



Summer Village of Ma-Me-O Beach

Box 100 (605 – 2nd Avenue)
Ma-Me-O Beach, Alberta T0C 1X0
(780) 586-2494
Fax: (780) 586-3567

e-mail : information@svofficepl.com
website: svofficepl.com

May 2, 2023

To: All Ma-Me-O Beach Ratepayers

Re: Ma-Me-O Beach Local Wastewater Project / Arbitration Decision

As indicated in our April 24, 2023, letter to residents, the arbitration efforts in relation to the wastewater project were unsuccessful. We appreciate that the information provided was not comprehensive, however, we were instructed by legal counsel to pause while considering further action. As of yesterday, we have been cleared to release the decision in its entirety, please find the arbitrator's report attached.

We are all still shocked with the arbitrator's findings.

As mentioned in our previous letter, Council is committed to providing transparent and timely updates on its next steps, and the immediate focus is on cost-reduction activities to ensure the municipality can continue to support and serve its community.

IN THE MATTER OF AN ARBITRATION CONDUCTED PURSUANT
TO THE *ARBITRATION ACT*, R.S.A. 2000, C. A-43

Between:

PME INC.

(“PME”)

And

SUMMER VILLAGE OF MA-ME-O-BEACH

(“Summer Village”)

Final Award

Counsel for PME:

Ryan P. Krushelnitzky
Paul Kolida

Counsel for Summer Village:

Greg Weber
Jack Kent

1. INTRODUCTION

[1] The design and construction of a wastewater system for a lakeside community in rural Alberta should not be a complex and complicated project for Canada's sophisticated and experienced construction industry. However, the construction of a wastewater system by PME, for Summer Village, was anything but simple and straightforward. The project was plagued by a failed design, poor oversight, and allegations of shoddy workmanship.

[2] Within a year of the wastewater system being completed, tested, commissioned and turned over to Summer Village, the electrical heat trace system ("EHT"), designed to prevent the force main of the system from freezing in winter conditions, failed. Some repairs were undertaken by PME, under protest, but the system continued to fail. PME seeks in this arbitration, inter alia, payment for the work it undertook in repairing the system in the amount of \$671,573.49, plus GST. Summer Village says that the entire system, as installed, is defective, and says, in its counterclaim, that it is entitled to the cost of repair for the entire system in the amount of \$6,558,087.82, notwithstanding that the contract with PME, to supply and install the system in the first instance, was only \$2,754,681.69.

2. PROCEDURAL HISTORY

[3] This Arbitration was commenced by delivery of a Notice to Arbitrate by PME dated February 7, 2020. I was appointed Arbitrator, and the Terms of Appointment were executed on June 1, 2020. The first procedural hearing was conducted on September 22, 2020, at which time I issued Procedural Order No. 1 which adopted a schedule of procedural steps agreed to by the parties which contemplated that the Arbitration hearing would be conducted in August, September or October 2021.

[4] The parties were unable to agree upon a hearing date, so an application to fix the Hearing date was held by Zoom on November 25, 2020. In the course of the application, Summer Village sought an order that the Arbitration Hearing not proceed until after it had completed the remedial work for the system. I issued Procedural

Order No. 2 on November 27, 2020, setting the arbitration hearing date for November 15, 2021.

[5] The parties revised the procedural schedule to accommodate the counterclaim of Summer Village, as it was determined that the counterclaim would not be advanced until after the remedial work was to be completed on April 15, 2021. The completion of the remedial work was delayed by COVID-19 and other matters, which led to an application by Summer Village on August 13, 2021, for an adjournment of the Arbitration Hearing. In Procedural Order No. 3, dated August 30, 2021, I adjourned the arbitration hearing, and directed that it commence on June 20, 2022, and be completed by July 4, 2022.

[6] The Arbitration hearing was conducted in person, from June 20 – 24 and June 27, 2022. The illness of the project engineer, Mr. Chris George, delayed the completion of the evidentiary hearing until his evidence was heard on August 23, 2022.

[7] I received the closing written submissions from PME on October 24, 2022, the responding written submissions from Summer Village on December 5, 2022, the PME written rebuttal submissions on January 4, 2023, and the Summer Village written surrebuttal submissions on January 18, 2023.

3. JURISDICTION

[8] My Jurisdiction to arbitrate the disputes between the parties arises from General Condition (“GC”) 15.5, Arbitration, of the Contract dated June 9, 2017, (“the Contract”). Neither party took the position that I did not have the jurisdiction to decide all of the issues between them.

4. OVERVIEW OF THE DISPUTE

[9] Summer Village is one of a number of municipalities located on Pigeon Lake, about an hour’s travel southwest from Edmonton. It consists mostly of summer cottages and summer homes, although there are some year-round residents. All of

the lots in Summer Village have always been on a septic system. The municipal council felt it was important to upgrade this situation and tie individual septic systems into a new wastewater treatment collection process. Not everyone in Summer Village supported the new system.

[10] In the spring of 2017, Summer Village issued a tender for bids for the work contemplated by the Contract. The work involved the construction of an all-season wastewater collection system to service the residents of Summer Village.

[11] MPE Engineering Ltd. ("MPE") was retained by Summer Village to prepare the design and tender documents and to design the wastewater system. Mr. George led the design effort, but did not do the design of the electrical system, as he was not an electrical engineer. The electrical design was performed by Anmar Ismail from MPE. MPE had designed similar systems for other municipalities on Pigeon Lake. MPE prepared the form of Contract that was eventually executed by the parties.

[12] PME bid on the project, and on June 9, 2017, was advised by MPE that it was the successful bidder.

[13] The Contract contemplated that PME would obtain substantial completion of the work by October 15, 2017, and that the amount payable under the Contract would be \$2,754,681.69 plus GST.

[14] The Contract included the tender documents, PME's bid form and the project design and specifications, together with substantial geotechnical information. The geotechnical information included borehole logs, groundwater measurements, and test pit observations (collectively "bore hole logs" herein) which indicated that the EHT system would be installed at a shallow depth within the existing water table. The geotechnical information indicated that in the areas where the sewer pipes were to be installed, the water table was not very deep, and that the contractor could anticipate working in wet conditions. The water table in this area fluctuates depending upon the season and the proximity to the lake.

[15] Mr. George, the principal of MPE, acknowledged in his evidence that he was aware of these conditions, as a January 2015 preliminary design report had warned that the presence of shallow groundwater would impact the design and construction of the project, and further noted that a high water table would make for a difficult installation of the pipe. Additionally, a 2016 design memorandum noted that extremely wet sandy soil conditions would be encountered in the area. In summary, the tender information disclosed that the wastewater system would be installed in wet conditions at a shallow location, and would be buried in extremely wet sandy soils, with supersaturated sands and at a depth that overlapped the water table.

[16] These conditions were well known to MPE, who also recognized that as the design did not contemplate burying the pipes at a shallow depth, the pipes would need to have an ancillary EHT system that would be designed to prevent the pipes from freezing in winter conditions.

[17] Supplementary Condition 9 of the Contract mandated that URECON (“Urecon”) products would be used for the EHT system.

[18] The work under the Contract included the installation of a HDPE force main pipe, a number of manholes and plugs and combination air valves, together with curb stops where the service lines met the property lines. The work did not include any service connections directly to the individual homes.

[19] The design called for the HDPE pipe to be installed with a special factory applied insulation jacket. The pipe assembly consisted of the pipe core, covered in factory installed polyurethane foam, a factory installed conduit channel, located at the crown of the pipe, which allowed the heat trace cable to run along the length of the pipe. The entire system is covered in a thin, black polyethylene jacket.

[20] The EHT system consisted of a thermocable that would be installed in the conduit channel in the crown of the pipe which would warm the pipe in cold temperatures. In order to power the thermocable, PME was required to splice the heat trace cable (hereafter “thermocable”) to a power cable (referred to as a Teck 90

cable) which would be connected to junction boxes and control panels installed by PME.

[21] PME was directed by Supplementary Condition 9 that “Pipe insulation and thermocable to be Urecon products.” Appendix C to the Contract contained 45 pages of Urecon Specifications.

[22] One of the central issues in this arbitration is whether or not Supplementary Condition 9 was a design specification or a performance specification. Summer Village says, through its designer Mr. George, that the specification was intended to be a performance specification and that PME had the contractual responsibility to ensure that the Urecon products worked, in that they would protect the system and provide a functioning wastewater system. PME says that the Supplementary Condition 9 was a design specification, and that the design engineer was responsible to ensure that the overall design, including the Urecon products, were fit for the purpose intended, in the known wet conditions, and would produce a functioning wastewater system.

[23] Another important issue in this arbitration is whether or not the entire wastewater system, including the Urecon products, were intended by the design to be waterproof or watertight. The expert evidence established that an assembly that is specified to be watertight does permit the entry of some water, particularly under pressure, whereas an assembly that is specified to be waterproof does not permit any water to enter the assembly.

[24] PME commenced work on the project in July 2017 with a plan to install the sewer system over a period of four months. PME’s own forces dug the trenches, installed the force mains, and pulled the heat trace cable through the conduit on the pre-insulated force main. PME’s electrical subcontractor, CEL Electrical Contractors Ltd. (“CEL”), undertook the electrical work including the installation of the thermocable and the EHT splices.

[25] PME's plan to complete the work was delayed due to vandalism on the project, which included damage to the force main sewer pipes, including holes drilled into the pipes, stolen EHT system materials, cut EHT system lines and other forms of damage. The evidence at the arbitration was that the likely cause of the damage was members of the Summer Village community who opposed the installation of the new wastewater system.

[26] As a result of the vandalism, PME had to return to complete the work in 2018. Summer Village issued a change order to compensate PME for the additional work required by the vandalism. When PME returned to the site in 2018, it discovered that some heat trace lines had been cut, holes were drilled in parts of the sewer main pipe and other pipes and connections, and equipment and tools were stolen and fuel was siphoned out of the machinery. The work in 2018 involved finishing the remainder of the project, repairing and replacing the parts of the project that were damaged by the vandalism, and pressure testing and commissioning the system.

[27] The commissioning of the system encompassed two types of testing. Firstly, PME conducted megger testing on the cable at a number of stages of the work, including on delivery of the cable, before installation of the cable, after installation, before splicing of the cable, following splicing but before connection of the cable to the control cabinet and upon final commissioning. The commissioning logs note that during the January 2018 initial commissioning one cable had an unusual reading. This cable was replaced by PME, and the September 2018 commissioning logs disclosed no unusual readings and that no cables had any signs of failure.

[28] In addition, PME pressure tested the pipe to ensure that there was no leakage from the pipe. MPE prepared the testing reports and signed off on the successful hydrostatic testing of the system. The system was formally turned over to Summer Village at the end of 2018.

[29] On February 7, 2019, MPE advised PME that the system was failing as it seemed to be freezing and some EHT control panels had alarms that were sounding. It appeared that parts of the EHT system were not powered. A

preliminary investigation was undertaken, which included an investigation and testing on May 29, 2019 at Pace Technologies, an independent testing agency, of the splices used in the installation of the EHT system. By April 2019, MPE had concluded that there were three different issues with the EHT system, as follows:

- i. damaged thermocable;
- ii. failed direct buried splices;
- iii. issues with controller cards.

[30] The issue with the controller cards was quickly remedied. All of the experts who testified in the arbitration agreed that the root cause of the failed splices was the direct burial of the EHT splices in the ground in wet conditions, which led to arcing and damage to the thermocable. The location and burial of the splices was the subject of a number of RFI's during the course of the work.

[31] RFI 7 was issued by PME in July 2017 seeking direction from MPE as to where to locate the splices in the EHT System. The IFC drawings indicated that the splicing of the heat trace line to the power cable was to take place at the insulated pipe, under the pipe jacket, below ground level. However, the drawings included a note which said that splicing of the heat trace cable was to be made above ground, at the junction boxes. In RFI 7, PME proposed that it would eliminate the need for any underground splicing and suggested that the splice of the heat trace cable be made aboveground at the junction boxes. If this sensible proposal had been accepted, the system would not have failed in 2018.

[32] MPE did not accept PME's proposal. Greg Sentis, the engineer who rejected the proposal, was not called as a witness. He directed that PME terminate the heat trace on the insulated pipe and splice it at that location to the power cable running from the aboveground junction boxes. In addition, in the response, MPE directed PME to follow Urecon's installation instruction #3E, which was different from the Urecon instruction #4E found in the Contract. Instruction #3E is a detailed, and lengthy, instruction that was the subject of much opinion evidence at the arbitration. Contrary to the rejection of the proposal in the RFI, Instruction #3E directs the installer to install the splices at the HDPE pipe under the pipe jacket, but that in

“severe conditions” the thermocable is to be run directly to the above-ground junction box, i.e., the very proposal in the RFI that was rejected. The proper interpretation of RFI 7 and the MPE response figured prominently in the dispute between the parties.

[33] Urecon instruction #3E assumed the use of a Urecon power feed kit in making the splice at the power end of the splice. PME issued RFI 10 on July 18, 2017, seeking clarification from MPE that a Teck 90 cable could be used between the splice and the control junction boxes. MPE issued Memorandum # 10 on July 24, 2017, confirming that the Tech 90 cable could be used in place of the Urecon liquid tight flexible conduit power feed.

[34] On September 29, 2017, PME issued RFI 17 seeking further direction with respect to the EHT splice. PME noted that in order to avoid dead zones with the heat trace resting on the pipe, the splice kits should be moved to an off-pipe location. Dead zones are to be avoided as they result in the pipe freezing in the dead zones in winter conditions. PME advised that its proposal would result in a portion of the heat trace line, and splice, being directly buried in the ground, i.e., without any additional cover. It accompanied the RFI with a drawing setting out what it was proposing.

[35] On October 2, 2017, Mr. Sentis advised PME that “MPE has no concerns with PME’s proposed solution, proceed as described.” This approval would leave the line and splices directly buried, outside of the pipe jacket, which in many locations, due to the height of the water table, would mean that for some period of the year they would be submerged in wet saturated soils.

[36] MPE provided its direction to PME after it had consulted with the supplier Urecon. Anmar Ismail, an MPE engineer, telephoned Urecon on September 29, 2017, and spoke to Mr. Gravel, the sales representative of Urecon. There was no direct evidence at the Arbitration of what was said in this telephone call as neither Mr. Ismail nor Mr. Gravel were called as witnesses, but an exhibit in the Arbitration was an email from Mr. Ismail to Mr. Gravel, dated September 29, 2017, seeking

confirmation that the splice kits were rated for “direct burial and underground installation.” He was advised by Urecon on October 6, 2017, that “Yes, all of our heat trace components are CSA certified for direct burial and wet locations. Please see the bottom of Page 4.” No one at MPE appeared to appreciate the difference between approval for burial in wet locations as opposed to approval for burial in submerged locations.

[37] By April 2019 it was apparent that the splices that were direct buried were the root cause of the systems failure. On April 17, 2019, Mr. Gravel sent an email to PME and to MPE advising that the EHT products could not be submerged under pressure but only had a “wet rating”, and could only be exposed to water from time to time. He made it clear that the Urecon products were not CSA certified to be submerged in water. He said:

We do not have rating for submersion, we are rated for wet location only which means that the cable can be exposed to water from time to time (ex. rain water going in the ground) but can't be permanently submerged in water. Anyway, it is not approved for direct burial. Submerged in water also means under pressure since even just 1 ft of water above cable has a pressure of 0.43 psi so under pressure! Not acceptable for our cable, this would need a rating for “wet location under pressure as per CSA”.

[38] MPE was determined to have PME conduct repairs to make the system functional. On May 2, 2019, MPE warned PME that it was in default of the Contract because of the system’s failure. In response, on May 3, 2019, PME advised that it was still investigating the cause of the failure but warned that if it was required to construct the system as designed in the Contract, it would “likely eventually fail.” What followed next was the typical positioning of parties to a construction dispute. PME sent RFI #25 seeking direction of how to repair the EHT system as it contended that the Urecon products could not be used in a submersible application. PME sought direction on how the design should be changed to allow for successful repairs.

