

July 31, 2023

Mr. Ken Kehoe
President
Kehoe Marine Construction
515 Thousand Islands Parkway
Lansdowne, ON
K0E 1L0

Dear Mr. Kehoe,

**Re: Application for Zoning By-Law Amendment D14-2023-007
Response to CRCA Comments**

We provide herein our response to comments from Emily Su at Cataraqui Conservation (CRCA) dated June 23, 2023 regarding the noted Application for Zoning By-Law Amendment. Our responses to the comments have been developed with due consideration of discussion of issues during a teleconference on July 20, 2023 with the Municipality (Leeds and Thousand Islands), CRCA, Fotenn Consultants and Kehoe Marine Construction.

CRCA comments on the Application for Zoning By-law Amendment D14-2023-007 generally relate to natural hazard issues, hydrologic function of the Ivy Lea wetland complex, stormwater management and drinking water source protection. Site grading and surface treatment of the area to the south of the proposed 990m² storage building were a point of focus with regard to natural hazards and wetland function.

Some clarification of the site grading and surface treatment for the area to the south of the proposed storage building was provided during the teleconference. We confirmed that the grading to the south of the proposed storage building was completed in order to provide partial compensation for fill volumes associated with the broader site modifications and shoreline work. It was confirmed that the re-graded area in question was not to be paved and that the limits of future site paving were to be maintained in accordance with the Riggs Associates SWM Technical Brief (Riggs, 2023) and associated drawings (e.g. Dwg. MA-03).

It was further clarified by Cataraqui Conservation that the site grading as proposed in hydrotechnical assessment report (Riggs, 2022) and subsequent SWM report (Riggs, 2023) and associated paved areas to be directed to the Oil Grit Filter were not an outstanding concern with regard to Natural Hazards.

The two following items were identified for follow up by Riggs Associates and Ecological Services:

- a) A recommendation was made for a formal evaluation of potential impacts to wetland hydrology arising from changes to surface treatment for the re-graded area to the south of the proposed 900 m² storage building.
- b) A recommendation was made for review of the Cataraqui Source Protection Plan policies and for provision of documentation of site measures and / or management practices which may be relevant to any site activities listed under Section 5.5.1 of the Source Protection Plan.

We provide the following discussion as deemed relevant to items (a) and (b) above.

a) **Wetland hydrology impacts from area south of proposed 990 m² storage building.**

Consideration of hydrologic impacts as discussed below relate to the rainfall and runoff processes and supply of water to the bay/wetland area. Under conditions prior to recent site modifications, the transformation of rainfall to hydrologic input to the wetland area would typically be through infiltration and runoff. Infiltration contributions would be expected to be relatively efficient given the proximity of the area to the shoreline and the nature of soils as noted below. Potential impacts are therefore generally perceived to be related to the relative proportions of infiltration and runoff under the pre- and post-site modification conditions.

Site grading has been completed on the previously residential lot immediately south of the original office building (Area N on SWM catchment plan – Dwg. MA-03). This grading was undertaken to provide partial compensation for loss of floodplain storage resulting from fill placement elsewhere on the site. While the property was historically a residential use lot, the grassed area between the residential building and the shoreline had been used as a temporary storage area for inert materials (See Attachment A photos). The lawn area had been generally maintained, with the vegetation kept short to the water's edge (gabion baskets) over the majority of the shoreline length. This area originally sloped to the water at a relatively uniform slope of approximately 10%. KMC has advised that the soil in this area is somewhat sandy. Typical runoff coefficients for lawn areas of more than 7% slope on light soils are on the order of 0.25 to 0.35 (MTO, 1997); a runoff coefficient of 0.3 for this area would be considered reasonable.

The re-graded slope for this area as proposed, is approximately 20% immediately south of the new storage building flattening to approximately 3.5 % over the lower portion of the area (extending approximately 30 m from the water's edge). KMC has advised that the current post-grading surface treatment is approximately 400 mm depth of granular 'B' which has not been compacted. The final treatment would include an additional minimum 100 mm depth of granular 'A', which would be mechanically compacted. There is no general guidance for runoff coefficients for gravel storage areas. Recommended runoff coefficients (MTO, 1997) for gravel road shoulders are on the order to 0.4 – 0.6. It is anticipated that the lower end of this range (0.40) would be appropriate for the gravelled surface of catchment Area N given the less formal compaction standards and level of traffic. Accounting for runoff from half of the storage building rooftop as well, the weighted post-development runoff coefficient for Area N would be approximately 0.49.

