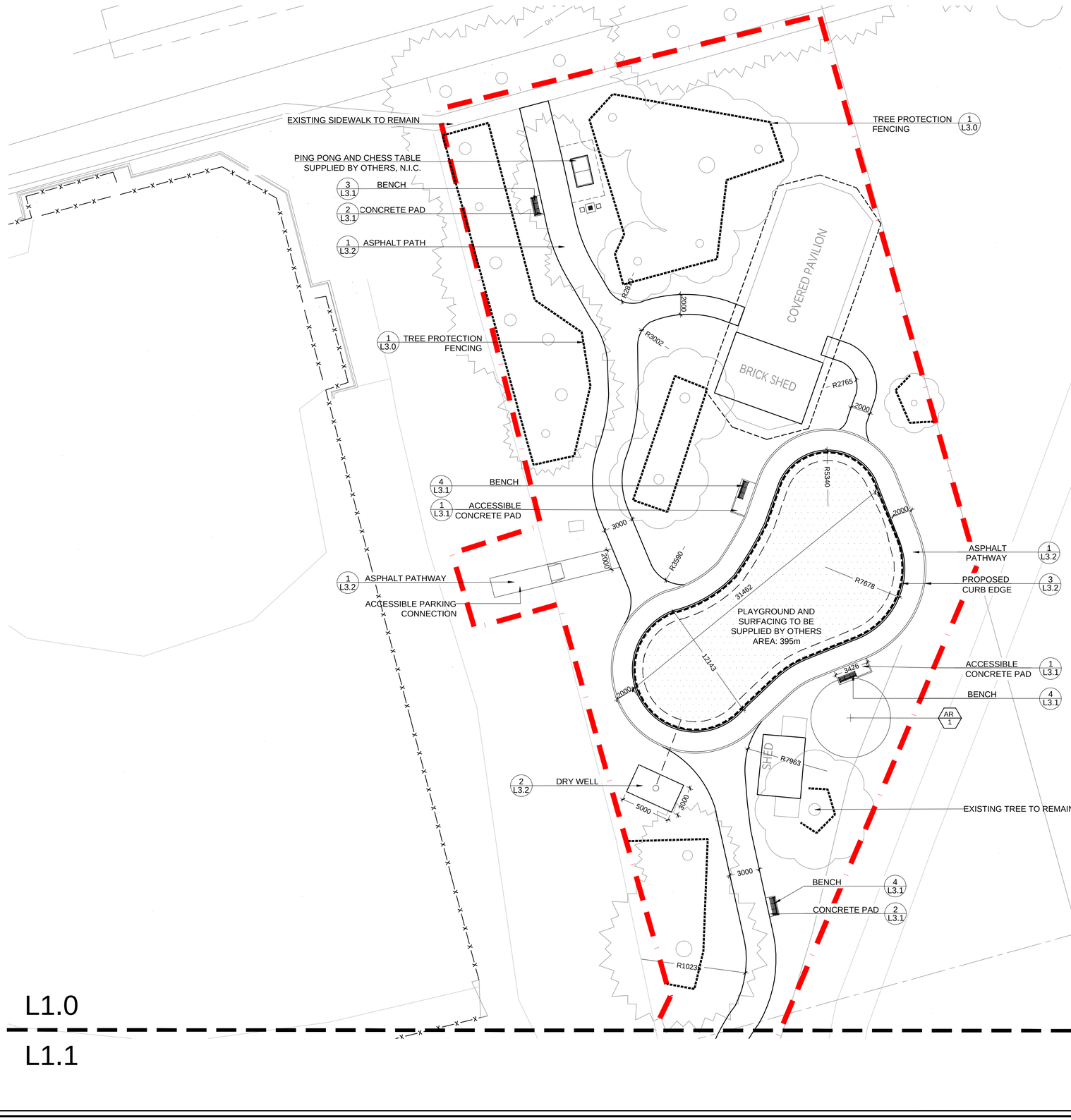
www.gspgroup.ca

Date: 18 JUNE 2024
Drawn By: OS
Scale: 1:400
Project No.: 15017.221

L0.0

PLANT SCHEDULE PLAYGROUND

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
DECIDUOUS TREES						
AR	1	Acer rubrum	Red Maple	60mm Cal.	W.B.	



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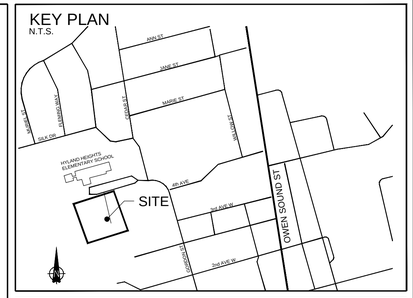
KEY PLAN
N.T.S.



