



## **ADDENDUM NO. 1**

Invitation to Tender: Tiny Homes Project Site Servicing Works, Garden River First Nation  
Date: July 3, 2024

The Addendum forms part of the above-named Invitation to Tender (ITT) and is to be read, interpreted, and coordinated with other parts. The following information supplements and/or supersedes the information contained in the ITT issued on June 17, 2024.

### **Questions Received from Bidders**

Question 1: Can we have a 1 week extension to the submission date (July 12th, 2024); to allow for fully proper pricing from sub-trades.

The [proposal submission date is hereby extended until July 12, 2024, at 12:00PM local time.](#)

[Proponents may submit questions until Friday, July 5, 2024, 5:00PM local time \(EST\).](#)

END OF ADDENDUM NO. 1



**INVITATION TO TENDER**

**for**

**GARDEN RIVER FIRST NATION**

**TINY HOMES PROJECT SITE SERVICING WORKS**

**DOCUMENT NO. 2024-102**

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<b>First Nation:</b>	Garden River First Nation
<b>Issued by:</b>	Garden River First Nation
<b>Date of Issue:</b>	June 17, 2024
<b>Submission Deadline and Location:</b>	July 5, 2024 at 3:00 PM (EST) Garden River First Nation Band Office 7 Shingwauk Street Garden River, ON P6A 6Z8 capital.projects@gardenriver.org



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PS1.3	WATER & SEWER OPS DETAILS
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## Introduction

### Purpose of Tender

This Tender Document invites all General Contractors to submit a bid to construct the site servicing works of the Tiny Homes Project located at 24 Belleau Lake Road, Garden River. Tiny Homes is a residential subdivision project comprised of 10 rental units with floor areas ranging from 512 to 608 sq. ft. Refer to Contract Drawing SP1 for the site layout.

If you are in a position to bid on this work, the completed Form of Tender and any required attachments and schedules must be submitted prior to the closing date and time stated at the Information for Tenderers. You are encouraged to make a full copy of the document for your file.

### Location and Background

The Garden River First Nation (GRFN) reserve occupies a 149 sq km parcel of land located immediately east of the City of Sault Ste. Marie extending along the north shore of St. Mary's River and connecting it to the Township of Macdonald, Meredith and Aberdeen Additional in the province of Ontario.

It is governed by a Council consisting of a Chief and eight (8) Councilors. Each Councilor is appointed to and is responsible for a portfolio(s). A General Council meeting is held monthly along with regular working meetings every week to oversee administrative matters. The Chief and Council is elected on a four-year term in accordance with the First Nations Election Act.

GRFN administers a variety of programs and services and employs approximately 200 people. Various department managers oversee their individual programs and overall administrative duties are overseen by a Chief Administrative Officer who is directly responsible to the Council who in turn, are responsible to the membership.

The principal office is the Administration Office centrally located in the community and surrounded by the Community Center, Health Center, Fire Hall, Public Works Garage, and the Anishinabek Police Services Headquarters.

Other community facilities located on-reserve are the Ojibway Tent and Trailer Park, Healing Lodge, Aggregates Division, Lands and Estates facility, Bingo Hall, Recreation and Education Facility, Baseball Field, and the Garden River Development Corporation Center. All facilities cater to the needs of the Band's membership.

For more information, you may visit the GRFN website at [www.gardenriver.org](http://www.gardenriver.org).



## Project Representative(s)

The Chief and Council shall utilize the Capital Projects Department to form a contract with the Contractor and oversee the progress of the project.

Any questions concerning the project should be addressed to the representatives below:

Andrew Mallette, P. Eng., GRFN Director of Capital Projects

Telephone: (705) 946 6300 Ext. 206

Phone: (705) 989 2139

E-mail: [amallette@gardenriver.org](mailto:amallette@gardenriver.org)

Justice Eva, B.Eng., GRFN Capital Projects Coordinator

Phone: (705) 989 2152

E-mail: [jeva@gardenriver.org](mailto:jeva@gardenriver.org)



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# 1 Information for Tenderers

## 1.1 Definition

The term "Owner" shall refer to the Garden River First Nation. Any roles, responsibilities, or actions specified as being those of the Owner shall be carried out through the duly appointed Project Representative(s) identified above.

The word "Contract" means the agreement to do the work entered into with the Owner, the general conditions, the specifications, the drawings, and other documents referred to or connected with the said contract.

The term "Tenderer", "Bidder", "Proponent", "Contractor", or "Applicator" are used interchangeably shall refer to the organization or representatives entering into contract to complete the scope of work for compensation outlined in the Tender submission.

## 1.2 Delivery and Opening of Tenders

Release of Tender Document:	June 17, 2024
Last day for Questions:	June 28, 2024 @ 3:00PM local time
Tender due:	July 5, 2024 @ 3:00PM local time
Award Contract:	Canadian Construction Documents Committee (CCDC) – 2 2020 Stipulated Price Contract
Commencement of Works:	To be indicated in Tender submission
Project Completion:	To be indicated in Tender submission

Tenders may be submitted through printed and/or electronic copies.

**Printed copies** must be sealed and delivered either by hand or through a courier to the address below.

Capital Projects  
Garden River First Nation  
7 Shingwauk Street  
Garden River, ON, P6A 6Z8

**Electronic copies** shall be submitted to [capital.projects@gardenriver.org](mailto:capital.projects@gardenriver.org) using the subject line: "*Tender Bid: 2024-102 – (Company Name)*" and in PDF format. If the submissions are large and will require multiple emails, please mark the subject line with "*1 of (total number of expected emails)*".

Tenders shall be and remain irrevocable unless withdrawn prior to the designated closing time. Late Tenders shall not be considered.

Owner reserves the right to reject any or all bids and the lowest tender will not necessarily be accepted.



All requests for clarification must be received in writing or through email prior to the specified due date above to allow the Owner to issue a written clarification to all respondents. Verbal responses are only binding when confirmed by written addenda.

If the Owner considers that correction, explanation, or interpretation is necessary, a written addendum will be issued. All addenda shall form part of the submission and the Contract Documents.

### 1.3 Informal Tenders

Only formal tenders will be accepted. Incomplete, altered, illegible, or with irregularities of any kind may be rejected as informal. Tenderers are required to fill in all blanks. Should any uncertainty arise as to the proper manner of doing so, instructions on proper procedure will, upon request, be given by the Owner.

Tenders must be legibly signed in ink by an authorized officer of the bidder's firm.

### 1.4 Tender Documents Checklist

Submitted tenders should be comprised of completed forms and attachments, signed, and sealed, as required herein, together with any addendum, if applicable.

1. Completed Form of Tender
2. Contract Security Form
3. Proof of Insurance (Workplace Safety and Insurance Board, Builder's Risk Insurance, and Commercial General Liability Insurance)
4. Statement Sheets 1 and 2 (Tenderer's Experience on Similar Projects and List of Subcontractors)

The Tenderer may be required to provide additional information to cover certain areas and prove its competence and capability.

### 1.5 Withdrawal or Qualifying of Tenders

The Tenderer may request that their submitted tender be withdrawn up until the official closing date specified to such contract. Withdrawal of unopened tenders is permitted provided such request is received by the Owner in writing prior to the time specified for the submission.

The withdrawal of a tender does not disqualify a bidder from submitting another tender for the same contract provided that all of the tender procedures are observed. However, unless the withdrawal procedures have been followed, more than one tender from the same bidder will result in the disqualification of the bidder.

### 1.6 Tender Left Open

The Tenderer shall keep his tender open for acceptance for sixty (60) days after the closing date. Withdrawal within this timeframe may potentially forfeit the opportunity to be awarded the project.

### 1.7 Examination of Site

Tenderers are advised to visit the site before tender submission, ensuring an accurate assessment of the site conditions that should be factored into the bid and construction phase. The Tenderer shall make his



own estimate of the facilities and difficulties that may be encountered and the nature of the sub-surface materials and conditions as well as expectations for weather based on recent history. Any misinterpretations of contract terms regarding site conditions will not be acknowledged once the tender is submitted.

## 1.8 Discrepancies

If a Tenderer finds discrepancies in, or omissions from, the Contract Documents, or if the Tenderer is in doubt as to their meaning, the Tenderer shall notify the Owner, who may issue a written addendum. Verbal interpretations of the meaning of the Contract Documents are strictly prohibited.

Addenda issued during the tendering period shall be allowed for by the Tenderer in submitting the tender.

## 1.9 Contract Security

Each tender must be accompanied by an Agreement to Bond from an approved surety company as guarantee that the Tenderer can obtain the required Contract Labour and Material Payment Bond and the required Contract Performance Bond.

The Contractor, together with a surety company authorized by law to carry on business in the Province of Ontario, shall furnish a Labour and Material Payment Bond for 50% of the Total Tender Price and a Performance Bond for 100% of the Total Tender Price. Such bonds shall be approved by and acceptable to the Owner and must be furnished when the contract is signed by the Contractor.

In the event that the Contractor cannot provide an Agreement to Bond, the Contractor may submit an Irrevocable and Unconditional Letter of Credit issued from their financial institution. This letter must authorize GRFN to draw on the Contractor's account without limitation, up to a maximum aggregate amount of 100% of the bid price. The draw amount may be reduced periodically as work is completed.

Alternative proposed contract security methods will be considered if applicable.

## 1.10 Proof of Insurance

The Contract is contingent upon proof of the following insurances. It shall be in force on the date of execution of the Contract and throughout the duration of the Contract.

These insurance coverages cannot be modified without written consent of the First Nation's Project Team. It is understood and agreed that the insurance coverage for this project shall not be changed or cancelled until 60 days after written notice of such change or cancellation has been personally delivered to the First Nation.

### 1.10.1 Workplace Safety and Insurance Board

The Contractor shall provide a proof of compliance to the Workplace Safety and Insurance Act of Ontario, including a Certificate of Good Standing issued prior to the execution of the contract, and a further certificate issued prior to the release of the Construction Lien Act Holdback.



### 1.10.2 Builder's Risk Insurance

The Contractor shall provide the Owner with a certificate of insurance demonstrating that Builder's Risk Insurance has been obtained for the full value of the project. The Builder's Risk Insurance policy shall name the Owner and the Contractor as insured parties and shall cover all risks of direct physical loss or damage to the project, including but not limited to fire, theft, vandalism, and natural disasters, until final completion and acceptance of the project by the Owner.

### 1.10.3 Commercial General Liability Insurance

The policy limit shall be no less than two million dollars (\$2,000,000) per occurrence. This general liability insurance shall provide coverage in respect of property damage and/or bodily injury (including death) arising out of any and all services and shall include a cross-liability endorsement.

## 1.11 Occupational Health and Safety Act

The Contractor acknowledges through the execution of this contract that they, as a "Contractor", shall ensure:

- i. the measures and procedures prescribed by the Act and the regulations are carried out on the project,
- ii. every employer and every worker performing work on the project complies with this Act and the regulations, and,
- iii. the health and safety of workers on the project is protected.

as stated and described in the Occupational Health and Safety Act.

## 1.12 Proof of Ability

The Tenderer shall be competent and capable of performing the various items of Work. The Tenderer shall complete the following statement sheets, which are bound herein, and submit with his Tender:

- i. Statement Sheet 1: Tenderer's Experience on Similar Work with a list of specific examples completed, with appropriate references
- ii. Statement Sheet 2: List of Subcontractors

The Tenderer may be required to furnish additional statements covering other matters, including financial resources.

## 1.13 General Conditions, Standard Specifications, and Drawings

- i. Compliance  
All work shall be carried out in accordance with the current Ontario Provincial Standard Specifications and Drawings.
- ii. Costs  
The total amount submitted in accordance with this Invitation to Tender will be used to assist in value judgments for a comparative analysis. The Tenderer understands and agrees that the



contract will be awarded as a lump sum and that the total contract price will not exceed the amount submitted in the tender. The Tenderer will bear all costs associated with the preparation and submission of their tender, in no case will the Owner or its employees be responsible or liable for any costs associated with its preparation.

iii. Indemnification

The Tenderer shall indemnify the Owner, its officers and employees against any damage caused to the Owner due to any negligence or unlawful acts of the successful proponent or its employees. Similarly, the successful proponent shall agree to indemnify the Owner, its officers and employees against any claims or costs initiated by third parties as a result of any negligence or wrongful acts of the successful proponent or its employees.

iv. Conflict of Interest

The Owner reserves the right to disqualify tenderers if there is an existing or recent business or personal relationship which can be perceived as causing a conflict of interest. Proposals shall contain a declaration of conflict of interest and describe how the Proponent is to deal with that conflict of interest, should there be a need.

#### 1.14 Contractor's Work Force

The Contractor shall provide and furnish all manner of labour, materials, apparatus, scaffolding, utensils, and cartage of every description necessary for the due performance of the work and render all due and sufficient facilities to the Owner for the proper inspection of the work. The Owner may require the Contractor to dismiss any workman or workmen who may be incompetent, uncivil, or abusive: the workmen and contractor only being admitted to the grounds for the purpose of proper execution of the work.

The Contractor is encouraged to employ local manpower and vendors as much as possible for the work under this contract.

#### 1.15 Schedule and Hours of Work

Hours of work will be a minimum of 8 hours per day, 5 days per week, Monday to Friday. Any additional expenses, including overtime, to meet this schedule and completion date will be the responsibility of the Contractor and is to be included in the Contractor's Tender Price.

#### 1.16 Tender Price

The tender price submitted shall be in full compensation for all labour, equipment, materials, utility, and transportation services necessary to perform and complete all scope of work, including miscellaneous work.

**GST and HST are NOT to be included.** Proof of Tax Exemption may be provided upon request.



The purpose of the Drawings and Specifications is to outline the final result of the project. Any essential elements not explicitly mentioned in the Tender Documents but required for completing the work will be deemed integral to the project.

### 1.17 Acceptance or Rejection of Tenders

Owner reserves the right to:

- i. Suspend or cancel the Invitation to Tender at any time for any reason without penalty.
- ii. Reject any or all tenders, not necessarily accept the lowest proposal, or to accept any which it may consider being in the best interest of the Owner. The Owner also reserves the right to waive formality, informality, or technicality in any tender.
- iii. If a number of submissions are substantially the same amount or score, the Owner may, at its discretion, call upon those Tenderers to submit further tender.
- iv. In the event the Contractor fails to perform any work in accordance with specifications or leaves work or the project unfinished, the Owner may enlist another, whom they deem fit, to complete the work. The Contractor is liable for the cost this incurs for the Owner, and the amount will be deducted from the price of the job or payment for the portion of work completed.

### 1.18 Bid Selection

The Contractor will be selected through a competitive process. Bids are requested at this time, followed by the evaluation, selection, and award of contract. The Owner reserves the right to cancel the activity or change the schedule at any time through an addendum.

Sealed tenders made on the enclosed Tender Form together with all other documents required by the Tender Documents shall be filed on or before the official closing date and time stipulated above.

The Project Representative shall be the Evaluation Team involved in the review and selection of the Contractor. However, the contract will be between the Contractor and the Owner.

### 1.19 Evaluation and Approval

All submissions received prior to closing will be evaluated according to the procedure outlined in this section. The Evaluation Team will evaluate all formal tenders using the criteria below, as applicable to the value-added methodology proposed by the Tenderer, with the highest scoring firm being recommended to for approval.

Item	Evaluation Criteria	Weight
1	Corporate Portfolio	10
2	Key Staff & Qualifications	10
3	References/Statement Sheets	10
4	Project Schedule	20
5	Fee Schedule	50
	<b>Total</b>	<b>100</b>



The Evaluation Team’s response will be evaluated using a rating scale of 0 to 10. The determined rate score will then be multiplied by the weighting factor shown. The weighted scores will be added to arrive at a total score for the technical requirements. The Evaluation Team will assign scores at their sole discretion.

<b>Rating</b>		<b>Explanation</b>
9-10	Excellent	Exceeds Requirements/Adds Value
7-8	Above Average	Exceeds Minimum Requirements
5-6	Average	Meets Minimum Requirements
3-4	Below Average	Fall short of Expectations; Lacking Innovation
1-2	Poor	Fails to Meet Minimum Requirements
0	Non-Responsive	Did Not Attempt to Address Requirement

The successful Tenderer shall be notified within a reasonable time after all submittals have been reviewed and shall be required to enter into a contract with the Owner.

### 1.20 Form of Agreement

The finalized agreement between Owner and the successful bidder will be formalized using a CCDC-2020 Stipulated Price Contract.

### 1.21 Statutory Declaration of Progress Payment Distribution by Contractor

Prior to the release of progress payments, the Contractor shall submit a completed CCDC 9A form or the Statutory Declaration of Progress Payment Distribution by Contractor.



## Form of Tender

### I. Tender Price

Submitted by:           Name           \_\_\_\_\_

                                  Address       \_\_\_\_\_

                                  Date           \_\_\_\_\_

Submitted To:           Garden River First Nation  
                                  7 Shingwauk Street  
                                  Garden River, ON, P6A 6Z8

I/We, the undersigned, having examined the site of the Work, having carefully investigated the conditions pertaining to the Work and having secured all the information necessary to enable us to submit a bona fide tender, and having inspected all the Contract Documents, including Addenda No. \_\_\_\_ to No. \_\_\_\_ hereby agree to enter into a lump sum contract, inclusive of all costs, fees, and expenses to be incurred according to the Schedule of Tender Prices, and to perform all the Work in a good and workmanlike manner in accordance with the Contract Documents to the satisfaction of Garden River First Nation,

for the lump sum price of \$ \_\_\_\_\_ (CAD).

### II. Declarations

This offer shall be open to acceptance and is irrevocable for sixty (60) calendar days from the Bid closing date and time.

If this Bid is accepted by the Owner, I/We will:

- i.     Execute the 'Agreement' within seven (7) days of receipt of the form of execution.
- ii.    Furnish the required Contract Security within seven (7) days of receipt of the Agreement.
- iii.   All work will be commenced by \_\_\_\_\_, 2024 and completed by \_\_\_\_\_, 2024.

In the event our Bid is not accepted, I/we will be notified of the result.

In submitting this Bid, I/we acknowledge the Owner's right to reject any and all Bids. If the Bid is accepted, the Owner reserves the right to negotiate terms post-tender.

### III. Contingencies

I/We agree that the tender price includes the contingency sum of \$50,000.00 and that no part of this sum shall be expended without the written direction of the Owner, and any part not so expended shall be deducted from the tender price.





#### IV. Quantities

The tender price is compiled from the Schedule of Tender Prices included hereinafter. While the quantities in the schedule are approximate, it is essential that we verify and ensure that the total tender price covers all aspects of the project.

#### V. Schedule of Tender Prices

Tenderers shall complete the Schedule of Tender Prices below upon reviewing the overall scope of work based on the Contract Drawings.

Unit Prices are inclusive of all labour, materials, products, equipment, services, overhead and disbursements, to complete each item.

If additional items need to be included, the Tenderer may add specific items along with quantity into the tender package.

<b>Section A – GENERAL CONDITIONS</b>		
Item No.	Description	Total Price
A01	Contract Security & Insurance	
A02	Mobilization/Demobilization	
A03	Temporary Utilities	
Sub-Total Section A – GENERAL CONDITIONS		\$

#### **SUPPLY AND INSTALL**

<b>Section B – WATER SYSTEM</b>		
Item No.	Description	Total Price
B01	Well Drilling and Installation	
B02	Construction of the Utilities Building	
B03	Water Treatment Equipment, including pumps, cisterns, water treatment, pressure tank, and all associated components between well and site distribution	
B04	Water Distribution System (pipings, fittings, and valves complete, connected to units)	
Sub-Total Section B – WATER SYSTEM		\$



<b>Section C – SEPTIC SYSTEM</b>		
Item No.	Description	Total Price
C01	Septic Leaching Bed (2)	
C02	Sanitary Dosing Chamber / Pump Station and Forcemains (2)	
C03	Gravity Sewers including all fittings and connections	
C04	Manholes including frames, covers, benching, etc. (3)	
C05	Septic Tanks (6)	
C06	Sanitary Services from buildings to septic tank (11)	
Sub-Total Section C – SEPTIC SYSTEM		\$

<b>Section D – ELECTRICAL</b>		
Item No.	Description	Total Price
D01	Primary Medium Voltage Conduits and Cables (install only – see drawings)	
D02	Transformers (coordinate with API on supply)	
D03	Low Voltage Conduits and Cables	
D04	Concrete Duct Banks under roadways	
D05	Roadway Lighting, including Bases, Masts, Fixtures and Conduits/Cables	
D06	Utility Building Electrical Work Complete	
Sub-Total Section D – ELECTRICAL		\$

<b>Section E – GRADING &amp; ROADWORKS (Phase 1 and 2)</b>		
Item No.	Description	Total Price
E01	Clearing and grubbing at east property line	
E02	Road Construction	
E03	General Site Grading	
E04	Topsoil and Seed	
Sub-Total Section E – GRADING & ROADWORKS		\$

<b>Section F – PROVISIONAL ITEMS</b>		
Item No.	Description	Total Price
G02	Paved Roadway and Driveway in all 10 units	
G04	Contingency Allowance	50,000
Sub-Total Section G – PROVISIONAL ITEMS		\$



Sub-Total Section A – GENERAL CONDITIONS	
Sub-Total Section B – WATER SYSTEM	
Sub-Total Section C – SEPTIC SYSTEM	
Sub-Total Section D – ELECTRICAL	
Sub-Total Section E – GRADING & ROADWORKS (Phase 1 and 2)	
Sub-Total Section F – PROVISIONAL ITEMS	
<b>TOTAL TENDER PRICE</b>	<b>\$</b>

## VI. Provisional Items

We agree that the Schedule of Tender Items contains Provisional Items, which includes unit prices and estimated quantities for Provisional Items that may or may not be used during the construction of the project. The Tenderer agrees that he is not entitled to payment for Provisional Items except for work carried out by him in accordance with the Contract and only to the extent of such additional work, as authorized by the Owner in writing. The total price for the Provisional Items is included in the Total Tender Price.

*(Signature Page Follows)*



VII. Signatures:

Signed, sealed, and witnessed:

\_\_\_\_\_  
SIGNATURE

\_\_\_\_\_  
SIGNATURE

CONTRACTOR'S SEAL

\_\_\_\_\_  
COMPANY NAME

\_\_\_\_\_  
ADDRESS

\_\_\_\_\_  
WITNESS SIGNATURE

\_\_\_\_\_  
DATE



## STATEMENT SHEET 1: TENDERER'S EXPERIENCE ON SIMILAR PROJECTS

Similar projects where Tenderer acted as Prime or Subcontractor.

