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Preliminary Baseline Hydrogeology and Hydrology Studies
Triple Point Resources Limited
Fischell's Salt Dome Project
Southwestern Newfoundland

GEMTEC Project: 103751.001

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Submitted to:

Triple Point Resources Limited
Suite 803 - 100 New Gower Street
St. John's, NL
A1C 6K3

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Triple Point Resources Limited
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January 28, 2026
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January 28, 2026

File: 103751.001 – Rev1

Triple Point Resources Limited
Suite 803 - 100 New Gower Street
St. John's, NL
A1C 6K3

Attention: Mr. David Robbins, Vice President Environmental Management

Re: Preliminary Baseline Hydrogeology and Hydrology Studies
Triple Point Resources Limited, Fischell's Salt Dome Project, Southwestern NL

Please find the enclosed preliminary baseline assessment submitted for your consideration. This report presents an initial interpretation of hydrogeological and hydrological conditions within the Project Area based on a review of available site data and information. GEMTEC appreciates the opportunity to complete this work and trusts that the information, findings, and conclusions contained herein meet your requirements and expectations.

Vernon Banks, M.Sc., P.Geo.

CW/TP/VB

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1.0 INTRODUCTION

1.1 Project Background

Triple Point Resources Limited (Triple Point) is proposing to construct and operate the Fischells Salt Dome Energy Project, an underground energy storage and generation facility located in the Bay St. George area of Western Newfoundland.

The Fischells Salt Dome is a Gulf Coast style formation about 3 km wide, 5 km long and 2 km deep, located in southwestern Newfoundland (Figure 1.1). The primary components of the proposed project (Figure 1.2) include the main facility comprising the proposed salt cavern field, compressed air energy storage (CAES) unit and related infrastructure; the wind farm and it's associated electrical systems; the coastal pumphouse and pipelines; and a transmission line that will connect the facility to the Newfoundland electricity system.

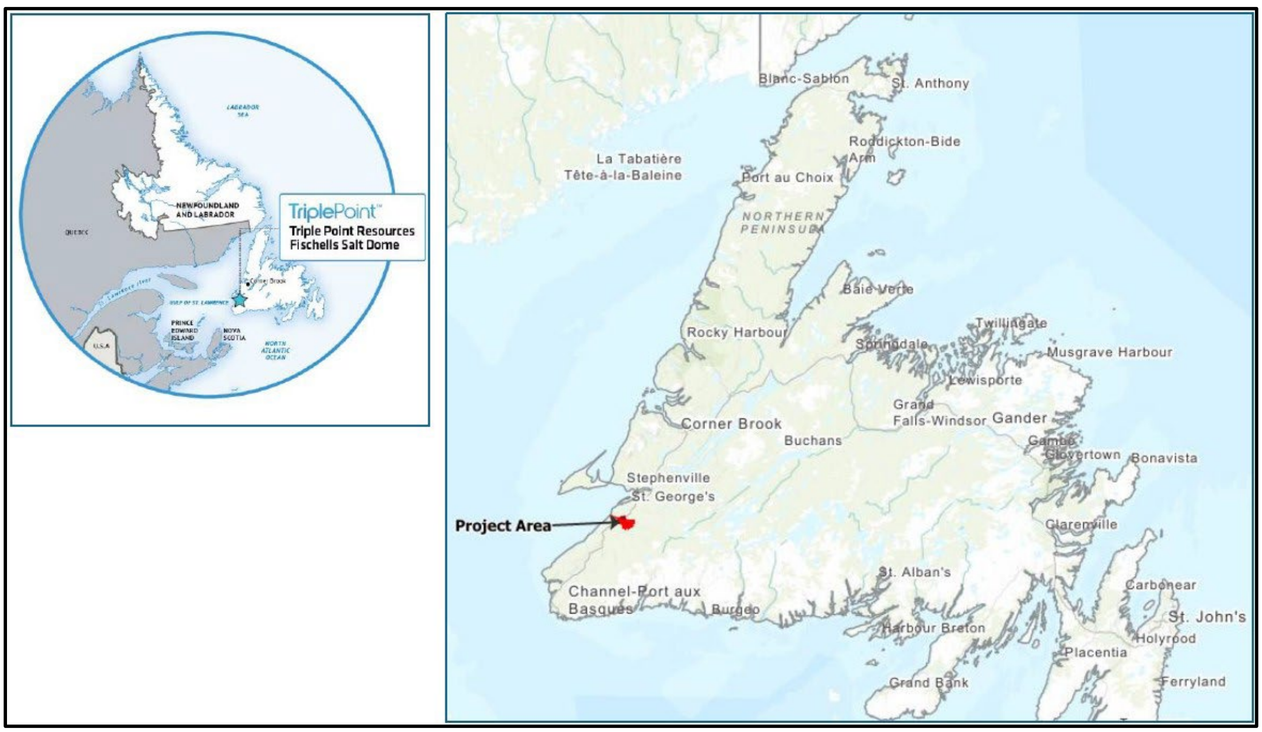


Figure 1.1 – Project Overview

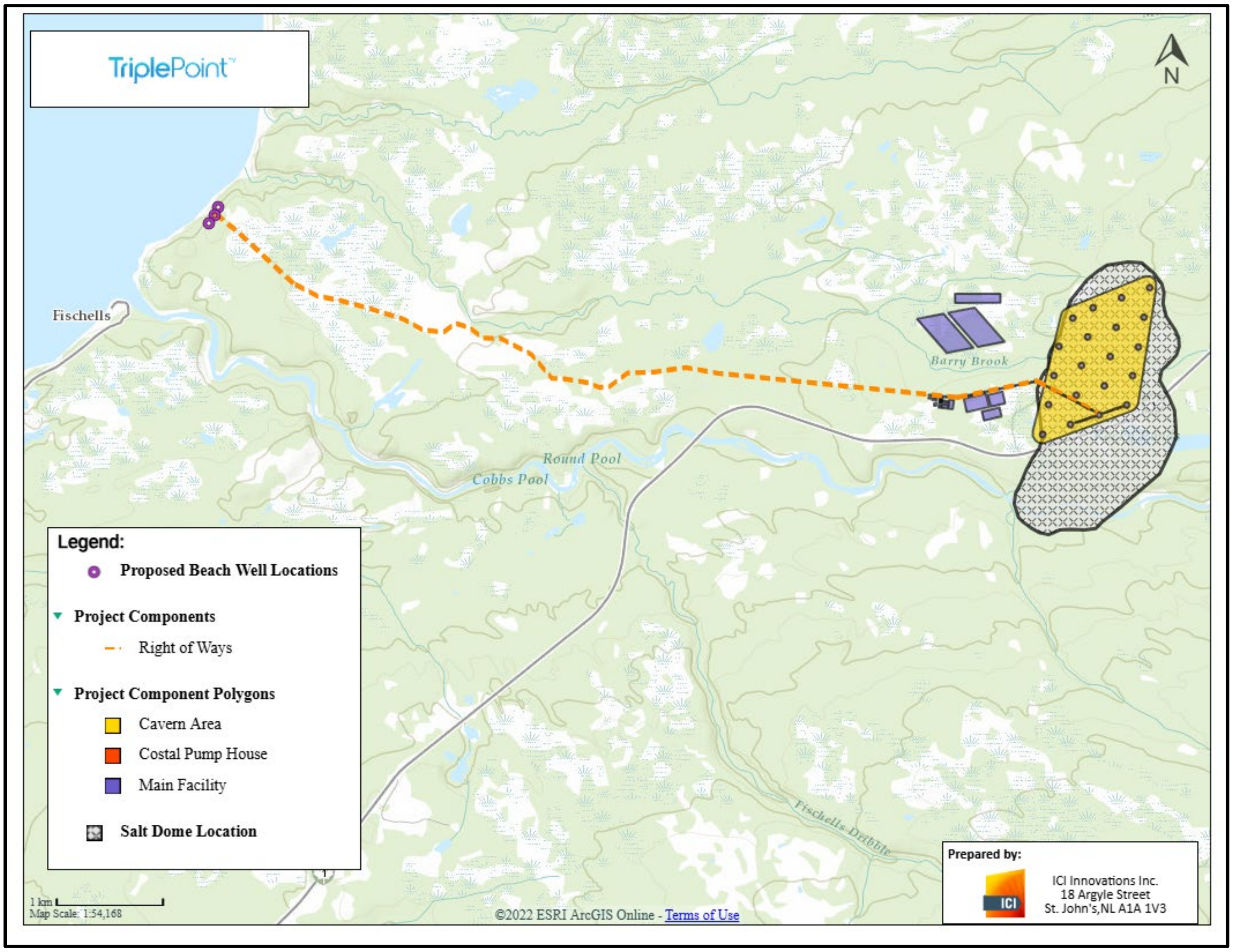


Figure 1.2 – Project Infrastructure

In support of Project development, Triple Point has requested desktop hydrogeological and hydrological studies to provide a preliminary characterization of baseline conditions.

This baseline assessment focuses on the salt dome Project Area and the associated potential pipeline corridor used to convey make-up water and brine between the site and the marine environment. The study characterizes existing shallow groundwater and surface water conditions and evaluates potential interactions with project components. Any additional development areas (including potential deeper salt caverns and potential wind turbine locations) are outside the scope of this assessment.

Shallow groundwater and surface water systems within the Project Area are interconnected, including interactions with local drainage features. This study characterizes these existing conditions and provides a preliminary assessment of how Project construction and operation may influence these systems.

This report documents anticipated baseline hydrogeological and hydrological conditions for the Fischells Salt Dome Project within a defined Project Area, with site components shown on Figure 1.2. The assessment is based on a desktop review of available site-specific and regional data; no field investigations or site visits were conducted as part of this work.

1.2 Objectives

The following sections provide an initial preliminary interpretation of the hydrogeological and hydrological conditions within the Project Area based on review of existing data and information relevant to the site. This initial interpretation of the sites physiography, drainage, groundwater levels and flow, and the hydraulic properties of overburden and bedrock are considered to help develop an understanding of how groundwater and surface water systems currently exist but also how Project components might interact with these same systems in the vicinity of the Project.

It is intended that this preliminary overview will be used to establish a baseline understanding and identify information gaps in the available hydrogeological and hydrological data sets and support the Project's development to further the understanding of the hydrogeological and hydrological conditions and its interactions with the Project components within the Project Area.

1.3 Scope of Work

This preliminary baseline hydrogeological and hydrological study was completed in advance of field investigations and is limited to a desktop review of available Project documentation, exploration drilling information provided by Triple Point, and published regional geological, hydrogeological, and hydrological reports, data and maps, supplemented by topographic mapping and satellite imagery.

No site-specific hydrogeological studies are available for the Project Area; therefore, baseline conditions have been inferred from site topography, drainage patterns, and regional hydrogeological datasets. Given the limited site-specific data, a field investigation will likely be required to adequately characterize baseline hydrogeological and hydrological conditions in support of Project development.

1.4 Summary of Information Sources

There are a few existing reports that provide relevant and potentially analogous background information for the Project Area. The first report is the "Exploratory Well Drilling Program for the Town of St. George's, NL" (Fracflow, 2003) which is focused on the hydrogeology of the Town of St. George's located roughly 15 km northwest of the Project Area. The second report is the "NI 43-101Updated Feasibility Study for the Great Atlantic Salt Project, Newfoundland and Labrador, Canada" (SLR Consulting, 2025) which is located roughly 12 km northeast of the Project Area. The last report is the NI 43-101 Technical Report, Geological Introduction to the Fischells Brook Salt Property, Southwestern Newfoundland, Canada (APEX Geoscience Ltd., 2022) that was completed for the Fischells Brook Salt Property

While some of these reports do not contain site-specific data for the Project Area, they do provide relevant and analogous information on regional hydrogeological and hydrological conditions. This includes expected properties of overburden and bedrock units, regional groundwater flow patterns, groundwater–surface water interactions, and hydraulic behaviour and potential of local aquifers. The reports also provide some general comments on the drainage basin characteristics that are believed to be applicable to the Project Area, supporting the use of this information as representative or comparable in a regional baseline context, subject to confirmation through site-specific investigations. The following sub sections provide a bullet style summary of the reports in the context of this baseline characterization:

1.4.1 Fracflow 2003

- In 2002 and 2003, Fracflow carried out several borehole and exploratory water well drilling programs and carried out various related hydrogeological testing and sampling programs on behalf of the Town of St. George's to identify and evaluate possible locations to develop an alternative public water supply for the town.
- Groundwater recharge occurs primarily through direct precipitation and snowmelt, with localized recharge from stream infiltration. Groundwater discharge occurs to surface watercourses, wetlands, and coastal areas, reflecting strong groundwater–surface water connectivity.
- Surficial deposits are generally thin and discontinuous, consisting mainly of glacial till with some localized sand and gravel. There are laterally extensive and permeable overburden sand and gravel deposits that locally reach thicknesses of approximately 20–25 m and form shallow unconfined aquifers.
- Overburden aquifers exhibit moderate to high hydraulic conductivity but limited storage and are hydraulically connected to nearby streams, allowing induced infiltration under pumping conditions. These aquifers commonly overlie brackish bedrock groundwater, necessitating careful well construction to prevent saline upconing.
- Bedrock is composed of Carboniferous sedimentary rocks of the Codroy and Barachois Groups. The Codroy Group, consisting primarily of calcareous sandstone, siltstone, and limestone, provides the most favourable conditions for potable groundwater development, whereas the Barachois Group is more frequently associated with elevated sodium and chloride concentrations.
- Groundwater flow in bedrock is fracture-controlled, with productive zones generally confined to the upper 50–60 m. A laterally extensive low-permeability clay and mudstone horizon occurs at approximately 30 m depth in the Dribble Brook area and acts as a natural hydraulic barrier; penetration of this unit by deeper wells has locally contributed to brackish groundwater upconing.

- Groundwater and surface water are strongly interconnected, particularly along Dribble Brook and within permeable overburden deposits. Under pumping conditions, hydraulic gradients may reverse, inducing stream infiltration and enhancing the potential for saline groundwater migration in bedrock wells.
- Aquifer testing indicates low to moderate transmissivity in fractured bedrock, with typical sustainable yields on the order of 100–150 L/min per well, locally higher where fracture connectivity is favourable. Overburden aquifers provide higher short-term yields but are dependent on induced recharge for long-term sustainability.
- The most favourable groundwater supply conditions occur in Codroy Group bedrock and shallow overburden aquifers adjacent to surface watercourses, provided pumping strategies and well designs are carefully managed to control salinity and groundwater–surface water interactions.

1.4.2 SLR 2025

- The proposed Great Atlantic Salt Project would be located in a low-relief coastal plain setting near St. George's, Newfoundland and Labrador, with regional topography gently sloping southwest toward Flat Bay. The Project Area would be bounded by upland terrain associated with the Lewis Hills, Long Range Mountains, and Anguille Mountains, which influence regional groundwater recharge patterns.
- Surface water features in the vicinity include Flat Bay, Flat Bay Brook, and several small ponds and headwater streams, including Burnt Pond Brook, which forms part of the Dribble Brook watershed. No permanent watercourses occur within the immediate mine disturbance footprint; however, nearby surface water systems are hydraulically relevant to regional groundwater flow.
- Groundwater recharge is interpreted to occur primarily in higher-elevation upland areas to the southeast, with groundwater flow generally following topographic gradients toward the northwest and discharging to marine waters of Flat Bay and lowland areas. Regional recharge and discharge relationships are incorporated into a 3-D numerical groundwater flow model.
- Surficial materials consist of glacial overburden averaging approximately 15 m in thickness, composed predominantly of silty sand to clayey silt till, with localized interbeds of sand and gravel. Overburden deposits are generally continuous across the Project Area and act as the primary shallow groundwater unit above bedrock.
- Bedrock underlying the overburden comprises interbedded sandstone, conglomerate, and mudstone units, which overlie a laterally extensive halite (salt) sequence of the Codroy Formation within the Codroy Group. These sedimentary units exhibit complex stratigraphic and structural relationships associated with the Bay St. George Sub-Basin.
- Groundwater flow within bedrock is fracture-controlled and stratigraphically influenced, with hydraulic properties varying significantly between lithologies. A weathered mudstone and clay-rich horizon locally forms a low-permeability hydraulic unit above the salt sequence and is a key control on vertical groundwater movement.