Legend

- EXISTING TREES
- PROPOSED TREES
- TREE PROTECTION FENCING
- PLAY SURFACING, BY OTHERS
- BENCH
- SCOPE OF WORK
- PROPERTY LINE

GENERAL NOTES:

1. DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT
2. CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS PRIOR TO COMMENCEMENT OF THE WORK
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HARDSCAPE PLAN

NATASHA PATERSON PARK
340 GORDON ST, SHELBURNE, ON

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T 519 569 8883
F 519 569 8643

162 Locke Street South, Suite 200
Hamilton, Ontario L8P 4A9
T 905 572 7477

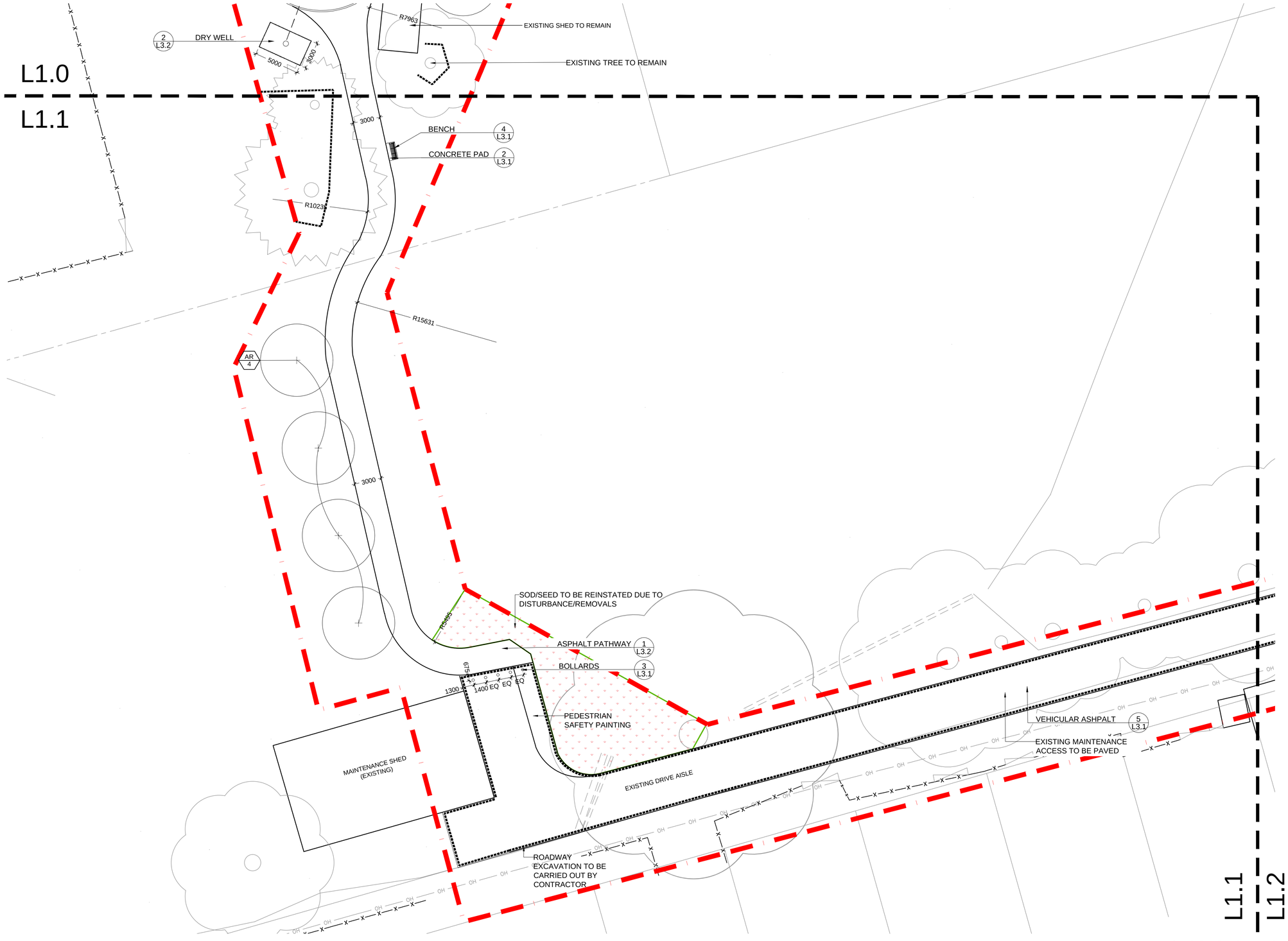
www.gspgroup.ca

Date: 18 JUNE 2024 | Drawn By: OS
Scale: 1:200 | Project No.: 15017.221

L1.0

PLANT SCHEDULE DRIVEWAY

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	REMARKS
DECIDUOUS TREES						
AR	4	Acer rubrum	Red Maple	60mm Cal.	W.B.	



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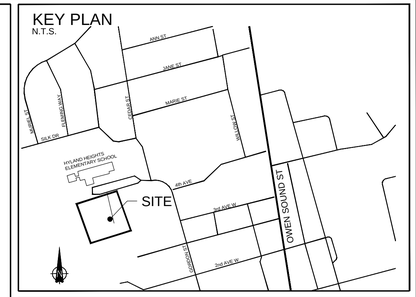