Runoff from a 1 hour, 100 year rainfall from the pre- and post-site modification surfaces has been considered for comparative purposes. Runoff volume is estimated as the runoff coefficient multiplied by the rainfall volume. The total rainfall for this event based on the Lansdowne area MTO Rainfall Intensity Duration Frequency curves is 45.7 mm. Runoff volumes from Area N due to this rainfall, assuming pre- and post site modification conditions would be approximately 33 m³ and 54 m³ respectively, representing an increase of approximately 21 m³. This increased runoff would generally be balanced by an equivalent reduction of infiltration.

The runoff is dispersed along the shoreline as there is no defined outfall. The runoff is further dispersed through the gabion basket shoreline structure. The increase in runoff volume, distributed temporally over the 1 hour storm duration and spatially over the shoreline would be sufficient to impact the wetland stability.

Due to the presence of the existing gabion basket shoreline edge, the local wetland vegetation is submergent. As a result, the alteration of the proportions of runoff and infiltration (delayed contribution to the wetland hydrologic supply) would not be expected to impact any hydrologic aspects of the wetland function. Furthermore, the local wetland species are not considered to be sensitive to the adjacent upland activities (Ecological Services, 2023).

Although the change in surface characteristic and associated change in runoff distribution is not expected to be a significant impact from a wetland hydrology perspective, improved management of the runoff could be achieved with a 3 m wide clear stone buffer strip immediately inshore of the shoreline gabion baskets. Construction of this buffer to a depth of 1.0 m, extending over approximately 30 m length (which is generally consistent with the lower portion of Catchment N) and wrapped in non-woven geotextile, would provide approximately 27 m³ of storage within the clear stone void space. The geotextile would serve to slow the runoff flow to the wetland area and would provide an additional filtration buffer for sediments.

b) Source Water Protection Considerations

Cataraqui Conservation has advised that Source Protection Policies related to new or expanded development located in a highly vulnerable aquifer or significant groundwater recharge area are relevant to the proposed KMC site planning. The threats identified for review and comment with regard to management measures include:

- i. The handling and storage of more than 25 litres of dense non-aqueous-phase liquids (DNAPLs) and/or organic solvents, (e.g., metal manufacturing, electroplating and fabrication industries, automotive or equipment repair shops, furniture refinishing shops, dry cleaning establishments),
- ii. The handling and storage of more than 2,500 litres of liquid fuel (e.g., gas stations), and
- iii. The handling and storage of more than 500 tonnes of road salt (e.g., public or private maintenance yards).

Measures which are currently in place, or planned in accordance with the proposed site plan are discussed for each threat below.

- i. DNAPL: Potential DNAPL product use at the KMC site is expected to be limited to degreasers, solvents and adhesives. While a specific list of products has not been developed, it is expected that such products may at times be used in relatively small quantities for vehicle maintenance and/or in some of the manufacturing processes. KMC has advised that these activities take place in shop areas where any spill or wash-off of the chemicals would drain to sumps within the building. The sumps would prevent the release of the chemicals to the environment, and provide for containment until properly cleaned.
- ii. Liquid Fuel: There are a number of fuel tanks on site, used to refuel equipment on a regular basis for use in the marine construction business. KMC has provided specification details for the fuel tanks on the property. This information is included in Attachment A. The tanks are double walled tanks with a vacuum monitoring system to identify any potential tank leak. The redundancy of the double tank wall and the vacuum monitoring provides for advanced warning of a potential spill/leakage risk with opportunity to address the risk.

Potential fuel spills which might occur during filling of machinery would be expected to be of relatively small volumes given the manned operations of fueling equipment. KMC typically maintains fuel spill kits on site and on their marine equipment due to environmental regulations, and as such is in a position to respond in a timely manner to such a spill. Where a minor spill is not managed through the use of a spill kit, the capture of all asphalt areas within the oil-grit filtration unit provides a level of protection to the waterway. It is noted that the surfaces where fueling activities take place and where fuel is stored are to be impervious areas, and therefore do not present an effective pathway for the fuel to infiltrate to the groundwater area.

- iii. Salt Storage : KMC has advised that they do not presently store salt on site. Road salt is applied to the work yard occasionally during winter months. The proposed paving of the majority of the work yard will reduce potential for this salt to infiltrate to groundwater in those areas. Following construction of the new storage building (Catchment Area N), KMC may opt to store some road salt for winter maintenance operations. This material would be stored within the covered storage building on a concrete pad, and therefore would not be subjected to runoff processes.

We trust the discussion presented herein, including the proposed installation of a clear stone buffer strip along the water's edge in Catchment N, provides sufficient information to address outstanding CRCA comments on this application. We are available to discuss with you and permitting agencies at your convenience.

