

September 12, 2025

SBM-23-2071

Planning and Development Division  
Norfolk County  
185 Robinson Street, Suite 200  
Simcoe, ON, N3Y 5L6

Attn: Fabian Serra – Planner

**Re: Response Letter for SPA2 Submission Comments  
Proposed Warehouse  
33 Park Road, Simcoe, ON**

This response letter has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) to address the requirements of the Site Plan Approval Comments, received and updated September 10, 2025, for the proposed development located at 33 Park Road in the County of Norfolk (County). This response letter shall be read in conjunction with the Site Plan and Engineering Documents prepared by SBM.

#### **Planning**

1. The applicant is required to contact Norfolk GIS when construction begins to obtain new civic addressing. See comments below for detail on how to apply.

*Response by SBM: Acknowledged.*

2. Proposal is compliant with the zoning by-law. All parking and traffic issues concerns have been addressed.

*Response by SBM: Acknowledged.*

#### **Development Engineering**

1. Development Engineering has reviewed the 3<sup>rd</sup> submission for SPPL2024304 and have no comments.

*Response by SBM: Acknowledged.*

#### **Long Point Region Conservation Authority**

1. The outlet discharges east towards the Provincially Significant Wetland in the Patterson Creek valley; while the location is suitable for gravity drainage, the sensitivity of the receiving environment requires robust erosion and sediment control measures during construction and effective long-term outlet protection afterward.

*Response by SBM: Acknowledged. Refer to notes on drawing and in the design brief which speak to ESC considerations.*

2. Controlled flows are restricted to pre-development rates via an inlet control device (ICD) with underground storage. The Functional Servicing Report specifies an ICD orifice diameter of 44mm. The proponent should confirm that this size meets Norfolk County's requirements for minimum allowable orifice diameter and, if not, revise the design or obtain County approval for an exception, while ensuring allowable release rates are maintained.

*Response by SBM: Note that for the specified release rate, a convention orifice plate would require a diameter of 44mm. However, since MECP guidelines specify no orifices shall be smaller than 75mm due to maintenance implications, a proprietary inlet control device has been specified which restricts flows to the specified flow rate while also satisfying MECP requirements. No revisions or exceptions are required.*

3. The submission identifies riprap at the outlet but does not provide sizing/design details (e.g., D50, thickness, apron geometry, etc.). Please submit riprap sizing calculations and revise the drawings to show the details and dimensions to prevent flanking/undercutting.

*Response by SBM: Acknowledged. Refer to notes on drawing which provide more detailed rip rap specifications, as well as sizing calculation in the design brief.*

4. An Oil-Grit Separator (HydroDome HD4) is proposed upstream of the regulated outlet to provide enhanced treatment (targeting 80% TSS removal). While ongoing inspection and clean-out are other's responsibility, the proponent should be advised that OGS maintenance is critical to protecting the PSW. LPRCA recommends that the owner's maintenance plan include annual inspection, post-storm checks, and clean-out as required, with records retained for County or LPRCA review if requested.

*Response by SBM: Acknowledged. Refer to O&M Manual for the OGS unit.*

5. The ESCP includes silt fence, straw bale barriers, silt socks, and inlet protection. Given the proximity to the steep slope and PSW, temporary sediment controls should also be installed at the outlet location before any storm sewer connection.

*Response by SBM: Acknowledged. Refer to notes on drawing which specify ESC at the storm sewer outlet.*

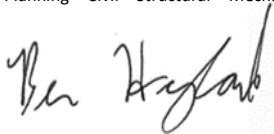
6. Following construction, an inspection of the outlet and riprap protection is recommended to confirm stability and effectiveness.

*Response by SBM: Acknowledged. Refer to notes on drawing and in the design brief which speak to post-construction ESC review. Specifically, ESC Note 20 on sheet C1 as well as an additional site review item in the "List of items requiring engineer's review" table on sheet C1.*

Respectfully submitted,

**Strik, Baldinelli, Moniz Ltd.**

Planning • Civil • Structural • Mechanical • Electrical



Ben Hyland, P.Eng., PMP  
Civil Team Lead, Eng IV  
Associate I



Mariana Rodriguez Chiquiza  
Civil Engineering Trainee I



GENERAL NOTES:

1. THE OWNER'S PROFESSIONAL ENGINEER IS REQUIRED TO FIELD REVIEW THE SEDIMENT AND EROSION CONTROL AND FINAL GRADING INCLUDED IN THIS PROJECT IN ACCORDANCE WITH COUNTY REQUIREMENTS. THE CONTRACTOR IS TO PROVIDE AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION OF THE SITE SERVICES.
2. THE OWNER/OWNER'S CONTRACTOR SHALL HAVE ITS PROFESSIONAL ENGINEER PROVIDE FULL-TIME ONSITE REVIEW DURING CONSTRUCTION ON AN EXISTING MUNICIPAL STREET OR EASEMENT AND PROVIDE A CERTIFICATE OF COMPLETION OF WORKS UPON COMPLETION OF ALL WORKS TO BE CONSTRUCTED.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE CURRENT ONTARIO BUILDING CODE (OBC) AND ANY APPLICABLE STATUTES, REGULATIONS, CODES AND BY-LAWS.
4. STRIK, BALDINELLI, MONIZ LTD. (SBM) IS NOT RESPONSIBLE FOR THE INFORMATION (EXISTING TOPOGRAPHY, BENCHMARKS, PROPERTY BOUNDARY, ETC.) PROVIDED BY OTHERS.
5. NO WORK ON WATER SERVICES CAN TAKE PLACE WITHOUT SUPERVISIONS OF A LICENSED NORFOLK COUNTY WATER OPERATOR ON-SITE. CONTRACTOR SHALL PROVIDE 48 HOURS NOTICE TO NORFOLK COUNTY WATER OPERATOR PRIOR TO ANY REQUIRED FIELD REVIEWS.

CONSTRUCTION NOTES:

1. REFER TO THE SITE PLAN FOR LAYOUT DIMENSIONING AND SIGN/POST DETAILS.
2. THE OWNER'S CONTRACTOR IS TO CONTACT THE CONSULTING ENGINEER (SBM) FOR FINAL ONSITE REVIEW. THE CONTRACTOR IS TO PROVIDE AT LEAST 48 HOURS NOTICE PRIOR TO REQUIRED ONSITE REVIEW.
3. THE OWNER'S CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES UNDER THE OCCUPATIONAL HEALTH AND SAFETY ACT AS REQUIRED BY THE MINISTRY OF LABOUR TO EXECUTE THE WORK.
4. THE OWNER'S CONTRACTOR IS TO REVIEW AND CONFIRM ALL EXISTING CONDITION INFORMATION & INFORM SBM OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. SBM IN NO WAY ACCEPTS RESPONSIBILITY FOR ANY INACCURACIES FOUND ON THIS PLAN RELATIVE TO EXISTING CONDITIONS FOR THE SITE.
5. PRIOR TO COMMENCING ANY CONSTRUCTION, ALL SEWER OUTLET INFORMATION, BENCHMARKS, ELEVATIONS, DIMENSIONS, GRADES, ETC. MUST BE CHECKED BY THE CONTRACTOR AND VERIFIED AND ANY DISCREPANCIES REPORTED TO THE ENGINEERS.
6. PRIOR TO COMMENCING ANY WORK ON THE INSTALLATION OF SERVICES & GRADING, AN APPROVED SET OF PLANS AND SPECIFICATIONS MUST BE AVAILABLE ON THE JOB AND SHALL REMAIN THERE WHILE WORK IS BEING DONE.
7. STRIP FULL DEPTH OF TOPSOIL IN AREAS TO BE DISTURBED AND STOCK PILE FOR RE-USE IN GRASSED/LANDSCAPED AREAS.
8. OWNER'S CONTRACTOR IS RESPONSIBLE FOR ALL AS-BUILT INVERTS AND GRADES, RECORD ANY DEVIATION OF PIPE OR STRUCTURE LOCATION INVOLVED WITH THIS PROJECT AND OWNER'S CONTRACTOR TO PROVIDE A COPY OF THE AS-BUILT DRAWING SHOWING ALL CHANGES CLEARLY MARKED IN RED.
9. THE OWNER'S CONTRACTOR SHALL CONSTRUCT THE STORM DRAINAGE SYSTEM TO THE SPECIFICATIONS OUTLINED IN THE GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES PREPARED BY THE MINISTRY OF NATURAL RESOURCES. THESE MEASURES ARE TO BE INSTALLED PRIOR TO COMMENCING ANY CONSTRUCTION FOR THIS PROJECT AND ARE TO REMAIN IN PLACE UNTIL CONSTRUCTION HAS BEEN COMPLETED TO BASE ASPHALT AND SOD OR THE SATISFACTION OF THE MUNICIPAL ENGINEER.
10. THE CONTRACTOR SHALL INFORM THE RIDE NORFOLK TRANSIT AT LEAST ONE WEEK PRIOR TO COMMENCING CONSTRUCTION ON ANY STREET THAT IS A BUS ROUTE THAT WILL BE AFFECTED BY CONSTRUCTION.
11. THE CONTRACTOR IS RESPONSIBLE FOR:
- 11.1. CONNECTING ANY EXISTING SEWER OR DRAIN ENCOUNTERED DURING CONSTRUCTION TO A NEW SEWER OF SIMILAR TYPE, SIZE AND MATERIAL OR INTO ANOTHER EXISTING SEWER OF THE SAME TYPE AND TO REPORT ON AS-BUILT DRAWINGS.
- 11.2. ENSURING THAT THERE IS NO INTERRUPTION OF ANY SURFACE OR SUBSURFACE DRAINAGE FLOW THAT WOULD ADVERSELY AFFECT NEIGHBOURING PROPERTIES.
12. NO FOUNDATION DRAIN CONNECTIONS WILL BE PERMITTED INTO THE SANITARY SEWERS AND NO DIRECT GRAVITY CONNECTIONS FROM THE FOUNDATION DRAINS WILL BE PERMITTED TO THE STORM SYSTEM UNLESS THE STORM SYSTEM HAS THE CAPACITY TO PROVIDE FOR SUCH CONNECTIONS TO THE SATISFACTION OF THE MUNICIPAL ENGINEER.
13. WORK ON OR ADJACENT TO THE COUNTY RIGHT OF WAY (R.O.W.) SHALL BE COMPLETED IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL BOOK 7 CURRENT EDITION AND THE ONTARIO TRAFFIC MANUAL BOOK 18 CURRENT EDITION.
14. ALL MATERIALS TO BE COMPACTED TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER (SUBGRADE, BEDDINGS, BACKFILL, ASPHALT, ETC. AS PER OPSS.MUNI 501)

SURFACE WORKS NOTES:

1. ALL WORK IN THE COUNTY ROAD ALLOWANCE SHALL MEET THE MINIMUM STANDARDS AND SPECIFICATIONS OF NORFOLK COUNTY UNLESS OTHERWISE APPROVED BY THE COUNTY ENGINEER. THE CONTRACTOR IS REQUIRED TO OBTAIN & PAY FOR PERMIT TO WORK IN COUNTY R.O.W.
2. ALL SURFACES WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO A CONDITION AT LEAST AS GOOD AS ORIGINAL, OR AS PER BELOW (WHICHEVER IS GREATER) OR IF WITHIN THE COUNTY RIGHT OF WAY TO THE SATISFACTION OF THE COUNTY ENGINEER, ALL AT NO COST TO THE COUNTY.
- 2.1. GRASSED AREAS TO BE RESTORED w/ 100mm TOPSOIL + SOD.
- 2.2. CONCRETE CURB AND GUTTER TO BE TIED INTO 50mm DEEP x 500mm WIDE PRIOR TO RESTORATION SEE DETAIL ON SHEET C5.
- 2.3. CONCRETE CURB AND GUTTER TO OPSD 603.020 (ON-SITE PRECAST CURB)
- 2.4. ANY ASPHALT AREA DISTURBED DURING CONSTRUCTION SHALL BE RESTORED AS FOLLOWS:
- 2.4.1. PROOF ROLL SUBGRADE (TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER) PRIOR TO PLACEMENT OF GRANULARS (98% STANDARD PROCTOR MAXIMUM DRY DENSITY (SPMDD) MIN).
- 2.4.2. MILL ADJACENT ASPHALT TO BE TIED INTO 50mm DEEP x 500mm WIDE PRIOR TO RESTORATION SEE DETAIL ON SHEET C5.
- 2.4.3. MIN. RECOMMENDED ON-SITE LIGHT-DUTY PAVEMENT STRUCTURE (TO BE REVIEWED & APPROVED BY THE GEOTECHNICAL ENGINEER)
- 40mm HL3 SURFACE ASPHALT COMPACTED TO 97% MARSHALL MIX DESIGN BULK DENSITY (TACK COAT REQUIRED PER OPSS.PROV 308 IF BINDER ASPHALT HAS BEEN EXPOSED TO TRAFFIC OVER AT LEAST ONE WINTER)
- 50mm HL8 BINDER ASPHALT COMPACTED TO 97% MARSHALL MIX DESIGN BULK DENSITY
- ASPHALT TO BE SUPPLIED AND PLACED IN ACCORDANCE WITH OPSS.MUNI 310 & 1150
- 150mm OF GRANULAR 'A' COMPACTED TO 100% SPMDD
- 225mm OF GRANULAR 'B' COMPACTED TO 100% SPMDD
- 2.4.4. MIN. RECOMMENDED ON-SITE HEAVY-DUTY PAVEMENT STRUCTURE (TO BE REVIEWED & APPROVED BY THE GEOTECHNICAL ENGINEER)
- 50mm HL3 SURFACE ASPHALT COMPACTED TO 97% MARSHALL MIX DESIGN BULK DENSITY (TACK COAT REQUIRED PER OPSS.PROV 308 IF BINDER ASPHALT HAS BEEN EXPOSED TO TRAFFIC OVER AT LEAST ONE WINTER)
- 75mm HL8 BINDER ASPHALT COMPACTED TO 97% MARSHALL MIX DESIGN BULK DENSITY
- ASPHALT TO BE SUPPLIED AND PLACED IN ACCORDANCE WITH OPSS.MUNI 310 & 1150
- 150mm OF GRANULAR 'A' COMPACTED TO 100% SPMDD
- 300mm OF GRANULAR 'B' COMPACTED TO 100% SPMDD
- 2.4.5. MIN. RECOMMENDED ON-SITE GRAVEL PAVEMENT STRUCTURE (TO BE REVIEWED & APPROVED BY THE GEOTECHNICAL ENGINEER)
- 150mm OF GRANULAR 'A' COMPACTED TO 100% SPMDD
- 300mm OF GRANULAR 'B' COMPACTED TO 100% SPMDD
- 2.4.6. ASSUMED EXISTING PARK ROAD PAVEMENT STRUCTURE (TO BE REVIEWED & APPROVED BY THE GEOTECHNICAL ENGINEER)
- 40mm HL3 SURFACE ASPHALT COMPACTED TO 97% MARSHALL MIX DESIGN BULK DENSITY (TACK COAT REQUIRED PER OPSS.PROV 308 IF BINDER ASPHALT HAS BEEN EXPOSED TO TRAFFIC OVER AT LEAST ONE WINTER)
- 50mm HL8 BINDER ASPHALT COMPACTED TO 97% MARSHALL MIX DESIGN BULK DENSITY
- ASPHALT TO BE SUPPLIED AND PLACED IN ACCORDANCE WITH OPSS.MUNI 310 & 1150
- 150mm OF GRANULAR 'A' COMPACTED TO 100% SPMDD
- 300mm OF GRANULAR 'B' COMPACTED TO 100% SPMDD
- 2.5. RESTORE ALL PAVEMENT MARKINGS TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS AND MARKINGS SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 710 "CONSTRUCTION SPECIFICATION FOR PAVEMENT MARKING".
- 2.6. ALL EXTERIOR HORIZONTAL CONCRETE SHALL MATCH EXISTING THICKNESS OR BE MIN 100mm THICK, 32 MPa at 28 DAYS c/w 5-8% AIR ENTRAINMENT, SLUMP OF 80mm (±20mm) OR 30mm (±10mm) WHEN USING A FORMING MACHINE AND TEMPERATURE BETWEEN 10-28°C. ON MIN 100mm THICK GRANULAR 'A' COMPACTED TO 100% SPMDD.
3. ALL AREAS OUTSIDE THE CONSTRUCTION LIMITS SHALL NOT BE DISTURBED. ANY DAMAGES TO THOSE AREAS ARE TO BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

UTILITIES NOTES:

1. ALL WORK FOR COORDINATION, DESIGN, AND CONSTRUCTION OF UTILITIES IS BY OTHERS. SBM DESIGN AND DRAWINGS ARE FOR MUNICIPAL SERVICING ONLY. ANY UTILITY INFORMATION SHOWN IS FOR REFERENCE PURPOSES ONLY AND MAY NOT BE ACCURATE.
2. UTILITY PROVIDERS MUST BE INFORMED AT LEAST TWO WEEKS PRIOR TO CONSTRUCTION ON ANY EXISTING COUNTY ROAD ALLOWANCE. ALL EXISTING UNDERGROUND SERVICE OR UTILITIES WITHIN THE LIMITS OF THE CONSTRUCTION SITE SHALL BE LOCATED AND MARKED. ANY UTILITIES, DAMAGED OR DISTURBED DURING CONSTRUCTION, SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE GOVERNING BODY AT THE CONTRACTOR'S EXPENSE.
3. ALL EXISTING UNDERGROUND UTILITY (TELEPHONE, HYDRO, GAS, CABLE, SEWER, WATERMAINS, ETC.) THAT WILL BE CROSSED UNDER DURING THE INSTALLATION OF SERVICES FOR THIS DEVELOPMENT SHALL BE SUPPORTED, AS MAY BE REQUIRED BY THE OWNERS OF THE UTILITY BEING CROSSED UNDER.
4. OWNER'S CONTRACTOR TO LOCATE/FIELD VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
5. OWNER'S CONTRACTOR TO COORDINATE WITH UTILITIES PROVIDER FOR BRACING, DECOMMISSIONING AND/OR RELOCATION OF EXISTING GAS, HYDRO, TELEPHONE, CABLE, ETC. SERVICES, IF REQUIRED.

SEDIMENT & EROSION CONTROL MEASURES:

1. PROTECT ALL EXPOSED SURFACES AND CONTROL ALL RUNOFF DURING CONSTRUCTION.
2. SEDIMENT AND EROSION CONTROL MEASURES TO BE REMOVED AT COMPLETION OF PROJECT (FOLLOWING COMPLETION OF BASE ASPHALT AND SOD).
3. MAINTAIN EROSION CONTROL MEASURES DURING CONSTRUCTION.
4. ALL COLLECTED SEDIMENT TO BE DISPOSED OF AT AN APPROVED LOCATION.
5. MINIMIZE AREA DISTURBED DURING CONSTRUCTION.
6. ALL DEWATERING TO BE DISPOSED OF IN AN APPROVED SEDIMENTATION BASIN.
7. PROTECT ALL CATCH BASINS, CATCH BASIN MAINTENANCE HOLES AND PIPE ENDS FROM SEDIMENT INTRUSION WITH GEOTEXTILE FABRIC (TERRAFIX 270 R), SILT SACKS, OR APPROVED EQUAL.
8. PROTECT ALL CATCH BASINS, CATCH BASIN MAINTENANCE HOLES, AND PIPE ENDS WITHIN LANDSCAPE AREAS FROM SEDIMENT INTRUSION WITH STRAW BALE SEDIMENT FILTERS PER DETAIL ON SHEET C2.
9. KEEP ALL SUMPS CLEAN DURING CONSTRUCTION.
10. PREVENT WIND-BLOWN DUST.
11. STRAW BALES TO BE USED IN LOCALIZED AREAS AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION FOR WORKS WHICH ARE IN OR ADJACENT TO FLOOD LINES, FILL LINES AND HAZARDOUS SLOPES.
12. STRAW BALES TO BE TERMINATED BY ROUNDING BALES TO CONTAIN AND FILTER RUNOFF.
13. OBTAIN APPROVAL FROM THE LOWER POINT REGION CONSERVATION AUTHORITY (LPRCA) PRIOR TO CONSTRUCTION FOR WORKS WHICH ARE IN, OR ADJACENT TO FLOOD LINES, FILL LINES AND HAZARDOUS SLOPES.
14. ALL SILT FENCING AND DETAILS ARE AT THE MINIMUM TO BE CONSTRUCTED IN ACCORDANCE WITH THE MINISTRY OF NATURAL RESOURCES GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES.
15. ALL OF THE ABOVE NOTES AND ANY SEDIMENT & EROSION CONTROL MEASURES ARE AT THE MINIMUM TO BE IN ACCORDANCE WITH THE MINISTRY OF NATURAL RESOURCES GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES.
16. SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE INSPECTED WEEKLY OR FOLLOWING SIGNIFICANT RAINFALL EVENTS.
17. ON-SITE SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE REVIEWED AND MODIFIED TO MEET THE CHANGING SITE.
18. SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REPAIRED WITHOUT DELAY BY THE OWNERS CONTRACTOR AS INSTRUCTED BY THE CONTRACT ADMINISTRATOR/ENGINEER AT NO EXPENSE TO THE OWNER.
19. MUD MATS (OR EXISTING HARD SURFACE) TO BE PROVIDED ON-SITE AT CONSTRUCTION ENTRANCE LOCATIONS WHERE CONSTRUCTION VEHICLES EXIT THE SITE. MUD MAT SHALL BE A MINIMUM OF 6.7m WIDE, 11.0m LONG (LENGTH MAY VARY DEPENDING ON SITE LAYOUT) AND 0.3m DEEP AND SHALL CONSIST OF 200mm WASHED STONE MATERIAL OR APPROVED EQUIVALENT. CONTRACTOR TO ENSURE ALL VEHICLES LEAVE THE SITE VIA THE MUD MAT AND THAT IT IS MAINTAINED IN A MANNER TO MAXIMIZE ITS EFFECTIVENESS AT ALL TIMES.
20. FOLLOWING CONSTRUCTION, AN INSPECTION OF THE OUTLET AND RIPRAP PROTECTION SHALL BE UNDERTAKEN TO CONFIRM STABILITY AND EFFECTIVENESS.

SERVICING NOTES:

1. ALL STORM AND/OR SANITARY SEWER INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT NORFOLK COUNTY'S STANDARDS AND SPECIFICATIONS, THE CURRENT EDITION OF THE ONTARIO BUILDING CODE, AND THE CURRENT EDITION OF THE MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (M.E.C.P.) DESIGN GUIDELINES FOR SEWAGE WORKS.
2. ALL STRUCTURES SHALL BE INSTALLED TO 1.0m OUTSIDE FOUNDATION WALL.
3. ALL ORGANIC, UNSTABLE OR UNSUITABLE MATERIALS BENEATH THE ROAD ALLOWANCE, SERVICES, UTILITIES, OR FOUNDATIONS MUST BE REMOVED AND THESE AREAS BACKFILLED WITH AN APPROVED FILL MATERIAL, ALL TO THE SATISFACTION OF A GEOTECHNICAL ENGINEER AND SHOULD BE PLACED IN LIFTS NOT EXCEEDING 300mm (LOOSE) THAT ARE COMPACTED TO 95% SPMDD (100% FOR PAVED SURFACES). THE FILL MATERIAL SHOULD COMPRISE OF CLEAN, COMPACTABLE FILL WITHIN 3% OF THE OPTIMUM MOISTURE CONTENT.
4. REMOVE ALL TRENCH WATER WHEN PIPE LAYING IS IN PROGRESS. ALL REQUIREMENTS FOR DEWATERING REGISTRY AND PERMITS (INCLUDING THE M.E.C.P.'S PERMIT TO TAKE WATER, IF REQUIRED) SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. CONNECTIONS FROM FOUNDATIONS, WEEPING TILE, SUMP PUMP, AND ROOF DRAINS ARE NOT PERMITTED TO ENTER THE SANITARY SEWER SYSTEM AND SHALL BE IN ACCORDANCE WITH THE NORFOLK COUNTY REQUIREMENTS.
6. ALL PROPOSED STORM SEWER PIPE SHALL BE: PVC SMOOTH WALL (CSA B182.2) (100# TO 600#) OR RIBBED (CSA B182.4) (200# TO 600#) OR HDPE (CSA B182.8) (200# TO 600#) OR NON-REINFORCED CONCRETE (CAN/CSA 257.1) (100# TO 600#) OR REINFORCED CONCRETE (CAN/CSA 257.2) AND SANITARY SEWER PIPE TO BE PVC SMOOTH WALL (CSA B182.2) (100# TO 600#) OR RIBBED (CSA B182.4) (200# TO 600#) OR NON-REINFORCED CONCRETE (CAN/CSA 257.1) (100# TO 600#) OR REINFORCED CONCRETE (CAN/CSA 257.2). PVC PIPE SHALL BE LAID WITH TYPE I BEDDING UNDER 4.5m OF COVER AND TYPE II BEDDING OVER 4.5m OF COVER. CONCRETE PIPE SHALL BE LAID WITH CLASS B (B1 OR B2) BEDDING. ALL SEWER BACKFILL MUST BE COMPACTED TO 95% STANDARD MAXIMUM DRY DENSITY (MINIMUM) (100% FOR PAVED AREAS).
7. CLASS B1 BEDDING (CRUSHED STONE) TO EXTEND FROM THE INLET AND OUTLET PIPES OF ANY MAINTENANCE HOLE IN THE COUNTY ROW FOR A DISTANCE OF 5.0m.
8. THE MINIMUM DEPTH OF A STORM SEWER SHALL BE 1.0m OR 1.2m FROM SPRING LINE TO THE FINISH GRADE IN THE COUNTY ROW. PROPER INSULATION SHALL BE PROVIDED IN ACCORDANCE WITH MOE GUIDELINES.
9. ALL STORM SEWERS/SERVICES AND CATCHBASIN LEADS SHALL HAVE APPROVED RUBBER GASKET JOINTS + BE INSTALLED USING A LASER LEVEL.
10. ALL SANITARY SEWERS/SERVICES SHALL HAVE APPROVED RUBBER GASKET JOINTS + BE INSTALLED USING A LASER LEVEL.
11. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL PRECAST CONCRETE STRUCTURES.
12. ALL CATCHBASINS TO HAVE 0.6m SUMP AS PER OPSD 705.010 AND CATCHBASIN MAINTENANCE HOLES 1200# & LARGER TO HAVE 0.3m SUMP AS PER OPSD 701.010.
13. 3.0m LENGTHS OF 150mm DIAMETER PERFORATED FILTER WRAPPED PVC PIPE ARE TO BE INSTALLED AS SUBDRAINS CONNECTED TO TWO SIDES OF EACH CATCHBASIN AND CATCHBASIN MAINTENANCE HOLE WITHIN PAVED AREAS. THE SUBDRAINS ARE TO BE LOCATED JUST BELOW SUBGRADE ELEVATION.
14. BUILDING FOOTINGS ARE TO BE STEPPED DOWN (SEE STRUCTURAL DRAWINGS BY OTHERS) TO ALLOW SERVICES TO PASS THROUGH THE FOUNDATION WALL NOT UNDER THE FOOTING.
15. MAINTENANCE HOLES TO BE CONSTRUCTED OF PRE-CAST CONCRETE. ALL MAINTENANCE HOLES TO BE INSTALLED IN ACCORDANCE WITH THE ONTARIO PROVINCIAL STANDARDS (OPSD) DIVISION 700 DETAILS AND REQUIREMENTS, SEE LIST OF COMMON DETAILS. ALL STRUCTURES TO BE DESIGNED TO RESIST BUOYANCY IF REQUIRED.
16. ENSURE MINIMUM OF 1' ADJUSTMENT UNIT FOR ALL STRUCTURES. MAXIMUM TOTAL ADJUSTMENT UNITS HEIGHT: 300mm.
17. RUNG SPACING IN MAINTENANCE HOLES TO BE 300mm MIN. AND A MAX. OF 600mm DISTANCE BETWEEN THE LID AND THE FIRST RUNG.
18. WATERMAINS 250mm AND ABOVE MUST BE RESTRAINED FOR 30.0m IN EITHER DIRECTION OF DEAD END/VALVE.
19. WHERE ANY WATER FOLLOWING THE CONSTRUCTION OF CURB, GUTTER, CONCRETE SIDEWALKS, AND/OR WEARING SURFACE COAT OF ASPHALT ON ANY STREET IN A NEW SUBDIVISION, SUCH WATER SERVICE CONNECTION SHALL NOT BE MADE USING 'OPEN CUT' METHODS BUT SHALL BE MADE USING TRENCHLESS TECHNOLOGIES AND IN SUCH A MANNER AS TO ELIMINATE THE POSSIBILITY OF SETTLEMENT OF SUCH CURB, GUTTER, CONCRETE SIDEWALKS AND/OR WEARING SURFACE COAT OF ASPHALT; IT BEING UNDERSTOOD THAT THIS POLICY SHALL APPLY, EXCEPT WHERE IN THE OPINION OF THE COUNTY ENGINEER, GROUND CONDITIONS ARE SUCH THAT THE USE OF DRILLING OR BORING METHODS BECOME UNREASONABLE OR UNECONOMICAL.
20. ALL WATERMAIN MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CURRENT NORFOLK COUNTY'S STANDARDS AND SPECIFICATIONS.
21. ALL FIRE HYDRANTS SHALL BE 3-WAY HYDRANTS c/w STORZ CONNECTION OPENING COUNTER CLOCKWISE AS PER NORFOLK COUNTY'S STANDARDS AND SPECIFICATIONS.
22. ALL WATERMAIN VALVES SHALL BE GATE VALVES MANUFACTURED TO AWWA C500 AND EPOXY COATED TO AWWA C550 AND ARE TO OPEN COUNTER CLOCKWISE.
23. INSTALLATION, HYDROSTATIC TESTING, SWABBING, FLUSHING AND DISINFECTION SHALL BE DONE IN ACCORDANCE WITH NORFOLK COUNTY'S STANDARDS AND SPECIFICATIONS.
24. WATER SERVICE TO BE PEX AND ALL WATER PIPE TO HAVE 10AWG TRACER WIRE INSTALLED ON ALL PVC WATERMAINS, VALVES, AND FIRE HYDRANTS. APPROVED TRACER WIRE FOR OPEN CUT INSTALLATION: "COPPERHEAD 1230-HS". ALL WATER PIPE TO BE INSTALLED WITH 1.7m COVER. PEX WATER SERVICE REQUIRES BRASS FITTINGS AS PER THE COUNTY'S STANDARD CONTRACT DOCUMENTS. PROVIDE PIPE RESTRAINTS AS REQUIRED BY THE PIPE MANUFACTURER.
25. WATERMAINS/SERVICES SHALL CROSS ABOVE SEWERS WITH SUFFICIENT VERTICAL SEPARATION TO ALLOW FOR PROPER BEDDING AND STRUCTURAL SUPPORT OF THE WATERMAIN/SERVICE AND SEWER MAINS AS OUTLINED IN THE CURRENT EDITION OF THE M.E.C.P. "DESIGN GUIDELINES FOR DRINKING-WATER SYSTEMS" SECTION F-6-1 "PROCEDURES TO GOVERN SEPARATION OF SEWERS AND WATERMAINS" AND INSULATE WATER SERVICE AS PER CLAUSE 7.3.5.4. "PROTECTION FROM FROST" OF THE CURRENT EDITION OF THE ONTARIO BUILDING CODE, WHERE REQUIRED.
26. ALL SUBSTITUTIONS MUST BE APPROVED BY THE COUNTY ENGINEER.
27. THE ELEVATION OF THE GROUND WATER TABLE IS UNKNOWN. CONTRACTOR TO ADVISE SBM IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION OPERATIONS; FURTHER REVIEW/INVESTIGATION BY A GEOTECHNICAL ENGINEER MAY BE REQUIRED. IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION OPERATIONS, CIVIL STRUCTURES ARE TO BE DESIGNED FOR HYDROSTATIC PRESSURE AND UPLIFT/BUOYANCY FORCES. PROVIDE SHOP DRAWINGS SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO FOR REVIEW