PROJECT	DATE	VALUE	PRIME OR SUBCONTRACTOR
_____	_____	_____	_____

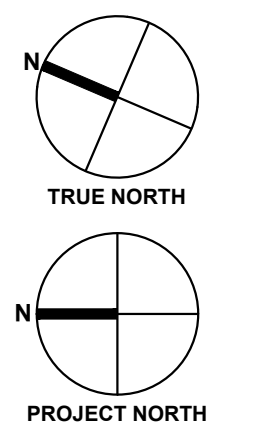
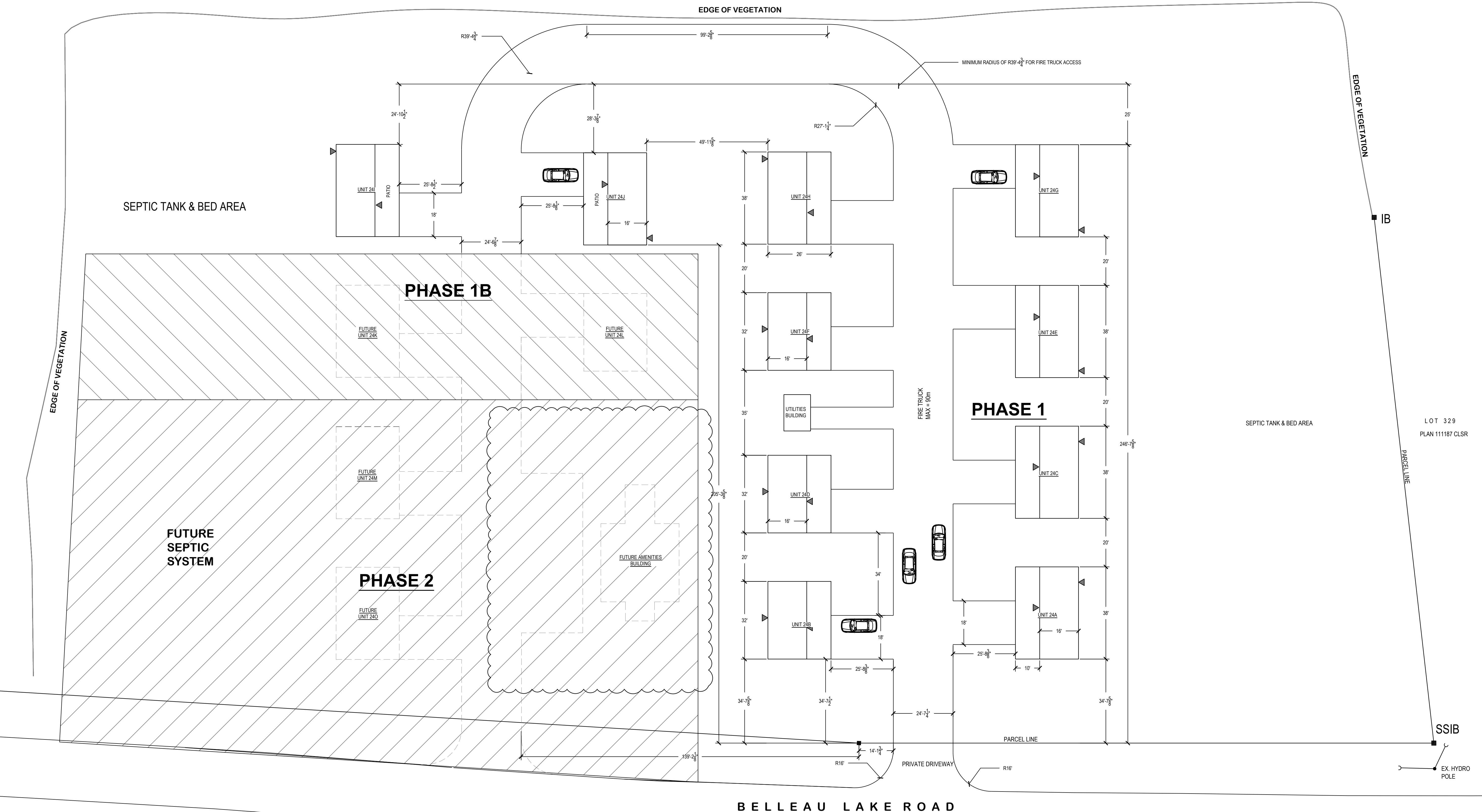


## STATEMENT SHEET 2: LIST OF SUBCONTRACTORS

The Tenderer shall list, on this sheet, the name of each proposed subcontractor. A list of possible subtrades is listed below. The Tenderer shall make an entry against each possible sub-trade listed by naming the proposed subcontractor or by entering “by own forces”, whichever applies. If the Tenderer proposes to sublet a part of the work which is not listed below, he shall add the sub-trade and the proposed subcontractor’s name to the list.

TRADE	SUBCONTRACTOR	VALUE
	(include address & contact no.)	

- GENERAL NOTES**
- SITE PLAN MUST BE READ IN CONJUNCTION WITH THE SURVEY COMPLETED AUGUST 14, 2023 BY MONUMENT URSO SURVEYING LTD. REFERENCE R-7675. THE PLAN IS BASED UPON THE TOPOGRAPHIC SURVEY. AS SUCH, ACCURACY OF BENCHMARKS AND IB REFERENCES ARE NOT RDL ENGINEERING SERVICES LTD'S RESPONSIBILITY.
  - LAYOUT OF ROADWAY, SETBACKS FROM PROPERTY LINES AND CLEARANCES BETWEEN HOUSING UNITS REFERENCES GARDEN RIVER FIRST NATION'S 2015 ZONING LAW.
  - THE POSITION OF HYDRO POLES, OTHER UTILITIES AND CLEARED LAND IS NOT NECESSARILY SHOWN ACCURATELY ON THE DRAWING. CONTRACTOR SHALL EXAMINE THE SITE AND OBTAIN UTILITY LOCATES PRIOR TO COMMENCEMENT OF ANY WORK.
  - DIMENSIONS AND MEASUREMENTS: METRIC VALUES INDICATED SHALL BE USED, IMPERIAL VALUES ARE PROVIDED FOR CONVENIENCE.
  - MODELS OF HOMES MAY BE CHANGED AT THE OWNER'S DISCRETION. SUCH CHANGES MUST BE DOCUMENTED SO THAT DRIVEWAY AND ROAD ALTERATIONS CAN BE IMPLEMENTED.
  - GRADING OF SITE IS NOT REFERENCED ON THIS DRAWING. REFER TO DRAWINGS AND INFORMATION PROVIDED BY GARDEN RIVER FIRST NATION.
  - CONSULT LOCAL FIRE DEPARTMENT TO GAIN APPROVAL FOR FIRE TRUCK ACCESS ROUTE.

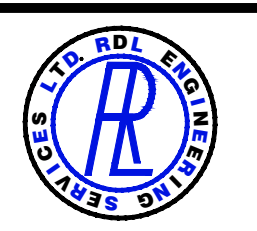


Description	No.	Date
Future phase changes	1	2024.05.28
For questions	9	2024.03.13
For review	C	2024.03.13
Adjustments per client's request	B	2024.03.07
For comment	A	2024.03.05



DO NOT SCALE DRAWING  
THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON THE DRAWINGS AND IMMEDIATELY REPORT ANY DISCREPANCIES TO THE CONSULTANT BEFORE PROCEEDING WITH THE WORK

DRAWINGS, SPECIFICATIONS AND RELATED DOCUMENTS ARE THE PROPERTY OF RDL ENGINEERING SERVICES LTD. AND MUST BE RETURNED AT THE COMPLETION OF THE WORK. DO NOT REPRODUCE DOCUMENTS IN ANY FORM, WITHOUT THE CONSENT OF RDL ENGINEERING SERVICES LTD.



RDL Engineering Services Ltd.  
132 Glendale Dr, Tillsonburg, ON N4G 5V9  
roy@rdleng.com (548) 998-5553

Project  
HOMES FOR YOUTH DEVELOPMENT

Client  
GARDEN RIVER FIRST NATION

24 Belleau Lake Rd Garden River, ON

Drawing Title  
SITE PLAN & DETAILS

Date	Scale	Draw No.
2023.07.28	1/20"=1'-0"	SP1
Designer	Project No.	
RL	2317	

**GENERAL NOTES:**

- ALL WORK SHALL BE IN ACCORDANCE WITH THE DRAWINGS, THE ONTARIO BUILDING CODE, GARDEN RIVER FIRST NATION STANDARDS AND INDIGENOUS AND NORTHERN AFFAIRS CANADA.
- ALL EQUIPMENT AND MATERIALS SHALL BE NEW, AND APPROVED FOR INSTALLATION IN ONTARIO AND IN GARDEN RIVER.
- PROVIDE PRIOR TO COMMENCEMENT OF WORK, CGL INSURANCE CERTIFICATE VALUED AT \$5,000,000, WITH GARDEN RIVER FIRST NATION NAMED AS THE HOLDER. IN ADDITION, PROVIDE WSIB CLEARANCE CERTIFICATES FOR THE DURATION OF THE CONSTRUCTION WORK.
- GUARANTEE AND WARRANTY WORK FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION HAS BEEN GRANTED.
- DRAWINGS ARE TO BE CONSIDERED DIAGRAMMATIC IN NATURE. VISIT THE SITE TO FAMILIARIZE YOURSELF WITH THE PROJECT AND PRESENT STATE OF THE SITE WORK.
- SUBMIT SHOP DRAWINGS TO THE CONSULTANT IN PORTABLE DRAWING FORMAT (PDF) FOR APPROVAL BEFORE ORDERING EQUIPMENT. SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION TO THE CONSULTANT. ANY PROPOSED SUBSTITUTIONS MUST BE APPROVED PRIOR TO THE SUBMISSION OF SHOP DRAWINGS.
- AT THE CONCLUSION OF THE PROJECT, PROVIDE A MARKED UP SET OF AS-BUILT DRAWINGS ALONG WITH 4 COPIES OF SHOP DRAWINGS AND MAINTENANCE MANUALS FOR THE INSTALLED EQUIPMENT AND MATERIALS.
- SITE GRADE VALUES SHOWN ON DRAWINGS ARE FOR REFERENCE PURPOSES ONLY. REFER TO DRAWINGS PROVIDED BY THE CLIENT. ADJUST INVERT ELEVATIONS AND CONCRETE TANKS, MANHOLE FINISH ELEVATIONS AS REQUIRED TO SUIT UP-TO-DATE SITE GRADING PLANS.
- CLEARLY IDENTIFY PIPING IN THE UTILITY BUILDING AS TO ITS USE USING PERMANENT LABELS. THE DIRECTION OF FLOW AND SERVICE SHALL BE INDICATED. UPON COMPLETION OF THE INSTALLATION, INSTALL AN 11" X 17" FRAMED DIAGRAM OF THE WATER SERVICE SYSTEM ON THE WALL ABOVE THE WATER TREATMENT EQUIPMENT. DIAGRAM SHALL INCLUDE ANY CHANGES TO THE ORIGINAL DESIGN AND BE "AS-BUILT".
- 12 GA. COPPER TRACER WIRE WITH HMWPE JACKET SHALL BE BURIED WITH ALL DISTRIBUTION PIPING AND SEPTIC SYSTEM PIPE. WATER PIPING TRACER WIRE SHALL BE BLUE, WHILE SEWAGE PIPING SHALL BE GREEN. WIRES SHALL BE BROUGHT TO THE SURFACE AT EVERY 3RD CURB STOP USING "BOA" ACCESS POINTS. GROUNDING ANODE SHALL BE INSTALLED FOR EACH SYSTEM. IDENTIFY ON AS-BUILT DRAWINGS ALL TERMINATION POINTS.
- IDENTIFICATION TAPE SHALL BE PLACED IN ALL TRENCHES. POTABLE WATER PIPING TAPE SHALL BE BLUE WHILE SANITARY SEWER PIPE TAPE SHALL BE GREEN.
- WATER DISTRIBUTION PIPE SHALL BE EITHER IPEX BLUE/90 CROSS-LINKED POLYETHYLENE (PEX) PIPE, 180 PSI @ 73°F, WITH COMPRESSIONS FITTINGS OR IPEX GOLD/901 OR EQUAL CTS 250 PSI RATED PIPE, WITH HEAT FUSED FITTINGS.
- CURB STOPS SHALL BE CAMBRIDGE BRASS COMPRESSION X COMPRESSION MODEL NO. 202N1, SUITABLE FOR COPPER OR CTS PLASTIC TUBING WITH TELESCOPING CURB BOX AND S.S. ROD AND PENTAGON LID.
- WATER PIPING INSIDE THE UTILITY BUILDING SHALL BE TYPE "L" COPPER. TRANSITION TO HDPE PIPE WHEN REQUIRED.
- SEWER PIPE SHALL BE SDR 28 PVC. PERFORATED DRAIN PIPE FOR LEACHING BED SHALL BE AS NOTED ON THE DRAWINGS.
- WATERMAIN PIPING SHALL BE HYDROSTATICALLY TESTED AT 125 PSI FOR 2 HOURS. PRESSURE MUST HOLD FOR TEST PERIOD WITHOUT ADDING WATER. CONSULTANT, THEIR DESIGNATE OR THE PROJECT'S SITE SUPERINTENDENT MUST BE PRESENT DURING TESTING. PROVIDE TO THE CONSULTANT A WRITTEN CERTIFICATE SHOWING DATES, TEST PROCEDURE AND RESULTS IMMEDIATELY AFTER THE TESTING IS COMPLETE.
- INSTALL UNIONS DOWNSTREAM OF VALVES AT EQUIPMENT OR APPARATUS CONNECTIONS. PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINING DISSIMILAR METALS.
- INSTALL LEAD FREE FULL BORE 150 BALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED FOR VALVES WITHIN THE UTILITY BUILDING. DRAIN VALVES FOR EQUIPMENT SHALL BE CAPPED WITH THREADED CAPS HELD WITH CHAIN.

- INSULATE WATER PIPING IN THE UTILITY BUILDING WITH 1" THICK PREFORMED FIBERGLASS PIPE INSULATION TO PREVENT CONDENSATION FROM FORMING. INSULATION SHALL BE MANSON "ALLEY-K" WITH ASJ JACKET OR EQUIVALENT. COVER THE INSULATED PIPES, VALVES AND FITTINGS WITH ULC LISTED CANVAS JACKETING AND COMPATIBLE ADHESIVE.
- ADJUST PRECHARGED PRESSURE TANKS TO 2 PSI LOWER THAN SYSTEM PUMPS' CUT IN PRESSURE.
- CLEAN AND DISINFECT POTABLE WATER PIPING UPON COMPLETION OF THE INSTALLATION TO THE REQUIREMENTS OF THE GARDEN RIVER FIRST NATION AND THE OBC. TESTING SHALL BE BY WITNESSED BY CONSULTANT. PROVIDE A TEST CERTIFICATE TO THE CONSULTANT AT THE COMPLETION, ALONG WITH LAB TEST RESULTS OF THE SUITABILITY OF THE WATER FOR DRINKING.
- SEWERS CROSSING ABOVE WATERMANS MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 20'.
- SEWERS CROSSING BELOW WATERMANS MUST HAVE A VERTICAL CLEARANCE OF AT LEAST 6'.
- WATERMANS AND SEWERS MUST BE SEPARATED HORIZONTALLY BY AT LEAST 8'-3".
- THE MINIMUM COVER OVER WATER DISTRIBUTION PIPES SHALL BE 7". SEWER PIPES SHALL BE BURIED NO LESS THAN 6' BELOW GRADE, UNLESS OTHERWISE NOTED.
- 2" THICK RIGID EPS INSULATION SHALL BE PLACED ABOVE ALL WATER PIPES THAT CROSS BENEATH ROADWAY OR DRIVEWAYS (SEE DETAIL).
- LAYERS OF 2" THICK EPS INSULATION CAN BE USED TO REDUCE BURIAL DEPTH WHEN APPROVED BY ENGINEER.
- PROVIDE AND INSTALL PRECAST CONCRETE MANHOLES, CISTERNS AND SEPTIC TANKS C/W LIDS AS SHOWN. MANHOLES SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND OSPO. INSTALL ALL TANKS, CISTERN, PUMPING CHAMBERS AND MANHOLES ON 4" COMPACTED LAYERS OF CRUSHED STONE OR GRAVEL.
- PRECAST MANHOLES USED AS PUMP CHAMBERS MUST HAVE OPENINGS FOR PIPES AND ELECTRICAL CONDUITS MADE USING CORE DRILLS. SEAL GAP BETWEEN PIPES AND OPENINGS WITH LINK SEAL. PUMP CHAMBERS REQUIRE A BASE SLAB OR MONO BASE, 240mmx40 X 1830mm HIGH ROUND MANHOLE SECTION, TRANSITION SLAB TO REDUCE TO 1200mmx40, RISER SECTION OF HEIGHT TO GRADE LEVEL AND BOLTED / GASKETED COVER.
- ALL SEPTIC TANKS SHALL BE A MINIMUM OF 3600L. PRECAST CONCRETE AS MANUFACTURED BY WILKINSON HEAVY PRECAST. EACH TANK SHALL BE FITTED WITH A ZOELLER WW1 EFFLUENT FILTER C/W FILTER, HOUSING AND 4" TEE.
- PROVIDE AND INSTALL PUMPS, CONTROLLER, DIAPHRAGM TANKS, WATER TREATMENT EQUIPMENT AND NOTED ACCESSORIES. ALTERNATIVE MANUFACTURERS MAY BE ACCEPTABLE IF THE PERFORMANCE, QUALITY AND WARRANTY MEETS OR EXCEEDS THE SPECIFIED EQUIPMENT.
- NEW DRILLED WELL SHALL BE PROVIDED IN THE APPROXIMATE LOCATION SHOWN ON DRAWING. WELLS MUST FOLLOW WELLS REGULATION 903 MADE UNDER THE ONTARIO WATER RESOURCES ACT. WELL YIELD SHALL BE >10 GPM.

**EQUIPMENT SCHEDULE**

CP1	S/E RHOMBUS 115-1-W-2-0-0-180-17A-18U SINGLE PHASE PUMP CONTROLLER, WITH NEMA 4X ENCLOSURE, HOA SWITCH, PUMP RUN INDICATOR LIGHT, RED LED BEACON ALARM LIGHT, ALARM HORN, 3 MECHANICAL FLOATS, 47 CORDS FOR FLOATS
CP2	S/E RHOMBUS IP-3-1-W-1-1-4-C-8AC-3E-4A-4D-10E-24P SINGLE PHASE DUPLEX TINED DOSE CONTROLLER, WITH NEMA 4X LOCKABLE ENCLOSURE, ALARM PACKAGE, 120/208/240V, 7-15 FLA, CIRCUIT BREAKERS, C-LEVEL SENSOR, HIGH WATER ALARM FLOAT, DISPLAY BOARD, C-LEVEL SENSOR WITH 10' VENTED CABLE.
EP1	GOULDS PUMPS ORDER # WS07128HF SEWER WATER PUMP, 26 GPM @ 40 FT HEAD, 0.75 HP, 10A, 240VAC 1 PH
FP1	DAB ESBYBOX DIVER MULTISTAGE INVERTER SUBMERSIBLE PUMP, 12 GPM @ 80 PSI (180 FT HEAD), 1.3 HP, 240V @ 5 AMPS
WP1	GOULD MODEL 7GS05R 7-STAGE SUBMERSIBLE PUMP, 10 GPM @ 120 FT HEAD, 0.5 HP, 240V @ 2 AMPS
CL1	RAINFRESH MODEL PDS-45MHP104M2-0.75-PCM5 PROPORTIONAL DOSING CHLORINATION SYSTEM WITH 15 GALLON STORAGE TANK
F1	RAINFRESH MODEL ESS3 STAINLESS STEEL FILTER CANNISTER WITH 20" LONG 5 MICRON FILTER CARTRIDGE
F2	RAINFRESH MODEL ESS3 STAINLESS STEEL FILTER CANNISTER WITH FOUR 10" LONG 5 MICRON FILTER CARTRIDGES
UV1	TROJAN UVMAX PRO30 UV DISINFECTION SYSTEM C/W SOLENOID VALVE KIT (P/N 650627), COMM-CENTRE USER INTERFACE MODULE (P/N 65023-001) AND PRO SERIES DISPLAY BOARD (P/N04034)
WP1	WELL-X-TROL WX-302 86 GALLON DIAPHRAGM TANK W 23 USG DRAW DOWN PRECHARGED TO ACCEPT 40 TO 60 PSI OPERATION
PT2	WELL-X-TROL WX-202H 20 GALLON HORIZONTAL DIAPHRAGM TANK WITH 6.2 GAL. DRAW DOWN PRECHARGED TO ACCEPT 40 TO 60 PSI OPERATION

**NOTE:**  
1. EQUIPMENT SELECTIONS FOR POTABLE WATER TREATMENT AND WP1 MUST BE RE-EVALUATED AND POSSIBLY CHANGED AFTER THE NEW WELL IS DRILLED AND THE WELL WATER TESTED. THE CURRENT SELECTIONS SHALL BE USED TO ESTABLISH A BASE COST FOR THE WORK. REQUIRED CHANGES WILL BE MADE BY CHANGE ORDER AND THE CONTRACT COMPENSATED ACCORDINGLY.

