



Township of Centre Wellington
Operations Centre
965 Gartshore Street, Fergus
Final Site Development Report

Site Development Report

RDH Architects Inc.

Project No. 202205

OPERATIONS CENTRE

965 Gartshore Street, Township of Centre Wellington

February 08, 2024

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Table of Contents

1.0	Executive Summary	03
1.1	Program and Phasing	
1.2	Gartshore Site	
2.0	Site Investigations	07
.1	List of Reports	
.2	List of Drawings	
.3	Site Studies	
.4	Building Studies	
3.0	Design Brief	18
.1	Informed Decisions from Site Investigations	
.2	Proposed Sustainability Initiatives	
.3	Sustainability Targets and Standards	
4.0	Concept Design and Brief.....	24
.1	Design Options	
.2	Final Design Concept	
5.0	Overview of Relevant Project Delivery Models	31
6.0	Wrap-Up and Next Steps	35

Appendix 1 - Investigation Reports

01	Space Needs Program 5 pp.....	03
02	Topographic Survey Report 1pg	08
03	Arborist Report 31 pp	09
04	Transportation Study 149pp	40
05	Noise Impact Assessment 62pp	189
06	Geotechnical Investigation 38pp	251
07	Hydrological Assessment 101pp	289
08	Functional Service Report & Stormwater Management Report 52pp	390
09	Excess Soil Management - Assessment of Past Uses Report 164pp	442
10	- Sampling & Analysis Plan 14pp	606
11	- Excess Soil Characterization Report 123pp	620
12	Environmental Impact Study 75pp	743
13	Cultural Heritage Evaluation Report 79pp	818
14	Heritage Impact Assessment 44pp	897
15	Planning Justification Report 76pp	941
16	Building Condition Assessment 49pp	1017
17	Designated Substances Study 56pp	1066
18	Architectural Outline Specification 21pp	1122

Appendix 2 - Support Drawings

A	Legal Survey
B	Topographic Survey
C	Farmhouse As-Built Drawings
D	Tree Inventory
E	Operations Centre Site Plan Concept
	Operations Centre Site Plan Paving Plan
F	Rendered Landscape Site Plan
G	Rendered View - Aerial Site
	Rendered View - Streetview
H	Civil Site Plans - Grading Plan
	Servicing Plan
	Erosion and Sediment Control



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1.0 Executive Summary

The Township of Centre Wellington has three main operations departments: Infrastructure Services, Community Services, and Corporate Services. Within this group are: Public Works, Water Services, Engineering, Source Water Protection, IT, Corporate Records, Planning and Development, Capital Projects and Parks & Operations. All are currently operating out of different locations, which has resulted in six separate works facilities and has generally proven very dated and inefficient with no capacity to grow. This is a major concern, as the Township is expected to double in population by 2040, with the additional housing, commercial and industrial development requiring a doubling of services in that time frame. The Township needs to address how it will continue to deliver vital services in the future given the current state of its assets.

In early 2019 the Township started a multi-stage project to assess the viability of consolidating its Operations services into one facility that will serve the entire Township, including all of Fergus, Elora and the surrounding communities up to the 2041 time frame. The first stage called for a full operational analysis, followed by a space needs assessment. Sterling Rothesay Consulting with RDH Architects were selected to study the operational needs and, with that information, assemble a space needs program.

1.1 Program and Phasing

The space needs program identifies elements to be included in multiple phases of development. This will allow gradual expenditure of funds and allows the Operations Centre to grow as needed while the older facilities are wound down, relocated and closed. The sequence of phasing will move from the south end of the site up to the north. This will allow Operations to work as normal while future expansions are built.