LEGEND:

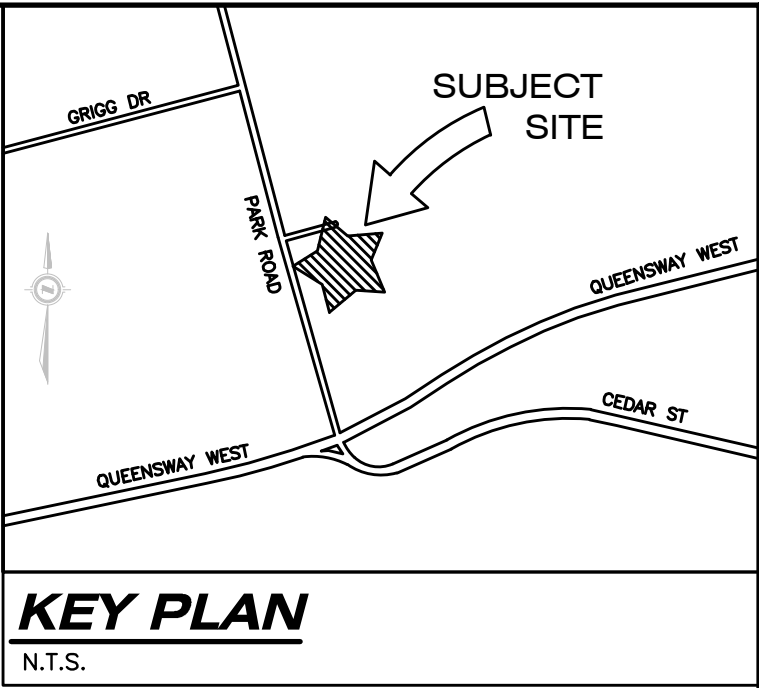
	EXISTING SPOT ELEVATION		PROPOSED SUMP PUMP (SEE ARCHITECTURAL DRAWINGS)
	EXISTING SPOT ELEVATION (TO REMAIN)		PROPOSED RAMP
	PROPOSED SPOT ELEVATION		TOP OF CURB
	PROPOSED SWALE ELEVATION		EDGE OF PAVEMENT
	EXISTING CATCH BASIN		GROUND ELEVATION AT TOP OF RETAINING WALL
	PROPOSED CATCH BASIN		GROUND ELEVATION AT BOTTOM OF RETAINING WALL
	EXISTING DOWNSPOUT		HIGH POINT
	PROPOSED DOWNSPOUT		LOW POINT
	PROPOSED AREA DRAIN		TOP OF LID
	EXISTING CLEANOUT		TOP OF FINISHED GARAGE SLAB AT GARAGE DOOR
	PROPOSED STORM CLEANOUT		PRINCIPAL BARRIER FREE ENTRANCE & FIRE FIGHTER ACCESS ENTRANCE
	PROPOSED SANITARY CLEANOUT		BUILDING ENTRANCE
	PROPOSED CATCH BASIN		OVERHEAD DOOR
	PROPOSED MAINTENANCE HOLE		DRIVETHRU WINDOW
	PROPOSED SANITARY MAINTENANCE HOLE		PROPOSED LIGHT-DUTY ASPHALT
	PROPOSED SWALE		PROPOSED HEAVY-DUTY ASPHALT
	PROPOSED SLOPE		PROPOSED CONCRETE
	PROPOSED DRAINAGE DIRECTION		PROPOSED RETAINING WALL (DESIGNED BY OTHERS)
	EXISTING OVERLAND FLOW ROUTE		APPROXIMATE EXTENTS OF PONDING (SWM OR OFF)
	PROPOSED OVERLAND FLOW ROUTE		APPROXIMATE EXTENTS OF SERVICING INSULATION (SHOWN SCHEMATICALLY)
	PROPOSED SIGN, TYPE OF SIGN		PROPOSED SNOW STORAGE
	EXISTING STORM SEWER		MILL/PAVE LAP JOINT AS PER DETAIL ON THIS PAGE
	PROPOSED STORM SEWER		LIMITS OF DRAINAGE AREA
	EXISTING SANITARY SEWER		PROPOSED SILT SACK
	PROPOSED SANITARY SEWER		PROPOSED STRAW BALE BARRIER/ SILT SOCK
	EXISTING WATERMAIN		EXISTING BUILDING
	PROPOSED WATERMAIN		PROPOSED BUILDING
	EXISTING FIRE HYDRANT		PROPOSED FIRE HYDRANT
	PROPOSED FIRE HYDRANT		PROPOSED FIRE DEPARTMENT CONNECTION
	EXISTING WATER VALVE		PROPOSED TREE PRESERVATION FENCE
	PROPOSED WATER VALVE		LIMITS OF SUBJECT PROPERTY
	EXISTING WATER METER		LIGHTS, DESIGN BY OTHERS
	PROPOSED WATER METER		
	PROPOSED CURB STOP		

REFERENCE DOCUMENTS:

1. SITE SERVICING DESIGN BRIEF PREPARED BY SBM, PROJECT No: SBM-23-2071.
2. SITE PLAN BY SBM, PROJECT No: SBM-23-2071.
3. TOPOGRAPHIC SURVEY BY JEWITT AND DIXON LTD., PROJECT No: 23-3947-TOPO.
4. NORFOLK COUNTY RECORD DRAWING S-0485.

LIST OF STANDARD DETAILS:

ONTARIO PROVINCIAL STANDARDS:	
OPSD 219.110	LIGHT-DUTY SILT FENCE BARRIER
OPSD 219.120	LIGHT-DUTY FIBRE ROLL BARRIER
OPSD 219.160	FIBRE ROLL GRADE BREAKS
OPSD 219.180	STRAW BALE FLOW CHECK DAM
OPSD 219.180	FIBRE ROLL FLOW CHECK DAM
OPSD 219.191	CAST IRON, SQUARE FRAME WITH SQUARE FLAT GRATE FOR CATCH BASINS, HERRING BONE OPENINGS
OPSD 603.020	PRECAST CONCRETE CURB
OPSD 701.010	PRECAST CONCRETE MAINTENANCE HOLE, 1200mm DIAMETER
OPSD 701.021	MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES
OPSD 704.010	MAINTENANCE HOLE, CATCH BASIN AND VALVE CHAMBER, PRECAST CONCRETE ADJUSTMENT UNITS
OPSD 705.010	PRECAST CONCRETE CATCH BASIN, 600mmx600mm
OPSD 708.020	SUPPORT FOR PIPE AT CATCH BASIN OR MAINTENANCE HOLE
OPSD 810.010	GENERAL RIP-RAP LAYOUT FOR SEWER AND CULVERT OUTLETS
OPSD 1006.010	SEWER SERVICE CONNECTIONS FOR RIGID MAIN PIPE SEWER
OPSD 1109.011	CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS



LEGAL INFORMATION

PART OF  
LOT 3  
CONCESSION 14  
IN THE  
TOWNSHIP OF WINDHAM  
NORFOLK COUNTY

SITE BENCHMARK:

MONUMENT TYPE: SPIKE  
LOCATION: IN FACE OF WOOD HYDRO POLE  
GEODETIC ELEVATION: 220.46  
(CONTRACTOR TO CONFIRM BENCHMARK ELEVATIONS)

LIST OF SUBMITTALS

NOTE: CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW PRIOR TO ORDERING MATERIALS.
SHOP DRAWINGS – STORM & SANITARY STRUCTURES
SHOP DRAWINGS – SWM SYSTEM
CCTV OF STORM AND SANITARY SEWERS

LIST OF ITEMS REQUIRING ENGINEER'S REVIEW	
NOTE: CONTRACTOR TO PROVIDE MIN. 48 HOURS NOTICE PRIOR TO REQUESTED FIELD REVIEW TIME.	
EROSION AND SEDIMENT CONTROL MEASURES, UPON COMPLETION	
SERVICING IN MUNICIPAL RIGHT-OF-WAY (R.O.W.), DURING CONSTRUCTION	
ON-SITE STORM SERVICING, PRIOR TO BACKFILL	
ON-SITE SANITARY SERVICING, PRIOR TO BACKFILL	
ON-SITE WATERMAIN SERVICING, PRIOR TO BACKFILL	
STORMWATER MANAGEMENT CONTROLS, UPON COMPLETION	
FINAL GRADING, UPON COMPLETION	
STORMWATER OUTLET AND RIPRAP, UPON COMPLETION OF ENTIRE SITE	

LIST OF DRAWINGS

SHEET C1	NOTES AND LEGEND
SHEET C2	EXISTING CONDITIONS, REMOVALS, AND SEDIMENT & EROSION CONTROL PLAN
SHEET C3	SITE SERVICING PLAN
SHEET C4	SITE GRADING PLAN
SHEET C5	STANDARD DETAILS
SHEET C6	STORMWATER MANAGEMENT CHAMBER DETAILS

AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	D/M/Y	BY
DESIGN	MCA/JSF	1	ISSUED FOR CLIENT REVIEW	17/04/24	JSF
DRAWING	FR/JSF	2	ISSUED FOR SITE PLAN APPROVAL, SUB. 1	09/05/24	JSF
CHECKED	BH	3	ISSUED FOR SITE PLAN APPROVAL, SUB. 2	10/01/25	JSF
APPROVED	BH	4	ISSUED FOR SITE PLAN APPROVAL, SUB. 3	17/07/25	MEN
DATE	12/09/2025	5	AS PER LPRCA COMMENTS	12/09/25	MR
CAD	23-2071				

**STRIK BALDINELLI MONIZ**  
PLANNING - CIVIL - STRUCTURAL - MECHANICAL - ELECTRICAL  
1599 Adelaide St. N, Unit 301, London, Ontario, N5X 4E8  
Tel: (519) 471-6667 Fax: (519) 471-0034  
Email: sbm@sbmltd.ca



C.TECH'S STAMP

CLIENT

**ONE STOP HOME STAGING**  
18-111 SHERWOOD DRIVE  
BRANTFORD, ON  
N3T 1N8  
P: 514.410.0098  
E: onestophomestaging@outlook.com

SCALE

N/A

TITLE

NOTES AND LEGEND

PROPOSED WAREHOUSE

33 PARK ROAD  
SIMCOE, ON.

PROJECT No.

SBM-23-2071

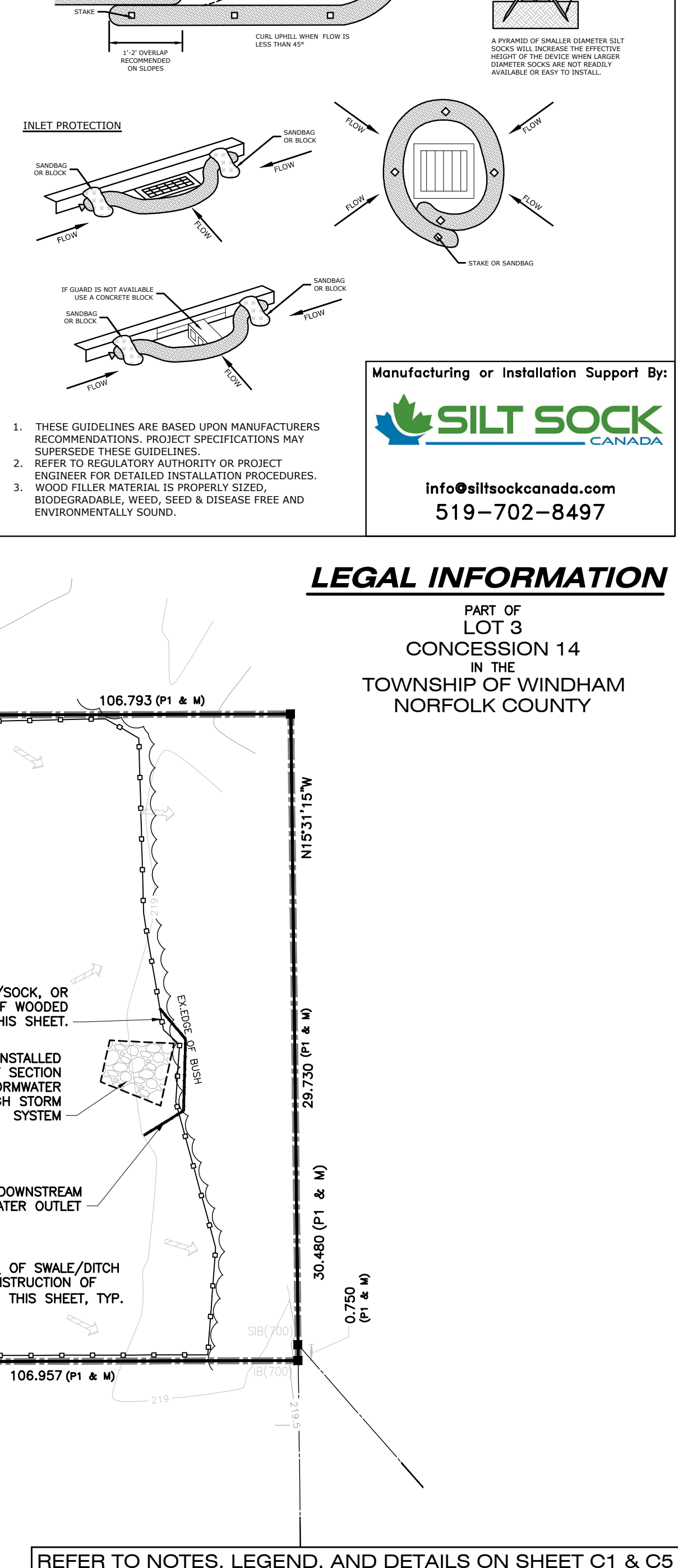
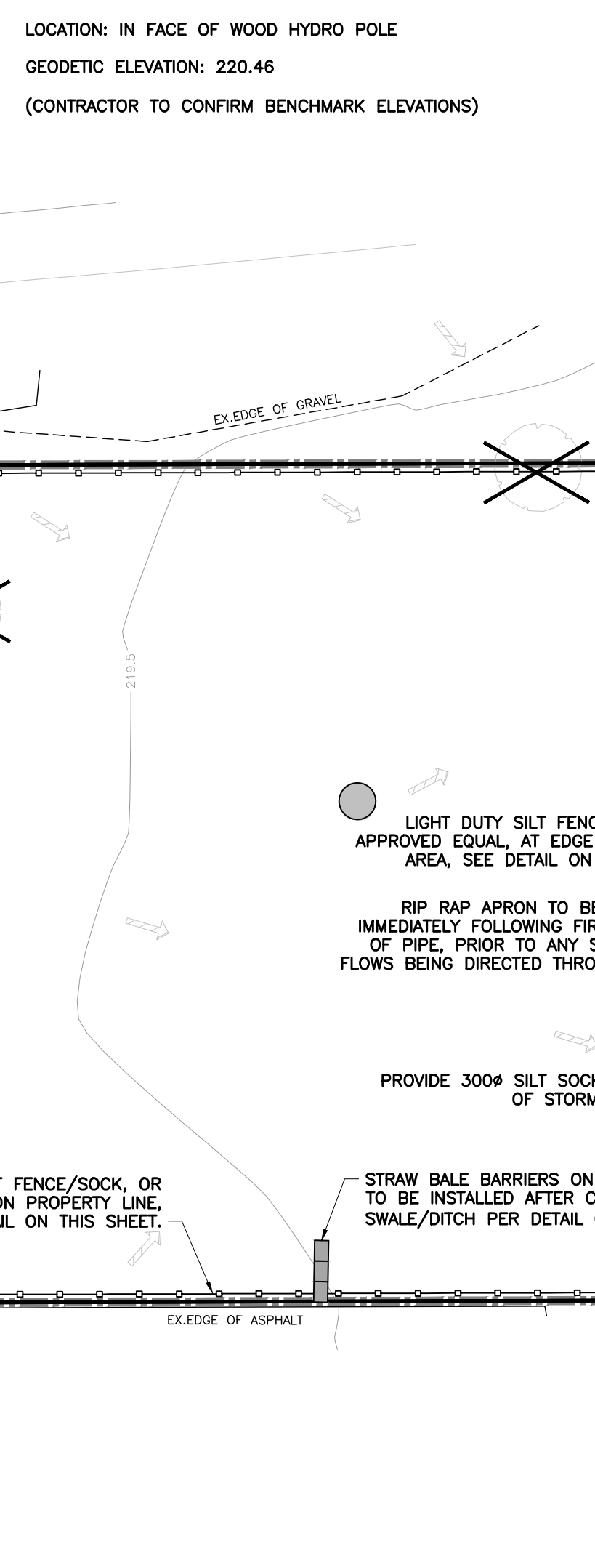
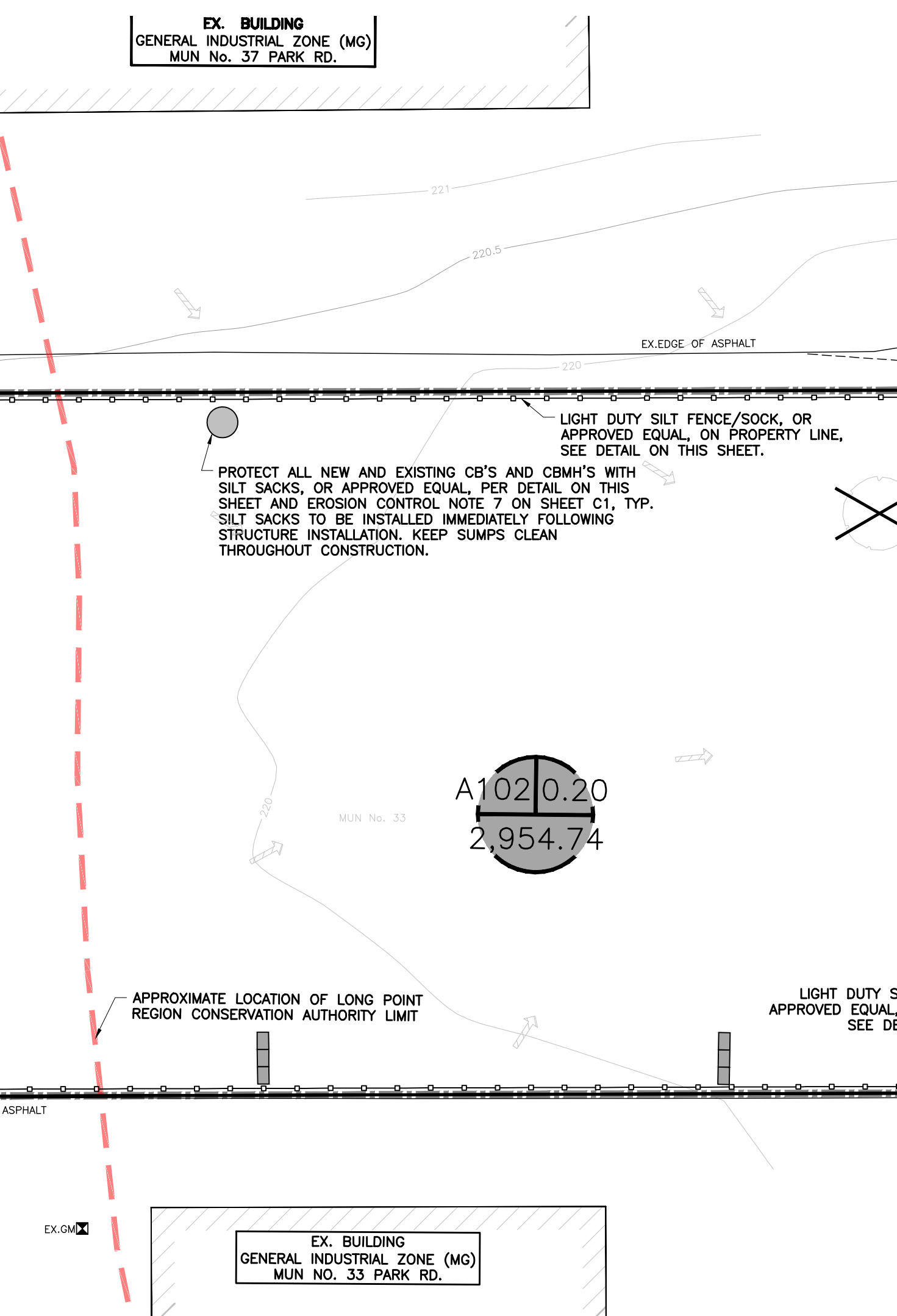
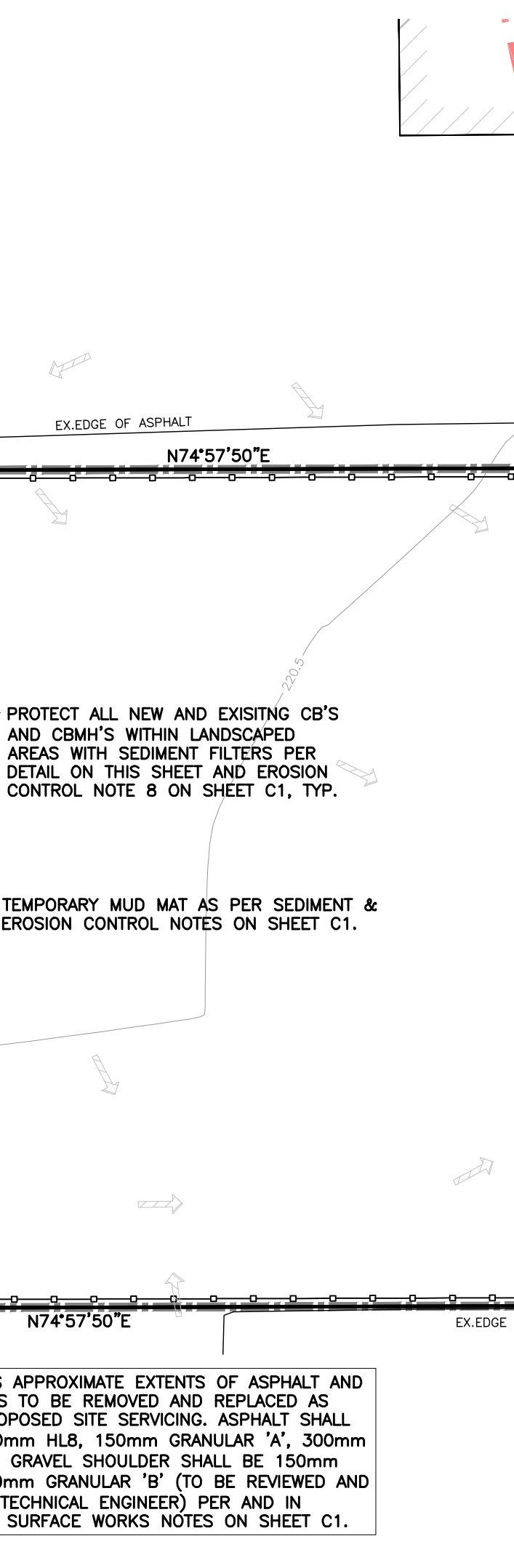
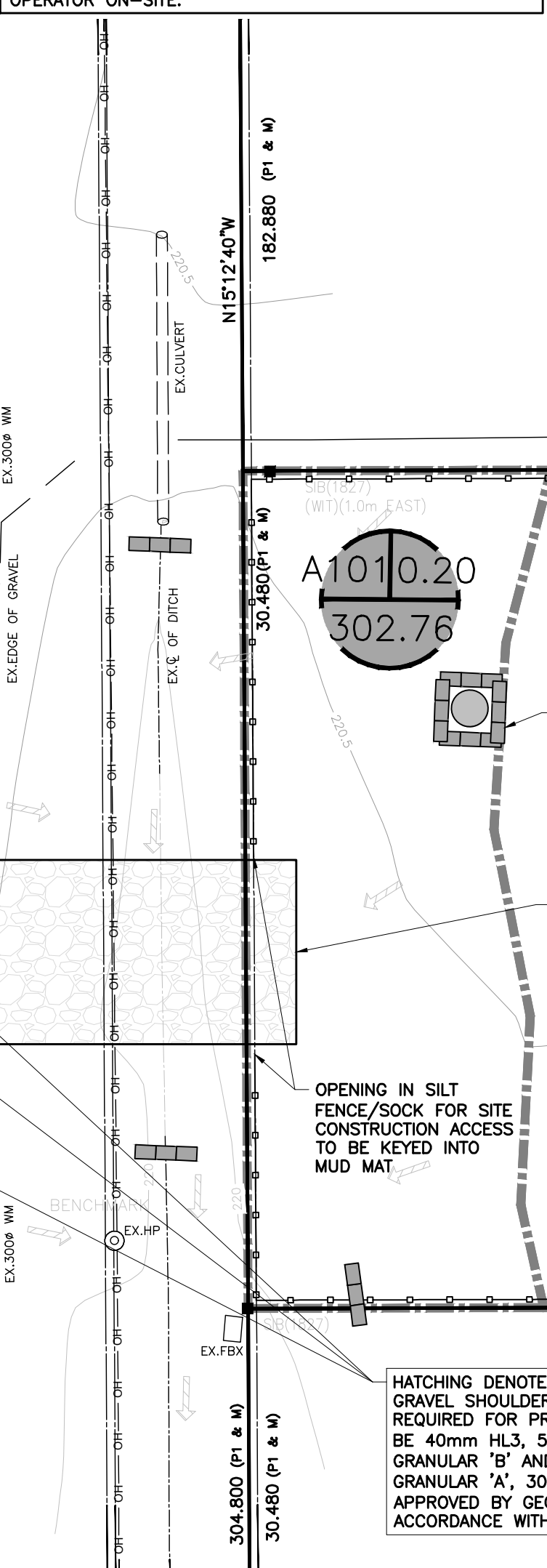
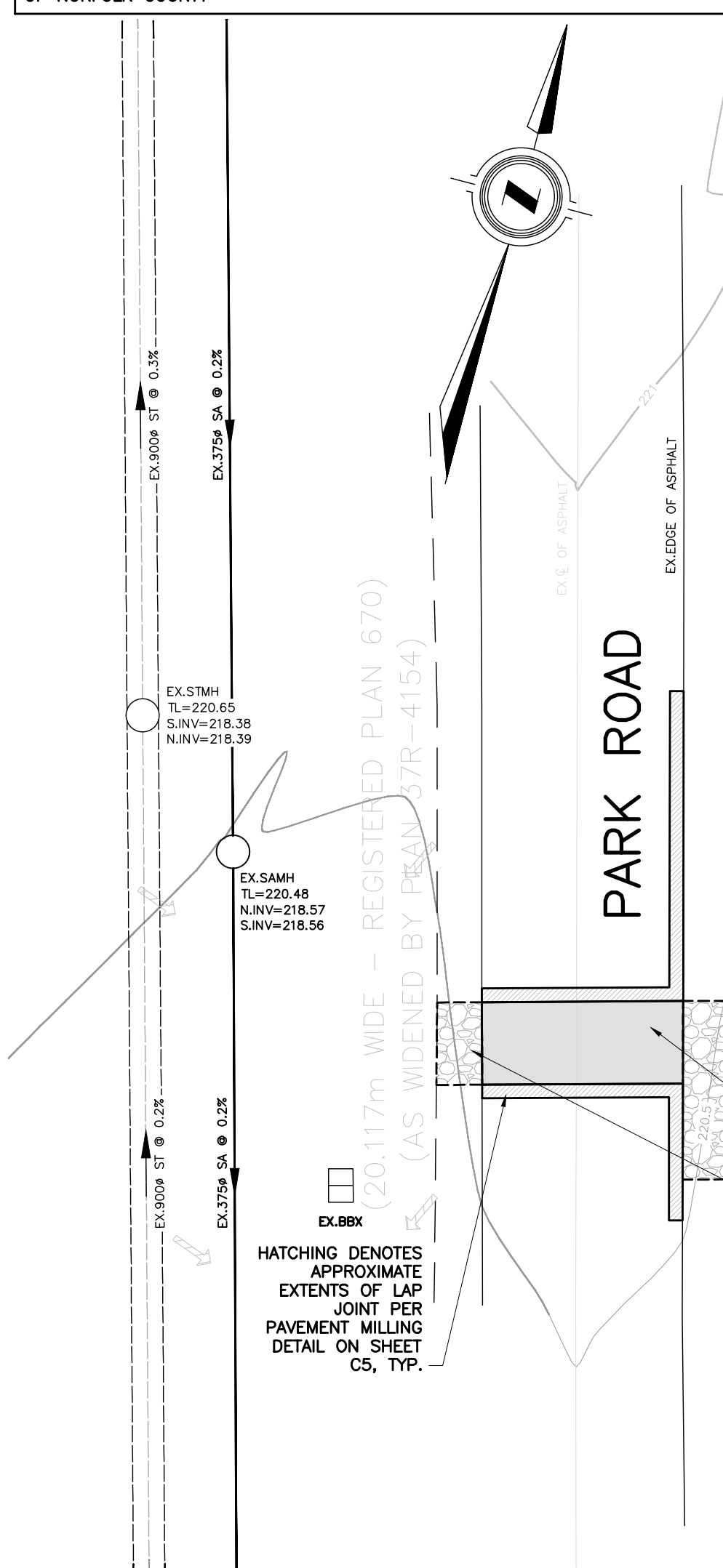
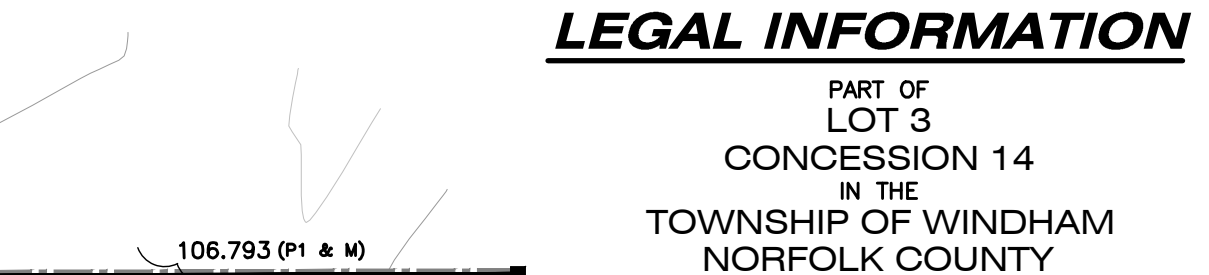
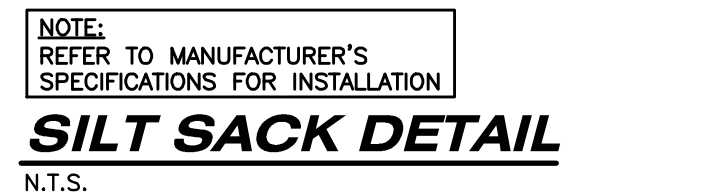
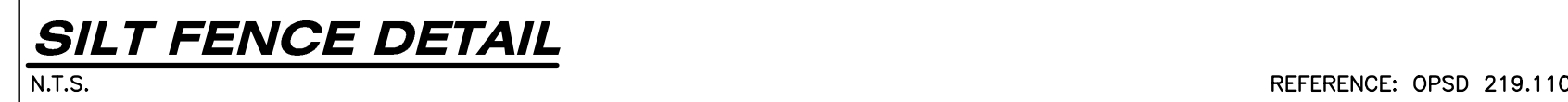
SHEET No.

