THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH/CARDINAL SITE PLAN CONTROL AGREEMENT

THIS AGREEMENT made in triplicate this day of, 2024
BETWEEN: 2506418 ONTARIO INC.
Hereinafter called the "Owner" of the first part
AND: THE CORPORATION OF THE TOWNSHIP OF EDWARDSBURGH/CARDINAL
Hereinafter called the "Township" of the second part
WHEREAS the Owner has applied to the Township in accordance with the Site Plan Control provisions of Bylaw No. 2023-47, to permit the development of the lands

AND WHEREAS the Owner has agreed with the Township to undertake, furnish and perform the works, material, matter and things required to be done, furnished and performed in the manner hereafter described in connection with the proposed use of the land and in conformity with the Zoning Bylaw;

NOW THEREFORE THIS AGREEMENT WITNESSETH THAT in consideration of other good and valuable consideration and the sum of two dollars (\$2.00) of lawful money of Canada now paid by the Owner to the Municipality, the receipt of which is hereby acknowledged, the Parties hereby agree as follows:

1. Land to Which this Agreement Applies

described in Schedule "A" attached hereto;

This is an agreement made pursuant to the provisions of Section 41 of the Planning Act, RSO 1990. as amended, and applies to the lands described in Schedule "A" to this agreement.

2. Statutes, Bylaws, Licenses, Permits and Regulations

The Owner undertakes and agrees that prior to the commencement of any development, redevelopment, site alteration, construction or other works, the Owner shall obtain all necessary permits and approvals required by the

Government of Canada, the Province of Ontario or any agency thereof, the Township and any other affected agency. The Owner undertakes and agrees to comply with the requirements of all relevant municipal bylaws, provincial and federal statutes and regulations, permits, approvals or licenses in addition to the terms of this agreement.

3. Schedules

The Owner hereby agrees that prior written approval by the Township and/or an amendment to a Schedule shall be required for any departure, change or modification from the Schedules.

The following list of schedules attached hereto are deemed to be and form part of this Agreement:

- 3.1 Schedule "A" -Legal Description of the Land to which this Agreement applies.
- 3.2 Schedule "B" -Site Plan
- 3.3 Schedule "C" -Stormwater Management Report
- 3.4 Schedule "D" -Special Conditions

4. Registration of Agreement and Commencement of Work

The Owner covenants that he/she/they shall not commence any development or site alteration whatsoever until this Agreement is registered on title against the land at the expense of the Owner.

The Owner agrees to commence development of the site not later than September 29th, 2025.

5. Completion Date

The owner agrees to complete the work required under this Agreement not later than September 29th, 2026.

6. Default

In the event the Owner defaults in the performance of an obligation under this agreement or for reasons of public safety as determined by the Chief Building Official under the Building Code Act of Ontario or the Fire Marshall under the Fire Protection & Prevention Act of Ontario, the Township may, at the expense of the Owner, enter upon the lands and do all such matters and things as may be

required to comply with any Order of the Chief Building Official or Assistant to the Fire Marshall (local Fire Chief). Such actual costs incurred by the Township plus an overhead charge of 15%, shall be deemed to be recoverable from the Owner by invoice and may be recovered in like manner as municipal taxes pursuant to the Municipal Act.

7. Facilities and Work to be Provided and Maintained

The Owner covenants and agrees to provide and maintain, at his/her/their sole expense each and every facility, work or other matter illustrated on the Schedules to the satisfaction of the Township, acting in a commercially reasonable manner, and to engage qualified professionals, where required, to design and carry forth any of the work undertaken under this Agreement. This shall include the restoration of any faulty workmanship or materials.

8. Certificate of Compliance

Upon the satisfactory completion of all matters and things to be provided and maintained by the Owner pursuant to this Agreement, the Owner shall be entitled to obtain a Certificate of Compliance from the Township confirming that all provisions of this Agreement have been complied with in full to the date of such Certificate.

9. Notice to Parties

Any Notice by any party to this agreement to another shall be given in writing and mailed or delivered to the Party:

9.1 In the case of the Municipality:

To the Clerk of the Township of Edwardsburgh/Cardinal 18 Centre Street P.O. Box 129 Spencerville, ON KOE 1XO

9.2 In the case of the Owner(s):

2506418 Ontario Inc. c/o Mitchell Alswiti 9 Newport Drive Johnstown ON K0E 1T1

10. Severability

The terms of this agreement are severable, and the unenforceability of any part hereof shall not render the whole unenforceable. No forbearance or failure by the Township to strictly enforce any term or covenant herein shall prevent the Township from insisting upon strict compliance by the Owner subsequent to such forbearance or failure to strictly enforce its terms. The terms of this agreement may not be altered except by a subsequent agreement in writing between the parties.

11. Successors and Assigns

This Agreement shall ensure to the benefit of and be binding upon the respective heirs, personal representatives, successors and assigns of each of the parties hereto.

12. Force and Effect

This Agreement comes into force after it has been executed by all parties hereto and registered against the title to the lands described in Schedule "A".

IN WITNESS WHEREOF the Parties have hereunto set their hands and seals, corporate parties over the hand(s) of their duly authorized signing officers in that regard.

OWNER/AUTHORIZED AGENT
Owner
I have the authority to bind the corporation.
CORPORATION OF THE TOWNSHIP OF
EDWARDSBURGH/CARDINAL
Mayor
iviayoi
Clerk
We have the authority to bind the corporation.

SITE PLAN CONTROL AGREEMENT BETWEEN 2506418 ONTARIO INC. AND THE TOWNSHIP OF EDWARDSBURGH CARDINAL

SCHEDULE "A"

Site Plan Control Agreement

DESCRIPTION OF THE PROPERTY

PT LT A PL 90 EDWARDSBURGH PARTS 1, 2, 3, & 4 ON 15R11896; S/T AN EASEMENT OVER PART 3 & 4 ON 15R-11896 AS IN PR28293; TOWNSHIP OF EDWARDSBURGH/CARDINAL

PIN: 68155-0878

SITE PLAN CONTROL AGREEMENT BETWEEN 2506418 ONTARIO INC. AND THE TOWNSHIP OF EDWARDSBURGH CARDINAL

SCHEDULE "B"

Site Plan Control Agreement

SITE PLAN

EXHIBITS: The following Exhibits attached hereto shall form part of this Schedule:

Exhibit 1- C1 Existing Conditions and Erosion Plan

Exhibit 2- C2 Site and Servicing Plan Exhibit 3- C3 Grading and Servicing Plan

NOTES: EROSION & SEDIMENT CONTROL

IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES FOR EROSION & SEDIMENT CONTROL: - GEOTEXTILE CATCHES SHALL BE INSTALLED UNDER THE LIDS OF ALL <u>EXISTING AND PROPOSED</u> SITE STRUCTURES AND ADJACENT MUNICIPAL STRUCTURES. "ULTRA DRAIN GUARD" OR - LIGHT DUTY SILT FENCE AND STRAW BALE CHECKS SHALL BE INSTALLED AT LOCATIONS AS SHOWN ON THE DRAWING. ALL SEDIMENT AND EROSION CONTROL MEASURE SHALL BE INSPECTED DAILY AND AFTER EVERY RAIN EVENT BY THE CONTRACTOR. ALL SEDIMENT AND EROSION MEASURES SHALL BE MAINTAINED, REPAIRED OR REPLACED AS REQUIRED UNTIL CONSTRUCTION IS COMPLETE AND GROUND COVER HAS STABILIZED. THE CONTRACTOR SHALL IMMEDIATELY CONTAIN AND REMOVE ANY SEDIMENTS THAT BREACH SILT BARRIERS. CONSTRUCTION TRUCKS SHALL NOT BE CLEANED OR WASHED

OFF ON THIS SITE EXCEPT AT AN APPROVED WASH OFF STATION. ANY FUEL SPILLS SHALL BE CONTAINED & CLEANED UP IMMEDIATELY. THE MINISTRY OF THE ENVIRONMENT MUST BE NOTIFIED IMMEDIATELY IF A SPILL OCCURS. IN THE EVENT THAT THE EROSION AND SEDIMENT CONTROL ("ESC") MEASURE INDICATED ON THIS PLAN ARE NOT SUFFICIENT, THE CONTRACTOR SHALL PROVIDE ADDITIONAL "ESC" MEASURED TO MINIMIZE THE RELEASE OF SOILS AND SEDIMENT INTO BODIES OF WATER AND SEWERS.

 CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF EROSION CONTROL MEASURES UPON COMPLETION OF CONSTRUCTION AND RE-VEGETATION HAS OCCURRED. CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF COLLECTED

 THIS DOCUMENT IS TO BE CONSIDERED A LIVING DOCUMENT AND MAY BE AMENDED IF WARRANTED BY CONDITIONS.

GENERAL NOTES

 ALL WORK ON TOWNSHIP PROPERTY TO BE PERFORMED BY A CONTRACTOR APPROVED BY THE TOWNSHIP.

 CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

 CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS PRIOR TO START OF CONSTRUCTION.

$\underline{\mathit{LEGEND}}$

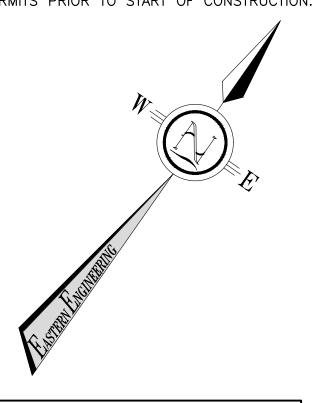
EXISTING TOPO GRADE × 92.90 PROPOSED GRADE EXISTING GRADE EXISTING GRADE ----- STORM SEWER ----- SANTITARY SEWER BELL UNDERGROUND —⋈—— GAS UNDERGROUND — CABLE UNDERGROUND - ELECTRICAL UNDEROUND OVERHEAD UTILITIES o BH o B o LS o H UTILITY POLE • AN UTILITY ANCOR UTILITY PEDISTAL ■ PROPERTY BAR FOUND RS ROAD SIGN + FENCE ~~~~~~~~~~TREELINE TREE 11.58 N49°15'50"E EXISTING BUILDING 777777777 EXISTING BUILDING TO BE REMOVED ROPOSED BUILDING

ENTRANCE/EXIT



GENERAL NOTES

- ALL WORK ON TOWNSHIP PROPERTY TO BE PERFORMED BY A CONTRACTOR APPROVED BY THE TOWNSHIP.
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- CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS PRIOR TO START OF CONSTRUCTION.



<u>BENCHMARK</u>

TOP OF SIB ON NORTH SIDE OF COUNTY ROAD 2

ELEV. 92.16m

NOTE:

CONTRACTOR TO CONTACT UTILITY COMPANIES TO DETERMINE TYPE, LOCATION, AND CONFIGURATION OF EXISTING PLANT.

2	CAJ	8/7/2024	TOWNSHIP COMMENTS
1	AJP	7/3/2024	SITE PLAN CONTROL
0	CJ	12/24/2023	SITE PLAN CONTROL
No	Bv	Date:	Revisions

- All drawings, specifications and related documents are the copyright property of the Engineer and must be returned upon request. Reproduction of drawings, specifications, and related documents in part or whole is forbidden without the Engineers' written permission.
- The contractor must check and verify all dimensions on the job prior to start of construction.

Drawings are not to be scaled.





Apex Building

CONSULTING ENGINEERS Telephone: (613) 345-0400 207 - 100 Strowger Blvd. Facsimile: (613) 345-0008 Brockville, Ont. K6V 5J9 www.EastEng.com