- Extensive hydrogeological investigation was completed, including packer testing in 23 drill holes (over 100 individual tests), installation of multi-level vibrating wire piezometers, and downhole geophysical logging. These data were used to define hydraulic conductivity distributions for overburden, sedimentary bedrock, and evaporite units within the numerical groundwater model.
- Groundwater–surface water interaction is regionally important but locally limited at the future mine site due to the absence of surface water features within the footprint. Groundwater discharge is expected to occur primarily to marine waters and lowland drainage features rather than to discrete streams at the Project location.
- Numerical groundwater modelling indicates that groundwater inflows to underground mine workings will be manageable with engineered controls, including decline design, liners, and targeted dewatering systems. Hydrogeological conditions have been explicitly incorporated into mine design, geotechnical assessments, and water management planning.
- Overall, the hydrogeological setting is well characterized and suitable for underground salt mine development, provided that groundwater inflows are actively managed and long-term monitoring continues. Ongoing refinement of the groundwater model, additional packer testing, and installation of permanent monitoring wells are recommended to support construction and operations.

1.4.3 APEX 2022

- The Fischells Brook Salt Property is located within the St. George's Bay Lowlands, a gently rolling coastal plain in southwestern Newfoundland characterized by low relief (generally ~60 m elevation near the coast, rising inland toward the Long Range Mountains). Regional topography and proximity to St. George's Bay exert a primary control on surface drainage and regional groundwater gradients.
- The Property lies within the Bay St. George Sub-Basin, a fault-bounded Carboniferous sedimentary basin. Regional groundwater flow is inferred to be controlled by basin-scale structure, stratigraphy, and topographic gradients, with discharge ultimately directed toward coastal lowlands and marine receiving environments.
- Surface water features within and adjacent to the Property include Fischells Brook and several smaller brooks, wetlands, and ponds, which form part of a locally integrated drainage network flowing generally toward St. George's Bay. These surface water systems are expected to be hydraulically connected to shallow groundwater within surficial deposits.
- Surficial materials across the Property consist predominantly of glacial drift, outwash, and locally marine sediments, which blanket much of the St. George's Bay Lowlands. These unconsolidated deposits are interpreted to host the shallow groundwater system, with permeability varying from low (till) to moderate or high (outwash and sand/gravel lenses).

- The thickness and hydraulic properties of overburden are not well constrained by existing drilling, as historical holes were advanced using tricone methods through overburden with limited hydrostratigraphic characterization. However, the presence of water-bearing unconsolidated sediments is considered likely, particularly in low-lying areas.
- Underlying bedrock comprises siliciclastic sedimentary rocks of the Codroy Group and Barachois Group, including sandstone, siltstone, mudstone, shale, limestone, gypsum, and evaporite units. Groundwater flow within bedrock is expected to be fracture-controlled, with strong lithological contrasts influencing permeability and vertical hydraulic connectivity.
- The Woodville Formation evaporite sequence, including thick halite units, is expected to exhibit very low primary permeability, with groundwater movement largely restricted to fracture zones or along contacts with overlying and underlying non-evaporitic strata.
- Structural features associated with salt tectonics, including faults and deformation related to diapiric movement of the Fischells Brook salt dome, may locally enhance secondary permeability in surrounding sedimentary rocks and influence preferential groundwater flow pathways.
- Regional groundwater recharge is inferred to occur primarily in upland areas inland of the Property, with groundwater migrating downgradient toward the coastal lowlands and surface water bodies. No site-specific recharge estimates or water balance calculations were provided.
- Groundwater–surface water interaction is expected to be most significant within surficial deposits and along brook valleys, while deeper groundwater systems associated with bedrock and evaporite units are likely more hydraulically isolated.
- The current level of hydrogeological characterization is conceptual, and no dedicated groundwater monitoring wells, hydraulic testing, or numerical groundwater flow modelling have been completed to date. The report identifies the need for improved understanding of water-bearing overburden and structurally complex sediments overlying the salt dome as a key data gap for future mine or cavern design.
- Overall, the hydrogeological setting is considered potentially suitable for underground salt mining or storage applications, provided that future project stages include detailed hydrogeological investigations, including overburden characterization, bedrock hydraulic testing, groundwater monitoring, and assessment of groundwater–surface water interactions.

2.0 PROJECT AREA SETTING

2.1 Location and Access

The Fischells Brook Salt Property is situated in the Bay St. George region in southwestern Newfoundland, approximately 27 kilometres (km) southeast of Stephenville, NL, and 11 km inland from the community of Fischells, NL (refer to Figures 1.1 and 1.2).

From Stephenville, NL, the Property can be reached by traveling south along NL-490 S to the Trans-Canada highway. Travel southwest along the Trans-Canada for approximately 25 km to reach the Fischells Brook Salt Property. The Trans-Canada highway transects the Property from the northeast to the west.

2.2 Physiography, Topography and Drainage

Regionally the Project Area and overall Project are located within a low-lying physiographic region referred to as the Stephenville Lowlands (this unit includes the Port au Port Peninsula, Stephenville area, St. George's Bay Lowlands and Codroy Lowlands). This physiographic region is characterized by a low-lying coastal plain that is bounded by various upland regions, including the Lewis Hills and Serpentine Range in the north, the Long-Range Mountains in the east, and the Anguille Mountains in the south.

The Project Area sits at an elevation of approximately 125 m above sea level (masl) and regionally slopes generally gently west to the coast at St. George's Bay in the Gulf of St. Lawrence. Locally, the Project Area straddles the drainage divide between Barry Brook to the northwest towards, and Fischells Brook to the southwest. Higher elevations are present in upland regions southeast of the Project Area and southern side of Fischells Brook, with elevations quickly reaching 200 masl less than 5 km from the Project Area and just 2.5 km south of Fischells Brook. To the southeast maximum elevations of up to 600 masl are observed in the Long-Range Mountains, located approximately 25 km to the southeast (Figure 1.2).

Surface drainage from the Project Area is expected to follow topography and drain predominantly to the west towards St. George's Bay via Barry Brook and Fischells Brook.

2.3 Local Water Bodies

The most significant local surface water features are the marine waters of St. George's Bay, which borders the Project Area approximately 9.5 km to the west. Fischells Brook and Barry Brook which are positioned immediately south and immediately north, respectively, of the Project Area. Both brooks flow east-west before ultimately discharging into St. George's Bay. Rocky Ponds are also located immediately south of the site across the Trans Canada Highway (Figure 4.1) along with several small unnamed ponds that are present within wetland features within the Project Area.

Based on review of the NL Department of Environment and Climate Change (NLDECC) online Water Resources Portal (NLDECC, 2025), no surface water Public Protected Water Supply Areas (PPWSA) are present within the Project Area. The closest surface water PPWSA is the Dribble Brook PPWSA, located approximately 25 km north/northeast of the Project Area and utilized by the Town of St. George's.

3.0 GEOLOGY

3.1 Surficial Geology

Based on a review of 1:50,000 surficial geology mapping for the Project Area by (Liverman, D.G.E., 2001), the bedrock in the area is predominantly overlain by glaciofluvial and fluvial material that occurs as hummocks and terraces as well as more extensive plain deposits. Deposits of poorly-drained organic and peaty soils are very common throughout the Project Area, overlying either the glaciofluvial or fluvial units or bedrock. Regional surficial geology is presented in Figure 3.1.

The till veneer and organic units are of primary interest, as they underlie most of the Project Area and the infrastructure surrounding the Salt Dome (Figure 3.1). Although the thickness of these units is not well known, the historical exploration borehole logs indicate an average overburden thickness of approximately 63 m at the site. While these logs suggest substantial overburden within the Project Area, its composition and associated properties are not known.

Fluvial deposits composed of sand and gravel are mapped along the entire length of Fischells Brook south of the Project Area (Figure 3.1). These permeable materials may have potential for water supply sources. Along the potential pipeline alignment extending from the Project Area to St. George Bay, several surficial units are present, including hummocky till, lineated till, thick till, and organic deposits (Figure 3.1).

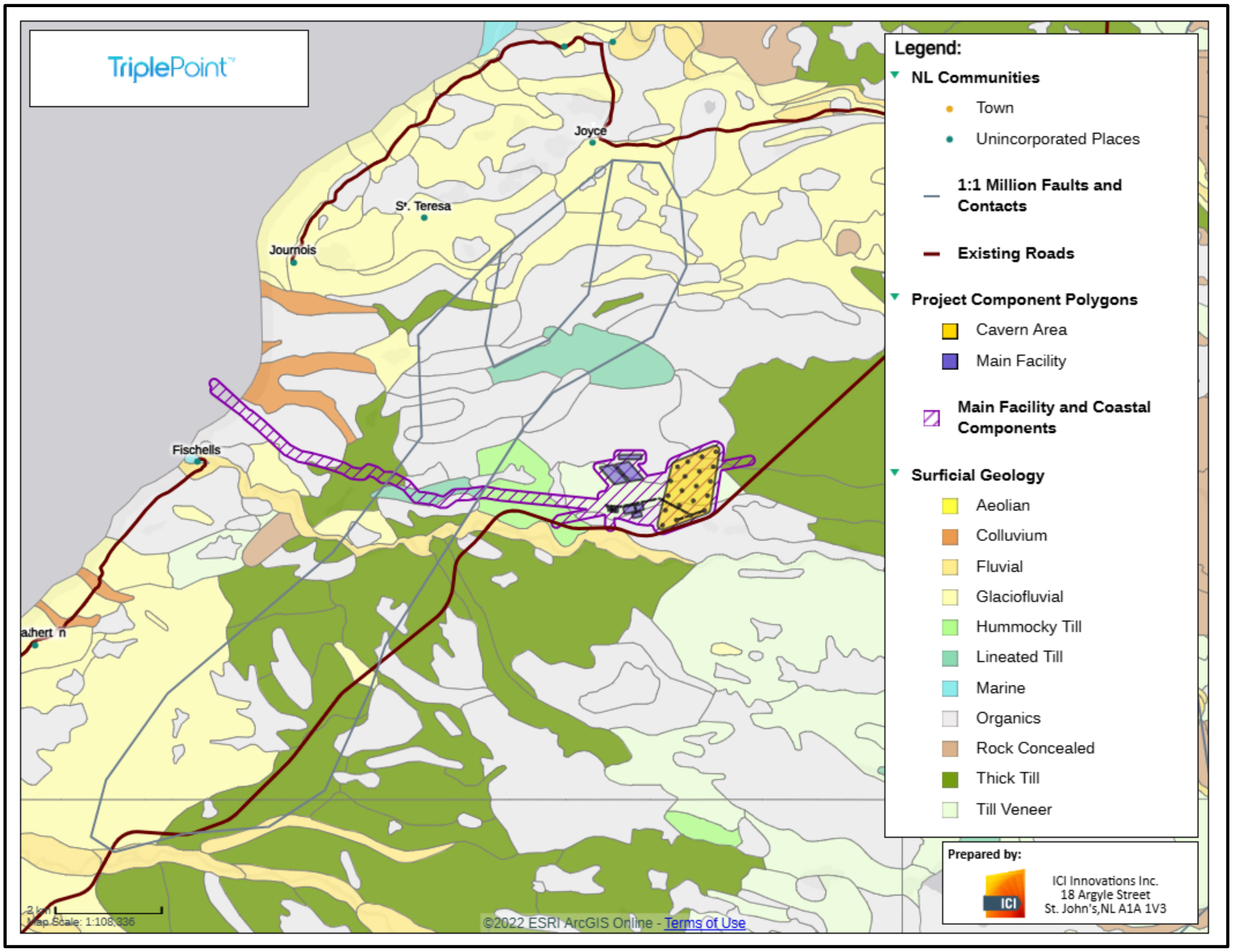


Figure 3.1 – Regional Surficial Geology

3.2 Regional Bedrock Geology

The regional bedrock geology of the Project Area is summarized in Figure 3.2 and described below. The information is drawn primarily from Collins (2017) and Northcott (2015) and is also based on the work of Knight (1983).

The Project Area is located within the Carboniferous Bay St. George Sub-Basin of southwestern Newfoundland. This sub-basin forms the northeastern extension of the Maritimes Carboniferous Basin, a large basin complex underlying the Gulf of St. Lawrence and adjacent onshore areas. Onshore, the Bay St. George Basin occupies a zone approximately 22 km wide between St. George's Bay and the Long Range Mountains.

The basin is interpreted to have formed as a pull-apart basin west of the northeast-trending Long Range Fault, a major strike-slip structure within the regional Cabot Fault system. Strike-slip movement began in the Middle to Late Devonian during the Acadian orogeny and continued into the Early Carboniferous. Basin development was influenced by local structural features, including the Snake's Bight Fault, the St. George's Coalfield Syncline, and the Flat Bay and Anguille anticlines, which together produced an irregular basin geometry characterized by fault-bounded ridges and depressions.

The St. George Sub-Basin contains up to approximately 10 km of Carboniferous sedimentary rocks divided into three stratigraphic groups: the Late Devonian to Early Mississippian Anguille Group, the Middle to Late Mississippian Codroy Group, and the Late Mississippian to Early Pennsylvanian Barachois Group. The Anguille Group comprises non-marine siliciclastic rocks and represents the oldest basin fill. These strata are overlain by marine and non-marine carbonates, evaporites, and clastic rocks of the Codroy Group, which in turn are overlain by interbedded sandstone, siltstone, and shale of the Barachois Group. Carboniferous strata rest unconformably on Precambrian and early Paleozoic granitic and mafic gneiss and schist of the Humber Zone of the Appalachian orogen.

Sedimentary rocks within the sub-basin were deformed during the Late Carboniferous to Early Permian as part of the Alleghenian orogeny. This deformation produced major northeast-trending folds, such as the Flat Bay anticline just west of the Project Area, as well as northeast-trending synthetic and northwest-trending antithetic faults associated with renewed strike-slip movement along the Cabot Fault system.

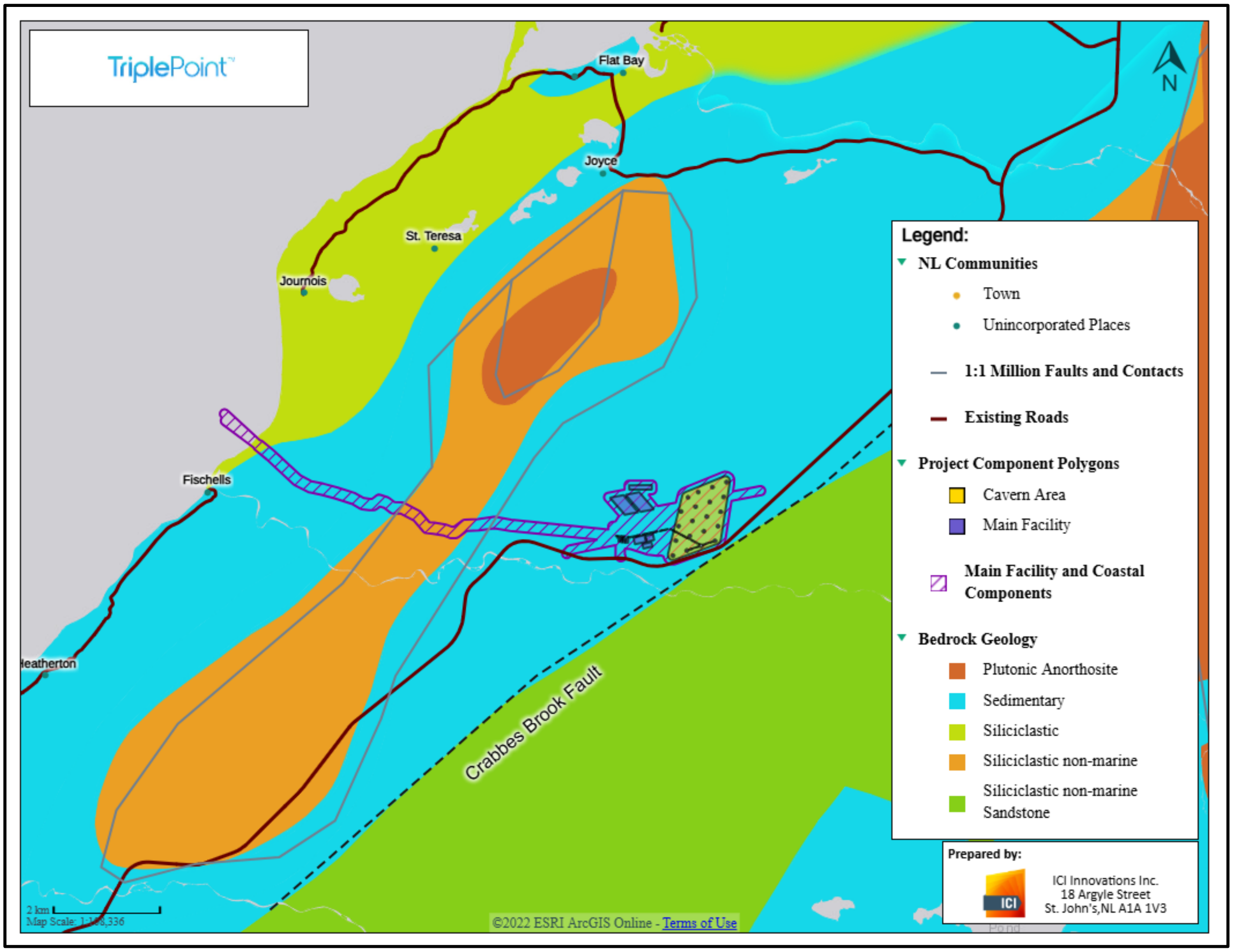


Figure 3.2 – Regional Bedrock Geology including Fault Mapping

3.3 Local Bedrock Geology

The siliciclastic Mississippian aged Jefferys Village Member (JVM) of the Robinson River Formation (Codroy Group) underlies the majority of the Project Area and is comprised of sandstones, conglomerates, siltstones, mudstones, and shales. Across the Trans Canada Highway to the southeast the Codroy Group is mapped to be in contact with the Mississippian to Pennsylvanian aged siliciclastic sandstone, conglomerate, siltstone, mudstone, and shale of the Barachois Group (Figure 3.1).