**DRAWING SYMBOL LEGEND**

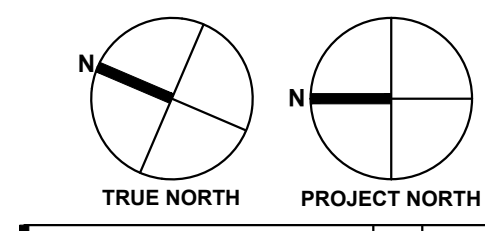
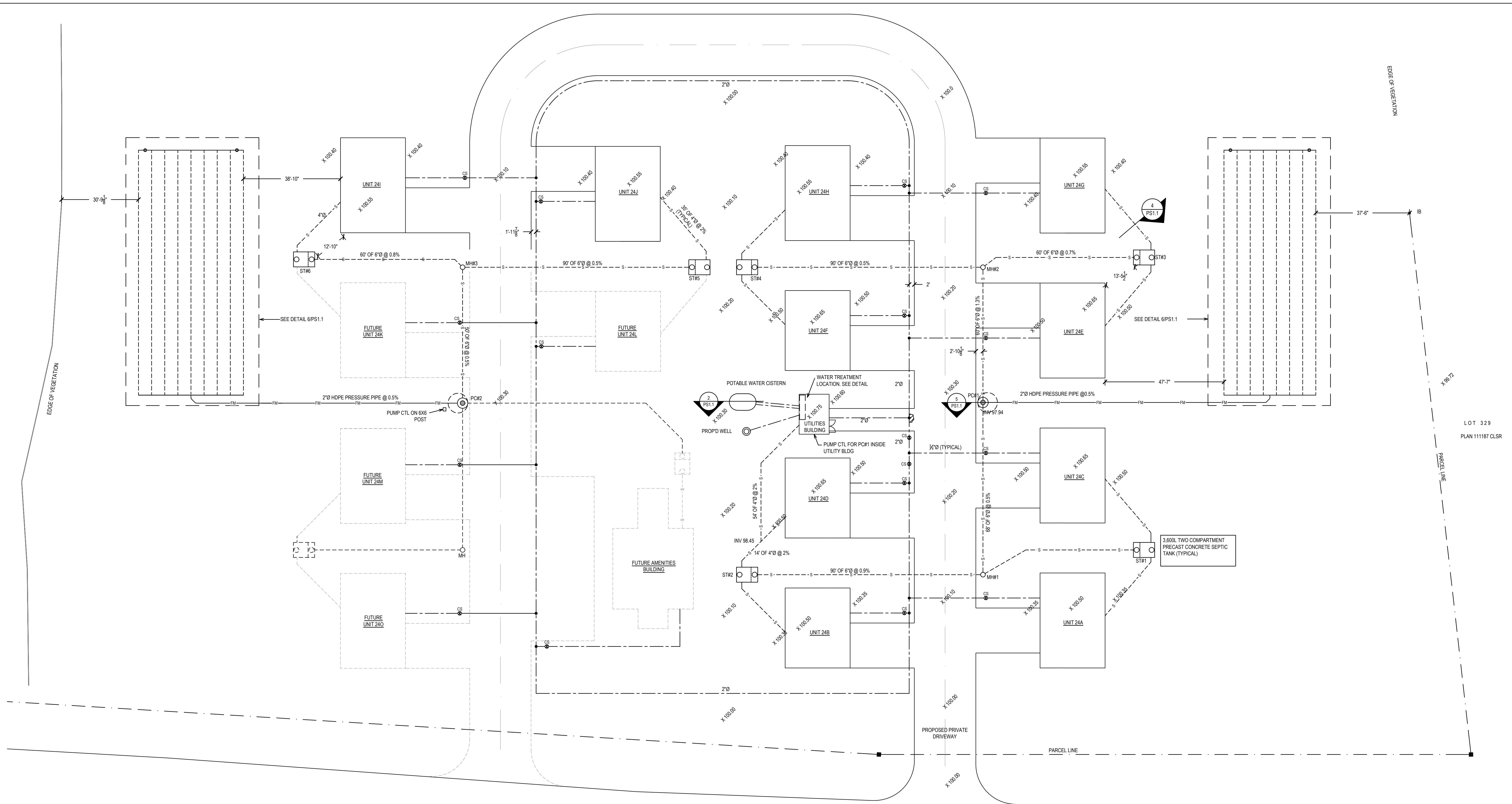
	WATER SERVICE PIPE
	WATER SERVICE CURB STOP
	SANITARY SEWER PIPE
	SEWER FORECEMAN
	FINISHED GRADE ELEVATION

**SANITARY MH**

MH#	DESCRIPTION	TOP GRADE (m)	INVERTS (m)
1	1200 Ø	100.5	N 98.06 S 98.06 E 98.04
2	1200 Ø	100.45	N 98.21 S 98.06 W 98.19
3	1200 Ø	100.4	N 98.20 S 98.20 W 98.10

**SEPTIC TANKS**

ST#	DESCRIPTION	TOP GRADE (m)	INVERTS (m)
1	3600L	100.40	N 98.16 E 98.21 W 98.21
2	3600L	100.15	N 98.32 E 98.37 W 98.37
3	3600L	100.45	N 98.34 E 98.39 W 98.39
4	3600L	100.20	N 98.35 E 98.40 W 98.40
5	3600L	100.20	N 98.34 E 98.39 W 98.39
6	3600L	100.45	N 98.34 E 98.39 W 98.39



Description	No.	Date

Issued for quotation: 2024.05.28  
 Final release for client's review: 2024.05.03

Engineer's Seal

R. D. LAPLANTE  
2024.05.28  
PROVINCE OF ONTARIO

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**RDL Engineering Services Ltd.**  
 132 Glendale Dr, Tillsonburg, ON N4G 5V9  
 roy@rdleng.com (541) 998-5553

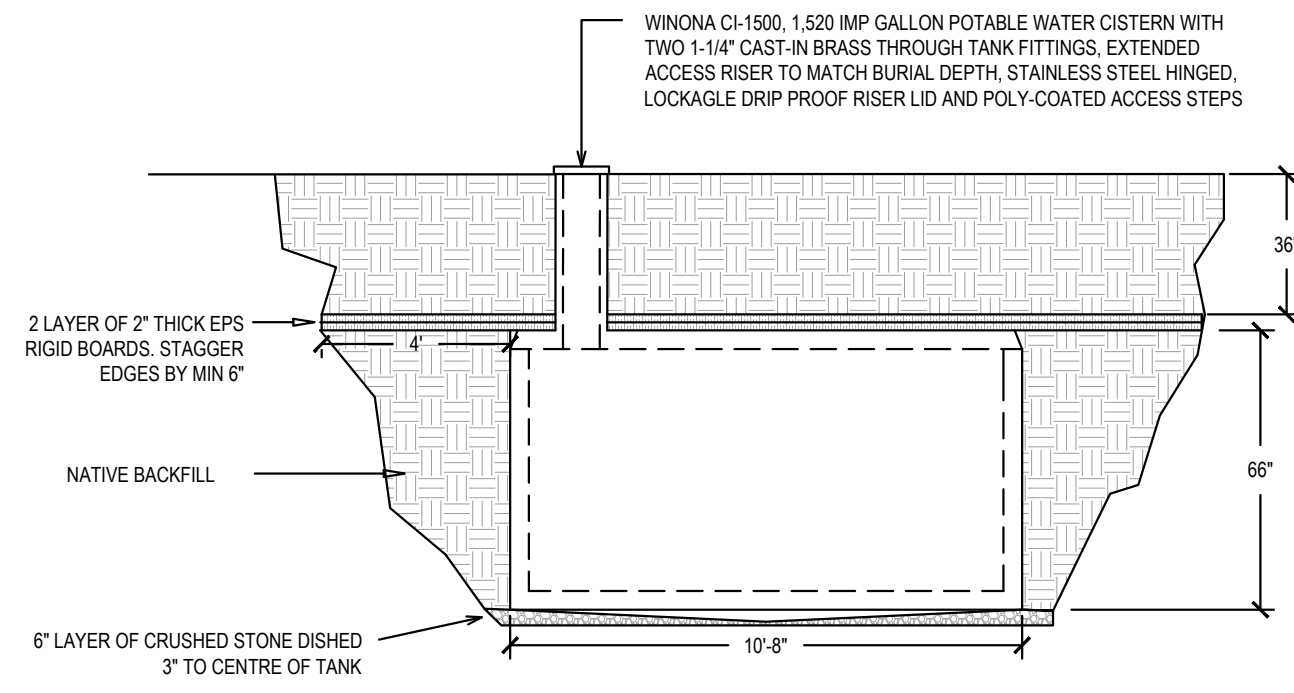
Project  
**HOMES FOR YOUTH DEVELOPMENT**

Client  
**GARDEN RIVER FIRST NATION**

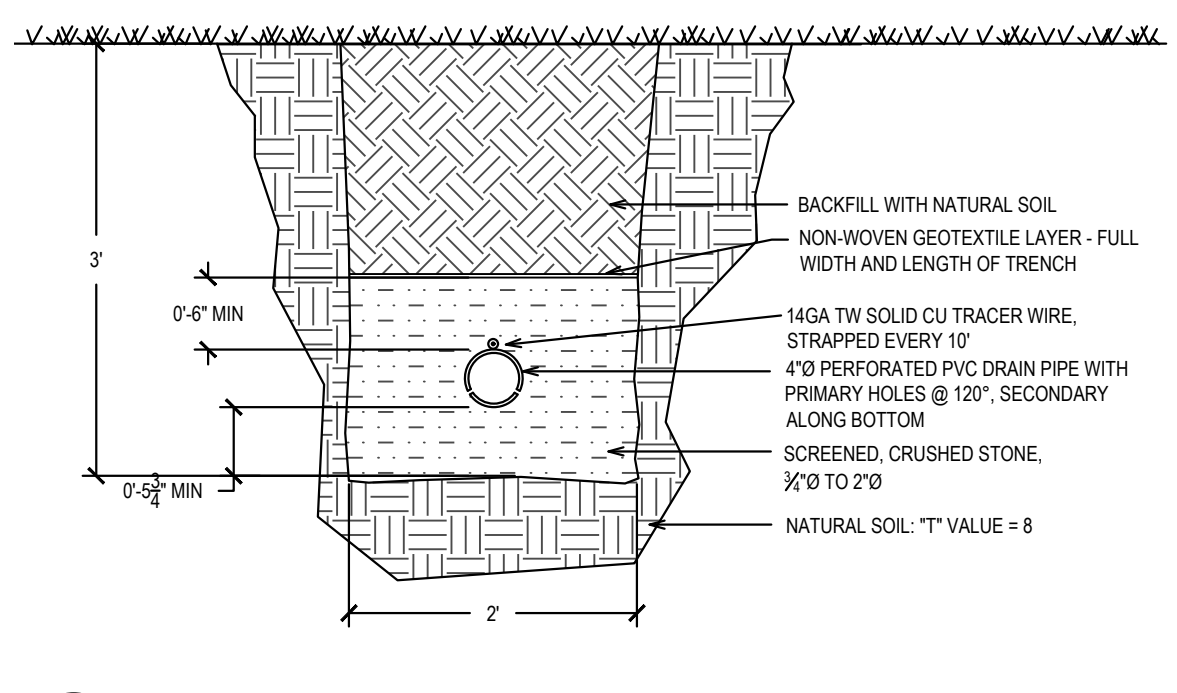
24 Belleau Lake Rd Garden River, ON

Drawing Title  
**WATER & SEWER SITE PLAN**

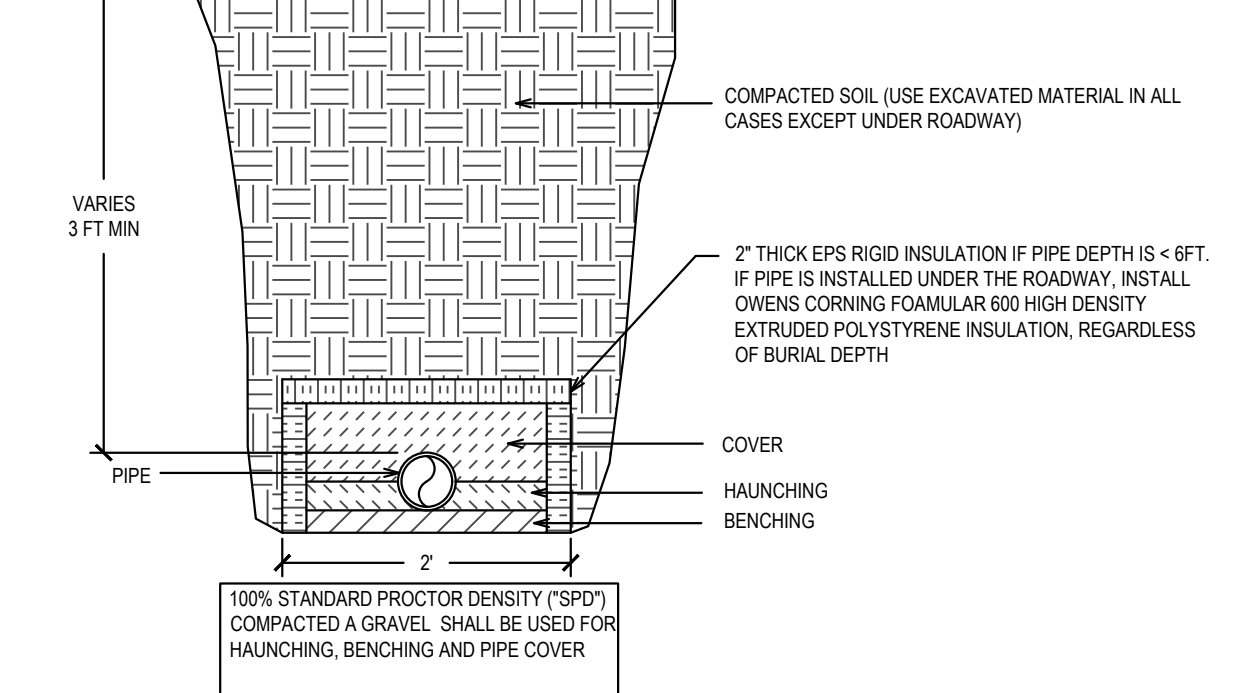




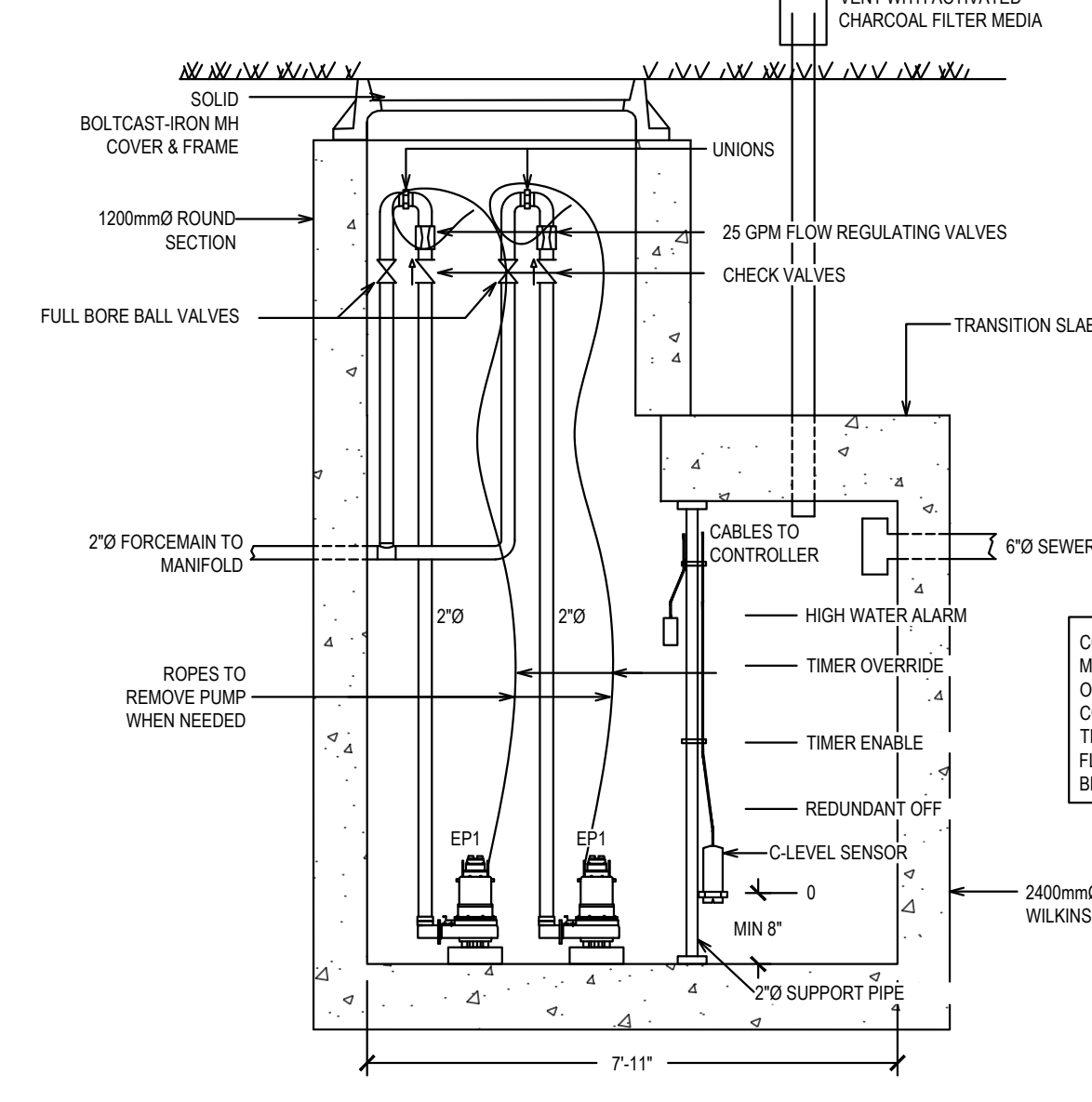
2 SECTION THROUGH CISTERN  
PS1.1 N.T.S.



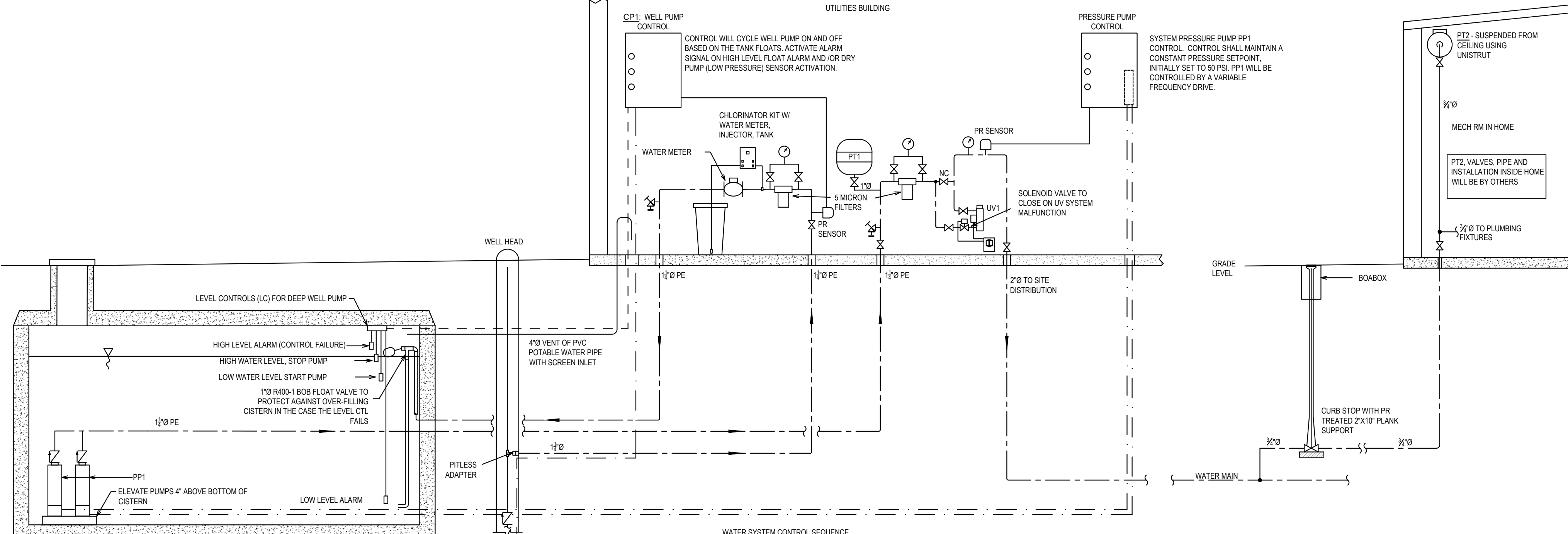
3 TYPICAL ABSORPTION TRENCH  
PS1.1 3/4\"/>



4 TYPICAL PIPE TRENCH  
PS1.1 3/4\"/>



5 PUMP CHAMBER DETAIL  
PS1.1 N.T.S.



1 POTABLE WATER SCHEMATIC  
PS1.1 N.T.S.

**SEPTIC SYSTEM CALCULATIONS FOR SOUTH SYSTEM**

CLASS 4 SEPTIC SYSTEM  
EACH DWELLING HAS ONE BEDROOM: DAILY FLOW (Q) = 750 L per day  
BUILDING AREA = 600 ft<sup>2</sup> (56m<sup>2</sup>)

ONE BATHROOM GROUP - HYDRAULIC LOAD = 6 FIXTURE UNITS (F.U.)  
KITCHEN SINK - HYDRAULIC LOAD = 1.5 F.U.  
WASHING MACHINE - HYDRAULIC LOAD = 1.5 F.U.  
TOTAL FIXTURE UNITS = 9 F.U. SINCE FU < 20, USE 750 LD IN CALCULATION

PAIRS OF HOUSING UNITS DRAIN INTO A SINGLE TWO-COMPARTMENT SEPTIC TANKS, THIS EACH SEPTIC TANK SHALL BE SIZED FOR 750 L/D X 2 = 1,500 LD

FOR RESIDENTIAL CALCULATION, SEPTIC TANK = 2 X Q = 2 X 1500 = 3,000 L. **MINIMUM TANK SIZE IS 3,600 L**

**ABSORPTION TRENCH CALCULATION**

LENGTH OF TRENCH IN METERS REQUIRED (L) =  $\frac{\text{DAILY EXPECTED FLOW RATE (Q)} \times \text{PERCOLATION RATE (I)}}{200}$

8 HOUSING UNITS WILL BE DRAINING INTO THE SOUTH LEACHING FIELD, THIS Q = 750 X 8 = 6,000 LITRES / DAY.

PERCOLATION RATE: SOIL TESTING RESULTS PROVIDED BY GARDEN RIVER FIRST NATION STATES SOIL IS SAND / SILT, WITH I = 8. IMPORTED FILL IS NOT REQUIRED.

THEREFORE, Q =  $\frac{6,000 \times 8}{200}$  = 240 METERS

MAXIMUM LENGTH OF A SINGLE ABSORPTION TRENCH IS 98.4' (30m).

NUMBER OF TRENCHES REQUIRED = 240 ÷ 30 = 8

**SEPTIC SYSTEM CALCULATIONS FOR NORTH SYSTEM**

CLASS 4 SEPTIC SYSTEM  
EACH DWELLING HAS ONE BEDROOM: DAILY FLOW (Q) = 750 L per day  
BUILDING AREA = 600 ft<sup>2</sup> (56m<sup>2</sup>)

ONE BATHROOM GROUP - HYDRAULIC LOAD = 6 FIXTURE UNITS (F.U.)  
KITCHEN SINK - HYDRAULIC LOAD = 1.5 F.U.  
WASHING MACHINE - HYDRAULIC LOAD = 1.5 F.U.  
TOTAL FIXTURE UNITS = 9 F.U. SINCE FU < 20, USE 750 LD IN CALCULATION

PAIRS OF HOUSING UNITS DRAIN INTO A SINGLE TWO-COMPARTMENT SEPTIC TANKS, THIS EACH SEPTIC TANK SHALL BE SIZED FOR 750 L/D X 2 = 1,500 LD

FOR RESIDENTIAL CALCULATION, SEPTIC TANK = 2 X Q = 2 X 1500 = 3,000 L. **MINIMUM TANK SIZE IS 3,600 L**

**AMENITIES BUILDING**

OCCUPANCY: 0.75 m<sup>2</sup> PER PERSON (OBC TABLE 3.1.17.1).  
OPEN AREA OF AMENITIES BUILDING: 61 m<sup>2</sup>

OCCUPANCY = 0.75 X 61 = 46 PERSONS

OBC TABLE 8.2.1.3.B, ASSEMBLY HALL WITH FOOD SERVICE: 36 L PER PERSON.

DAILY EXPECTED SEWAGE VOLUME = 46 X 36 = 1728 LITRES. SEPTIC TANK REQUIRED IS 2 X 1728 = 3,456 L. **SELECT 3,600 L TANK**

**ABSORPTION TRENCH CALCULATION**

LENGTH OF TRENCH IN METERS REQUIRED (L) =  $\frac{\text{DAILY EXPECTED FLOW RATE (Q)} \times \text{PERCOLATION RATE (I)}}{200}$

8 HOUSING UNITS PLUS THE AMENITIES BUILDING WILL BE DRAINING INTO THE NORTH LEACHING FIELD, THIS Q = 750 X 6 + 1728 = 6,228 LITRES / DAY.

PERCOLATION RATE: SOIL TESTING RESULTS PROVIDED BY GARDEN RIVER FIRST NATION STATES SOIL IS SAND / SILT, WITH I = 8. IMPORTED FILL IS NOT REQUIRED.

THEREFORE, Q =  $\frac{6,228 \times 8}{200}$  = 249 METERS

MAXIMUM LENGTH OF A SINGLE ABSORPTION TRENCH IS 98.4' (30m).