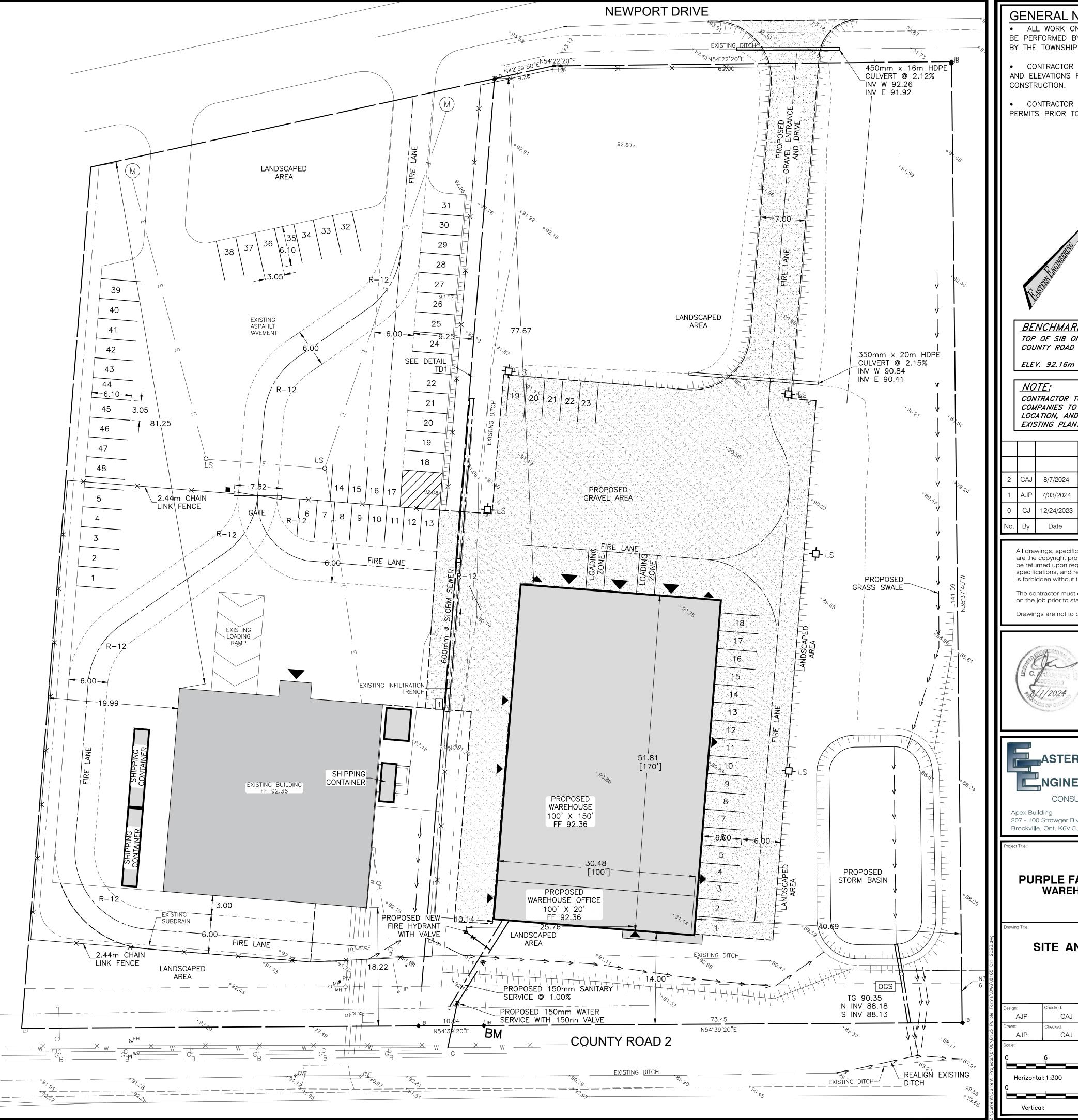
PURPLEFARM GENETICS INC WAREHOUSE/RETAIL

EXISTING CONDITIONS AND EROSION CONTROL PLAN

AJP	CAJ		8165
Drawn:	Checked:	Date:	Contract No.:
AJP	CAJ	2023/12/24	
Scale:		Drawing No.:	
0	6 12		_

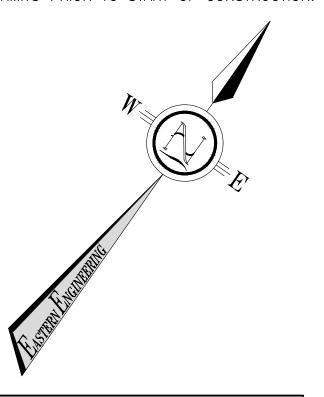
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ZONING REQUIREMENTS	FOR MP/HO	<u>ZONE</u>
	REQUIRED	PROPOSED
MIN. LOT AREA MIN. LOT FRONTAGE MAX. LOT COVERAGE MIN. FRONT YARD (NEWPORT DRIVE) (COUNTY RD. No.2) MIN. INTERIOR SIDE YARD MAX. BUILDING HEIGTH		1.136 ha 70.43 m 25.32 % 77.67 m 14.00 m 10.14 m 8 m
SITE STATISTICS LOT AREA BUILDING AREA ASPHALT AREA GRAVEL AREA LANDSCAPE AREA	11,360 m ² 1579 m ² 0 m ² 2877 m ² 6904 m ²	
PARKING SPACES (COMMERCIAL)	7 SPACES	7 SPACES



GENERAL NOTES

- ALL WORK ON TOWNSHIP PROPERTY TO BE PERFORMED BY A CONTRACTOR APPROVED BY THE TOWNSHIP.
- CONTRACTOR TO VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO THE START OF
- CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS PRIOR TO START OF CONSTRUCTION.



<u>BENCHMARK</u>

TOP OF SIB ON NORTH SIDE OF COUNTY ROAD 2

NOTE: CONTRACTOR TO CONTACT UTILITY COMPANIES TO DETERMINE TYPE, LOCATION, AND CONFIGURATION OF EXISTING PLANT.

2	CAJ	8/7/2024	TOWNSHIP COMMENTS
1	AJP	7/03/2024	SITE PLAN CONTROL
0	CJ	12/24/2023	SITE PLAN CONTROL
No.	Ву	Date	Revisions