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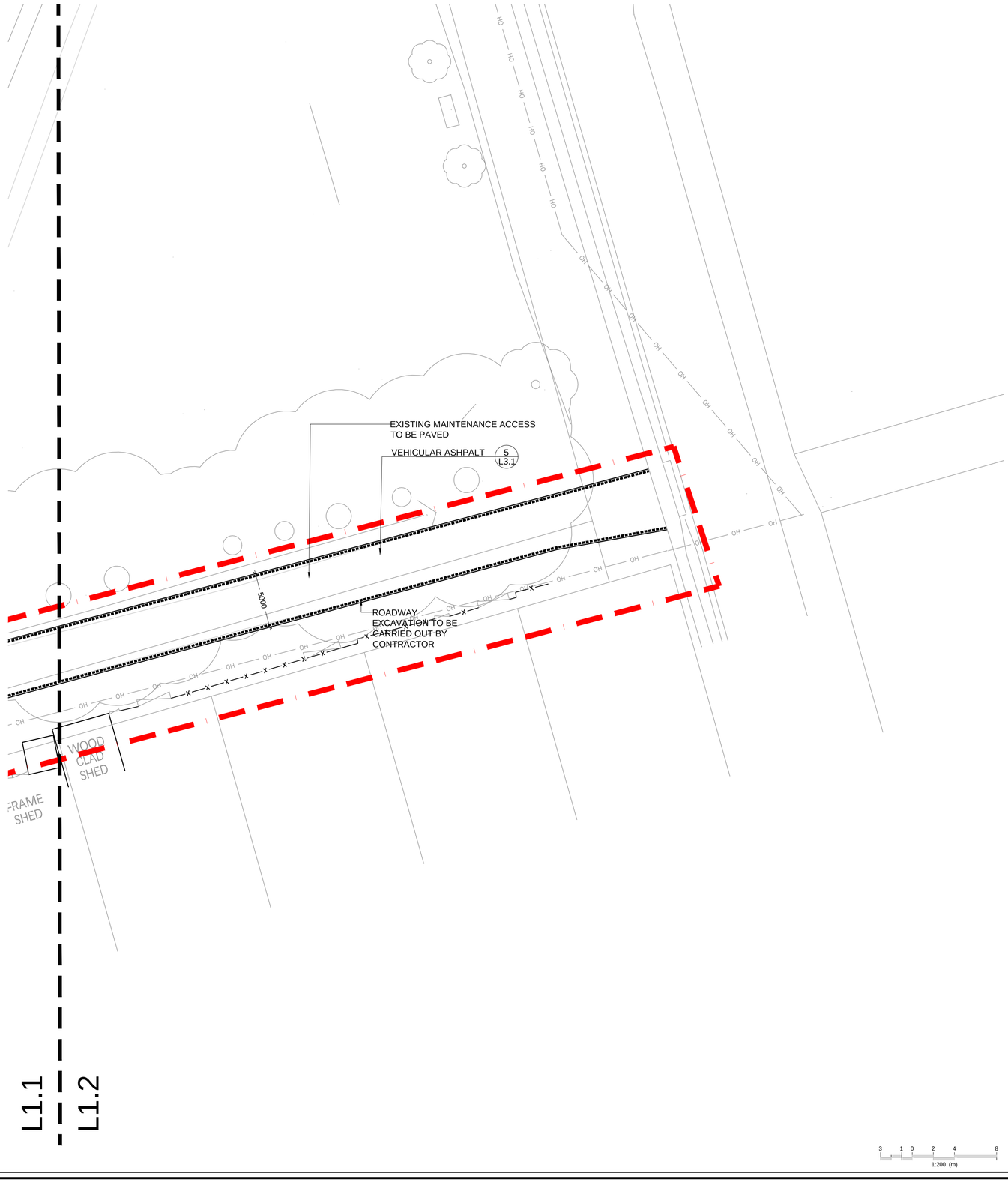

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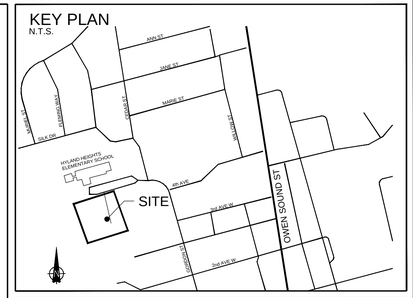

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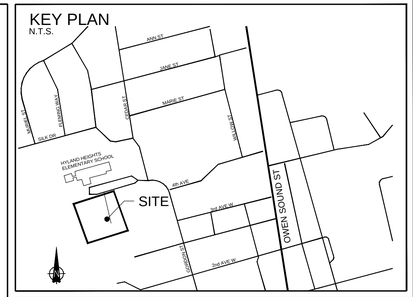
L1.2

KEY PLAN
N.T.S.



Legend

499.25 PG	PROPOSED GRADING
498.80 TD	TOP OF DRAIN
	PROPOSED CONTOUR

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GRADING PLAN

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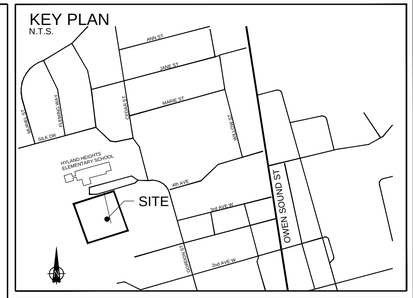
L2.0

KEY PLAN
N.T.S.