C1

PLAN FILE No.

SPPL2024304






AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	D/M/Y	BY	CONSULTANT
	DESIGN MGR/JSF	1	ISSUED FOR CLIENT REVIEW	17/04/24	JSF	
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	DATE 11/09/2025	5	AS PER LPRCA COMMENTS	12/09/25	MR	
	CAD 23-2071					

**sbm** **STRIK BALDINELLI MONIZ**  
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Tel: (519) 471-6667 Fax: (519) 471-0034  
Email: sbm@sbmild.ca

ENGINEER'S STAMP



LICENSED PROFESSIONAL ENGINEER

*B.R. Hyland*

B.R. HYLAND  
100223591

Sept 12, 2025


SBM-23-201

PROVINCE OF ONTARIO

C. GETH'S STAMP	<div>CLIENT</div> <div>ONE STOP HOME STAGING</div> <div>18-111 SHERWOOD DRIVE</div> <div>BRANTFORD, ON</div> <div>N3T 1N8</div> <div>P: 514.410.0098</div> <div>E: onestophomestaging@outlook.com</div>
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SCALE — 1:200

2.0 0 4.0m

A horizontal scale bar with a black and white checkered pattern on the left side. The text "SCALE — 1:200" is centered above the bar. Below the bar, the numbers "2.0", "0", and "4.0m" are positioned at the left, center, and right ends respectively.

TITLE	EXISTING CONDITIONS, REMOVALS, AND SEDIMENT & EROSION CONTROL PLAN
	PROPOSED WAREHOUSE  33 PARK ROAD  SIMCOE, ON.

PROJECT No.	SBM-23-2071
SHEET No.	C2
PLAN FILE No.	SPPL2024304



PIPE CROSSINGS & VERTICAL CLEARANCES										
CROSSING No.	SEWER/WATERMAIN ELEVATIONS (*NOT ADJUSTED VALUE)					VERTICAL CLEARANCES (NOT ADJUSTED)		VERTICAL CLEARANCES (ADJUSTED)	*VERTICAL OFFSET	
CR1	150mm	SAN	INV.	219.22	300mm	WM	OBV.	218.72	0.50	NO
CR2	400mm	STM	INV.	219.78	150mm	SAN	OBV.	219.44	0.34	N/A
CR3	400mm	STM	INV.	219.75	25mm	WM	OBV.	218.04	1.71	NO
CR4	150mm	STM	INV.	220.06	25mm	WM	OBV.	218.92	1.14	NO
CR5	150mm	STM	INV.	220.00	150mm	SAN	OBV.	219.75	0.25	N/A

STORM SEWER STRUCTURES TABLE				
STRUCTURE I.D.	TOP OF LID	INVERTS	DIAMETER	MATERIAL
OCS 1 SEE DETAIL ON SHEET C5	220.46	218.94W 218.94E	300# 300#	HDPE CAN/CSA B182.8 HDPE CAN/CSA B182.8
CBMH 2 1200# OPSD 400.020 OPSD 701.010	220.33	219.00W 219.00E	300# 300#	HDPE CAN/CSA B182.8 HDPE CAN/CSA B182.8
CBMH 3 1200# OPSD 400.020 OPSD 701.010	220.27	219.12SW 219.11E	300# 300#	HDPE CAN/CSA B182.8 HDPE CAN/CSA B182.8
CB 4 600X600 OPSD 400.020 OPSD 705.010	220.10	219.30NE	300#	HDPE CAN/CSA B182.8

SAN SEWER STRUCTURES TABLE				
STRUCTURE I.D.	TOP OF LID	INVERTS	DIAMETER	MATERIAL
SAMH 1 1200# OPSD 401.010 OPSD 701.010	220.72	219.33E 219.32W	150# 150#	PVC DR28 PVC DR28

**WATERMAIN & SEWER CROSSING NOTE:**

- UNDER PRACTICAL CONDITIONS, WATERMAINS SHALL CROSS ABOVE SEWERS WITH SUFFICIENT VERTICAL SEPARATION TO ALLOW FOR PROPER BEDDING AND STRUCTURAL SUPPORT OF THE WATERMAIN AND SEWER. INSULATE WHERE REQUIRED.
- WHEN IT IS NOT POSSIBLE FOR THE WATERMAIN TO CROSS ABOVE THE SEWER, THE WATERMAIN PASSING UNDER A SEWER SHALL BE PROTECTED BY:
  - PROVIDING A VERTICAL SEPARATION OF AT LEAST 0.5 METRES BETWEEN THE INVERT OF THE SEWER AND THE CROWN OF THE WATERMAIN;
  - PROVIDING ADEQUATE STRUCTURAL SUPPORT FOR THE SEWERS TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING; AND
  - ENSURING THAT THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING SO THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.

REFERENCE: JUNE 2012 MINISTRY OF THE ENVIRONMENT'S 'WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATION AUTHORIZED UNDER A DRINKING WATER WORKS PERMIT'

ALL CLEARANCES TO ELECTRICAL CONDUCTORS AS SET OUT IN THE CURRENT OBC DIV. B-3.1.19.1 'ELECTRICAL CONDUCTOR CLEARANCES TO BUILDINGS' SHALL BE MAINTAINED

**OFF-SITE WORKS NOTE:**  
ROAD EXCAVATION/OCCUPANCY PERMITS FOR ALL EXTERNAL WORKS ARE REQUIRED.

**EXISTING SERVICING NOTE:**  
INVERTS OF THE EX. SANITARY & STORM SEWERS @ CONNECTION POINTS SHALL BE CONFIRMED BY THE OWNER'S CONTRACTOR PRIOR TO THE START OF CONSTRUCTION/ORDERING STRUCTURES. THE CONSULTANT IS TO BE INFORMED IF DIFFERENT THAN NOTED.

**RESTORATION NOTE:**  
ALL WORK IN THE ROAD ALLOWANCE SHALL MEET THE MINIMUM SPECIFICATIONS OF NORFOLK COUNTY

SERVICE STUBS TO BE CAPPED AT 1.0m O/S FROM BUILDING ENVELOPE FOR CONNECTION ONCE BUILDING SERVICES ARE INSTALLED.

OWNER'S CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY CONSTRUCTION MEASURES SUCH AS, BUT NOT LIMITED TO, PIPE COVER AT NO ADDITIONAL CHARGE TO THE CONTRACT.

**STORM SERVICING NOTE:**  
NO BUILDING DRAIN (SUMP/WEeping TILE/RAIN WATER LEADER) CONNECTIONS WILL BE PERMITTED INTO THE SANITARY SEWERS AND NO DIRECT GRAVITY CONNECTIONS FROM THE FOUNDATION DRAINS WILL BE PERMITTED TO THE STORM SYSTEM UNLESS THE STORM SYSTEM HAS THE CAPACITY TO PROVIDE FOR SUCH CONNECTIONS TO THE SATISFACTION OF THE COUNTY ENGINEER.

ALL PROP WATER METERS ARE c/w A LEAD-FREE REDUCED PRESSURE FLOW ASSEMBLY (RP2).

ALL WATERMAIN CONSTRUCTION TO CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE NORFOLK COUNTY ENGINEERING DEPARTMENT. WHERE COVER IS LESS THAN 1.7m (EVEN TEMPORARY CONDITIONS), THE WATERMAIN/SERVICE SHALL BE ADEQUATELY INSULATED OVER THE AFFECTED LENGTH.

THE OWNER'S CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL MEASURES IN COMPLIANCE WITH THE ONTARIO TRAFFIC MANUAL BOOK 7 AND BOOK 18 FOR ALL WORKS WITHIN THE COUNTY RIGHT-OF-WAY. THE OWNER'S OWNER'S CONTRACTOR SHALL SUBMIT TRAFFIC CONTROL PLANS TO THE COUNTY/ENGINEER FOR REVIEW PRIOR TO PROCEEDING WITH CONSTRUCTION.

**STORM DRAINAGE NOTE:**  
STORM DRAINAGE MAY TEMPORARILY NEED TO BE CONTROLLED AND PUMPED FROM STORM SEWER SYSTEM. ANY SUCH TEMPORARY MEASURES SHALL BE CONDUCTED AT NO EXTRA COST TO THE CONTRACT AND BE BASED UPON THE OWNER'S CONTRACTORS WATER CONTROL PLANS, WHICH MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR/ENGINEER PRIOR TO CONSTRUCTION.

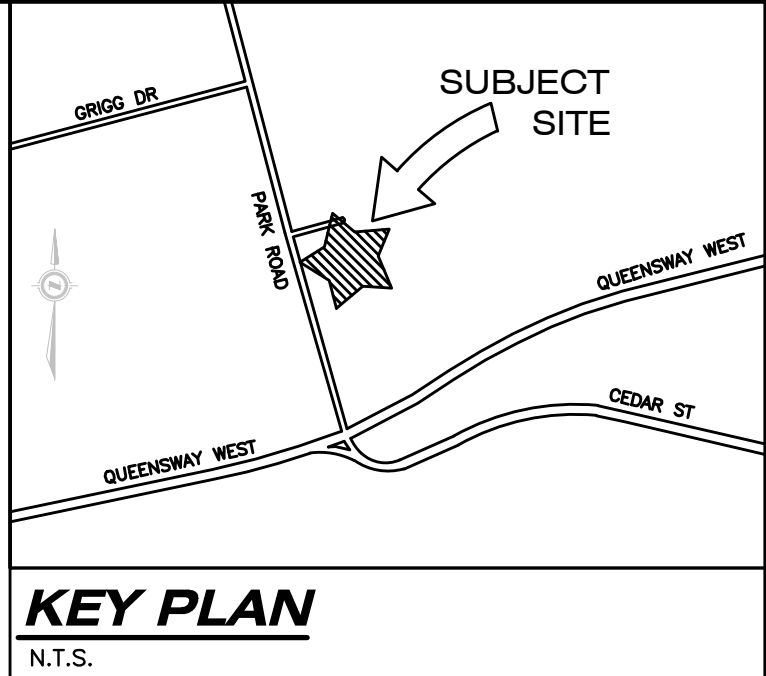
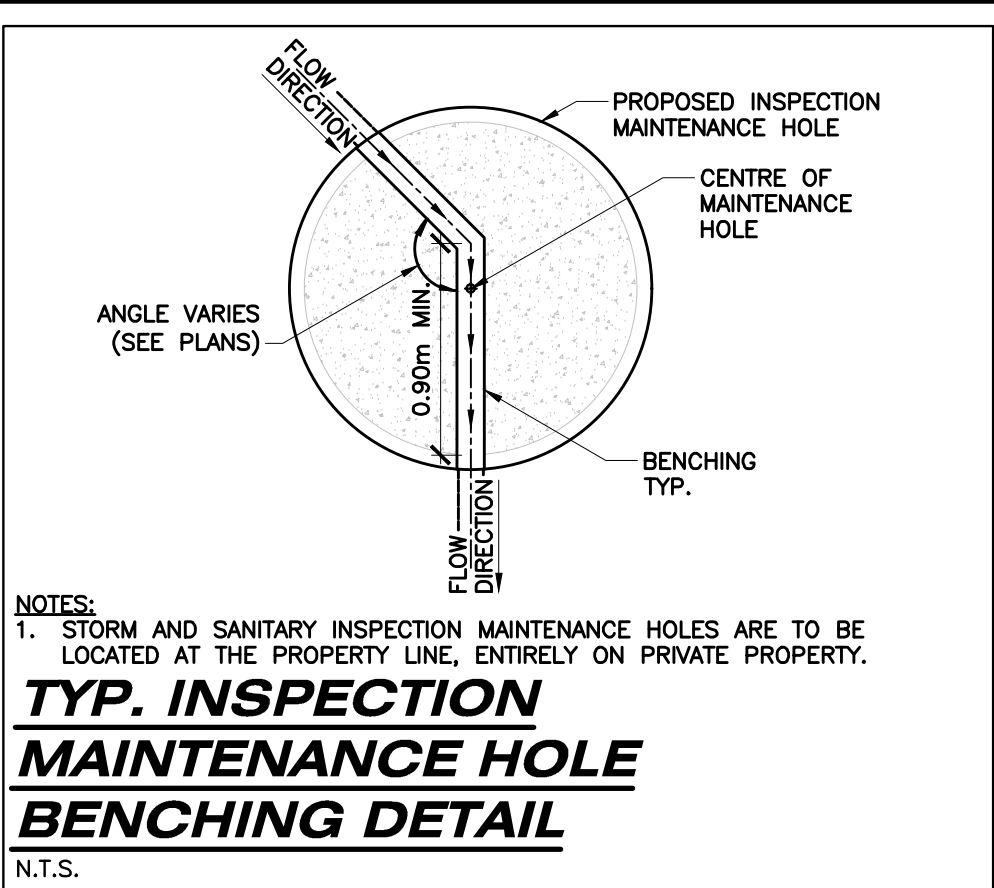
**INSULATION NOTE:**  
INSULATE SEWERS PER SEWER INSULATION DETAIL ON SHEET C5 (INSULATED PIPES TO BE USED IF INSUFFICIENT DEPTH FOR INSULATION INSTALLATION) + WATER PIPES PER OPSD 1109.030 WHERE MINIMUM COVER CAN NOT BE PROVIDED.

OWNER'S CONTRACTOR SHALL SUPPORT ALL EXISTING UTILITIES AS REQUIRED DURING THE INSTALLATION OF SERVICES TO THE SATISFACTION OF THE UTILITY OWNER AT NO EXTRA COST TO THE CONTRACT.

BOULEVARD AREAS AND CONCRETE SIDEWALKS DISTURBED DURING INSTALLATION OF SERVICES SHALL BE RESTORED TO MATCH EX. CONDITION OR SURFACE WORKS NOTES ON SHEET C1, WHICHEVER IS GREATER, ALL AT NO COST TO THE COUNTY.

**UTILITIES NOTE:**  
FOR CLARITY, NOT ALL EXISTING UTILITIES MAY BE SHOWN. THE OWNER'S CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL UTILITY LOCATES PRIOR TO CONSTRUCTION.

NO WORK ON WATER SERVICES CAN TAKE PLACE WITHOUT SUPERVISION OF A LICENSED NORFOLK COUNTY WATER OPERATOR ON-SITE.

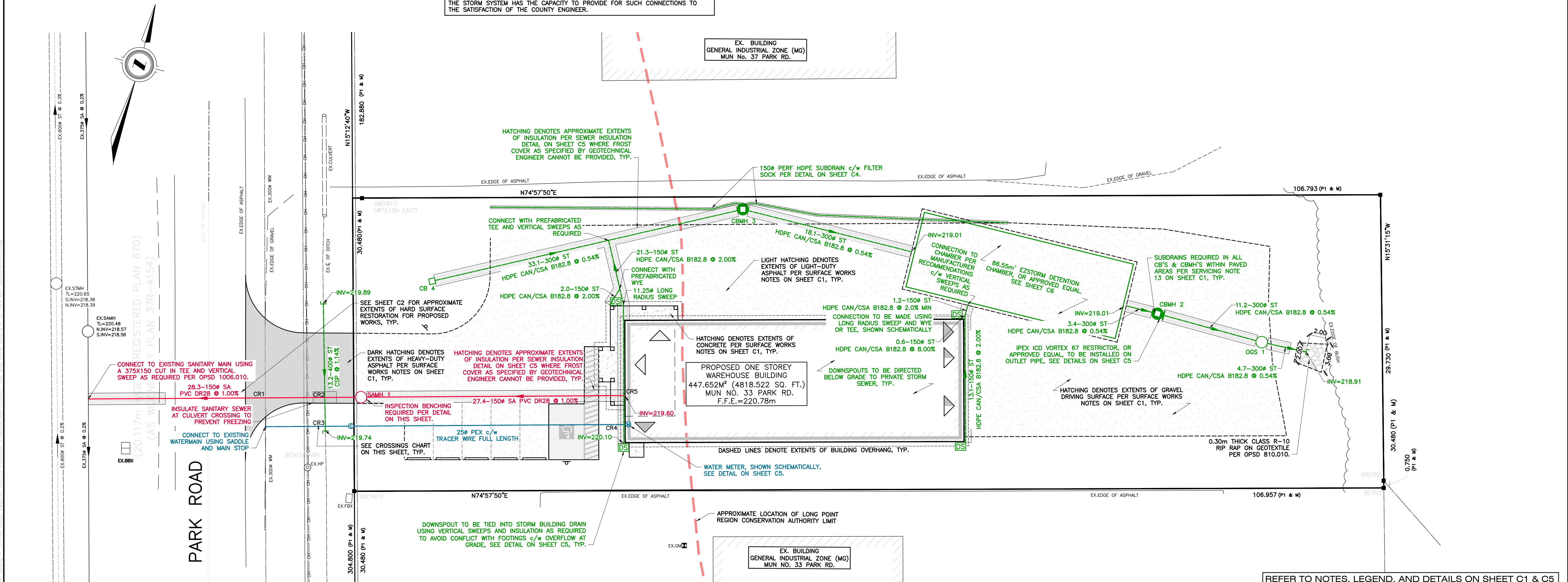


## LEGAL INFORMATION

PART OF  
LOT 3  
CONCESSION 14  
IN THE  
TOWNSHIP OF WINDHAM  
NORFOLK COUNTY

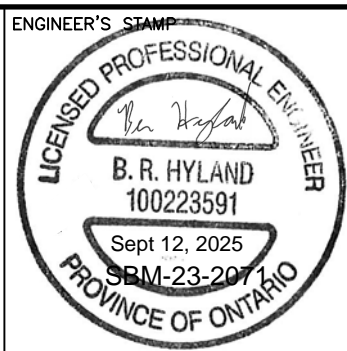
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MONUMENT TYPE: SPIKE  
LOCATION: IN FACE OF WOOD HYDRO POLE  
GEODETIC ELEVATION: 220.46  
(CONTRACTOR TO CONFIRM BENCHMARK ELEVATIONS)

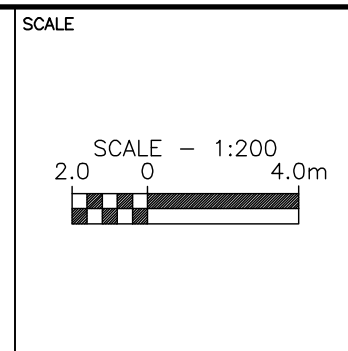


AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	D/M/Y	BY	CONSULTANT
DESIGN	WCA/JSF	1	ISSUED FOR CLIENT REVIEW	17/04/24	JSF	
DRAWN	FR/JSF	2	ISSUED FOR SITE PLAN APPROVAL, SUB. 1	09/05/24	JSF	
CHECKED	BH	3	ISSUED FOR SITE PLAN APPROVAL, SUB. 2	10/01/25	JSF	
APPROVED	BH	4	ISSUED FOR SITE PLAN APPROVAL, SUB. 3	17/07/25	MEN	
DATE	11/09/2025	5	AS PER LPRCA COMMENTS	12/09/25	MR	
CAD	23-2071					

**STRIK BALDINELLI MONIZ**  
sbm  
PLANNING - CIVIL - STRUCTURAL - MECHANICAL - ELECTRICAL  
1599 Adelaide St. N, Unit 301, London, Ontario, N5X 4E8  
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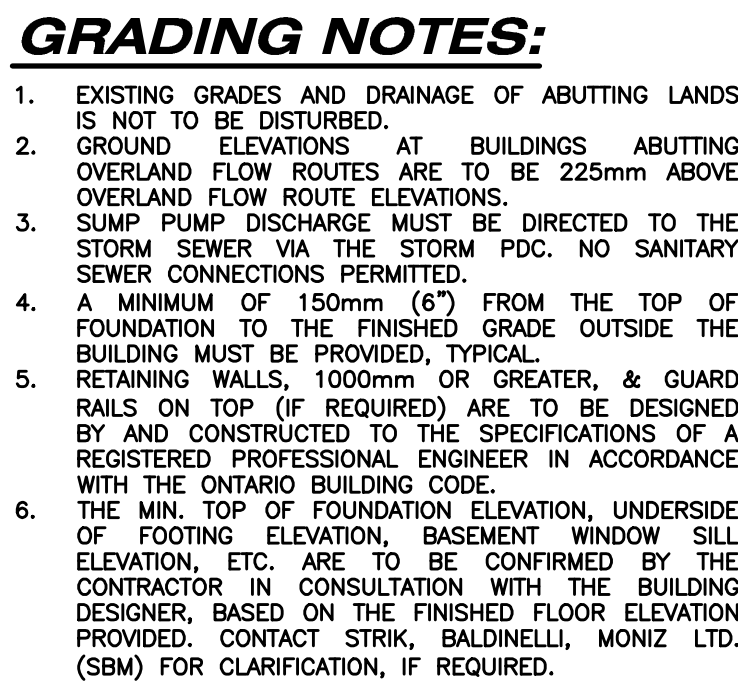
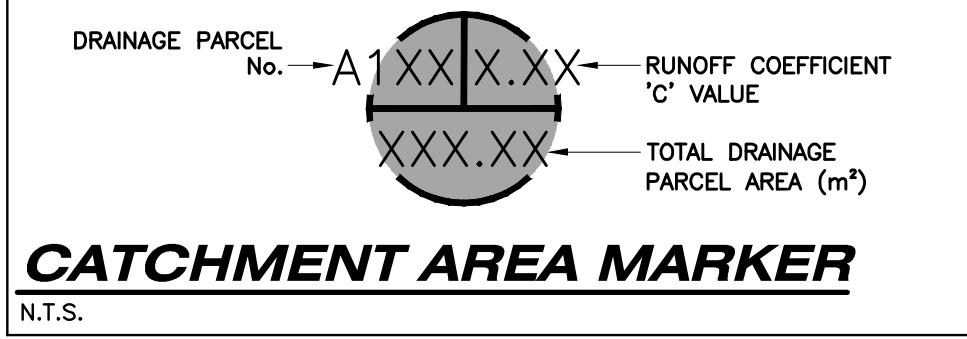


**ONE STOP HOME STAGING**  
18-111 SHERWOOD DRIVE  
BRANTFORD, ON  
N3T 1N8  
P: 514.410.0098  
E: onestophomestaging@outlook.com



SITE SERVICING PLAN		PROJECT No.
PROPOSED WAREHOUSE		SBM-23-2071
33 PARK ROAD SIMCOE, ON.		SHEET No. C3
		PLAN FILE No. SPPL2024304





RESTORE GRASSED AREAS  
w/ 100mm TOPSOIL AND  
NURSERY SOD TYP.