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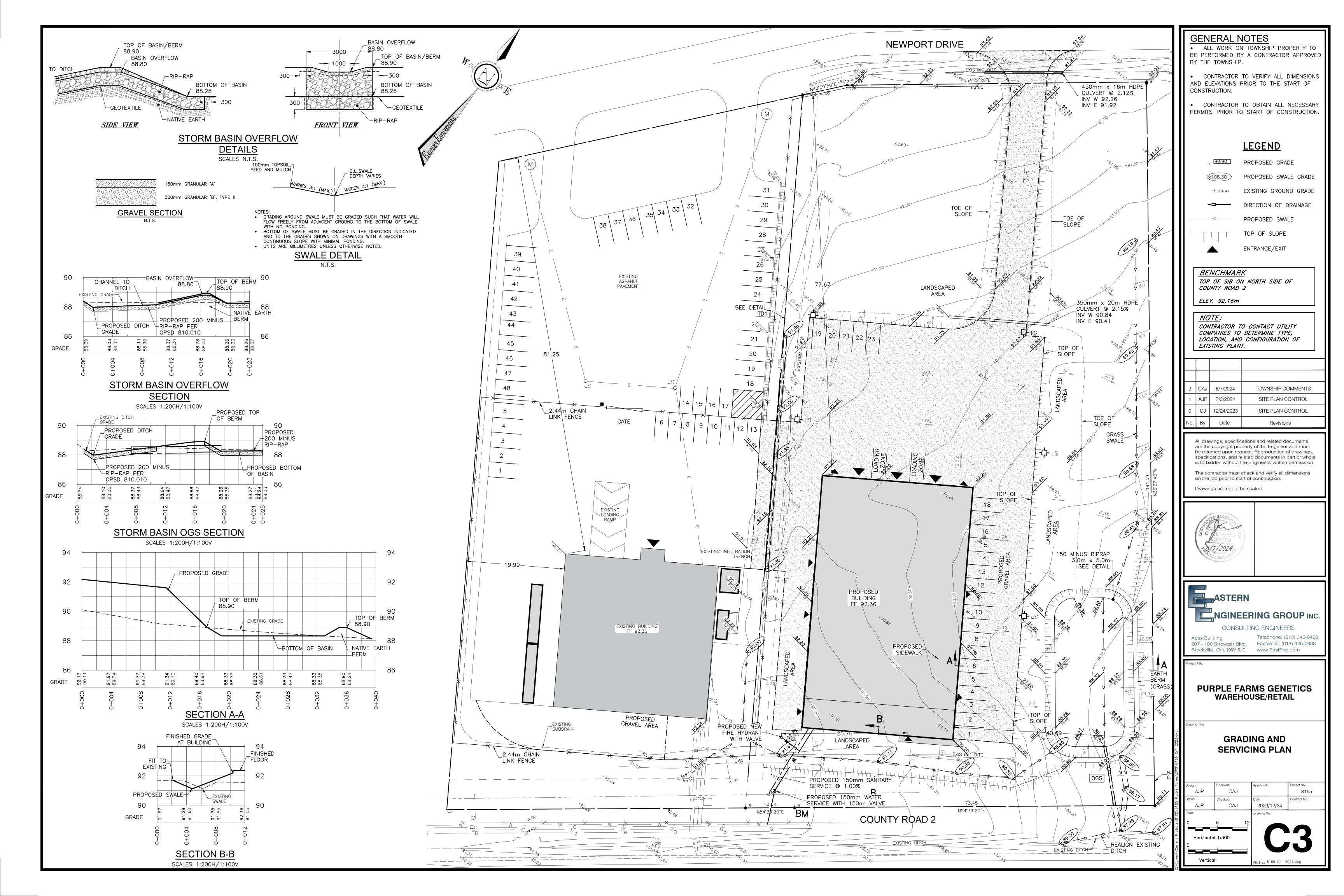


CONSULTING ENGINEERS Telephone: (613) 345-0400 207 - 100 Strowger Blvd. Facsimile: (613) 345-0008 Brockville, Ont. K6V 5J9 www.EastEng.com

PURPLE FARMS GENETICS WAREHOUSE/RETAIL

SITE AND SERVICING **PLAN**

Design:	Checked:	Approved:	Project No.:
AJP	CAJ		8165
Orawn: AJP	Checked:	Date: 2023/12/24	Contract No.:
Scale:		Drawing No.:	



SITE PLAN CONTROL AGREEMENT BETWEEN 2506418 ONTARIO INC. AND THE TOWNSHIP OF EDWARDSBURGH CARDINAL

SCHEDULE "C"

Site Plan Control Agreement

STORMWATER MANAGEMENT REPORT

Prepared by Eastern Engineering dated December 2023 and revised August 7, 2024

PURPLEFARM GENETICS INC. 9 NEWPORT DRIVE EDWARDSBURGH-CARDINAL, ON

STORMWATER MANAGEMENT REPORT



EASTERN ENGINEERING GROUP INC. APEX BUILDING 100 STROWGER BLVD, SUITE 207 BROCKVILLE, ON K6V 5J9

DECEMBER 2023

REVISION RECORD					
REV	DESCRIPTION	I	PREPARED BY	RE	VIEWED BY
0	ISSUED FOR SITE PLAN APPLICATION	CJ	2023-12-24	CJ	
1	REISSUE FOR SPCA	CJ	2024-07-03	CJ	
2	REISSUE FOR SPCA	CJ	2024-08-07	CJ	



This document entitled Stormwater Management Report was prepared by Eastern Engineering Group Inc. for the account of the Purplefarm Genetics Inc. (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in the report reflects Eastern Engineering Group's professional judgement in light of the scope, schedule and other limitations stated in the document and in the contract between Eastern Engineering Group and the Client. The opinions in the document are based on conditions and information existing at the time the document was prepared and published and do not take into account any subsequent changes. In preparing the document, Eastern Engineering Group did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Eastern Engineering Group shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions take based on this document.

Prepared by

(Signature)

Colin A. Jardine, P. Eng

President, Eastern Engineering Group

Director of Civil Engineering

PURPLEFARM GENETICS INC. 9 NEWPORT DRIVE, EDWARDSBURGH-CARDINAL, ONTARIO

STORMWATER MANAGEMENT REPORT

PREPARED BY:
EASTERN ENGINEERING GROUP INC.
DECEMBER 2023
REV 2 JULY 2024

PROJECT

Eastern Engineering Group Inc. was retained by Mr. Mitchell Alswiti of Purplefarm Genetics Inc to prepare civil engineering design including servicing, grading and stormwater management report for the proposed industrial project at 9 Newport Drive, Johnstown, in the Township of Edwardsburgh Cardinal. The project consists of construction of a new 1579 m² warehouse. Also included is a new gravel parking/loading area, new parking and stormwater management basin.

EXISTING CONDITIONS

The site is currently undeveloped and will retain as much green space as possible for the new project. The new entrance will be to Newport Drive.

PROPOSED LOT SERVICING

The new building will be connected to existing municipal water main and sanitary sewers which are currently on the north side of County Road 2. The water service be a new 150mm PVC service connected to the existing main with a new 150mm curb stop at property line. A new fire hydrant is proposed near the southwest corner of the new building. The water service to the building will be a min of 100mm but determined at the time of building design and sprinkler design. The new sanitary service will be connected to an existing manhole. The service will be 150mm PVC flowing by gravity.



All connections would be designed to meet the Ontario Building Code and Township regulations for water and sanitary services.

The expected daily flows for the warehouse will be based on 3 loading bays and 3 washrooms. Using the Ontario Building Code this will equate to 3300 L/day. For a 10 hour shift this would be the equivalent of 0.092 L/s.