Legend

499.25 PG — PROPOSED GRADING

PROPOSED CONTOUR

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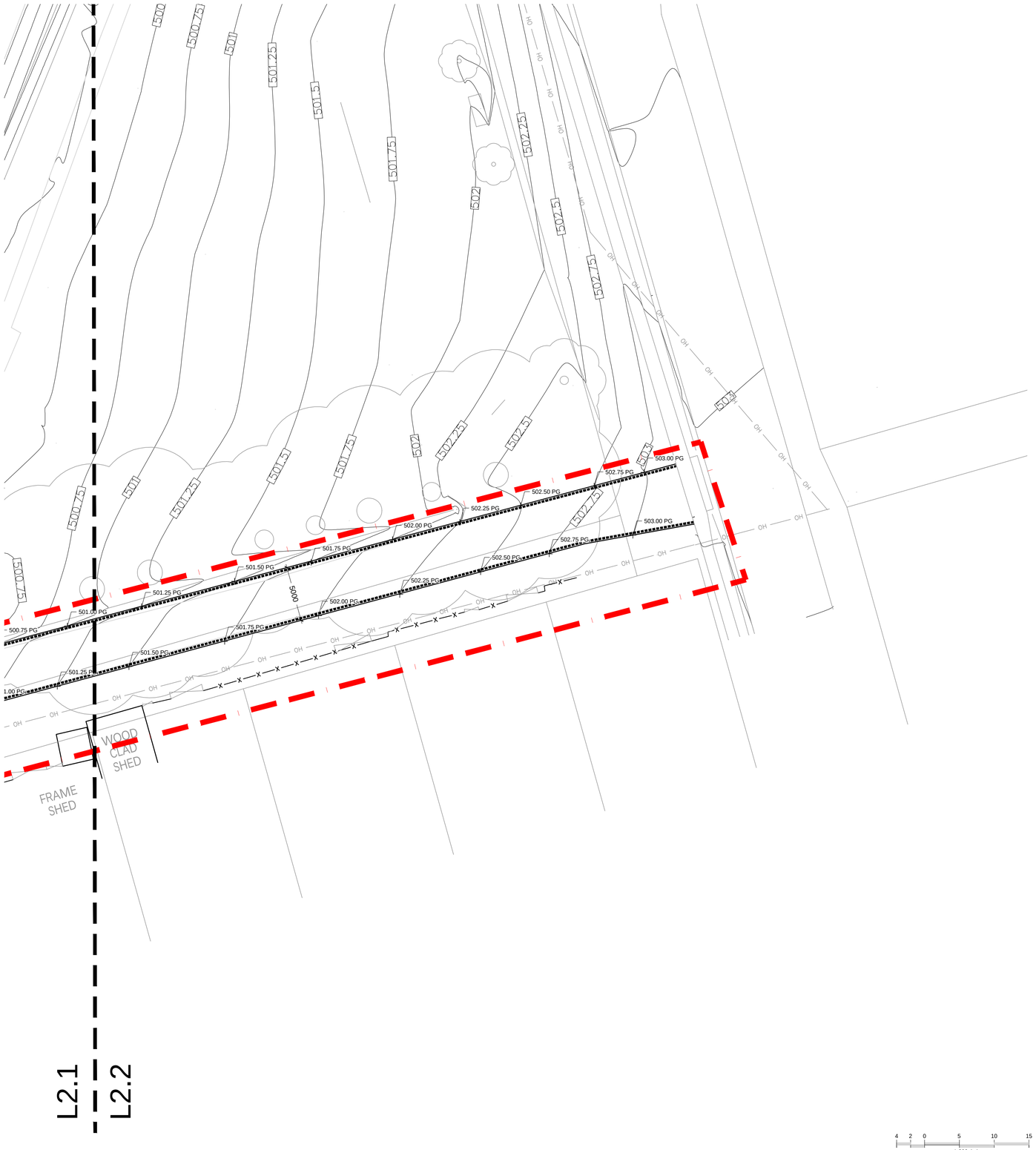

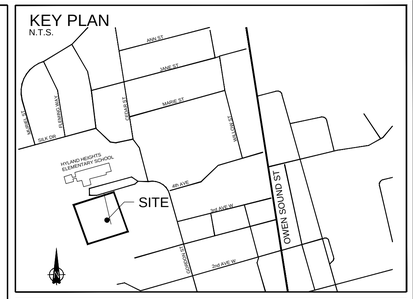

Legend

499.25 PG	PROPOSED GRADING
-------	PROPOSED CONTOUR

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L2.2

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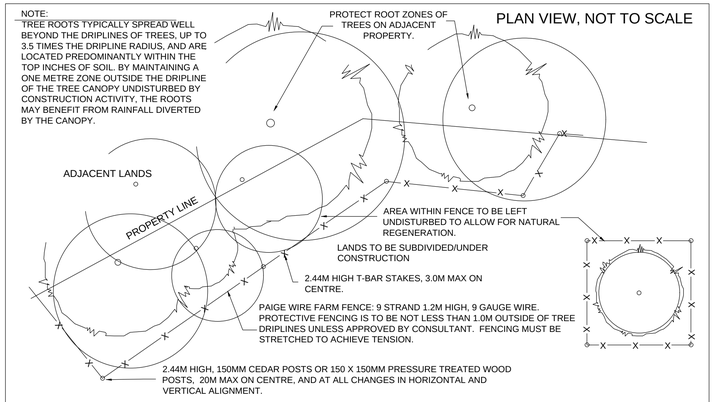
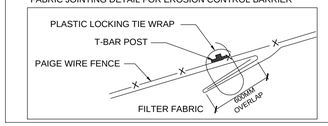
NOTE:
TREE ROOTS TYPICALLY SPREAD WELL BEYOND THE DRIPLINES OF TREES, UP TO 3.5 TIMES THE DRIPLINE RADIUS, AND ARE LOCATED PREDOMINANTLY WITHIN THE TOP INCHES OF SOIL. BY MAINTAINING A ONE METRE ZONE OUTSIDE THE DRIPLINE OF THE TREE CANOPY UNDISTURBED BY CONSTRUCTION ACTIVITY, THE ROOTS MAY BENEFIT FROM RAINFALL DIVERTED BY THE CANOPY.