Phase 1 includes office space for Public Works, Water Services, Engineering, Source Water Protection, IT, Corporate Records, Planning and Development, Capital Projects and Parks & Operations. It also includes staff change rooms, a lunch room, meeting spaces, a Supervisors Shop Office Area, and Operators Shared Workshop Area, Mechanics Maintenance Shop, Heavy Vehicle Maintenance Bays, a Storage Garage for materials and equipment, Warm Vehicle Storage Bays, and a Wash Bay. Other site development in Phase 1 includes: a vehicle storage pole barn, covered material storage bunkers, a waste bins storage area, fleet parking areas, two greenhouses, and material pile areas for street sweepings, gravel and topsoil. Recently, the addition of Planning Department staff to the office area had been introduced as a modification to the program.

Phase 2 will include the addition of more Warm Vehicle Storage Bays to the main building, the expansion of the pole barn, construction of material bunkers and waste bins, construction of a salt and sand storage shed building with a brine making & dispensing facility, and another pair of greenhouses.

1.2 Master Planning and Site Selection

With the program completed, a masterplan was created, showing all program elements in an idealized and efficient site plan on a generic site. The plan incorporated circulation, future expansion, and the addition of other Township departments. This was then used to estimate cost and the minimum property area needed to accommodate the new operations facility. It was determined that roughly 20 acres would be needed, more if the site was not rectilinear. 8 options were presented in the Final Report issued April 2021. These included:

1. Do nothing for the 10-20 years;
2. Redevelop the existing garage and other existing sites;
3. Co-develop multiple sites with the county;
4. Redevelop the Garage and add Administration offices, develop other existing sites;
5. Build a new facility on a new site in one phase;
6. Build a new facility on a new site in two phases;
7. Build a new facility on a new site in two phases moving office staff to the Medical Building temporarily; and
8. Build a new facility on a new site in three phases.

With a weighted evaluation, the staff recommended proceeding with a modified **Option 6: Build a new Township Operations Centre on a new site using a two-phased approach**, and council approved this recommendation. The Township then assessed its own inventory of properties as well as properties listed for sale by private owners.

1.3 Gartshore Site

In early 2021 a privately owned 20-acre farm on Gartshore Street in Fergus was listed as a property of interest and then flagged by the Township as suitable location for the new Operations Centre.

With its acquisition finalized in October 2021, the Township started the next stage of development by outlining a plan to re-zone and prepare the site for its intended use. Through an RFP process, RDH Architects in partnership with RJ Burnside were hired in May 2022 to initiate, oversee, and assess all site development tasks required to begin designing the new Operations facility and the site. These included a new masterplan layout incorporating the layout and features of the chosen site.