STORM SERVICING AND STORMWATER MANAGEMENT

The existing site is undeveloped with bedrock near the surface of the majority of the site. The pre-development runoff coefficient for the site is 0.35. 4408 m² of the new property is being modified from existing to developed and that will be used for the stormwater management calculations. The post development runoff coefficient is calculated using the proposed building and gravel area for the area being modified.

The storm design will allow for surface water to flow easterly to a swale and stormwater basin at the southeast corner of the site. The basin is designed to store the 100 year storm event while releasing at the pre-development allowable flow. Quality control will be via an OGS unit placed on the south side of the storm basin. TSS removal will be aimed for the enhanced level of TSS removal of 80%.

County infrastructure has the capacity to handle the discharge and will not be negatively impacted by post-development flows.

PRE-DEVELOPMENT FLOWS

The total allowable flow from the site is determined using the following criteria:

Cpre - 0.35

Area – 1.136 ha

Using MTO IDF Curve lookup website, it was determined for this site, the following:

I_{5year} is 71.2 mm/hr



I_{100year} is 118.6 mm/hr

The document is attached in the appendix.

Tc is assumed to be 15 mins as the area of flow and flow path are being modified from north to south to flow east to west. The existing drainage flow is to the rear of the property whereas the proposed flow is to the west. Local Municipalities (Prescott, Brockville) have accepted an assumed Tc of 15 mins for small localized projects similar in size to this.

Q_{5pre} =
$$2.78 * A*i* C$$

= $2.78 * 1.136 * 71.2 * 0.35$
= $78.70 L/s$

The total allowable from the site is **78.70** L/s total.

The post development runoff coefficient is calculated as below.

This was calculated with 1579 m² (building) @ 0.90 and 2877 m² (gravel) @ 0.6. and 6904 m² @ 0.3

$$Cpost = 1579*0.9 + 2877*0.6 + 6904*.35 / 11360 = 0.490$$

I_{5year} is 71.2 mm/hr

I_{100year} is 118.6 mm/hr

POST DEVELOPMENT FLOWS

The post development flows are calculated using Modified Rationale method for various times and rainfall intensities, to determine how much storage is required for each drainage area.

The post development runoff coefficient is 0.490 for 5 year event. The allowable release rate is controlled to 78.70 L/s.

5 Year Storage – A=1.136 ha, c=0.490 Q allowable 78.70 L/s

Tc	I	Q	Qallow	Net Runoff	Storage (m³)
(min.)	(mm/hr.)	(L/s)	(L/s)	(L/s)	

5	153.4	232.6995	78.7	154.00	46.20
10	94.5	143.3514	78.7	64.65	38.79
15	71.2	108.0065	78.7	29.31	26.38
30	43.8	66.44	78.7	-12.26	0

100 Year Storage – A=1.136 ha, c=0.49x 1.25 = 0.6125 Q allowable 78.70 L/s

Tc (mn.)	I (mm/hr.)	Q (L/s)	Qallow (L/s)	Net Runoff (L/s)	Storage (m³)
5	255.6	484.6642	78.7	405.96	121.79
10	157.4	298.4591	78.7	219.76	131.86
15	118.6	224.8872	78.7	146.19	131.57
30	73.1	138.6109	78.7	59.91	107.84
60	45	85.32821	78.7	6.63	23.86

Therefore, based on Modified Rationale Method, the storage requirement for the site for 5 year is 46.20 m³ and for 100 year 131.86 m³.

STORAGE PROVIDED

The storage will be provided in a stormwater basin controlled via outlet control device, in the south east corner of the site.

The average area of the basis is 500.25 m^2 and the average depth of the structure is 0.565 deep with a slope of 0.5%. The basin is $30\text{m} \log (N/S)$ and 14m wide (E/W) at the bottom of the basin.

The basin will hold approximately 286 m³ of stormwater which is above the required amount of 58.16 m³. The basin is oversized for a possible future expansion of the site and buildings.

QUALITY CONTROL

Quality control for the site will be provided with an OGS unit on the south outlet area of the basin. The unit will provide 80% TSS removal before outlet into the ditch on County Road 2. The specified unit is a CDS PMSU 2015 4 unit.

Emergency overflow will be to the south.



MAINTENANCE

The owner will have maintenance staff review the site periodically during routine maintenance. Catch basins will need to be cleaned out as required in the sumps.

The maintenance plans and forms must address the following:

- inspection frequency
- maintenance frequency
- data collection/ storage requirements (i.e. during inspections)
- detailed cleanout procedures (main element of the plans) including:
 - equipment needs
 - maintenance techniques
 - occupational health and safety
 - public safety
 - environmental management considerations
 - disposal requirements (of material removed)
 - access issues

Routine Maintenance and Operation

Routine inspection and maintenance activities as shown in Table 4.5.6 are necessary for the continued operation of infiltration areas.

Table 4.5.6 Suggested routine inspection and maintenance activities

Activity	Schedule
Inspect for vegetation density (at least 80% coverage), damage by foot or vehicular traffic, channelization, accumulation of debris, trash and sediment, and structural damage to pretreatment devices.	After every major storm event (>25 mm), quarterly for the first two years, and twice annually thereafter.
Regular watering may be required during the first	As needed for first two years of
two years until vegetation is established;	operation.



Remove trash and debris from pretreatment devices, the infiltration area surface and inlet and outlets.	At least twice annually. More frequently if desired for aesthetic reasons.
 Remove accumulated sediment from pretreatment devices, inlets and outlets; Trim trees and shrubs; Replace dead vegetation, remove invasive growth; Repair eroded or sparsely vegetated areas; Remove accumulated sediment on the bioretention area surface when dry and exceeds 25 mm depth (PDEP, 2006); If gullies are observed along the surface, regrading and revegetating may be required. 	Annually or as needed

Annual Inspection and Maintenance

The annual spring cleaning should consist of an inspection and corrective maintenance tasks described in Table 4.5.7

Table 4.5.7 Suggested inspection items and corrective actions

Inspection Item	Corrective Actions
Vegetation health, diversity and density	 Remove dead and diseased plants. Add reinforcement planting to maintain desired vegetation density. Prune woody matter. Check soil pH for specific vegetation. Add mulch to maintain 75 mm layer.
Sediment build up and clogging at inlets	 Remove sand that may accumulate at the inlets or on the filter bed surface following snow melt. Examine drainage area for bare soil and stabilize. Apply erosion control such as silt fence until the area is stabilized. Check that pretreatment is properly functioning. For example, inspect grass filter strips for erosion or gullies. Reseed as necessary.
Ponding for more than 48 hours	 Check underdrain for clogging and flush out. Apply core aeration or deep tilling Mix amendments into the soil Remove the top 75 mm of bioretention soil Replace bioretention soil

The owner will have maintenance staff review the site periodically during routine maintenance.