NUMBER OF TRENCHES REQUIRED = 249 ÷ 30 = 9

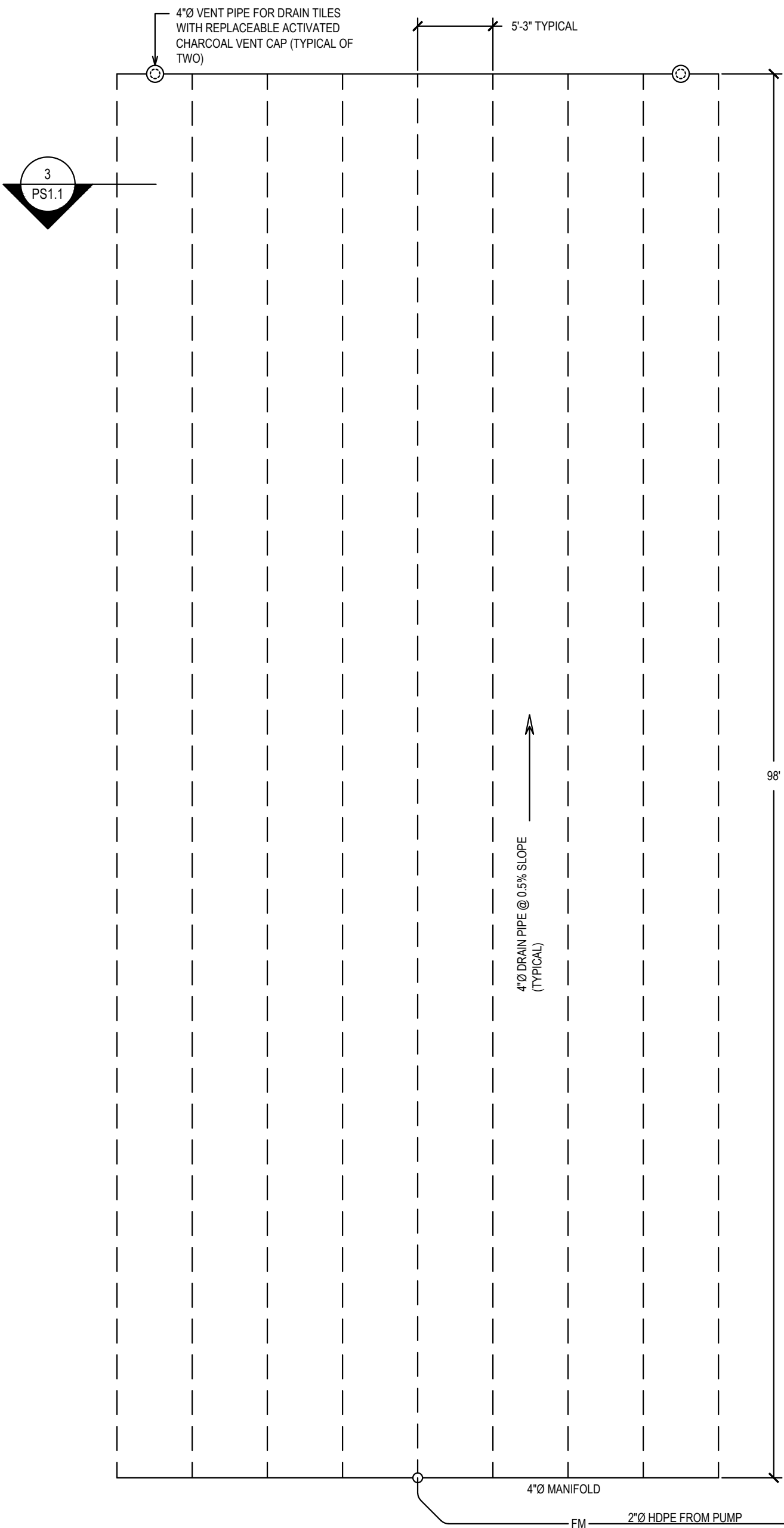
**WATER SYSTEM DESIGN PARAMETERS**

EACH TINY HOME HAS A KITCHEN SINK, SHOWER, TOILET AND LAVATORY. 1.5 GPM MAX SHOWER HEAD TO MATCH WATER HEATER. 2 GPM KITCHEN SINK. MAX. EXPECTED FLOW PER UNIT IS 3.5 GPM (KITCHEN SINK + SHOWER USED SIMULTANEOUSLY). NO ALLOWANCE FOR LAWN SPRINKLERS OR OUTDOOR USE OF POTABLE WATER IS REQUIRED BY THE CLIENT. AMENITIES BUILDING WILL HAVE A KITCHEN SINK, TOILET AND LAVATORY. MAXIMUM EXPECTED FLOW IS 2.5 GPM.

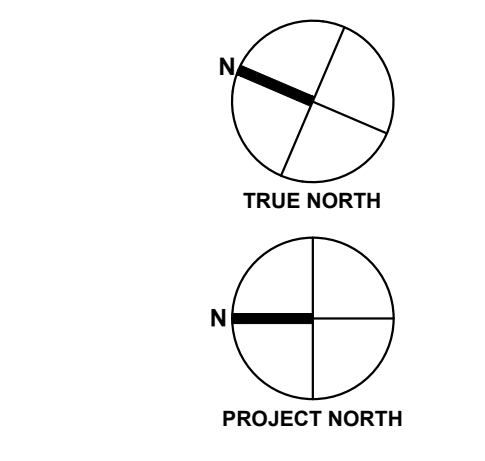
IF ALL HOMES USE FULL SUPPLY SIMULTANEOUSLY, 14 UNITS X 3.5 = 49 GPM

APPLY A 45% DIVERSITY FACTOR SINCE FULL FLOW TO ALL UNITS WILL NOT NECESSARILY OCCUR SIMULTANEOUSLY AND FOR EXTENDED DURATION. 49 X 0.45 = 22 GPM. ADD TO THIS THE EXPECTED AMENITIES BUILDING: 22 + 2.5 = **24.5 GPM**

THE PRESSURE DROP IN 2\"/>



6 TYPICAL LEACHING FIELD PLAN  
PS1.1 1/8\"/>



Description	No.	Date
Issued for quotation	0	2024.05.28
Final release for client's review	A	2024.05.03



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Project  
**HOMES FOR YOUTH DEVELOPMENT**

Client  
**GARDEN RIVER FIRST NATION**

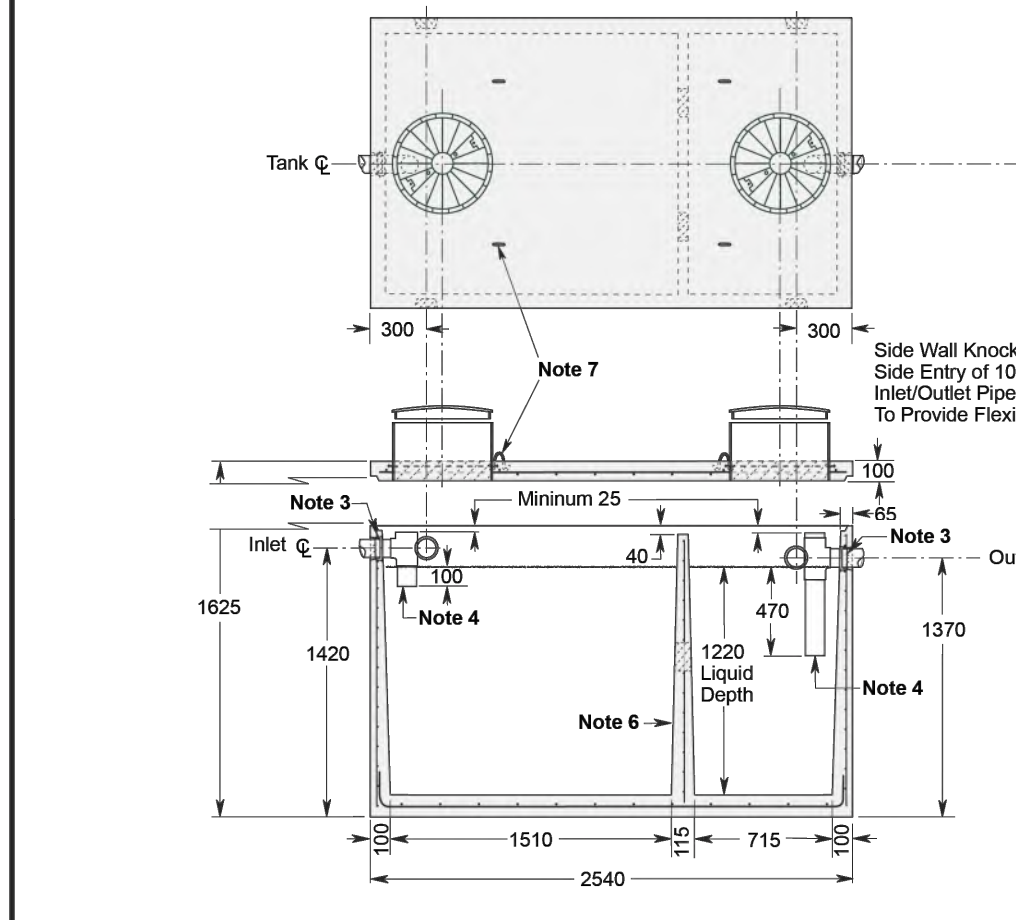
24 Belleau Lake Rd Garden River, ON

Drawing Title  
**DETAILS**

Date 2024.04.08	Scale AS NOTED	Dwg No. PS1.1
Designer R.L.	Project No. 2317	

**3600 LITRE TWO COMPARTMENT PRECAST SEPTIC TANK MODEL S3.6S**

**CONSTRUCTION DETAILS \***  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: 4 x 4 6/6 ww mesh in walls and partition.  
 10 M bars at 200 mm centres each way in top slab and floor.  
 Four extra 10 M bars around each roof access opening.  
 Minimum cover over reinforcing steel - 25 mm.

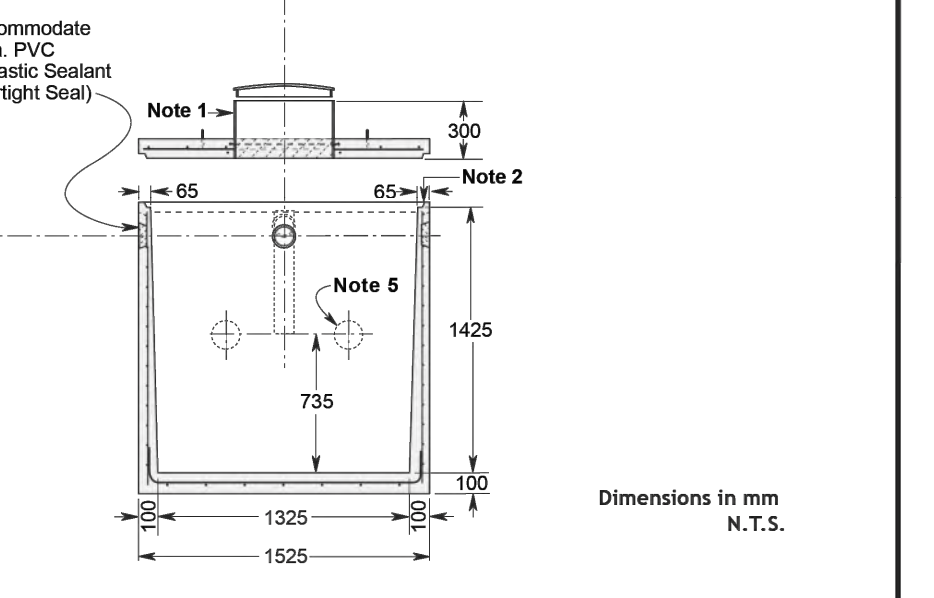


Weight: Top Slab 945 kg  
 Tank Section 3500 kg  
 Total 4445 kg

**WILKINSON HEAVY PRECAST LIMITED**  
 DUNDAS, ONTARIO 905-628-5611  
 www.wilkinsonheavyprecast.com

Actual Capacity: 3125 Litres Per Vertical Metre.  
 4450 Litres to Underside of Roof Slab.  
 3810 Litres to Invert of Outlet.

**NOTES**  
 1. Standard access openings are 510 mm I. D. Poly Riser Rings 300 mm in height in two places. Each riser ring comes with a gasketed cover with two folding recessed T handles. Optional 150 & 300 mm high grade rings can be added to suit grade elevation and meet the Ontario Building Code requirements 8.2.2.2 (10) and 8.6.2.1 (3).  
 2. Fibrous mastic sealant ensures a watertight seal.  
 3. Flexible watertight inlet/outlet pipe connector in each end wall accommodates 100 mm diameter PVC pipe.  
 4. Baffles are 100 mm PVC TY fittings with drop leg. They are supplied loose and meant to be solvent welded by the contractor to the inlet and outlet pipes. The outlet baffle has an integral effluent filter rated at 3000 litres per day.  
 5. 150 mm diameter partition flow throughs in two places evenly spaced across the partition.  
 6. The partition is cast monolithically with the walls and floor.  
 7. Top slab lifting points four places.



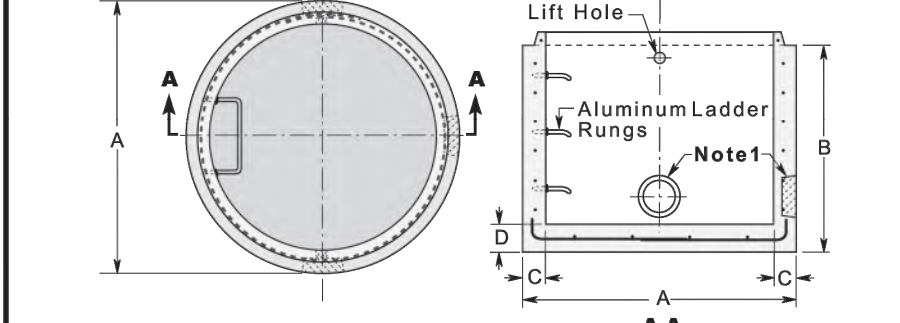
Side Wall Knockouts Accommodate Side Entry of 100 mm Dia. PVC Inlet/Outlet Pipes (Use Mastic Sealant To Provide Flexible Watertight Seal)

\* Commensurate with a 1 Metre burial over the top slab in firm soil away from any area of vehicular traffic.  
 For recommended installation procedures refer to Wilkinson Installation Guidelines.

WARNING! IMPROPER INSTALLATION ESPECIALLY IN UNSTABLE SOILS CAN RESULT IN THE STRUCTURAL FAILURE OF THIS PRODUCT

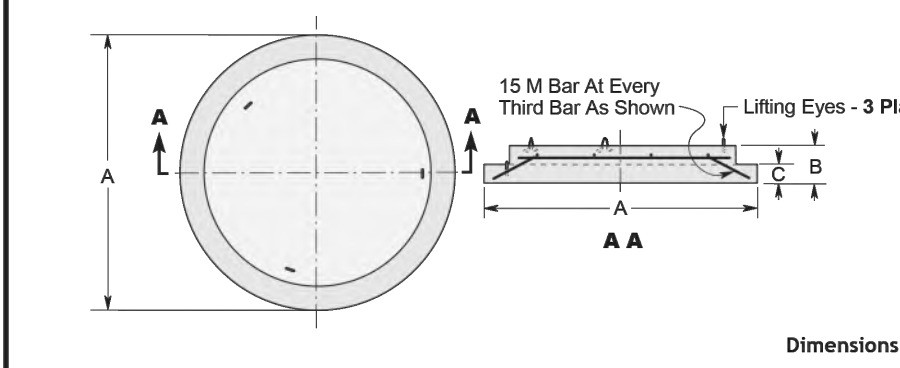
**WILKINSON HEAVY PRECAST LIMITED**  
 DUNDAS, ONTARIO 905-628-5611  
 www.wilkinsonheavyprecast.com

**MONO BASE - 1200 & 2400 mm Diameter Manholes**  
**CAST IN BASE - 1500, 1800 & 3000 mm Diameter Manholes.**  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: Refer to Dimension Chart



**NOTES**  
 1. All Mono Bases may be made to order with wall voids to suit a wide variety of pipe locations and diameters.  
 2. Standard knockout locations for 1200 mm diameter mono bases are at 12, 3 and 6 o'clock.

**BASE SLABS for 1200, 1500, 1800, 2400 & 3000 mm Diameter Manholes**  
 OPSP Ref. - 701.03, 701.04, 701.05 and 701.06  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: 15M bars at 300 mm centres each way.



Dimensions in mm N.T.S.

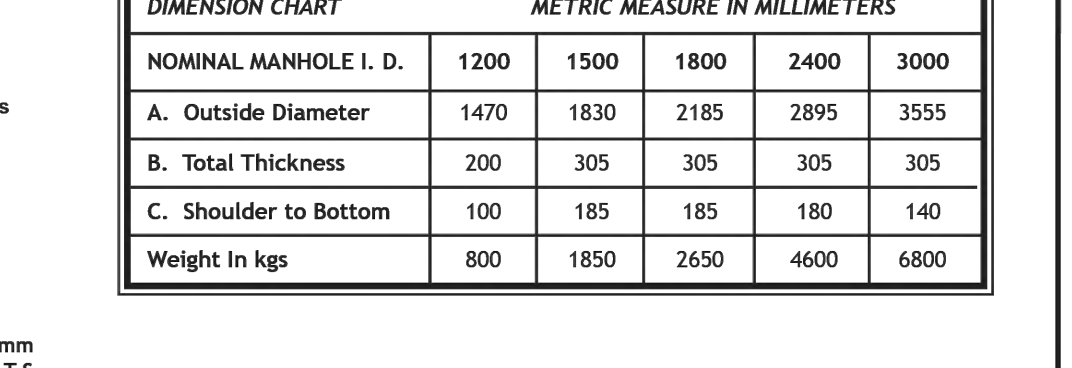
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DIMENSION CHART	METRIC MEASURE IN MILLIMETERS					
	NOMINAL MANHOLE I. D.	1200	1500	1800	2400	3000
A. Outside Diameter	1470	1830	2185	2895	3555	
B. Outside Height	1065	2135*	1830*	1830 or 2440	2745*	
C. Wall Thickness	125	150	180	230	255	
D. Floor Thickness	150	200	255	305	305	
Minimum Reinforcing	Area of Circumferential Steel/Vert. Metre of wall	250 Sq. mm	315 Sq. mm	378 Sq. mm	507 Sq. mm	630 Sq. mm
	Floor Bar Size/Centres each way	15M/300	15M/300	15M/300	15M/300	15M/300
Weight In kgs	1830	5125	6660	11,970 and 14,800	20,000	

Dimensions in mm N.T.S. \* Maximum one piece height, other heights available.

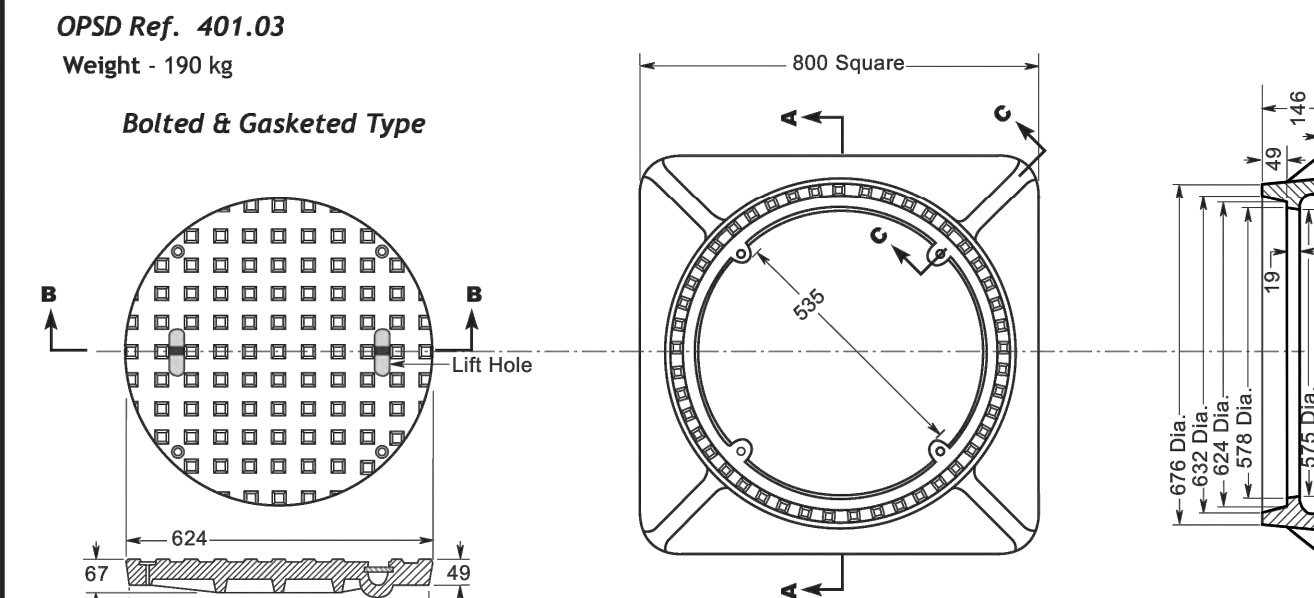
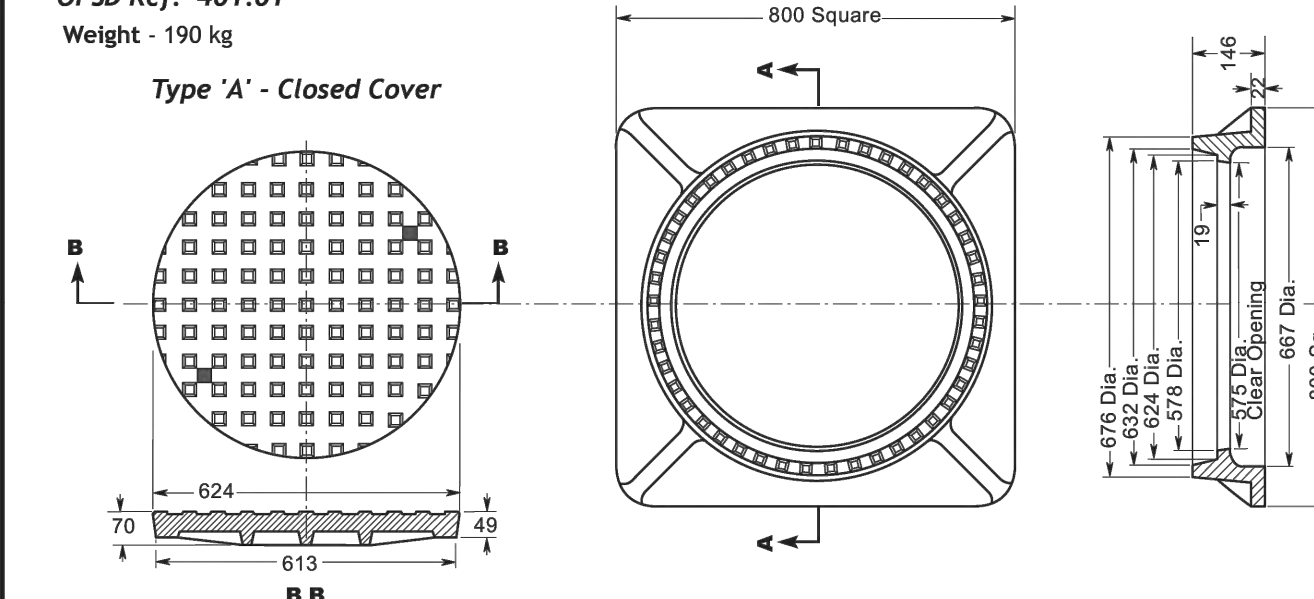
DIMENSION CHART	METRIC MEASURE IN MILLIMETERS				
	NOMINAL MANHOLE I. D.	1200	1500	1800	2400
A. Outside Diameter	1470	1830	2185	2895	3555
B. Total Thickness	200	305	305	305	305
C. Shoulder to Bottom	100	185	185	180	140
Weight In kgs	800	1850	2650	4600	6800



Dimensions in mm N.T.S.