GRADE

AS REQ'D

3:1 (33%) MAX. SLOPE

200

150

150

MIN TYP

MIN TYP

300mm

19mm CLEAR STONE

150mm PERFORATED  
SUBDRAIN c/w  
FILTER SOCK

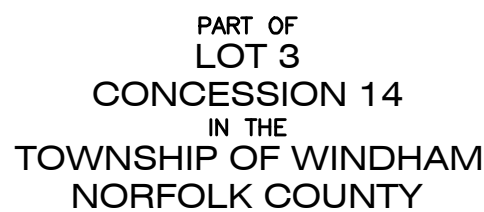
1 1

GEOTEXTILE FABRIC  
(MIRAFIX 270R TERRAFIX  
OR APPROVED EQUAL)

**TYP. SUBDRAIN DETAIL**

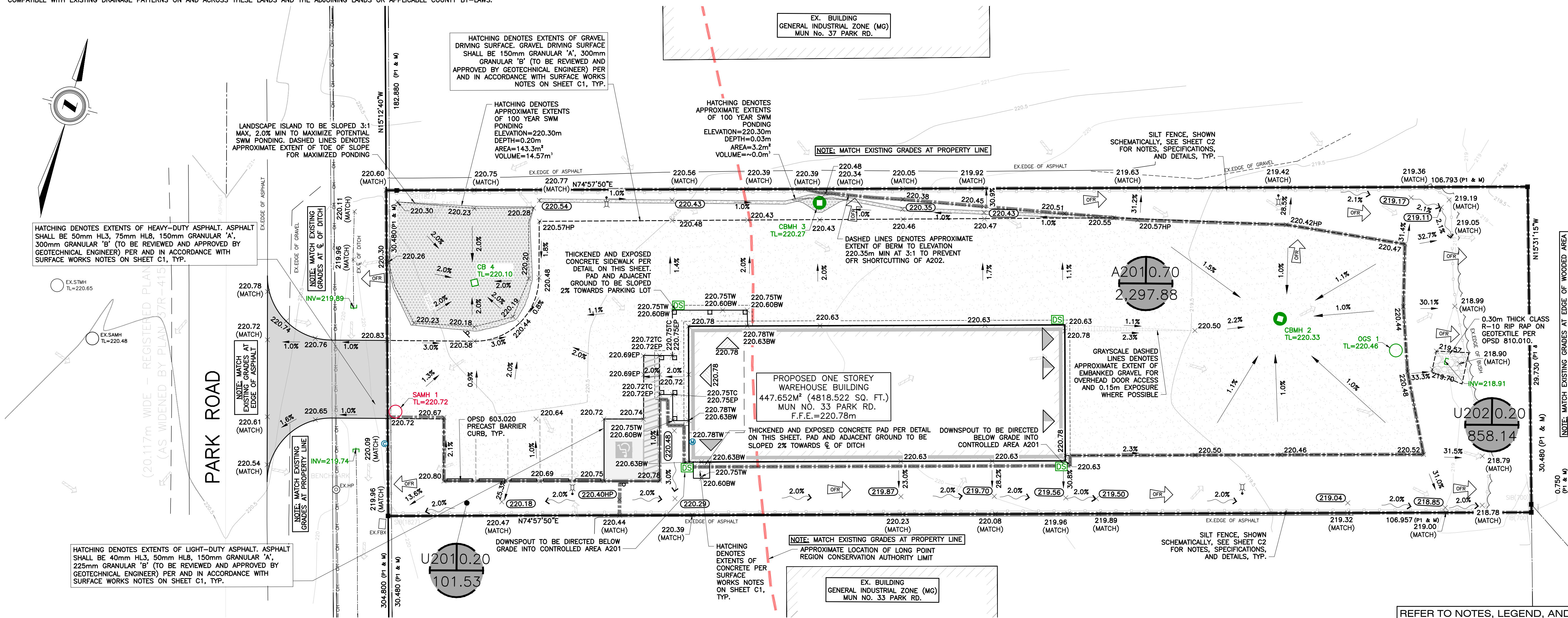
N.T.S.

**RESTORATION NOTE:**  
ALL WORK IN THE ROAD ALLOWANCE SHALL MEET THE MINIMUM SPECIFICATIONS OF NORFOLK COUNTY.



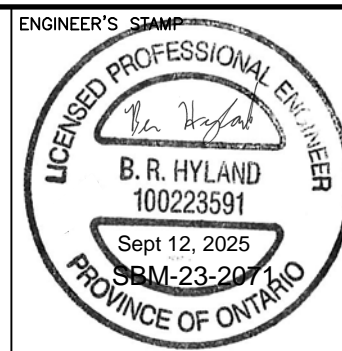
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LOCATION: IN FACE OF WOOD HYDRO POLE  
GEODETIC ELEVATION: 220.46  
(CONTRACTOR TO CONFIRM BENCHMARK ELEVATIONS)

I HEREBY CERTIFY THAT THE PROPOSED GRADING AND APPURTENANT DRAINAGE WORKS COMPLY WITH SOUND ENGINEERING DESIGN AND THAT THE PROPOSED GRADING IS COMPATIBLE WITH EXISTING DRAINAGE PATTERNS ON AND ACROSS THESE LANDS AND THE ADJOINING LANDS OR APPLICABLE COUNTY BY-LAWS.



AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISONS	D/M/Y	BY	CONSULTANT
	DESIGN MGE/JSF	1	ISSUED FOR CLIENT REVIEW	17/04/24	JSF	
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	CAD 23-2071					

**sbm** **STRIK  
BALDINELLI  
MONIZ**  
PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL  
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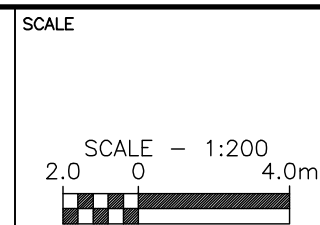


CLIENT	
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CLIENT

**ONE STOP HOME STAGING**  
18-111 SHERWOOD DRIVE  
BRANTFORD, ON  
N3T 1N8

P: 514.410.0098  
E: [onestophomestaging@outlook.com](mailto:onestophomestaging@outlook.com)



TITLE
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33 PARK ROAD  
SIMCOE, ON.

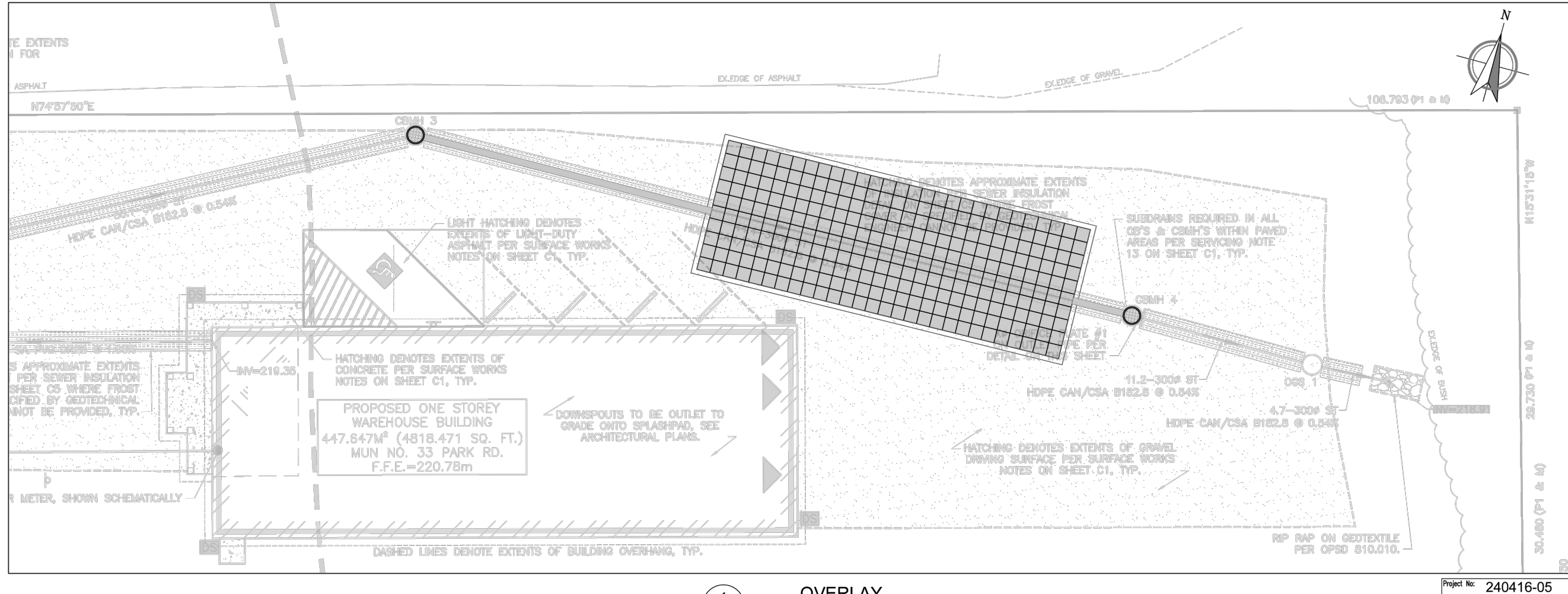
PROJECT No. <b>SBM-23-2071</b>
SHEET No. <b>C4</b>
PLAN FILE No. <b>SPPL2024304</b>







# ONE STOP HOME STAGING, BRENTFORD, ON EZSTORM SYSTEM



## CONTACTS

SITE CONTACT	PARTH PUSHKARNA	647 278-7339	ppushkarna@brunet.cc
TECHNICAL SUPPORT	NEXTSTORM	450 322-6260	info@nextstorm.ca
SALES REPRESENTATIVE	PARTH PUSHKARNA	647 278-7339	ppushkarna@brunet.cc



info@nextstorm.ca  
Toll free : 1 877 565-6260  
www.nextstorm.ca

OVERLAY  
SCALE 1:250

## NOTE :

- THESE DRAWINGS MAY CONTAIN COMPONENTS, INCLUDING BUT NOT LIMITED TO, MANHOLES, CATCH BASINS, STORM PIPES, FITTINGS, MANIFOLDS, CASTINGS OR OTHER NECESSARY APPURTENANCES THAT MAY NOT BE SUPPLIED BY NEXTSTORM. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR SUPPLIER TO CONFIRM THE MATERIAL PROVIDED BEFORE INSTALLATION.
- THIS DRAWING WAS PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE EZSTORM SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE CONTRACTOR OF RECORD'S RESPONSIBILITY TO ENSURE THAT THE NEXTSTORM PRODUCTS ARE DESIGNED IN ACCORDANCE WITH NEXTSTORM'S MINIMUM REQUIREMENTS. NEXTSTORM DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS.

## DRAWING INDEX

TITLE  
COVER SHEET AND SYSTEM OVERLAY  
SYSTEM LAYOUT - PLAN AND PROFILE  
VOLUME CALCULATION SHEET  
STANDARD BACKFILL REQUIREMENTS  
LIST OF MATERIALS  
ACCESSORIES

SHEET N°  
.....1 of 6  
.....2 of 6  
.....3 of 6  
.....4 of 6  
.....5 of 6  
.....6 of 6



info@nextstorm.ca  
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PROJECT:  
**ONE STOP HOME STAGING,  
BRENTFORD, ON**

ISSUED FOR APPROVAL NOT FOR PRODUCTION

SYSTEM LAYOUT-PLAN AND SECTION

EZStorm System-86.55m³

N°: REVISION  
A ISSUED FOR APPROVAL 30/04/2024 S.M.  
B ISSUED FOR APPROVAL 01/05/2024 S.M.

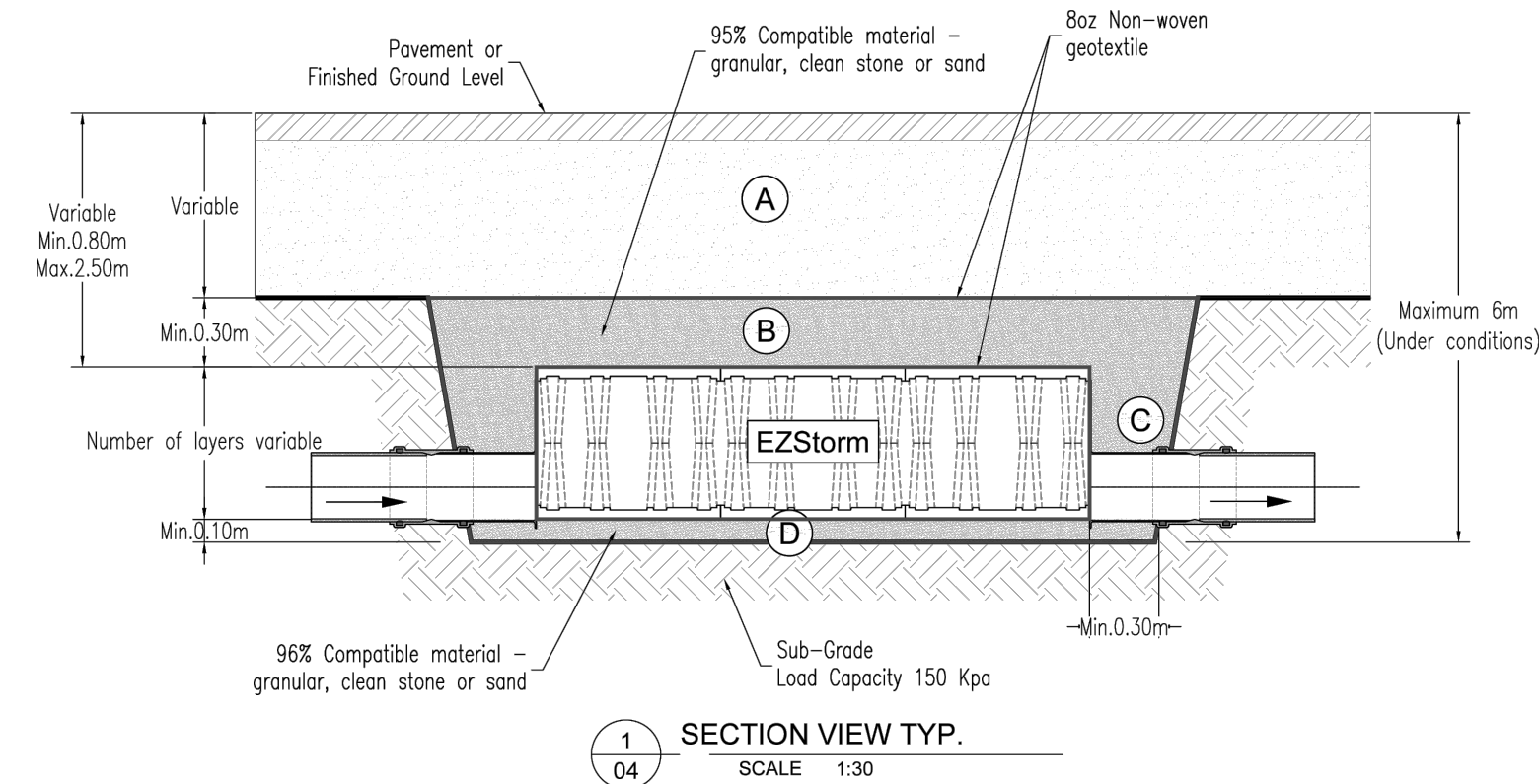
DATE BY  
30/04/2024 S.M.  
01/05/2024 S.M.

PROJECT N°: 240416-05 DATE: 30/04/2024

DRAWN BY: S.M. CHECKED BY: S.K.

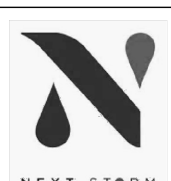
SCALE: N.T.S. SHEET N°: 2/6

Layer layout	Recommended backfill materials			
	Description	Density requirements		
	Circulation Load 20T / axle	Traffic free	Circulation Load 20T / axle	Traffic free
A	Backfill located above layer B	Roadway structure	Topsoil backfill with a grain size of 32 mm	According to roadway structure specifications
B	Top Embankment: Embankment located directly above the EZStorm Chambers and below Layer A	Backfill with a 20 mm Max. granular material compacted at a rate > 95 % SPD (3/4 (20mm) granular material, clean stone or sand)	The first layer of backfill must be carried out with a loader or a mini crawler excavator. To use mini excavators of 15 tonnes maximum (chain, 4 wheels, two tyres), a 300 mm layer of compacted backfill must be spread over the retention basin (watch out for the formation of ruts). Avoid steering maneuvers at this stage of construction.	
C	Lateral backfill: Located between the side faces of the EZStorms and the limits of the excavated volume	First-resistant granular earthwork material with a maximum grain diameter of 20 mm per 300 mm layer and compacted at a rate > 95 % MP	This layer of backfill must be carried out with a loader or a mini crawler excavator. Spread the backfill in even and compact layers of 300 mm maximum.	
D	Laying bed: located under the EZStorm blocks, between the foundation floor and the base of the blocks.	Subgrade granular material 100 mm Min. 3/4 (20mm) granular material, clean stone or sand to 95% MP	Use a plate compactor or roller to get a flat surface	



## NOTES

- The site design engineer is responsible for assessing the bearing resistance (allowable bearing capacity) of the subgrade soils and the depth of foundation stone with consideration for the range of expected soil moisture conditions.
- Perimeter stone must be extended horizontally to the excavation wall for both vertical and sloped excavation walls.
- H-20 rated loading at a minimum cover of 800mm on top of the ezstorm system.



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TYPICAL EZSTORM CROSS SECTION AND GENERAL NOTES

EZStorm System

## GENERAL NOTES

- Coordinate with manufacturer's representative/distributor for pre-construction meeting and site inspection during installation.
- Engineering drawings supersede all provided documentation. Refer to site engineers for additional instructions.
- Coordinate EZStorm installation with other site activities
- All dimensions are in meters unless noted otherwise
- The sub-grade and side backfill to be compacted to 95% SPD or as directed by the qualified engineer.
- Confirm geotechnical soil evaluation by a qualified engineer to determine suitability of structural installation
- Confirm for buried underground utilities including gas, electrical, pipelines or conduits
- When installed in accordance to the installation guidelines, EZStorm can handle standard Q1-625 truck loading. For non-standard loads contact manufacturer's representative/distributor
- Protect the installation against damage with construction tape, fencing or other means until the construction is complete.
- Ensure that construction follows applicable federal, provincial, municipal and local laws, ordinances, regulations and safety requirements.
- Vehicular loading is prohibited until backfilled as per manufacturer's installation guidelines. The use of equipment over EZStorm chambers is limited:
  - No equipment is allowed on bare chambers.
  - No rubber-tired loader, dump truck, or excavators are allowed until proper fill depths are reached in accordance with the construction guide.
  - Weight limits for construction equipment can be found in the construction guide.
  - Full 900 mm (36") of stabilized cover materials over the chambers is required for dump truck travel or dumping.
  - Please contact with factory representative for further clarification for PVC liner

## NOTES FOR BIDDING AND INSTALLATION

- Contractors are expected to comprehend and use the most current installation instructions prior to beginning a system installation. For the most current instructions, contact NEXTSTORM at 1 877 565-6260 or visit www.nextstorm.ca.
- Contact NEXTSTORM at least two weeks prior to system installation to arrange for a pre-construction meeting.
- Use EZStorm installation instructions as a guideline only for minimum/maximum requirements. Actual design may vary. Refer to approved construction drawings for job-specific details. Engineering drawings supersede all provided documentation.
- The foundation stone shall be leveled and compacted prior to chamber installation.
- Any discrepancies with the system sub-grade soil's bearing capacity must be reported to the geotechnical engineer.
- Contractor to refer to EZStorm installation instructions concerning vehicular traffic. Responsibility for preventing vehicles that exceed requirements specified from traveling across or parking over the chamber system lies solely with the contractor throughout the entire site construction process. The placement of warning tape, temporary fencing, and/or appropriately located signs is highly recommended.
- Traffic of installation equipment or other vehicular traffic over top of the EZStorm stormwater system is strictly restricted and prohibited until satisfactory ground cover and compaction is achieved according to manufacturer's installation instructions.
- Erosion and sediment-control measures must meet local codes and the design engineer's specifications throughout the entire site construction process.
- EZStorm systems must be designed and installed in accordance with NEXTSTORM's minimum requirements. Failure to do so will void the limited warranty.

## CHECK - REQUIRED MATERIALS AND EQUIPMENT

- All EZStorm chambers and accessories as specified in the engineer's plans including non-woven geotextile, connectors, inspection chimneys, sidewalls, adapters, riser and liner, where applicable.
- Reciprocity saw or router
- Transit or laser level measuring device
- Compaction equipment with maximum gross vehicle weight of 12,000 lbs (5,440 kgs).
- Acceptable fill material as shown in installation instructions.
- Quantities for geosynthetic are approximate and may vary based on overlap, wastage.
- Check EZStorm chambers for damage prior to installation. Do not use damaged chambers, contact your supplier immediately to report damage or packing-tail discrepancies.

## GENERAL REMARKS BACKFILL MATERIAL:

- The descriptions given in the table as well as in the figure refer only to the grain size. The aggregates used must be clean, crushed and angular.
- The contractor must verify all dimensions on site, ensure that they are consistent with other disciplines and, if necessary, inform the site engineer of the presence of inconsistencies.
- The ground must have a minimum bearing capacity of 150 KPa.
- The information mentioned above as well as on the cut must be checked on site by a qualified person.



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PROJECT:  
**ONE STOP HOME STAGING,  
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ACCESSORIES- not included in all projects

EZStorm System

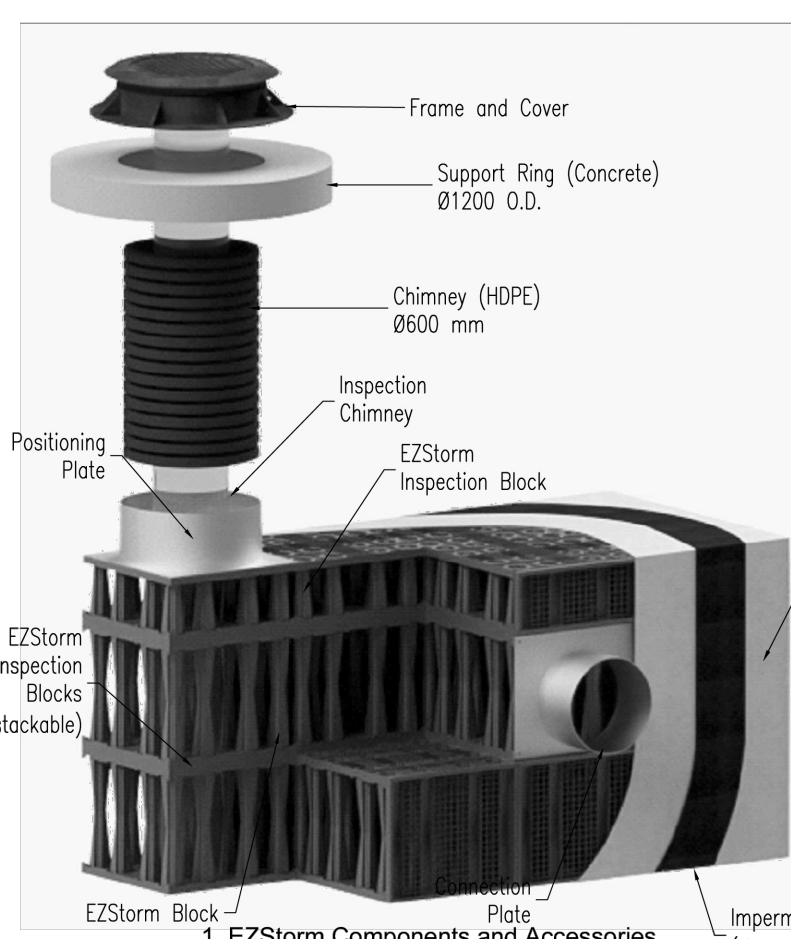
N°: REVISION  
A ISSUED FOR APPROVAL 30/04/2024 S.M.  
B ISSUED FOR APPROVAL 01/05/2024 S.M.

DATE BY  
30/04/2024 S.M.  
01/05/2024 S.M.

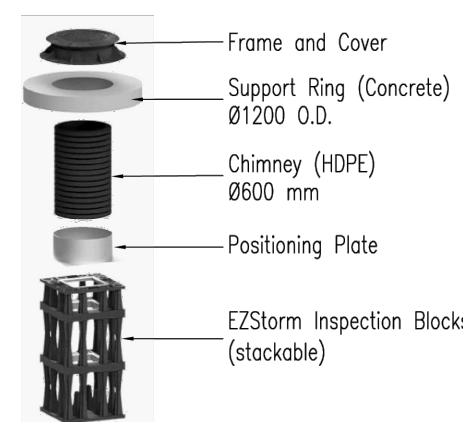
PROJECT N°: 240416-05 DATE: 30/04/2024

DRAWN BY: S.M. CHECKED BY: S.K.

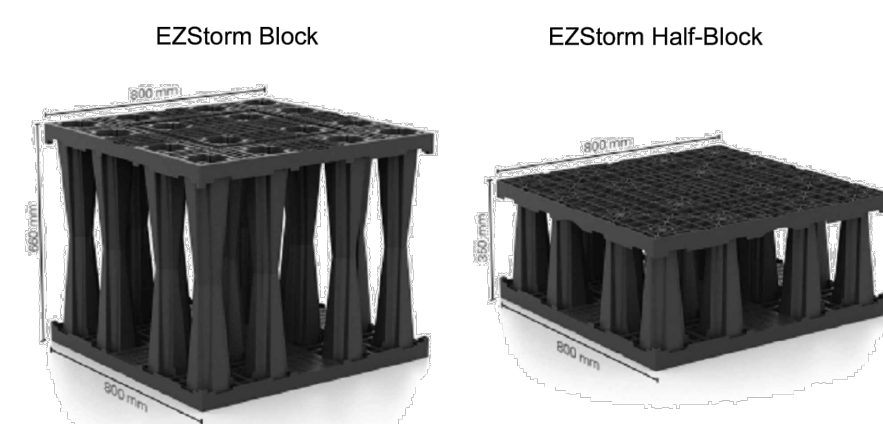
SCALE: N.T.S. SHEET N°: 6/6



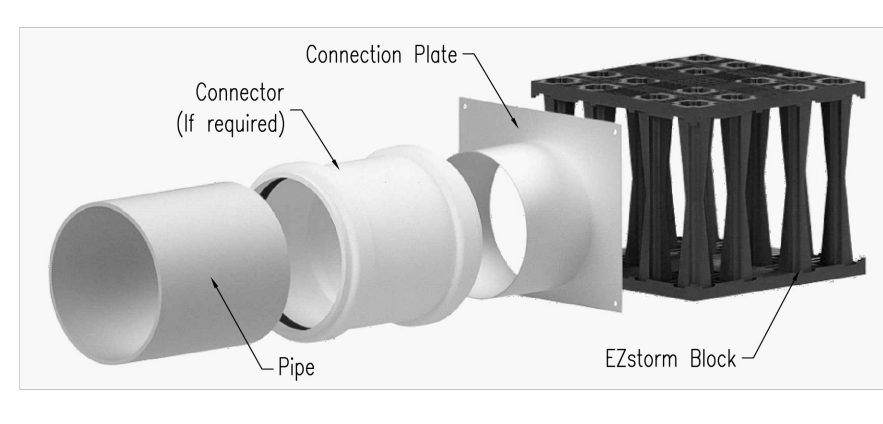
1. EZStorm Components and Accessories



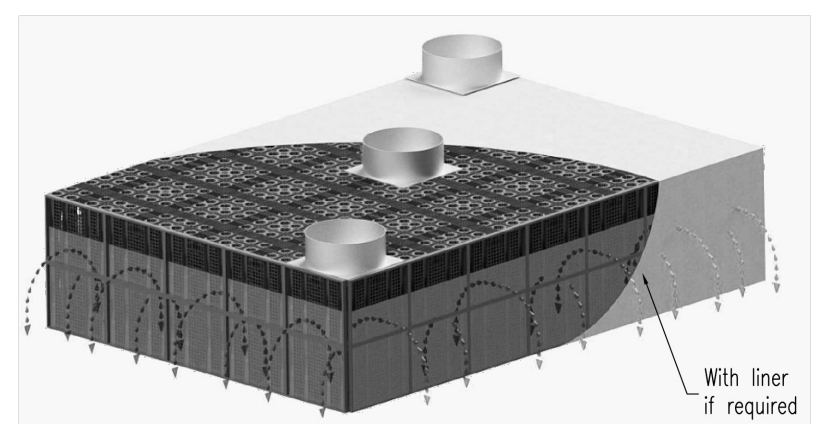
6. EZStorm Block and Inspection Chimney



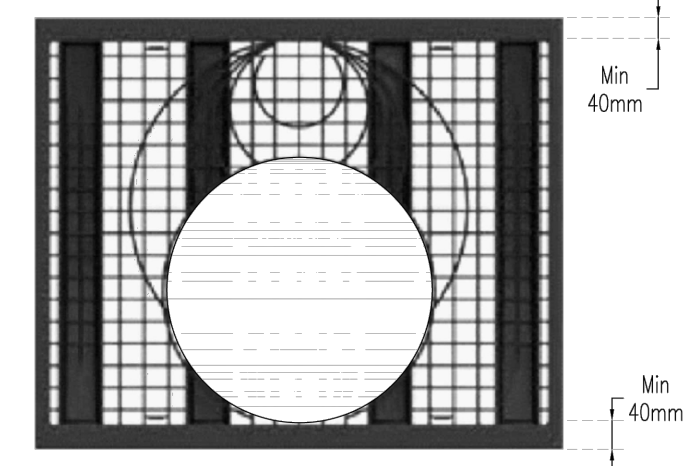
2. EZStorm Block Standard Dimensions



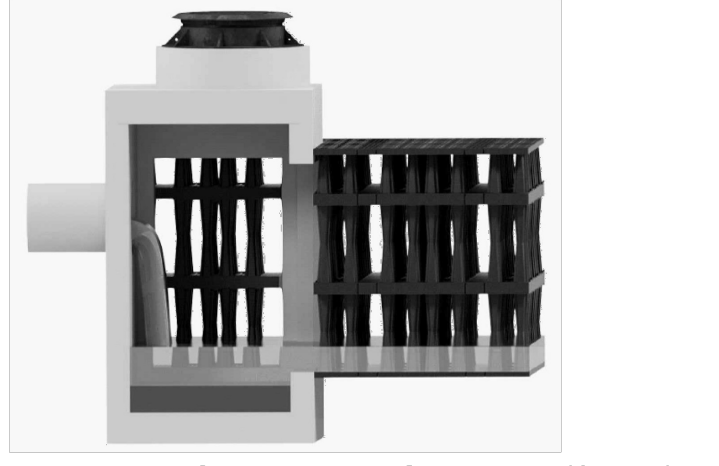
4. Connection Accessories Configuration



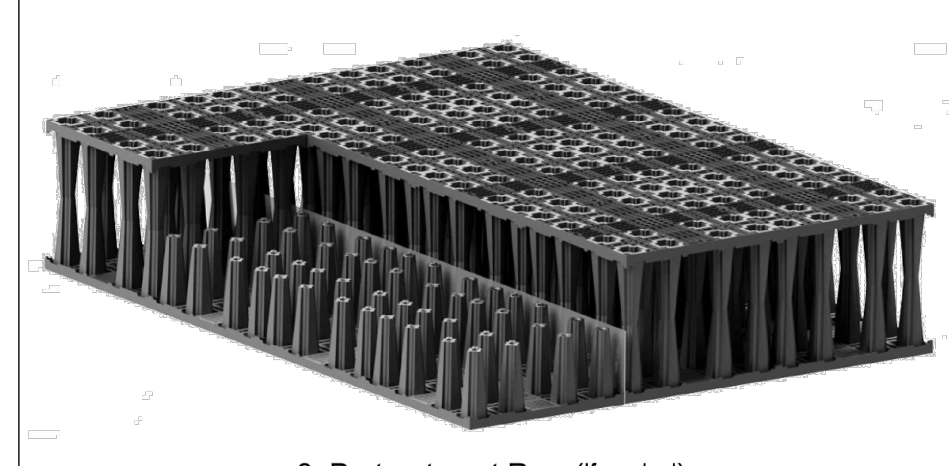
3. Infiltration Basin Typical 3D Section View.