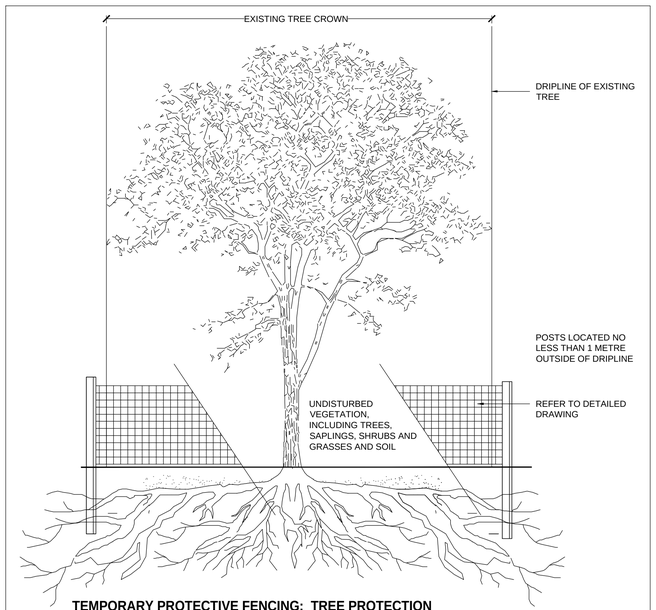
PLAN VIEW, NOT TO SCALE



FABRIC JOINTING DETAIL FOR EROSION CONTROL BARRIER



TEMPORARY PROTECTIVE FENCING: TREE PROTECTION

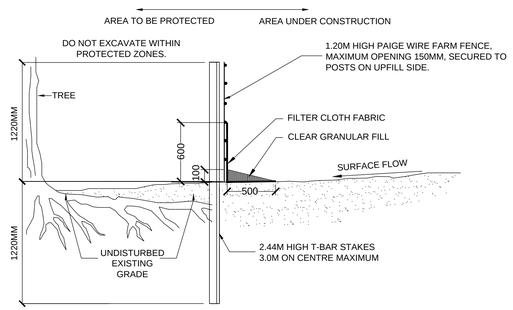


TEMPORARY PROTECTIVE FENCING: TREE PROTECTION

NOTE:
1. THE AREA WITHIN THE DRIPLINE OF ALL EXISTING TREES SHALL BE PROPERLY PROTECTED WITH TEMPORARY FENCING.
2. THE AREA WITHIN THE PROTECTIVE FENCING SHALL REMAIN UNDISTURBED AND SHALL NOT BE USED FOR THE STORAGE OF BUILDING MATERIALS OR EQUIPMENT ACCESS AND STORAGE OR PROJECT RELATED GARBAGE.
3. TREE PROTECTION MEASURES SHALL REMAIN UNTIL THE COMPLETION OF FINE GRADING AND SODDING OR SEEDING.

1 TREE PROTECTION FENCING

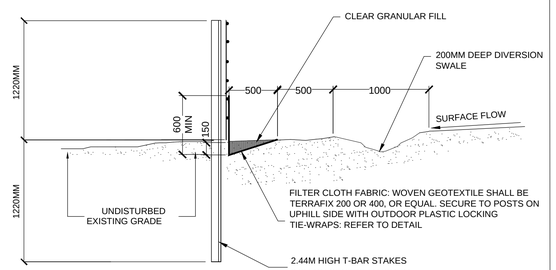
TREE ROOT ZONES
TEMPORARY PROTECTIVE FENCING AND EROSION CONTROL



NOTE:
1. SEDIMENT ACCUMULATIONS TO BE REMOVED BY SUBDIVIDER/BUILDER WHEN SEDIMENT DEPOSITS REACH TO WITHIN 150MM OF TOP OF FILTER FABRIC BARRIER.
2. FENCE TO BE INSPECTED ON A REGULAR BASIS AND MAINTAINED BY SUBDIVIDER/BUILDER IN PROPER CONDITION.

SECTIONAL ELEVATION N.T.S.

NON-TREE ROOT ZONES



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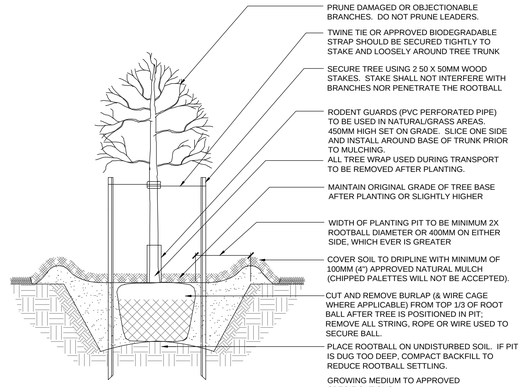
2. FENCE TO BE INSPECTED ON A REGULAR BASIS AND MAINTAINED BY SUBDIVIDER/BUILDER IN PROPER CONDITION.

SECTIONAL ELEVATION N.T.S.