[39] By letter dated May 6, 2019, MPE took the position that the Urecon products specification in the Contract was a performance specification and as such it was

PME's responsibility to assess whether the Urecon products were fit for the purpose of supplying a properly functioning wastewater system. On July 10, 2019, MPE advised PME that the splice failures were caused by product defects or poor workmanship and indicated that MPE would not be providing direction on how the repairs were to be completed. It demanded that PME repair the system.

[40] By July 31, 2019, MPE had taken steps to explore options to replace the Urecon system with an equivalent system.

[41] PME had delivered a performance bond for the project. On July 19, 2019, MPE advised that it was considering making a claim on the performance bond. In actual fact, MPE had already contacted the surety, Chubb Insurance, and threatened that Summer Village may make a claim on the performance bond. On June 28, 2019, MPE had advised Chubb of a potential claim on the performance bond. PME alleges that MPE acted dishonestly, as in all the correspondence to Chubb, MPE never advised Chubb that the failure of the system could have been related to a design issue rather than PME's workmanship or defective materials.

[42] MPE had further communications with Chubb on July 24, 2019, August 7, 2019, and December 9, 2019. Mr. George admitted that the purpose of this correspondence was to have Chubb put pressure on PME to comply with MPE's demands to fix the system. Mr. George testified that he was aware that by contacting a surety, pressure can be put on a contractor, because the contractor will wish to avoid being called upon to make good any guarantees provided to the surety that would be triggered if the bond is called. Mr. George also acknowledged that he was also aware that if the performance bond was called, it would affect PME's ability to bid on future projects.

[43] The parties exchanged positions during the fall of 2019. PME sought a revised design, including a change order permitting it to use non-Urecon products, whereas MPE refused to issue a change order as that would incur additional costs, refused to provide an alternative design, and directed that repairs proceed by PME taking responsibility to work with Urecon to resolve the issues and conduct whatever

repair was necessary. Matters were close to a stalemate. PME issued a number of Notices of Dispute, and MPE demanded that PME complete the work and threatened to hire another contractor at PME's expense.

[44] From October 1, 2019, to October 21, 2019, PME performed remedial work under protest. The work included replacing controller cards, excavating sections of the EHT system and replacing damaged splices and heat trace cable. PME's objective in making repairs was to get the system working temporarily so that a permanent fix could be found. PME did not replace all the splices but only the splices that had failed, notwithstanding that other direct buried splices would also fail. PME contended that a redesign was required as the Urecon products were not suitable for the wet conditions. It replaced the damaged EHT splices with 3M Splice Kits. On October 15, 2019, MPE demanded that PME replace the entire EHT system at PME's expense.

[45] The system was inspected again on November 12 and 14, 2019, and testing indicated that additional sections of the system were failing. On January 12, 2020, MPE wrote to PME demanding that additional repairs take place and threatened to hold PME liable for all costs to repair the system. As noted earlier, on May 29, 2019, Pace, an independent lab had conducted independent testing of the splice kits. All parties involved in the design and construction of the system had representatives attend the testing. In February 2020 Mr. Maskell, an engineer retained by Pace, delivered his report which confirmed that the cause of the EHT system failure was that the EHT splices were direct buried which caused water infiltration into the splices and subsequent arcing of the system.

[46] As matters were at an impasse, PME took the position, by letter of March 19, 2020, that it considered that Summer Village had repudiated the Contract by failing to provide a design for the project that was suitable and could be functionally built. The letter noted that the design of the project required the specified products to be used in a submerged installation and that by complying with this design the system would fail. It also noted that MPE had refused to provide a substitute design or

approve change orders that would permit the use of alternate products. PME notified Summer Village that it accepted its repudiation and took the position that the Contract was at an end. On April 2, 2020, Summer Village made a claim on the performance bond contending that PME was in default of the Contract as it had failed to complete the repair work.

[47] PME had earlier on February 7, 2020, issued a Notice to Arbitrate, as it contended that the dispute should be resolved by the dispute resolution process set out in the Contract.

[48] In October 2020 Summer Village retained WSP to conduct an investigation of the splice failures and to develop a sense of the magnitude of the remedial work required to make the system functional. WSP randomly selected a number of heat trace assemblies, three junction boxes and four tee locations and exposed them for inspection. WSP concluded that the construction and workmanship of the sample tees and junction box splices exposed was poor and inconsistent with the expectations of the original design. WSP presented its findings to Summer Village in a report dated March 31, 2021, called "The Heat Trace Failure Civil Investigation Report." One of the concerns expressed was that the shrink wrap around the linear joints on the main pipe may be compromised similar to the shrink wrap on the tees and the splices. In view of the opinions expressed in this report, Summer Village decided to daylight, i.e., expose the system by the use of a hydrovac, and undertake the remedial work of the entire system.

[49] In December 2020 and January 2021, Summer Village sought funding from the Alberta government for the remedial work. In February 2021 Summer Village retained the original system designer, MPE for the design and tender for the remedial work. In March 2021 Summer Village received MPE's proposal for the remedial work design and tender. This was approved on March 15, 2021. Upon the recommendation of MPE, a Request for Qualification process was chosen to ensure that a qualified contractor would be awarded the contract. The RFQ process was open from April 9 - 22, 2021, but only one submission was received.

[50] It was clear since the fall of 2019 that PME contended that the deficiencies in the project arose from defects in the design prepared by MPE. Summer Village and MPE recognized that they had potential claims against each other, and accordingly, entered into a tolling agreement dated April 1, 2021. The agreement provides in part as follows:

The Parties have, or may have, claims against each other in contract, tort or otherwise at law arising from or relating to the Engineering Contract, the Project and the Services (the "Potential Claims"); however, the parties do not wish to pursue any Potential Claims at this time and wish to preserve all rights relating to any Potential Claims that could otherwise be lost or prejudiced due to the passage of time...

12. Except as provided herein, this Tolling Agreement is made without prejudice to the rights of the Parties as against each other and nothing contained in this Tolling Agreement shall prevent the Parties from asserting any claim or defence they may have as against each other.

[51] The agreement provided that the tolling period would expire 60 days after Summer Village provides MPE with the decision of the arbitrator in this arbitration. Mr. George delivered his first witness statement in this arbitration very shortly after the execution of the tolling agreement. PME only became aware of the tolling agreement during the cross-examination of Mr. George.

[52] As a result of concerns expressed by some of the residents of Summer Village, a pressure test was conducted on the system on May 3-11, 2021. Several sections passed the test, but others failed because of leakage in the curb stop valves. These valves were remedied between May 31, 2021, and June 7, 2021.

[53] On June 15, 2021, MPE issued a call for tenders for the remedial work to the system. The tender closed without any submissions from contractors to do the work.

[54] A number of potential bidders contacted MPE indicating that they would not respond to the tender but would undertake the work on a time and materials basis. On August 26, 2021, Dart Electrical Systems Ltd. ("Dart") and THS Septic and Civil Solutions ("THS") were retained by Summer Village to perform the remedial work. The contract for the work was on a time and materials basis.

[55] The remedial work consisted of Dart and THS exposing each service connection from the main pipe to the junction box and the control panel along the force main, exposing all joints and service tees in the service sections, and exposing all curb stops, for approximately 25% of the length of the original installation, all under the supervision of WSP. WSP investigated the condition of the installation and the heat shrink wrap on the main line HDPE pipe. Where defects were encountered, they were repaired. In two instances plug valves were found to be encased in concrete up to the nut on the valve. The remedial work consisted of removing all damaged insulation materials from all mainline pipe, and if damaged, conduits and raceways were replaced to prepare for the installation of new thermocable. Any cuts found in the pipes were repaired and new thermocable was tested and installed to confirm that it was operational.

[56] Summer Village was concerned about the significant expenditure for the remedial work, so in an effort to save costs, they hired WSP to do the contract administration work rather than MPE, as WSP was already on site in an observing role.

[57] The remedial work commenced in the fall of 2021 and stopped on December 21, 2021. Approximately 25% of the system is currently completed. WSP authored a number of reports with respect to the deficiencies that it identified in administering the remedial work. WSP identified deficiencies included defects in the installation of the heat shrink wrap on the HDPE pipe, crushed and damaged raceways, two plug valves encased in concrete, loose curb stops, and cuts in the pipe at locations where insulation was cut back to facilitate the installation of tees and joints.

5. ISSUES IN DISPUTE

[58] PME states the issues in dispute as follows:

- i. What was the cause of the EHT System failures, and what are the effects of any non-electrical deficiencies alleged by Summer Village on the overall system?
- ii. What entitlement does PME have for the claim it is bringing against Summer Village for the EHT system failures?

- iii. What are PME's damages?
- iv. Did Summer Village breach any duty of honest contractual performance or good faith owed to PME, and if so, what are PME's damages as a result?

[59] Summer Village states the issues in dispute slightly differently as follows:

- i. Is PME liable for the deficiencies in the wastewater system?
- ii. In the alternative, did PME have a duty to warn Summer Village, and if so, did PME fail to discharge that duty?
- iii. Is Summer Village entitled to damages for its remediation claim and operational claim?
- iv. What is the quantum of Summer Village's damages from the remediation claim and the operational claim?

[60] At my request counsel advised me of the issues that they intended to address in their closing submissions. I asked that they also address an additional issue involving causation as follows:

- 1. What is the proper measure of damages if both parties are correct in their submissions, that is, that the design was negligent but the system was defectively installed?

[61] In my analysis below, the first issue I address, as suggested by counsel for PME, is the responsibility for the EHT splice failures. The testing at Pace, and the expert evidence at the arbitration, all concluded that the placement of the EHT splices direct buried in the ground caused them to fail. PME says that the MPE design, including the response to the RFI's, makes this a design issue. Summer Village says that the Urecon specification was a performance specification and as such PME is responsible to ensure that the Urecon products were fit for the purpose intended, and that it was up to PME to deliver a functioning wastewater system. The breach of duty to warn issue raised by Summer Village will follow naturally from a determination of this issue. If PME is successful in demonstrating that the EHT splices failed for design reasons, then consideration must be given to PME's claim for remedial costs and the quantum of such costs. Lastly, consideration will be given to Summer Village's claim for non-electrical deficiencies, and if successful, the quantum of such claim. Accordingly, I restate the issues as follows:

- i. What was the cause of the failure of the EHT system in February 2019?
- ii. Is PME or Summer Village liable for the EHT system failure in February 2019?
 - a. Was the Urecon specification a performance specification or a design specification?
 - b. Did PME have a duty to warn Summer Village, when it proposed RFI 17, that the solution proposed would likely cause the splices to fail?
 - c. Other Defences of Summer Village.
 - d. Did Summer Village have a duty to provide a constructible design?
- iii. Was the EHT system designed to be waterproof?
- iv. If Summer Village is liable for the EHT system failure, what damages is PME entitled to?
- v. Did Summer Village breach the obligation of honest performance of contractual obligations?
- vi. Is Summer Village entitled to damages for its remediation claim and what is the measure of such damages?

6. THE CONTRACT

[62] The Contract was prepared by MPE. It is a very detailed and lengthy document consisting of 359 pages. The Contract was preceded by a tender package which was also prepared by MPE which provided in Section 4 of the Instructions to Bidders that the bid was based upon performing the Work in accordance with the Bid Documents. The Bid Documents were stated in Section 5 of the Instructions to Bidders to consist of the GC's of the Contract, and the Supplementary Conditions, the Specifications, and the Drawings.

[63] The Tender Instructions required the bidder to complete Section 00425, which provided in Section 2 that:

2. We, the undersigned, having examined and read the Bid Documents for the above noted contract, and having visited the site and examined all conditions affecting the Work, are satisfied that we understand the Bid Documents and declare ourselves competent to undertake and complete the Work and do hereby irrevocably bid and agree to carry out the Work in accordance with the Bid Documents.

This made it clear that the work was required to be performed in accordance with the Bid Documents.

[64] The Contract included a four-page Agreement Form that provided:

ARTICLE 1: THE WORK

The Contractor shall perform the Work required by the Contract Documents for:

South Side Pigeon Lake Wastewater Collection System

Contract Documents” are defined in Section 00571 to include the Instructions to Bidders, the completed Bid Form, together with the GC’s, Supplementary Conditions, the Specifications and the Drawings.

The definition of “Work” was, “means the total construction and related services required by the Contract Documents”

[65] General Condition 4.1.1 sets out the Contractor’s Responsibilities which is to “execute and complete the Work ... in accordance with the provisions of the Contract.”

[66] These sections in summary provide that the contractor must perform the work as described in accordance with the Contract Documents, which include the design and the Specifications. The contractor, on its own volition, has no ability to improvise or substitute products or an alternate design to perform the work.

[67] The Contract Documents include the Supplementary Conditions. The purpose of the Supplementary Conditions is stated in Section 1.1 to provide information relative to specific items not covered in other sections. Section 9.1 of the Supplementary Conditions provides that the pipe insulation and thermocable are to be Urecon products. It notes that the Specifications for the products are included in Appendix C and requires the Contractor to “install all products as specified by supplier.”

[68] Section 9.1 also provides that all workers are to be factory trained by Urecon prior to commencing any installation of their products. The evidence was that Urecon had no factory training program, but the documentary evidence showed that Urecon did attend the site and provide training. Summer Village challenges this training as being inadequate, and says that the trained workers generally left the project before it was completed. In my view the training of PME and CEL workers

was not inadequate, as I accept the evidence of Mr. Maskell that the CEL foreman that he discussed the project with was very knowledgeable with the Urecon products and their installation. I also note that MPE approved payment to PME for Urecon training, which would not have been approved had it not occurred.

[69] Section 01110 is titled "Summary of Work." It provides in Section 1.1.1 that the Work of the Project comprises the following ... South Side Pigeon Lake Wastewater Collection System. Section 1.2.1 provides that the main items of Work of the Contract include the sanitary main, the heat trace thermal cable, the control panel and the plug valves.

[70] Appendix C to the Contract contains the Urecon Specifications. It consists of fairly typical specification from a supplier which describes its products, and contains instructions for installation.

7. PRINCIPLES OF CONTRACT INTERPRETATION

[71] As this dispute involves the interpretation of a contract, I am obliged to keep certain interpretive principles in mind when objectively determining the intention of the parties and in giving meaning and effect to the clauses referred to in the Contract.

[72] From the many authorities that provide guidance on the interpretation of a contract, I understand that my duty is to determine the objective intent of the parties by reading the Contract as a whole, giving the words used their ordinary and grammatical meaning, consistent with the surrounding circumstances known to the parties at the time of the formation of the Contract. When assessing the meaning of words, I am required to review contextual factors, including the purpose of the agreement and the nature of the relationship created by the agreement. I am required to determine the Contract as a whole, and in a manner that gives meaning to all of the terms and avoids an interpretation that would render one or more of its terms ineffective. It is important that I interpret the Contract to accord with

commercial principles and good business sense and to avoid a commercial absurdity.

[73] I refer to the decision of the Supreme Court of Canada in *Resolute FP Canada Inc. v. Ontario (AG)*, 2019 SCC 60, where, in part of the judgment, the court stresses that the meaning of a contract is rooted in the actual language used by the parties. A meaning that strays too far from the actual words used fails to give effect to the way in which the parties chose to define their obligations. The judgment in *Resolute* stresses that the context and the factual matrix cannot overwhelm the words used by the parties to support an interpretation that deviates from the text to, in effect, create a new agreement. The factual matrix assists in determining the meaning of the words used by the parties in their agreement, but does not change the language of the contract, to modify the rights and obligations that the parties assumed thereunder.

[74] Other passages in the judgment in *Resolute* explain that by ascertaining the objective intention of the parties and in determining their reasonable expectations, the court has signalled a shift away to an approach to contractual interpretation that is not dominated by technical rules of construction, but one that is rooted in practicalities and common sense. *Resolute* also requires that I consider principles of commercial reasonableness and efficacy. This principle was adopted by the court in *Resolute* where it referred approvingly to the comments of Lord Diplock in *Antaios Compania Naviera S.A. v. Salen Radeeriema A.B.*, [1985] 1 A.C. 191 (HL), at 201 as follows:

... If detailed semantic and syntactical analysis of the word in a commercial contract is going to lead to a conclusion that flouts business common sense, it must be made to yield to business common sense.