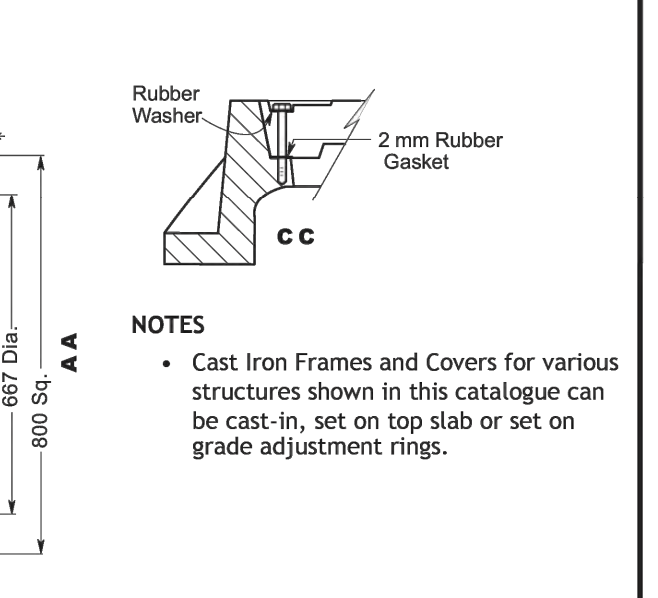
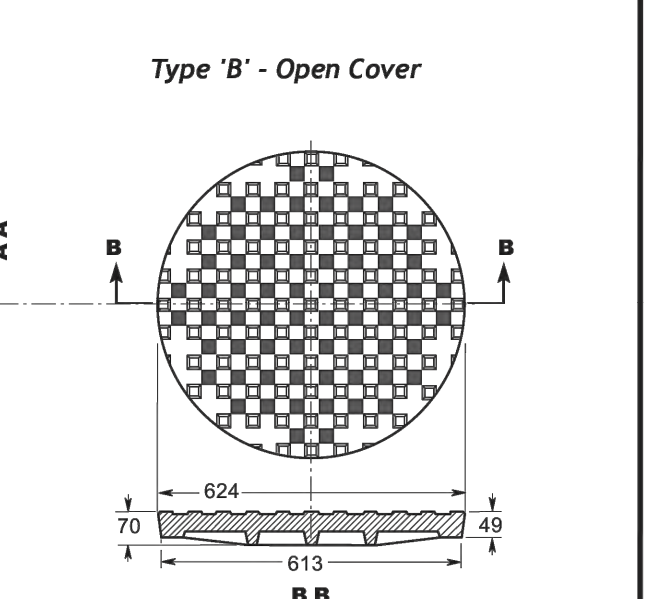
WARNING! IMPROPER INSTALLATION ESPECIALLY IN UNSTABLE SOILS CAN RESULT IN THE STRUCTURAL FAILURE OF THIS PRODUCT

**WILKINSON HEAVY PRECAST LIMITED**  
 DUNDAS, ONTARIO 905-628-5611  
 www.wilkinsonheavyprecast.com



Dimensions in mm N.T.S.

**WILKINSON HEAVY PRECAST LIMITED**  
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 www.wilkinsonheavyprecast.com

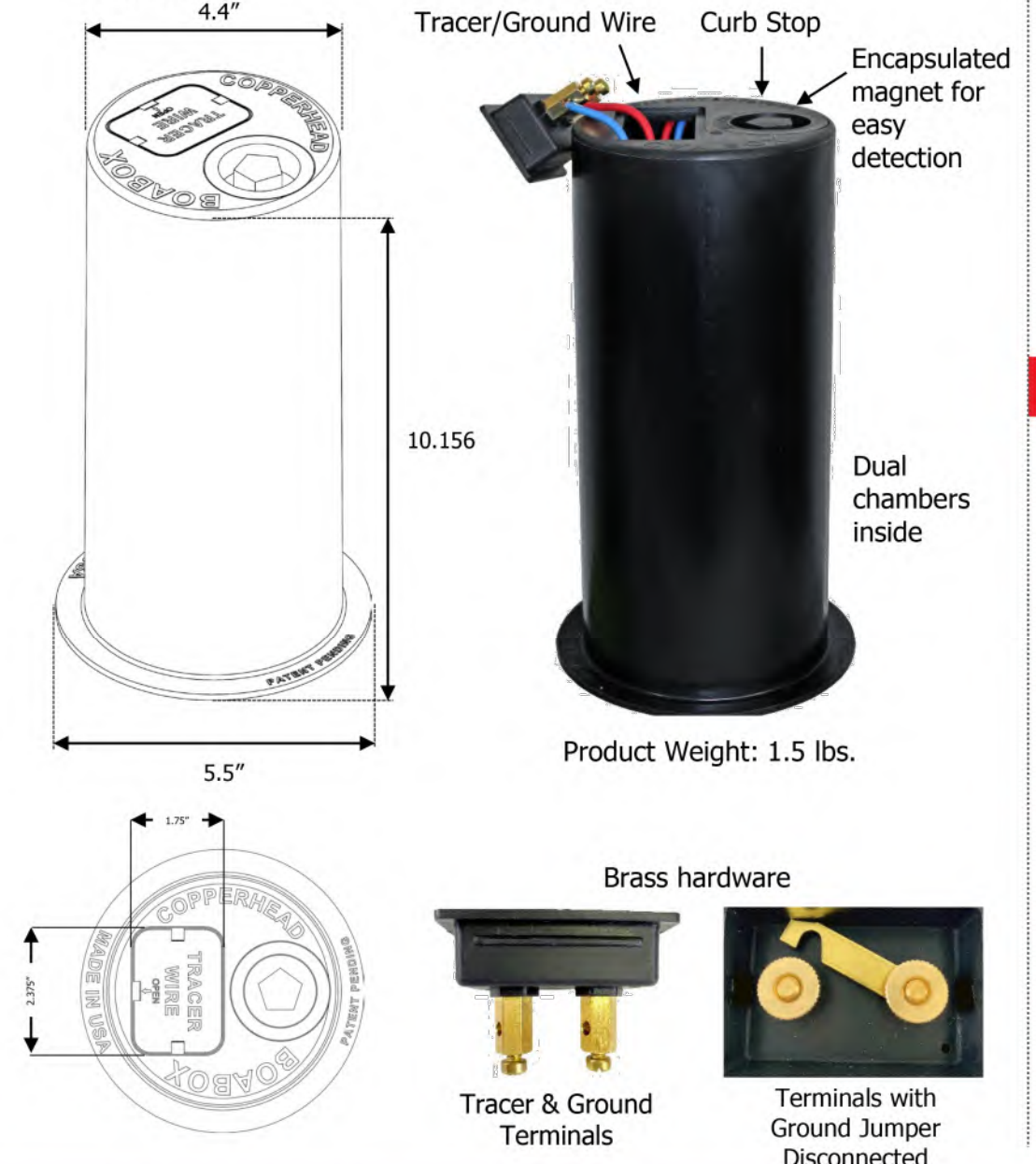


Dimensions in mm N.T.S.

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**Copperhead INDUSTRIES**  
**BOABOX™ WATER ACCESS POINT**

**APPLICATION**  
 Integrated curb and tracer box for the water market. Provides efficient access to curb box and tracer wire system in one unit. The dual compartment and integrated entry points **eliminate the need for two lids in a yard or right-of-way.** Slips over new or existing curb box stand pipe. Can connect and disconnect tracer wire ground from top of unit. One unit rather than two saves time and money in installation.



**BOABOX 125** - for 1" and 1 1/4" iron pipe size (IPS) standpipes  
**BOABOX 150** - for 1 1/2" iron pipe size (IPS) standpipes

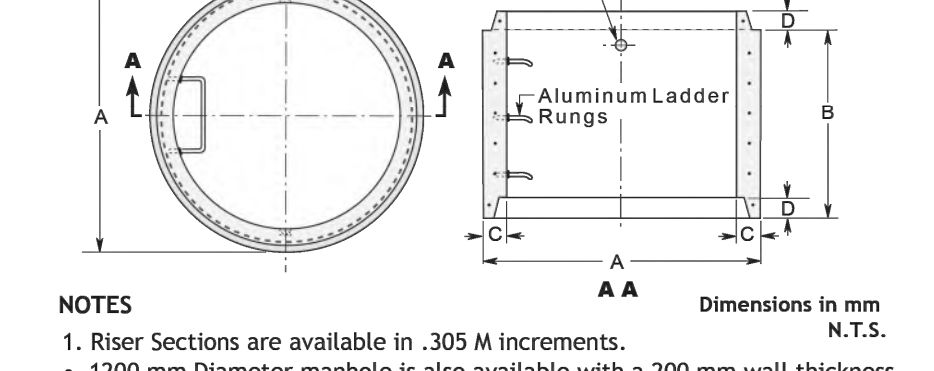


**FEATURES AND BENEFITS**

- Two access points in one - curb box and tracer wire system
- Direct connection to tracer wire and ground rod from the top
- Two sizes fit 1", 1 1/4", and 1 1/2" IPS standpipes
- Bottom flange adds strength and anchors into ground to accommodate earth's movement
- Encapsulated magnet in curb stop plug allows for detection by a ferrous metal detector
- 1/4-turn pentagon style plug - NO cross threading
- Brass hardware means no rusting or seizing parts
- UV resistant, composite material
- Anti-corrosion gel protects wires
- Made in the USA

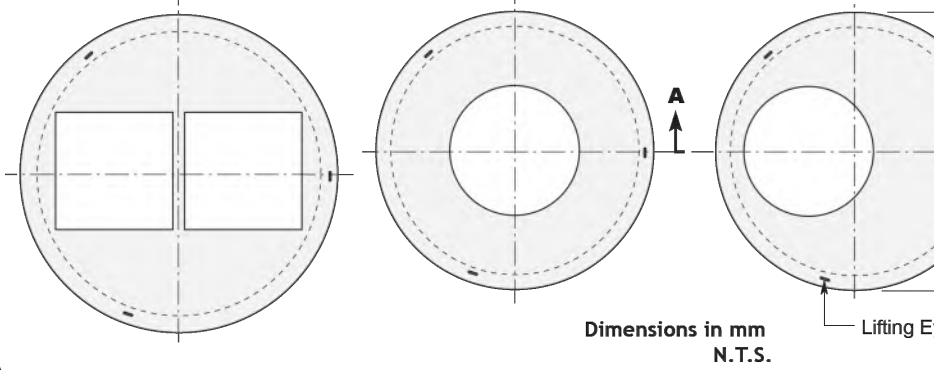
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**RISER SECTIONS - 1200, 1500, 1800, 2400 & 3000 mm Manholes**  
 OPSP Ref. - 701.03, 701.04, 701.05 and 701.06  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: Refer to Dimension Chart



**NOTES**  
 1. Riser Sections are available in .305 M increments.  
 • 1200 mm diameter manhole is also available with a 200 mm wall thickness.

**FLAT CAPS - 1200, 1500, 1800, 2400 & 3000 mm Manholes**  
 OPSP Ref. - 701.03, 701.04, 701.05 and 701.06  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: As per applicable OPSP Spec.



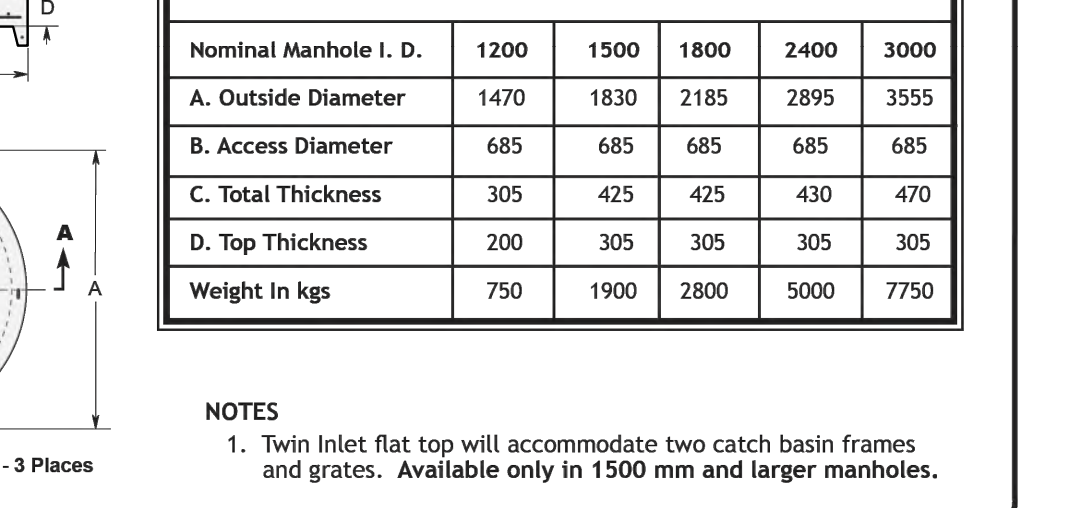
Dimensions in mm N.T.S.

WARNING! IMPROPER INSTALLATION ESPECIALLY IN UNSTABLE SOILS CAN RESULT IN THE STRUCTURAL FAILURE OF THIS PRODUCT

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DIMENSION CHART	METRIC MEASURE IN MILLIMETERS					
	Nominal Inside Diameter	1200	1500	1800	2400	3000
A. Outside Diameter	1470	1830	2185	2895	3555	
B. Height	.3 to 1.83 metres Note 1	.3 to 2.1 metres Note 1	.3 to 1.83 metres Note 1	.3 to 2.1 metres Note 1	.6 to 2.74 metres Note 1	
C. Wall Thickness	125	150	180	230	255	
D. Joint Height	100	120	120	125	165	
Minimum Reinforcing	Area of Circumferential Steel/Vertical M	250 sq. mm	315 sq. mm	378 sq. mm	507 sq. mm	630 sq. mm
	Weight - Kgs Per Vertical Metre	1300	1960	2730	4650	6415

DIMENSION CHART	METRIC MEASURE IN MILLIMETERS				
	Nominal Manhole I. D.	1200	1500	1800	2400
A. Outside Diameter	1470	1830	2185	2895	3555
B. Access Diameter	685	685	685	685	685
C. Total Thickness	305	425	425	430	470
D. Top Thickness	200	305	305	305	305
Weight In kgs	750	1900	2800	5000	7750

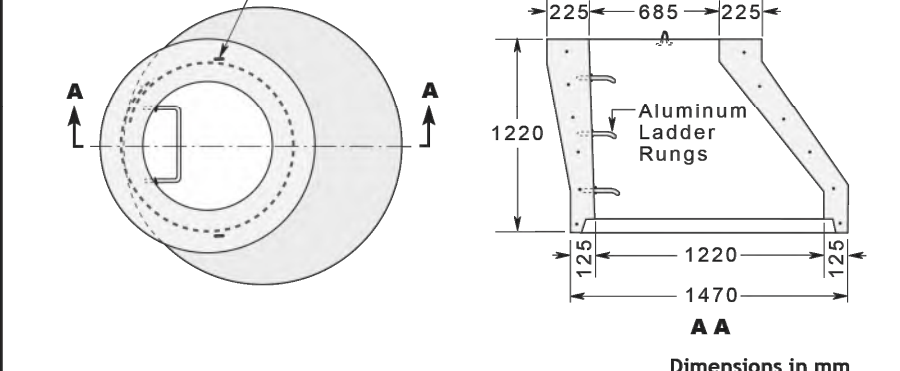


Dimensions in mm N.T.S.

WARNING! IMPROPER INSTALLATION ESPECIALLY IN UNSTABLE SOILS CAN RESULT IN THE STRUCTURAL FAILURE OF THIS PRODUCT

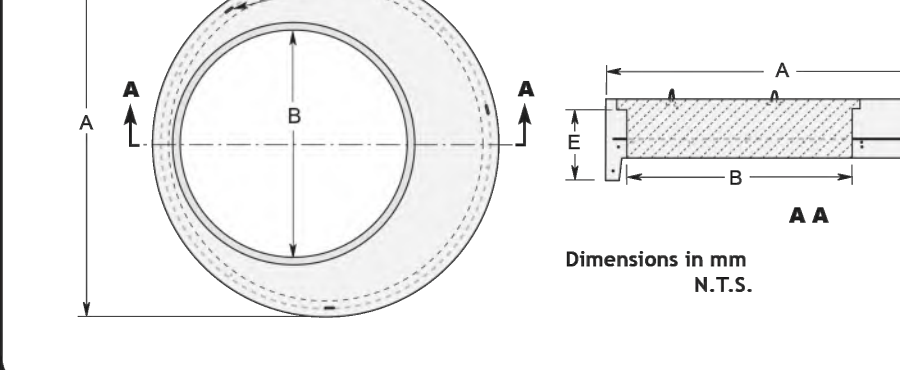
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 www.wilkinsonheavyprecast.com

**TAPER TOPS For 1200 mm Diameter Manholes**  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: 250 square mm of circumferential steel per vertical metre.



**NOTES:**  
 • Approximate Weight: 1800 kg

**TRANSITION SLABS for Reducing 3000, 2400, 1800 & 1500 mm Diameter Manholes to 1200 mm Diameter**  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: As per the applicable OPSP Spec.

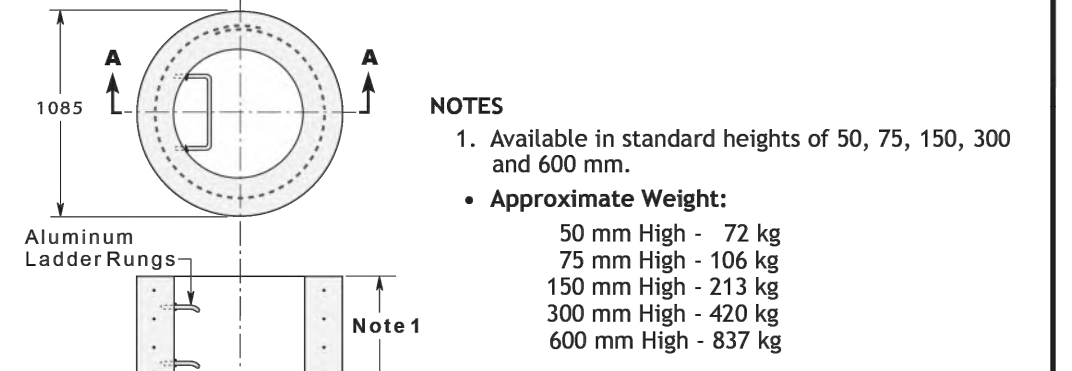


Dimensions in mm N.T.S.

WARNING! IMPROPER INSTALLATION ESPECIALLY IN UNSTABLE SOILS CAN RESULT IN THE STRUCTURAL FAILURE OF THIS PRODUCT

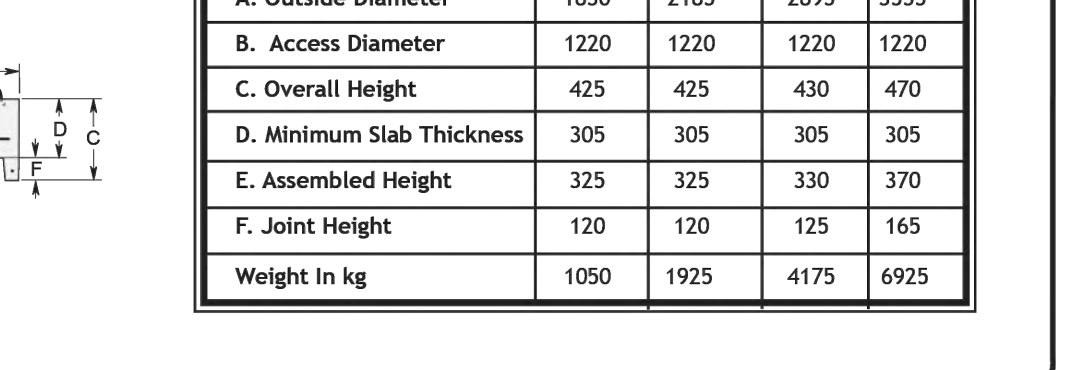
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**GRADE RINGS - 685 mm I.D.**  
 OPSP Ref. - 704.01  
 Concrete: 35 MPa at 28 Days, 5 to 8% Air Entrainment.  
 Reinforcing: 250 square mm of Circumferential Steel per vertical metre.



**NOTES**  
 1. Available in standard heights of 50, 75, 150, 300 and 600 mm.  
 • Approximate Weight:  
 50 mm High - 72 kg  
 75 mm High - 106 kg  
 150 mm High - 213 kg  
 300 mm High - 420 kg  
 600 mm High - 837 kg

DIMENSION CHART	METRIC MEASURE IN MM			
	Nominal Manhole I. D.	1500	1800	2400
A. Outside Diameter	1830	2185	2895	3555
B. Access Diameter	1220	1220	1220	1220
C. Overall Height	425	425	430	470
D. Minimum Slab Thickness	305	305	305	305
E. Assembled Height	325	325	330	370
F. Joint Height	120	120	125	165
Weight In kg	1050	1925	4175	6925



Dimensions in mm N.T.S.

WARNING! IMPROPER INSTALLATION ESPECIALLY IN UNSTABLE SOILS CAN RESULT IN THE STRUCTURAL FAILURE OF THIS PRODUCT

Revision table with columns for Description, No., and Date.

Engineer's Seal: R. D. LAPLANTE, LICENSED PROFESSIONAL ENGINEER, PROVINCE OF ONTARIO, 2024.05.28.