Sincerely,



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References

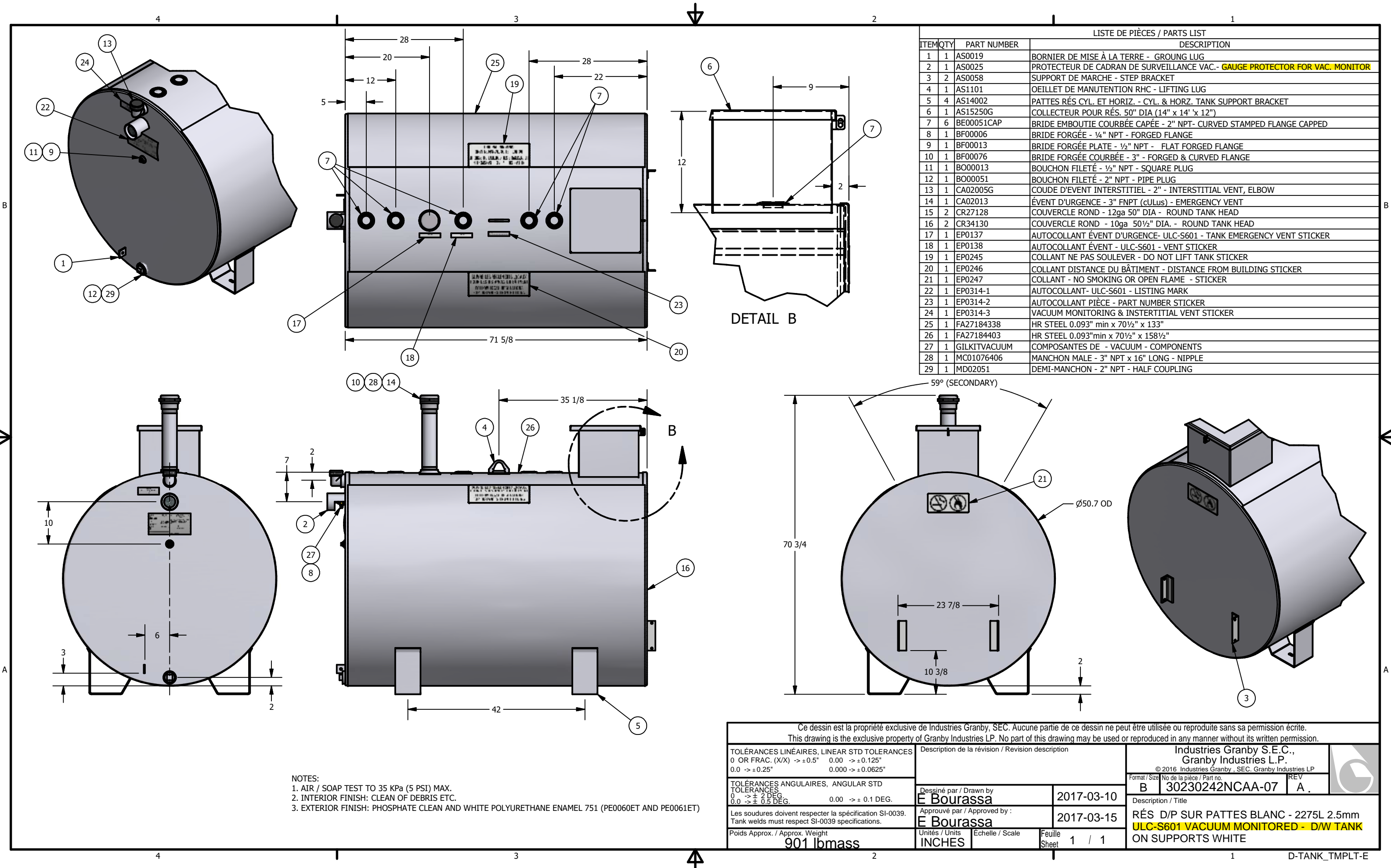
Riggs Associates Ltd., 2023. Technical Brief – Stormwater Management Kehoe Marine Construction. (April 28, 2023)

Riggs Associates Ltd., 2022. Kehoe Marine Construction Ltd. Site and Shoreline Modifications Hydraulic Assessment. (November 11, 2022)

Ecological Services, 2023. EIA Addendum. Letter from Rob Snetsinger to Ken Kehoe, April 26, 2023.

Ontario Ministry of Transportation (MTO) 1997. MTO Drainage Management Manual. Ontario Ministry of Transportation.