Based on historical drill log descriptions and interpretations from (Snyder, M.E. and Wadron, J.F, 2021), the Jefferys Village Member (JVM) in this region is believed to extend from the bedrock surface (beneath the surficial till) to depths ranging from 320 to 530 metres below ground surface (mbgs) where the historical drill logs encountered the basal halite (APEX Geoscience Ltd., 2022). Generally, the upper cyclic sequence of interbedded siliciclastic sediments, including conglomerate, sandstone, siltstone and mudstone underlain by the lower evaporitic sequence comprised primarily of massive, crystalline basal halite (salt) that make up the target salt deposit.

3.4 Structural Geology

Carboniferous sub-basins in southwestern and western Newfoundland commonly align with major northeast-trending fault systems. Variations in stratigraphy and depositional breaks among these sub-basins reflect differing fault movement histories. Near the Fischells Brook Salt Property, the Anguille Anticline exposes the Long-Range Complex, while to the southeast the Codroy Syncline contains thick evaporite sequences and the flat bay anticline to the west of the Project Area brings the Anguille Group closer to the surface. A local fault, the Crabbes Brook Fault, has been previously interpreted in the area between historic drillholes completed by Hooker and Amax (APEX Geoscience Ltd., 2022) and can be seen in Figure 3.2.

3.5 Sinkhole and Karst Geology

Sinkhole occurrences mapped within the Flat Bay area show spatial association with the edges of the mapped JVM and the Flat Bay anticline (Anguille Group). The occurrences are also notably sparse or absent within the adjacent Barachois Group and within the siliciclastic units of the Anguille Group as well as the Elosonian Anorthosite Suites (Figure 3.3).

Based on lithologic descriptions, the Jeffrey’s Village Formation (JVM) is expected to have lower karst susceptibility compared to other members of the Codroy Group; however, older evaporitic and carbonate units within the group are known to be more prone to karst development. Snyder and Waldron (2021) place the Codroy Road limestones stratigraphically between the JVM and the Anguille Group. Based on this, it’s possible that the mapped sinkholes along the flanks of the Flat Bay Anticline (Figure 3.3) represent the potential presence of a more karst-prone carbonate and evaporitic bedrock along edges of the anticline.

It is important to note that the surface expression of sinkholes is strongly influenced by the thickness and mechanical properties of overburden materials. Thick or competent overburden can mask subsurface dissolution and delay or prevent visible collapse, whereas thin or unconsolidated cover may allow sinkholes to develop more readily, even where karst processes are similar at depth. Based on the surficial mapping there does not appear to be a correlation between the identified sinkhole locations and mapped surficial units or thickness.

Notably, sinkhole occurrences north of the Project Area (Figure 3.4) do not conform to the discussed pattern, as they are not clearly aligned with anticline flanks or zones or any specific bedrock type. The DEM Lidar image and the plotted sinkhole occurrences shown in Figure 3.3 also shows that the two sinkhole occurrences north of the project are not expressed like some of these features to the west and around the Flat Bay Anticline. Consistent with these findings the focused field investigation by (Infinite Lithological, 2024) indicated that, while some mapped sinkholes in the region are true karst features, the mapped sinkholes near the Fischells Salt Dome, and others, are likely misinterpreted and reflect glacial or wetland processes rather than active karst hazards.

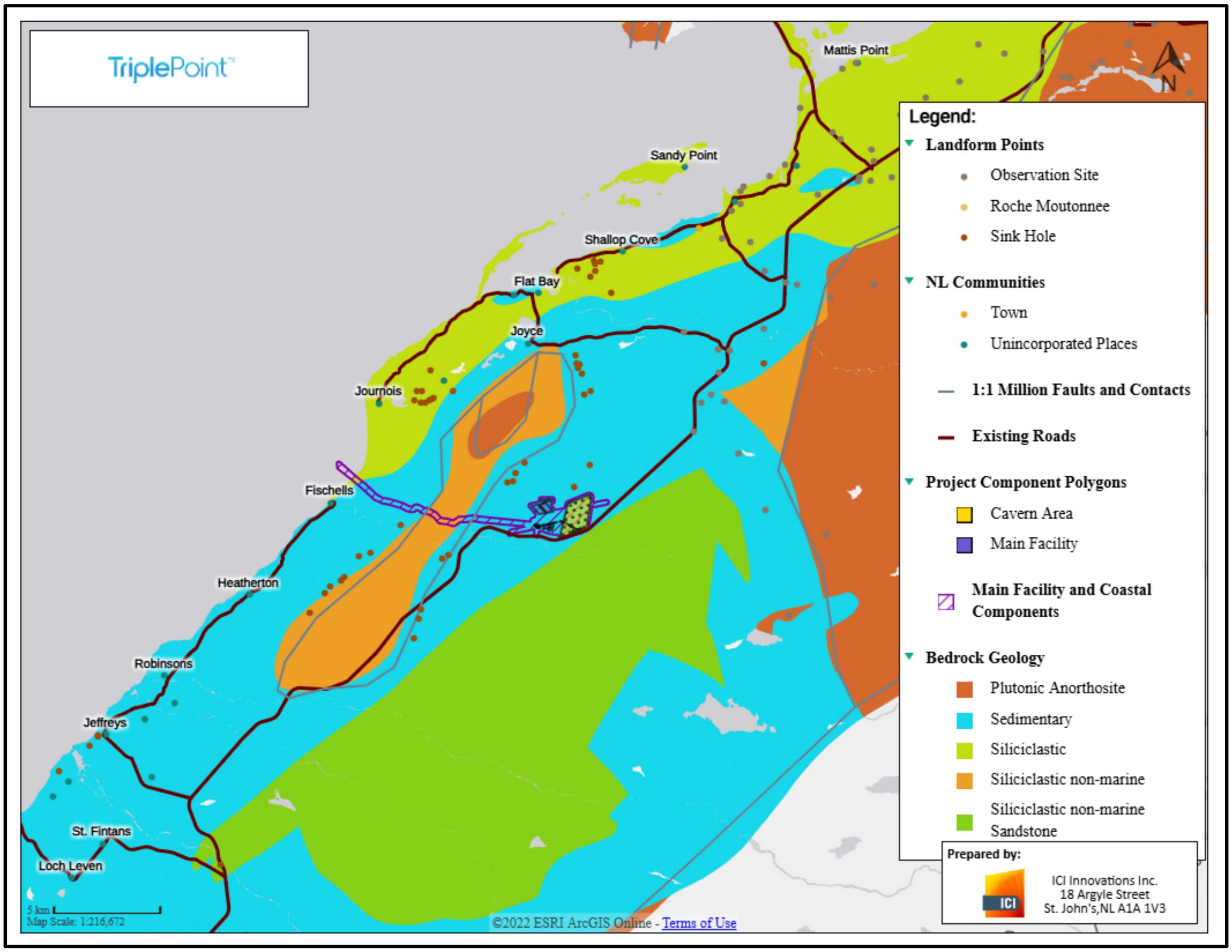


Figure 3.3 – Sinkhole Mapping

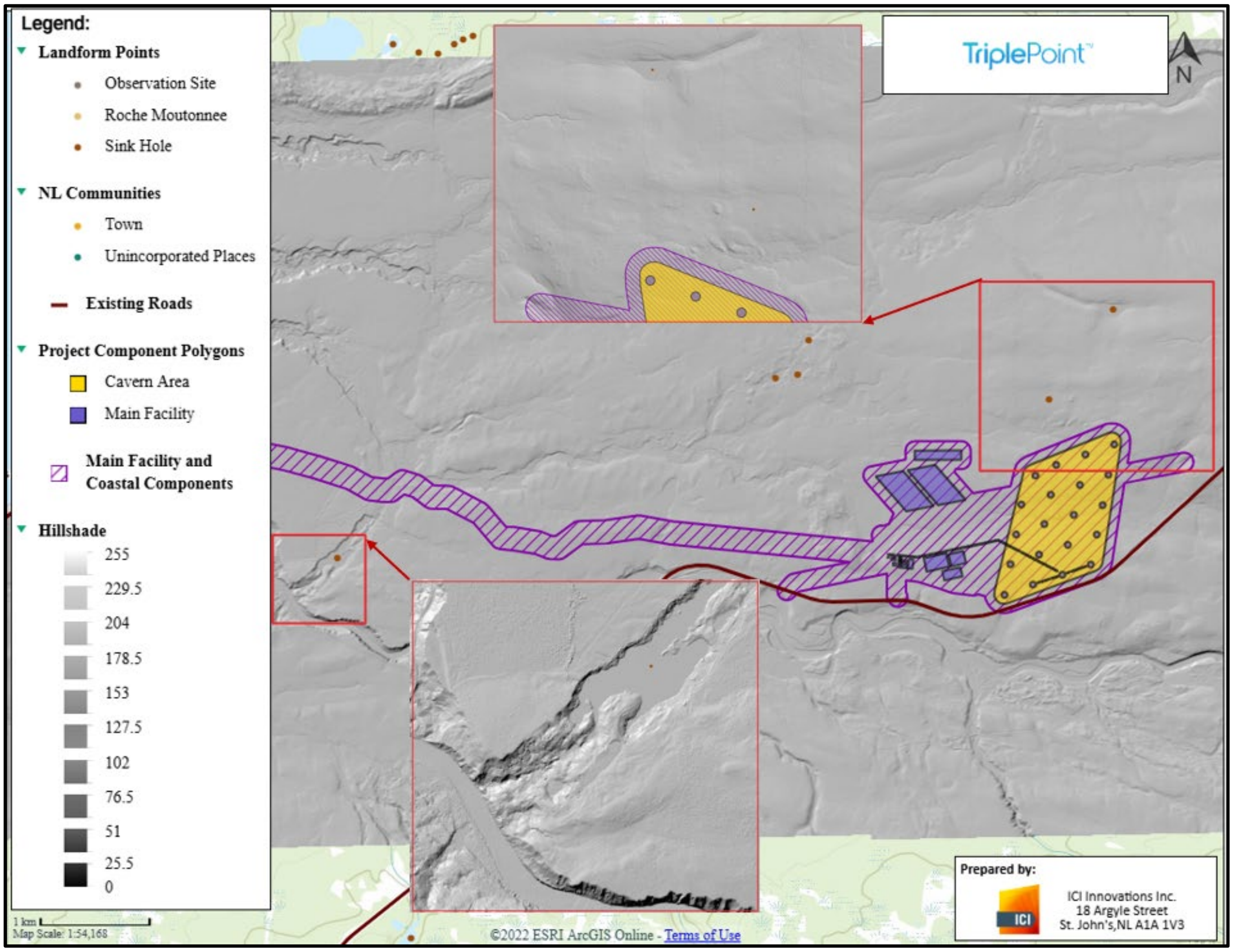


Figure 3.4 – Sinkhole Mapping with Lidar Hillshade

4.0 LOCAL WATER USERS

Based on available records, there are no known groundwater users in the Project Area. Further there are no protected public water supplies present within the Project Area and its drainage catchment areas.

Based on review of the NL Department of Environment and Climate Change (NLDECC) online Water Resources Portal (NLDECC, 2025), no groundwater Public Protected Water Supply Areas (PPWSA) are present within the Project Area. The closest PPWSAs, utilized by the Town of Flat Bay for groundwater supply wells, are located approximately 6.5 km north of the Project Area.

A review of active water use licences within 5 km of the Project Area was carried out using the NL Water Use Licences online mapping tool (Newfoundland & Labrador Department of Environment and Climate Change (NLDECC), 2025) determined that there are no active water use licences in the Project Area. The search indicated that, as of Oct 22, 2025, there are no water rights holders in the immediate vicinity of the Project Area.

The closest public surface water supply is the Dribble Brook surface water supply, which is located approximately 15 km northeast of the site (refer to Figure 4.1) and is the backup water supply for the Town of St. George's. Given the significant distance and the number of intervening topographic and hydraulic drainage divides that separate the Dribble Brook catchment area from the site, the Project Area is not considered to be hydraulically connected to this public water supply or the Town of Flat Bay.

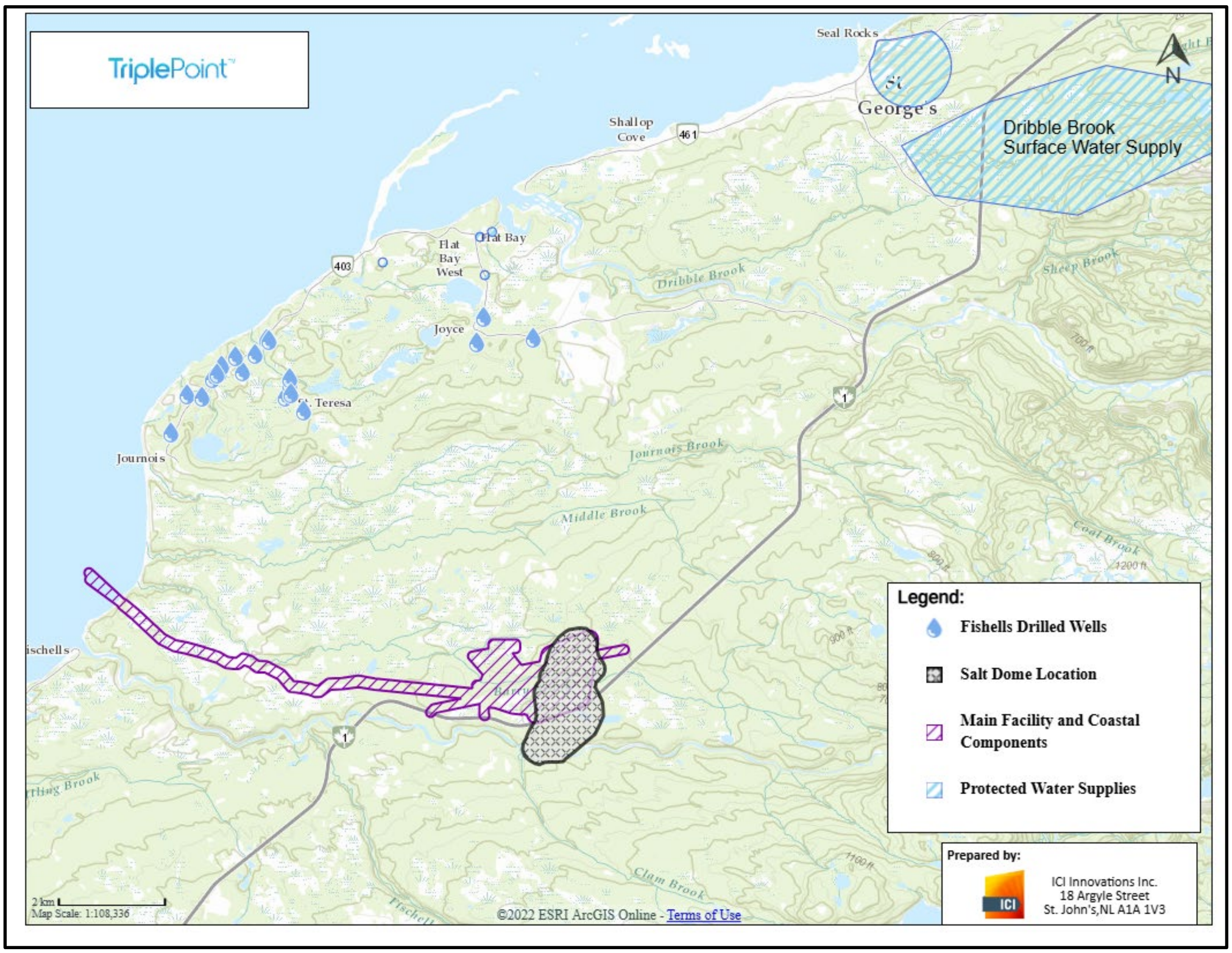


Figure 4.1 – Local Water Users

5.0 PRELIMINARY HYDROGEOLOGICAL CHARACTERIZATION

The following sections provide an initial interpretation of the potential hydrogeological conditions within the Project Area. This initial interpretation of site physiography, drainage, groundwater levels and flow, and the hydraulic properties of overburden and bedrock are considered to be a first step to help develop an understanding of how groundwater might interact with the Project, and how the Project components might in turn interact with the natural hydrogeological and hydrological systems in the vicinity of the Project.