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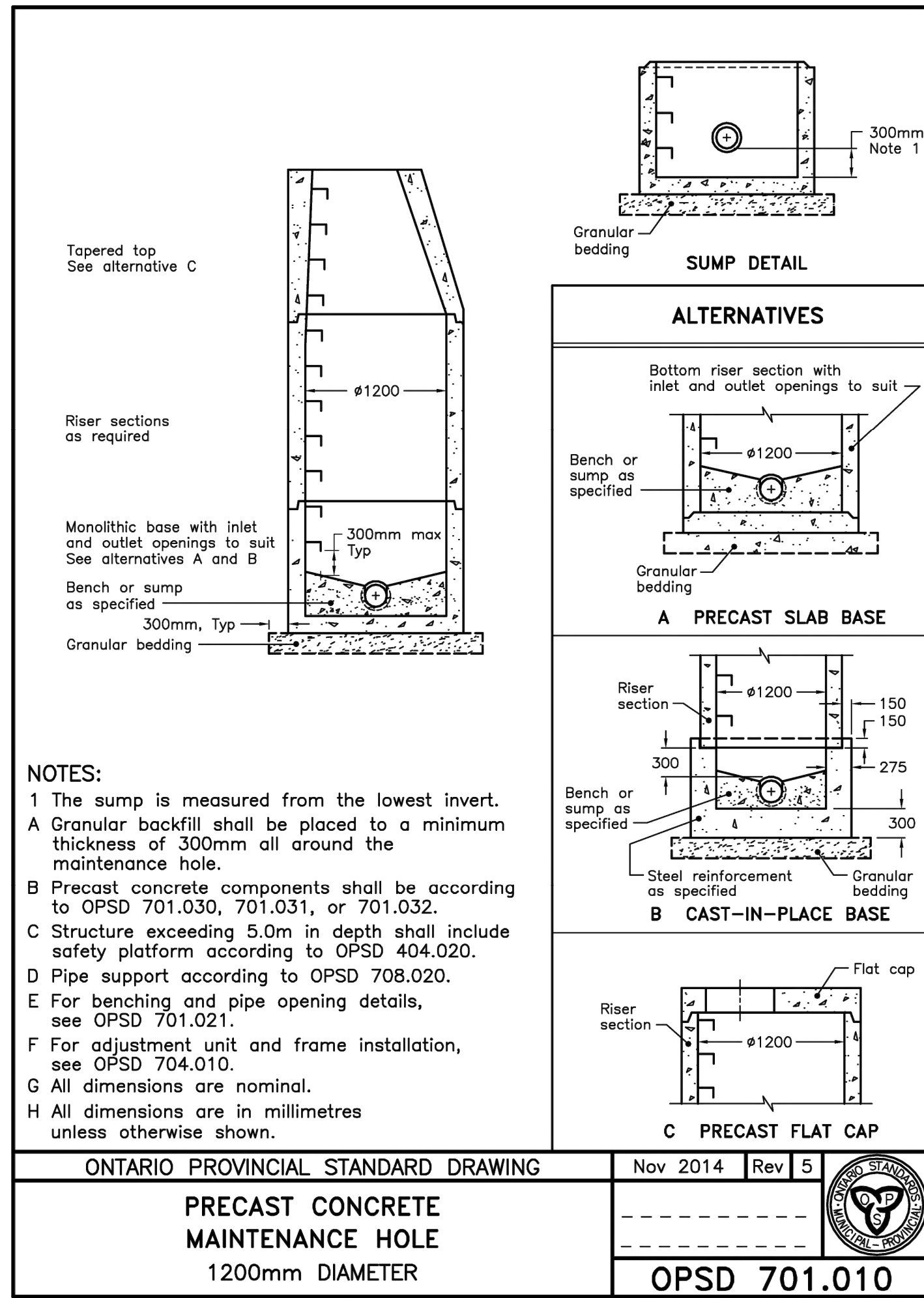
**RDL Engineering Services Ltd.**  
 132 Glendale Dr, Tilsonburg, ON N4G 5V9  
 roy@rdleng.com (546) 998-5553

Project: HOMES FOR YOUTH DEVELOPMENT

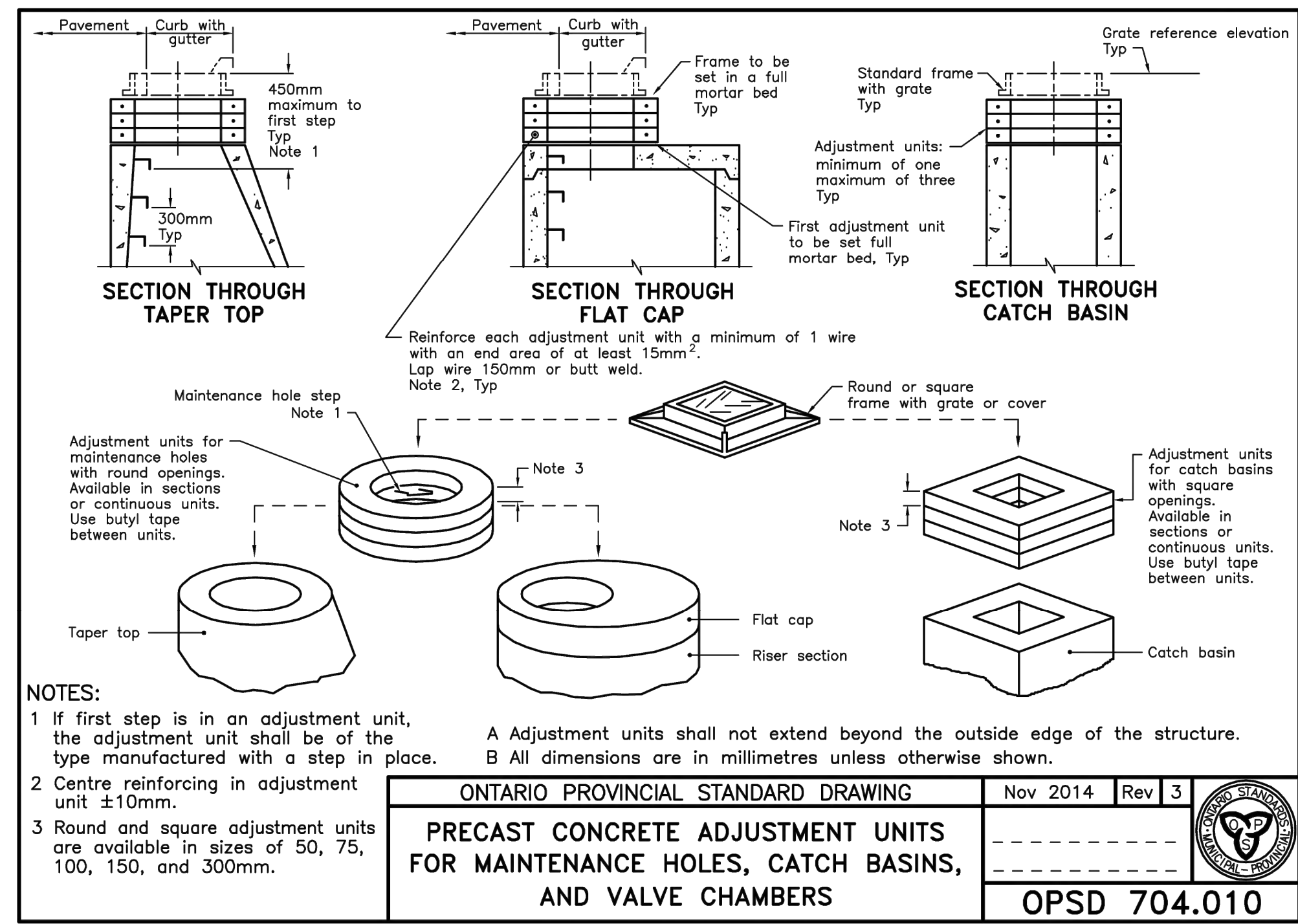
Client: GARDEN RIVER FIRST NATION  
 24 Belleau Lake Rd Garden River, ON

Drawing Title: DETAILS

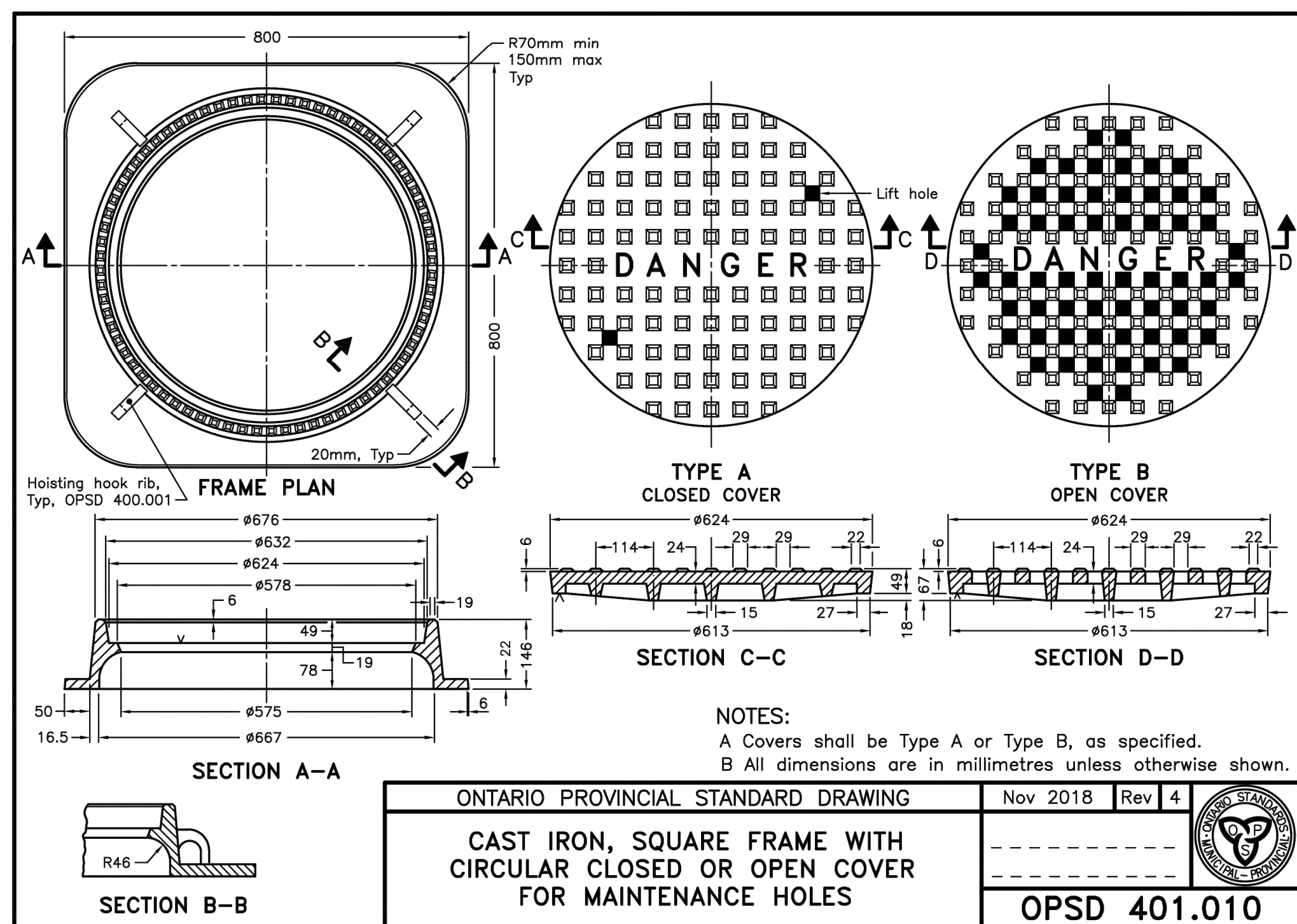
Date: 2024.04.08	Scale: N.T.S.	Draw No.: PS1.2
Designer: R.L.	Project No.: 2317	



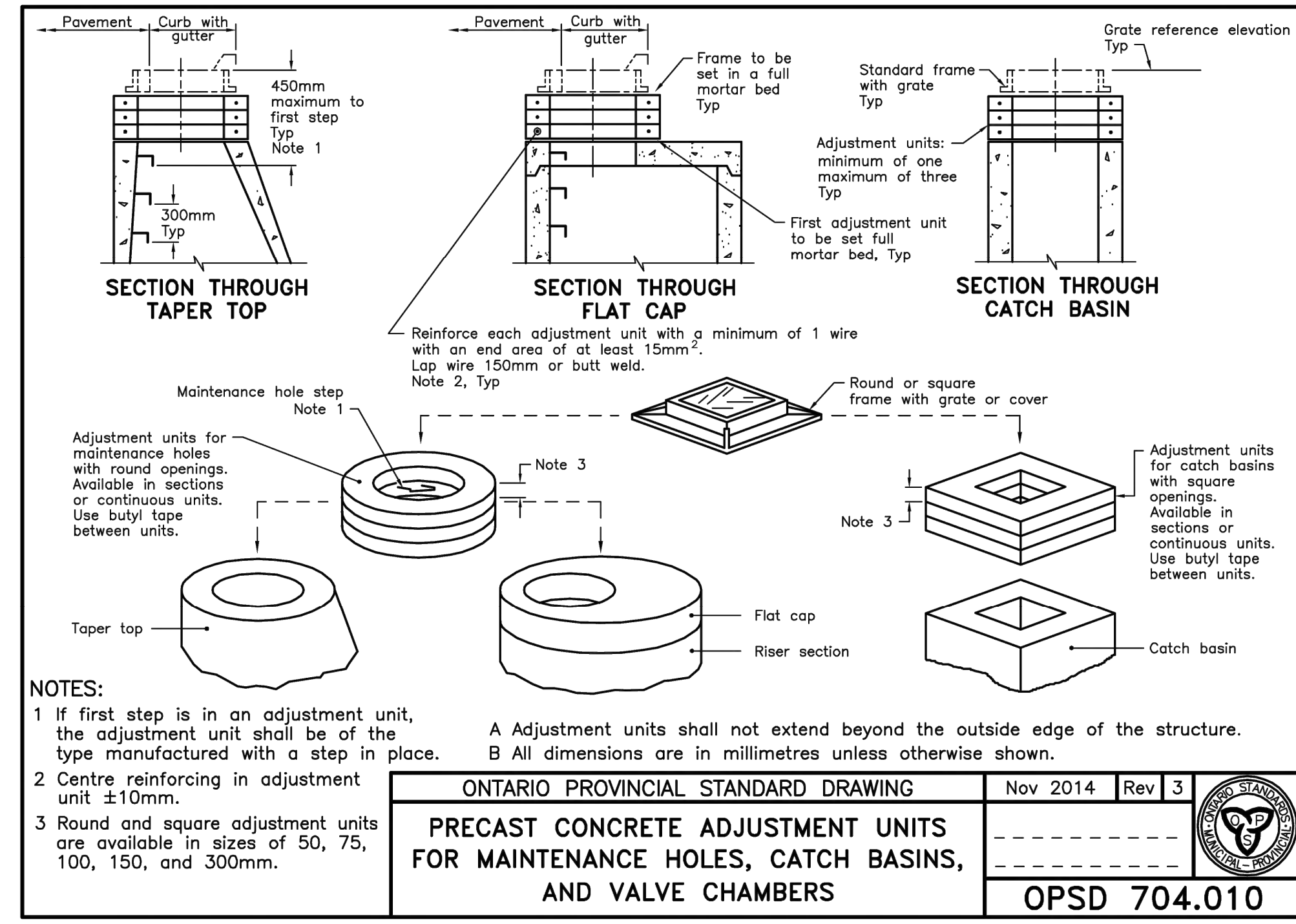
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5	
<b>PRECAST CONCRETE MAINTENANCE HOLE</b> 1200mm DIAMETER			
			<b>OPSD 701.010</b>



ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3	
<b>PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS</b>			
			<b>OPSD 704.010</b>



ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 4	
<b>CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES</b>			
			<b>OPSD 401.010</b>



ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3	
<b>PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS, AND VALVE CHAMBERS</b>			
			<b>OPSD 704.010</b>

Issued for quotation	0	2024.05.28
Final release for client's review	A	2024.05.03
Description	No.	Date
Engineer's Seal		
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Project		
HOMES FOR YOUTH DEVELOPMENT		
Client		
GARDEN RIVER FIRST NATION		
24 Belleau Lake Rd Garden River, ON		
Drawing Title		
OPS DETAILS		
Date	Scale	Draw No.
2024.04.08	N.T.S.	PS1.3
Designer	Project No.	
R.L.	2317	

LUMINAIRE SCHEDULE								
TAG	MAKE	MODEL	DESCRIPTION	CCT	WATTS	VOLTAGE	IES FILE	NOTES
A	HOLOPHANE	WFCL3-P20-40K-MVOLT-FC3-BKNF-AO-PCLL-L30-CLGL-HSS	POLE-TOP FULL CUTOFF ROADWAY LED LUMINAIRE WITH TYPE 3 DIST. BLACK COLOUR, FIELD ADJUSTABLE OUTPUT, PHOTOCONTROL, CLEAR TEMPERED GLASS LENS	4000 K	48	120 TO 277	WFCL3_P20_40K_xxxx_FC3_CLGL_HSS.ies	1.2
B	LITHONIA	CSS L48 4000LM MVOLT 40K 80CRI	LED STRIP LIGHT	4000 K	35.3	120 TO 277	CSSL48 AL03(4000) MVOLT S1WV3(35) 80CRI.ies	
C	LITHONIA	WPX0-LED-ALO-SW2-MVOLT-PE-DDPX0	OUTDOOR WALL MOUNTED ADJUSTABLE LED LUMINAIRE WITH BUILT-IN PHOTOCELL	4000 K	14	120 TO 277	WPX0 LED ALO 4 40K MVOLT.ies	

**NOTES**

- LOUVERED HOUSE SIDE SHIELD CAT NO. CLHSSL34
- HOLOPHANE CAT NO. RTA 20 50C 033 NDR BK 8CV 20' L ROUND TAPERED ALUMINUM POLE IN BLACK WITH 3"X3" TENON AND BASE COVER

**PRIVATE ROADWAY ILLUMINANCE STATISTICS**

AVERAGE:	0.8 FC
MAXIMUM:	1.1 FC
MINIMUM:	0.3 FC
MAX. MIN.:	3.7:1
AVERAGE MIN.:	2.7:1

**DRAWING SYMBOL LEGEND**

- HARD-WIRED EQUIPMENT CONNECTION LOCATION
- PAD MOUNTED TRANSFORMER BY UTILITY
- BURIED PRIMARY MEDIUM VOLTAGE DUCT AND CABLES
- BURIED 120 OR 240 V CONDUITS AND CABLES
- OVERHEAD PRIMARY VOLTAGE CABLES
- OUTDOOR BUILDING MOUNTED METER SOCKET
- FUSE
- MOLDED CIRCUIT BREAKER
- DUPLEX RECEPTACLE
- GFCI DUPLEX RECEPTACLE IN WEATHERPROOF HOUSING
- POLE-MOUNTED ROADWAY LUMINAIRE
- ILLUMINANCE IN FOOT CANDLES AT GROUND LEVEL
- WALL MOUNTED LUMINAIRE
- CEILING MOUNTED LED STRIP FIXTURE
- SINGLE POLE LIGHT SWITCH
- PUSH BUTTON 8 HOUR DIGITAL COUNTDOWN TIMER

- SPECIFICATIONS AND NOTES**
- COMPLETE WORK IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE ("OESC") AND ALGOMA POWER INC.'S ("API") STANDARDS WHERE APPLICABLE.
  - PROVIDE PRIOR TO COMMENCEMENT OF WORK, CGL INSURANCE CERTIFICATE VALUED AT \$5,000,000, WITH GARDEN RIVER FIRST NATION NAMED AS THE HOLDER. IN ADDITION, PROVIDE WSIB CLEARANCE CERTIFICATE FOR THE DURATION OF THE CONSTRUCTION WORK.
  - GUARANTEE AND WARRANTY WORK FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION HAS BEEN GRANTED.
  - APPLY AND PAY FOR ELECTRICAL PERMIT.
  - CALL FOR INSPECTIONS PRIOR TO BACKFILLING CONDUITS, CONDUCTORS AND TRANSFORMER VAULT GROUNDING.
  - THE DRAWINGS SHALL BE CONSIDERED DIAGRAMMATIC. COORDINATE WORK WITH OTHER TRADES, VERIFY LOCATIONS USING FIELD DIMENSIONS AND NOTIFY CONSULTANT IF DISCREPANCIES OR QUESTIONS ARISE.
  - ALL ELECTRICAL EQUIPMENT AND MATERIALS MUST BE CSA APPROVED AND NEW.
  - SUBMIT APPROVAL DRAWINGS IN PDF FORMAT TO CONSULTANT FOR REVIEW. DO NOT ORDER EQUIPMENT UNTIL APPROVAL DRAWINGS ARE REVIEWED AND ACCEPTED. ALLOW FOR 5 WORKING DAY PERIOD TO RECEIVE REVIEWED APPROVAL DRAWINGS.
  - PROVIDE A MARKED UP SET OF DRAWINGS AT THE CONCLUSION OF THE CONSTRUCTION WHICH SHOW AS-BUILT CONDITIONS.
  - ALWAYS PROVIDE AT LEAST 1m CLEARANCE IN FRONT OF ELECTRICAL PANELS AS REQUIRED BY OESC.
  - WRING FROM METERS INTO THE DWELLING UNITS, IS NOT PART OF THIS CONTRACT. DWELLING UNIT ELECTRICAL WORK IS NOT PART OF THIS CONTRACT.
  - LOW VOLTAGE BELT GRADE CABLES SHALL BE RW190 ALUMINUM OR COPPER AS NOTED. PROVIDE A BONDING CONDUCTOR SIZED TO MATCH LOAD CARRYING CONDUCTORS FOR EACH CONDUIT AS NOTED. SECONDARY SERVICE CABLES SHALL BE MEGGER TESTED AT LEAST 21 DAYS IN ADVANCE OF ENERGIZATION DATE. RESULTS OF TESTS SHALL BE SENT TO CONSULTANT AND API.
  - WRING WITHIN UTILITIES BUILDING SHALL BE R90 OR T90 WIRE IN CONDUIT OR ARMoured CABLING MAY BE USED WHEN SURFACE MOUNTED. CABLE INSTALLED INSIDE CONCEALED EXTERIOR WALLS OR CEILING MAY BE NAD90.
  - PROVIDE INTERCONNECTING CONDUIT AND WRING BETWEEN DEVICES AND EQUIPMENT WHERE REQUIRED.
  - INSTALL BOXES TO CSA 22.1. INSTALL IN LOCATIONS SHOWN ON THE DRAWINGS AND AS REQUIRED FOR SPICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS AND COMPLIANCE WITH ELECTRICAL CODE REQUIREMENTS. USE FLUSH MOUNTING OUTLET BOXES IN WHERE POSSIBLE.
  - INDOOR OR OUTDOOR DUPLEX RECEPTACLES AND SWITCHES SHALL BE INDUSTRIAL GRADE WITH GALVANIZED STEEL COVERPLATES.
  - PANELBOARDS AND DISCONNECT SWITCHES SHALL BE BY EATON, SCHNEIDER ELECTRIC OR SIEMENS. BOLT-ON BREAKERS ARE REQUIRED FOR PANEL 'A'.
  - FUSED AND UNFUSED DISCONNECT SWITCHES SHALL BE HEAVY DUTY WITH TYPE 12 ENCLOSURES. SWITCHES LOCATED OUTDOORS SHALL HAVE WEATHERPROOF ENCLOSURES.
  - SUPPLY AND INSTALL CSA APPROVED GROUNDING PLATE AND GROUND WIRE FOR UTILITIES BUILDING SERVICE.
  - ALL LOW VOLTAGE SECONDARY CONDUITS AND CONDUCTORS FROM THE TRANSFORMERS TO METER SOCKETS ARE BY THE CONTRACTOR. TERMINATIONS AT THE TRANSFORMERS ARE THE RESPONSIBILITY OF THE CONTRACTOR. SUPPLY AND INSTALL THE TRANSFORMER VAULTS, GROUNDING ELECTRODES, CONDUITS, ACCESSORIES AND BOLLARDS AS INDICATED AND AS REQUIRED BY API. TRANSFORMER VAULTS, AS SUPPLIED BY CASWELL CONCRETE PRODUCTS MUST MEET APIS REQUIREMENTS. COORDINATE ALL WORK WITH API AND THE ELECTRICAL SAFETY AUTHORITY INSPECTOR. TERMINATIONS OF PRIMARY CABLE ARE APIS RESPONSIBILITY. OBTAIN DETAILED INSTALLATION INFORMATION DIRECTLY FROM API REGARDING THE GROUNDING RINGS UPON AWARD OF THE CONTRACT. A NON-DISCLOSURE AGREEMENT WITH API MUST BE SIGNED BY THE CONTRACTOR. A TYPICAL GROUND RING INSTALLATION IS SHOWN ON THESE DRAWINGS AS A SAMPLE, AND FOR QUOTATION PURPOSES.
  - COORDINATE ALL PRIMARY VOLTAGE RELATED WORK WITH API. VERIFY METER LOCATIONS WITH THE OWNER AND API PRIOR TO ROUGH-IN INSTALLATION AND ADJUST AS NECESSARY.
  - PRIMARY MEDIUM VOLTAGE CABLES WILL BE PROVIDED BY API, BUT INSTALLED BY THE CONTRACTOR TO MEET APIS SPECIFICATIONS. CONDUCT HI-POT TESTING ON PRIMARY CABLES AND SUBMIT REPORTS ATTESTING TO THE RESULTS TO API AND THE CONSULTANT. VERIFY TESTING REQUIREMENTS WITH API PRIOR TO CONDUCTING TESTS, AND ADJUST TESTING AS REQUIRED.
  - PULL ALL CONDUCTORS INTO RACEWAYS AT THE SAME TIME AND USE A SUITABLE WIRE PULLING LUBRICANT. MEGGER TEST SECONDARY SERVICE CONDUCTORS. REPLACE CABLES THAT FAIL TESTING.
  - ENCASE BELOW GRADE CONDUITS WITH REINFORCED CONCRETE. 20 MPA CONCRETE WITH 10mm AGGREGATE SHALL BE USED. CONDUITS PASSING BENEATH ROADWAYS SHALL BE ENCASED IN CONCRETE REGARDLESS OF VOLTAGE.
  - IDENTIFY UNDERGROUND CONDUITS USING UNDERGROUND WARNING TAPE. INSTALL TAPE BURIED MIDWAY BETWEEN BURIED CONDUIT AND THE FINISHED GRADE LEVEL. ENSURE TAPE COVERS THE ENTIRE LENGTH OF THE EXCAVATION.
  - CONTACT BELL AND/OR SHAW (DETERMINE OWNER'S PREFERENCE) PRIOR TO THE INSTALLATION OF ROUGH-IN CONDUITS TO ALLOW FOR PROPER COORDINATION. PROVIDE GROUND WIRES FOR COMMUNICATION SYSTEMS WHERE REQUIRED.
  - PROVIDE AND INSTALL LIGHTING FOR UTILITIES BUILDING, ROADWAY LIGHTING, POLES AND CONCRETE BASES WHERE INDICATED. EACH ROADWAY LUMINAIRE SHALL BE FUSED, ADJUST AND AIM FIXTURES AT THE COMPLETION OF THE WORK TO SUIT SITE CONDITIONS. COORDINATE THE BASE INSTALLATION WITH OTHER TRADES AND CONFIRM LOCATION WITH CONSULTANT PRIOR TO COMMENCEMENT OF INSTALLATION. ALTERNATIVE MANUFACTURERS FOR LUMINAIRES WILL BE CONSIDERED IF THE PERFORMANCE, APPEARANCE AND WARRANTY MEETS OR EXCEEDS THE SPECIFIED.
  - PROVIDE AND INSTALL THE ELECTRIC UNIT HEATER. IT MAY BE SUSPENDED FROM THE CEILING OR FROM WALL BRACKET. ACCEPTABLE MANUFACTURERS ARE OUELLET AND STELPRO.