I will keep these principles in mind in my analysis of the Contract and the evidence below.

8. THE EVIDENCE

[75] Both parties called a number of fact witnesses and expert witnesses. Neither party called any witnesses who were directly involved in the construction work in 2017. No employees of PME or CEL who installed the EHT system and the Urecon products were called as witnesses. Similarly, none of the MPE designers who designed the electrical system or MPE inspectors who inspected the work, monitored the testing of the system, or certified payments for completed work were called as a witness. In addition, none of the MPE employees who were involved in responding to the RFI's were called as a witness. Lastly, no one from Urecon was called as a witness despite its significant involvement at the design stage, and in the review of RFI 17. The failure to call these witnesses has, on some issues, led me to reach conclusions based on documentary evidence, related evidence, and common sense.

[76] I now provide a brief summary of the evidence of the witnesses that testified at the arbitration hearing. This summary is not intended to be exhaustive nor does it recount all the evidence of each witness. My summary of the evidence of the PME witnesses is taken largely from the submissions of PME. PME called the following witnesses.

A) Christopher Northam

[77] Mr. Northam was the Project Manager for PME from early 2018 until mid-2019. He provided four witness statements. He was not on site for the construction and installation of the EHT system so his testimony was based on discussions with PME employees and a review of the documents. He gave evidence with respect to RFI's 7 and 17, the discovery of the EHT system failures in February 2019, the exchange of correspondence setting out each party's position throughout 2019, and the eventual repudiation of the Contract.

[78] His second witness statement gave evidence with respect to the shallow water table and other obvious site conditions and the Urecon training provided to PME.

[79] His third witness statement gave evidence with respect to the integrity testing carried out on the EHT system during the original work, including evidence with respect to the testing of the system prior to, and after, initial installation.

[80] The last witness statement contained evidence with respect to the deficiencies alleged by Summer Village including valves being encased in concrete and the cuts to the HDE pipe.

B) Melissa Gall

[81] Melissa Gall was a project coordinator for PME who worked on the project from 2018 to 2019. Ms. Gall gave evidence with respect to PME's role in attempting to fix issues with the EHT system in the early part of 2019.

C) Michael Meuse

[82] Mr. Meuse is a PME employee who attended the site in 2021 to observe the repair and remedial work undertaken by Summer Village. He provided evidence with respect to his observations during a site visit during the weeks of May 31, 2021, and June 7, 2021.

D) Ken Maskell

[83] Mr. Maskell is an electrical engineer and was qualified as an electrical engineering expert. He is employed by MP&P, which is a different entity than MPE. He provided three expert reports and three witness statements, dated March 17, 2021, June 17, 2021, and April 18, 2022.

[84] Mr. Maskell's March 2021 witness statement and expert report was produced after he had personally examined and observed the testing of the failed electrical

splices removed from the project. At that time, he was not retained by either party, but because of his high level of expertise he attended the testing as an independent observer at the request of the testing agency. In his report of the testing, he commented on the issue of whether or not the splices were designed to be resistant to water. He noted that the instructions indicated that the splices were “moisture proof.” It was his evidence that installing the splices in accordance with the Urecon instructions made the splices “moisture proof” but not “submerged rated.” It was his opinion that the splices failed due to moisture entering the heat cables and power feed cables and this was the root cause of the system failure. He testified that the water ingress was the result of the design of the EHT system which had the splices below grade and submerged in the water table instead of being above ground.

[85] Mr. Maskell testified that the water ingress of the thermocable occurred when the cables and splices were exposed to hydrostatic pressure stemming from being direct buried in submerged conditions. Mr. Maskell concluded that the Urecon system was not rated for submersion and the products were not able to withstand the hydrostatic pressure that existed in the submerged conditions.

[86] In his June 2021 witness statement, Mr. Maskell responded to an expert report prepared by Mr. Paul Hardy of WSP. Mr. Maskell reviewed the relevant RFI's for the project and considered whether those RFI's were consistent with the Urecon instructions. After reviewing the RFI's, the Urecon instructions, and the design as set out in the Contract, together with the existing conditions of the project, he concluded that:

1. If RFI 7 had been adopted and the splices installed above ground as suggested, the EHT system failures would not have occurred.
2. The Urecon cable was only rated for wet conditions and was not rated for wet under pressure conditions or direct burial.
3. The outer jacket of the system could not be expected to be watertight and given the high water table conditions of the project, the splices should not have been direct buried in submerged conditions.
4. A reasonable engineer, if faced with a similar system, when considering RFI's 7 and 17 should have reviewed the manufacturer's installation and the Canadian

Electrical Code requirements before approving or rejecting the proposals. Mr. Maskell concluded that RFI 7 should have been approved, given the manufacturer's instructions and rating of the Urecon products.

[87] In his April 2022 witness statement, Mr. Maskell reviewed the expert reports from Mr. Doug Barovsky and the February 25, 2022 joint report from Mr. Paul Hardy and Mr. Mike Minshall of WSP. Mr. Maskell noted that Mr. Barovsky observed failures at splices which suffered water ingress, consistent with his conclusion that the principal reason for these failures was the location of the splices in submerged conditions. Mr. Maskell pointed out that the new remedial work supervised by WSP addressed the root cause of the EHT failures by moving the splices above ground similar to the solution proposed by PME in RFI 7.

E) Raul Morales

[88] Mr. Morales is employed by Alnorth Ltd. as a consultant in civil engineering matters, and was qualified as a civil engineering and municipal infrastructure expert. He prepared a report dated April 22, 2022. It was his opinion that the pressure tests that were conducted in the fall of 2017 met the Contract requirements and the waste water system was deemed completed and accepted. It was his opinion that the system was fully commissioned and turned over to Summer Village. Based upon results of the pressure testing of the system, he concluded that at the time of the final acceptance of the system, all curb stops were tightly closed and holding pressure to an acceptable level.

[89] Mr. Morales noted that the service connections to the individual homes were not part of PME's scope of work. They were installed at connection points for owners to connect to later, if they chose to do so. The service connections were exposed during the Summer Village remedial work and were found to be full of water, as the depth of the system was within the water table.

[90] Mr. Morales testified that the HDPE pipe used in the design was susceptible to changes in temperature and thermal expansion and contraction. He concluded that the loosening of the curb stops along the sewer line was likely caused by a

combination of the susceptibility of the pipe to thermal expansion and contraction, and a lack of heat tracing within the service connections, which, together with the water table, exposed the pipes to large temperature fluctuations over an extended period of time.

[91] Mr. Morales testified that the fact that the curb stop valves were loose was likely caused by these factors rather than faulty installation, as the pressure tests were successfully achieved during the original installation of the system.

[92] Mr. Morales testified that the concrete found in some valves during the Summer Village remedial work did not conform to industry norms. He noted that the MPE supervisors conducted field supervision and oversight during the installation of the sewer system and never raised any issues or concerns about concrete in the valves. He also testified that the cuts found in some areas of the pipe could have been done by vandalism, or workmanship, but that no loss of pressure for the sewer system was attributed to any cuts in the pipe. The project passed all pressure testing.

F) Alex Marsh

[93] Alex Marsh was employed by Quantity Services International as a professional quantity surveyor. He prepared reports dated April 20, 2022, and June 14, 2022.

[94] In the April 2022 report, he disagreed with conclusions in the WSP Civil Deficiency report that the PME installation work was defective because several sections of the raceway were not aligned through the keys, the heating cable was damaged in several areas, and the insulation clamshells were not factory notched. It was his opinion that these were not defects, as:

- i. The design specified did not have mechanical connections between sections of the raceway within the tees, and Urecon installation instruction #18E provided that additional conduit sections can be supplied along with tape to permit conduit continuation at pipe joints,

- ii. The procedure outlined in Urecon installation instruction #2E provided that the insulation kit portions resting against the pipe were to be notched to prevent the heating cable from being pinched or trapped between the pipe and the insulation kit.
- iii. The Urecon specifications provide that the heat trace cable is not to be tested while on the reel or in the shipping container, so that there is no way to know whether the wire had factory defects prior to installation.

[95] He also testified that it was common practice to have an inspector from the engineering firm on-site during the installation of materials to provide oversight with respect to the construction activities requiring engineering sign-off and to inspect the materials and the installation of the materials. It was his view that MPE's inspector would likely have been present while materials were being installed and then would have provided a sign-off on the materials and installation prior to the force main being backfilled and the road paved. He concluded that as there were no deficiencies identified by the inspectors during the performance of the work, that a number of the deficiencies that were allegedly observed by WSP would have been caused by the demolition and repair works themselves, or arose from the expansion and contraction of the elements of the installed work.

[96] Mr. Morales was critical of the time and materials contract entered into by Summer Village to perform the remedial work. It was his view that the timing for the work in the summer was disadvantageous, as the vast majority of contractors would already have had their summer works planned and in progress. As a consequence, few contractors would be available to submit bids. He testified that it is best to issue tenders between October and February when contractors are scheduling their forces for the upcoming summer months.

[97] It was his opinion that by releasing the tender in June, Summer Village would not be getting the best pricing, assuming that it would receive any pricing at all. It was his opinion that the time and materials contract should not have been entered into, but that a new tender should have been released at a more opportune point in time when contractors would be available.

[98] He also testified that the balance of the remedial work, if properly tendered, should result in a reduction of the anticipated completion costs. It was his opinion that the tender period of only three weeks was inadequate to properly review, dissect, and submit a tender, having regard to the fact that the tender was a 338-page document with significant technical specifications of the materials.

[99] It was Mr. Morales' opinion that the use of a time and materials contract was not typical for a project such as this, as there should have been a relatively simple scope of work. The use of a time and materials contract increases the risk of cost overruns, and does not provide the best pricing for the works. It was his view that the scope of work should have been measured, estimated, and priced under a stipulated price lump sum contract.

[100] Mr. Morales compared the cost per metre for PME to perform the original work against the cost per metre for the incurred and projected repair costs. It was his view that, given that the scope of work to be performed was not a wholesale removal and replacement of the system but limited to repair of the heat trace system and some work on the joints and valves of this system, the incurred and projected costs were an outrageously high sum of money, not to mention an inefficient methodology for repair of the system. It was his view that the cost of a wholesale demolition and a new installation would be a much cheaper method to repair the system, rather than individually excavating joints with the hydrovac and expending large sums of money to carefully demolish small and delicate elements. He pointed out that the original estimate for the remediation of the project provided by THS had now increased 276%, which he felt was highly inappropriate. It was his view that THS and Dart employed excessively slow methodologies for the repair which resulted in the approximately 300% increase in cost over their earlier estimate.

[101] In summary, it was his opinion that the timing of the tender release was wrong, because if it had been released earlier in the year, or held off until the next construction season, when the market would be more competitive, a reasonable price for the work would have been secured. In addition, the excessively slow

methodology of the repair work employed by THS and Dart, together with the addition of a new scope of work, inflated the cost to unreasonable levels.

[102] In the report dated June 14, 2022, Mr. Morales challenged the opinion of CSG, the quantity surveyors called as witnesses by Summer Village, in its report dated May 2022 in respect of the costs to complete the remedial work. In Mr. Morales' opinion, the CSG estimate was excessive and the proper amount to perform the remedial work would have been \$2,477,451.79

Summer Village called the following witnesses:

A) Gail Coleman

[103] Ms. Coleman was the Assistant Chief Administration Officer for Summer Village. She has been employed by Summer Village since May 2010, and was primarily responsible for accounting, development and special project management. Summer Village is administrated by a central office that serves seven other summer villages around Pigeon Lake. Summer Village has 276 taxable properties and an annual budget of approximately \$590,000.

[104] Ms. Coleman was responsible for managing the review of invoices and payment for the wastewater system construction and facilitating the flow of information between MPE and the Summer Village Council.

[105] Ms. Coleman confirmed that the system was commissioned and began to provide service to the residents as a public utility on January 25, 2018, and generally worked as intended despite some warranty issues in the fall of 2018 unrelated to the EHT failure. She explained that on or about February 7, 2019, wastewater froze in the force main due to the failure of the EHT system.

[106] Ms. Coleman's primary evidence was with respect to the costs incurred by Summer Village as a result of the systems failure. She provided particulars of the costs claimed, including shutdown and startup costs, pump out costs, power bills, administrative costs, engineering costs, and project management costs.

[107] Ms. Coleman testified that the difficulties experienced with the system have caused the Summer Village residents to lose confidence in the system. Approximately one-third of the residents were ready to connect to the system in 2019. However, the difficulties in the operation of the system have incentivized a very vocal opposition group who, in Ms. Coleman's view, have disseminated inaccurate, inflammatory information about the system, and this group has now gained traction for its position that the system should be abandoned altogether, even among residents who were previously supportive of the project.

[108] Ms. Coleman testified that the initial funding for the work was made available from government grants and the reserves of Summer Village with no additional cost to taxpayers. She explained that Summer Village has been unsuccessful in securing any additional grant funding for the remedial work, which has caused a hardship to the community. Summer Village was able to fund the initial repair work as it received approval from the Municipal Affairs Ministry to extend its debt limit.

[109] Ms. Coleman also testified with respect to the remedial works. It was her evidence that the EHT thermocable was intended to be replaced periodically during the lifespan of the system, as a maintenance item, without the need to excavate the entire system.

[110] Ms. Coleman testified that when PME refused to perform the remedial work, Summer Village retained WSP to conduct an investigation to determine the extent of any deficiencies in the system. WSP provided a report dated April 5, 2021, which summarized the deficiencies identified in their investigation.

[111] On March 10, 2021, Summer Village received a proposal for the remedial work design and tender from MPE. This proposal contemplated an RFQ process followed by a tender to qualified contractors, an award to the successful contractor, and construction of the work during the summer of 2021.

[112] Ms. Coleman testified that on April 9, 2021, the RFQ was issued but only one contractor replied. Summer Village was not comfortable moving forward with only

one contractor as it felt that there was no assurance that any price received would be competitive. On April 29, 2021, the RFQ process was abandoned and Summer Village Council approved moving to an open tender.

[113] Ms. Coleman testified that the substantial opposition to the project from a segment of the community continued to grow because of the deficiencies in the system. She characterized it as political turmoil, with rumours circulating that the system was leaking sewage. In order to allay concerns from the citizens, a pressure test of the system was performed in early May 2021. The test demonstrated that some curb valves, where the system was expected to tie into the individual lot connections, were leaking in some parts of the system because they were only hand tight.

[114] It was Ms. Coleman's evidence that WSP conducted a further investigation from May 3 – 11, 2021, resulting in additional concerns with respect to the shrink wrap and insulation on the entire system. This resulted in a decision to daylight the entire system as part of the remedial work to remedy any deficiencies in the installation of the system. On June 15, 2021, MPE issued the tender for the remedial work. The tender closed on July 8, 2021, without receiving any responses. On July 9, 2021, Summer Village decided to change the remedial work contract to a time and materials contract.

[115] Ms. Coleman testified that by the end of August 2021, contracts had been entered into between THS Septic and Civil Solutions Ltd. for the civil work and with Dart Electrical Systems Ltd. for the electrical work. Although it was anticipated that the entire system would be remediated by freeze-up in 2021, by the time of the crew's shutdown due to cold weather on December 21, 2021, only 23% of the work had been completed. In order to save costs, WSP was engaged to administer the contract, as they were already on site documenting the deficiencies discovered during the course of the remedial work.

[116] Ms. Coleman provided evidence with respect to the incurred remedial costs and the projected estimated future costs, including pump out costs, system power

bills, administrative costs, interest cost, engineering costs, and project management costs.

B) Paul Hardy

[117] Mr. Hardy is a senior electrical engineer employed by WSP. He authored reports dated April 5, 2021, (“Heat Trace Installation at the Summer Village of Ma-Me-o Beach Report”), June 2021, (“Review of South Side Pigeon Lake Wastewater System-Contract 2 Collection System Failure Remedial Work- Electrical Investigation Report”), a letter report of September 14, 2021, and a jointly authored report with Mr. Minshall dated February 25, 2022 (“Heat Trace Remediation Report”).