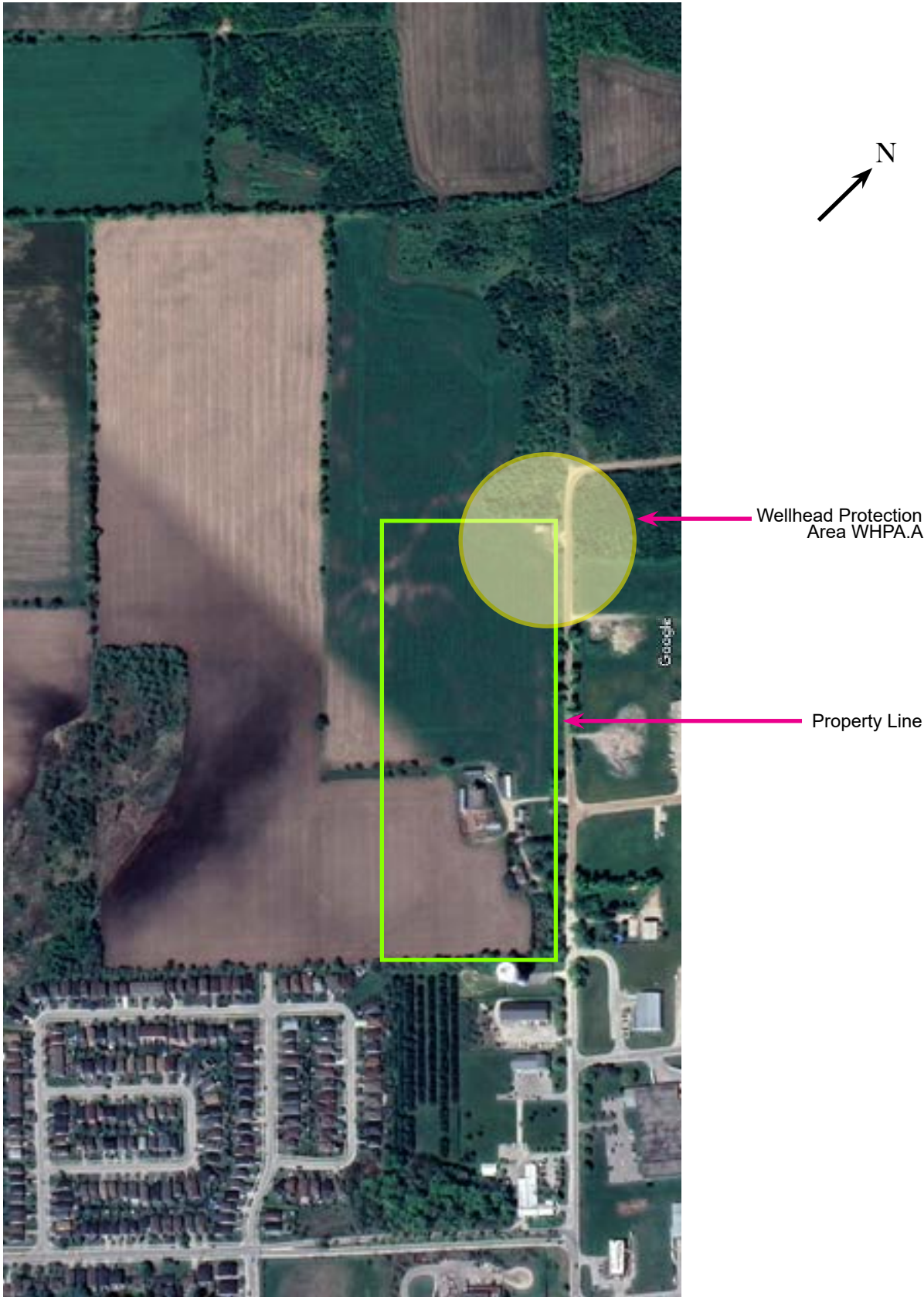
Site investigations were completed to inform the master plan. It was noted at that time that a storm pond would be required, sanitary connections would need to be made at the intersection of Gregson Ct. or south, and the wellhead protection area would limit the construction of buildings and paving at the north end of the site.

As these investigations were underway, a Zoning By-Law Amendment for the Gartshore property was started. The main task in this stage was to have the property re-zoned from Agricultural (A) to Industrial (IN) designation. This required a Zoning By-Law Amendment. The amendment would also need to include the adjacent Future Development (FD) zoned lands at 101 Gregson Court and 970 Gartshore. These are to be zoned General Industrial M2. Finally, an Official Plan Amendment is required to rezone the FD sites from Future Development to Industrial.

With the conclusion of the site development process a concept design was completed. It modified the stage 1 test fit to concentrate the new buildings closer to the south end and existing services, leave the Protection areas to the north end as landscape only, and integrate the old farmhouse into a new public facing landscape feature area. A variation of the concept was also prepared, showing a 2-storey administrative wing to accommodate the Township's Planning and Development Department and staff growth, thus freeing more space at the Town Hall. These options were presented to council in May 2023 and the 2-storey version was recommended by staff. Council approved the zoning by-law amendment with the 2- storey scheme, paving the way for the design and construction of the new Operations Centre.



The Township of Centre Wellington and surrounding areas



The 965 Gartshore St. Site.

2.0 Site Investigations

The Gartshore site has been agricultural land since the inception of the Township. It's past uses are only known to be agricultural, but the present condition of the soil and structures were not known. In June 2022, at the onset of the Site Development phase of the Operations Centre project, several site investigations and building assessments were initiated to determine site features, below ground make-up, and the state of the surrounding environment. Since the intended development will impact the property especially its stormwater profile and the traffic conditions on adjacent roads these studies and investigations were critical to inform the site plan design and the proposed By-Law Amendment.