Prepared by:

Eastern Engineering Group Inc. Colin A. Jardine, P. Eng

August 7, 2024



APPENDIX OGS UNIT CDS PMSU 2015_4





Markham ON L3R 5V6

Fax: (905) 948-0577

TRANSMITTAL

To: Colin Jardine, P.Eng	From: Patrick Graham	
Company: Eastern Engineering Group Inc.	Date: February 20, 2024	
Telephone: (613) 345-0400 Number of Pages (including this one): 10		
Reference: Purplefarm Genetics – CDS PMSU 2015_4		

Good morning Colin,

Please find the attached CDS Stormwater Unit submission package for the project:

Purplefarm Genetics, Johnstown ON

Please review the pages and indicate your approval by initialling each page and returning all pages of this transmittal to 905-948-0577.

Thank you in advance and if you have any questions or comments, please do not hesitate to contact our office at 905-948-0000.

Best regards,	
Patrick Graham Project Manager	
Approved By:	
Signature:	
Date:	



CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD BASED ON A FINE PARTICLE SIZE DISTRIBUTION



l/s

Project Name: Purplefarm Genetics Engineer: Eastern Engineering

Location: Johnstown, ON **Contact:** Colin Jardine, P.Eng

OGS #: 1 Report Date: 20-Feb-24

Area0.396haRainfall Station #216Weighted C0.57Particle Size DistributionFINECDS Model2015-4CDS Treatment Capacity20

Rainfall Intensity ¹ (mm/hr)	Percent Rainfall Volume ¹	Cumulative Rainfall Volume	Total Flowrate (I/s)	Treated Flowrate (I/s)	Operating Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
1.0	10.8%	20.5%	0.6	0.6	3.2	98.0	10.6
1.5	8.9%	29.4%	0.9	0.9	4.7	97.5	8.7
2.0	9.3%	38.7%	1.3	1.3	6.3	97.0	9.0
2.5	6.9%	45.5%	1.6	1.6	7.9	96.6	6.6
3.0	6.0%	51.5%	1.9	1.9	9.5	96.1	5.7
3.5	3.7%	55.2%	2.2	2.2	11.1	95.7	3.5
4.0	5.1%	60.3%	2.5	2.5	12.7	95.2	4.9
4.5	3.8%	64.1%	2.8	2.8	14.2	94.8	3.6
5.0	3.9%	68.0%	3.1	3.1	15.8	94.3	3.7
6.0	5.8%	73.8%	3.8	3.8	19.0	93.4	5.4
7.0	4.1%	77.8%	4.4	4.4	22.1	92.5	3.8
8.0	3.3%	81.2%	5.0	5.0	25.3	91.6	3.0
9.0	3.6%	84.8%	5.6	5.6	28.5	90.7	3.3
10.0	2.0%	86.8%	6.3	6.3	31.6	89.8	1.8
15.0	7.7%	94.5%	9.4	9.4	47.4	85.3	6.5
20.0	2.6%	97.1%	12.5	12.5	63.3	80.7	2.1
25.0	0.8%	97.9%	15.7	15.7	79.1	76.2	0.6
30.0	0.9%	98.8%	18.8	18.8	94.9	71.7	0.6
35.0	0.3%	99.1%	21.9	19.8	100.0	63.4	0.2
40.0	0.4%	99.5%	25.1	19.8	100.0	55.5	0.2
45.0	0.0%	99.5%	28.2	19.8	100.0	49.3	0.0
50.0	0.5%	100.0%	31.4	19.8	100.0	44.4	0.2
							93.7

Removal Efficiency Adjustment² =

6.5%

Predicted Net Annual Load Removal Efficiency = 87.2% Predicted Annual Rainfall Treated = 98.8%

- 1 Based on 39 years of hourly rainfall data from Canadian Station 6100971, Brockville ON
- 2 Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.
- 3 CDS Efficiency based on testing conducted at the University of Central Florida
- 4 CDS design flowrate and scaling based on standard manufacturer model & product specifications



CDS Stormwater Treatment Unit Performance

Table 1. Fine Particle Size Distribution (PSD)

Particle Size	% of Particle
(µm)	Mass
< 20	20
20 – 40	10
40 – 60	10
60 – 130	20
130 – 400	20
400 – 2000	20

Removal Efficiencies - CDS Unit Testing Under Various Flow Rates

The following performance curves are based on controlled tests using a full scale CDS Model PMSU20_20 (2400 micron screen), 1.1-cfs (494-gpm) capacity treatment unit.

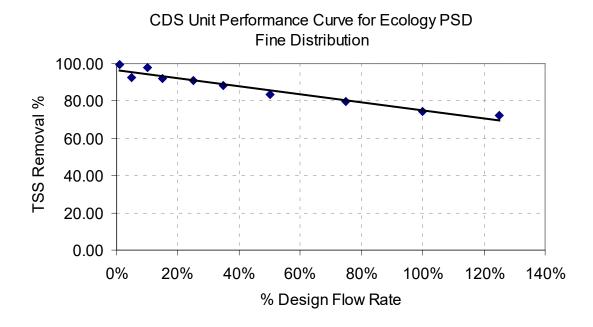


Figure 1. CDS Unit Performance for Fine PSD



CDS Unit Performance Testing Protocol

Tests were conducted using two types of sand – U.S. Silica OK-110 and UF sediment (a mixture of U.S. Silica sands). Particle size gradations for the two types of sand are illustrated in Figure 2.