5.1 Hydrostratigraphy (Initial Conceptual Site Model)

The intent of this section is to form the initial basis of a Conceptual Site Model (CSM) for the Project Area by bringing together the surficial and bedrock geology of the Project Area (section 3.1) and the existing information sources (Section 1.4). In addition to these resources the work of AMEC (2008) "Hydrogeology of Western Newfoundland" provides a regional hydrogeological characterization based on compiled geological (bedrock and surficial), hydrogeological, hydrological, and water quality data to support baseline environmental characterization of groundwater conditions. It is useful for establishing background context and identifying regional trends, but the results are inherently generalized.

Based on the information sources described above, the geological materials anticipated to underlie the Project Area have been grouped into three hydrostratigraphic units according to their hydrogeological properties:

- Surficial - Organics / Till / Glaciofluvial or Fluvial Deposits
- Upper Siliciclastic Sedimentary Bedrock Sequence (Jeffreys Village Member and Barachois Group)
- Evaporite Sequences (Woodville Formation)

5.1.1 Organics / Till / Glaciofluvial or Fluvial Deposits

As indicated in section 3.0 the till veneer and organic units are of primary interest, as they underlie most of the Project Area and the infrastructure surrounding the Salt Dome (Figure 3.1).

The composition of the site's till has not been determined and cannot be commented on based on the logs provided but based on the location of the Project Area, the AMEC (2008) maps the Project Area as largely Unit A with some Unit B coverage towards the west of the Project Area. Unit A is a till varying from silty sand to clayey silt with Unit B described as primarily gravel, sand and silt.

The Amec (2008) study uses a total of 39 well records to characterize Unit A. Well yields ranged from 0 L/min to 231.8 L/min and averaged 48.2 L/min. Well depth ranged from 9.1 meters (m) to 39.6 m and averaged 20.7 m. The permeability of Unit A is through its primary intergranular porosity and is generally low to moderate but may be higher within increased sand and gravel content. The 2008 study also indicates that Unit B is expected to have a moderate potential yield based on 400 well records with well yields ranging from 0 L/min to 1,793 L/min with an average of 73.9 L/min and depths ranging from 4.6 m to 121.1 m, averaging 29.0 m. None of the wells defining either hydrostratigraphic Unit A or B are located near the Project Area.

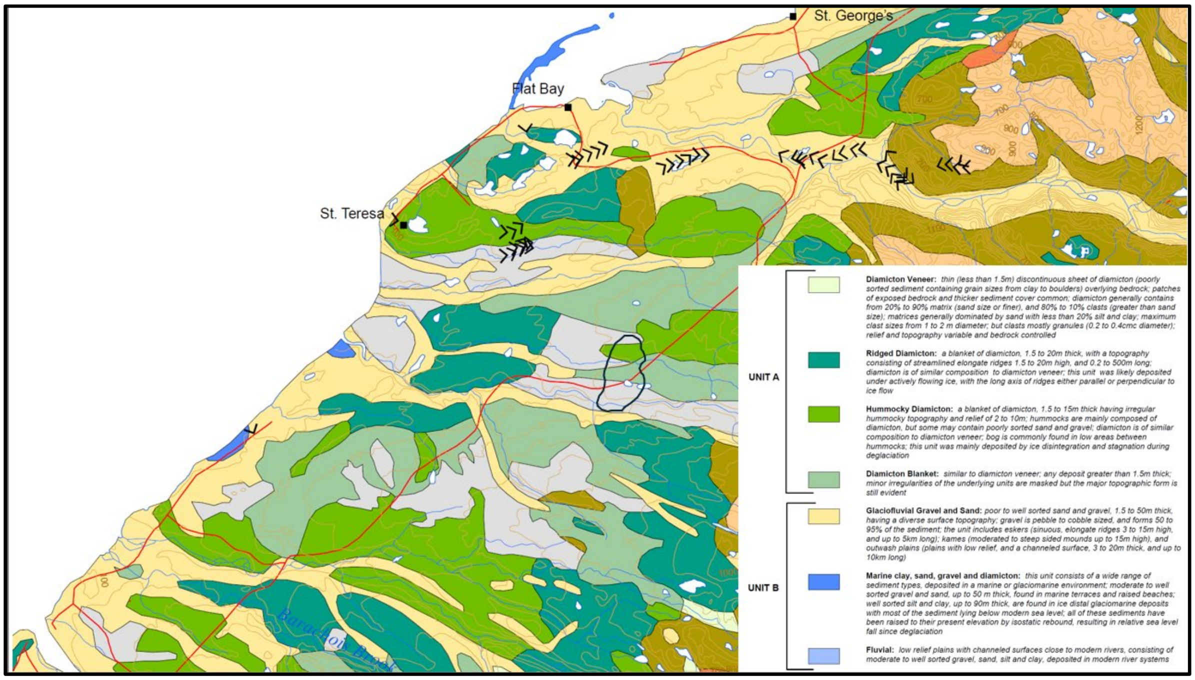


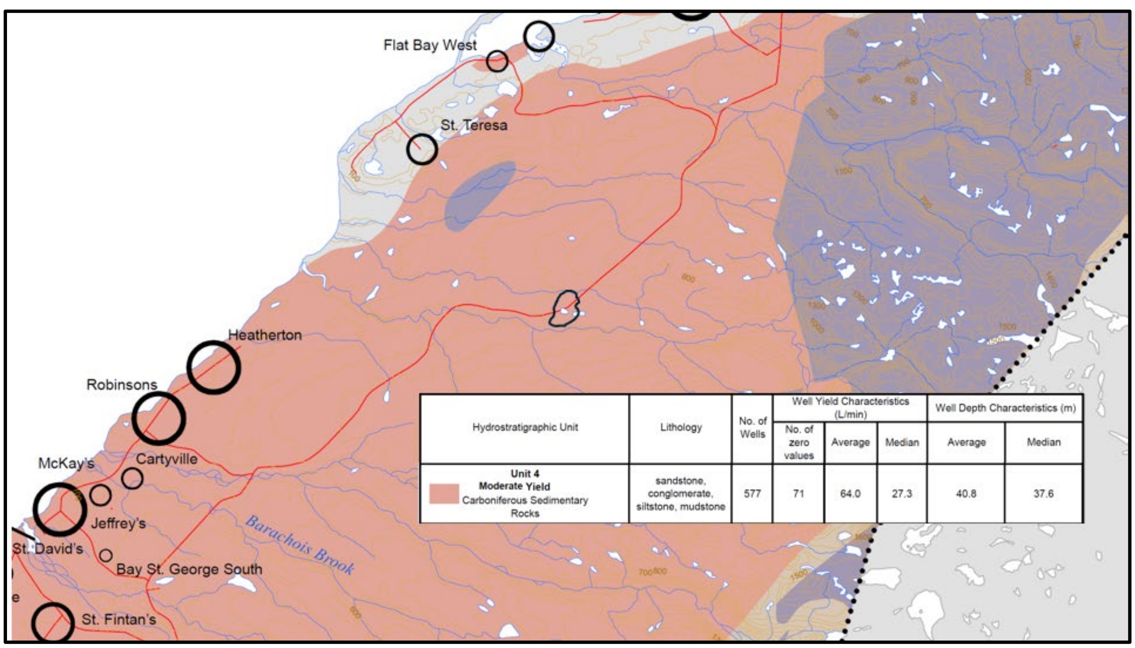
Figure 5.1 – AMEC (2008) Surficial Hydrostratigraphic Units

5.1.2 Upper Siliciclastic Sedimentary Bedrock Sequence (Jeffreys Village Member and Barachois Group)

In the Project Area the upper siliciclastic sedimentary sequence of the JVM is believed to extend from beneath the surficial deposits to approximately 320 to 530 mbgs (based on historical logs and APEX 2022) and comprises an interbedded sequence of conglomerate, sandstone, siltstone and mudstone having bedding thicknesses ranging from less than 5 m up to tens of meters. While this sequence is comprised of a number of lithologically distinct sedimentary beds (each with their own unique hydraulic properties), there is insufficient data available for these beds to be separated into discrete hydrostratigraphic units at this time. Instead, for the purposes of this preliminary hydrogeology study, the entire upper siliciclastic sedimentary bedrock sequence is grouped into one hydrostratigraphic unit. GEMTEC expects that groundwater flow within this hydrostratigraphic unit will mainly be due to primary intergranular porosity and will be most pronounced within the more permeable sandstone and conglomerate beds, while the siltstones and mudstones will have low permeability. The modelled hydraulic conductivity of the conglomerate, sandstone, mudstone units in the SLR (2025) report range from 3.90E-8 to 2.54E-7 m/s. Secondary porosity associated with fracture networks and fault and rubble zones could locally enhance the permeability of the various sedimentary rock types within this hydrostratigraphic unit.

This hydrostratigraphic unit corresponds to regional hydrostratigraphic Unit 4 in the AMEC (2008) regional hydrogeological study. The Carboniferous basin sedimentary rocks that define this unit are locally exploited for private water supplies in the region. Based on a total of 582 well records, yields are reported to range from 0.0 L/min to 789 L/ min, with an average of 64 L/min. Well depths supporting such yields range from 6 to 154 m, with an average depth of 38 m. Results of aquifer testing completed on 84 wells in Unit 4 support the average yield estimate from driller's air lift testing provided in the water well records indicating an average estimated safe yield of 125.8 L/min with a range of 2 to 1,530 L/min. Unit 4 generally offers a high potential to meet any domestic groundwater needs and limited industrial or commercial needs. None of the water well records defining the hydrogeological characteristics of Unit 4 are located in the vicinity of the site, the closest wells are in St. Teresa to the northwest, and in Heatherton to the southwest.

These Unit 4 ranges are also in line with the Frac Flow study completed in 2003 for the community of St. Georges that indicated that the aquifer testing completed for that program indicated a low to moderate transmissivity in fractured bedrock, with typical sustainable yields on the order of 100–150 L/min.



Hydrostratigraphic Unit	Lithology	No. of Wells	Well Yield Characteristics (L/min)			Well Depth Characteristics (m)	
			No. of zero values	Average	Median	Average	Median
Unit 4 **Moderate Yield** Carboniferous Sedimentary Rocks	sandstone, conglomerate, siltstone, mudstone	577	71	64.0	27.3	40.8	37.6

Figure 5.2 – AMEC (2008) Bedrock Hydrostratigraphic Units

5.1.3 Evaporite Sequences (Woodville Formation)

From a hydrogeological perspective, the halite and anhydrite units are interpreted to have simar lithological characteristics and are grouped together as one hydrostratigraphic sequence. To GEMTEC's knowledge no K testing has been completed on the evaporites in the Project Area; however, literature values for these evaporite units show ranges from 1E-12 m/s to 2E-10 m/s for the halite, and a slight wider range from 3E-13 m/s to 2E-8 m/s for the anhydrite (Domenico, P.A; Schwartz, F.W, 1998). The K ranges for the halite and anhydrite reflect low to very low permeabilities, and groundwater movement through these units is expected to be primarily associated with secondary porosity along bedding plane fractures with other interbedded sedimentary and carbonate units.

5.2 Groundwater Levels and Flow Directions and Gradients

Based on desktop review only, the Project Area is inferred to be underlain by an unconfined aquifer system contained within the underlying siliciclastic bedrock of the JVM. The movement of groundwater within the bedrock is expected to mainly occur within secondary openings, such as fractures, and joints, and will be variable depending on the frequency and interconnection of these structural features. Figure 5.3 illustrates the topographically-inferred shallow groundwater flow regime across the Project Area showing the inferred shallow groundwater flow divides and areas of recharge and discharge associated with the groundwater system. Groundwater is thought to be recharging along the crest of the ridge that underlies the site, which acts as a natural drainage divide in the area. The direction of shallow groundwater flow in the Project Area is assumed to follow topography and surface water flow, which would be to the northwest predominantly towards the Barry Brook to the north and Fischells Brook to the south. It is expected that the shallow groundwater system in the Project Area will be largely controlled by surface runoff and local recharge, while at moderate depths the flow system may be influenced by lateral inflow of groundwater from interior highland areas to the east with the potential to be under artesian pressures.

In summary, groundwater levels in the Project Area are only inferred at this time. The overburden groundwater systems in the Project Area are likely to be to be close to ground surface and to be a subdued reflection of the topography and closely linked to surface water features with higher water levels during spring snowmelt and wetter periods, and lower levels during late summer or extended dry conditions

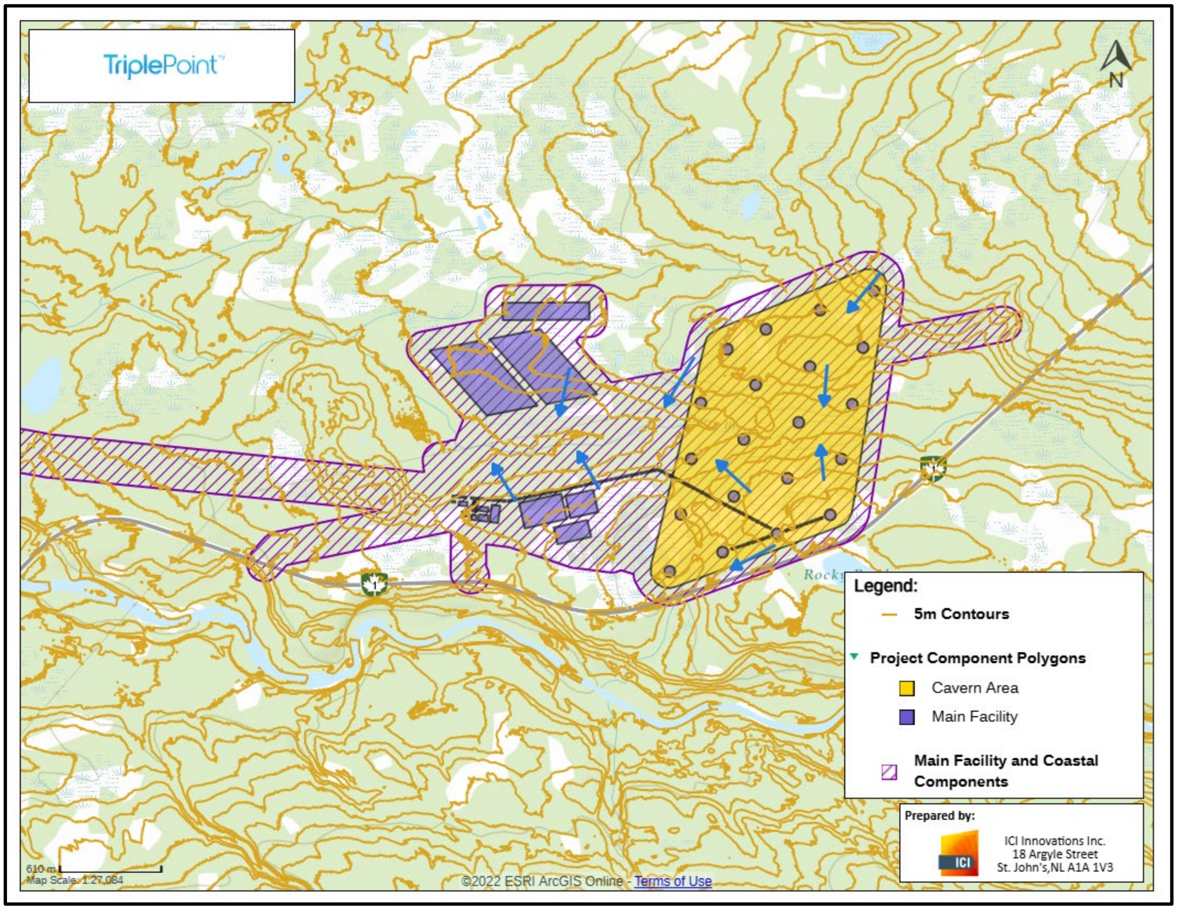


Figure 5.3 – Inferred Groundwater Flow Directions

5.3 Groundwater Surface Water Interaction

Within the Project Area groundwater flow within the overburden units will generally be toward nearby brooks, which act as local discharge features and also receive groundwater contributions that help sustain baseflow during low-flow periods. This conceptual model of groundwater discharge to surface water is consistent with regional hydrogeological conditions documented for the Fischells Brook area and nearby watersheds.