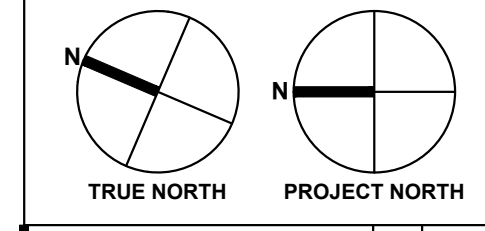
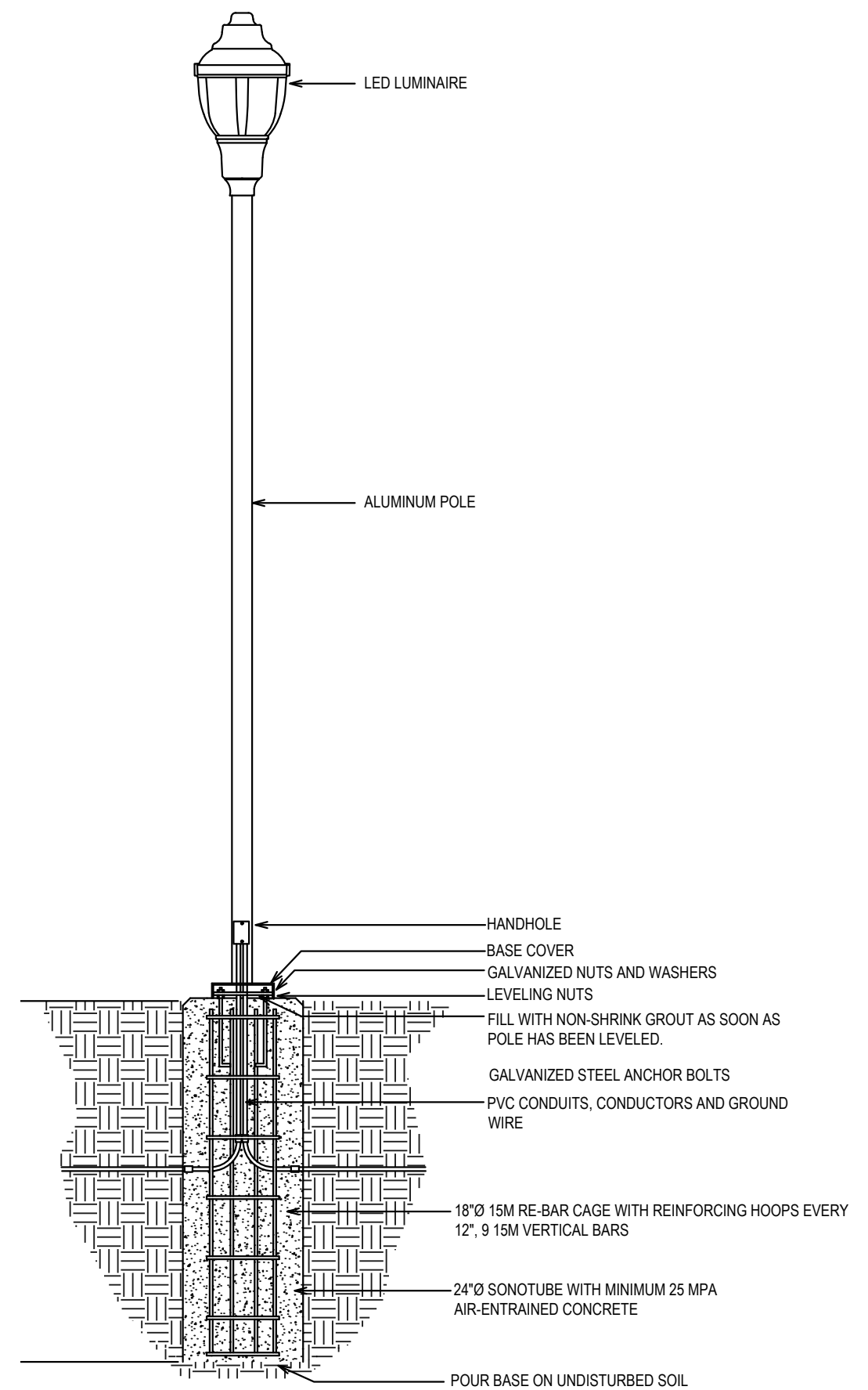
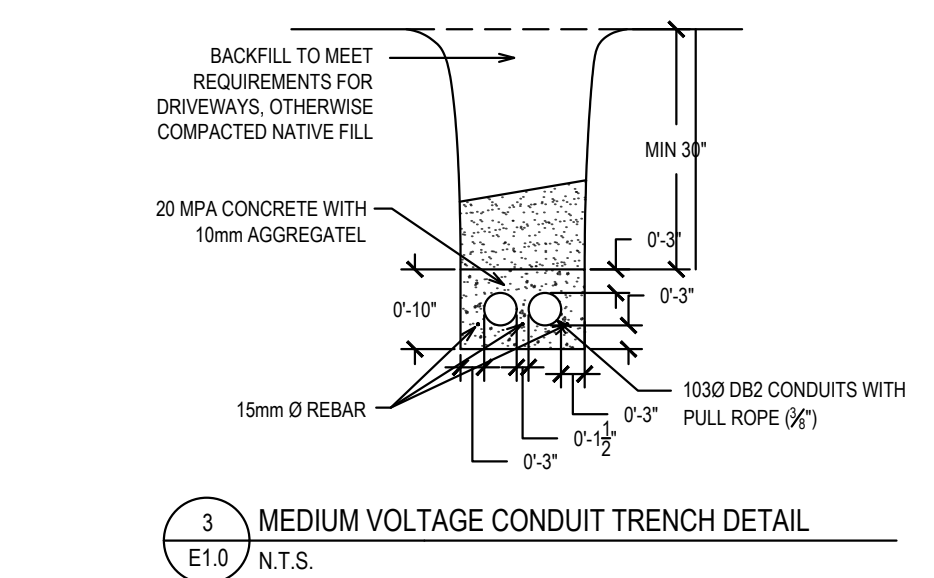
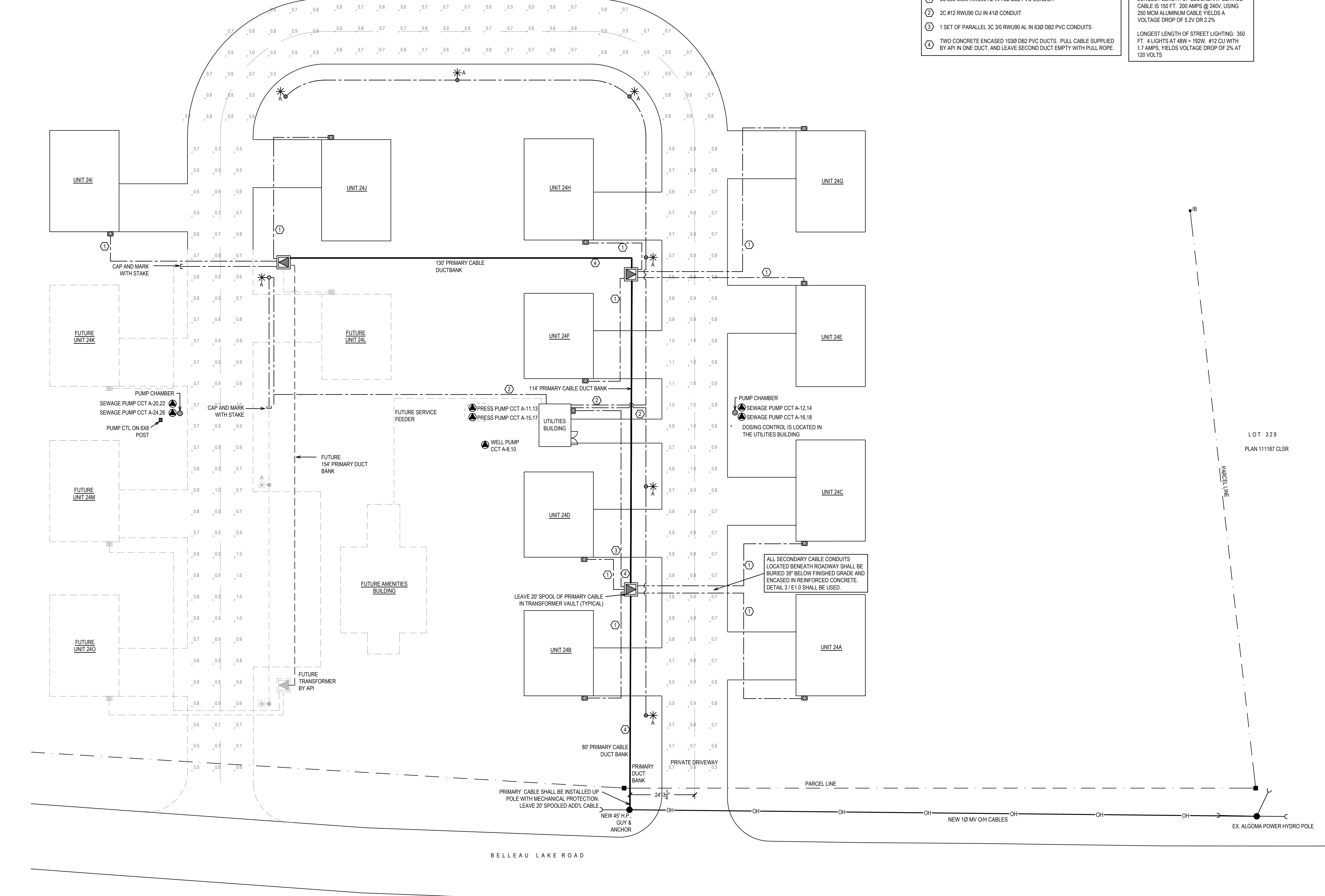
**CABLE SCHEDULE**

- 3C 250 MCM RW190 AL IN 780 DB2 PVC CONDUIT
- 2C #12 RW190 CU IN 410 CONDUIT
- 1 SET OF PARALLEL 3C 3/0 RW190 AL IN 630 DB2 PVC CONDUITS
- TWO CONCRETE ENCASED 1030 DB2 PVC DUCTS, FULL CABLE SUPPLIED BY API IN ONE DUCT, AND LEAVE SECOND DUCT EMPTY WITH PULL ROPE.

**VOLTAGE DROP CALCULATIONS**

LONGEST LENGTH OF SECONDARY SERVICE CABLE IS 150 FT. 200 AMPS @ 240V. USING 250 MCM ALUMINUM CABLE YIELDS A VOLTAGE DROP OF 5.2V OR 2.2%.

LONGEST LENGTH OF STREET LIGHTING: 350 FT. 4 LIGHTS AT 48W = 192W. #12 CU WITH 17 AMPS. YIELDS VOLTAGE DROP OF 2% AT 120 VOLTS.



Revised for	By	Date
Issued for construction	R	2024.05.28
Change locations and number of storm per API	C	2024.05.13
General revisions, not for construction	B	2024.04.19
For comment	A	2024.04.09

Description	No.	Date

Engineer's Seal

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Project  
**HOMES FOR YOUTH DEVELOPMENT**

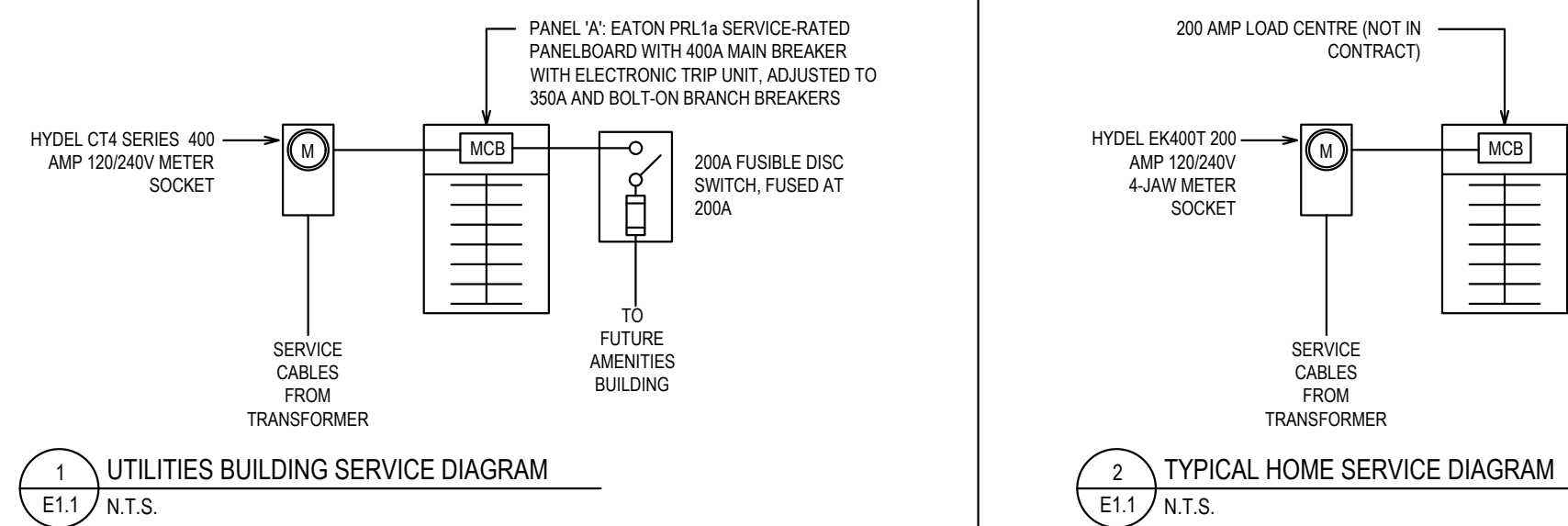
Client  
**GARDEN RIVER FIRST NATION**

24 Belleau Lake Rd Garden River, ON

Drawing Title  
**SITE PLAN & DETAILS**

Date	Scale	Dwg No.
2023.07.28	AS NOTED	E1.0
Designer R.L.	Project No. 2317	

1 ELECTRICAL SITE PLAN  
 E1.0 1/20"=1'-0"



PANELBOARD 'X'  
120/240 V, 1 φ, 3W, SERVICE RATED 400 AMP MAIN BREAKER WITH FEED THROUGH LUGS

DESCRIPTION	BKR A	CCT No	SN A B	CCT No	BKR A	DESCRIPTION
UV UNIT	15	1	●	2	15	SERVICE RECEPTACLES
CHLORINE WATER TREATMENT	15	3	●	4	20	UTILITIES BUILDING LIGHTING
PUMP CONTROLLER	15	5	●	6	15	OUTDOOR RECEPTACLE
UNIT HEATER	20	7	●	8	15	WELL PUMP
		9	●	10		
PRESSURE PUMP #1	15	11	●	12	15	SEWAGE PUMP #1
		13	●	14		
PRESSURE PUMP #2	15	15	●	16	15	SEWAGE PUMP #2
		17	●	18		
ROADWAY LIGHTING	15	19	●	20	15	SEWAGE PUMP #3
		21	●	22		
EXHAUST FAN	15	23	●	24	15	SEWAGE PUMP #4
OUTDOOR LIGHTING	15	25	●	26		
SPARE	15	27	●	28	20	SPARE
SPARE	15	29	●	30		
SPARE	15	31	●	32	20	SPARE
SPARE	15	33	●	34		
SPARE	15	35	●	36	15	SPARE
SPARE	15	37	●	38		
SPARE	20	39	●	40	15	SPARE

FEED THROUGH TERMINALS

NOTES:  
1. PROVIDE ARC-FAULT PROTECTED CIRCUITS AS REQUIRED BY ONTARIO ELECTRICAL SAFETY CODE.  
2. ONLY BOLT-ON BREAKERS ARE ACCEPTABLE.

**INDIVIDUAL BUILDING ELECTRICAL LOAD CALCULATION**

CALCULATIONS FOR THIS PROJECT WILL BE BASED ON A MORE CONSERVATIVE APPLICATION OF RULE 8-200 (1) AND (2) OF THE OESC. THIS DEVELOPMENT IS A SMALL "POD" WHICH IS OCCUPIED AND OPERATES IN THE SAME MANNER AS A TWO OR MORE DWELLING UNITS OF ROW HOUSING. DEMAND AND CABLE SIZES TO THE DEVELOPMENT WILL BE SELECTED ON THIS BASIS.

**ALL HOUSING UNITS:**

BASIC LOAD (<90m²)	5.0 kW
2" ELECTRIC RANGE	4.0 kW
DRYER	1.4 kW
HEAT PUMP	2.0 kW
WATER HEATER	18.0 kW
SUBTOTAL	38.4 kW

PANEL REQUIREMENT: 30,400 / 240 = 127 AMPS. MINIMUM AMPERAGE REQUIRED IS 1.25 X 127 = 159 AMPS. SELECT PANELBOARDS WITH 200 A MAIN BREAKERS FOR EACH HOME.

**OWNER'S FACILITIES**

A SINGLE SERVICE AND METER WILL BE PROVIDED TO THE UTILITIES BUILDING. THE FUTURE AMENITIES BUILDING'S ELECTRICAL SERVICE WILL TAKE FROM THIS SERVICE.

**UTILITIES BUILDING 16 m² (168 m²) BUILDING AREA**

REFER TO TABLE 14, OCCUPANCY IS SIMILAR TO "GARAGE"; BASE LOAD = 10 W/m²

16 m² X 10 W/m² = 160 W	0.2 kW
ELECTRIC HEATING	10.0 kW
SITE LIGHTING	0.5 kW
CENTRAL SEWAGE PUMP ALLOWANCE	5.0 kW
WATER PUMPS	5.0 kW
SUBTOTAL	22.7 kW

PANEL REQUIREMENT: 22,700 / 240 = 94.6 A. MINIMUM REQUIRED FUSING IS 1.25 X 94.6 = 118 AMPS SINCE BREAKER IS RATED FOR 80% CONTINUOUS LOAD. SELECT A 200 AMP PANELBOARD TO MEET THE NEEDS OF THIS BUILDING.

**FUTURE AMENITIES BUILDING 111 m² (1200 m²) BUILDING AREA**

REFER TO TABLE 14, OCCUPANCY IS SIMILAR TO "CLUB"; BASE LOAD = 20 W/m²

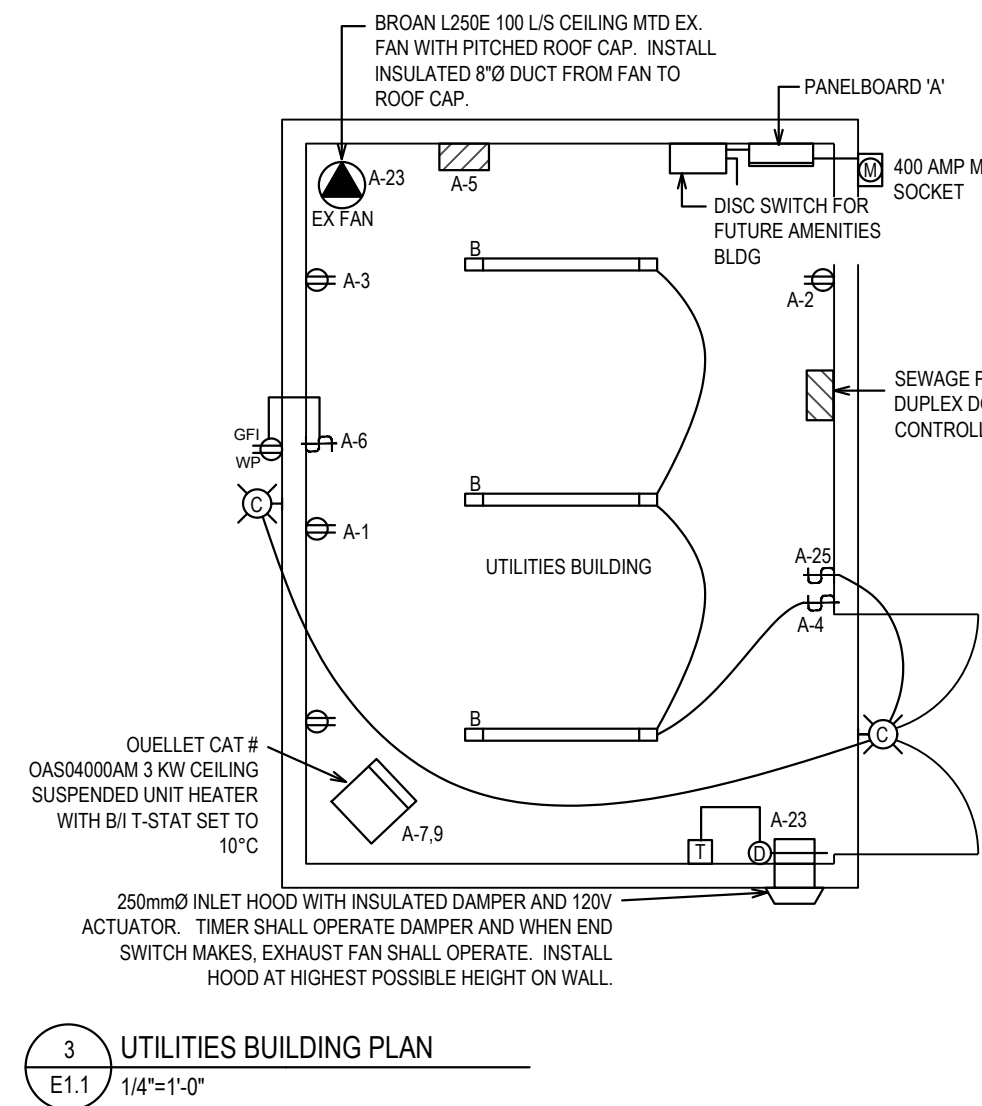
111 m² X 20 W/m² = 222 kW	2.2 kW
ESTIMATE ELECTRIC HEATING	20.0 kW
COOKING APPLIANCES	10.0 kW
ELEC WATER HEATER	4.0 kW
SUBTOTAL	36.2 kW

PANEL REQUIREMENT: 36,200 / 240 = 151 A. MINIMUM REQUIRED FUSING IS 1.25 X 151 = 189 AMPS SINCE BREAKER IS RATED FOR ONLY A 80% CONTINUOUS LOAD. 200A PANELBOARD AND FEEDER CABLE IS REQUIRED.