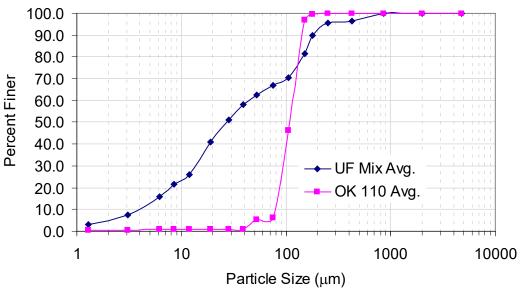


Figure 2. Test material particle size gradations - CDS Model PMSU20_20 test

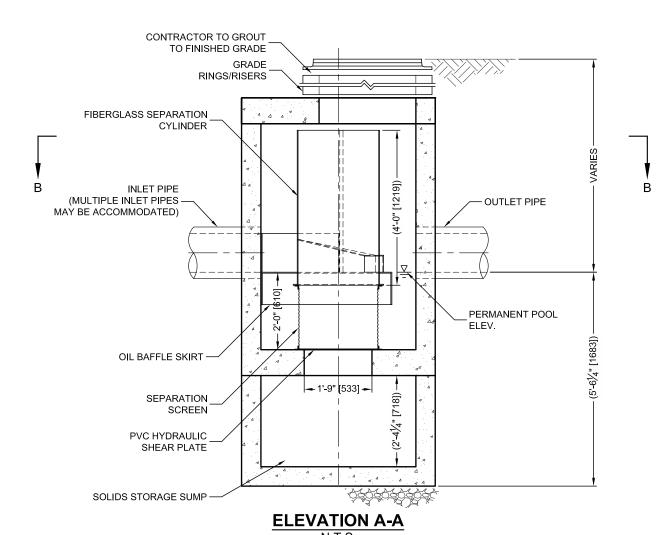
(Analytical results provided by MACTEC Engineering and Consulting Inc. FL

ASTM D-422 with Hydrometer method)

The influent concentration (mg/L) for the test was set at 200-mg/L and verified from slurry feeding. Effluent samples were taken at fixed time intervals during each test run at various flow rates. The composite effluent samples were sent to Test American Analytical Testing Lab, OR for TSS analysis (ASTM D3977-97).

TSS removal rates for the specified PSD (d_{50} of 90 μ m) under various flow rates were calculated from Figure 2 shows the removal efficiency as a function of operating flow rate. This removal efficiency curve as a function of percent flow rate can be applied to all CDS unit models.

PLAN VIEW B-B





CDS PMSU2015-4-C DESIGN NOTES

THE STANDARD CDS PMSU2015-4-C CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION

GRATED INLET ONLY (NO INLET PIPE)

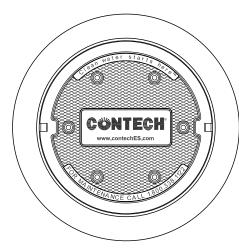
GRATED INLET WITH INLET PIPE OR PIPES

CURB INLET ONLY (NO INLET PIPE)

CURB INLET WITH INLET PIPE OR PIPES

CUSTOMIZABLE SUMP DEPTH AVAILABLE

ANTI-FLOTATION DESIGN AVAILABLE UPON REQUEST



FRAME AND COVER (DIAMETER VARIES) N.T.S.

SITE SPECIFIC DATA REQUIREMENTS						
					<u> </u>	
STRUCTURE ID						
WATER QUALITY	FLOW RAT	E (CF	S OR L/s)		*	
PEAK FLOW RAT	E (CFS OR	L/s)			*	
RETURN PERIOD	OF PEAK F	LOW	(YRS)		*	
SCREEN APERTU	JRE (2400 C	OR 47	00)		*	
PIPE DATA:	I.E.	M <i>A</i>	ATERIAL	D	IAMETER	
INLET PIPE 1	*		*		*	
INLET PIPE 2	*		*		*	
OUTLET PIPE	*		*	*		
RIM ELEVATION *						
ANTI-FLOTATION BALLAST WIDTH HEIGHT						
* *						
NOTES/SPECIAL REQUIREMENTS:						
* PER ENGINEER OF RECORD						

GENERAL NOTES

- 1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- 2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- 3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
- 4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
- 5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
- 6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES

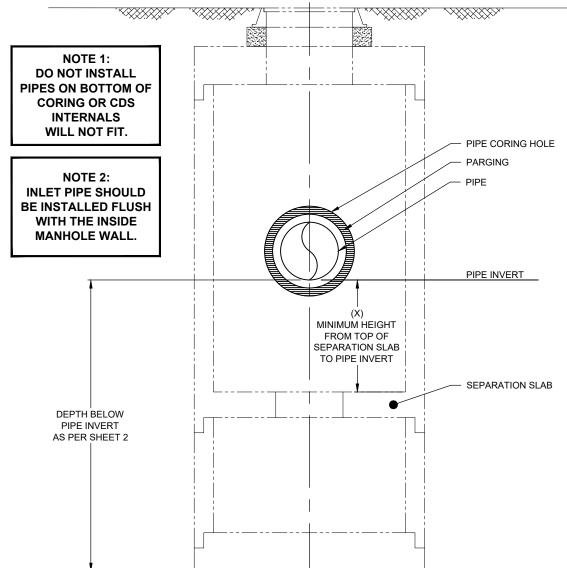
- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- 3. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
- C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
- D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
- E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.



CDS PMSU2015-4-C INLINE CDS STANDARD DETAIL



CDS INTERNALS HEIGHT



HEIGHT OF CDS INTERNALS			
CDS MODEL	DIMENSION X (m)	CDS MODEL	DIMENSION X (m)
20_15	0.610	40_30	1.080
20_20	0.787	40_40	1.397
20_25	0.889	40_45	1.524
30_20	0.838	56_40	1.397
30_25	0.940	56_53	1.804
30_30	1.080	56_68	2.311
30_35	1.250	56_78	2.616



200 Enterprise Drive, Scarborough, ME 04074 877-907-8676 207-885-9830 207-885-9825 FAX PROJECT NAME CITY, ON SITE DESIGNATION: CDS

JOB No. : XXXX-XXX	SCALE: NTS
DATE: XX/XX/XXXX	SHEET:
DRAWN: XX	5
APPROV ·	

Echelon Environmental, 505 Hood Road, Unit 26, Markham, Ontario L3R 5V6 Tel: (905) 948-0000 Fax: (905) 948-0577

SECTION [____] STORM WATER TREATMENT DEVICE

PART 1 – GENERAL

1.1 DESCRIPTION

A. Scope

The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.

B. Related Sections – if applicable

Section ****: Dewatering

Section ****: Excavation Support and Protection

Section ****: Excavation and Fill Section ****: Soil Stabilization

1.2 QUALITY ASSURANCES

A. Inspection

All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. Any components that do not comply with the requirements of this specification may be subject to replacement or repair at the **Consultant's** discretion.

B. Warranty

The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period.

C. Manufacturer's Installation Certificate

The SWTD manufacturer shall submit a "Manufacturer's Installation Certificate" certifying that each SWTD has been installed in accordance with manufacturer's installation instructions.