The hydrogeological investigations in the broader St. George's area, Frac Flow (2003) indicate that vertical interaction between bedrock groundwater and overlying sand and gravel aquifers is generally limited by low-permeability clay or mudstone layers but can increase where these layers are absent or breached by wells or drilling. Pumping from sand and gravel aquifers has been shown to locally alter hydraulic gradients and induce infiltration from nearby surface watercourses implying a well-connected integrated system.

5.4 Groundwater Quality

An understanding of groundwater chemistry is required in order to assess the potential effects of Project-related seepages/run-off, and the potential for the development of on-site water supply wells. Based on 252 available analyses from 14 different source waters in other areas of Hydrostratigraphic Unit 4, the groundwater in this unit can be classified as being predominately calcium carbonate type, with some sodium bicarbonate type waters (AMEC 2008). From a potability perspective, water quality for this unit is expected to be fair to excellent, although various parameters, including TDS, turbidity, arsenic, iron, sulphate and manganese, have been identified at concentrations that exceed Canadian Drinking Water Quality Guidelines in the Bay St. George area (AMEC, 2008). None of the source waters that define groundwater quality characteristics of Unit 4 are located in the vicinity of the Fischells Salt Dome. Further, no groundwater quality data is available specifically for the Project Area.

It was noted that water quality considerations related to high salinity is an issue in Hydrostratigraphic Unit 4, as limestone, gypsum and salt tend to dissolve along flow paths, causing both greater flow capacity and increased mineral content.

6.0 PRELIMINARY HYDROLOGICAL CHARACTERIZATION

6.1 Climate and Hydrologic Data Sources

The desktop assessment used long-term regional climate and hydrologic records to characterize local conditions in the Project Area. The primary sources of climate and hydrological data sets are listed below.

- Historical weather and Canadian Climate Normals data was obtained from Environment and Climate Change Canada. This includes detailed records of temperature, precipitation, and Climate Normals for meteorological stations in the region.
- Hydrometric data available through Environment and Climate Change Canada (wateroffice.ec.gc.ca) for a number of streamflow gauging stations in the region. The hydrometric data includes historical and real-time water level and flow. In this study, data was analyzed for the four hydrometric stations identified in Figure 6.1 and Table 6.1.
- The Water Resources Atlas of Newfoundland (NL WRD, 1992) provides mean annual estimates of various climatic parameters, including temperature, precipitation, runoff, evaporation, etc. Although this is not a recent study, it is considered to provide reasonable estimates of various climatic parameters for the purposes of this study.
- The Newfoundland and Labrador Water Resources Portal is a website maintained by the provincial Water Resources Management Brach and provides insight to the local watercourses, wetlands and regulated uses (water bodies, monitoring stations, water rights, drinking water supplies, etc.).

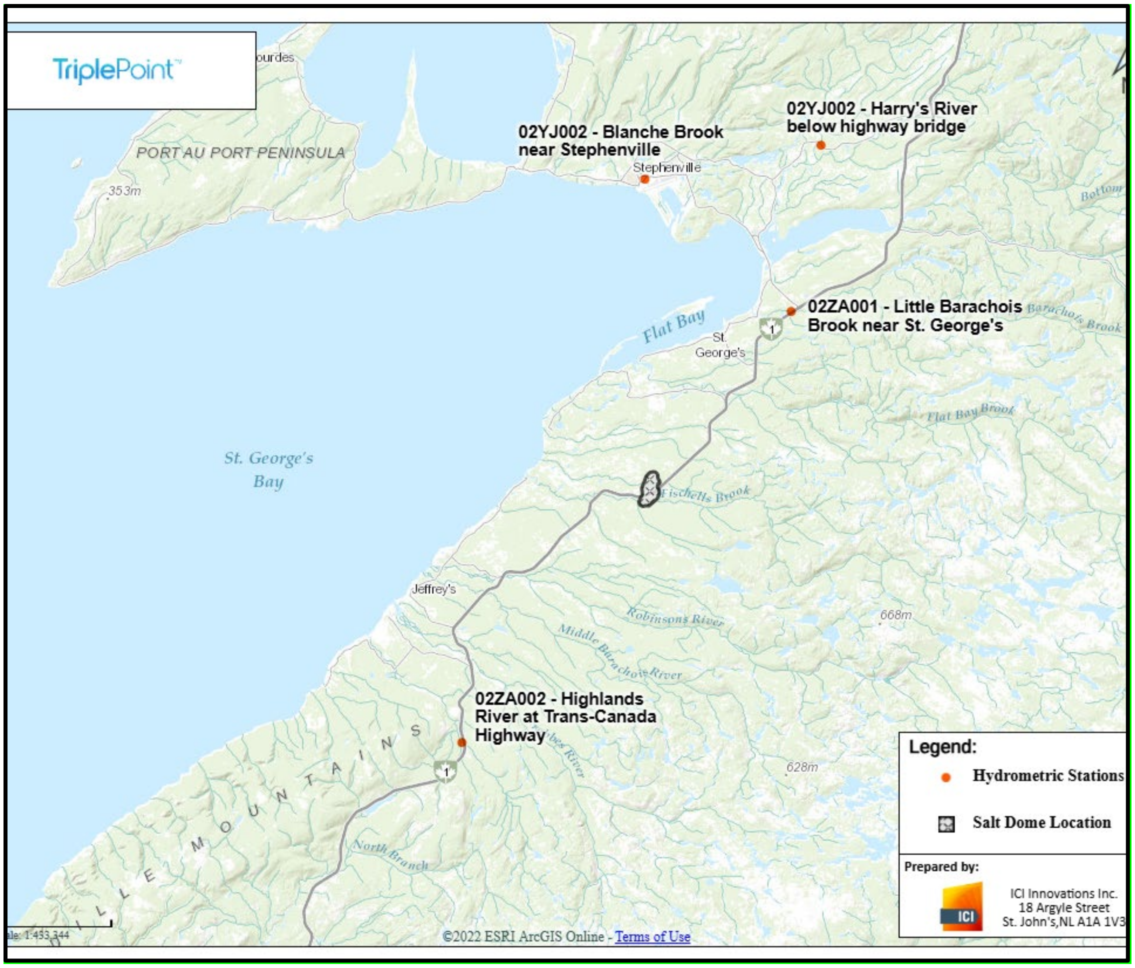


Figure 6.1. Hydrometric Stations in the Project Region

Table 6.1. Hydrometric Station Summary

Hydrometric Station	Lat (N)	Long (W)	Drainage Area (km²)	Period of Record	Record Length (years)
02YJ001 - Harry's River below Highway Bridge	48° 34' 33"	58° 21' 45"	640	1968-2024	57
02YJ002 – Blanche Brook near Stephenville	48° 32' 56"	58° 34' 11"	120	1978-1996	19
02ZA001 - Little Barachois Brook near St. George's	48° 26' 44"	58° 23' 55"	343	1978-1997	20
02ZA002 – Highlands River at Trans-Canada Highway	48° 06' 30"	58° 47' 00"	72	1982-2023	42

6.2 Regional Climate Normals

The Project is located within the St George's Bay Subregion of the Southwestern Newfoundland Ecoregion, which extends from Codroy in the south to Rocky Harbour in the north. This sub region has the highest temperature and humidity, great temperature variations, high rainfall, and highest snowfalls in Newfoundland (ECCC, 2019).

The 1991-2020 Normals data for the Stephenville Airport (Station ID: 8403800) was used to define climate, as the station is nearest the Project Area and most representative of local conditions. Normals data are summarized on Figure 6.2 and in Table 6.2 and indicate the following:

- Average annual total precipitation for the Project is 1,316.3 mm.
- Monthly precipitation ranges from 92.9 mm to 131.2 mm between May and October, and from 77.7 mm to 120.7 mm between November and April.
- Monthly average snowfall ranges between 24.0 cm and 106.7 cm during the winter months of November to April.
- Annual average temperature at the Project site is 5.2°C.
- The average monthly temperatures between November and April range from -6.4°C to 3.0°C, and between May and October range from 7.4°C to 17.1°C.

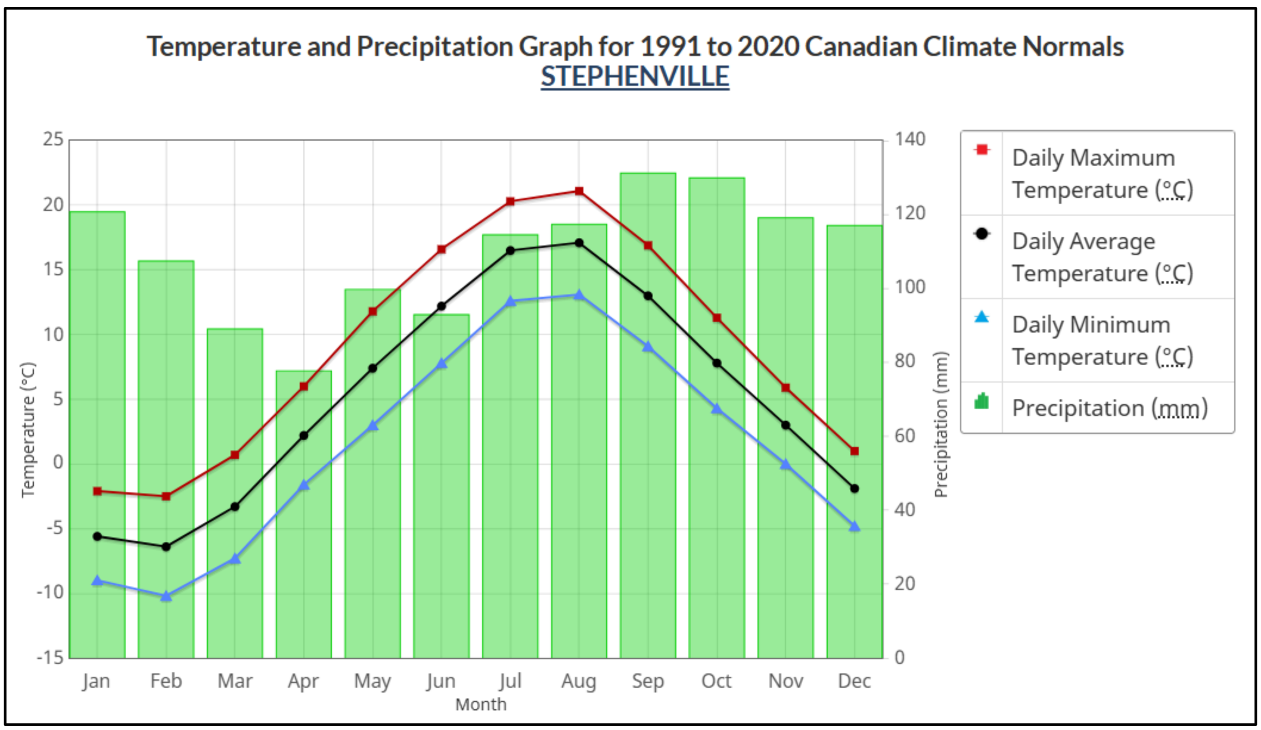


Figure 6.2. Climate Normals for Stephenville from 1991-2020 (Government of Canada, 2026)

Table 6.2. Climate Normals for Stephenville from 1991-2020

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Rainfall (mm)	29.5	23.1	39.9	612.1	92.9	114.5	117.3	117.3	131.2	127.0	98.4	46.5	978.5
Snow (cm)	106.7	96.6	54.6	16.7	3.3	0.0	0.0	0.0	0.0	2.7	24.0	81.2	385.9
Precipitation (mm)	102.7	107.4	88.0	77.7	99.7	92.9	114.5	117.3	131.2	129.9	119.1	117.0	1316.3
Temperature Mean (°C)	-5.6	-6.4	-3.2	2.2	7.4	12.2	16.5	17.1	13.0	7.8	3.0	-1.9	5.2
Temperature Max (°C)	-2.1	-2.5	0.7	6.0	11.8	16.6	20.3	21.1	16.9	11.3	5.9	1.0	8.9
Temperature Min (°C)	-9.0	-10.2	-7.3	-1.6	3.0	7.8	12.6	10.1	9.1	4.3	0.0	-4.8	1.4

6.3 Evapotranspiration

Evaporation estimates for Stephenville Airport climate station are presented in Table 6-6 and represent data from 1942 to 2007. The average annual potential and actual evapotranspiration values were reported as 522 and 515 mm and are greatest during the summer low flow period.

Table 6.3. Mean Monthly Evapotranspiration for Stephenville

Evapo-transpiration	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Potential	mm	2	2	5	19	55	87	115	107	72	40	15	3	**522**
Actual	mm	2	2	5	19	55	87	114	102	71	40	15	3	**515**

6.4 Climate Change

Climate change projections are available from the Newfoundland Department of Environment and Climate Change (ECC). The anticipated increase to return period rainfall events by the years 2070 and 2100 were reported at various climate stations, including Stephenville.

The Stephenville climate station is located 28 km north of the Project Area and was taken as a representative prediction of climate change for the site. A summary of the climate change projections at Stephenville by 2070 is presented in Table 6.4.

Table 6.4. Climate Change Predictions at Stephenville by 2070

Return Period	Projected Overall Increase to Rainfall Depth by 2070	Projected Annual Increase to Rainfall Depth through 2070
2-year	20.2%	0.37%
5-year	16.4%	0.30%
10-year	14.8%	0.27%
25-year	13.4%	0.24%
50-year	12.6%	0.23%
100-year	12.1%	0.22%

As shown in Table 6.4, return period rainfall events are expected to increase up to 20.2% by 2070 for a 2-year return period event, and up to 12.1% for a 100-year return period storm. These projected increases in rainfall result in a projected annual increase to return-period storms of between 0.22 to 0.37%. These climate change projections will be applied to the Stephenville IDF data based on the expected end date of operations, mitigating the impacts of climate change on hydraulic infrastructure.

6.5 Intensity-Duration-Frequency Curves

Monthly and annual precipitation depths are summarized above; however rainfall design storm intensity is also important factor. Storm events of various return periods are often characterized by Intensity-Duration-Frequency (IDF) curves. With IDF-defined storm intensities, drainage infrastructure for the Project can be properly designed. For this study, IDF statistics were obtained for the Stephenville RCS climate station (8403820). Figure 6.3 and Tables 6.4 present the historical IDF curves and data while Table 6.5 presents the data for the 2041-2070 projection window.