[118] The April 5, 2021 report confirmed that the Urecon products were CSA certified for “Wet Rating” to Standard C 22.2 No.130-Requirements for Electrical Resistance Trace Heating and Heating Device Sets. It was his opinion that the products were not specified to meet the CSA Standard for “Wet location under pressure” rating.

[119] The report also concluded that the heat trace cable would degrade over time, and that the natural erosion of water seals and the exposure to freeze-thaw cycles will accelerate this failure further. The report also stated that even if installed in ideal conditions, the heat trace cable will likely need to be replaced several times over the life of the other components. As the equipment is rated for wet locations, small amounts of moisture under the pipe jacket would not lead to a “quick failure.”

[120] It was Mr. Hardy’s opinion that at the time of the issuance of RFI 17, PME was more qualified than MPE to identify that the solution that PME proposed violated Urecon’s procedures. He concluded that PME had an obligation to ensure that the proposed installation procedures were approved by Urecon. He confirmed that in situations where the cable is submerged under groundwater, water will migrate into the conduit and create a situation which leads to premature failure.

[121] In the report Mr. Hardy speculated that some cable was not installed in the conduit and was burred and misaligned in some locations. He noted that splices and heat trace cable were observed outside the pipe jacket, directly buried in the ground, with no conduit protection. This was the installation method approved in RFI 17. He concluded that this was not a suitable application for the product as the conditions on site were harsher than the CSA rating for a wet location. It was his opinion that anyone trained in the use of Urecon products should have recognized that installing the splice and heat trace cable underwater violated the CSA rating for the equipment. It was his opinion that the placement of the splice kits outside the pipe jacket likely had the largest single impact on the failure.

[122] In the April 15, 2021 report, Mr. Hardy concluded that the presence of water under the pipe jacket introduces the possibility of failure. Mr. Hardy opined that as the product is rated for "Wet Locations," a small amount of moisture would not cause an "immediate failure"; however, if it was constantly exposed to water, the product would no longer comply with the CSA rating and failure is "more possible." This is noteworthy as it was well known from the bore hole logs, and site observation, that the water table was quite high and that the pipe jacket would be submerged in water under pressure for extended periods of time and, as such, was not suitable for the CSA rating.

[123] In the report dated June 2021, Mr. Hardy commented upon the investigation report prepared by Mr. Maskell. Mr. Hardy speculated as to whether or not during installation the thermocable had been left out in the open without end caps, which would have led to possible water ingress. He expressed the opinion that had PME provided more information to MPE at the time it sent RFI 17, the RFI would have likely have been more carefully scrutinized by MPE. In my view this is a very good example of Mr. Hardy becoming an advocate for the position of MPE and Summer Village. In expressing this opinion, he attempts to marginalize the conduct of MPE in approving the RFI. MPE was the engineer of record and, as such, had an obligation to fully investigate the contractor's proposal. The evidence disclosed that MPE in

fact took significant steps to investigate the proposal and checked the PME proposal with the supplier, Urecon, but misunderstood the effect of the information received.

[124] Mr. Hardy agreed that the likely cause of failure was water ingress into the cable splices and cable failures. He agreed with Mr. Minshall that the splices were not rated for their application in the approved RFI 17, and that water migrated through the splices, causing failure. It was his opinion that if there were any mid-span failures, such failures were not caused by the splices. The evidence was that the only failures investigated at Pace were splice failures. He speculated that some water could have entered the cable during installation and/or some cable could have been damaged during installation, causing a failure.

[125] Mr. Hardy speculated in the June 2021 report that there may be instances of poor workmanship related to the installation which may have contributed to the failures. These included improper assembly and sealing of the piping assembly, and irregularities relating to the heat trace conduit. In summary, he concluded that notwithstanding the opinions expressed in the Maskell report, the root cause of the failure was the direct burial of the splices in the ground, and there was the “possibility” that water may have migrated into the cables in multiple ways during installation. His conclusion was based on his understanding that the cable had not been tested immediately after installation. This assumption was proved on the evidence to not be well founded, as the system was tested and commissioned prior to acceptance.

[126] In the report dated September 14, 2021, Mr. Hardy responded to the report of Mr. Maskell dated June 17, 2021. It was Mr. Hardy’s opinion that if the pipe jacket assembly and the cable entry points were installed as initially designed, before RF 17, with the splice under the pipe jacket, the system would remain functional with a small amount of moisture under the pipe jacket. Moving the splices out from under the pipe jacket into direct burial increased the likelihood of failures and the speed at which the failures would be encountered.

[127] In the report co-authored with Mr. Minshall dated February 23, 2022, Mr. Hardy detailed the conditions which were uncovered during the remediation which he felt may have contributed to the overall failure of the heat trace system. In summary, it was his opinion, based upon his observations of the EHT system, that the work undertaken by PME was poor. He reported that the remedial work included installing the thermocable continuously between junction boxes and the control panels as PME had suggested in RFI 7. Where the cable wasn't suitable for use, it was replaced within the raceway. Generally speaking, the raceway along the main pipe length between valves and tees was reused in the remediation, whereas the cable at the tees was replaced.

[128] Mr. Hardy confirmed that in the normal course the heat trace cable could be expected to work for 10-15 years before replacement. This means that the EHT system was expected to be replaced during the life expectancy of the other components of the system. He reiterated his earlier opinion that the pipe jacket assembly was intended to be a water-sealed assembly.

[129] Lastly, the repairs implemented a new design method of transitioning the thermocable from the end of the pipe to the control panels and junction boxes. This consisted of buried PVC conduit securely connected to the thermocable raceway with liquid tight flexible conduit positioned in a sweeping bend up to the panel. This sweeping bend reduced restrictions on the cable while being pulled into place. It was not part of the original MPE design. Mr. Hardy pointed out that, because of this condition, as previously designed, it was impossible to physically pull the cable directly from a junction box to under the pipe. The sweeping bend method eliminated this restriction, allowing the cable to be pulled into the raceway directly from the surface-end of the PVC pipe, thereby requiring no excavation. This is important because this issue, together with EHT design which provided for the wrapping of the thermocable over the valves in a serpentine manner, essentially precluded the type of easy replacement of the cable at the end of its expected life as anticipated by Ms. Coleman.

C) Michael Minshall

[130] Mr. Minshall is a civil engineer employed by WSP who led the investigations into the workmanship of PME in installing the pipe. He was a co-author of the report dated February 23, 2022, detailing the conditions encountered during the remediation work. This report summarizes the deficiencies as follows:

1. On a number of occasions, the shrink wrap was not applied correctly.
2. Some raceways were not connected correctly and were defective.
3. Two plug valves at an intersection were encased in concrete.
4. At 28 locations there were cuts to the pipe that required remedial work as they exceeded the manufacturer's specification.
5. Some curb stops were loose or askew at locations where the residents had not tied into the system.

[131] The report also noted that WSP did not understand that the raceway assembly was designed to be watertight, because the Urecon documentation did not require that the raceway be watertight. The watertightness of the conduit was meant to be achieved by the shrink wrap and the pipe jacket. It is noteworthy that the report does not conclude unequivocally that, but for the splices which were direct buried, the system would have otherwise failed as a result of the defects in PME's workmanship, but says that it was "possible" that failure may occur.

D) Doug Barovsky

[132] Mr. Barovsky is a forensic engineer employed by ESI Engineering Systems. He has little design experience, but focusses on the forensic examination of the failure of electronic components. He was retained by the adjuster for Urecon's insurer to attend the testing of the failed splices at Pace. He delivered a report dated July 11, 2019, which concluded that the splices failed because they were installed in a submerged location contrary to their certification. He concluded that the splices were not installed properly and were not intended or designed for partial or full submersion in water. He agreed with Mr. Maskell that this was the root cause of the failures.

[133] He also examined some splices which had not failed, and found that there were inconsistencies in the crimping process used to assemble the splices. It was his opinion that it was possible that the crimping tool was used improperly or an improper tool was used to crimp butt splices.

[134] Pace also investigated 12 splices which had not failed. Each splice consisted of three splice components. Accordingly, thirty-six splices in non-failed components were tested at Pace. Mr. Barovsky testified that 6 of the 36 splices demonstrated elevated resistance measurements suggesting poor crimps and poor conductivity through the splices. It was his opinion that these splices could lead to substantial elevated localized temperatures which may overheat causing degradation and eventual failure.

E) Christopher George

[135] Mr. George is the senior engineer at MPE who was responsible for the civil design of the project. He is a civil engineer, not an electrical engineer, and had overall design responsibility. The detailed design of the electrical system was undertaken by other members of his firm.

[136] He testified that it was the design intent that the wastewater system would be buried underground but above the frost line as the local area had unstable soils that would likely have been encountered at depths below the frost line. This would have made the project cost prohibitive. He testified that the bore hole logs alerted bidders that the groundwater table would likely be encountered when excavating and performing the work.

[137] It was Mr. George's opinion that the Urecon specification was not part of the design, as he testified it was the design intent to have the contractor be responsible for the EHT design. It was his opinion that, by specifying in the Contract the use of the Urecon products, and by requiring the contractor to follow the manufacturer's directions, the Contract in effect transfers the design risk of the Urecon products to PME by making it part of its means and methods in undertaking the work. He did

acknowledge that although the MPE design specified the use of the Urecon products, it did not provide any objective data to assess if the performance characteristics of the Urecon products could be met by an alternate supplier.

[138] Mr. George testified that the Urecon Specification was intended to be a performance specification, not a design specification, as it was not his intent to provide a step-by-step guide demonstrating how each aspect of the project was to be built, but rather to specify a functional wastewater system by including requirements in the Contract that the contractor to be trained by, and work with, the supplier of the components of the system. He testified that MPE only intended to provide a general design based upon the use of Urecon products. It was his view that it was up to PME and Urecon to work together, to find solutions if the Urecon products did not work and if it turned out that they were not fit for the purpose intended.

[139] Mr. George also testified that the system as designed was intended to be waterproof. His basis for this conclusion was that the Urecon Specification refer to the system as being "liquid tight," together with the installation instructions for the heat shrink sleeves. However, he could not refer to any reference in the Urecon specifications which confirmed that the product was specified to be CSA rated for wet conditions under pressure.

[140] Mr. George acknowledged that MPE received RFI 7, requesting directions with respect to where the splices should be placed, as MPE had inadvertently omitted in the design the appropriate specification from Urecon. It was his evidence that, as the response to RFI 7 required the Urecon instruction # 3E to be followed, MPE did not thereby reject relocating the EHT splice above ground at the junction box, even though the response to the RFI expressly directed that the heat trace termination not be located aboveground.

[141] Mr. George testified that consistent with the bore hole logs, water was experienced in the excavations during the progress of the work. Many pictures from

the time of construction clearly show a great deal of water in the excavations while the work was ongoing.

[142] Mr. George also testified that he did not have any direct experience with RFI 17. He was not personally involved in reviewing or approving the RFI. His witness statement was couched in terms of an after-the-fact reconstruction of events based on discussions with others. The witness statement refers to “MPE understood,” and “MPE requested,” and further, “it was not MPE’s intention,” without identifying the source of the understanding or intention. In his evidence, he attempted to shift the blame to Urecon, as he testified that MPE’s response, approving the direct burial, was based upon a phone call in early October from an unnamed representative of Urecon who indicated that the proposal in the RFI was acceptable. He testified that this was consistent with a discussion held between other representatives of MPE and Urecon during the design phase of the work, when MPE had been advised by a Urecon representative that the Urecon materials were CSA certified with a wet rating. He confirmed that MPE advised PME, in the response to the RFI, that it had no concern with the proposed solution, and that the splices could be located outside the jacket cover and direct buried.

[143] Mr. George confirmed that on January 25, 2018, the wastewater system was commissioned and Summer Village began providing it as a public utility to its residents. He testified that the system functioned without problems during 2018, but on February 7, 2019, an engineer from MPE alerted PME that there were issues with respect to the operation of the EHT system as it was not drawing power in some locations. This resulted in investigations by all concerned which were carried out during February and March 2019. He testified that as a result of the investigations, MPE had by April 9, 2019, concluded that there were three potential issues with the system, one of which was that the splices were direct buried in the ground, below the water table. He testified that by April 25, 2019, Urecon confirmed the cause of the failure, and advised that their products were not approved for direct burial in the ground in wet locations as they were not CSA approved for “wet location under pressure.”

[144] Mr. George testified it was his opinion that PME was responsible to cure the failure because the Urecon specification was a performance specification, and also that it was up to PME to work with Urecon to find a solution. He referred to the frequent correspondence and other attempts to push PME to undertake the remedial work. In order to put pressure on PME, he also confirmed that he notified Chubb, the surety for PME, that there was a potential claim under the performance bond. The exchange of positions and correspondence between MPE and PME continued through the summer of 2019 with a further notice of a potential claim provided to Chubb on August 24, 2019. Mr. George admitted in cross-examination that he corresponded with Chubb with the intention of bringing pressure to bear on PME to find a solution to the problem, and to remedy the system.

[145] Mr. George confirmed that on August 28, 2019, PME advised that it was prepared to undertake the remedial work under protest and provided a basic remedial plan. An updated remedial plan was provided on September 11, 2019. He did not approve the remedial plan, as he requested more information from PME on its proposal for the fix.

[146] On September 13, 2019, Mr. George received a letter from counsel for PME advising that PME took the position that the failure was caused by the design, or by instructions (RFI 17) given by MPE, and that as a consequence PME was performing the work under protest. Mr. George rejected this position, and advised PME that Summer Village contended that the failure was caused by a defect in the product or the workmanship of PME. Mr. George contended that as Urecon was PME's supplier, it was PME's responsibility to resolve any defects in the performance of the Urecon products with Urecon.

[147] On October 15, 2019, Mr. George learned that PME was only replacing the splices that had failed, and became concerned that there were other splices that had been direct buried in the ground that would also fail. He advised PME that all of the equipment, including the thermocable, controllers and splices, were to be replaced and that if PME left any products direct buried in the ground, it would be responsible

for any subsequent failure, as he considered the direct burial of the splices to be an ongoing deficiency. Mr. George considered the PME work in October 2019 to be temporary and incomplete, as he had identified what he believed to be additional deficiencies in inspection reports. It was his evidence that he did not insist that PME complete all the repairs at that time because there was inadequate time to complete the repairs given the impending winter weather. He hoped that PME would return in the spring of 2020 to carry out the full remediation.

[148] The wastewater system was commissioned again in November 2019, after the PME repairs; however, Mr. George testified that problems remained in two of the original areas. During the winter months Mr. George demanded a new schedule from PME, to complete the repair, which was not received. He confirmed that on March 19, 2020, he received a notice from PME that it considered that Summer Village had repudiated the Contract by failing to provide a proper design and that PME had accepted such repudiation.

[149] Mr. George confirmed that MPE undertook the design of the remedial work and that there were three changes made to the original design. He confirmed that splicing was eliminated in the new design so that the thermocable would run directly to the junction box, as originally proposed by PME in RFI 7.

9. COMMENTS ON THE EVIDENCE OF THE WITNESSES

[150] I turn now to comment on the evidence of the primary witnesses for each of the parties.

[151] I prefer the evidence of PME's witnesses over the witnesses of Summer Village. I found that Christopher Northam provided his evidence in a detailed nature and it was corroborated in many respects by reference to contemporaneous documents. He gave his evidence in a fair, objective, and responsive manner. I found him to be knowledgeable and forthright in his answers, and he was responsive to the questions asked, was not argumentative, and answered unreservedly even where the answers were not helpful to PME's position. I generally accept his evidence.

[152] I found Ms. Coleman to be very defensive in giving her evidence. She was evasive at times, and made light of her errors in compiling the costs claimed, and in some instances quarreled with counsel, when it came to providing what should have been straightforward and simple admissions with respect to amounts that were included in the claim that she compiled which were clearly not related to the project or could not be the responsibility of PME.