**Attachment A
Fuel Tank Details**



LISTE DE PIÈCES / PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	AS0019	BORNIER DE MISE À LA TERRE - GROUND LUG
2	1	AS0025	PROTECTEUR DE CADRAN DE SURVEILLANCE VAC.- GAUGE PROTECTOR FOR VAC. MONITOR
3	2	AS0058	SUPPORT DE MARCHÉ - STEP BRACKET
4	1	AS1101	OUILLET DE MANUTENTION RHC - LIFTING LUG
5	4	AS14002	PATTES RÉ S CYL. ET HORIZ. - CYL. & HORIZ. TANK SUPPORT BRACKET
6	1	AS15250G	COLLECTEUR POUR RÉ S. 50" DIA (14" x 14" x 12")
7	6	BE00051CAP	BRIDE EMBOUTIE COURBÉE CAPÉE - 2" NPT - CURVED STAMPED FLANGE CAPPED
8	1	BF00006	BRIDE FORGÉE - 1/4" NPT - FORGED FLANGE
9	1	BF00013	BRIDE FORGÉE PLATE - 1/2" NPT - FLAT FORGED FLANGE
10	1	BF00076	BRIDE FORGÉE COURBÉE - 3" - FORGED & CURVED FLANGE
11	1	BO00013	BOUCHON FILETÉ - 1/2" NPT - SQUARE PLUG
12	1	BO00051	BOUCHON FILETÉ - 2" NPT - PIPE PLUG
13	1	CA02005G	COUDE D'ÉVENT INTERSTITIEL - 2" - INTERSTITIAL VENT, ELBOW
14	1	CA02013	ÉVENT D'URGENCE - 3" FNPT (cULus) - EMERGENCY VENT
15	2	CR27128	COUVERCLE ROND - 12ga 50" DIA - ROUND TANK HEAD
16	2	CR34130	COUVERCLE ROND - 10ga 50 1/2" DIA. - ROUND TANK HEAD
17	1	EP0137	AUTOCOLLANT ÉVENT D'URGENCE- ULC-S601 - TANK EMERGENCY VENT STICKER
18	1	EP0138	AUTOCOLLANT ÉVENT - ULC-S601 - VENT STICKER
19	1	EP0245	COLLANT NE PAS SOULEVER - DO NOT LIFT TANK STICKER
20	1	EP0246	COLLANT DISTANCE DU BÂTIMENT - DISTANCE FROM BUILDING STICKER
21	1	EP0247	COLLANT - NO SMOKING OR OPEN FLAME - STICKER
22	1	EP0314-1	AUTOCOLLANT- ULC-S601 - LISTING MARK
23	1	EP0314-2	AUTOCOLLANT PIÈCE - PART NUMBER STICKER
24	1	EP0314-3	VACUUM MONITORING & INSTERTIAL VENT STICKER
25	1	FA27184338	HR STEEL 0.093" min x 70 1/2" x 133"
26	1	FA27184403	HR STEEL 0.093" min x 70 1/2" x 158 1/2"
27	1	GILKITVACUUM	COMPOSANTES DE - VACUUM - COMPONENTS
28	1	MC01076406	MANCHON MALE - 3" NPT x 16" LONG - NIPPLE
29	1	MD02051	DEMI-MANCHON - 2" NPT - HALF COUPLING

NOTES:
 1. AIR / SOAP TEST TO 35 KPa (5 PSI) MAX.
 2. INTERIOR FINISH: CLEAN OF DEBRIS ETC.
 3. EXTERIOR FINISH: PHOSPHATE CLEAN AND WHITE POLYURETHANE ENAMEL 751 (PE0060ET AND PE0061ET)

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TOLÉRANCES LINÉAIRES, LINEAR STD TOLERANCES 0 OR FRAC. (X/X) -> ± 0.5" 0.00 -> ± 0.125" 0.0 -> ± 0.25" 0.000 -> ± 0.0625"		Description de la révision / Revision description	
TOLÉRANCES ANGULAIRES, ANGULAR STD TOLERANCES 0 -> ± 2 DEG 0.0 -> ± 0.5 DEG. 0.00 -> ± 0.1 DEG.		Dessiné par / Drawn by E Bourassa	2017-03-10
Les soudures doivent respecter la spécification SI-0039. Tank welds must respect SI-0039 specifications.		Approuvé par / Approved by: E Bourassa	2017-03-15
Poids Approx. / Approx. Weight 901 lbmass		Unités / Units INCHES	Feuille / Sheet 1 / 1
		Industries Granby S.E.C., Granby Industries L.P. © 2016 Industries Granby, SEC. Granby Industries LP	
		Format / Size No de la pièce / Part no. REV B 30230242NCAA-07 A.	
		Description / Title RÉS D/P SUR PATTES BLANC - 2275L 2.5mm ULC-S601 VACUUM MONITORED - D/W TANK ON SUPPORTS WHITE	