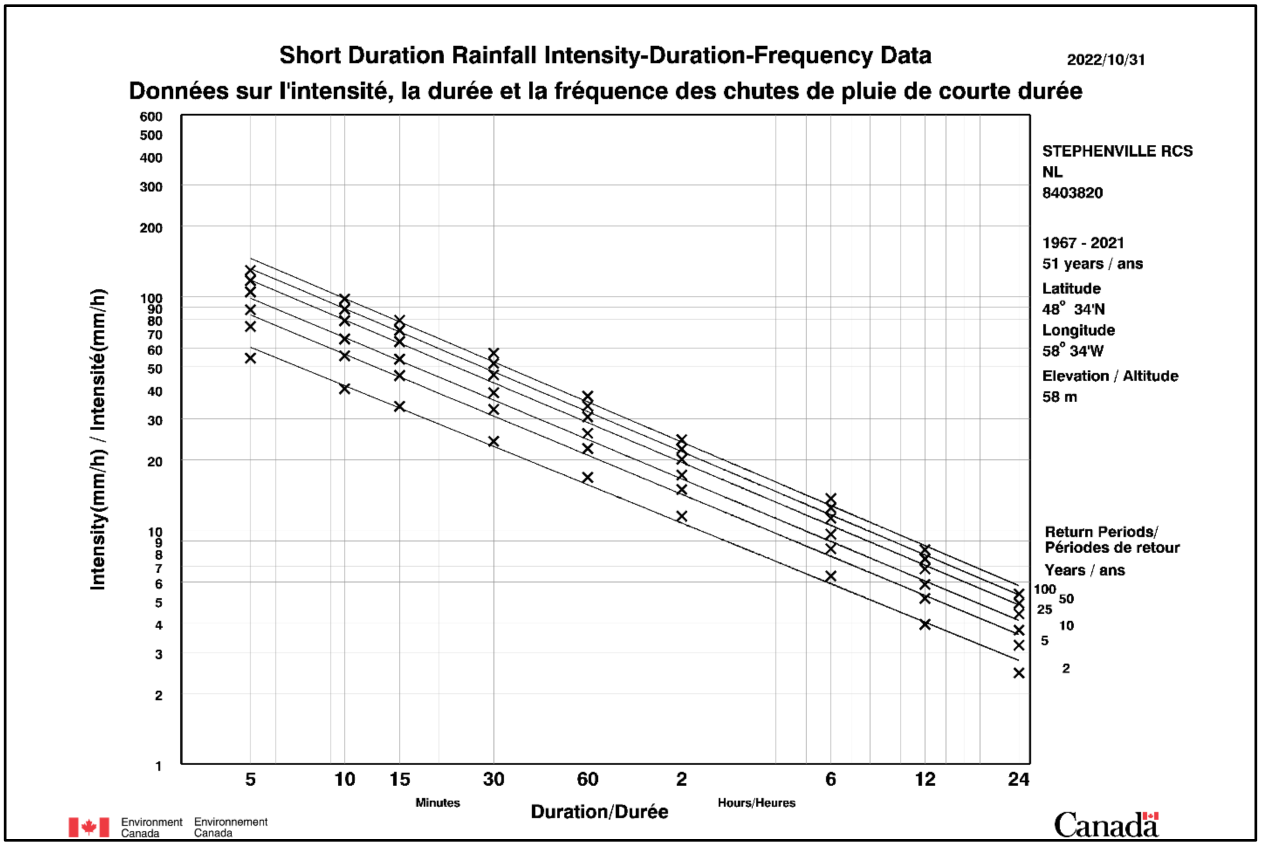


Figure 6.3. Intensity-Duration-Frequency Curves for Stephenville RCS

Table 6.5. Historical IDF Data for Stephenville RCS (Station 8403820)

Duration	Return Period (years)					
	2	5	10	25	50	100
5 min	4.5	6.2	7.3	8.7	9.8	10.8
10 min	6.7	9.3	11.0	13.1	14.7	16.3
15 min	8.5	11.5	13.5	16.0	17.9	19.8
30 min	12.0	16.5	19.4	23.1	25.9	28.6
1 hour	16.8	22.4	26.0	30.6	34.0	37.4
2 hour	23.0	29.9	34.5	40.3	44.6	48.8
6 hour	38.3	50.0	57.8	67.6	74.9	82.1
12 hour	47.5	61.3	70.5	82.0	90.6	99.1
24 hour	58.9	77.5	89.8	105.3	116.9	128.3

6.6 Mean Annual Runoff

Runoff is the portion of precipitation that flows into rivers, lakes and oceans by surface drainage and through groundwater. Figure 6.4 presents runoff contours, indicating the mean annual runoff for watercourses near the Project to be approximately 1200-1300 mm.

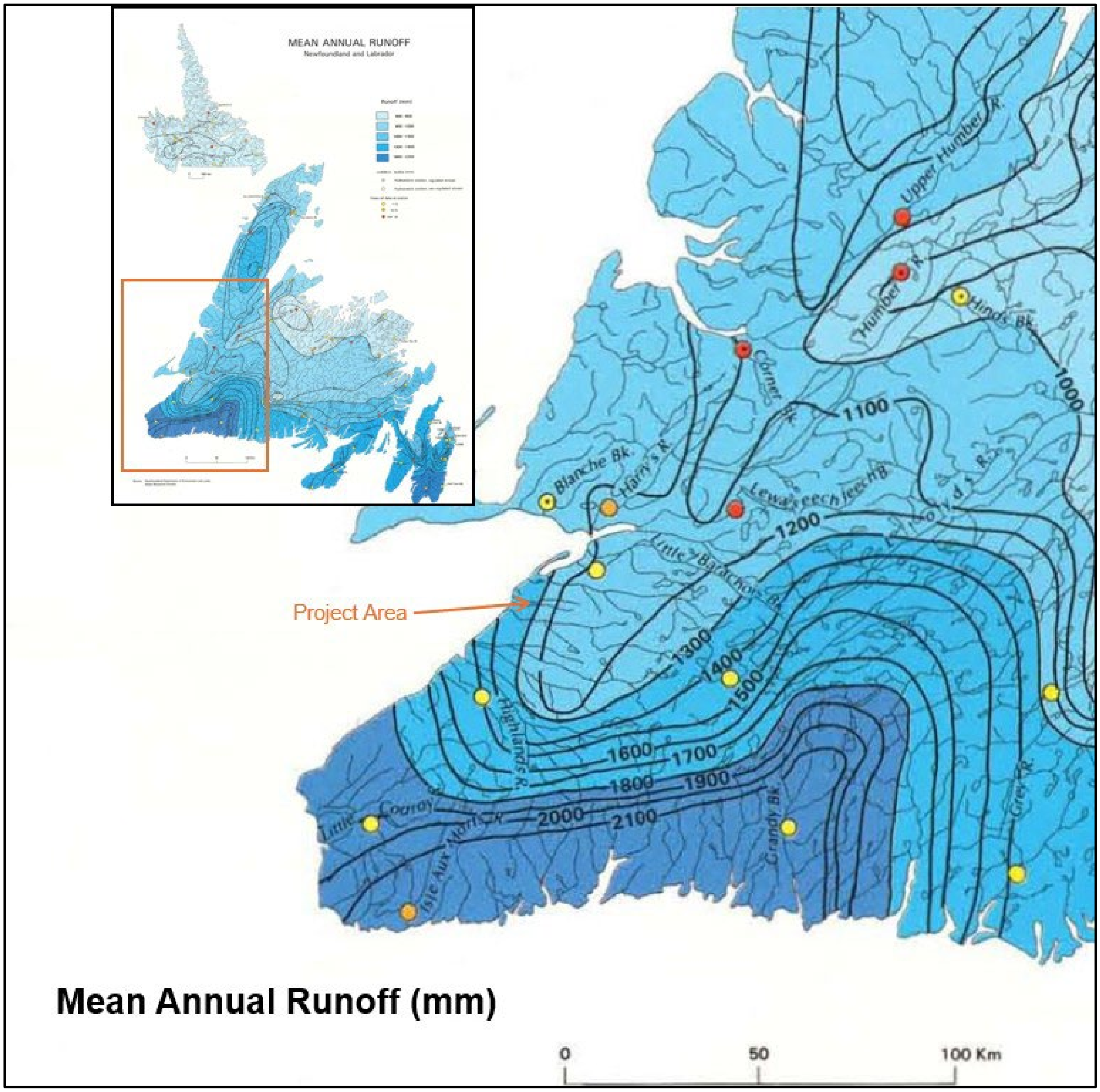


Figure 6.4. Mean Annual Runoff (NL WRD, 1992)

Monthly and annual runoff volumes for the four nearby hydrometric stations were divided by drainage area to produce the estimates of runoff depth presented in Table 6.5. These runoff depths can be used to estimate flow rates (and temporal distribution) for local watercourses.

Table 6.6. Runoff Depths for the Regional Hydrometric Stations

Station	Runoff Depth (mm)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
02YJ001	82.1	62.9	71.3	162.1	273.2	102.9	60.1	62.2	76.3	107.5	131.9	114.1	1311
02ZA002	86.2	62.8	69.4	211.8	245.2	69.4	39.1	40.6	65.5	93.2	139.9	113.4	1236
02YJ002	54.6	40.3	65.3	196.5	217.7	95.0	67.6	71.3	84.6	110.0	125.0	93.6	1227
02ZA001	66.8	45.6	67.0	176.0	193.7	67.8	39.3	47.2	52.0	81.4	101.1	83.7	1024

The data in Table 6.5 indicates the following:

- Runoff is most significant during the spring snow-melt period of April and May and greatly exceeds monthly precipitation during those months (77.7 mm and 99.7 mm, respectively).
- Runoff depths are lowest during the summer months of July and August, even though monthly precipitation is greater than annual average (118.4 and 130.4 mm, respectively). This is likely a result of summer evapotranspiration rates and a low groundwater table.

6.7 Peak Flood Flow Estimates

Flood flows for various return periods were estimated for Fischells Brook and Barry Brook using historical flow data from nearby hydrometric stations. Drainage area based proration of annual peak instantaneous flow records for Harry's River below the Highway Bridge (02YJ001, applied to Fischells Brook) and Highlands River at Trans-Canada Highway (02ZA002, applied to Barry Brook) was used to develop flood frequency curves. Table 6.6 presents the return period flows for each watercourse, while the flood frequency curves are presented in Figures 6.5 and 6.6.

Table 6.7. Return Period Flood Flow Estimates

Return Period (Years)	Fischells Brook (m^3/s)	Barry Brook (m^3/s)
2	141	16.1
5	225	35.4
10	258	45.2
25	268	48.6
50	299	60.2
100	331	73.4

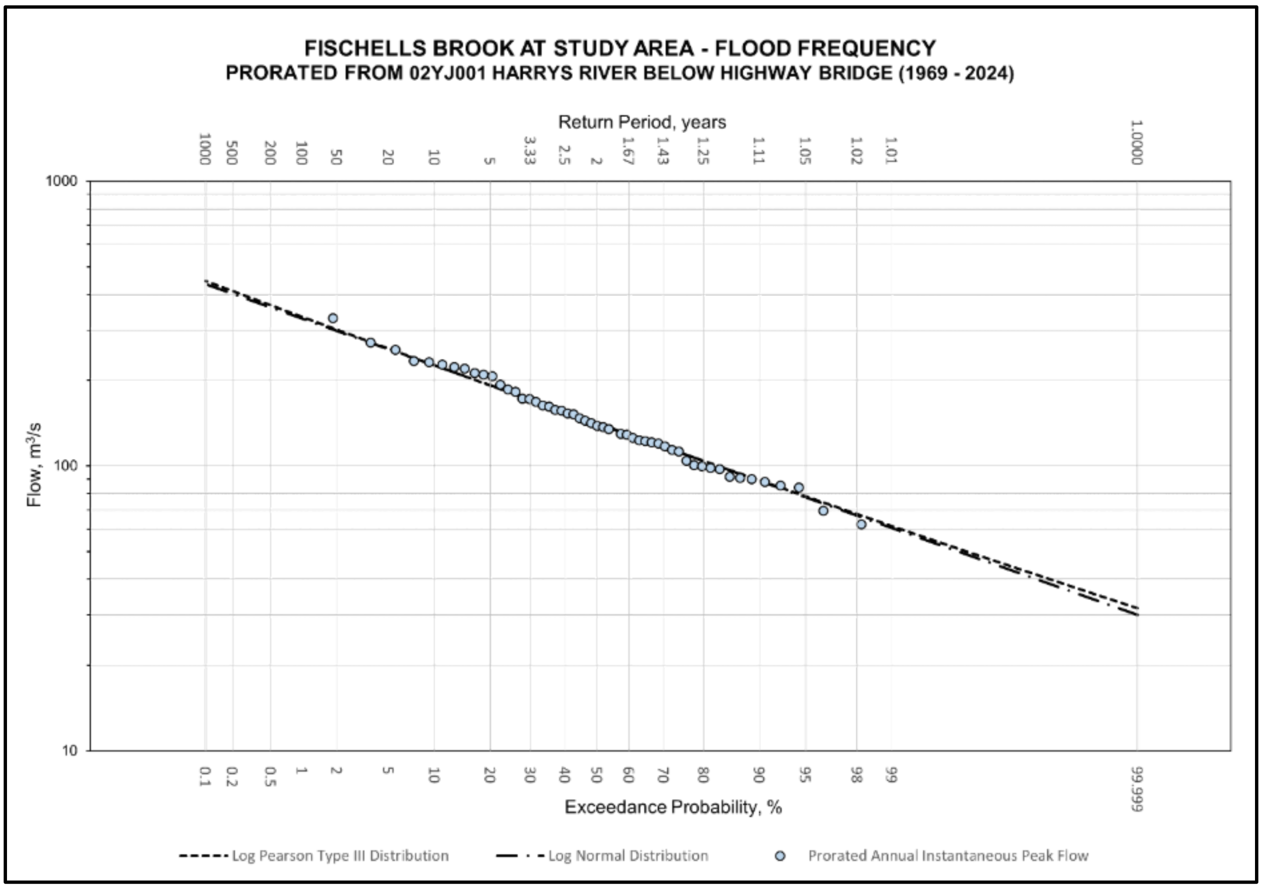


Figure 6.5. Fischells Brook Flood Frequency Curve

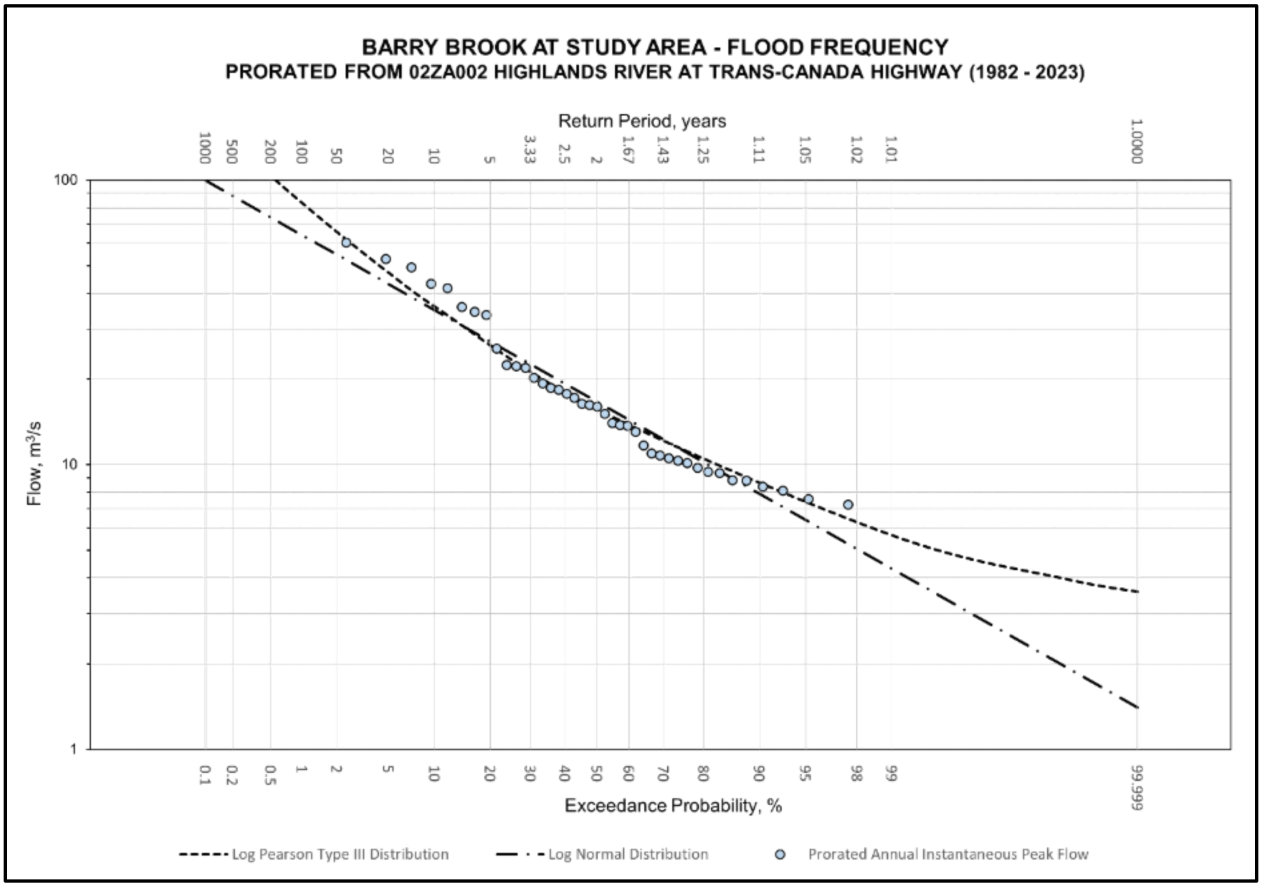


Figure 6.6. Barry Brook Flood Frequency Curve

7.0 MAKE-UP WATER (GROUNDWATER / SURFACE WATER) RESOURCE POTENTIAL

The Project will require a reliable source of make-up water to support cavern development operations, with the highest water demand occurring during solution mining activity, estimated to take place over an 18–24-month period, and regular operational water demand being significantly less. This section is focused on potential water supply sources being evaluated at a screening level with a focus on conditions at the Project site and are not considering sourcing of water at a potential Beach Well location. Both groundwater and surface water are considered viable supply options, while detailed feasibility, sustainability, and permitting considerations are not addressed as part of this preliminary study.