**COMBINED LOAD:**

UTILITY BUILDING LOAD + AMENITIES BUILDING LOAD = 22.7 kW + 36.2 kW = 58.9 kW

58.9 kW / 240V = 245 AMPS. IF 80% CONTINUOUS DUTY EQUIPMENT IS USED, THE REQUIRED FUSE IS 245 X 1.25 = 306 AMPS. THEREFORE, PROVIDE 400A MAIN BREAKER WITH 350A RATING PLUG.



**HY-GRADE PRECAST CONCRETE**

**TRANSFORMER PAD TP-145 FOR 25-167 KVA TRANSFORMERS**

**PLAN VIEW**

**SECTION A-A**

**SECTION B-B**

**NOTES:**

- Concrete Strength: 30 MPa [min.] Air Entrained [5 - 8%]
- Wall Thickness: 152mm
- 2" Ø Lifting Holes
- [2] 1/2" N.C. Gal. Threaded Inserts and bolts
- Reinforcement: 10M Rebar @ 4x4x4 WWF
- Total Weight: 1,283 kg [2,828 lbs.]

Please contact our office for additional information and/or design assistance JAN 16/09

Hy-Grade Precast Concrete  
2411 First Street Louth  
St. Catharines, Ontario, L2R 6P7  
Tel: 1-800-229-8568  
Fax: 905-684-8560  
www.hygradeprecast.com

Hy-Grade Precast Concrete Products, Inc.  
PO Box 148  
Byron, New York, USA 14557  
Tel: 1-877-897-2730  
Fax: 585-548-2731

**Algoma Power Inc. Transformer Pad & Grounding**

**EXISTING GRADE**

**U/G PRIMARY**

**U/G SECONDARY**

**HOUSE WALL**

**TO MAIN ENTRANCE SWITCH**

**GROUND ROD** 9mm (3/4") 3m (10') GALVANIZED

**GROUND GRADIENT CONTROL** #2/0 BARR. CU. WIRE

**CONCRETE PAD ON CRUSHED STONE BASE**

**SLOPE FINISHED GRADE**

**GROUND ROD CLAMPS TO SUIT**

**The customer is responsible for the following:**

- Supplying and installation of the padmount base.
- The installation of all grounds.
- Getting approval from the Electrical Safety Authority.

The information in this diagram is compiled by Algoma Power Inc. and is for general information only. Although every attempt has been made to ensure accuracy, Algoma Power Inc. will have final say in interpretation.

REVISION 03 - 14/04/10

Issued for quotation	0	2024.05.28
Issued for review	A	2023.12.01
Description	No.	Date

Engineer's Seal

DO NOT SCALE DRAWING  
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**RDL Engineering Services Ltd.**  
132 Glendale Dr, Tillsonburg, ON N4G 5V9  
roy@rdleng.com (548) 998-5553

Project  
**HOMES FOR YOUTH DEVELOPMENT**

Client  
**GARDEN RIVER FIRST NATION**  
24 Belleau Lake Rd Garden River, ON

Drawing Title  
**ELECTRICAL PANEL SCHEDULE AND DETAILS**

Date	Scale	Dwg No.
2023.07.28	AS NOTED	E.1.1
Designer	Project No.	
R.L.	2317	



WFCL3 Utility Washington Series Luminaire Full Cutoff LEDs



Table with columns: Catalog Number, Notes, Type

Mechanical

- Heavy grade A360 cast aluminum (< 1% copper)
- Tool-less access with a spring-loaded latch
- Hidden hinge door allowing the door to swing open and remain open
- Optional internal or external NEMA twist lock photocontrol receptacle...

Electrical

- Surge protection meets ANSI/IEEE C62.41.2 10kV/10kA
- Standard SPD meets 20kV/10kA per ANSI C136.2-2015
- Quick disconnect connectors for ease of installation and maintenance

Optical

- IP65 rated optical compartment
- LED circuit board located in the top cover
- Asymmetric or symmetric zero uplight distributions

Control Options

- Field Adjustable Output (AO) module - On-board device that adjusts the light output and input wattage to meet site-specific requirements.
- All modules are gasketed at the factory to position number 9

- 7 pin photocontrol receptacles internally (PR7) or externally (PR7) mounted in place of the final DTL DIN dedicated bracket with external mounted antenna - DIMBRA

- Manufactured in Crawfordsville, Indiana, ARRA compliant
- 100% electrical testing on all luminaires before shipment
- Over 150 years minimum experience in manufacturing LED based products

Certification and Standards

- Luminaire shall be UL 1598 - Wet Location Safety Listing
- Suitable for operation in an ambient temperature -40°C (40°F) to 40°C (104°F) per UL certification for performance packages P05 thru P100 Type 2, 3 & 5 Enclosure, P05 thru P90 Type 2, 3, 4 & 5 Clear glass and P05 thru P90 Type 3 & 5 frosted glass

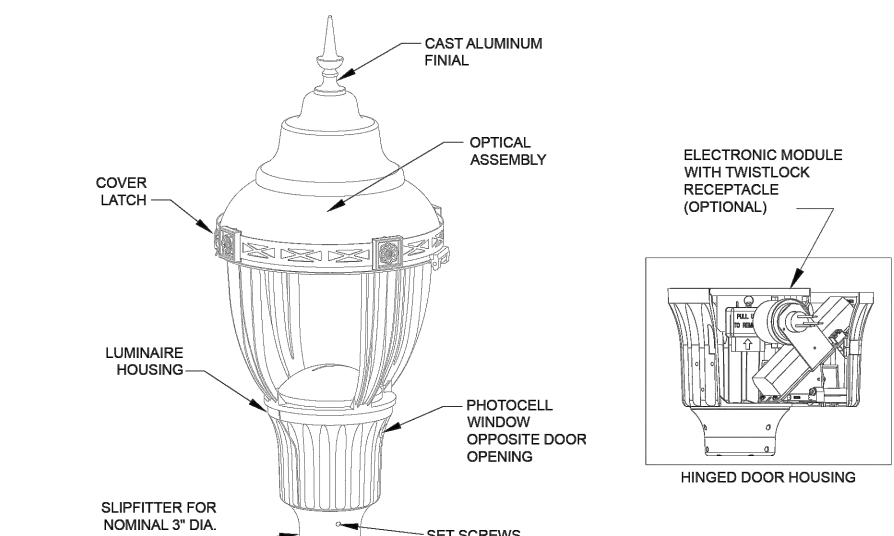
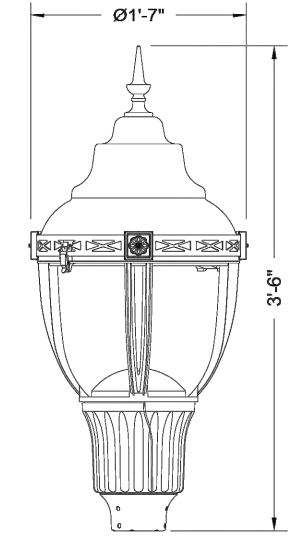
Government Procurement

- BAA - Buy America) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS.
- Product also qualifies as manufactured in the United States under DOT Buy America regulations.

Warranty

- 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind.
- Actual performance may differ as a result of end-user environment and application.

DIMENSIONAL DATA



Maximum Weight - 53 lbs
Maximum Effective Projected Area - 1.72 sq. ft.

WFCL3 Utility Washington Series Luminaire Full Cutoff LEDs

ORDERING INFORMATION

Table with columns: Series, Led performance package, LED Color Temperature, Voltage, Optics, Housing Color, Finish

Options

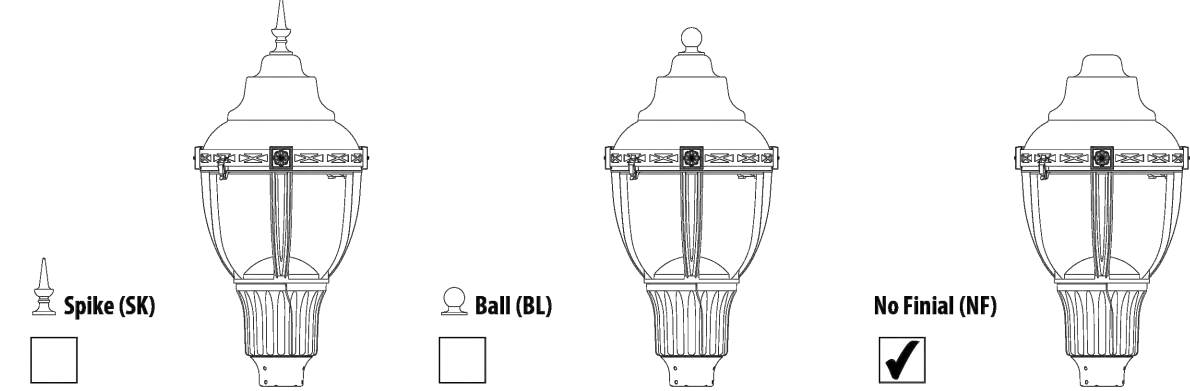
Table with columns: Option, Description, Price

Accessories

Table with columns: Accessory Name, Description, Price

FINIAL INFORMATION

Mark Appropriate Box for Final Options



TYPE B LUMINAIRE



Contractor Select™ CSS LED Strip Light

The light-duty, dimmable, damp-location and DLC® listed CSS LED strip light can easily mount individually to a ceiling, horizontal and vertical wall, or by continuous row.

FEATURES:

- Inspired by classic fluorescent strip channels, this LED fixture offers a traditional appearance that incorporates the latest technology
- Quick and simple to install with the snap-lock tool-less channel cover

Table with columns: Catalog Number, Notes, Type



Table with columns: Catalog Number, UPC, Description, Lumens, Wattage, Voltage, Color Temperature, Color Rendering Index, Pallet Quantity

More configurations are available. Click here or visit www.acuitybrands.com and search for CSS LED.

Table with columns: Accessory Name, Description

LITHONIA-CSS LED STRIP-CONTRACTOR SELECT



Specifications

INSPIRED BY CLASSIC FLUORESCENT STRIP CHANNELS, THIS LED FIXTURE OFFERS A TRADITIONAL APPEARANCE THAT INCORPORATES THE LATEST TECHNOLOGY.

CONSTRUCTION: Compact design channel and cover are formed from code-grade, cold-rolled steel. Easy to install row aligner brackets included for continuous row mounting.

OPTICS: LEDs provide 80+ color rendering index (CRI) at 3500 K, 4000 K and 5000 K. Diffuse acrylic lens provides smooth, linear illumination.

INSTALLATION: Fixture may be surface or suspension mounted with appropriate mounting options (see accessories). Aligner locks in place for easy continuous row mounting.

LISTINGS: CSA certified to US and Canadian safety standards and listed suitable for damp locations. Minimum starting temperature at -22°F (-30°C). Maximum ambient operating temperature of 104°F (40°C) for 4ft models and 95°F (35°C) for 2ft and 8ft models.

WARRANTY: 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind.

TYPE C LUMINAIRE



Specifications

- Depth (D): 2"
- Height (H): 5.75"
- Width (W): 5.5"
- Weight: 2.5lbs

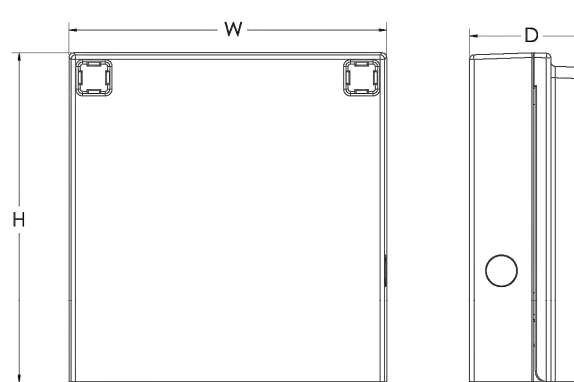


Table with columns: Catalog Number, Notes, Type

Introduction

The WPXO LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities.

The WPXO full cut-off wall pack is an excellent choice above the door lighting solution. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life.

Ordering Information

EXAMPLE: WPXO LED ALO SSW2 MVOLT PE DDBXD

Table with columns: Series, Color Temperature, Voltage, Controls, Finish

Note: The lumen output and input power shown in the ordering tree are average representations of all configurations.

NOTES: Default out of the box settings: 1,650 Lumens, 4000K, Photocell enabled

FEATURES & SPECIFICATIONS

INTENDED USE: The WPXO LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-for-one replacement of existing HID wall packs.

CONSTRUCTION: WPXO features a die-cast aluminum main body with optimal thermal management that both enhances LED efficacy and extends component life.

ELECTRICAL: Light engine consists of high-efficacy LEDs and LED lumen maintenance of 100,000 hours. Color temperature (CCT) can be switched between 3000K, 4000K and 5000K with minimum CCT of 80.

INSTALLATION: WPXO can be mounted directly over a standard electrical junction box. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box.

LISTINGS: CSA Certified to meet US and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium® (DLC) qualified product.

WARRANTY: 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind.

Performance Data

Table with columns: ALO Setting, Input Power (W), 120 V (A), 208 V (A), 240 V (A), 277 V (A)

Lumen Output

Table with columns: ALO Setting, Color Temperature, Lumens Output

Lumen Ambient Temperature (LAT) Multipliers

Table with columns: Ambient, Ambient, Lumen Multiplier

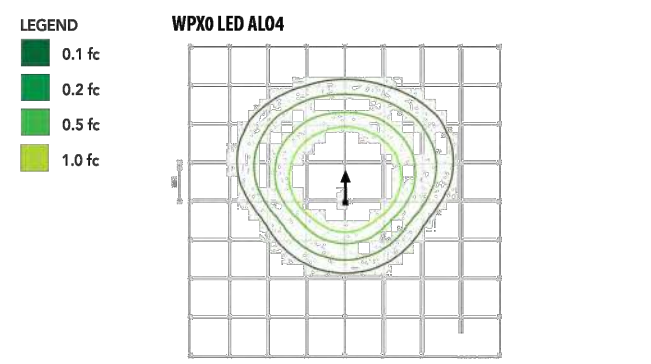
Projected LED Lumen Maintenance

Data reflects the extrapolated performance projections in a 25°C ambient, based on 6,000 hours of LED testing based per IESNA LM-80-08 and projected per IESNA TM-21-11.

Table with columns: Operating Hours, Lumen Maintenance Factor

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting WPXO LED homepage.



Switchable Features



Table with columns: Description, No., Date

Issued for quotation 0 2024.05.28

Description No. Date

Engineer's Seal



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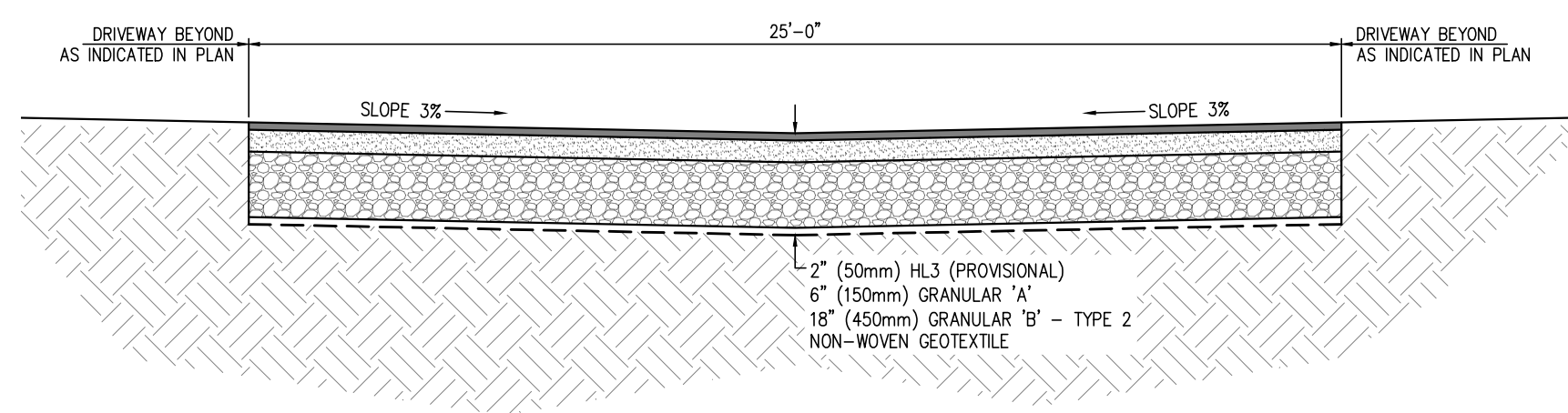
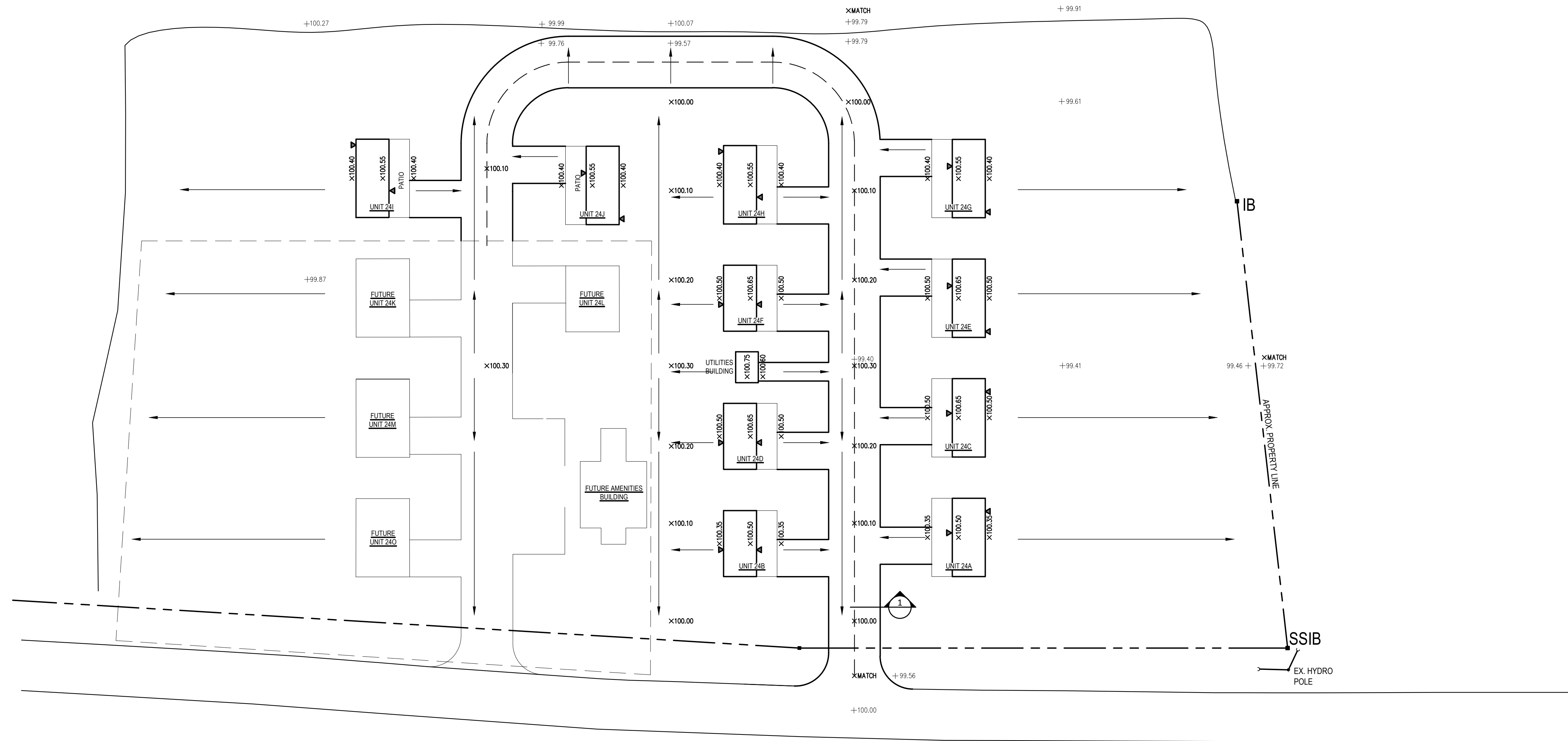
Project HOMES FOR YOUTH DEVELOPMENT

Client GARDEN RIVER FIRST NATION

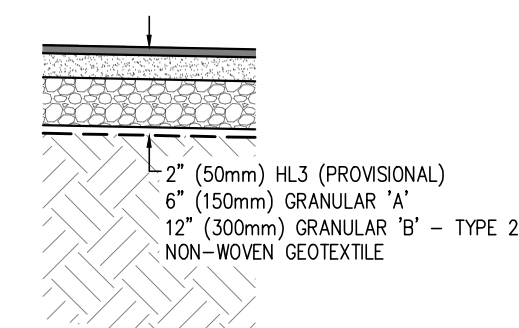
24 Belleau Lake Rd Garden River, ON

Drawing Title LUMINAIRE SPECIFICATIONS

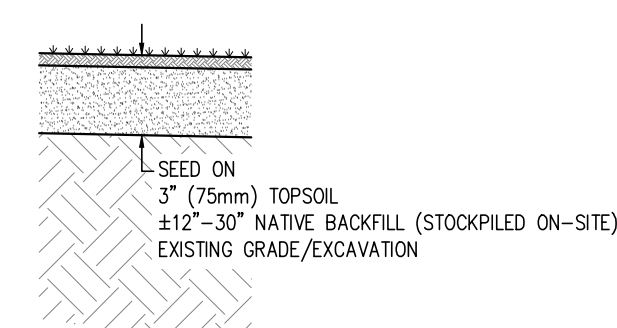
Table with columns: Date, Scale, Drawing No., Designer, Project No., Rev.



1 TYPICAL ROAD SECTION  
SCALE: 1/4"=1'-0"



2 TYPICAL DRIVEWAY SECTION  
SCALE: 1/4"=1'-0"



3 TYPICAL GRASSED AREA  
SCALE: 1/4"=1'-0"

DRAWING LEGEND		
+	EXISTING ELEVATION	
x	PROPOSED ELEVATION	
→	SLOPE DIRECTION	

OWNER: GARDEN RIVER FIRST NATION  
 PROJECT NAME: TINY HOMES  
 PROJECT ADDRESS: 24 BELLEAU LAKE RD., GARDEN RIVER

DRAWING TITLE

GRADING PLAN

DATE	SHEET SIZE	DWG NO.
JUNE 14, 2024	24 X 36	C1.0
CHECKED	SCALE	
	1/32" = 1'-0"	