5. Sidewall Grid with Connection Opening



7. Concrete Manhole for Access and Connection (If required)



8. Pretreatment Row (If required)

AS CONSTRUCTED SERVICES	COMPLETION	No.	REVISIONS	D/M/Y	BY	CONSULTANT
DESIGN	MCA/JSF	1	ISSUED FOR CLIENT REVIEW	17/04/24	JSF	
DRAWN	FR/JSF	2	ISSUED FOR SITE PLAN APPROVAL, SUB. 1	09/05/24	JSF	
CHECKED	BH	3	ISSUED FOR SITE PLAN APPROVAL, SUB. 2	10/01/25	JSF	
APPROVED	BH	4	ISSUED FOR SITE PLAN APPROVAL, SUB. 3	17/07/25	MEN	
DATE	12/09/2025	5	AS PER LPRCA COMMENTS	12/09/25	MR	
CAD	23-2071					

**STRIK BALDINELLI MONIZ**  
PLANNING - CIVIL - STRUCTURAL - MECHANICAL - ELECTRICAL  
1599 Adelaide St. N, Unit 301, London, Ontario, N5X 4E8  
Tel: (519) 471-6667 Fax: (519) 471-0034  
Email: sbm@sbmld.ca



C.TECH'S STAMP

CLIENT  
**ONE STOP HOME STAGING**  
18-111 SHERWOOD DRIVE  
BRANTFORD, ON  
N3T 1N8  
P: 514.410.0098  
E: onestophomestaging@outlook.com

SCALE  
N/A

TITLE  
**STORMWATER MANAGEMENT CHAMBER DETAILS**  
**PROPOSED WAREHOUSE**  
33 PARK ROAD  
SIMCOE, ON.

PROJECT No.  
**SBM-23-2071**  
SHEET No.  
**C6**  
PLAN FILE No.  
**SPPL2024304**



SPA1: 10 May 2024  
SPA2: 10 January 2025  
SPA3: 07 July 2025  
SPA4: 12 September 2025

**SBM-23-2071**

Planning and Development Division  
Norfolk County  
185 Robinson Street, Suite 200  
Simcoe, ON, N3Y 5L6

Attn: Fabian Serra  
Planner

**Re: Functional Servicing Report  
Proposed Warehouse  
33 Park Road, Simcoe, ON**

---

## **1. INTRODUCTION**

This Functional Servicing Report (Report) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for One Stop Home Staging to address the servicing requirements for the proposed development at 33 Park Rd, Simcoe, Ontario, within Norfolk County. The proposed development consists of one 447.65 m<sup>2</sup> warehouse building and associated paved parking area. Please refer to the proposed Site Plan by SBM, provided separately.

This Report is intended to represent a component of the overall Site Plan Application (SPA) package to be submitted to the County of Norfolk (County) and should be read in conjunction with all other submitted documents. The Site Plan Drawings SP1-SP2, Engineering Drawings C1-C6, and Photometric Drawing EP1, (provided separately) have been prepared to address the County requirements. These documents have been revised to address the 1<sup>st</sup> and 2<sup>nd</sup> submission comments received from the County, as well as the 3<sup>rd</sup> submission comments received from the LPRCA.

The approximately 0.33 ha subject site abuts commercial lands to the north and south, Long Point Region Conservation Area (LPRCA) to the east, and the Park Rd Right-of-Way (ROW) to the west. It is SBM's understanding that the proposed development will consist of the proposed warehouse building plus associated driving lanes, surface parking, and landscaping.

Design requirements have been based on the Corporation of Norfolk County Design Criteria dated February 2019 (CNCDC) and supplemented by the MOE Design Guidelines for Sewage Works and for Drinking Water Systems.

## **2. SANITARY SERVICING**

Based on the as-built drawing AI-79486-P4 Rev 3, by Proctor & Redfern Ltd., provided in Appendix A, there is an existing 375 mm sanitary sewer at 0.16% within the Park Rd ROW. It is proposed to connect a 150 mm sanitary service to the existing sanitary sewer to service the proposed storage warehouse. The proposed development



has a population of 40 people, based on a total area of 0.33 hectares and an occupancy load of 120 people per hectare as outlined in the CNCDC.

The current per capita flow for industrial developments is  $55 \text{ m}^3/\text{ha}/\text{d}$ , as per section 9.2.02 of the CNCDC. The peaking factor was calculated using the Modified Harmon Formula and was multiplied by the per capita flows for peak sanitary design flow of 0.21 L/s. The design flow was calculated by adding the peak sanitary design flow to the provided infiltration allowance of 0.28 L/ha/s ( $24,192 \text{ L}/\text{ha}/\text{d}$ ) shown in section 9.2.04 of the CNCDC, for a combined sanitary design flow of 0.30 L/s. Due to the depth of the existing sanitary sewer in the ROW, the existing watermain elevation which the sanitary PDC has to cross over, and site grading constraints, it was not possible to achieve the 2.0% minimum PDC slope specified in the County design guidelines. A 150 mm diameter PDC is proposed at a slope of 1.0% and has a capacity of 15.24 L/s (refer to calculations in Appendix B), which is adequate to convey site's calculated sanitary flows. The proposed 1.0% slope is less than the 2.0% minimum specified in the County design guidelines but results in a flow velocity of 0.86m/s which exceeds the minimum cleansing velocity of 0.6m/s as per MECP Design Guidelines for Sewage Works and section 7.4.8.1. of the OBC. In the event of a blockage, the location of the blockage could be determined by investigating in the inspection manhole as well as cleanouts within the building, and a plumber could clear the blockage through rodding or the use of a snake or auger tool.

An OBC fixture count calculation determined that the site has total fixture unit count of 16. Table 7.4.10.8 of the OBC shows the proposed 150mm diameter sanitary pipe running at a slope of 1% can service up to 700 fixtures units. Therefore, the proposed sanitary service (150mm diameter at 1.0% slope) is sufficient for the proposed industrial building. Calculations can be found in Appendix B. It is SBM's understanding that the County will retain a third-party consultant to verify capacities within the existing sanitary infrastructure.

### **3. STORM SERVICING AND STORMWATER MANAGEMENT**

#### **3.1 Pre-Development Conditions**

Based on pre-development conditions obtained from the Topographic Site Plan by Jewitt and Dixon Ltd., dated December 21, 2023 (provided in Appendix A), the existing subject site is comprised of open grassland with a pre-development runoff coefficient (C-value) of 0.20. Two pre-development catchment areas were identified – A101 ( $302.76 \text{ m}^2$ ), which generally discharges overland towards the Park Rd ROW to the west, and A102 ( $2954.74 \text{ m}^2$ ), which generally discharges overland towards the LPRCA to the east.

It is noted that while industrial areas are typically designed with an allowable runoff coefficient of  $C=0.80$  as per the CNCDC, the site is undeveloped and discharges to the naturalized area to the west under existing conditions. The predevelopment flows to the west are associated with the current status of the site (undeveloped,  $C=0.20$ ) therefore this was used to determine the restricted flow rated required under post-development conditions.

#### **3.2 Post-Development Conditions**

Post-development conditions were obtained from the Site Plan. Under post-development conditions, the entire site will be comprised of the proposed warehouse building ( $524.33 \text{ m}^2$ , including roof overhang), concrete/asphalt parking or pathways ( $38.90 \text{ m}^2$ ), a gravel drive aisle/storage area ( $1,430.85 \text{ m}^2$ ), and landscaped/open space ( $1,263.47 \text{ m}^2$ ) with a calculated C-value of 0.55.

The Stormwater Management (SWM) calculations provided in Appendix C and the Site Grading Plan (Sheet C4), show that under post-development conditions there are two uncontrolled catchment areas, U201 and U202, and one controlled catchment area shown as A201.



Major storm events above the 100-year event (i.e. 250-year storm) will be safely conveyed overland by the site grading to the south, ultimately discharging towards the Park Rd ROW which matches pre-development conditions. Please refer to the Engineering Drawings, prepared by SBM (provided separately).

### 3.3 Storm Servicing

Based on the as-built drawing AI-79486-P4 Rev 3 (provided in Appendix A), there is an existing 36-inch (900 mm) diameter storm sewer at a slope of 0.2% in the Park Rd ROW. As the design of the existing storm sewer did not account for the subject site, it is proposed to install 300 mm diameter private storm sewers to convey post-development flows through an oil and grit separator (OGS) before being released into the proposed riprap to the east, ultimately draining towards the LPRCA regulated area and existing Patterson Creek watercourse therein.

The SWM quantity controls collecting the 2- to 100-year storm events for the proposed development include catch basin maintenance holes and catch basins, in addition to the EZstorm storage system and proposed inlet control device, as detailed below and within the Engineering Drawings.

### 3.4 Stormwater Management – Quantity Control

Rainfall intensity data was obtained from Section 7.8.02 of the CNCDC. As the post-development C-value of 0.55 exceeds the pre-development C-value of 0.20, quantity controls are required to attenuate flows to the pre-development levels. For clarity, post-development calculations have been separated into two sections to show flows to the west and flows to the east.

#### 3.4.1 Flows to the West

Uncontrolled catchment area U201 (101.53 m<sup>2</sup>) consists of grassland within the southwest corner of the subject site and generally matches pre-development overland flow paths. Flows are conveyed overland to the west towards the Park Rd ROW at a calculated post-development flow rate of 0.39 L/s and 1.08 L/s for the 2-year and 100-year storm event respectively, which is less than the allowable pre-development flows to the west (area A101) of 1.45 L/s and 4.15 L/s. As no other flows onsite discharge towards the west, this 1.06 L/s reduction in flow is sufficient and no addition SWM controls are proposed for this portion of the subject site.

#### 3.4.2 Flows to the East

Uncontrolled catchment U202 (858.14 m<sup>2</sup>), consists primarily of grassed area along the site's northern, eastern, and southern perimeter and generally matches pre-development overland flow direction. Flows are generally conveyed overland to the east towards the existing LPRCA area, with a calculated post-development flow rate of 2.27 L/s and 6.19 L/s for the 2- and 100-year storm events respectively. Subtracting this from the total pre-development flows to the east (area A102) of 6.96 L/s and 19.02 L/s results in allowable post-development controlled flow rates of 4.69 L/s and 12.83 L/s for the 2- and 100-year events respectively for Area 201, as shown in Appendix C.

Controlled catchment A201 (2,297.88 m<sup>2</sup>) will be restricted to the 2-year allowable release of 4.69 L/s by an Inlet Control Device (ICD) installed on the outlet of the proposed CBMH2. As shown on SWM calculations outlined in Appendix C, 21.83 m<sup>3</sup> of storage is required under the 2-year storm event and 106.83 m<sup>3</sup> is required under the 100-year storm event. When accounting for the available storage within the proposed structures and the available surface storage, a total of 83.90 m<sup>3</sup> of storage is required. An EZstorm underground storage system with a maximum capacity of 86.55 m<sup>3</sup> is proposed to contain the additional storm flows generated up to the 100-year storm event. The proposed EZstorm system, combined with available onsite storage, exceeds the required underground storage. Refer to Engineering Drawing sheet C6 for details pertaining to EZStorm system.



### 3.5 Stormwater Management – Quality Control

As per the SPC comments dated June 7, 2023, an enhanced level of treatment as per 2003 MECP Stormwater Management Planning and Design Manual is required for flows generated from the subject site. Therefore, it is proposed to install a HydroDome HD 4 to provide 80% TSS removal using the ETV Canada Particle Size distribution for controlled areas. It is noted that maintenance of the OGS is the contractor's responsibility during construction and the owner's responsibility thereafter. Please refer to Appendix C and the Engineering Drawing sheets C3 and C5 for all calculations, details, and maintenance information regarding the HydroDome HD 4.

### 3.6 Stormwater Outlet Sediment and Erosion Control

A rip-rap apron is proposed to be installed at the stormwater outlet to provide permanent erosion protection and dissipate the kinetic energy of the stormwater. As shown in the rip-rap calculations provided in Appendix C, the proposed rip-rap apron has adequate shear resistance to accommodate the post-development restricted flows directed to it.

Following construction, a post-installation inspection of the stormwater outlet and rip rap protection will be undertaken to verify its stability and effectiveness and to determine if any modifications may be beneficial.

## 4. WATER SERVICING CONSIDERATIONS

### 4.1 General Considerations

As per the As-Built drawing No. AI-79486-P4 by Proctor and Redfern Ltd., dated January 1980, there is an existing 300 mm watermain within the Park Rd ROW. A new 25 mm diameter water service is proposed. Please refer to the Site Servicing Plan, C3, provided separately, for the water servicing layout.

### 4.2 Water Demand

Water distribution system performance criteria and requirements for specific demand conditions were used according to section 8.3 of the MOE Design Guidelines for Drinking-Water Systems (MOE DGDWS). The design parameters outlined below are based on the MOE and Norfolk County guidelines:

- Minimum water pressures to be maintained in the distribution system of:
  - Minimum of 140 kPa (20 psi) at maximum day demand flow plus fire flow,
  - Minimum of 275 kPa (40 psi) at maximum hourly demand flow,
  - Minimum of 275 kPa (40 psi) at average day demand flow,
  - Maximum residual pressure shall not exceed 700 kPa (100 psi),
- Max day peaking factor and max hour peaking factor to be determined by Table 3-3, (CNCDC)
- 72 hr. Maximum water turnover for quality (during average day demand).

The domestic water demand was determined based on the Site Plan. As historical flows are not available, a commercial allowance of 28 m<sup>3</sup>/ha/day as per the MOE DGDWS was used. The total site area is approximately 0.33 ha, average day demand was calculated by multiplying the total site area by 28 m<sup>3</sup>/ha/d, for an average daily demand of 0.11 L/s. Maximum hour and maximum day demands were calculated by multiplying the average day demand by their respective peaking factors of 2.00 and 2.25, as outlined by the CNCDC, for water demands of 0.21 L/s and 0.24 L/s respectively. Based on the above calculations, the proposed 25 mm diameter water service is sufficient to provide domestic demand at a velocity less than 1.5 m/s. Please refer to the Domestic Water Demand Calculations, provided in Appendix D.

### 4.3 Water Supply for Fire Protection

There is an existing fire hydrant located within the Park Rd ROW, approximately 60 m north of the subject site. This is within 90m of the proposed development and can be used for fire protection in the event of a fire.



Additionally, the proposed building is considered a Part 9 Building under the Ontario Building Code, and therefore does not require an adequate water supply for fire-fighting.

As requested by the County, SBM has completed fire-fighting calculations, which are provided in Appendix D. Fire-fighting demand was determined as per Water Supply for Public Fire Protection – Fire Underwriter Survey (FUS). As shown in the fire-fighting calculations, the required fire flow rate plus maximum day demand for the proposed wood-frame building with free burning fire hazard contents is 10,060 L/min (2,658 USGPM). Per the hydrant test performed on February 9, 2024, by Northern Sprinkler Design (provided in Appendix D), the static pressure is 75.0 psi (517.1 kPa) with flow pressures of 73.0 psi (503.3 kPa) and 66.0 psi (455.1 kPa) at flow rates of 4,493 L/min and 7,298 L/min respectively. Therefore, at the required flow rate of 10,060 L/min, the residual pressure in the system is calculated to be 58.7 psi (404.7 kPa) which is within the allowable pressure range as defined by the CNCDC. It is SBM's understanding that the County will retain a third-party consultant to verify capacities within the existing infrastructure.

#### 4.4 OBC Fixture Count

An OBC water fixture count was performed to confirm adequate capacity for the proposed water system. A total of 7.95 fixture units was calculated. As per the hydrant flow test provided in Appendix D, the area's static/residual pressure is in the range of 66-75 psi. OBC Div B Table A-7.6.3.2 shows, a 25mm (1") pipe at 46 m in length can serve 30 fixture units with a pressure between 311 and 413 kPa (46 to 60 psi), conservatively using a lower range than the pressure measured in the hydrant flow test. Therefore, the water pressure during the average day and maximum hour demand conditions are expected to be more than the minimum required pressure of 140 kPa (20 psi) and less than the maximum allowable pressure of 700 kPa (100 psi).

### 5. SEDIMENT AND EROSION CONTROL MEASURES

Complementary to the site servicing, SWM, and grading design, sediment and erosion control details and notes have been included with the Site Engineering design. This should alleviate the off-site migration of sediments by incorporation of various best management practices and control measures. Such controls may include but are not limited to silt fencing or sock, silt sacks for inlet grate protection (catch basins), stormwater outlet protection, and erosion control blanket treatment of significant fill/cut slopes. Suitable precautions should be undertaken in maintaining and monitoring these controls during the construction phase. The control measures to be implemented on site should include:

- Protect all exposed surfaces and control all runoff during construction;
- Maintain erosion control measures during construction;
- All collected sediment to be disposed of at an approved location;
- Minimize area disturbed during construction;
- All dewatering to be disposed of in an approved sedimentation basin;
- Protect all catch basins, maintenance holes and pipe ends from sediment intrusion with geotextile fabric (Terrafix 270R), silt sacks, or approved equal;
- Keep all sumps clean during construction;
- Prevent wind-blown dust;
- Straw bales to be used in localized areas as directed by the engineer during construction for works which are in or adjacent to flood lines, fill lines and hazardous slopes;
- Straw bales to be terminated by rounding bales to contain and filter runoff;
- Contractor to supply sediment erosion control measures and emergency plan (including emergency contacts) in case of SEC measures failure, extreme weather conditions, or spills. Any spills are to be reported to the MECP at 1-866-6638477 toll free;
- Sediment and Erosion Control measures shall be repaired without delay by the owner's contractor as instructed by the contract administrator/engineer at no expense to the owner;
- On-site sediment and erosion control measures are to be reviewed and modified to meet the changing site;
- Sediment and Erosion Control measures are to be inspected weekly or following significant rainfall events;



- Obtain approval from the governing Conservation Authority prior to construction for works which are in, or adjacent to flood lines, fill lines and hazardous slopes; and
- Sediment and erosion control measures to be removed at completion of project (following completion of base asphalt and sod).
- All of the above notes and any sediment and erosion control measures are at minimum to be in accordance with the ministry of natural resources guidelines on sediment and erosion control for urban construction sites.
- Review the performance of the permanent erosion controls at the stormwater outlet following completion of site construction to determine if performance meets expectations or if any modifications may be beneficial.

The above noted items have also been specified on the Engineering Drawing Sheets for reference on-site.

## 6. LIMITATIONS

This Report was prepared by SBM for One Stop Home Staging and Norfolk County. Use of this Report by any third party, or any reliance upon its findings, is solely the responsibility of that party. SBM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this Report. Third party use of this Report, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this Report are based on site conditions as they appeared in the information presented to SBM and related to in this document. This Report is not intended to be exhaustive in scope, or to imply a risk-free development. It should be recognized that the passage of time may alter the opinions, conclusions, and recommendations provided herein, as well as any changes in the layout of the development. The design was limited to the documents referenced herein and SBM accepts no responsibility for the accuracy of the information provided by others. All designs and recommendations presented in this Study are based on the information available at the time of the review.

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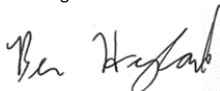
## 7. CLOSURE

We trust this Report meets your satisfaction. Should you have any questions or require further information, please do not hesitate to contact us.

Respectfully submitted,

**Strik, Baldinelli, Moniz Ltd.**

Planning • Civil • Structural • Mechanical • Electrical



Ben Hyland, P. Eng, PMP  
Civil Team Lead, Eng IV,  
Associate I



Lauren Andersen  
Civil Project Coordinator,  
Eng Trn II



List of Appendices

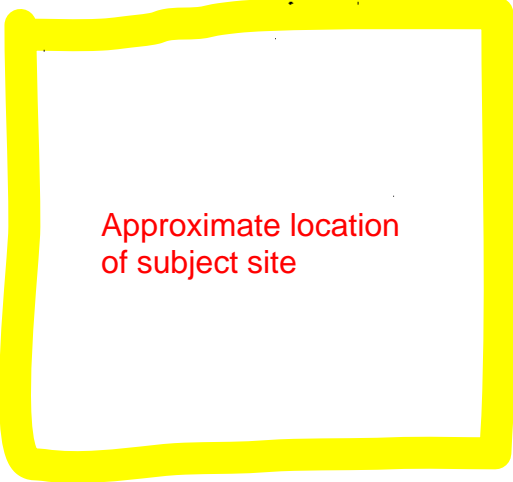
- Appendix A: Regional Municipality of Haldimand – Norfolk Town of Simcoe As-Constructed Drawing No. AI-79486-P4, dated January 1980  
Topographic Site Plan Survey by Jewitt and Dixon Ltd, dated December 21, 2023
- Appendix B: Sanitary Sewer Design Sheet  
OBC Fixture Unit Calculations
- Appendix C: Stormwater Management Calculations  
Hydroworks Hydrodome HD 4 OGS Sizing Summary  
Hydroworks Hydrodome Operations and Maintenance Manual  
EZStorm Product Information  
Tempest Inlet Control Device Product Information  
Rip Rap Calculations
- Appendix D: Domestic Water Demand Calculations  
OBC Fixture Unit Calculations  
Fire-Fighting Calculations  
Northern Sprinkler Design Flow Test Report, dated February 9, 2024



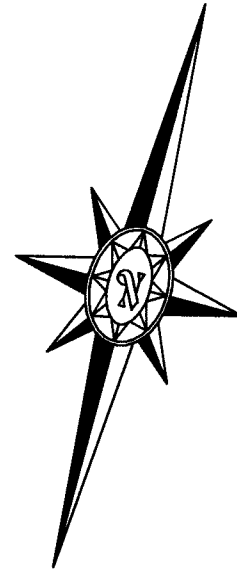
## **APPENDIX A**

As-built Drawing AI-79486-P4 Rev 3  
Topographic Site Plan by Jewitt and Dixon Ltd. dated December 21, 2023  
Email Correspondence with City Representative, dated March 13, 2024



[illegible][illegible]





TOPOGRAPHIC SITE PLAN  
OF PART OF  
**LOT 3**  
**CONCESSION 14**  
IN THE GEOGRAPHIC  
TOWNSHIP OF WINDHAM  
IN  
**NORFOLK COUNTY**  
PIN 50188-0231(LT)

SCALE: 1 : 200

2.5 0 10 METRES

JEWITT AND DIXON LTD.

**METRIC NOTE:**

DISTANCES AND COORDINATES ARE METRIC AND CAN  
BE CONVERTED TO IMPERIAL BY DIVIDING BY 0.3048

**UTILITY NOTE:**

UNDERGROUND SERVICES HAVE NOT BEEN LOCATED

THE VARIOUS UTILITY LOCATIONS SHOWN ON THIS PLAN ARE  
BASED ON PHYSICAL LOCATES OF ABOVE GROUND SERVICES.

PRIOR TO ANY ON SITE CONSTRUCTION ACTIVITY A VERIFICATION  
LOCATE OF UNDERGROUND SERVICES IS BOTH RECOMMENDED  
AND ADVISED.

**SITE B.M.#1**

SPIKE IN FACE OF  
WOOD HYDRO POLE  
ELEV = 220.46  
(GEODETIC)

PIN 50188 - 0180 (LT)  
PART 1, PLAN 37R-3971

PIN 50188 - 0232 (LT)  
PART 14, PLAN 37R-4154

(1) - ELEVATIONS ARE REFERRED TO CANADIAN GEODETIC  
DATUM, NAD83 (CSRS) HTV2.0 (2010)  
(2) - THIS SKETCH WAS COMPLETED FROM FIELD WORK  
COMPLETED ON THE 12TH DAY OF DECEMBER, 2023

**LEGEND**

2.5cm X 2.5cm X 1.2m STANDARD	IRON BARS	SHOWN	-□-	SIB
1.6cm X 1.6cm X 0.6m	IRON BARS	SHOWN	-□-	IB
1.6cm ROUND X 0.6m	IRON BARS	SHOWN	-□-	IB Ø
LOT LINES	SHOWN	---		
DEED LINES	SHOWN	---		
FENCE LINES	SHOWN	-X-X-		
CENTRE LINES	SHOWN	---		
ROAD LINES	SHOWN	---		
FOUND IRON BARS	SHOWN	■		
	PLANTED IRON BARS	SHOWN	-□-	

JEWITT AND DIXON LTD.  
H. HYDE, O.L.S.  
WITNESS MONUMENT  
ORIGIN UNKNOWN  
PLAN 37R-4154  
GAS METER  
HYDRO POLE  
FIBRE BOX  
BENCHMARK

SHOWN (700)  
SHOWN (1827)  
SHOWN (WIT)  
SHOWN (OU)  
SHOWN (P1)  
SHOWN GM  
SHOWN HP  
SHOWN FBX  
SHOWN BM

**CAUTION**

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**ONTARIO LAND SURVEYORS**

650 IRELAND ROAD  
SIMCOE, ONTARIO, N3Y 4K2  
PHONE: (519) 426-0842  
E-mail: info@jewittdixon.com

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BOOK	- LL-FILE
CALC.	- J.L.M.
PLAN	- J.L.M.
CHECK	- K.H.
CLIENT	ONE STOP
	HOME STAGING
23-3947-TOPO	



## **APPENDIX B**

Sanitary Sewer Design Sheet  
OBC Fixture Unit Calculations



STRIK  
BALDINELLI  
MONIZ

PLANNING • CIVIL • STRUCTURAL • MECHANICAL • ELECTRICAL

LONDON LOCATION  
1599 Adelaide St. N., Unit 301  
London, ON N5X 4E8  
P: 519-471-6667

KITCHENER LOCATION  
132 Queen St. S. Unit 4  
Kitchener, ON N2G 1V9  
P: 519-725-8093

www.sbmltd.ca

sbm@sbmltd.ca

Sanitary Service Design Sheet

Residential Occupancy:

Residential (Single Family/Semi-Detached)  
Commercial = 100 people/hectare  
Industrial = 120 people/hectare

**Date:** December 20, 2024

**Job Number:** SBM-23-2071

**Client:** One Stop Home Staging

**Project:** Proposed Storage Warehouse

**Location:** 33 Park Rd, Simcoe, ON

**Designed By:** LA

**Reviewed By:** BH

**\*\*Design Parameters:**

Daily Flow = 55 m3/ha/d

Sewage Infiltration = 24192 L/ha/d

= 0.28 L/ha/sec

Harmon Formula (Peaking Factor) = (1 + 14/(4+P^0.5))

Modified Harmon Formula Factor = 0.8

Location			Area		Population					Sewage Flows				Sewer design				
Area No.	From MH	To MH	Delta Hectare	Total Hectare	No. of Bedrooms	People Per Unit	People Per Hectare	Delta Pop.	Total Pop.	Harmon Peaking Factor	Infilt (L/S)	Sewage (L/S)	Total (L/S)	n	Pipe Slope (%)	Dia. mm	Capacity (L/S)	Velocity (m/s)
Proposed Storage Warehouse	S5	Proposed Warehouse	0.33	0.33			120	40	40	3.47	0.09	0.21	0.30	0.013	1.00%	150	15.24	0.86

Refer to the Site Plan prepared by SBM, dated April 30, 2024  
Design Parameters obtained from Section 9 of Norfolk County Design Criteria dated February 2019



## **SANITARY SERVICE SIZING CALCULATIONS**

DATE: May 9, 2024  
JOB NO.: SBM-23-2071

Client: Shawna Sherk  
Project: One Stop Home Storage Wharehouse  
Location: 33 Park Road, Simcoe Ontario

### **Sanitary Load Calculation**

Exisiting Building

Fixture Type	Number of Fixture Type	Fixture Units Each (FU)	Total Fixture Units (FU)
Bathroom Group	1	6	6
Lavatory	1	3	3
Domestic Sink	1	3	3
Water Closet	1	4	4
<b>TOTAL (FU):</b>			<b>16</b>

**TOTAL EXISTING AND PROPOSED (FU): 16**

**Sanitary Drain:** As per OBC Table 7.4.10.8, a 150mm (6") diameter service at minimum 1.0% slope can serve up to 700 Fixture Units. A 150mm diameter service at a 1% slope is proposed. Refer to Engineering Drawing C3, provided separately.