7.1 Estimated Demand

Based on the information provided to GEMTEC via email correspondence from Triple Point on Monday October 27th and Thursday October 30th, the estimated freshwater / make up water demand for solution mining activities has been established at roughly 680 m^3/hr or 2,730 us gpm or 10,334 L/min or 0.17 m^3/sec; this amount of water is only required during solution mining activities. Solution mining is expected to take 18-24 months per salt cavern development.

Additionally, the Project will require a source of potable water longer term to support operations. The operational demand of potable water is undefined at this time.

7.2 Potential Groundwater Source

The information presented below is intended for screening-level assessment and preliminary comparison only. The current study will be used to confirm these initial estimates and, where possible, provide additional site-specific data to refine groundwater or surface water supply feasibility. In either case, further characterization, including targeted data collection, aquifer testing, and water quality analysis, will be required to adequately assess yield sustainability, source reliability, and overall feasibility. At the current stage of the project, regulatory permitting and approval requirements have not been evaluated.

The Hydrogeology of Western Newfoundland study (AMEC, 2008) represents the most comprehensive regional compilation of groundwater conditions available for the Project Area and is therefore the primary reference for preliminary yield assessment. This regional framework has been supplemented by available groundwater well records from the Newfoundland and Labrador Water Resources Management Division (WRMD), as well as historical drill log information from PF-1, as documented in subsequent site-specific investigations and regional geological reporting (APEX 2022).

Based on AMEC (2008), groundwater yields in western Newfoundland vary widely depending on surficial and bedrock hydrostratigraphy (Figure 5.1 and 5.2), with the highest yields consistently associated with unconsolidated glaciofluvial sand and gravel deposits (outwash and valley-fill sequences). These deposits are identified as the most prospective groundwater sources due to their higher permeability and storage capacity relative to till or fractured bedrock units. Similar conclusions regarding the relative productivity of unconsolidated deposits versus bedrock aquifers have been observed in municipal-scale groundwater investigations within the broader Bay St. George region (Fracflow, 2003), where sand and gravel aquifers have demonstrated greater potential for sustained yields when appropriately developed and managed.

Table 7.1. Characteristics and Initial Feasibility of Potential Yields of Hydrostatic Units

Hydrostratigraphic Unit	No. of Wells	Well Yield (L/min)			Well Depth (m)			Reference	Potential Feasibility [1]
		Average	Median	Range	Average	Median	Range		
Unit 6 Low Yield Metavolcanic and Metasedimentary Rocks Schist, felsic to mafic volcanic flows, tuffs	39	18.4	8.2	1 - 136	56.2	50.3	4 - 152	AMEC 2008	No
Unit 4 Moderate Yield Carboniferous Sedimentary Rocks Sandstone, conglomerate, siltstone, mudstone	577	64	27.3	0 - 789	40.8	37.6	6 - 154	AMEC 2008	No
Unit B Moderate Yield Sand and Gravel	400	73.9	36	0 - 1,793	29	24.3	4.6 - 121.2	AMEC 2008	No
Overburden - silt, sand, gravel, clay, unspecified overburden	22	39.8	15.5	2.3 - 300	30.2	28.2	12.1 - 57.3	WRMD Drilled Well Database, Unpublished, 2025	No
PF-1 historical drill hole - Glacial Sediments with Casing set at 67 m	1	1,135	1,135	1,135	67	67	67	PF1- Historical Drill Log	No

Note:

1. Potential Feasibility is a comparison to Estimated Demand of Solution Mining Activities (~10,334 L/min for a period of 18-24-months)

The available groundwater data have been tabulated in Table 7.1 and compared against estimated project water demands to provide an initial indication of supply adequacy. On this basis, the highest potential groundwater supply within the Project Area is interpreted to be associated with mapped or inferred glaciofluvial sand and gravel units. The surficial mapping data shown in Figure 3.1 show that the fluvial units are mapped to occur along Fischells Brook south of the site and follow the alignment of Fischells Brook all the way to the Bay.

It should be noted, however, that the AMEC (2008) study is a regional desktop assessment that relies heavily on extrapolation from provincial well records and broad geological mapping. As such, yield estimates derived from this source should be treated with caution when applied at the site scale. Local heterogeneity in the immediate Project Area, and variability in deposit thickness and connectivity may result in significantly different groundwater conditions than those inferred from regional trends. Site-specific drilling, aquifer testing, and hydrogeological characterization will therefore be required to validate the applicability of these regional estimates to the Project Area and to confirm the feasible use of groundwater under project-specific condition.

7.3 Potential Surface Water Source

As part of the conceptual, screening-level evaluation of potential make-up water sources for the Project, surface water availability was assessed based on site-specific watershed conditions. The Project site is located primarily within the Fischells Brook and Barry Brook watersheds, with Fischells Brook representing the larger catchment area (approximately 307.3 km²) compared to Barry Brook (approximately 20.3 km²) (Figure 7.3).

There are no hydrometric monitoring stations located on either watercourse. Accordingly, streamflow characteristics were estimated using data from hydrologically comparable, nearby gauged watersheds. Flow data were prorated based on contributing catchment area to develop estimated flow distributions for Fischells Brook and Barry Brook.

Estimated average monthly flows and low-flow conditions were then compared to the Project's projected make-up water demands for solution mining activities to provide an initial indication of surface water supply adequacy. The anticipated water demands for the Project during solution mining activities are approximately 0.17 m^3/s. Detailed hydrologic characterization, sustainability assessments, and regulatory considerations are not addressed as part of this preliminary study.

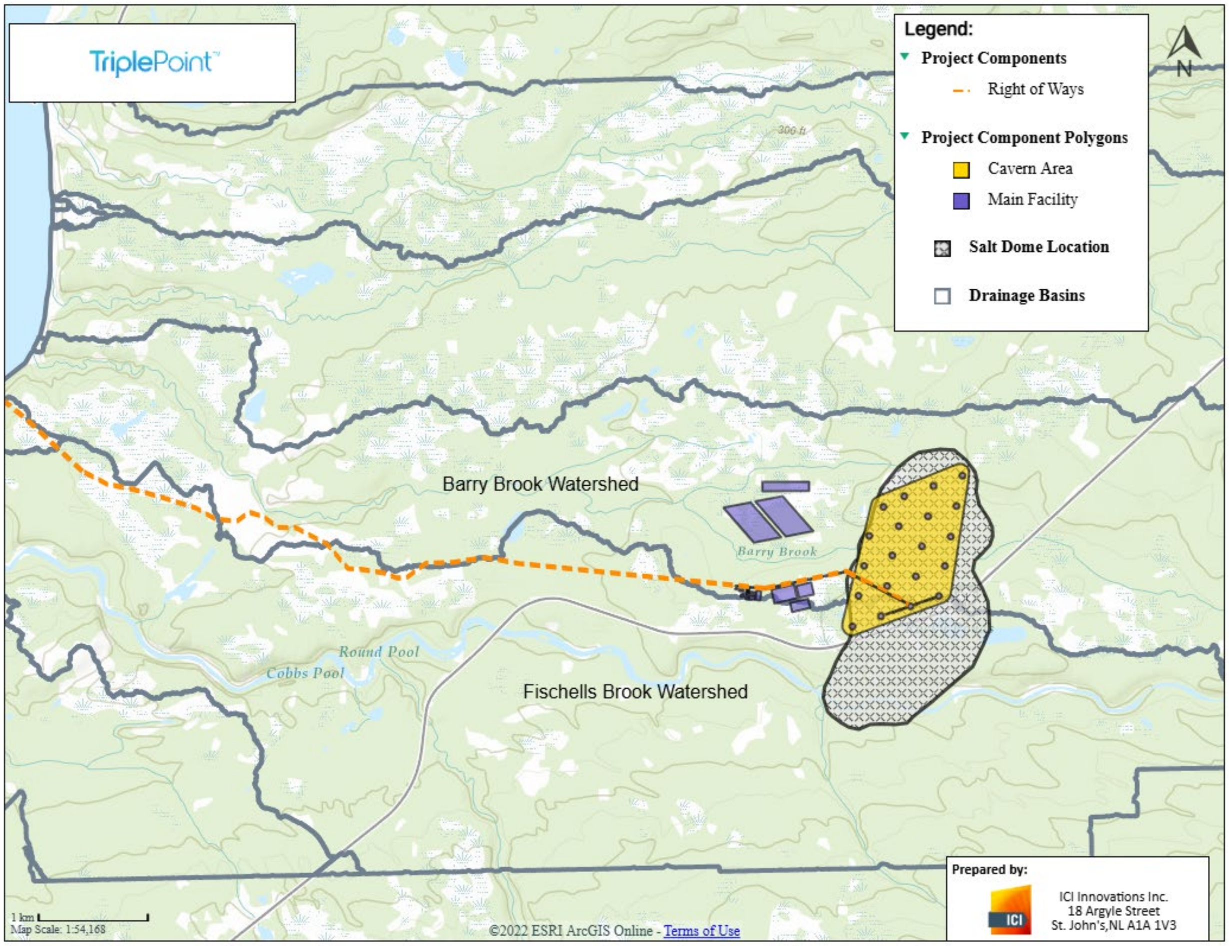


Figure 7.3. Watershed Delineation

7.3.1 Average Monthly Streamflow vs Water Demand

Tables 7.1 and 7.2 present the average monthly flows for the four nearby gauged watersheds and the prorated flows for Fischells and Barry Brook.

Table 7.1. Average Monthly Flow Distribution for Nearby Gauged Watersheds

Hydrometric Station	Area (km²)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
02YJ001 Harry's River below Highway Bridge	640	19.6	16.5	17.0	40.0	65.3	25.4	14.4	14.9	18.8	25.7	32.6	27.3	26.6
02YJ002 Blanche Brook near Stephenville	120	2.45	1.98	2.92	9.10	9.75	4.40	3.03	3.20	3.92	4.93	5.79	4.19	4.67
02ZA001 Little Barachois Brook near St. George's	343	8.56	6.41	8.59	23.3	24.8	8.97	5.03	6.04	6.88	10.4	13.4	10.7	11.1
02ZA002 Highlands River at Trans-Canada Highway	72	2.32	1.85	1.87	5.88	6.59	1.93	1.05	1.09	1.82	2.51	3.89	3.05	2.82

Table 7.2. Prorated Average Monthly Flow Distribution for Project Site Watercourses

Hydrometric Station	Area (km²)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Fischells Brook	307.3	8.31	6.66	7.83	22.1	26.7	9.93	5.91	6.35	8.25	11.2	14.8	11.6	11.7
Barry Brook	20.3	0.55	0.44	0.52	1.46	1.76	0.66	0.39	0.42	0.55	0.74	0.98	0.77	0.77

The data in Table 7.2 show prorated monthly and annual flows for Fischells Brook and Barry Brook to exceed the maximum proposed water demand (0.19 m^3/s) for the Project during solution mining activities. The average monthly flow in Fischells Brook for July is 0.39 m^3/s, indicating the maximum water demand could require 49% of the average streamflow. This is a significant portion, that would be exacerbated during extended dry weather or drought conditions (discussion follows). The maximum water demand only represents 3.2% of streamflow in Fischells Brook for the same month.

7.3.2 Q_{90} Streamflow vs Water Demand

The Q90 streamflow represents a watercourse flow rate that is equaled or exceeded 90% of the time over a specified period (e.g., monthly or annually). The flow is at or below this level only 10% of the time, making it indicative of severe drought conditions. This commonly applied measure of low flow is used to estimate reliable yield from a watercourse. The Q90 is often designated as the minimum environmental flow to maintain basic conditions in aquatic ecosystems. Tables 7.3 and 7.4 present the Q90 monthly flows for the four nearby gauged watersheds and the prorated Q90 flows for Fischells and Barry Brook.

Table 7.3. Q_{90} Flow Distribution for Nearby Gauged Watersheds

Hydrometric Station	Area (km^2)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
02YJ001 Harry's River below Highway Bridge	640	5.38	4.05	3.99	6.03	12.42	6.00	4.06	3.76	4.00	6.04	9.18	6.72	2.96
02YJ002 Blanche Brook near Stephenville	120	0.41	0.24	0.25	0.77	1.14	0.55	0.44	0.37	0.49	0.92	1.09	0.53	0.50
02ZA001 Little Barachois Brook near St. George's	343	2.01	1.68	1.54	3.50	2.45	1.76	1.10	1.10	1.35	2.47	3.06	2.44	1.07
02ZA002 Highlands River at Trans-Canada Highway	72	0.28	0.32	0.32	0.90	0.48	0.23	0.32	0.20	0.27	0.45	0.62	0.39	0.18
02YJ001 Harry's River below Highway Bridge	640	5.38	4.05	3.99	6.03	12.42	6.00	4.06	3.76	4.00	6.04	9.18	6.72	2.96

Table 7.4. Prorated Q_{90} Flow Distribution for Project Site Watercourses

Hydrometric Station	Area (km²)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Fischells Brook	307.3	1.36	1.33	2.96	3.28	1.71	1.36	1.14	1.39	2.35	3.15	2.11	1.11	1.36
Barry Brook	20.3	0.11	0.09	0.09	0.20	0.22	0.11	0.09	0.08	0.09	0.16	0.21	0.14	0.07

The data in Table 7-4 show prorated Q90 (drought condition) flows for Fischells Brook to exceed the Project make-up water demands during all months of the year, while the Q90 low flow in Barry Brook (0.07 m^3/s to 0.21 m^3/s) could be much less than the proposed water demands (0.17 m^3/s). This suggests Barry Brook would not be a reliable source of make-up water for the Project during solution mining activities. Fischells Brook with its significantly larger watershed would have sufficient flow to sustainably supply the maximum proposed demand for solution mining. The estimated water demands for the Project represent and 15% of the lowest Q90 monthly flow (December, 1.11 m^3/s).

8.0 DISCUSSION OF POTENTIAL PROJECT COMPONENT INTERACTIONS

At this stage of the Project, only the basic site components and their general locations are known. It is our understanding that these components are conceptual and may change as the Project evolves, including potential adjustments to presences, absence, location, size, shape, depth of excavation or configuration etc.

In the absence of detailed design information or supporting data, the intent of this section is to provide a preliminary high-level discussion and qualitatively consider the potential interactions of the Project components (cavern field, brine ponds, site buildings and infrastructure, and the potential pipeline corridor) with groundwater and surface water, recognizing that conclusions may change as additional information becomes available.