[153] It was clear from her demeanour and responses that she had made a decision at a very early date that the project problems were all caused by PME, and gave no consideration to PME's position that the design was at fault. She was determined to have the project proceed and be successful, even in the face of substantial opposition, including vandalism from members of the Summer Village community. She admitted that there was a rush to execute contracts to perform the remedial work prior to the date of a civic election, as she recognized that the incumbent council would likely be voted out in favour of a new council which ran its platform, in part, on an opposition to the wastewater system. In my view, this determination to get the wastewater system built, no matter the circumstances and the opposition, clouded her judgment with respect to the cause of the system failures.

[154] I do not accept the evidence of Mr. George on the electrical design intent. It was apparent that he did not perform the electrical design for the project, yet no explanation was given as to why the electrical designer was not called as a witness, particularly having regard to Mr. George's contention that the Urecon specification was intended to be a performance specification. It would have been more helpful to hear from the engineer involved in the electrical design as to the design intent rather than Mr. George's conclusions of the design intent for the electrical design, that he did not undertake, after the fact.

[155] I have the same concern about the failure to call any witnesses with respect to the review and approvals of the RFI's. In my view the attempt to blame the failure of the EHT system on PME, on the theory that PME was more knowledgeable and

should have known that the splices could not be direct buried, is unjustified, as the very clear purpose of RFI 17 was to seek the guidance, direction, and professional opinion from MPE on the issue. Professionalism in engineering requires that engineers take ownership and responsibility for the directions and advice that they give.

[156] Similarly, no explanation was given as to why the MPE site inspectors could not provide any evidence with respect to the quality of the work which was inspected and accepted, which MPE now contends is defective. As I explain below, I do not accept the submission that the Urecon specification is a performance specification, because it is my view that MPE retained overall responsibility for the design. It is my impression that Mr. George was doing everything possible to deflect responsibility onto others, rather than accepting his overall responsibility as lead designer.

[157] I accept the evidence of Mr. Morales as I found him to be experienced, objective, fair, and balanced in giving his evidence.

[158] I accept the evidence of Mr. Maskell, as he was experienced, responsive, forthright and frank, and not evasive, and made concessions where appropriate when giving his evidence. He did not guess or make assumptions and was fair and balanced. In my view he retained this independence throughout his evidence. His evidence was restricted to his areas of expertise, and importantly, when he was first retained, he was independent and objective as he had been retained by the testing agency and not by a party to the dispute, and accordingly, had no interest or stake in the result. Additionally, I found his evidence to be more plausible and consistent with the documentary evidence than the evidence of Mr. Hardy or Mr. Minshall. I prefer his evidence where it conflicts with the evidence of the experts from Summer Village.

[159] I approach the evidence of Mr. Minshall with some skepticism because he testified in a manner that was defensive in nature, very much as an advocate for Summer Village, and appeared motivated to justify the very large cost of the WSP investigation. I was left with the impression from the evidence of the WSP witnesses

that they had become advocates for the Summer Village cause, had lost their objectivity, were very focused on finding something wrong with the conduct of PME, and had become part of the Summer Village team. Examples of this advocacy are found in his reports as follows:

- Although Mr. Hardy admitted that the consultant was ultimately responsible for approving RFI 17, he speculated that the consultant's due diligence in researching the PME proposal was likely influenced by a perception that PME was a trained expert because it had received Urecon training, at the time the RFI was issued. This opinion in effect justifies a lack of professionalism on the part of the MPE, which by itself is not acceptable. It is also based upon an unsupported speculation about the extent of information about the Urecon products that was known to the employees of MPE and PME. There was no evidence to support this speculation as there was no evidence from the MPE employees who reviewed RFI 17.
- Mr. Hardy also stated in his report that through training, PME would have had direct access to the manufacturer's technical personnel, likely more so than MPE. There was no support for this conclusion in the evidence, as the documentary evidence actually demonstrated that at the time of the review of RFI 17, the MPE employees were in direct contact with the Urecon employees to discuss the RFI 17 proposal.
- In the April 5, 2021 report, Mr. Hardy concluded that at the time the RFI 17 was issued, PME was more qualified to identify that the solution they proposed violated the manufacturer's installation than was MPE. In my view this is just pure advocacy as there is no comparative evidence of the qualifications of either PME or MPE at the relevant time.

[160] There were portions of the evidence of Mr. Hardy that I found helpful. For example, he was forthright in admitting in cross-examination that an engineer should remain diligent in fulfilling his professional obligations when reviewing an RFI, even though he suggested in his report that MPE had been lulled into a sense of complacency when reviewing RFI 17 because he speculated that PME had more information than MPE. He also provided reasonable and balanced admissions with respect to the direct burial of the splices being the root cause of the EHT failure, and also with respect to the professional obligation of an engineer to fully review the proposal by a contractor in an RFI to make sure that the proposal was suitable for the conditions and was compliant with the design and CSA rating of the products.

[161] I have difficulty accepting the evidence of Mr. Minshall as I found him to be excitable and disorganized in his presentation. His evidence left me with the impression that he thought his role was to be an advocate whose objective in conducting the investigation was to search for and uncover any small, trivial, and arguable defect, without objectively determining whether it would have had any material impact upon the performance of the wastewater system. In my view he did not bring a fair-minded or balanced perspective to determining the severity of the defects allegedly identified and whether or not they would materially impact upon the performance of the wastewater system.

[162] Lastly, although I reach my decisions herein without considering the evidence of the quantity surveyors CSG with respect to the cost of the future work, I do agree with counsel for PME that the evidence of CSG in respect of the costs of the future work is simply oath-helping (see *R. v. R.M.*, 2022 ONCA at 850) as they performed no independent analytical work but merely summarized the WSP calculations in order to boost WSP's credibility.

10. ANALYSIS

10.1 What was the Cause of the Failure of the EHT's System in February 2019?

[163] It was clear on the evidence that all of the experts agreed that the moisture entering the heat trace cables and the power feed cables at the splices was the root cause of the failure of the EHT system in February 2019. This was established by the investigation conducted with the assistance of Pace and Mr. Maskell. The investigation established that the moisture entered the splices because the splices were direct buried below grade, in the water table, and submerged in wet conditions. The Urecon products were not rated for submerged conditions.

[164] Summer Village's electrical expert, Mr. Hardy, agreed with Mr. Maskell that the migration of water into the heat trace cable at the splice was the cause of many of the failures. It was his opinion that the splices were not rated for this application and that water migrated through the splices causing failure of the EHT system. In

his September 14, 2021 report, he noted that the approval of RFI 17 increased the likelihood of failures as it resulted in directly burying the splices and cable outside the pipe jacket in a water environment exceeding its CSA rating.

[165] In my view the evidence clearly established that the failure of the EHT system in February 2019 was caused by the direct burial of the splices in the ground, in known wet conditions, which caused water to migrate into the splices, which were not CSA certified for such a condition.

[166] I do not accept the evidence of Mr. Hardy that there were other causes of the failure of the splices, such as water migrating into the cable because it was left coiled on the surface, or damage to the cable caused by burrs or defects in the raceway, as the cable had been tested and had passed testing at the time of commissioning. I note that Mr. Hardy did not testify that these possible deficiencies in fact caused the failures; he merely suggested that they were “possible” causes of failure.

[167] Summer Village says that the evidence of Mr. Barovsky shows that the splices could have failed because of poor crimping by the PME workers. Mr. Barovsky agreed that the splices that were tested at Pace had failed because they were not certified for water submersion but only had a wet rating. He agreed in cross- examination that a competent engineer would not have approved RFI 17 as it was contrary to the CSA certification for the splices. He testified that 6 of the 36 non- failed splices tested at Pace had elevated resistance measurements consistent with poor crimping; however, as at the date of testing, none of these splices had failed.

[168] Mr. Maskell testified that the heat dissipation measured by Mr. Barovsky in the non-failed splices was modest and would not create a problem going forward. I accept Mr. Maskell’s evidence. Mr. Barovsky politely disagreed with Mr. Maskell, saying that he could not discount the impact of the poor crimping, as it could have been a problem in the future. In my view this does not demonstrate a systemic problem that would cause the splices to fail throughout the system. Not all splices

had crimping defects, and none of the crimp-compromised splices had failed. At best, there was a possibility some may have failed at an undetermined time in the future. If they did fail, they could have been repaired quite simply by an excavation at the failure point.

[169] I also accept the evidence of Mr. Maskell that the splices were found to be in good condition, with no examples of poor workmanship, at the time of the Pace investigation.

[170] In conclusion I find that the root cause of the failed splices was that they were used in a fully submerged environment contrary to their CSA certification.

10.2 Is PME or Summer Village Liable for the EHT System Failure in February 2019?

[171] The evidence established that the splices were direct buried because MPE had rejected RFI 7 which proposed the elimination of the splices by running the thermocable directly from the pipe jacket to the control box. In addition, MPE had also approved RFI 17 which authorized the direct burial of the splices in the ground in wet conditions. Notwithstanding the approval of RFI 17, Summer Village says that PME had ultimate responsibility for the performance of the Urecon products as the Urecon specification was a performance specification and not a design specification. Summer Village alternatively submits that PME had a duty to investigate the reasonableness of its proposal in RFI 17, and consequently, had a duty to warn Summer Village that the proposal in RFI 17 would lead to the failure of the splices. I turn now to address these two defences.

A) Was the Urecon Specification a Performance Specification or a Design Specification?

[172] Summer Village relies upon the evidence of Mr. George in its submissions that PME had ultimate responsibility for the performance of the Urecon products because the Urecon specification was a performance specification and not a design specification. I do not accept this position as I do not accept the evidence of Mr. George in this respect.

[173] Summer Village led no evidence from a standard of care expert to establish what constitutes a performance specification versus a design specification. Consequently, I am left with my analysis of this issue by reference to the available evidence and the Contract.

[174] There is nothing in the Contract which states directly or by inference that the contractual requirement that Urecon products be used for the EHT system is intended to be a performance specification. Mr. George stated that it was his intention in specifying the Urecon products, and in requiring the contractor to obtain training from Urecon, to pass on to the contractor the risk that the Urecon products would be suitable for the purpose intended. It was his objective that any difficulties with respect to the performance of the Urecon products would be worked out between the contractor and Urecon, so that upon completion of the project, Summer Village would have a functioning EHT system in a functioning waste water system.

[175] In my opinion the Urecon specification is not drafted in the form that is typical for a performance specification, as it does not contain any performance or design criteria. It does not set out any objective performance requirements that are measurable, including specific characteristics of the system by description of size, material content, properties of equipment and components, functionality or workmanship. Nor does it have any objective measurable outputs that can be the subject of analysis and comparative review. Unlike a typical performance specification, it actually specifies a supplier that must be used and does not permit the contractor to seek out a supplier that can best meet the performance criteria. The purpose of a performance specification is usually to permit a contractor to select its own supplier by determining which supplier best meets the objective criteria and performance outputs set out in the performance specification.

[176] Where MPE wanted to include a performance specification elsewhere in the Contract it did so in typical fashion. The Contract included the usual form of a performance specification for properties for geotextile's, properties for valves, and properties for concrete thrust blocks. These were drafted in the typical manner of a

performance specification, demonstrating that where the designer intended a specification to be a performance specification, it drafted it in a manner which provided performance and design criteria so that the contractor could source alternate products, if appropriate. In comparison, the specification for the EHT system contained no performance or design parameters. Mr. George admitted in cross-examination that no performance or design parameters, such as R values for insulation, temperature or heating times, or power requirements, were provided for the EHT system in the specification.

[177] In addition, the MPE electrical design, including the design drawings, particularly drawing E2.3, incorporates the components of the Urecon products and sets out design details with respect to their application and their use. If the specification was intended to be a performance specification, the Contract would typically require that the supplier be responsible to provide the design, to be reviewed by the project designer, to ensure that it meets the performance specification for the project. In my view this is an additional indication that the Urecon specification was not intended to be a performance specification as it was part of and included in the MPE electrical design drawings.

[178] Also, the evidence established that MPE had undertaken significant investigation of the pricing, capabilities, performance outputs, and conditions for use for the Urecon products prior to the issuance of the tender. In a detailed exchange in December 2016, Martha Frere, an E.I.T. at MPE, who was not called as witness, asked 14 questions of the Urecon representative with respect to size of the components, integrity of the insulation, testing of the components, performance of the components, the compressive strength of the components, etc. Quite revealingly, one of the questions asked was how susceptible the thermocable was to water. Eric Bates, the Senior Director-Engineering and Technical Support at Urecon, replied on December 14, 2016, that the cable was “rated for direct burial and can withstand water/ sewage; however, it must be inside conduit to meet code.” But he also commented that “even with a good seal around the conduits, it is to much risk of water penetrating into the conduit.” This exchange shows that the

performance of the Urecon products was reviewed in detail by MPE at the design stage before incorporating their products into its design, and underscores the point that the Urecon products should not be used where there was a risk of exposure to water even if sealed. The investigation into the performance of the Urecon products confirms that MPE understood that it had design responsibility for their performance if they were to be included in the electrical design.

[179] In my view the Urecon specification was part of the design and not a performance specification, and as a consequence the overall responsibility for the utility and suitability of the products lay with the designer MPE. Mr. George's evidence that it was intended to be a performance specification is an attempt to shift the blame to PME and away from MPE as the professional engineer, who, in my view, had overall responsibility for the design.

[180] I also agree with the submission of PME that even if I had found that the Urecon specification was a performance specification, it would not relieve MPE from responsibility because, in specifying the use of Urecon products, MPE had a duty to ensure that the products are suitable for their intended use. As I discuss in more detail below, the Urecon products were not CSA certified for a submersible rating, but were only CSA certified for a wet rating. The bore hole logs, and the many pictures entered into evidence, show that with the high water table, the soils were saturated and there was extensive ponding of water during the excavations. The geotechnical information warned that these products would be repeatedly exposed to and submerged in water when buried in the ground. It was up to the designer to make sure that they could function in such an environment.

B. Did PME have a Duty to Warn Summer Village that the Solution it Proposed in RFI 17 Would Likely Cause the Splices to Fail?

[181] In the alternative, Summer Village says that PME had an obligation to fully investigate its proposal made in RFI 17, and that it should have been more familiar with the performance of the Urecon products than MPE because PME was required under the Contract to receive Urecon training and was also required to work closely

with Urecon to solve performance issues when they arose. Summer Village says that this placed PME in the position of a specialized trade contractor, with more information than the designer, and who knew, or ought to have known, that the proposal would result in the failure of the splices. Consequently, it says that PME should have known that its proposal to direct bury the splices was incompatible with the CSA rating for the Urecon products and that in the circumstances, it had a duty to warn Summer Village of the risks posed by the proposal in RFI 17. Summer Village refers to *Nowlan v. Brunswick Construction*, [1975] 2 SCR 523; and *Steel Co. of Canada v. Willand Management Ltd.*, [1966] SCR 746.

[182] In essence this submission turns the RFI process in the Contract on its head. The purpose of the RFI process is to formalize the communication and directions between the Consultant and the Contractor. It permits the contractor to request information and directions from the consultant in circumstances where it appears to the contractor that the design is not clear, more information is required, or an alternate methodology is more feasible. I have concluded earlier that MPE retained overall responsibility for the design, including the suitability and performance of the Urecon products. As such, PME was not in a superior position of knowledge with respect to the performance of the Urecon products than MPE, and MPE, as designer, had responsibility to ensure that the design worked.

[183] In responding to RFI 17, MPE conducted itself consistent with the RFI process under the Contract and with the reality that, as designer, it had overall responsibility to direct PME in matters where PME required more information with respect to the details of the design. MPE did not reject RFI 17 by advising PME it should sort out the problem itself, as PME was a specialized contractor who had superior knowledge and was required under the Contract to work with Urecon to resolve information requests.

[184] MPE undertook an investigation of the proposal that was set out in the RFI 17, and fully considered and responded to PME's request for directions, as it was required to do as the designer for the project. MPE contacted the representatives of

Urecon and received their assurance that the products were rated for direct burial and wet rating. MPE should have appreciated that a wet rating was not the same as a rating for submerged under pressure conditions, which were the conditions encountered on the project as reflected in the bore hole logs. In my view MPE should have recognized that a wet rating was inadequate to protect the integrity of the splices and the cable. There is no merit to the submission that PME was a specialized contractor who had a duty to warn Summer Village in these circumstances where MPE retained overall responsibility for the design and itself conducted an investigation as to the suitability of the proposal from PME.