TREE MANAGEMENT NOTES - GENERAL

1. NO SERVICING, GRADING OR OTHER CONSTRUCTION ACTIVITY IS TO BEGIN UNTIL THE INSTALLATION OF THE TREE PROTECTION FENCING AND ANY OTHER PROTECTION MEASURES HAVE BEEN CERTIFIED BY THE LANDSCAPE ARCHITECT/CLIENT. PROTECTION FENCING SHALL NOT BE ALTERED OR RELOCATED UNLESS AUTHORIZED IN WRITING BY THE LANDSCAPE ARCHITECT.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THEY ARE AWARE OF ALL MEASURES BEING TAKEN TO PROTECT ALL TREES IDENTIFIED.
3. ALL DAMAGE TO TREES WILL BE REPORTED TO THE CONSULTANT IMMEDIATELY BY THE CONTRACTOR'S FOREPERSON. .



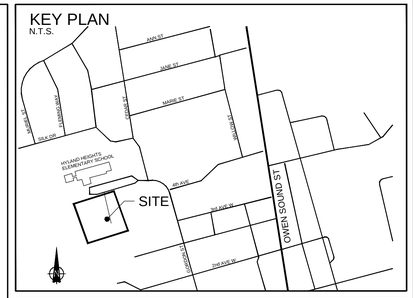
NOTES
1. GROWING MEDIUM MIX: 4 PARTS TOPSOIL, 1 PART COMPOST, 1 PART SHREDDED PEAT & APPLICATION OF HIGH PHOSPHOROUS FERTILIZER (0-20-0)
2. PLANT MATERIAL SHALL BE THOROUGHLY WATERED AT TIME OF PLANTING.
3. PLANT MATERIAL SHALL BE SET PLUMB IN THE MIDDLE OF THE PIT.
4. TREE SHALL BEAR SAME RELATION OR SLIGHTLY HIGHER TO FINISHED GRADE AS ORIGINALLY GROWN.
5. PLANT STOCK MOVED WHILE IN LEAF SHALL BE COVERED WHILE IN TRANSIT. ROOTS SHOULD BE KEPT MOIST UNTIL PLANTED. TREES IN LEAF TO BE TREATED WITH ANTI-DESICANT.
6. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
7. STAKING IS TO OCCUR ONLY AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.
8. 100MM HIGH SAUCER EXCEPT WHEN PLANTING IN BED.

2 DECIDUOUS TREE PLANTING B.B/W.B - UP TO 80mm CALIPER
N.T.S.

NOTES:
1. ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. BACKFILL WITH APPROVED GROWING MEDIUM
3. PLANTING PIT DEPTH WILL BE THE SAME DEPTH AS THE ROOT BALL AND 900 OR 1.5 TIMES THE WIDTH - WHICHEVER IS GREATER.
4. WIRE TWISTED AROUND TREE GUARD WILL BE TWISTED BACK TO TREE SIDE OF GUARD.
5. PLANT TREE 75 ABOVE EXISTING ADJACENT GRADE TO ACCOMMODATE FOR SETTLEMENT.
6. PROVIDE DRAINAGE FOR PLANTING PIT IN IMPERMEABLE SOIL.

3 Deciduous Tree Planting On A Slope
N.T.S.

KEY PLAN
N.T.S.



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DETAILS

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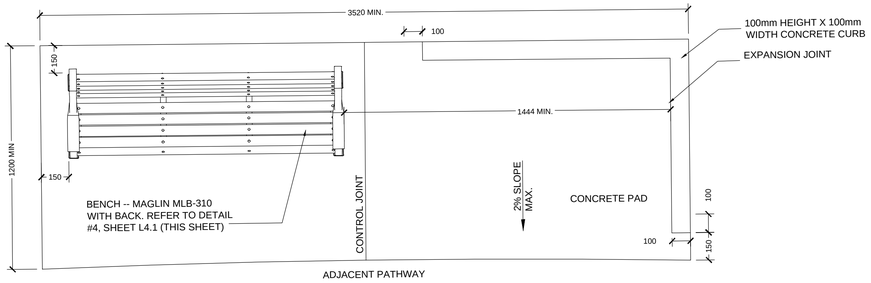
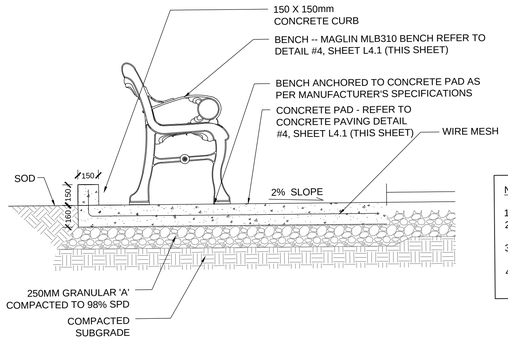
Date: JULY 11, 2024
Drawn By: OS
Scale: REFER TO DETAIL
Project No.: 15017.220.221

L3.0



BENCH PAD LAYOUT

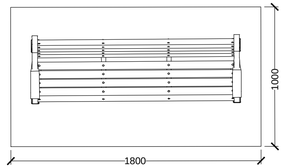


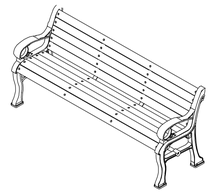
NOTES:

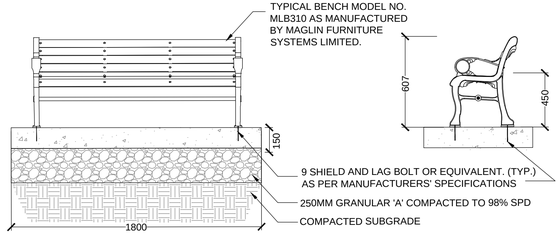
1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH BY-LAWS AND CODES HAVING JURISDICTION OVER SITE LOCATION.
3. ALL JOINTS AND EDGES TO BE HAND TOOLED USING EDGING TOOL WITH 6mm RADIUS
4. CONCRETE PAD TO HAVE POSITIVE DRAINAGE TO ELIMINATE SITTING WATER.