8.1 Cavern Development Area

The main components of the cavern development area, yellow polygon in Figure 8.1, are the road construction to access drilling sites and the wells themselves. While no designs or drawings were provided to GEMTEC as part of this baseline characterization, solution mining wells are typically designed and constructed with multiple casing strings cemented to surface to hydraulically isolate surficial deposits and overlying bedrock aquifers. This is followed by a production casing set and cemented into competent halite, below which the cavern is developed in open hole by controlled solution mining.

With respect to groundwater Interactions typical mitigations for access road construction should limit impacts to groundwater. By design, cavern development wells will be designed to hydraulically isolate surficial deposits and overlying bedrock aquifers using casing strings cemented to surface, such that solution mining and cavern operations occur entirely within the low-permeability halite and are not hydraulically connected to groundwater systems.

With respect to surface water the main stem of Barry Brook flows through the middle of the Project and the drainage basin for Barry Brook encompasses the majority of the cavern development area and is well positioned to receive site runoff. The watercourse is located with a well-defined valley, with minimal risk of flooding adjacent development as long as positioned outside prescribed setback limits. Site run-off from cavern development roads and drilling sites furthest to the south (Figure 8.1) are within the Fischells Brook watershed but with the Trans Canada located immediately to the south the ditching affords ample opportunity to manage run-off from these areas.

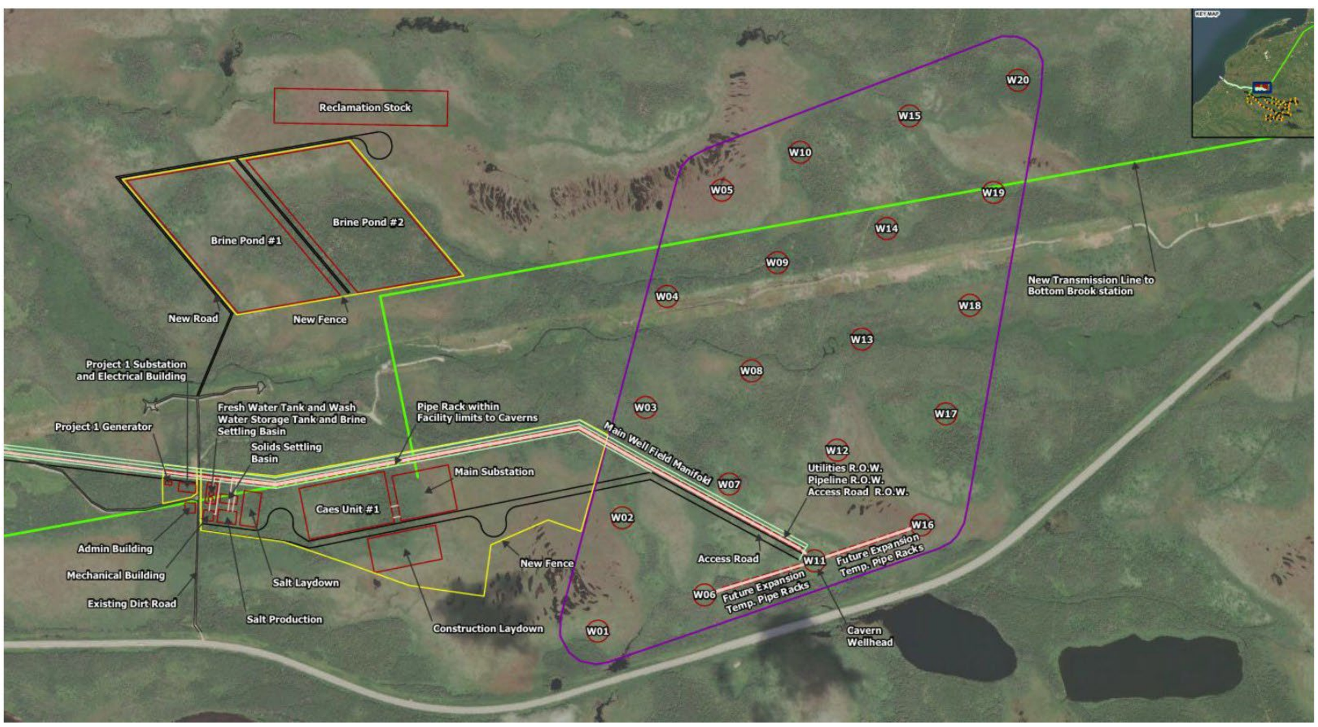


Figure 8.1. Key Site Components – Cavern Field and Site Infrastructure

8.2 Site Buildings and Infrastructure

The main site buildings and infrastructure components shown in Figure 8.1 include the brine pond, salt laydown, administration building, mechanical main facilities, construction laydown, hydrogen production facilities, and the power island and substation. These components are collectively referenced because their anticipated footprints and construction activities are similar. In general, construction of these facilities is expected to require site grading, excavation, and potentially construction dewatering.

Construction and operation of the site buildings and infrastructure components may interact with groundwater through excavation, foundation installation, and temporary dewatering, which could locally impact groundwater levels and flow patterns. Groundwater will also likely be encountered during below-grade construction and require dewatering and management. Standard design measures, secondary containment, and spill prevention controls are expected to minimize potential effects on groundwater quality.

Barry Brook flows through the Project Area and is well positioned to receive controlled and treated (as required) site runoff, with sufficient elevation differences between the watercourse and nearby Project components to support stormwater management features such as settling or attenuation ponds. Components located within the Barry Brook drainage, including the brine ponds and reclamation stockpiles, are situated at elevations above the main stem of the brook and its tributaries, mitigating the risk of flooding during high-flow conditions. The administration building, mechanical building, generator, and associated infrastructure are located along the drainage divide between Barry Brook and Fischells Brook, where existing site grades provide substantial vertical separation from both watercourses and allow flexibility in runoff management (Figure 7.3). Drainage toward Fischells Brook remains feasible under current conditions; however, the presence of the Trans-Canada Highway between the Project Area and the watercourse indicates that existing drainage infrastructure, such as highway culverts, should be evaluated to confirm adequate conveyance capacity, noting that no comparable barrier exists between the Project Area and Barry Brook.

8.3 Brine Ponds

The brine ponds, as shown in Figure 8.1, will be designed to hold a minimum pond volume requirement of 4,400,000 m^3. Both ponds will be lined and covered by a polyethylene membrane to isolate the stored brine material.

As designed, the brine ponds are a lined containment facility intended to be physically isolated from surrounding subsurface environments. Under normal operations, no direct interaction with groundwater or surface water are anticipated. Potential interactions are therefore limited to construction-phase disturbance within the pond footprints and low-probability upset conditions such as loss of containment.

8.4 Potential Pipeline Corridor and Potential Beach Head Well

The potential pipeline corridor and potential Beach Head Well area is shown in Figure 8.2. Based on the information provided in the WSP Process Design Basis (PDB) Memorandum 2025 (WSP, 2025). The potential brine pipeline is a dedicated conveyance system intended to transport saline brine produced during solution mining from the cavern site to the bay for marine discharge. The system is designed to be a buried, HDPE-lined steel pipeline extending from the site to the shoreline. The potential pipeline alignment and burial are intended to physically isolate the brine from freshwater surface water bodies and groundwater systems while providing resilience to coastal and near-shore conditions. At a conceptual level, the project also identifies potential beach head wells targeting near-shore sand and gravel deposits to extract brackish water, which would be conveyed via a separate potential pipeline to the site for potential use as makeup water; however, no design details, operating parameters, or confirmed integration with the brine discharge system have been defined at this stage, and this element remains preliminary and conceptual in nature.

As designed, the brine pipeline is a buried HDPE-lined steel conveyance intended to be physically isolated from surrounding subsurface environments. Under normal operations, no direct interaction with groundwater is anticipated. Potential groundwater interactions are therefore limited to construction-phase disturbance within the potential pipeline corridor and low-probability upset conditions such as loss of containment. The conceptual beachhead wells may target near-shore sand and gravel deposits to extract brackish water for potential use as makeup water. These wells could adversely affect local near-shore groundwater conditions, including the potential to induce or exacerbate saltwater intrusion. However, in the absence of defined well design, pumping rates, or operational controls, the groundwater effects of these wells cannot be characterized at this stage, though they remain a concern.

Surface water interaction associated with this component is primarily focused on the marine environment at the brine discharge location, as shown in Figure 8.2. The brine pipeline is intended to convey saline brine from the site to the shoreline and offshore receiving waters for marine discharge, with burial and alignment selected to avoid interaction with freshwater surface water bodies along the potential pipeline corridor. The design intent is to maintain hydraulic isolation from rivers, wetlands, and lakes, while providing resilience to coastal processes in the near-shore zone. Any additional surface water interaction related to the conceptual beachhead wells would be indirect and limited to the marine–coastal interface, should such wells be advanced in future project phases. At present, no confirmed design or operational details have been provided to assess potential surface water effects associated with this conceptual element.

Again, the brine pipeline is designed as a buried, HDPE-lined steel conveyance to transport saline brine from the solution mining site to the bay while minimizing interaction with freshwater resources. The proposed pipeline alignment roughly follows the topographic drainage divide between Barry Brook and Fischells Brook, avoids ponds and wetlands, and represents best efforts to reduce construction- and operation-related risks to local freshwater surface water systems. Under normal operations, the potential pipeline is intended to remain hydraulically isolated from freshwater resources, with potential interactions limited to temporary, localized construction-phase disturbances.

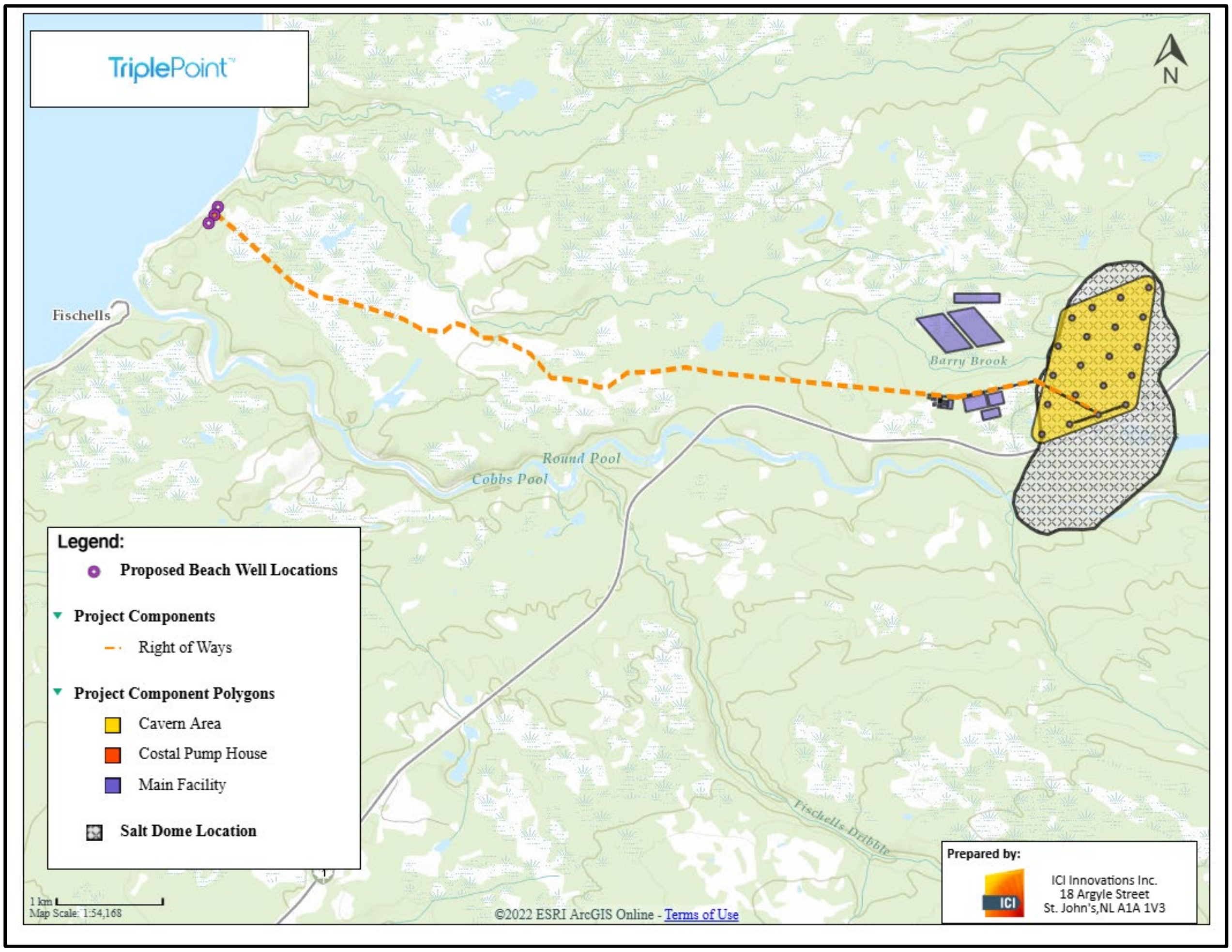


Figure 8.2. Key Site Components – Potential Pipeline Corridor and Beach Head Wells

9.0 INFORMATION GAPS

This assessment provides an initial, high-level overview of anticipated hydrogeological and hydrological conditions with a focus on the Project Area and shallow depths based on available information; however, it is constrained by the current lack of site-specific data. As a result, there are limitations in characterizing baseline groundwater and surface water quality and quantity, as well as in evaluating potential interactions between freshwater resources and project components.

To address these limitations, a set of preliminary information gaps has been identified that should be addressed to support future environmental assessment, detailed design, and decision-making.

Table 9.1. Information Gaps

Information Gaps	Description
Regional and Site Hydrological Conditions	Site-specific hydrologic conditions, including precipitation, runoff, evapotranspiration, and seasonal variability, have not been quantified using local monitoring data.
Surface Water Network and Catchment Delineation	Confirmation and mapping of surface watercourses, wetlands drainage pathways, and contributing catchment areas within the Project Area are not fully delineated or field verified.
Surface Water Flow Regime	Baseline streamflow magnitudes, seasonal variability, and low-flow conditions are not characterized.
Groundwater Levels, Flow System and Gradients	Groundwater elevations, flow directions, and hydraulic gradients across the site are unknown.
Hydrostratigraphy and Hydraulic Properties	Hydraulic conductivity, permeability, and thickness and properties of overburden and bedrock units are not well defined.
Groundwater–Surface Water Interaction	Interactions between groundwater and surface water, including gaining and losing stream reaches, are not spatially identified or quantified.
Baseline Groundwater Quality	Baseline groundwater chemistry for shallow and deep groundwater systems has not been established.
Baseline Surface Water Quality	Baseline surface water quality and seasonal variability have not been fully characterized.
Sediment Quality	Sediment quality and metal concentrations in watercourse sediments have not been characterized.
Recharge and Water Balance	Site-scale groundwater recharge rates and overall water balance are not quantified.
Long-Term Variability and Extreme Events	Interannual variability and hydrologic response to extreme precipitation events are unknown.

10.0 CLOSURE

This report has been prepared for the sole benefit of our client, Triple Point Resources Limited. The report may not be relied upon by any other person or entity without the express written consent of GEMTEC Consulting Engineers and Scientist Limited and our client, Triple Point Resources Limited.

Any use that a third party makes of this report, or any reliance or decisions made based on it, is the responsibility of such third parties. GEMTEC Consulting Engineers and Scientist Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The conclusions presented represent the best technical judgment of GEMTEC Consulting Engineers and Scientist Limited based on current engineering and scientific practices. Should additional information become available, GEMTEC Consulting Engineers and Scientist Limited requests that this information be brought to our attention so that GEMTEC may re-assess the conclusions presented herein.

GEMTEC trust this report provides sufficient information for your present purposes. The hydrogeology component of this report was prepared by Candice Williams, P.Eng, and reviewed by Vernon Banks, P.Geo. on behalf of GEMTEC Consulting Engineers and Scientists Limited. The hydrology component of this report was prepared by Troy Poirier, P.Eng, and reviewed by Rob Sharpe, P.Eng. on behalf of GEMTEC Consulting Engineers and Scientists Limited. If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Respectfully submitted,

GEMTEC Consulting Engineers and Scientist Limited

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