[185] In cross-examination Mr. Hardy testified what a reasonable consultant should have done when presented with RFI 17. It was his evidence that a reasonable consultant should have checked the proposed solution rather than solely taking the contractor at its word, and should have checked the proposed solution with the requirements of the electrical code, contacted the supplier, compared the proposed solution to the design conditions and the specifications and the code, and reviewed groundwater conditions and other relevant information to determine whether all the factors were consistent with the solution proposed. If MPE had undertaken this approach, RFI 17 would not have been approved, as it would have been apparent that the direct burial of the splices in submerged conditions did not meet the CSA certification. I accept this evidence of Mr. Hardy.

[186] I also accept the evidence of Mr. Douglas Barovsky on this issue. He is an electrical engineer and was called as a witness by Summer Village. He testified that water ingress into the splices caused the failure and that the splice kits were not rated for submersion in water. It was his evidence that a competent engineer, aware of the groundwater conditions and the CSA ratings for the Urecon products, would not have approved RFI 17.

[187] I conclude that knowing the CSA rating for the Urecon products, and knowing the wet and water-saturated conditions on site, MPE should not have approved the

direct burial of the splices because it ought to have recognized that the Urecon products could not be direct buried in the known wet conditions.

B) Other Defences of Summer Village

[188] Summer Village contends that the MPE response to RFI 7 required PME to take the thermocable directly to the control box in severe conditions in accordance with the requirements in Urecon Instruction # 3E. I do not agree with Summer Village's interpretation of MPE's response to RFI 7, and am of the opinion that the failure of MPE to approve RFI 7 is an additional reason for the liability of Summer Village for the splice failures. The risk caused by the direct burial of the splices would never have arisen had MPE approved RFI 7, wherein PME requested permission to take the thermocable from the pipe jacket directly to the control box. If this proposal had been accepted, there would have been no risk of water penetrating the splices. This was the methodology that MPE employed in the design for the remedial works, and in my view should have been permitted by MPE during the course of the PME Contract.

[189] Summer Village says that nothing in the response to RFI 7 prevented PME from running the thermocable to the control box in "severe conditions," such as water in the excavation, as provided for in Urecon Instruction #3E. I do not accept this submission as in my view a proper reading of the request in RFI 7, and the response from MPE, made it clear that MPE refused PME permission to run the thermocable directly to the control box.

[190] RFI 7 noted that there was an inconsistency in the original design as the heat trace termination must be made in the control box, but the design also showed a splice underground. PME sought permission to run the thermocable directly to the junction box because "Our proposal would eliminate any requirement of heat trace splicing underground." Typically, a designer responds to an RFI on the document itself, in the box set aside for its comments. In this case MPE did not respond on the RFI form in the box provided for its comments, but provided a memo from Mr. Sentis dated July 10, 2017, and a covering email dated July 13, 2017. The memo stated:

RFI 007- Based on the drawings the Heat trace is to be terminated on the insulated pipe and then Teck cable is run thru a PVC sleeve into the Junction Box/Control Panel.

Urecon's Installation Instruction #3E (attached) is the manufacturers (sic) recommended connection for this application and is to be followed.

[191] Summer Village submits that the response directed PME to not direct bury the splices in submerged conditions as included in the many directions in the Urecon Installation Instruction #3E, was the requirement that in severe conditions the thermocable was to be run directly to the control box. I do not agree that this was the direction given to PME. In my view a designer should be clear in outlining its requirements when providing instructions and directions to a contractor. The contractor should not have to ferret out the designer's intent from clues in an ambiguous response. In its simplest form, PME was asking permission to run the thermocable to the control box as the design was ambiguous. The response given was set out in the memo above, but was also accompanied by an email dated July 13, 2017, which said:

Attached is MPE's response to RFI 7. Based upon Urecon's recommended installation instructions we cannot approve your request.

[192] This made it clear that the proposal to run the cable from the cable jacket to the control box was not approved because the Urecon Instruction #3E did not permit same. To suggest now that the response permitted something different in "severe conditions" is inconsistent with the direction given in the email. The response did not provide any exceptions to the rejection of the proposal in severe conditions, as it could have. For example, it did not state "unless permitted in Urecon Installation Instruction # 3E, we cannot approve your request." In my opinion MPE was precise in its direction that it was not approving the proposal to run the thermocable directly to the control box because of what was provided for in the Urecon Installation Instruction #3E, which Summer Village now relies upon for its position that in severe conditions the thermocable should have been run to the control box. Mr. George's evidence that the request was in fact approved, by reference to Urecon Instruction #3E, is an exercise in semantics. The response from MPE was clear that it did not permit the thermocable to be run directly to the control box as that was not permitted

by the Urecon Installation Instruction #3E. To suggest now that these same instructions permitted, or required, the thermocable to be run to the control box is inconsistent with the response and direction given. If the proposal in RFI 7 had been approved, the EHT system would not have failed.

[193] Summer Village also contends that during construction the heat trace coils were left in a coiled fashion without protective end caps, and were exposed to the elements, which permitted water to enter the cable and thereby caused the failure of the cable. Summer Village refers to a limited number of photos taken during construction that showed the thermocable in a coiled fashion without an endcap. Unfortunately, no site inspector from MPE was called to provide evidence with respect to the photographs. There was a great deal of conjecture about the photographs and what was unknown about the condition of the cables. There was no evidence about how long the cables were in that position, whether they were in use or were an excess coil of the thermocable left in place as the materials were purchased by Summer Village, or whether it was raining when the coils were in that location, etc.

[194] The evidence from the investigation conducted at Pace showed that the failure occurred at the splices, not mid coil, which would constitute the failure mechanism if water had migrated from the end of the coils during construction. Even Mr. Hardy in his July report, acknowledged that it was likely that the failures happened at the splice points, and that it was not possible to definitively state that there were other defects in the cable or that there was moisture present in the cable prior to the splice failure. I do not accept the submission that the water entered into the coils during installation thereby causing failure of the splices.

[195] Summer Village also submits that it was not responsible for the EHT failures as PME had already buried some of the splices before the approval of RFI 17 was provided. In my view there is nothing to this submission because if RFI 17 had not been approved, PME could simply have been able to rectify the situation by

uncovering the splices that it had prematurely buried before the approval was received.

[196] In conclusion, it is my view that Summer Village is liable for the failure of the EHT system in February 2019 as the design provided by its designer MPE, together with the directions provided by MPE in response to RFI 7 and particularly RFI 17, caused the failure of the system.

C) Did Summer Village have a Duty to Provide a Constructible Design?

[197] Summer Village says that MPE did not have a duty to provide a constructible design and, as such, the performance of the Urecon products rested with PME rather than MPE. The simple answer to this submission is that MPE did provide a design, and, under the Contract, PME had an obligation to construct the project in accordance with that design. The Contract provided that PME was required to “perform the work required by the Contract Documents,” (Article I of the Contract). “Contract Documents” is broadly defined to include all aspects of the design including the Specifications. The Contract also provided that PME was obliged to perform the “Work in accordance with the Bid Documents, without exception,” (Contract Article 4.1). Work is defined to be the total construction and related services required by the Contract Documents. Similarly, under GC 6.11.1, PME was required to execute and complete the Work. In summary, PME was obliged to follow the design and had no authority under the Contract to substitute or change the design provided by Summer Village.

[198] Summer Village refers to the definition of Contract Information Documents to contend that such documents, which include the Urecon specifications, are intended for informational purposes only, and do not constitute a warranty that they are complete and appropriate for construction. In my view this does not transfer the responsibility to ensure that the Urecon products are fit for the purpose intended from MPE to PME. It does not override the obligations of PME under Articles 1 and 4.1 and GC 6.11.1 to perform the work in accordance with the design and

specifications including the Urecon specification, and it clearly does not amount to a warranty given by PME as to the performance of the Urecon products.

[199] Summer Village relies upon a line of authorities beginning with *Thorn v Mayor and the Commonality of London*, (1867) 1 App Cas 120, which was referred to by the Supreme Court of Canada in *Steel Co of Canada v. Willand Management Ltd.*, [1966] SCR 746; and more recently *EBC Inc v. New Brunswick*, 2007 NBCA 8, for the submission that Summer Village had no duty to provide a constructible design and that PME was responsible for the performance of the Urecon products, although their use was specified by MPE. I have above rejected this submission and held that as designer, MPE maintained overall responsibility for the performance of the Urecon products.

[200] In my view these authorities are not applicable as they all address a situation in which a warranty in respect of the performance of the work was provided by the contractor. In *Thorn*, the contractor was obliged to fulfill a contractual performance specification that the bridge could be built. In *Steel Co. of Canada*, the contractor provided an express warranty that work could be undertaken in accordance with the plans. In *EBC*, the court concluded that there was no warranty by the owner that the contractor's selected method of construction would be suitable.

[201] These authorities do not address the issue of whether or not there is an obligation on the part of the owner to provide a constructible design, but do address those circumstances where contractors have provided warranties with respect to the suitability or efficacy of the design, including the overall function of the work or the methodology of the performance of the work. As noted in *Goldsmith on Canadian Building Contracts* (2nd Ed. 1976), these cases stand for the principle that the owner does not warrant that the work can be carried out in accordance with the plans, but "a contractor who undertakes to produce a particular result will be liable, even if he follows the specifications, if that result is not obtained." Summer Village made no submission that PME undertook in the Contract to produce a particular result. Mr.

George attempted to transform the Urecon design specification into a performance specification, but as I discuss above, I do not accept that submission.

[202] In my view this situation is more analogous to the circumstances faced by the court in *Karl Mueller Construction Ltd. v. Northwest Territories (Commissioner) Ltd.* 1989 Carswell NWT 52 where the court concluded that by entering into a contract to build, the:

Contractor does not thereby ... warrant that an incompetent and unsuitable design will work, unless he has done so expressly. If the contractor has guaranteed that the work will perform a certain function, he is, of course, responsible for its design, *The Steel Co. of Canada* case so holds. But that case applies to express guarantees; it does not mandate the implication of such a guarantee in every case.

[203] There was no submission by Summer Village that PME provided an express warranty with respect to the suitability of the design provided by MPE. As there were no performance specifications for the Urecon products, it would have been impossible to do so. Summer Village does not point to any express warranty given by PME in the Contract with respect to the suitability of the design and the performance of the system. Accordingly, I do not accept the submission that Summer Village did not have a responsibility to provide a constructible design. It did provide a design and the Contract provided that PME was to perform the work in accordance with the design.

10.3. Was the EHT System designed to be Waterproof?

[204] Summer Village says that the Urecon system was designed to be watertight, and that had the splices been placed under the pipe jacket, and had the system been constructed without defects and poor workmanship, no failures would have occurred. It submits that the system was constructed with a number of civil deficiencies, including the failure to properly apply the heat shrink wrap over the pipe enclosure, permitting water to enter into the system, causing the system to fail. Summer Village submits that PME bears overall responsibility for the failure. Surprisingly, none of the MPE employees responsible for the EHT design, Amar

Ismail who certified the Electrical design drawings, and Martha Frere who had the discussions with Urecon with respect to the performance of the Urecon products in wet conditions, were called as witnesses to explain that it was the design intent to have the system waterproof.

[205] This submission ignores the fact that MPE, as designer, was responsible for the overall design and that by rejecting RFI 7 and by approving RFI 17, it authorized the placement of the splices, direct buried, which led to their failure. However, this issue also raises the question of whether or not, even if constructed in accordance with the original design, i.e., the splices placed within the pipe jacket, the system would have failed in any event because of the fact that the Urecon products were not certified for submerged conditions. This issue is important to the counterclaim advanced by Summer Village as it contends that there were other deficiencies in PME's work, including the installation and sealing of the pipe jacket, which would have eventually led to the failure of the system even if the splices had been placed within the pipe jacket as provided in the original design.

[206] Importantly, all experts recognized and accepted that the Urecon products were not CSA rated for submersion in water under pressure. In my view this demonstrates that the system was not designed to be waterproof, because the Urecon products did not have a CSA rating which permitted them to be submerged in water. The wet rating that the product has does not allow for it to be submerged under pressure.

[207] In my opinion, MPE as designer should not have specified this product for this use, as it was unsuitable to be used in the well-known wet conditions. The borehole logs, and other geotechnical evidence, demonstrated that there was a very high water table, that there would be ponding of water in the excavations, and that the pipe assembly would be continuously exposed to water under pressure. In my view the evidence established that the ingress of water over time would eventually lead to water ingress into the system through the pipe jacket assembly and eventually the splices would fail even under the pipe jacket.

[208] I note that there is nothing specific in the Contract that states that the EHT system is to be waterproof. There is no contractual requirement that the insulation material or the pipe wrapping was intended to create a waterproof seal. The design of the heat trace system itself is inconsistent with an intent that it was to be waterproof. I accept the evidence of Mr. Northam that the design called for the heat trace cable to be wrapped around valves in a serpentine manner at a number of locations where it would be outside the protective conduit channel. In these locations it would be exposed to water. Also, at the clean out and air release valves and manholes, the heat trace cable was not protected within the pipe cover, but was covered in spray foam which was not waterproof. These applications would potentially expose the cable to water at those locations.

[209] The expert evidence clearly established that the Urecon products were not CSA rated for exposure to submerged conditions, but were only CSA rated for wet conditions, and that any water getting into the system would eventually lead to its failure. The experts all agreed that the Urecon products would eventually fail as they were not rated for submerged conditions under pressure; what they disagreed on was when the failure would occur.

[210] The expert evidence of Mr. Hardy, Mr. Minshall, and Mr. Barovsky was all to the effect that a wet rating provides that the product can resist periodic exposure to water, but at no time in the testing cycle is the product continuously immersed in water. A CSA rating for “wet conditions” does not mean that the cable can be submerged under water, under pressure, as would be encountered on site in the known conditions. If a product is continuously immersed in water, it must have a CSA certification for wet use under pressure. In the PowerPoint presentation given at the arbitration hearing, the WSP witnesses confirmed that as designed the system would eventually fail. The PowerPoint provided that “the correctness of the design cannot be considered 100% right or wrong. The original design under the pipe jacket, if properly constructed and waterproofed, could reasonably be assumed to last significantly longer than what was constructed (direct burial). Similarly, the

Project as originally designed would not be expected to last as long as the above ground splice option.”

[211] I accept Mr. Maskell’s evidence that the outer pipe jacket of the force main could not reasonably be expected to be watertight. It was his opinion that having regard to the water conditions under pressure on the site and the lack of a proper CSA rating for the Urecon products, over time, water would enter through the pipe jacket, and the splices would become wetted and would fail. I do not accept Summer Village’s submission that I should ignore the evidence of Mr. Maskell in this respect, as Summer Village contends that he was not qualified to give this opinion. In my view, even though Mr. Maskell is an electrical engineer, not a civil engineer, he has extensive experience with the performance of electrical components in underground and submerged conditions, including exposure to water. I note also that his opinion in this respect which was set out in his report dated June 17, 2021, on pages 6-7 was not challenged as being inadmissible when it was admitted into evidence without objection.

[212] The experts called by Summer Village also admitted that there was a possibility that water would migrate through the outer jacket of the pipe and expose the heat trace cable to moisture. As noted above, in the WSP PowerPoint, the acknowledgement was made that the design was not 100% right or wrong. Mr. Hardy admitted that the system’s components would naturally degrade over time, and that they would be expected to fail from water exposure after the environment under the pipe jacket exceeded the CSA ratings in wet locations. It was his opinion that the product would not fail quickly because small amounts of moisture under the pipe jacket would likely not lead to “quick failures.” He did not explain what he meant by a “quick failure” with reference to the number of years or an expected life expectancy. One would think that Summer Village expected a design that would not fail, whether quickly or not.