## **APPENDIX C**

Stormwater Management Calculations  
Hydroworks HydroDome HD 4 OGS Sizing Summary  
Hydroworks HydroDome Operations & Maintenance Manual  
EZStorm Product Information  
Tempest Inlet Control Device Product Information  
Rip-rap Calculations

## Stormwater Management Calculations

DATE: July 15, 2025  
 JOB No.: SBM-23-2071

Client: One Stop Home Staging  
 Project: Proposed Storage Warehouse  
 Location: 33 Park Rd., Simcoe, ON

### NORFOLK COUNTY- CHICAGO RAINFALL DISTRIBUTION PARAMETERS\*

Return Period (years)	A,B,C Parameters	A	B	C
2	529.711	4.501	0.745	
5	583.017	3.007	0.703	
10	670.324	3.007	0.698	
25	721.533	2.253	0.679	
50	766.038	1.898	0.668	
100	801.041	1.501	0.657	

\* Intensity  $i = A/(t+B)^C$  (mm/hr)

\* Refer to the Town of Norfolk Design Criteria, Section 7.8.02 Rainfall Intensity

### PRE-DEVELOPMENT AREA (A101)

	Area (m <sup>2</sup> )	C	A°C
Total Area:	302.76		
Building Area:	0.00	0.95	0
Concrete/Asphalt:	0.00	0.95	0
Gravel:	0.00	0.70	0
Landscaped/Open:	302.76	0.20	60.552
Totals:	302.76		60.552

$$C_{eq} = \sum(A^{\circ}C)/\sum(A) = 0.20$$

\*Based on the Norfolk County Pre-Consultation Meeting Notes dated June 7, 2023

**Watershed Length =	11.21	m
**Watershed Slope =	2.85	%
**Watershed Area =	302.76	m <sup>2</sup>
Time of Concentration =	$t_t = 3.26(1.1 - C)^{1.49} / Sw^{0.33}$	min
=	6.95	min

\*as per Section 7.8.06 of Norfolk County Design Criteria

### Pre-Development Area (Total) : 2 Year Allowable Flows

Time to concentration $t_t$ =	6.95	min
Intensity, $i$ (@ $t_t$ ) =	86.14	mm/hr
Pre-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	1.45	L/s

### Pre-Development Area (Total): 25 Year Allowable Flows

Time to concentration $t_t$ =	6.95	min
Intensity, $i$ (@ $t_t$ ) =	159.87	mm/hr
Pre-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	2.96	L/s

### Pre-Development Area (Total): 100 Year Allowable Flows

Time to concentration $t_t$ =	6.95	min
Intensity, $i$ (@ $t_t$ ) =	197.11	mm/hr
Pre-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	4.15	L/s

### COMBINED POST-DEVELOPMENT AREA (A201+A202+U202)

	Area (m <sup>2</sup> )	C	A°C
Total Area:	3257.55		
Building Area:	524.33	0.95	498.1135
Concrete/Asphalt:	38.90	0.95	36.955
Gravel:	1430.85	0.7	1001.5929
Landscaped/Open:	1263.47	0.2	252.6946
Totals:	3257.55		1789.356

$$C_{eq} = \sum(A^{\circ}C)/\sum(A) = 0.55$$

### PRE-DEVELOPMENT AREA (A102)

	Area (m <sup>2</sup> )	C	A°C
Total Area:	2954.74		
Building Area:	0.00	0.95	0
Concrete/Asphalt:	0.00	0.95	0
Gravel:	0.00	0.70	0
Landscaped/Open:	2954.74	0.20	590.948
Totals:	2954.74		590.948

$$C_{eq} = \sum(A^{\circ}C)/\sum(A) = 0.20$$

**Watershed Length =	95.58	m
**Watershed Slope =	1.49	%
**Watershed Area =	2954.74	m <sup>2</sup>
Time of Concentration =	$t_t = 3.26(1.1 - C)^{1.49} / Sw^{0.33}$	min
=	25.17	min

\*as per Section 7.8.06 of Norfolk County Design Criteria

### Pre-Development Area (Total) : 2 Year Allowable Flows

Time to concentration $t_t$ =	25.17	min
Intensity, $i$ (@ $t_t$ ) =	42.38	mm/hr
Pre-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	6.96	L/s

### Pre-Development Area (Total): 25 Year Allowable Flows

Time to concentration $t_t$ =	25.17	min
Intensity, $i$ (@ $t_t$ ) =	76.17	mm/hr
Pre-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	13.76	L/s

### Pre-Development Area (Total): 100 Year Allowable Flows

Time to concentration $t_t$ =	25.17	min
Intensity, $i$ (@ $t_t$ ) =	92.63	mm/hr
Pre-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	19.02	L/s

## POST-DEVELOPMENT CONTROLLED AREAS

### POST-DEVELOPMENT CONTROLLED AREA (A201)

	Area (m <sup>2</sup> )	C	A°C
Total Area:	2297.88		
Building Area:	524.33	0.95	498.1135
Concrete/Asphalt:	38.90	0.95	36.955
Gravel:	1430.85	0.7	1001.5929
Landscaped/Open:	303.80	0.2	60.7606
Totals:	2297.88		1597.422

$$C_{eq} = \sum(A^{\circ}C)/\sum(A) = 0.70$$

## POST-DEVELOPMENT UNCONTROLLED AREAS

### POST-DEVELOPMENT AREA U201 (UNCONTROLLED)

	Area (m <sup>2</sup> )	C	A°C
Total Area:	101.53		
Building Area:	0.00	0.95	0
Concrete/Asphalt:	0.00	0.95	0
Gravel:	0.00	0.70	0
Landscaped/Open:	101.53	0.20	20.306
Totals:	101.53		20.306

$$C_{eq} = \sum(A^{\circ}C)/\sum(A) = 0.20$$

**Watershed Length =	22	m
**Watershed Slope =	2.00	%
**Watershed Area =	101.53	m <sup>2</sup>
Time of Concentration =	$t_t = 3.26(1.1 - C)^{1.49} / Sw^{0.33}$	min
=	10.95	min

\*as per Section 7.8.06 of Norfolk County Design Criteria

### 2 Year Post-Development Uncontrolled Flows

Time to concentration $t_t$ =	10.95	min
Intensity, $i$ (@ $t_t$ ) =	68.91	mm/hr
Post-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	0.39	L/s

### 25 Year Post-Development Uncontrolled Flows

Time to concentration $t_t$ =	10.95	min
Intensity, $i$ (@ $t_t$ ) =	125.13	mm/hr
Post-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	0.78	L/s

### 100 Year Post-Development Uncontrolled Flows

Time to concentration $t_t$ =	10.95	min
Intensity, $i$ (@ $t_t$ ) =	152.81	mm/hr
Post-Development Flow, $Q_p = 2.78^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	1.08	L/s

### POST-DEVELOPMENT AREA U202 (UNCONTROLLED)

	Area (m <sup>2</sup> )	C	A°C
Total Area:	858.14		
Building Area:	0.00	0.95	0
Concrete/Asphalt:	0.00	0.95	0
Gravel:	0.00	0.70	0
Landscaped/Open:	858.14	0.20	171.628
Totals:	858.14		171.628

$$C_{eq} = \sum(A^{\circ}C)/\sum(A) = 0.20$$

**Watershed Length =	81	m
**Watershed Slope =	2.01	%
**Watershed Area =	858.14	m <sup>2</sup>
Time of Concentration =	$t_t = 3.26(1.1 - C)^{1.49} / Sw^{0.33}$	min
=	20.94	min

### 2 Year Post-Development Uncontrolled Flows

Time to concentration $t_t$ =	20.94	min
Intensity, $i$ (@ $t_t$ ) =	47.52	mm/hr
Post-Development Flow, $Q_p = 1.00^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	2.27	L/s

### 25 Year Post-Development Uncontrolled Flows

Time to concentration $t_t$ =	20.94	min
Intensity, $i$ (@ $t_t$ ) =	85.33	mm/hr
Post-Development Flow, $Q_p = 1.10^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	4.48	L/s

### 100 Year Post-Development Uncontrolled Flows

Time to concentration $t_t$ =	20.94	min
Intensity, $i$ (@ $t_t$ ) =	103.74	mm/hr
Post-Development Flow, $Q_p = 1.20^{\circ}Ca^{\circ}C^{\circ}t^{\circ}A$ =	6.19	L/s



FLOWS TO THE WEST (PARK ROAD ROW)			
RETURN PERIOD OF STORM	PRE DEVELOPMENT FLOWS (A101) (L/S)	POST DEVELOPMENT UNCONTROLLED FLOWS (U201) (L/S)	ALLOWABLE POST-DEVELOPMENT CONTROLLED FLOWS (L/S)
2-YEAR	1.45	0.39	1.06
25-YEAR	2.96	0.78	2.18
100-YEAR	4.15	1.08	3.07

As flows to the west are reduced under post development conditions, and no other onsite flows discharge towards the west, no associated SWM controls are proposed.

FLOWS TO THE EAST (LONG POINT REGION CONSERVATION AREA)			
RETURN PERIOD OF STORM	PRE DEVELOPMENT FLOWS (A102) (L/S)	POST DEVELOPMENT UNCONTROLLED FLOWS (U202)(L/S)	ALLOWABLE POST-DEVELOPMENT CONTROLLED FLOWS (L/S)
2-YEAR	6.96	2.27	4.69
25-YEAR	13.76	4.48	9.29
100-YEAR	19.02	6.19	12.83

CALCULATIONS FOR STORAGE A202			
FLOW RESTRICTOR CALCULATIONS			
Orifice diameter is based on Bernoulli's equation, $Q=C_d*A*(2gH)^{0.5}$			
Rearranging, $A= Q/(C_d*(2gH)^{0.5})$ , where:			
Restricted Flow Rate, Q =	4.69	L/s	
Orifice Coefficient, C <sub>d</sub> =	0.60		
Gravitational Acceleration, g =	9.81	m/s <sup>2</sup>	
Top of Flooding =	220.30	m	
Orifice Invert =	219.00	m	
Hydraulic Head on Orifice, H =	1.300	m	
Required Cross-Sectional Area, A =	0.00150	m <sup>2</sup>	
Required Diameter, d = ((4*A)/pi) <sup>0.5</sup> =	0.044	m	
Therefore, Orifice Flow Restrictor =	44	mm	
Minimum orifice diameter =	76	mm	
Since the calculated orifice diameter is less than the minimum diameter of 76mm, a proprietary flow restriction device is required.			

RAINFALL DATA		STORAGE CALCULATIONS						
Rainfall Data - Norfolk County Rainfall Intensity Duration								
2 Yr Stm Event								
Duration (min.)	Intensity "i" (mm/hr)	Inflow, Q <sub>i</sub> 2.78*Ca*C <sub>i</sub> *A	Volume In Qt**60/1000 (m <sup>3</sup> )	Orifice Restrictor Outflow, Q <sub>o</sub> (L/s)	Surface Outflow Q <sub>s</sub> (L/s)	Total Release, Q <sub>t</sub> (L/s)	Volume Out Q <sub>o</sub> **60/1000 (m <sup>3</sup> )	Difference/Storage (m <sup>3</sup> )
12.5	64.17	28.50	21.37	4.69	0.00	4.69	3.52	17.85
15	57.94	25.73	23.16	4.69	0.00	4.69	4.23	18.93
30	37.88	16.82	30.28	4.69	0.00	4.69	8.45	21.83
60	23.76	10.55	37.99	4.69	0.00	4.69	16.90	21.09
120	14.56	6.47	46.55	4.69	0.00	4.69	33.80	12.75
180	10.86	4.82	52.09	4.69	0.00	4.69	50.70	1.39
Max. Storage Volume (m <sup>3</sup> ) =								21.83
25 Yr Stm Event								
Duration (min.)	Intensity "i" (mm/hr)	Inflow, Q <sub>i</sub> 2.78*Ca*C <sub>i</sub> *A	Volume In Qt**60/1000 (m <sup>3</sup> )	Orifice Restrictor Outflow, Q <sub>o</sub> (L/s)	Surface Outflow Q <sub>s</sub> (L/s)	Total Release, Q <sub>t</sub> (L/s)	Volume Out Q <sub>o</sub> **60/1000 (m <sup>3</sup> )	Difference/Storage (m <sup>3</sup> )
12.5	116.03	56.68	42.51	4.69	0.00	4.69	3.52	38.99
15	104.33	50.97	45.87	4.69	0.00	4.69	4.23	41.64
30	68.22	33.33	59.99	4.69	0.00	4.69	8.45	51.54
60	43.65	21.32	76.77	4.69	0.00	4.69	16.90	59.87
120	27.61	13.49	97.09	4.69	0.00	4.69	33.80	63.29
180	21.05	10.28	111.06	4.69	0.00	4.69	50.70	60.35
Max. Storage Volume (m <sup>3</sup> ) =								63.29
100 Yr Stm Event								
Duration (min.)	Intensity "i" (mm/hr)	Inflow, Q <sub>i</sub> 2.78*Ca*C <sub>i</sub> *A	Volume In Qt**60/1000 (m <sup>3</sup> )	Orifice Restrictor Outflow, Q <sub>o</sub> (L/s)	Surface Outflow Q <sub>s</sub> (L/s)	Total Release, Q <sub>t</sub> (L/s)	Volume Out Q <sub>o</sub> **60/1000 (m <sup>3</sup> )	Difference/Storage (m <sup>3</sup> )
12.5	141.46	78.52	58.89	4.69	0.00	4.69	3.52	55.37
15	126.98	70.49	63.44	4.69	0.00	4.69	4.23	59.22
30	83.03	46.09	82.97	4.69	0.00	4.69	8.45	74.52
60	53.50	29.70	106.91	4.69	0.00	4.69	16.90	90.01
120	34.20	18.99	136.71	4.69	0.00	4.69	33.80	102.91
180	26.28	14.59	157.53	4.69	0.00	4.69	50.70	106.83
Max. Storage Volume (m <sup>3</sup> ) =								106.83

Available Underground Storage				Surface storage drawdown time at 4.69L/s release rate:			
Structure	Area (m <sup>2</sup> )	Max Depth (m)	Volume (m <sup>3</sup> )	2 year:	4648.9	seconds (77.5 minutes, 1.29 hours)	
CBMH2 (1200mm)	1.13	1.30	1.47	100 year:	13481.8	seconds (224.7 minutes, 3.74 hours)	
CBMH3 (1200mm)	1.13	1.03	1.16				
CB4 (600mmx600mm)	0.36	0.68	0.24				

Pipe							
Pipe Diameter (mm)	Length (m)	Volume (m <sup>3</sup> )					
300	44.4	3.14					
300	33.1	2.34					

Stormwater Storage							
EZSTORM		Volume (m <sup>3</sup> )	86.55				
Underground Storage Available (m <sup>3</sup> ) =			94.91	83.90			

Available Surface Storage							
Location	Area (m <sup>2</sup> )	Max Depth (m)	Volume (m <sup>3</sup> )	Volume obtained from Civil3D			
CB4	144.40	0.20	14.57				
Surface Storage Available (m <sup>3</sup> ) =			14.57				

Storage Available (m <sup>3</sup> ) =		109.48
Required 2 Year Storage (m <sup>3</sup> ) =		21.83
Required 25 Year Storage (m <sup>3</sup> ) =		63.29
Required 100 Year Storage (m <sup>3</sup> ) =		106.83



## **Hydroworks Sizing Summary**

### **One Stop Home Storage**

**33 Park Road-Simcoe**

**04-30-2024**

### **Recommended Size: HydroStorm HS 4**

A HydroStorm HS 4 is recommended to provide 80 % annual TSS removal based on a drainage area of .2059 (ha) with an imperviousness of 71 % and Hamilton RBG, Ontario rainfall for the 20 um to 2000 um particle size distribution.

The recommended HydroStorm HS 4 treats 97 % of the annual runoff and provides 89 % annual TSS removal for the Hamilton RBG rainfall records and 20 um to 2000 um particle size distribution.

The HydroStorm has a headloss coefficient (K) of 1.04. Since a peak flow was not specified, headloss was calculated using the full pipe flow of .07 (m<sup>3</sup>/s) for the given 300 (mm) pipe diameter at .5% slope. The headloss was calculated to be 50 (mm) based on a flow depth of 300 (mm) (full pipe flow).

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at [support@hydroworks.com](mailto:support@hydroworks.com).

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .



## TSS Removal Sizing Summary

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

Site Parameters  
 Area (ha) .2059  
 Imperviousness (%) 71

Units  
☐ U.S.  
☒ Metric

Rainfall Station  
 Hamilton RBG Ontario  
 2004 To 2013 Rainfall Timestep = 15 min.

Project Title  
 One Stop Home Storage  
 33 Park Road-Simcoe

ETV Lab Testing Results ☐ Post Treatment Recharge

Outlet Pipe  
 Diam. (mm) 300 Peak Design Flow (m3/s)  
 Slope (%) .5

**HydroStorm Annual Sizing Results**

Model #	Qlow (m3/s)	Qtot (m3/s)	Flow Capture (%)	TSS Removal (%)
Unavailable	.021	.068	96 %	84 %
HS 4	.035	.068	97 %	89 %
HS 5	.043	.068	98 %	93 %
HS 6	.051	.068	98 %	95 %
Unavailable	.067	.068	98 %	96 %
HS 8	.068	.068	99 %	97 %
HS 10	.068	.068	99 %	98 %
HS 12	.068	.068	99 %	99 %

**Particle Size Distribution**

Size (um)	%	SG
20	20	2.65
60	20	2.65
150	20	2.65
400	20	2.65
2000	20	2.65

**Note: Results vary significantly based on particle size distribution**

Simulate

## TSS Particle Size Distribution

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

**TSS Particle Size Distribution**

Size (um)	%	SG
20	20	2.65
60	20	2.65
150	20	2.65
400	20	2.65
2000	20	2.65
*		

**Notes:**

1. To change data just click a cell and type in the new value(s)
2. To add a row just go to the bottom of the table and start typing.
3. To delete a row, select the row by clicking on the first pointer column, then press delete
4. To sort the table click on one of the column headings

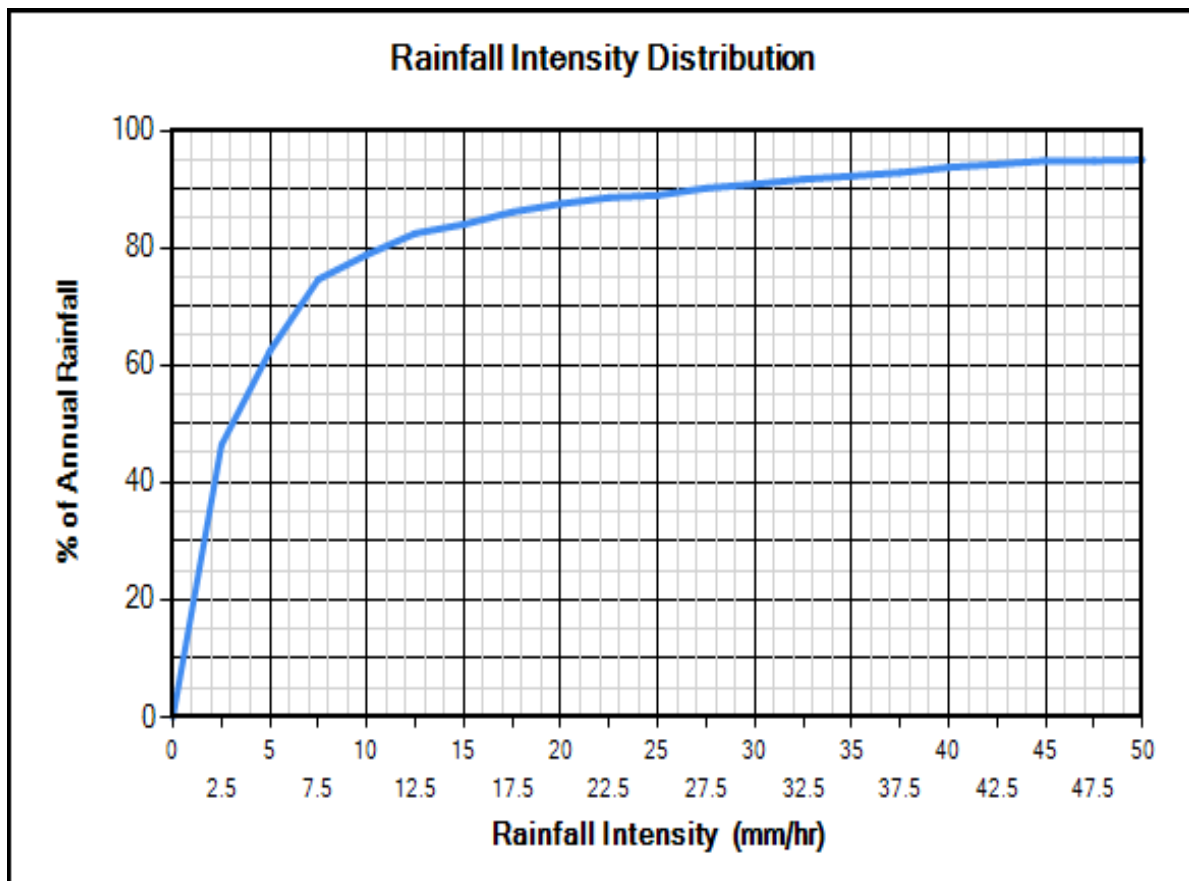
**TSS Distributions**

☐ ETV Canada / NJDEP  
☐ Standard HDS Design  
☐ Alden Laboratory  
☐ OK110  
☐ Toronto  
☒ Ontario Fine  
☐ Calgary Forebay  
☐ Kitchener  
☐ User Defined

Clear

**You must select a particle size distribution for TSS to simulate TSS removal**

Water Temp (C) 20



## Site Physical Characteristics

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

**Catchment Parameters**

Width (m)  Imperv. Mannings n  Maintenance Frequency (months)

Perv Mannings n

Slope (%)  Imp. Depress. Storage (mm)

Perv. Depress. Storage (mm)

**Daily Evaporation (mm/day)**

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	0	2.54	2.54	3.8100...	3.8100...	3.8100...	2.54	2.54	0	0

**Infiltration**

Max. Infiltration Rate (mm/hr)

Min. Infiltration Rate (mm/hr)

Infiltration Decay Rate (1/s)

Infiltration Regen. Rate (1/s)

**Catch Basins**

# of Catch basins

**Controlled Roof Runoff**

Roof Runoff (m3/s)

Resets all parameters excluding input catchment width.



## Dimensions And Capacities

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

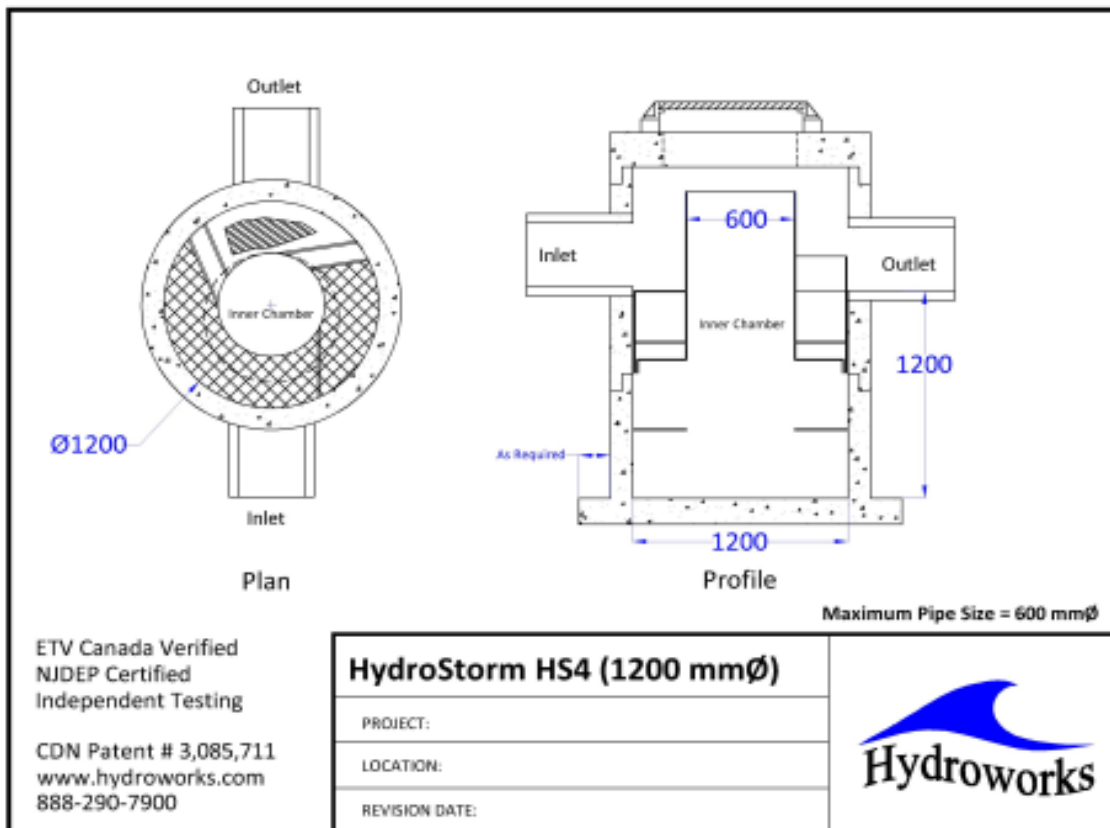
File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

Dimensions and Capacities					
Model	Diam. (m)	Depth (m)	Float. Vol. (L)	Sediment Vol. (m3)	Total Vol. (m3)
Unavailable	0.91	1.07	185	0.4	0.7
HS 4	1.22	1.22	381	0.9	1.4
HS 5	1.52	1.52	641	1.8	2.8
HS 6	1.83	1.83	1040	3.2	4.8
HS 7	2.13	1.98	1575	4.6	7.1
HS 8	2.44	2.13	2354	6.3	9.9
HS 10	3.05	2.74	4326	13.1	20
HS 12	3.66	3.35	7164	23.7	35.2

Depth = Depth from outlet invert to inside bottom of tank

## Generic HS 4 CAD Drawing



## TSS Buildup And Washoff

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

**TSS Buildup**

☐ Power Linear  
☒ Exponential

**TSS Washoff**

☒ Power-Exponential  
☐ Rating Curve (no upper limit)

**Street Sweeping**

Efficiency (%) 30  
Start Month May  
Stop Month Sep  
Frequency (days) 30  
Available Fraction .3

**Soil Erosion**

☐ Add Erosion to TSS

Reset to Default Values

**TSS Buildup Parameters**

Limit (kg/ha) 28.02  
Coeff (kg/ha) 67.25  
Exponent .5

**TSS Washoff Parameters**

Coefficient .0855  
Exponent 1.1

**TSS Buildup**

☒ Based on Area  
☐ Based on Curb Length

## Upstream Quantity Storage

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

**Quantity Control Storage**

	Storage (m3)	Discharge (m3/s)
▶	0	0
*		

**Notes:**

1. To change data just click a cell and type in the new value (s)
2. To add a row just go to the bottom of the table and start typing.
3. To delete a row, select the row by clicking on the first pointer column, then press delete
4. To sort the table click on one of the column headings

Clear



## Other Parameters

Hydroworks Hydrodynamic Separator Sizing Program - HydroStorm

File Product Units CAD Video Help

General Dimensions Rainfall Site TSS PSD TSS Loading Quantity Storage By-Pass Custom CAD Video Other

**Scaling Law**

- ☒ Peclet Scaling based on diameter x depth
- ☐ Peclet Scaling based on surface area (diameter x diameter)

**TSS Removal Extrapolation**

- ☒ Extrapolate TSS Removal for flows lower than tested
- ☐ No TSS Removal extrapolation for flows lower than tested
- ☐ No TSS Removal extrapolation for lower flows or inter-event periods

**Lab Testing**

- ☐ Use NJDEP Lab Testing Results
- ☒ Use ETV Canada Lab Testing Results

**Oil / Sediment Storage**

- ☒ Oil Spill Storage in Pretreatment Area
- ☐ Sediment Storage in Pretreatment Area
- ☐ 50% Oil Spill / 50% Sediment Storage in Pretreatment Area

**TSS Removal Results**

- ☒ Required TSS Removal
- ☐ Choose Model #

**TSS Removal Required**

TSS Removal (%)  Enter required TSS Removal (%)

## Flagged Issues

None

**Hydroworks Sizing Program - Version 5.8**

**Copyright Hydroworks, LLC, 2023**

**1-800-290-7900**

**[www.hydroworks.com](http://www.hydroworks.com)**



Hydroworks® HydroDome

## Operations & Maintenance Manual

Version 1.0

Please call Hydroworks at 888-290-7900 or email us at [support@hydroworks.com](mailto:support@hydroworks.com) if you have any questions regarding the Inspection Checklist. Please email a copy of the completed checklist to Hydroworks at [support@hydroworks.com](mailto:support@hydroworks.com) for our records.