1.3 SUBMITTALS

A. Shop Drawings

The contractor shall prepare and submit shop drawings in accordance with Section [_____] of the contract documents.

B. SWTD Sizing

The SWTD manufacturer shall submit a Sizing Report in accordance with the criteria set out in section 2.2.

C. Hydraulic Performance

The SWTD manufacturer shall submit a hydraulic report, stamped by a Professional Engineer licensed in the Province of Ontario, which verifies the system weir is sized correctly for the treatment flowrate and in addition, indicates the effect the SWTD has on the hydraulic grade line.

PART 2.0 – PRODUCTS

2.1 MATERIALS AND DESIGN

- A. Precast concrete components shall conform to applicable sections of CSA standards, CAN/CSA A257.1, A257.2, A257.3, A257.4, ASTM C507M and OPSS 1351 and the following:
 - 1. Concrete shall achieve a minimum 28-day compressive strength of 28 MPa;
 - 2. Unless otherwise noted, the precast concrete sections shall be designed to CHBDC loadings;
 - 3. Cement shall be Type (HE) Portland Cement conforming to (OPSS 1301);
 - 4. Aggregates shall conform to OPSS 1001 & OPSS 1002;
 - 5. Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to CSA A23.4-94 and ASTM A 185 respectively; and,
 - 6. Joints shall be sealed with fuel resistant joint sealing compound or gaskets.
- B. Internal Components and appurtenances shall conform to the following:
 - 1. Stainless Steel components shall be manufactured of Type 316 and 316L stainless steel conforming to ASTM F 1267-01;
 - 2. Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
 - 3. Fiberglass components shall be manufactured to ASTM D-4097;
 - 4. Concrete components shall be designed to withstand CHBDC loadings.

2.2 PERFORMANCE

A. REMOVAL EFFICIENCIES

- 1. The SWTD shall be approved under the NJDEP testing and certification program.
- 2. The SWTD shall be designed to meet Ministry of Environment Enhanced performance criteria based on the particle size distribution defined in Section 2.2 A.2.

3. The SWTD must be able to meet the total suspended solids removal requirements stated in this section based on the following particle size distribution at a minimum. Sizing with a particle size distribution that is finer through the full particle range is also acceptable.

Particle Size (μm)	% Finer
< 20	20
20-40	10
40-60	10
60-130	20
130-400	20
400-2000	20

SWTD performance must be based on laboratory or field testing data. Sizing of the SWTD based solely on theoretical modeling is not acceptable.

- 4. The SWTD shall be capable of capturing and retaining 100 percent of pollutants greater than or equal to 2.4 mm regardless of the pollutant's specific gravity (i.e.: floatable and neutrally buoyant materials) for flows up to 20 l/s. The SWTD shall be designed to retain all previously captured pollutants addressed by this subsection under all flow conditions.
- 4. The SWTD shall be capable of capturing and retaining total petroleum hydrocarbons. The SWTD shall be greater than 95 percent effective in controlling dry-weather accidental oil spills.

The SWTD shall be capable of utilizing sorbent media to enhance removal and retention of petroleum based pollutants.

B. HYDRAULIC CAPACITY

- 1. The SWTD shall provide a rated-treatment capacity of 20 l/s. At its rated-treatment capacity, the device shall be capable of achieving greater than 65 percent removal efficiency of the particle size distribution provided in section 2.2.A.2.
- 2. The SWTD shall be equipped with an internal high flow bypass that is capable of conveying the maximum design flowrate from the treated drainage area with no flow going through the treatment portion of the unit.

C. STORAGE CAPACITY

- 1. The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be 0.838 m³. The sump chamber shall be physically separated from the treatment section of the SWTD such that accumulated grit does not reduce the treatment volume of the unit. SWTD that use the same chamber for treatment and grit storage are not acceptable. The minimum dimension providing access from grade to the sump chamber shall be 533mm in diameter.
- 2. The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills.

2.3 MANUFACTURER

The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Contech CDS® device as supplied by:

Echelon Environmental 505 Hood Road Markham, ON L3R 5B6 Tel: 905-948-0000

PART 3 - EXECUTION

3.1 INSTALLATION

- 1. The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer onsite guidance during the important stages of the installation as identified by the manufacturer at no additional expense.
- 2. The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces.

END OF SECTION

SCHEDULE "D"

Site Plan Control Agreement

SPECIAL CONDITIONS

1. Location of Building Structures and Facilities

Building structures and facilities shall be located as per the Site Plans forming Schedule "B" to this Agreement.

2. Drainage and Stormwater

Drainage and stormwater shall be managed as per Schedule "B" to this agreement, and as recommended by the stormwater management plan forming Schedule "C" to this agreement.

3. Servicing

The property must be serviced by municipal water and sewer services as per the plans forming Schedule "B" to this agreement and all water discharge to sanitary and storm sewers must be in accordance with the Township's Sewer Use Bylaw.

A water/wastewater permit shall be obtained from the Township prior to the installation of water and sewer services.

4. Site Access & Roads

The site shall be accessed as per the site plan forming Exhibit 2 of Schedule "B". A permit shall be obtained from the Township for any extension or relocation of the existing entranceway. No additional entranceways shall be established without the consent of the appropriate road authority.

A road cut permit from the United Counties of Leeds and Grenville is required before undertaking any work to the ditch.

5. Refuse Storage and Disposal

The property shall be maintained in a neat and tidy condition and all refuse shall be deposited in proper containers which are screened from view. The owner shall be responsible for the disposal of refuse from his/her/their property.

6. Snow Removal

Snow removal is the responsibility of the owner.

SITE PLAN CONTROL AGREEMENT BETWEEN 2506418 ONTARIO INC. AND THE TOWNSHIP OF EDWARDSBURGH CARDINAL

7. Firefighting

The owner is responsible for the installation of a fire hydrant, as per the site And servicing plan forming Exhibit 2 of Schedule "B." The type and specifications of the hydrant shall be determined by the Fire Chief of the Township of Edwardsburgh Cardinal.

8. Lighting

Illuminated/lighted signage and lighting shall be designed, installed and maintained to:

- i) Prevent light spill over or glare onto the County road allowance; and
- ii) Prevent light from falling within the vision of motorists in such a manner as to create a traffic hazard; and
- iii) Not diminish or detract from the effectiveness of any traffic signal or similar safety or warning device,

as determined by the Director of Public Works of the United Counties of Leeds and Grenville or his/her designate. Digital/LED signs are not permitted.