[213] Mr. Hardy noted in his April 5, 2021 report that the presence of water under the pipe jacket introduces the possibility of failure. As the product is not CSA rated

for “wet locations,” he opined that a small amount of moisture would not be expected to cause immediate failure; however, “if constantly exposed to water, this no longer complies with the CSA test and therefore a failure becomes more possible.” The impact of the water under pressure was also referred to. He acknowledged that it was “reasonable to infer that many, if not most, splice locations would include temperatures significantly outside that range (i.e., the range in the CSA test) while periodically having water surround the equipment at higher pressures due to the weight of that water pressing round it”.

[214] Mr. Minshall also noted in his report that “subject to the fluctuation of the water table, and the proximity of the lake, like any mechanical assembly, changing conditions in the pipe zone may eventually lead to water migrating through the shrink wrap which could would reduce the lifespan of the heat trace system.” This is to be compared with his evidence elsewhere, that if constructed as originally designed, i.e., before RFI 7, the cables and splices would have been in a dry environment and not wet under pressure. He did not provide any evidence as to the length to which the lifespan of the heat trace system would be reduced. He admitted that nothing in the design indicated that the EHT system, or product, or insulation material indicated that the material was CSA certified for wet use under pressure.

[215] I do not believe that there is a strong conflict in the evidence of the experts on this issue. All admit that the system was not CSA rated for its application and that eventually water would enter the system and it would eventually fail. None of the experts testified as to how soon that failure would occur. My sense of their evidence is that Mr. Maskell felt it would fail “fairly readily”; Mr. Hardy believed that it would fail “something other than quickly”; and Mr. Minshall, “eventually”. What is clear is that all of the experts agreed that it would fail in time.

[216] The conclusion that the system would fail in the conditions encountered is also implicit in Urecon instruction #3E which directs that the cable is not to be spliced in the pipe jacket in severe conditions, but the cable is to be run directly to the control box. All of the experts agreed that the cable buried in wet sandy soils

with a high water table would constitute severe conditions. Urecon recognized that its products would likely fail in these conditions, so it directed that the cable not be spliced under the pipe jacket in submerged conditions but be run directly to the control box. The irony is that this is the proposal made by PME in RFI 7 which was rejected by MPE.

[217] In summary, I accept PME's submission that the EHT system was not designed to be waterproof and submersible, and that the system would have eventually failed because the Urecon products specified in the design were used in circumstances and conditions not compatible with their performance rating.

10.4 What are the damages suffered by PME?

[218] The damages sought by PME include costs associated with the investigation and the remedial work and PME's lost profits. PME seeks \$671,573.49 plus GST for investigation and remedial costs. This includes the cost of labour and materials, vehicle and equipment rental, third-party vendor costs, additional supervision and management costs and associated overheads.

[219] PME divides its claim into the following work:

- cost code 8005, warranty heat trace power issues, \$231,942.36
- cost code 8006, 901 Lakeside driveway restoration, \$1,580.75
- cost code 8007, EHT Surface Restoration, \$10,496.67
- cost code 8008, potential warranty, sewer leak, \$38,009.41
- cost code 8009, heat trace remediation work, \$364,829.08
- cost code 010000, overheads, \$24,750.22

[220] Mr. Northam testified that these costs were tracked by using a special cost code and by compiling the costing information in a job cost transaction report. He testified that he personally reviewed the job cost report to ensure that the description was clear, that the costs were properly coded, and that they were properly attributed to the investigation and remedial work. He testified that the job cost data was recorded in PME's job cost transaction reports, and it was imported in the normal

course of PME's business, and it represented an accurate reflection of the actual costs incurred by PME in relation to the investigation and repair work.

[221] It was his evidence that the costing categories included various backup documentation, including equipment and staff costs; labour rate sheets using standard rates that PME charged at the time the costs were incurred; daily labour and equipment reports that trace the labour, equipment and materials and third-party costs; and internal staff timesheets for PME staff involved in the remedial work.

[222] Summer Village contends that the claim should be reduced to \$240,010.86 as:

1. PME has not provided any evidence of the work performed for \$50,086.83 relating to cost code 8006, 8007, and 8008.
2. PME is not entitled to claim for overheads as it repudiated the Contract.
3. PME's claim for heat trace investigation costs includes an amount of \$127,560.72 of investigation costs after PME knew the reason for the system's failure.
4. PME's claim for remedial work prior to December 1, 2019, should be based on unit rates and should be reduced by \$92,407.22.
5. PME has not provided any evidence of remedial work performed for \$40,611.26 relating to cost code 8009 between December 1, 2019, and the date of repudiation of the Contract, and there is no evidence justifying PME's claim of \$96,181.38 for remedial work after repudiating the contract.

[223] Although PME asserts four different contractual bases to recover the amount claimed, it is my view that recovery is provided under the Contract pursuant to GC 7.3 and GC 7.5. Summer Village, through MPE, directed PME to undertake a remedial investigation and repair the alleged deficiencies with respect to the EHT splices. Under GC 7.5, PME is entitled to have the investigation costs added to the Contract price if the cause of the defect is not the liability of the contractor. Under GC 7.3, the contractor is required to perform the remedial work at its own costs if the defect is the responsibility of the contractor. The effect of these two clauses is that work directed to be performed by Summer Village shall be compensated for if the defect in question is not the responsibility of PME. As I have determined above,

Summer Village is responsible for the EHT failure, therefore it is my view that PME is entitled to recover its reasonable investigation and remedial costs.

[224] I now turn to consider the submissions of Summer Village with respect to the reasonableness of the PME investigation and remedial costs.

1. Costs Codes 8006, 8007, and 8008

[225] Summer Village contends that for cost code 8006, PME has provided only one document justifying \$1,425.85 in support of its claim in the amount of \$1,580.75. It also says that for cost code 8007, PME has only provided time and material sheets that total \$9,529.86 in respect of the amount claimed of \$10,496.67. Lastly, it says that for cost code 8008, PME has provided time and material sheets in the amount of \$52,055.69 in respect of a claim for \$38,009.41.

[226] Summer Village contends that the amounts claimed by PME should be rejected as the documents provided do not support the amounts claimed. None of these cost code discrepancies were put to Mr. Northam for an explanation during his cross-examination. In the circumstances I am not prepared to accept Summer Village's criticisms without having provided Mr. Northam an opportunity to respond. I note also that discrepancies for cost codes 8006 and 8007 are relatively minor and that the documents in support of cost code 8008 substantiate a greater amount than the amount claimed.

2. PME's Overheads

[227] Summer Village says that PME has not provided time and material reports or any evidence of how these costs relate to the breach of Contract. This complaint was not put to Mr. Northam in cross-examination. I am not prepared to accept the criticism without having provided Mr. Northam an opportunity to respond. I note, however, that the claim for overhead is a relatively small amount and that it is well-known that contractors incur overhead costs when performing their work. In my view the amount claimed is not disproportionate to the overall completion costs of \$671,573.49. I will allow this claim

3. Costs Code 8005; Warranty Heat Tracer Issues

[228] PME claims \$231,942.36 for the costs of its investigation into the heat trace power problem from February 7, 2019, to August 31, 2019. Summer Village contends that the cause of the EHT failure was known by April 18, 2019, when Urecon advised that its products were improperly installed in a submerged location. It also submits that by no later than May 30, 2019, the cause of the failure was known because of the destructive testing at Pace. Summer Village says that any work performed after April 18, 2019, was not necessary to determine the cause of the EHT systems failure. Summer Village says the amounts incurred up to May 30, 2019, based upon the documents provided, should be limited to \$165,127.73.

[229] This challenge was not put to Mr. Northam in cross-examination. I am not prepared to reduce the claim without having given Mr. Northam an opportunity to explain the costs. It is clear that even after May 30, 2019, MPE strongly pushed PME to conduct further investigations with respect to how the remedial work should be undertaken, which involved the substitution of the Urecon splice with a waterproof 3M splice which would have prevented the need for significant additional remedial work.

4. Cost Code 8009 Heat Trace Remediation Work

[230] Summer Village contends that the amount claimed should be reduced as it is not calculated on the basis of the unit rates under GC 8.1.1 of the Contract. It says that when properly calculated, using unit rates under the Contract, the amount recoverable should be no greater than \$221,687.97, based upon a calculation performed by its expert quantity surveyor CSG Ltd. I agree that GC 7.3 provides that if the defect is not caused by the contractor, but arises from any other cause, it is to be calculated in accordance with "Clause 8" of the Contract. GC 8 deals with Changes under the Contract. It provides in GC 8.3 that Changes are to be paid for by way of unit prices under the Contract. I agree that this claim should have been calculated using unit rates.

[231] Although this position was not put to Mr. Northam in cross-examination it does raise a Contract interpretation argument. The amount claimed does not appear to be calculated in accordance with the unit rates under the Contract, but rather charge out rates. CSG has calculated the amount payable to be between the range of \$273,739 to \$299,122 based upon the unit rates under the Contract and using a typical scope of work for the remedial work, and by applying the cost structure employed by the National Electrical Contractors Association for the electrical work.

[232] PME contends that the CSG calculation should be rejected because they never reviewed or assessed the actual calculation provided by PME, but that their valuation was in respect of a CSA compliant system, which the installed work was not, and also that the CSG calculation did not consider a system that would have installation or design errors. PME submits that the resulting calculation is not comparable because the same data points and evidence were not evaluated.

[233] To add to the complexity of this issues, Summer Village submits that the amount calculated by CSG should be reduced to accurately reflect the work performed by PME, as the CSG calculation includes an amount to remove and replace the cable, to investigate and test the cable, and costs to excavate the valves, all of which was not performed by PME. They say the resulting amount properly claimed is \$176,278.53.

[234] As I noted, none of this was put to Mr. Northam in cross-examination. However, the CSG report should have notified PME that its costs in this respect were being challenged and that the appropriate unit rate is the rate in the Contract. Accordingly, I accept the position of Summer Village and would reduce this claim for the remediation work to the sum of \$176,278.53.

5 Cost Code 8009 Heat Trace Remediation Work

[235] Summer Village contends that this amount is not recoverable because it relates to work performed between December 16, 2019, and March 31, 2020, after

PME had taken the position that the design issues were the root cause of the EHT system failure. None of this was put to Mr. Northam in cross-examination. I am not prepared to accept the Summer Village submissions without providing an opportunity to Mr. Northam to comment. Although the date that the invoices from Pace and CEL were inputted is after December 16, 2019, it would be quite reasonable to expect that the hours worked, or the work undertaken, was performed sometime before that date.

6 Cost Code 8009 Heat Trace Remediation Work (Repudiation of the Contract to June 20, 2020)

[236] Summer Village disputes the claim of \$96,181 as it contends that they are costs which were incurred after PME repudiated the Contract on March 19, 2020. Summer Village refers to the witness statement of Mr. Northam where he testified that “since electing to accept Summer Village’s repudiation, PME has not done any further work relating to the remediation of the EHT system.” This position was not put to Mr. Northam in cross-examination. There could be a readily available explanation for these costs such as late posting, demobilization and clean-up costs, etc. I am not prepared to reject these costs without the issue being put to Mr. Northam in cross-examination.

7 PME’s Claim for Lost Profits

[237] I am not prepared to accept this claim, as under the Contract, remedial work is to be paid on a unit price basis pursuant to GC 8.3. GC 8 does not provide that the Contractor is entitled to recover lost profits when calculating the amount properly payable.

[238] In addition, the evidence of Mr. Northam was that PME’s forces could have been employed elsewhere, and that PME generally makes a 10% profit on its projects. In my view this evidence is inadequate to support a lost profit claim. A lost profit claim should be made with accounting evidence from financial statements with respect to profits made on other projects in the same time, together with evidence of other specific projects that the contractor had the opportunity to bid but could not bid

because its forces were used in undertaking the remedial work. In my view the evidence of Mr. Northam does not meet this requirement.

[239] I will leave it to counsel to calculate the final amount of approved PME's damages as set out above. I reserve my jurisdiction to address any calculation issues which arise from my review of PME's damages.

10.5 Duty of Honest Contractual Performance

[240] PME the says that it is entitled to damages for breach of the general duty of good faith by Summer Village in the performance of the Contract, relying upon *Bhasin v. Hrynew*, 2014 SCC 71; *Park Avenue Flooring Inc. v. EllisDon Construction Services Inc.*, 2015 ABQB 478. It submits that Summer Village breached its duties of honest contractual performance in good faith as follows:

1. By representing that the Project could be built as designed (using Urecon products) when that design was fundamentally flawed and destined to fail.
2. By failing to cooperate with PME during the course of the Project and rejecting RFI 7, which would have placed splices above the ground, and instead directing that PME comply with the flawed and destined to fail EHT System design.
3. By representing in the Contract, and during the course of the Project work, when it approved RFI 17, and during the course of the remediation work, that the EHT system was suitable for direct burial under the water table when the Summer Village ought to have known that the representation was false, untrue, inaccurate, and misleading.
4. By directing that PME perform the remedial work under the guise of warranty work under the Contract when Summer Village ought to have known that the EHT System failures were caused by design failings.

[241] In my view this is not a case where a party lied or otherwise knowingly misled the other party about a matter related to the performance of the Contract. Both parties asserted, and in some cases strongly, what they believed to be their Contractual rights. There was no evidence that these beliefs were not honestly held in the circumstances. Similarly, there was no evidence that a party exercised a discretionary right under the Contract inconsistent with the contractual purpose of the discretion.

[242] I have found herein that the design was defective and the system was doomed to fail. However, there is no evidence that Summer Village representatives knew that the design was flawed. At all material times they reasonably relied upon their consultant, MPE, in this respect.

[243] PME says that Summer Village acted dishonestly by rejecting RFI 7. Although I have found MPE should not have rejected RFI 7, there is no evidence that Summer Village's representatives had any input, were aware of, or knew the true consequences of the rejection. In my view they did not act dishonestly in this respect.

[244] Similarly, I do not accept PME's submission that Summer Village was dishonest by representing that the Urecon splices could be direct buried in submerged conditions. There is no evidence that Summer Village's representatives had any input, were aware of, or knew the true consequences of the direct burial of the splices.

[245] PME says that Summer Village acted dishonestly in directing PME to undertake the remedial work when it knew or should have known that the failings were due to design. In my view there is no evidence to show that the representatives of Summer Village knew that the design was defective. They relied upon MPE for their advice, which was not unreasonable in the circumstances as it was the consultant hired by them to prepare the design and MPE had experience on other similar projects.

[246] Lastly, PME says that Summer Village was dishonest in calling on PME's performance bond knowing that this would put pressure on PME. I agree with Summer Village that a contractor is always subject to pressure from the surety when a claim is made on a performance bond as that is the very nature of a performance bond. In these circumstances where there was a good faith dispute between the parties as to their contractual responsibilities, it was not improper for Summer Village to exercise all remedies lawfully available to it including making a claim under the

Performance bond. In my view this is not dishonest or bad faith when it is the very purpose for which bonds are provided.

[247] In conclusion, it is my view that there was no conduct on the part of Summer Village that demonstrated any conduct of dishonesty, misleading advice, or lying in the exercise of obligations under the Contract and which would warrant a finding of breach of the duty of good faith in contractual performance.

10.6 Is Summer Village entitled to damages for its remediation claim, and what is the measure of such damages?

[248] Summer Village claims \$1,574,762.77, plus GST, for remedial costs incurred to date, and an additional \$3,819,517, plus GST, for future remedial costs. It says that these costs are required to provide Summer Village with the wastewater system under the Contract had there been proper performance by PME.

[249] In 2021, Summer Village entered into cost-plus contracts with two contractors to complete the remedial work as directed by WSP. Approximately 24% of the project was completed in 2021. The balance of the work has not been undertaken.

[250] Summer Village says that the failure of the wastewater system caused it to engage WSP to conduct an investigation into the cause of the failures. It says that although WSP agreed that the system failed because of the direct burial of the splices, it was reasonable to investigate the entire system to determine if there were other deficiencies in the workmanship of PME which could have caused or contributed to the failure, or a potential failure in the future.

[251] Summer Village says that the investigation by WSP uncovered other civil deficiencies in the workmanship and construction of the system. These included deficiencies with respect to mainline insulation and heat shrink wrap, raceways, mainline plug valves, curb stops, and cuts in the main line pipe. It says that the evidence of WSP demonstrates that these deficiencies are the result of PME's poor workmanship and constitute a failure to fulfill PME's obligations under the Contract, for which it is liable to compensate Summer Village.