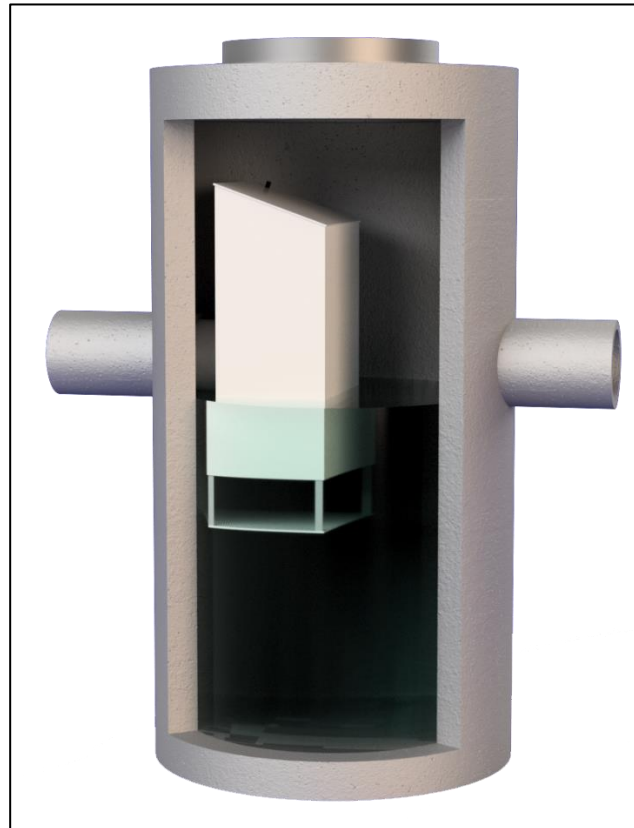


## **Introduction**

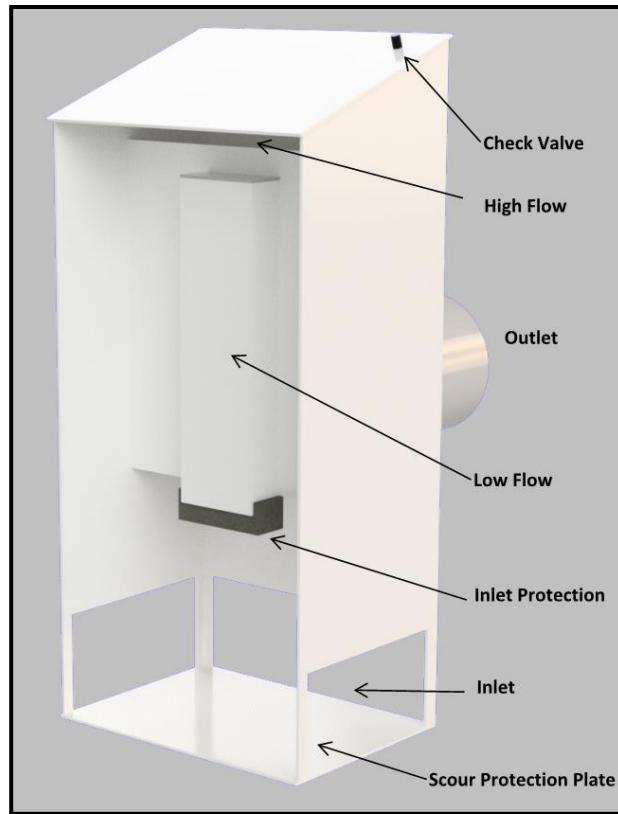
The HydroDome (Figure 1) is a state-of-the-art hydrodynamic separator. HydroDome can be used for water quality and quantity flow control if desired.

Hydrodynamic separators remove solids, debris and lighter than water (oil, trash, floating debris) pollutants from stormwater. Hydrodynamic separators and other water quality measures are mandated by regulatory agencies (Town/City, State, Federal Government) to protect storm water quality from pollution generated by urban development (traffic, people) as part of new development permitting requirements.

As storm water treatment structures fill up with pollutants they become less and less effective in removing new pollution. Therefore, it is important that storm water treatment structures be maintained on a regular basis to ensure that they are operating at optimum performance. The HydroDome is no different in this regard and this manual has been assembled to provide the owner/operator with the necessary information to inspect and coordinate maintenance of their HydroDome.



**Figure 1. Hydroworks HydroDome**



**Figure 2 HydroDome Internal Components**

## **Inspection**

### **Procedure**

#### **Floatables**

A visual inspection can be conducted for floatables by removing the cover/grate and looking down into the separator.

#### **TSS/Sediment**

Inspection for TSS build-up can be conducted using a Sludge Judge®, Core Pro®, AccuSludge® or equivalent sampling device that allows the measurement of the depth of TSS/sediment in the unit. These devices typically have a ball valve at the bottom of the tube that allows water and TSS to flow into the tube when lowering the tube into the unit. Once the unit touches the bottom of the device, it is quickly pulled upward such that the water and TSS in the tube forces the ball valve closed allowing the user to see a full core of water/TSS in the unit. Several readings (2 or 3) should be made at different locations of the structure to ensure that an accurate TSS depth measurement is recorded.



## Operation

The water level during periods without rain should be near the outlet invert of the structure. If the water level remains near the top of the HydroDome this may suggest that there is an obstruction downstream of the HydroDome or that the inlet protection at the HydroDome may need to be cleaned.

## **Frequency**

### Construction Period

The HydroDome separator should be inspected every four weeks and after every large storm (over 0.5" (12.5 mm) of rain) during the construction period.

### Post-Construction Period

The Hydroworks HydroDome separator should be inspected during the first year of operation for normal stabilized sites (grassed or paved areas). If the unit is subject to oil spills or runoff from unstabilized areas (storage piles, exposed soils), the HydroDome separator should be inspected more frequently (4 times per year). The initial annual inspection will indicate the required frequency of inspection and maintenance if the unit was maintained after the construction period.

## **Reporting**

Reports should be prepared as part of each inspection and include the following information:

1. Date of inspection
2. GPS coordinates of Hydroworks unit
3. Time since last rainfall
4. Date of last inspection
5. Installation deficiencies (missing parts, incorrect installation of parts)
6. Structural deficiencies (concrete cracks, broken parts)
7. Operational deficiencies (leaks, elevated water level)
8. Presence of oil sheen or depth of oil layer
9. Estimate of depth/volume of floatables (trash, leaves) captured
10. Sediment depth measured
11. Recommendations for any repairs and/or maintenance for the unit
12. Estimation of time before maintenance is required if not required at time of inspection

A sample inspection checklist is provided at the end of this manual.



## **Maintenance**

### **Procedure**

The Hydroworks HydroDome unit is typically maintained using a vacuum truck. There are numerous companies that can maintain the HydroDome separator. Maintenance with a vacuum truck involves removing all of the water and sediment together. The water is then separated from the sediment on the truck or at the disposal facility.

The area around the HydroDome provides clear access to the bottom of the structure (Figure 3). This is the area where a vacuum hose would be lowered to clean the unit.

In instances where a vacuum truck is not available other maintenance methods (i.e. clamshell bucket) can be used, but they will be less effective. If a clamshell bucket is used the water must be decanted prior to cleaning since the sediment is under water and typically fine in nature.

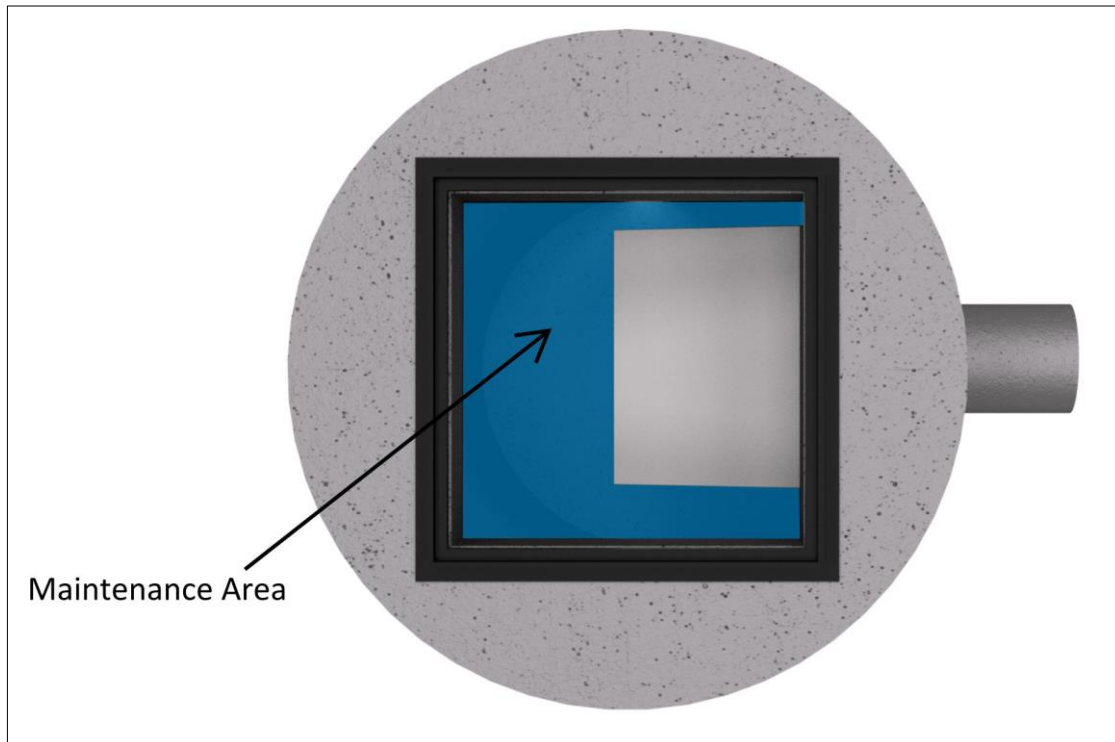
The local municipality should be consulted for the allowable disposal options for both water and sediments prior to any maintenance operation. Once the water is decanted the sediment can be removed with the clamshell bucket.

Maintenance of a Hydroworks HydroDome unit will typically take 1 to 2 hours depending on size of unit and using a vacuum truck. Cleaning may take longer for other cleaning methods (i.e. clamshell bucket).

Inlet protection (Figure 2) in the form of a coarse foam screen is located at the inlet to the siphon opening in the HydroDome to ensure the opening does not become clogged. Although it is not anticipated that the inlet protection will have to be replaced on a regular basis since the inlet protection is protected by the submerged entrance to the HydroDome and is backflushed by the siphon after each storm, the inlet protection should be checked each time the HydroDome is inspected or maintained. The inlet protection is removable and should be rinsed with water to ensure any debris caught on the protection is discarded. Unless damaged, the inlet protection can be reinstalled. A replacement piece can be bought through Hydroworks and/or retail stores. Hydroworks can provide information on the inlet protection and where it can be bought. A sign that the inlet protection needs cleaning/replacement would be a water level near the crown of the outlet pipe in the structure during periods with no flow (i.e. unit does not drain down to the pipe invert).







**Figure 3. HydroDome Maintenance Access**

## **Frequency**

### Construction Period

A HydroDome separator can fill with construction sediment quickly during the construction period. The HydroDome must be maintained during the construction period when the depth of TSS/sediment reaches 24" (600 mm). It must also be maintained during the construction period if there is an appreciable depth of oil in the unit (more than a sheen) or if floatables other than oil cover over 50% of the area of the separator

The HydroDome separator should be maintained at the end of the construction period, prior to operation for the post-construction period.

### Post-Construction Period

The maintenance for sediment accumulation is required if the depth of sediment is 1 ft or greater in separators with standard water (sump) depths (Table 1).

There will be designs with increased sediment storage based on specifications or site-specific criteria. Please contact Hydroworks at 888-290-7900 to inquire whether your HydroDome was designed with extra sump depth to extend the frequency of maintenance.



The HydroDome separator must also be maintained if there is an appreciable depth of oil in the unit (more than a sheen) or if floatables other than oil cover over 75% of the water surface of the separator.

**Table 1 Standard Dimensions for Hydroworks HydroDome Models**

<b>Model</b>	<b>Diameter ft (mm)</b>	<b>Maintenance Sediment Depth in (mm)</b>
HD 3	3 (900)	12 (300)
HD 4	4 (1200)	12 (300)
HD 5	5 (1500)	12 (300)
HD 6	6 (1800)	12 (300)
HD 7	7 (2100)	12 (300)
HD 8	8 (2400)	12 (300)
HD 10	10 (3000)	12 (300)
HD 12	12 (3600)	12 (300)





# HYDRODOME INSPECTION SHEET

Date \_\_\_\_\_  
Date of Last Inspection \_\_\_\_\_

Site \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_  
Owner \_\_\_\_\_

GPS Coordinates \_\_\_\_\_

Date of last rainfall \_\_\_\_\_

## Site Characteristics

	Yes	No
Soil erosion evident	<input type="checkbox"/>	<input type="checkbox"/>
Exposed material storage on site	<input type="checkbox"/>	<input type="checkbox"/>
Large exposure to leaf litter (lots of trees)	<input type="checkbox"/>	<input type="checkbox"/>
High traffic (vehicle) area	<input type="checkbox"/>	<input type="checkbox"/>

## HydroDome

	Yes	No
Obstructions in the inlet	<input type="checkbox"/> *	<input type="checkbox"/>
Damage to HydroDome (cracked, broken, loose pieces)	<input type="checkbox"/> **	<input type="checkbox"/>
Improperly installed outlet pipe	<input type="checkbox"/> ***	<input type="checkbox"/>
Internal component damage (cracked, broken, loose pieces)	<input type="checkbox"/> **	<input type="checkbox"/>
Floating debris in the separator (oil, leaves, trash)	<input type="checkbox"/>	<input type="checkbox"/>
Large debris visible in the separator	<input type="checkbox"/> *	<input type="checkbox"/>
Concrete cracks/deficiencies	<input type="checkbox"/> ***	<input type="checkbox"/>
Exposed rebar	<input type="checkbox"/> **	<input type="checkbox"/>
Raised water level (water level close to top of HydroDome)	<input type="checkbox"/> ***	<input type="checkbox"/>
Water seepage (water level not at outlet pipe invert)	<input type="checkbox"/> ***	<input type="checkbox"/>
Water level depth below outlet pipe invert _____"		

## Routine Measurements

Floating debris depth	< 0.5" (13mm)	<input type="checkbox"/>	>0.5" 13mm)	<input type="checkbox"/> *
Floating debris coverage	< 75% of surface area	<input type="checkbox"/>	> 75% surface area	<input type="checkbox"/> *
Sludge depth	< 12" (300mm)	<input type="checkbox"/>	> 12" (300mm)	<input type="checkbox"/> *

\* Maintenance required  
\*\* Repairs required  
\*\*\* Further investigation is required

Note: Inspections should not be made within 24 hours of a storm to allow the water to drain from the structure to assess a raised water level or water level seepage



**Other Comments:** \_\_\_\_\_

[illegible]



## Hydroworks® HydroDome

### One Year Limited Warranty

Hydroworks, LLC warrants, to the purchaser and subsequent owner(s) during the warranty period subject to the terms and conditions hereof, the Hydroworks HydroDome to be free from defects in material and workmanship under normal use and service, when properly installed, used, inspected and maintained in accordance with Hydroworks written instructions, for the period of the warranty. The standard warranty period is 1 year.

The warranty period begins once the separator has been manufactured and is available for delivery. Any components determined to be defective, either by failure or by inspection, in material and workmanship will be repaired, replaced or remanufactured at Hydroworks' option provided, however, that by doing so Hydroworks, LLC will not be obligated to replace an entire insert or concrete section, or the complete unit. This warranty does not cover shipping charges, damages, labor, any costs incurred to obtain access to the unit, any costs to repair/replace any surface treatment/cover after repair/replacement, or other charges that may occur due to product failure, repair or replacement.

This warranty does not apply to any material that has been disassembled or modified without prior approval of Hydroworks, LLC, that has been subjected to misuse, misapplication, neglect, alteration, accident or act of God, or that has not been installed, inspected, operated or maintained in accordance with Hydroworks, LLC instructions and is in lieu of all other warranties expressed or implied. Hydroworks, LLC does not authorize any representative or other person to expand or otherwise modify this limited warranty.

The owner shall provide Hydroworks, LLC with written notice of any alleged defect in material or workmanship including a detailed description of the alleged defect upon discovery of the defect. Hydroworks, LLC should be contacted at 136 Central Ave., Clark, NJ 07066 or any other address as supplied by Hydroworks, LLC. (888-290-7900).

This limited warranty is exclusive. There are no other warranties, express or implied, or merchantability or fitness for a particular purpose and none shall be created whether under the uniform commercial code, custom or usage in the industry or the course of dealings between the parties. Hydroworks, LLC will replace any goods that are defective under this warranty as the sole and exclusive remedy for breach of this warranty.

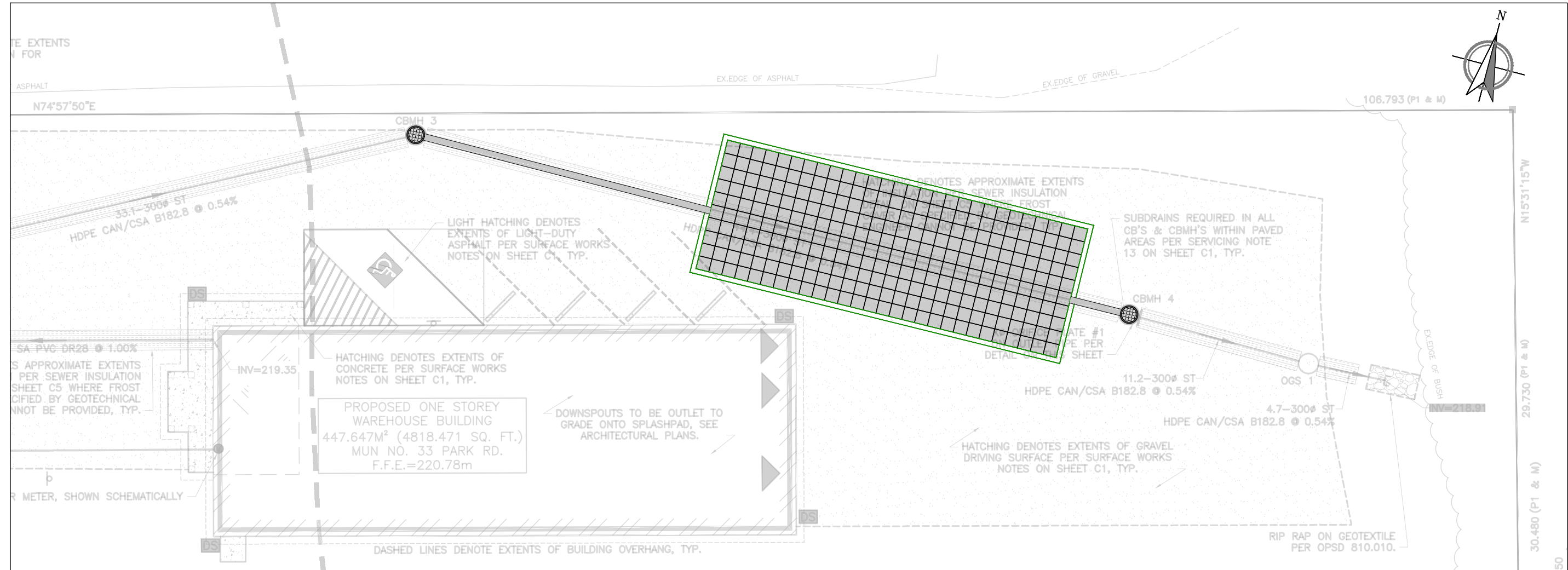
Subject to the foregoing, all conditions, warranties, terms, undertakings or liabilities (including liability as to negligence), expressed or implied, and howsoever arising, as to the condition, suitability, fitness, safety, or title to the Hydroworks HydroDome are hereby negated and excluded and Hydroworks, LLC gives and makes no such representation, warranty or undertaking except as expressly set forth herein. Under no circumstances shall Hydroworks, LLC be liable to the Purchaser or to any third party for product liability claims; claims arising from the design, shipment, or installation of the HydroDome, or the cost of other goods or services related to the purchase and installation of the HydroDome. For this Limited Warranty to apply, the HydroDome must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Hydroworks' written installation instructions.

Hydroworks, LLC expressly disclaims liability for special, consequential or incidental damages (even if it has been advised of the possibility of the same) or breach of expressed or implied warranty. Hydroworks, LLC shall not be liable for penalties or liquidated damages, including loss of production and profits; labor and materials; overhead costs; or other loss or expense incurred by the purchaser or any third party. Specifically excluded from limited warranty coverage are damages to the HydroDome arising from ordinary wear and tear; alteration, accident, misuse, abuse or neglect; improper maintenance, failure of the product due to improper installation of the concrete sections or improper sizing; or any other event not caused by Hydroworks, LLC. This limited warranty represents Hydroworks' sole liability to the purchaser for claims related to the HydroDome, whether the claim is based upon contract, tort, or other legal basis.



# ONE STOP HOME STAGING, BRENTFORD, ON

## EZSTORM SYSTEM



Project No: 240416-05

### CONTACTS

SITE CONTACT	PARTH PUSHKARNA	647 278-7339	ppushkarna@brunet.cc
TECHNICAL SUPPORT	NEXTSTORM	450 322-6260	info@nextstorm.ca
SALES REPRESENTATIVE	PARTH PUSHKARNA	647 278-7339	ppushkarna@brunet.cc

1  
01

OVERLAY

SCALE 1:250

### NOTE :

- THESE DRAWINGS MAY CONTAIN COMPONENTS, INCLUDING BUT NOT LIMITED TO, MANHOLES, CATCH BASINS, STORM PIPES, FITTINGS, MANIFOLDS, CASTINGS OR OTHER NECESSARY APPURTENANCES THAT MAY NOT BE SUPPLIED BY NEXTSTORM. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND/OR SUPPLIER TO CONFIRM THE MATERIAL PROVIDED BEFORE INSTALLATION.
- THIS DRAWING WAS PREPARED TO SUPPORT THE PROJECT ENGINEER OF RECORD FOR THE PROPOSED SYSTEM. IT IS THE ULTIMATE RESPONSIBILITY OF THE PROJECT ENGINEER OF RECORD TO ENSURE THAT THE EZSTORM SYSTEM'S DESIGN IS IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IT IS THE CONTRACTOR OF RECORD'S RESPONSIBILITY TO ENSURE THAT THE NEXTSTORM PRODUCTS ARE DESIGNED IN ACCORDANCE WITH NEXTSTORMS MINIMUM REQUIREMENTS. NEXTSTORM DOES NOT APPROVE PLANS, SIZING, OR SYSTEM DESIGNS.

### DRAWING INDEX

#### TITLE

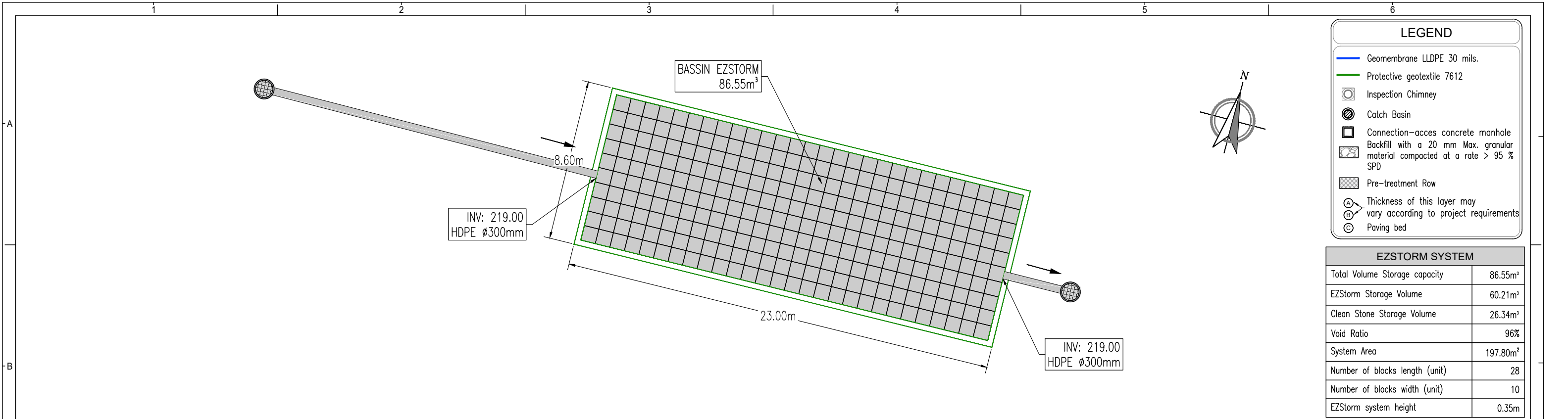
COVER SHEET AND SYSTEM OVERLAY  
SYSTEM LAYOUT - PLAN AND PROFILE  
VOLUME CALCULATION SHEET  
STANDARD BACKFILL REQUIREMENTS  
LIST OF MATERIALS  
ACCESSORIES

#### SHEET N°

.....1 of 6  
.....2 of 6  
.....3 of 6  
.....4 of 6  
.....5 of 6  
.....6 of 6



info@nextstorm.ca  
Toll free : 1 877 565-6260  
www.nextstorm.ca



LEGEND

Geomembrane LLDPE 30 mils.

Protective geotextile 7612

(A)

(C)

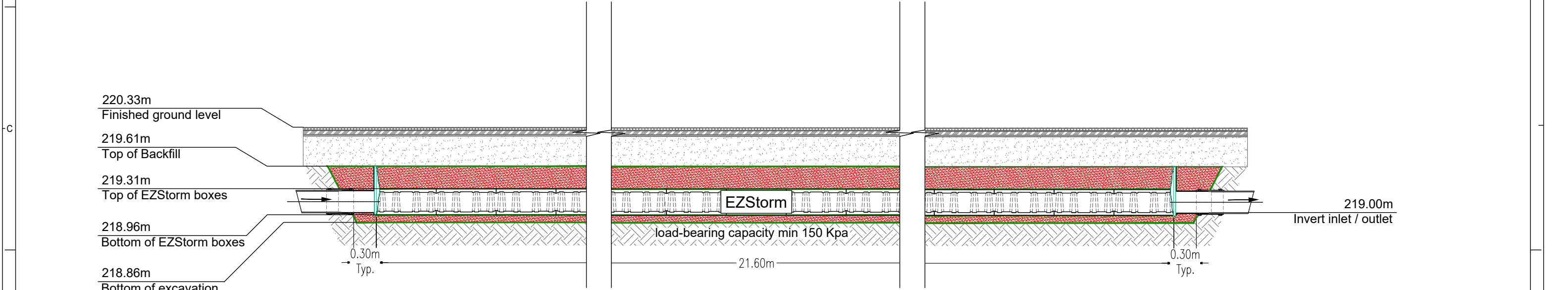
EZSTORM SYSTEM	
Total Volume Storage capacity	86.55m³
EZStorm Storage Volume	60.21m³
Clean Stone Storage Volume	26.34m³
Void Ratio	96%
System Area	197.80m²
Number of blocks length (unit)	28
Number of blocks width (unit)	10
EZStorm system height	0.35m

1

02

1/2 LAYER - PLAN VIEW

SCALE 1:200




2

02

SECTION A

SCALE 1:50



info@nextstorm.ca  
Toll free : 1 877 565-6260  
www.nextstorm.ca

PROJECT:  
**ONE STOP HOME STAGING,  
BRENTFORD, ON**

ISSUED FOR APPROVAL NOT FOR PRODUCTION

SYSTEM LAYOUT-PLAN AND SECTION

EZStorm System-86.55m³

N°.	REVISION	DATE	BY
A	ISSUED FOR APPROVAL	30/04/2024	S.M.
B	ISSUED FOR APPROVAL	01/05/2024	S.M.