SIDE SECTION

1 ACCESSIBLE CONCRETE PAD WITH CURB (AND BENCH)
N.T.S.





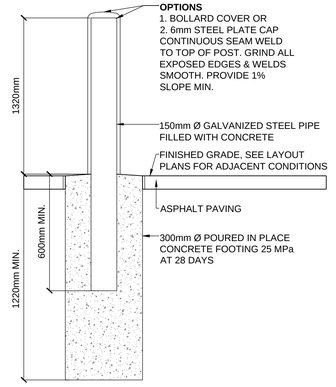


NOTES:

1. ALL DIMENSIONS ARE IN MM
2. ALL STEEL COMPONENTS ARE MAGLIN POWDER COATED AS PER MANUFACTURERS SPECIFICATIONS.
3. BENCH COLOUR TO BE BLACK FINETEX
4. THE BENCH IS DELIVERED PRE-ASSEMBLED. HOLES (8MM) ARE PROVIDED IN EACH FOOT FOR SECURING TO BASE. CONTRACTOR TO PROVIDE HARDWARE FOR INSTALLATION
5. REFER TO LANDSCAPE DRAWINGS FOR LAYOUT OF CONCRETE PAD

MLB510-515M

2 BENCH ON CONCRETE PAD - MAGLIN MLB310
N.T.S.



3 BOLLARD
N.T.S.

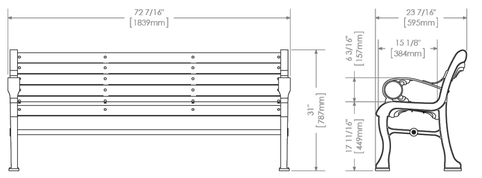
300 SERIES

MBE-0310-00030

Legacy # MLB310-RB

MATERIALS:	Bench ends and center arm are made from solid cast aluminum and seat & back employ HDPE (wood grain textured plastic) - Brown color.
FINISH:	All steel components are protected with E-Coat rust proofing. The Maglin Powdercoat System provides a durable finish on all metal surfaces.
INSTALLATION:	The bench is delivered pre-assembled. Holes (0.5") are provided in each foot for securing to base.
TO SPECIFY:	Select MBE-0310-00030 Choose: - Powdercoat Color

HEIGHT: 31.00 " (78.7cm) LENGTH: 72.44" (183.9cm) DEPTH: 23.44" (59.5Cm) WEIGHT: 149.27lbs (67.7kg)



MAGLIN™ Site Furniture

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F 877 260 9393
www.maglin.com
sales@maglin.com

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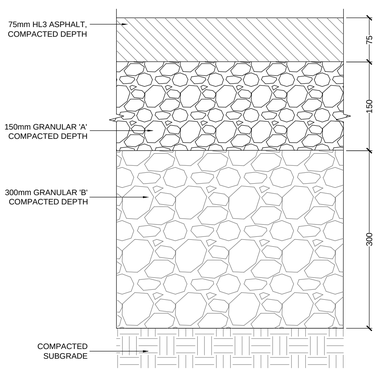
- Details and specifications may vary due to continuing improvements of our products.

QTY: 4

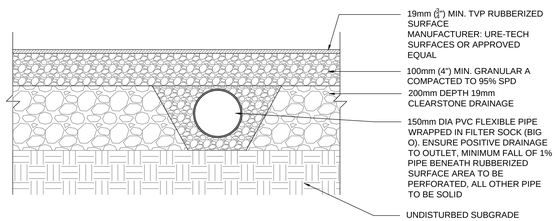
4 MAGLIN 310 BENCH
N.T.S.

NOTES:
1. DEPTH OF EXCAVATION AND GRANULAR BASE COURSE SHALL INCREASE AS REQUIRED DEPENDING ON LOCAL SOIL CONDITIONS.
2. CROSS SLOPES SUBJECT TO LANDSCAPE ARCHITECT'S APPROVAL PRIOR TO PAVING.



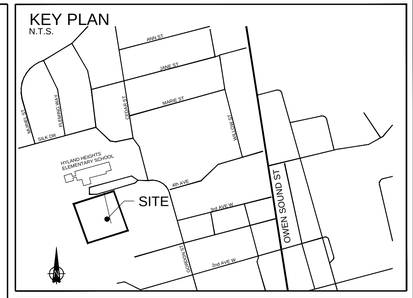
5 VEHICULAR ASPHALT PAVING
N.T.S.

NOT FOR CONSTRUCTION
FOR INFORMATION ONLY - FINAL PROFILE TO BE SUBMITTED BY CONTRACTOR AND APPROVED BY TOWNSHIP AND CONSULTANT AND SHALL BE IN CONFORMANCE WITH CSA FALL HEIGHT REQUIREMENTS



6 RUBBERIZED PLAYGROUND SURFACING
N.T.S.

KEY PLAN
N.T.S.