[252] The civil deficiencies were uncovered during an exhaustive investigation that daylighted the system. Initially sections of the system were exposed to assess the workmanship of PME. Ultimately it was recommended by MPE and WSP that the entire system should be assessed to uncover any deficiencies and have them remedied. It is my view that the original motivation to conduct such an exhaustive investigation was the desire to find deficiencies in PME's workmanship which would counter PME's position that the failure of the system was caused by the design.

[253] PME says that the counterclaim should be dismissed because the wastewater system as designed was doomed to fail as the design mandated the use of wet rated Urecon products in a system that was going to be buried in a high water table area, submerged under pressure conditions, contrary to their CSA rating. In addition, PME says that the system was doomed to fail because the designer rejected RFI 7, which would have removed the need for splices, and then approved RFI 17, which proposed the direct burial of the products submerged in water and under pressure conditions, contrary to the CSA rating for the products.

[254] In the alternative, PME says that Summer Village failed to mitigate its damages, and that the amounts claimed are unproven and unreasonable, because:

- i. Summer Village failed to mitigate its damages as it sat idle for 15 months and did not proceed with repairs or remedial work when it knew the EHT system was non-functional and that PME was disputing responsibility
- ii. Relying upon the expert evidence of Mr. Morales and Mr. Marsh, PME says that Summer Village held off tendering the work in the fall or winter of 2021 and waited until June 2021 to issue a tender at a time in which contractors who performed such work were busy, reducing the probability of getting a competitive bid for the work.
- iii. Summer Village failed to act reasonably in entering into the remedial contracts, as a time and materials contract without a cap or a budget in the prevailing circumstances was unreasonable;

[255] PME says that the amount claimed in the counterclaim is unproven and unreasonable. It says that the expert report of Mr. Marsh demonstrates that the estimate for the replacement costs was inflated by \$1,835,174.

[256] PME also says that the best evidence of the reasonable costs for performing the remedial work is an estimate in the amount of \$861,630 which was provided to Summer Village by WSP around February 2021. This estimate was prepared after WSP's initial investigation was complete and about the same time that Summer Village requested that MPE prepare a tender for the remedial work. This estimate was only revealed during the course of the cross-examination of Ms. Coleman. She was not sure when Summer Village received the estimate. Ms. Coleman had no recollection of making use of the estimate to establish a budget or price cap when executing the time and material remedial contracts. PME says that the electrical work-related component of the estimate is \$593,292, which it says is the only reasonable measure of damages if it is found liable for the repair of the wastewater system.

[257] PME also disputes the operating costs claimed by Summer Village as it became apparent during the cross examination of Ms. Colman that a number of the costs claimed were not the responsibility of PME.

[258] PME also challenges the internal administration costs of the Summer Village claim as it contends that the claimed costs included entries with no supporting documents, no breakdown of the actual services rendered or time spent for the various administration fees. The claim also included alleged services for administering the project while PME was undertaking the initial work, invoices for work that had nothing to do with the project, and invoices without description of services, or any way to ascertain what work was being done and by whom. The claim also included the charges of Mr. Langford, who I was advised provided assistance to Summer Village as he was an experienced engineer, and who attended each day of the arbitration remotely, but provided no evidence at the arbitration. No explanation was offered as to why it was necessary to retain Mr. Langford when Summer Village had counsel and a number of other experts who were providing guidance and assistance to it.

[259] It is not necessary for me to review the PME defences that the Summer Village claim is unreasonable, unproven, and that Summer Village failed to mitigate its damages, as I have concluded that the counterclaim should be dismissed for the following reasons:

- a) The system was doomed to fail in any event because of the defective design that specified the installation of Urecon products for an environment that they were not certified for use;
- b) The evidence does not establish on a balance of probabilities, that the civil deficiencies would have caused the system to fail, notwithstanding the defective design; and
- c) The evidence does not establish on a balance of probabilities, that the civil deficiencies would affect the function or utility of the system in a manner that would require the very extensive rebuild undertaken by Summer Village. In my view the civil deficiencies were more in the nature of imperfections rather than defects.

[260] I discuss these conclusions below.

A) The System Was Doomed to Fail

[261] As I have outlined above, Mr. Hardy and Mr. Minshall both confirmed that the failure of the system in 2019 arose from the direct burial of the splices. WSP was of the view that this failure was not design related but was caused by PME as it should have known that the Urecon products were not rated for submersion in water even though MPE approved RFI 17. This led to the conclusion that PME's workmanship was likely defective and that there were possibly other deficiencies in PME's workmanship. In my view there was no basis for this conclusion because, as I have set out above, the failure of the system in 2019 was design related. In my view there was no need to expose the entire system to remedy the splice failures. Remedial work could have been undertaken, as was performed by PME, at the splice locations throughout the Project and the deficient thermocable replaced with a water proof

splice, or alternatively run directly to the junction box, as proposed by RFI 7 , thereby removing the need for a buried splice.

[262] I agree with the PME's submission that the system as designed, including the approval of RFI 17 and the failure to approve RFI 7, meant that the system was doomed to fail. The Urecon products mandated in the design were not suitable for the prevailing, and known, saturated soils and for burial depths below the water table. The pictures of the construction work clearly show the level of water in the excavations. I have set out my conclusion above that the Urecon products were not certified to be waterproof, so regardless of any deficiencies in the construction of the system, it was always going to fail from water ingress.

B) The Evidence Does Not Establish Causation

[263] The Counterclaim raises an interesting question of causation. As I have set out above, I have concluded that the system failed in 2019 because of the defective design which specified unsuitable Urecon products, together with the approval of RFI 17, which permitted the splices to be direct buried. The failure to approve RFI 7 was a missed opportunity to prevent the failure of the EHT system, and the approval of RFI 17 accelerated the failure mode. In its counterclaim, Summer Village, in effect, asks that I ignore the defective design and conclude that the system would have failed because of other civil deficiencies in PME's work. It relies principally upon the evidence of WSP who supervised the investigation and remediation work. However, in all of its reports, WSP never definitively expresses the opinion that, notwithstanding the design defects, the civil deficiencies would cause the system to fail, and when, having regard to the anticipated 15 year expected life of the thermocable. WSP concludes in the February 25, 2022 report that the civil deficiencies would have "significantly contributed to the failure of the system and would have allowed a significant amount of moisture into the heat trace system..." What is meant by "contributing" to the failure is not explained, nor were other factors that also may contribute to a failure identified.

[264] The WSP opinions are all premised on their conclusion that the design was appropriate in the circumstances, and that PME was responsible for the system's failure. Mr. Hardy and Mr. Minshall did not definitively link the civil deficiencies to a probable failure of the system in an identified time frame in the future. In other words, there was no evidence comparing the probable failure date in the future caused by the defective design with the probable failure date in the future caused by the civil deficiencies. They testified that the anticipated 15-year life span of the EHT system would have been reduced, but do not say by how much. In summarizing the presentation of his evidence in chief, Mr. Minshall said;

... Our opinion really was that the workmanship issues that we saw throughout the system would have contributed to the EHT failure, and the delivery of the wastewater system could not be effectively operated and maintained.

This opinion was based on his opinion that the design was not defective.

[265] There was no evidence that any of the civil deficiencies contributed to the failure of the EHT system in 2019, as all of the experts, including WSP, agreed that the direct burial of the splices caused the cause of the failure. In the PowerPoint presentation made in his evidence in chief, Mr. Minshall said;

... Direct buried splices were not appropriate for the application and were the likely primary cause of many of the failures ...

While the relocation of the splice kits outside the pipe jacket likely had the largest single impact on the failures observed by WSP.

[266] The evidence did not establish that, assuming that the design would have been appropriate for the expected ground conditions, the system would have failed because of the civil deficiencies, and when. WSP's opinion that the civil deficiencies could contribute to a future failure, but time period unknown, was premised upon its conclusion that the design was proper, that the system as designed was waterproof, and that the specified Urecon products were suitable for the known site conditions. As discussed above I prefer the evidence of Mr. Maskell that as designed the system was not suitable for the known conditions and that it was bound to fail.

C) The Evidence Does Not Establish That the Civil Deficiencies Would Affect the Function or Utility of The System

[267] I turn now to discuss the specific civil deficiencies alleged by Summer Village. The principal civil deficiency alleged is that PME installed the mainline insulation and heat shrink wrap defectively, thereby leading to a situation that water could pass through the insulation and contaminate the splice had it been installed under the pipe jacket. There was evidence that in a number of locations the heat shrink wrap had not been properly sealed by heating it during the application. This workmanship is characterized as a deficiency as it is based upon the conclusion by WSP that the Urecon system was designed to be waterproof. In my view this issue is not a deficiency which would affect the utility of the EHT system, as the system was never designed to be waterproof, and water would enter the jacket whether it was properly sealed or not. As designed, the system would fail in submerged water conditions whether the plastic jackets and other components were perfectly sealed or not.

[268] The characterization of this as a deficiency also ignores the evidence that PME was directed to not place the splices under the shrink wrap, as RFI 17 approved that the splices be direct buried. If the remedial work contemplated the relocation of the splices against the pipe under the shrink wrap, the shrink wrap would need to be removed and replaced, regardless of whether it was properly installed in the first place. In my view this is not a deficiency, and if it was, any costs associated with the relocation of the splices under the shrink wrap would have been incurred in any event in order to remedy the deficiency in the design caused by the approval of RFI 17.

[269] WSP also testified that there were deficiencies in the installation of the raceways as follows;

- lack of mechanical joints where one raceway ended and a new one began

- sharp edges to raceway ends that could damage the cable
- misaligned and non-secured raceways at connection points
- raceway missing at some missing tee and valve locations, pinch points and other conflicts that could crush the thermocable
- dirt and debris and water inside the raceway
- raceway not secured to the pipe in accordance with Urecon specifications

[270] WSP testified that these deficiencies created the potential for damage to the thermocable and potentially a reduced lifespan for the project. Other than one damaged thermocable (sample 11) that was identified in the WSP investigation, there was no other evidence that these deficiencies had resulted in any failures of the cable.

[271] The WSP conclusion that these deficiencies were problematic was based upon its belief that the cable had not been tested when it was installed. When the WSP reports were drafted, WSP was not aware that the cable had been megger tested upon installation and had passed, thereby demonstrating the cable's integrity. WSP's evidence with respect to this issue was speculative at best as it could not point to any systemic failures, but concluded that these alleged deficiencies could "possibly" lead to failures. No evidence was led as to when the failures would occur, and whether they would be in the typical lifespan of the cable of 15 years or earlier. The simple answer is that if any failures had been caused by raceway issues, they could have easily been repaired by isolating the area of the failure and performing a simple excavation to replace the cable rather than the need to replace the entire system.

[272] WSP also identified that some mainline plug valves had been installed with concrete contrary to the Contract specifications. This would affect the regular maintenance of the valve. I do not accept the Summer Village submission that PME poured concrete onto the valves because I am quite certain this would have been identified by the MPE inspectors during construction and they would have directed that it be rectified. Summer Village says that the MPE inspectors did not supervise everything done by PME when performing their work, and in effect missed this defect. No evidence was led from MPE inspectors to ascertain the frequency and

scope of their inspections. As there were a number of valves involved, I doubt that this easily identifiable error would have been missed by a MPE inspector. Additionally, I accept the evidence of Mr. Minshall that the concrete would impair the ability to turn the valves annually as part of Summer Village maintenance program. No evidence was led that Summer Village discovered the concrete in the valves when undertaking the annual maintenance program. No evidence was led by Summer Village with respect to its annual maintenance program, if any. It is a mystery how the concrete got in the valves. Possibly it was part of the vandalism as suggested by PME, but, on the evidence, it is my view that Summer Village has not established that the concrete was placed on the valves by PME.

[273] WSP identified as a deficiency that a number of curb stop valves were loose. The locations of the loose valves were principally where the residents had not yet tied into the system. This is not a defect which would require the entire system to be repaired, but could have been remedied by a simple excavation at the curb stop. I accept PME's position that the loose curb stops were likely caused by the exposure of the valves to multiple freeze-thaw cycles, together with the disturbance of the system, on the many occasions that it was excavated and daylighted by parties other than PME. I also accept the evidence of Mr. Morales that the loose valves were likely caused by the freeze-thaw cycles. This is consistent with the evidence in the contemporaneous documents prepared by MPE during construction of the system. Mr. Sentis, the MPE inspector, noted in a memo that there was concern that from the freezing and thawing, the curb stop valves could have loosened off.

[274] In addition, the evidence showed that the system had been pressure tested in November 2018, and that the testing had been overseen by representatives of MPE and had been passed. The system was fully operational when it was turned over to Summer Village at that time. The system was also pressure tested in October 2019, which testing was observed by Mr. Sentis. If the curb stops had been loose at the time of the pressure tests, the system would not have passed. Summer Village says that the pressure tests are unreliable because other pressure testing in the spring of 2021 provided a successful result when, a few months later, WSP identified

numerous loose curb stop valves. The simple answer is that the curb stop valves became loose after the pressure testing in the spring of 2021. The whole purpose of the pressure testing is to determine, at the time of testing, if any air is escaping from the system at any location, including at loose curb stop valves. The system would not have passed the pressure tests if the curb stop valves had been loose at the time of the tests. I do not accept the WSP speculation that the valves were not properly tightened by PME, and I do not accept that this is a deficiency caused by PME.

[275] Lastly, WSP says that it uncovered a number of cuts in the mainline pipe being from 240° to 270° in range, which it believes arose from the action of the workers cutting off insulation around the circumference of the pipe. Twenty-eight cuts in the pipe were identified that were 10% or greater than the thickness of the pipe wall. WSP testified that these were deficiencies based upon information from “pipe suppliers and best engineering practices”. The pipe suppliers were not identified, and no documentary reference was given with respect to best engineering practices. The suggestion was that the cuts could potentially compromise the pressure capacity of the pipe.

[276] There was no evidence that the pipe had failed in any of the locations of the cuts. There was no evidence that it was likely that the pipe would fail within any specified time frame. PME says that the cuts in the pipe could not have arisen during installation, because any defect of this nature would have been observed by the MPE inspectors. PME says that the cuts were likely caused by the vandalism on site or by the excavation of the system. It says that the evidence confirmed that there were many people working on the project with access to the project site and that there was political turmoil surrounding the project. Many of Summer Village residents were opposed to the project, and vandalism was committed on the project. As the system was installed quite shallow, it was easy to access.

[277] Mr. Morales testified that there was no way to definitively conclude how the cuts in the pipe were made, and in any event, none of the pipe cuts were fatal to the

functioning of the system. I accept the evidence of Mr. Morales in this respect. Even if the cuts in the pipe were inadvertently caused by PME workers when trimming the insulation, there is no evidence that they caused a failure, or were likely to cause a failure, in an identifiable time period. I do not accept that these were deficiencies that required the robust repair undertaken by WSP. On the assumption that any cut would eventually cause a failure in the pipe, it could be remedied by a simple excavation, rather than the extensive remedial work undertaken by WSP.

[278] In my view even if any of the above were deficiencies in PME's work, which I do not accept, they were inconsequential in the result, as the system was doomed to fail because of the faulty design which would permit the ingress of water into the EHT system in the known saturated environment. If these deficiencies had existed independent of the faulty design, they could have been easily fixed without the need to excavate the entire system.

[279] In summary, I would dismiss Summer Village's Counterclaim.

11. AWARD

[280] I hereby make the following Award:

1. I award damages to PME in the amount claimed, less the deductions set out above, to be calculated and agreed to by the parties.
2. I award interest on the amount awarded in accordance with the *Alberta Judgement Interest Act*, RSA 2000, c J-1, commencing September 13, 2019, to the date of this Award.
3. I dismiss the counterclaim of Summer Village.
4. Unless the parties have any further submissions to make with respect to costs arising from matters such as Offers to Settle, I would award costs to PME on a party and party basis.

Dated at Nanoose Bay B.C. this 27th Day of March, 2023


Christopher J. O'Connor K.C.

Arbitrator