PROJECT N°: 240416-05	DATE: 30/04/2024
DRAWN BY: S.M.	CHECKED BY: S.K.
SCALE: N.T.S.	SHEET N°: 2/6

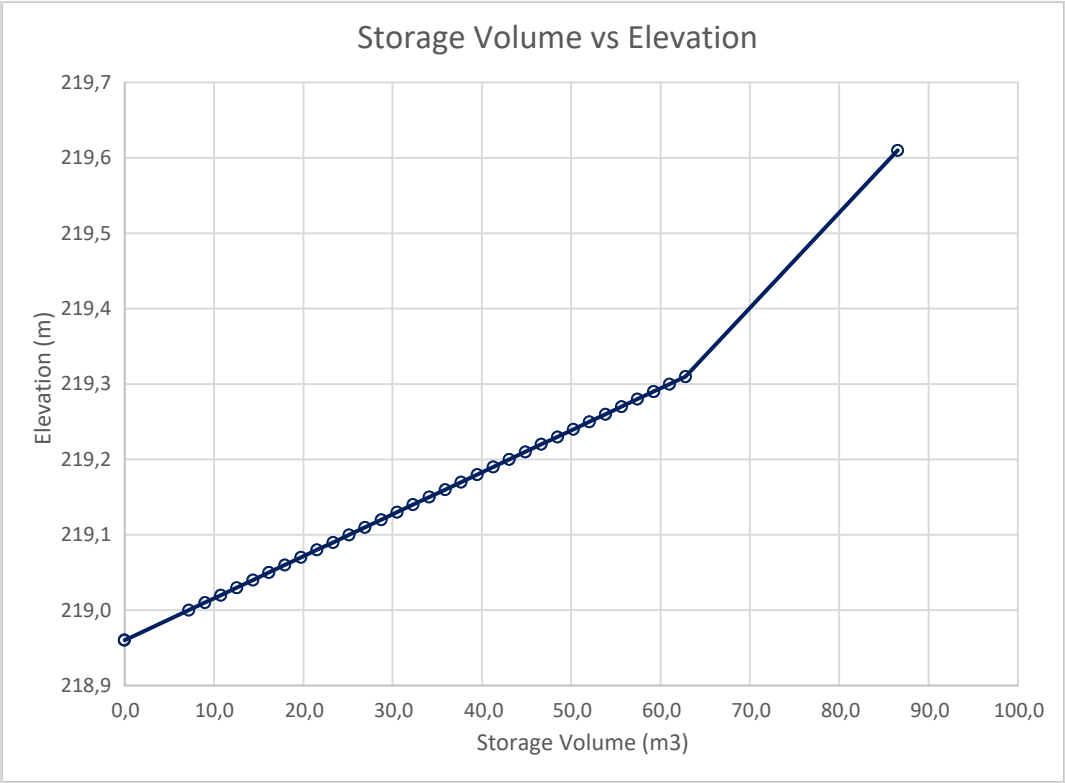
PROJECT INFORMATION			
Project Name	ONE STOP HOME STAGING, BRANTFORD, ON		
Project Number	240416-05	Date	1/05/2024

SYSTEM CHARACTERISTICS			
Model	EZStorm		
	Number of Boxes (unit)	Dimension / Box (m)	Dimensions EZStorm (m)
Height	0,53	0,66	0,35
Length	28,00	0,80	22,40
Width	10,00	0,80	8,00

EZStorm Area (m2)	179,2
EZStorm Area + Clear Stone (m2)	197,8
Volume EZStorm (m3)	86,6
Invert (m)	219,00
Top (m)	220,33

Storage Volumes EZStorm (m3)	60,2	Storage in Stone (m3)	26,3
Storage Void Ratio	96%	Storage Void Ratio	40%

System's Height (m)	Storage Volume (m3)	Elevation (m)	Notes
0,65	86,55	219,610	Top Clear Stone
0,35	62,82	219,310	Top of Chambers
0,34	61,02	219,300	
0,33	59,23	219,290	
0,32	57,43	219,280	
0,31	55,64	219,270	
0,30	53,84	219,260	
0,29	52,05	219,250	
0,28	50,25	219,240	
0,27	48,46	219,230	
0,26	46,66	219,220	
0,25	44,87	219,210	
0,24	43,07	219,200	
0,23	41,28	219,190	
0,22	39,48	219,180	
0,21	37,69	219,170	
0,20	35,89	219,160	
0,19	34,10	219,150	
0,18	32,30	219,140	
0,17	30,51	219,130	
0,16	28,72	219,120	
0,15	26,92	219,110	
0,14	25,13	219,100	
0,13	23,33	219,090	
0,12	21,54	219,080	
0,11	19,74	219,070	
0,10	17,95	219,060	
0,09	16,15	219,050	
0,08	14,36	219,040	
0,07	12,56	219,030	
0,06	10,77	219,020	
0,05	8,97	219,010	
0,04	7,18	219,000	Invert
0,00	0,00	218,960	Bottom of chambers



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PROJECT:

ONE STOP HOME STAGING,  
BRENTFORD, ON

ISSUED FOR APPROVAL NOT FOR PRODUCTION

VOLUME CALCULATION SHEET

EZStorm System-86.55m<sup>3</sup>

N°.	REVISION	DATE	BY
A	ISSUED FOR APPROVAL	30/04/2024	S.M.
B	ISSUED FOR APPROVAL	01/05/2024	S.M.

PROJECT N°:	240416-05	DATE:	30/04/2024
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DRAWN BY:	S.M.	CHECKED BY:	S.K.
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SCALE:	N.T.S.	SHEET N°:	3/6
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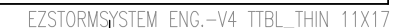


— A



└C

- D



- The descriptions given in the table as well as in the figure refer only to the grain size. The aggregates used must be clean, crushed and angular.
- The contractor must verify all dimensions on site, ensure that they are consistent with other disciplines and, if necessary, inform the site engineer of the presence of inconsistencies.
- The ground must have a minimum bearing capacity of 150 KPA.
- The information mentioned above as well as on the cut must be checked on site by a qualified person.









# TEMPEST Product Submittal Package R1



**Date:** May 1, 2024

**Customer:** SBM

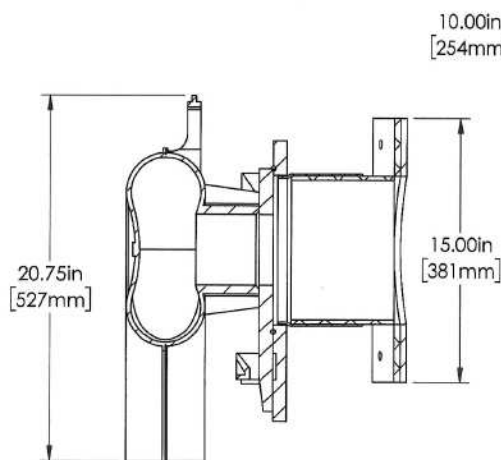
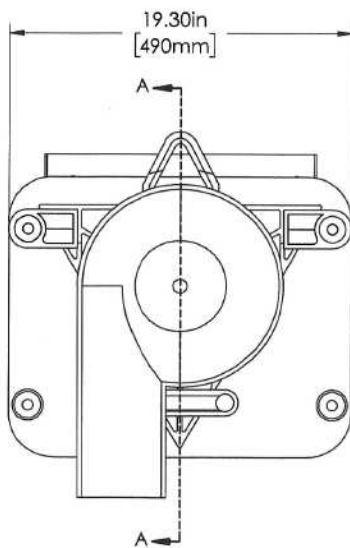
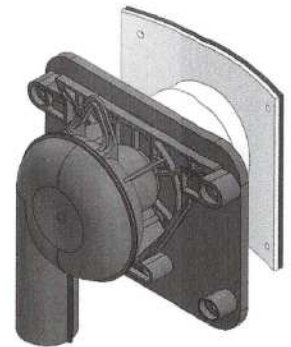
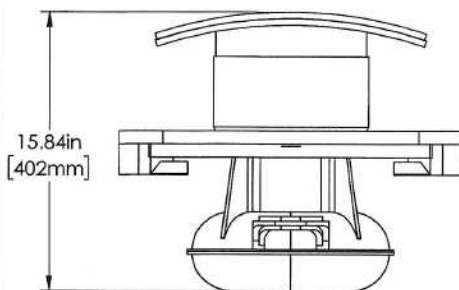
**Contact:** Michael Gethiga

**Location:** Simcoe

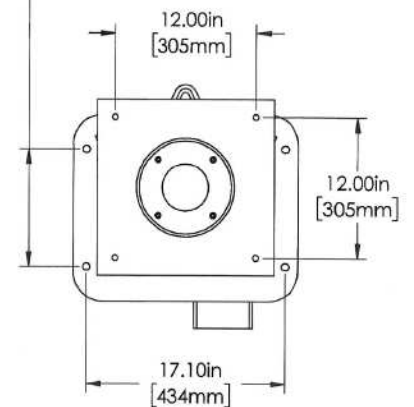
**Project Name:** 33 Park Rd



## Tempest LMF ICD Rd Shop Drawing



SECTION A-A  
SCALE 1 : 8



0	FOR REVIEW	DATE	REVISION	CHK

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MISSISSAUGA, ONTARIO CANADA  
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### LMF ROUND CB ASSEMBLY

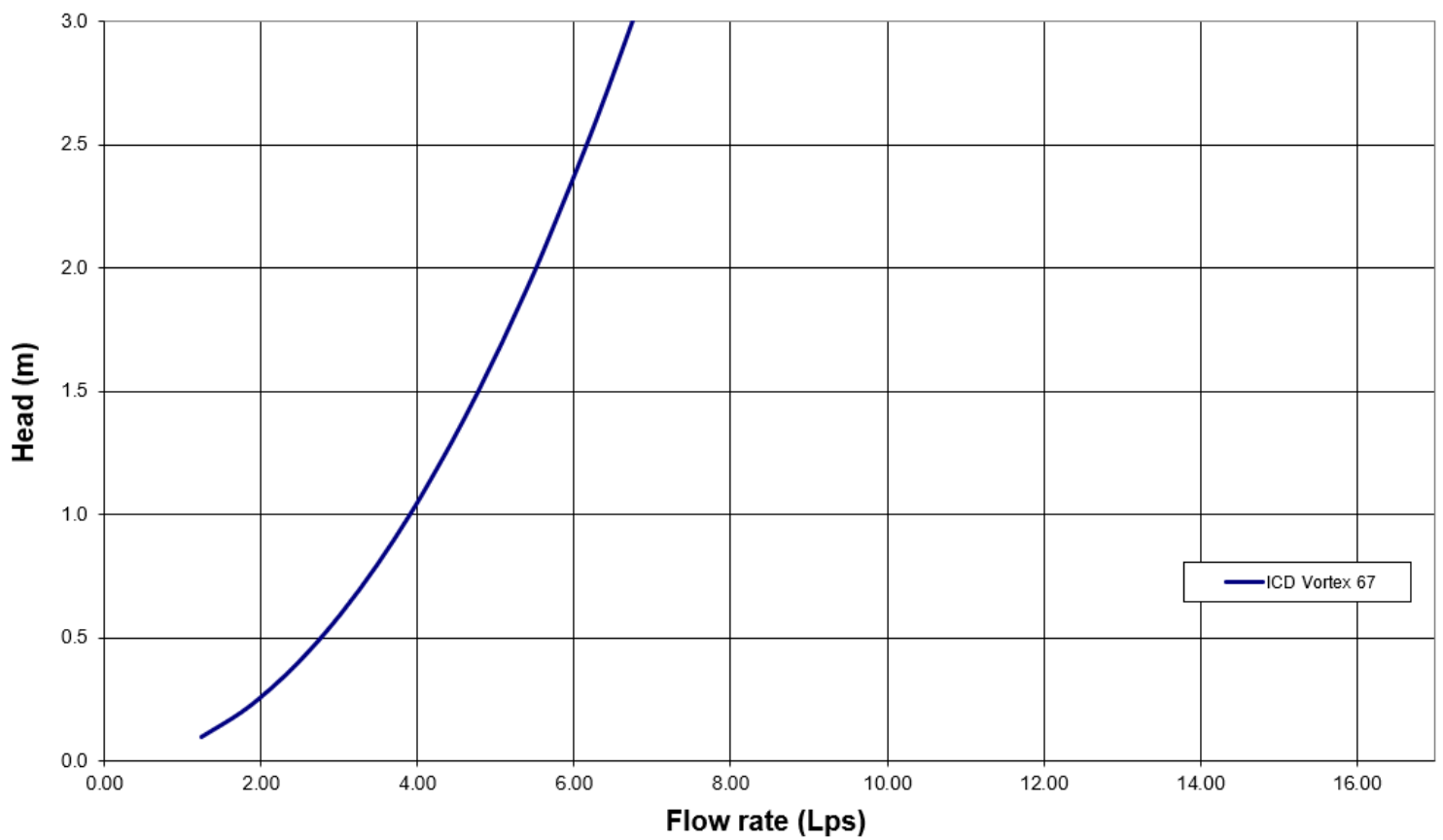
#### CUSTOMER

DATE	DRAWN BY	CHECKED BY	SCALE	DWG. NO.
4/16/2024	J.B.		NTS	N/A



## Tempest LMF ICD Flow Curve

**Flow: 4.52 L/s**  
**Head: 1.37 m**  
**CBMH4**





### **Square CB Installation Notes:**

1. Materials and tooling verification:
  - Tooling: impact drill, 3/8'' concrete bit, torque wrench for 9/16'' nut, hand hammer, level, and marker.
  - Material: (4) concrete anchor 3/8x3-1/2, (4) washers, (4) nuts
2. Use the mounting wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
3. Use an impact drill with a 3/8'' concrete bit to make the four holes at a minimum of 1-1/2'' depth up to 2-1/2''. Clean the concrete dust from the holes.
4. Install the anchors (4) in the holes by using a hammer. Put the nuts on the top of the anchors to protect the threads when you will hit the anchors with the hammer. Remove the nuts on the ends of the anchors
5. Install the wall mounting plate on the anchors and screw the nut in place with a maximum torque of 40 N.m (30 lbf-ft). There should be no gap between the wall mounting plate and the catch basin wall.
6. From ground above using a reach bar, lower the device by hooking the end of the reach bar to the handle of the LMF device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered in to the wall mounting plate and has created a seal.



**Round CB Installation Notes:** (Refer to square install notes above for steps 1 , 3, & 4)

2. Use spigot catch basin wall plate to locate and mark the hole (4) pattern on the catch basin wall. You should use a level to ensure that the plate is at the horizontal.
5. Install the CB spigot wall plate on the anchors and screw the 4 nuts in place with a maximum torque of 40 N.m (30 lb-ft). There should be no gap between the CB spigot wall plate and the catch basin wall.
6. Apply solvent cement on the hub of the universal mounting plate and the spigot of the spigot CB wall plate. Slide the hub over the spigot. Make sure the universal mounting plate is at the horizontal and its hub is completely inserted onto the spigot. Normally, the corners of the universal mounting plate hub adapter should touch the catch basin wall.
7. From ground above using a reach bar, lower the ICD device by hooking the end of the reach bar to the handle of the ICD device. Align the triangular plate portion into the mounting wall plate. Push down the device to be sure it has centered into the mounting plate and has created a seal.



**CAUTION/WARNING/DISCLAIM:**

- Verify that the inlet(s) pipe(s) is not protruding into the catch basin. If it is, cut it back so that the inlet pipe is flush with the catch basin wall.
- Any required cement in the installation must be approved for PVC.
- The solvent cement should not be used below 0°C (32°F) or in a high humidity environment. Please refer to the IPEX solvent cement guide to confirm required curing times or attend the IPEX [Online Solvent Cement Training Course](#).
- Call your IPEX representative for more information or if you have any questions about our products.

## **IPEX TEMPEST Inlet Control Devices Technical Specification**

### **General**

Inlet control devices (ICD's) are designed to provide flow control at a specified rate for a given water head level and also provide odour and floatable control where specified. All ICD's will be IPEX Tempest or approved equal.

All devices shall be removable from a universal mounting plate. An operator from street level using only a T-bar with a hook will be able to retrieve the device while leaving the universal mounting plate secured to the catch basin wall face. The removal of the TEMPEST devices listed above must not require any unbolting or special manipulation or any special tools.

High Flow (HF) Sump devices will consist of a removable threaded cap which can be accessible from street level with out entry into the catchbasin (CB). The removal of the threaded cap shall not require any special tools other than the operator's hand.

ICD's must have no moving parts.

### **Materials**

ICD's are to be manufactured from Polyvinyl Chloride (PVC) or Polyurethane material, designed to be durable enough to withstand multiple freeze-thaw cycles and exposure to harsh elements.

The inner ring seal will be manufactured using a Buna or Nitrile material with hardness between Duro 50 and Duro 70.

The wall seal is to be comprised of a 3/8" thick Neoprene Closed Cell Sponge gasket which is attached to the back of the wall plate.

All hardware will be made from 304 stainless steel.

### **Dimensioning**

The Low Medium Flow (LMF), High Flow (HF) and the High Flow (HF) Sump shall allow for a minimum outlet pipe diameter of 200mm with a 600mm deep Catch Basin sump.

### **Installation**

Contractor shall be responsible for securing, supporting and connecting the ICD's to the existing influent pipe and catchbasin/manhole structure as specified and designed by the Engineer.







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## LONDON LOCATION

1599 Adelaide St. N., Unit 301  
London, ON N5X 4E8  
P: 519-471-6667

www.sbm ltd.ca

## KITCHENER LOCATION

132 Queen St. S. Unit 4  
Kitchener, ON N2G 1V9  
P: 519-725-8093

sbm@sbm ltd.ca

### Rip- rap Calculations

DATE:	September 12, 2025
JOB NO.:	SBM-23-2071
Client:	One Stop Home Staging
Project:	Proposed Warehouse
Location:	33 Park Road, Simcoe ON

#### FLOWS TO RIP-RAP CHANNEL:

Design Flow (maximum outflow) $Q$	4.69	L/s
Roughness Coefficient, $n$	0.035	
*Cross-Sectional Area ( $m^2$ ), $A$	0.346	
*Wetted Perimeter (m), $P$	2.390	
*Slope of HGL (open channel), $S$	0.72%	
Hydraulic Radius, $R$ (m) = $A/P$	0.145	
Average Velocity, $V$ (m/s)	0.668	
Flow, $Q$ (cm/s) = $VA$	0.231	
$Q$ (L/s)	231.274	L/s

(Maximum Release Rate from Site)

(Roughness Coefficient for Rip Rap from MTO Drainage Management Manual, Design chart 2.01)

Less than 1.2 m/s which is lowest maximum permitted velocity for Coarse Gravel per MTO Drainage Manual, Design Chart 2.17

Channel Capacity,  $Q > \text{Max Outflow}$

#### TRACTIVE FORCES ON RIP RAP:

**Design Flow Depth, $y_d$	0.2	m
**Bottom Width, $b_w$	1.13	m
Side Slope Ratio (rise/run), $Z$	3	
Rip Rap Mean Diameter, $D_{50}$	100	mm
Unit Weight of water, $\gamma$	9810	N/m <sup>3</sup>

\*\*Refer to Site Servicing Plan Sheet C3, provided separately

$$\text{Tractive Force Bed Coefficient, } K_b = (Z/2)^{0.14} [1.42 - 0.019 \ln(b_w/y_d)^3] = 1.40$$
$$\text{Bed Tractive Force, } \tau_b = K_b \gamma y_d R S = 14.30 \text{ N/m}^2$$

(Refer to MTO Design Chart 2.11)

$$\text{Tractive Force Bank Coefficient, } K_{sb} = (Z/2)^{0.36} [1.3 - 0.15 \ln(b_w/y_d)] = 1.2037$$
$$\text{Bank Tractive Force, } \tau_{sb} = K_{sb} \gamma y_d R S = 12.31 \text{ N/m}^2$$

(Refer to MTO Design Chart 2.12)

$$\text{Maximum Applied Tractive Force, } \tau_{cb} = 14.30 \text{ N/m}^2$$

$$\text{Bed Particle Shear Resistance, } \tau_{cb} = 0.0642 D_{50}^2 \gamma = 62.980 \text{ N/m}^2$$

$$\text{Bank Side Angle Slope, } \theta \text{ (radians)} = 0.321750554 = 18.43 \text{ degrees}$$
$$\text{Particle Angle of Repose, } \phi \text{ (Degrees)} = 37.8 = 0.66 \text{ radians}$$

(Refer to MTO Design Chart 2.13 for Angle of Repose for Field Stone)

$$\text{Bank Particle sheat Resistance Coefficient, } K_{sb} = (1 - \sin^2 \theta / \sin^2 \phi)^{0.5} = 0.86$$
$$\text{Bank Particle Shear Stress Resistance, } \tau_{cs} = K_{sb} \tau_{cb} = 53.95 \text{ N/m}^2$$

$$\text{Minimum Resistive Tractive Force, } \tau_{cb} = 53.95 \text{ N/m}^2$$

Therefore, minimum resistive tractive force of the particle size exceeds the maximum applied tractive forces in the outlet.

## **APPENDIX D**

Domestic Water Demand, Volume and Turnover Calculations  
OBC Fixture Unit Calculations  
Fire-Fighting Calculations  
Northern Sprinkler Design Flow Test Report, dated February 9, 2024

## DOMESTIC WATER DEMAND, VELOCITY, AND TURNOVER CALCULATION

DATE: May 1, 2024  
JOB NO.: SBM-23-2071

Client: One Stop Home Storage  
Project: Proposed Storage Warehouse  
Location: 33 Park Road, Simcoe, ON

### DEMAND CALCULATION

Avg. Day Demand = 28000 L/ha/d (Commerical)  
Avg. Day Demand = 0.3241 L/ha/s  
Max. Day Peaking Factor = 2.25 (Commerical)  
Max. Hour Peaking Factor = 2 (Commerical)

Design parameters taken from Section 10 of the NCDC and Section 3.4.3 of the MOE DGDWS.

	Area (ha)	Avg. Day (L/s)	Max. Hour (L/s)	Max. Day (L/s)
Proposed Warehouse	0.33	0.11	0.21	0.24

### VELOCITY CALCULATION

Diameter (mm)	Demand (L/s)	Velocity (m/s)
25	0.21	0.436

### VOLUME CALCULATION

Diameter (mm)	Length from Municipal Watermain to Building (m)	Volume (Litres)
25	37.60	18.46

### TURNOVER CALCULATIONS

	Avg. Day (L/s)	Volume (L)	Hours	Days
Total	0.11	18.46	0.048	0.00

Maximum allowable turnover of 3 days (72 hours) under average flow conditions.



## **WATER SERVICE SIZING CALCULATIONS**

DATE: May 9, 2024  
JOB NO.: SBM-23-2071

Client: One Stop Home Staging  
Project: Proposed Storage Warehouse  
Location: 33 Park Rd, Simcoe, ON

### **Water Load Calculation**

Existing Building

Fixture Type	Number of Fixture Type	Fixture Units Each (FU)	Total Fixture Units (FU)
Bathroom Group	1	3.6	3.6
Lavatory	1	0.7	0.7
Domestic Sink	1	1.4	1.4
Sink, service or mop basin	1	2.25	2.25
<b>TOTAL (FU):</b>			<b>7.95</b>

**TOTAL EXISTING AND PROPOSED (FU): 7.95**

Fixture count obtained from Site Plan Drawings by SBM, dated April 30, 2024.

**Water Service:** As per OBC Div. B Table A-7.6.3.1.(2), a 25mm (1") diameter service can serve up to 30 Fixture Units at a length of 46m for a pressure of 311 to 413 kPa (46 to 60 psi). A 25mm diameter service is proposed. Refer to Engineering Drawing C3, provided separately.

## Water Supply for Public Fire Protection (Fire Underwriters Survey)

	For data entry
	Calculated, not for data entry

DATE: December 20, 2024  
JOB NO.: SBM-23-2071

Client: One Stop Home Staging  
Project: Proposed Storage Warehouse  
Location: 33 Park Rd, Simcoe, ON

$$F = 220 \times C \times \sqrt{A}$$

Type of Construction:	Wood-Frame	1.5
Fire Hazard of Contents:	Free Burning	1.2
Total Floor Area, m <sup>2</sup> :		448.00
Sprinklered:	No	1.0
Separation, Side 1:	20.1 to 30m	10%
Separation, Side 2:	>45m	0%
Separation, Side 3:	10.1 to 20m	15%
Separation, Side 4:	>45m	0%
Sum of Separation Coefficients (Shall Not Exceed 75%: )		25%

F, L/min (Shall not exceed 45,000 L/min or be less than 2,000 L/min) 10041

Maximum day domestic demand (as per separate calculation sheet) 0.24 L/sec  
14.40 L/min

Required Supply Fire Flow + Maximum Day Demand, L/min = 10060 (rounded up)

Incorporate Hazen-Williams and Bernoulli's Principles:  $P_{\text{residual}} = P_{\text{static}} - (Q_{\text{required}}/Q_{\text{test}})^{1.85} \times (P_{\text{static}} - P_{\text{test}})$

Provided Supply Flow Rate @	75.00	*psi (517.11 kPa) =	0.00	L/min (0 USGPM)
	73.00	*psi (503.32 kPa) =	4493.00	L/min (1187 USGPM)
	66.00	*psi (455.05 kPa) =	7298.00	L/min (1928 USGPM)
Residual pressure at hydrant =	58.70	*psi (404.74 kPa) =	10060.00	L/min (2658 USGPM)

\*Refer to the Provided Hydrant Flow Tests



## PROJECT INFORMATION

Project Name:	33 Park Road Flow Test	Design Project #:	2024-NSD-012
Site Address:	33 Park Road Simcoe ON	Const. Project #:	NA
City Contact:	Terry Hall x1504	Phone #:	519-426-5870
Flow Tester:	<b>Rob Smith</b>	Phone #:	<b>226-376-3053</b>
Technical Contact:	<b>Andy Coghlin</b>	Phone #:	<b>519-476-0761</b>

## SITE INFORMATION

### SITE MAP



Note: If the main is a dead end, the flowing hydrant shall be closest to the dead end

ITEMS TO LABEL ON MAP	HYDRANTS USED	MAIN SIZE
<input checked="" type="checkbox"/> Static / Residual & Flow Hydrants	<input checked="" type="checkbox"/> City Hydrant(s)	City: 300mm ductile
<input type="checkbox"/> Flow Direction (if the main is dead end)	<input type="checkbox"/> Site Hydrant(s)	Site:

### SITE NOTES





TEST INFORMATION							
Minimum Required Flow:		NA			Min Ports:		2
Personnel Present:		Robert Smith			Test Date:		2024-02-09
City / External Company:		Norfolk County			Test Time:		10:30am
TEST EQUIPMENT							
<input type="checkbox"/> Hose Monsters with built in Pitot				Hose length used:			
<input type="checkbox"/> Hand held pitot gauge				<input checked="" type="checkbox"/> Pollard diffuser elbow with built in Pitot			
<input type="checkbox"/> Other:							
TEST RESULTS							
Number of Ports	Outlet Size (IN)	Discharge Coefficient	Pitot Reading (PSI)			Total Flow (GPM)	Static / Residual Pressure (PSI)
0 Ports							75
1 Port	2.5	0.9	50			1,187	73
2 Ports	2.5	0.9	33	33		1,928	66
3 Ports	2.5	0.9				0	
4 Ports	2.5	0.9				0	
0 Ports	STATIC RE-CHECK						75
TEST NOTES							
HYDRAULIC ADJUSTMENTS (FOR OFFICE USE ONLY)							
ADJUSTMENTS FOR HYDRAULIC GRADE LINE (HGL)							
Reservoir HGL (m):				Site Elevation (m):			
Theoretical Static Head (PSI):		0		PSI to subtract from test pressures:		0	
OTHER HYDRAULIC ADJUSTMENTS							
Other adjustment as required by the City / AHJ:							