Legend

GENERAL NOTES:

1. DRAWINGS NOT TO BE USED FOR CONSTRUCTION UNLESS AUTHORIZED BY THE LANDSCAPE ARCHITECT
2. CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND SITE CONDITIONS PRIOR TO COMMENCEMENT OF THE WORK
3. ALL UTILITY LOCATES ARE THE RESPONSIBILITY OF THE CONTRACTOR. HAND DIG WITHIN THE LIMITS RECOMMENDED BY THE SERVICE UTILITY. UTILITY CONFLICTS WITH PROPOSED TREE LOCATIONS MUST BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT
4. BASE DRAWING PROVIDED BY TOWN OF SHELBURNE.
5. VEGETATION INVENTORY BY TOWN OF SHELBURNE.
6. FOR GRADING INFORMATION REFER TO DRAWING BY VAN HARTEN SURVEYING & GSP GROUP. FOR SERVICING INFORMATION REFER TO DRAWINGS BY TOWN OF SHELBURNE.
7. LANDSCAPE DRAWINGS SHOW ENGINEERING INFORMATION FOR DESIGN PURPOSES ONLY. DO NOT CONSTRUCT ENGINEERING WORKS FROM THESE DRAWINGS.

DETAILS

NATASHA PATERSON PARK
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ISSUED FOR BIDDING, NOT FOR CONSTRUCTION.

DATE	ISSUE	BY
24.08.13	Issued for Bidding	KS

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161 Locke Street South, Suite 200
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www.gspgroup.ca

Date: JULY 11, 2024 | Drawn By: OS
Scale: REFER TO DETAIL | Project No.: 15017.220.221

L3.1

NOTES:
1. DEPTH OF EXCAVATION AND GRANULAR BASE COURSE SHALL INCREASE AS REQUIRED DEPENDING ON LOCAL SOIL CONDITIONS.
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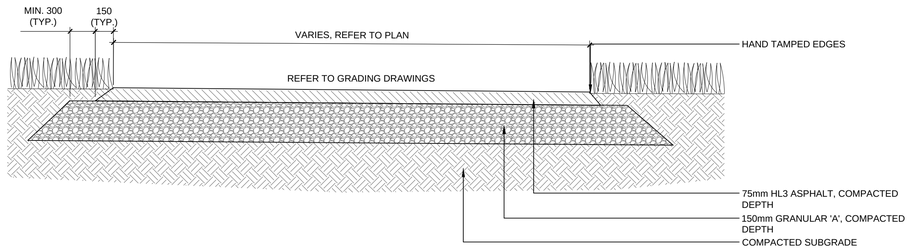
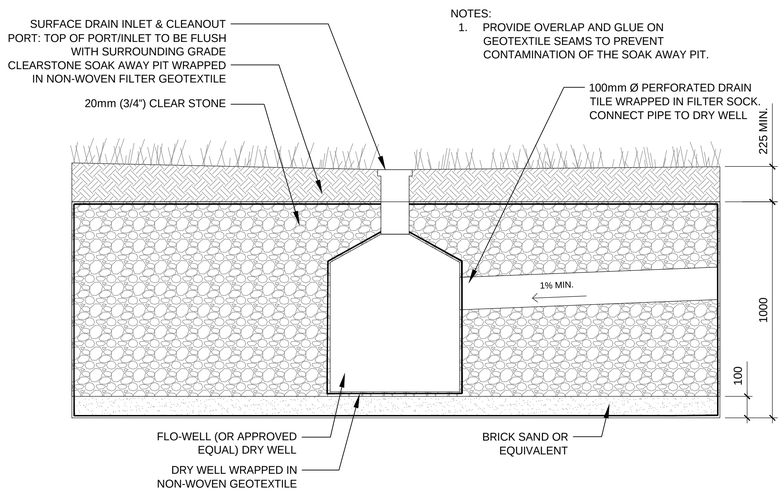
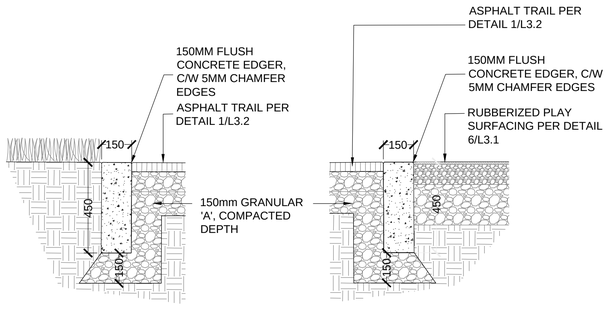


1 ASPHALT MULTI-USE TRAIL
N.T.S.

NOTES:
1. PROVIDE OVERLAP AND GLUE ON GEOTEXTILE SEAMS TO PREVENT CONTAMINATION OF THE SOAK AWAY PIT.

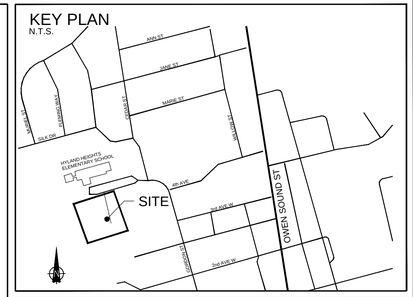


2 DRY WELL WITH CLEANOUT PORT
N.T.S.



3 FLUSH CONCRETE CURB
N.T.S.

KEY PLAN
N.T.S.



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L3.2