Although the site is primarily greenfield it does contain some existing farm structures. Three major structures were examined to determine their historical significance. A 2 storey brick farmhouse, a large wood frame barn on stone foundations, and a tall concrete storage silo with wood roof. The farmhouse in particular was field measured and documented in architectural plans and elevations.

2.1 List of Studies and Reports

.1 Site Investigation

- .1 Space Needs Program - Sterling Rothesay & RDHA (part of 2020 Space Needs Assessment report)
- .2 Topographic Survey Report - Callon Dietz
- .3 Arborist Report - RJ Burnside
- .4 Traffic Impact Study - RJ Burnside
- .5 Noise Study - RJ Burnside
- .6 Geotechnical Investigation - JLP Services
- .7 Hydrogeological Investigation - RJ Burnside
- .8 Functional Service Report - RJ Burnside
- .9 Stormwater Management - RJ Burnside
- .10 Excess Soil Management - JLP Services
 - SAP Sampling and Analysis Plan
 - APU Assessment of Past Uses
 - ESC Excess Soil Characterization Report
- .11 Environmental Investigation Study (EIS) - RJ Burnside
- .12 Cultural Heritage Evaluation Report (CHER) - ARA
- .13 Heritage Impact Assessment (HIA) Report (Stage 1) - ARA

.2 Existing Buildings Reports

- .1 Building Condition Assessments - RJ Burnside
- .2 Designated Substances Survey - RJ Burnside

.3 Zoning & By-Law Amendments

- .1 Pre-Consultation Application - GSP Group
- .2 Planning Justification Report
- .3 Zoning Amendment Application
- .4 Final Zoning Report

2.2 List of Drawings

- .1 Tree Inventory - RJ Burnside
- .2 Servicing & Utility Locates - RJ Burnside
- .3 Farm House As-Built Drawings - RDHA



Centre of site looking north towards the Wellhead on the left and tree-lined Gartshore St.

2.3 Site Studies and Reports

The Site Investigation reports as summarized below were used to inform and support the proposed Zoning By-Law Amendment and the final Concept design for the Operations Centre. The summaries each describe the purpose and methods of the analysis, followed by an outline of the recommendations or findings.

.1 *Space Needs Program (Sterling Rothesay - April 2022 updated December 2023)*

The program is the result of an in-depth analysis of the Township's Operations department functions, needs and projected future growth. Its creation involved listing all existing operations spaces and their areas, and then, by interviewing staff and decision makers, determining if each space was suitable for current and future use,, needed modification, or could be discarded. In these same interviews, new spaces or functions not currently accommodated were also identified and detailed. The final program chart lists all spaces, existing and new, that are to be accommodated in the new facility. Service spaces, circulation and future growth are also factored in to help determine a total building area. The Program was updated in February 2023 and again in December 2023 to include the Planning Department and other recent staffing changes. This chart is included in Appendix 1.02.

This information provided a starting point for concept design of the new facility. The final report by Sterling Rothesay includes discussions with the Township staff involved in infrastructure services. Area calculations are used to determine a preliminary order of magnitude cost estimate.

.2 *Topographic Survey Report (Callon Dietz - September 2022)*

At the start of the Site Development stage of the project, a legal survey of 965 Gartshore was provided to the design team. This survey was completed by Van Harten Surveying Inc. in November 2021 and is included in *Appendix 2 - Drawings A*. A topographic survey was initiated in August of 2022 and completed in September by Callon Dietz OLS. This survey is included in *Appendix 2 - Drawings B*, with a full report in *Appendix 1 - Reports 01*. A CAD file was submitted with each survey as well as an accompanying report summarizing the boundaries, items of note, and how they are all represented in the drawings.

The topographic survey accurately confirmed the grading, with the site sloping down overall toward the north-west. It also provided accurate locations for existing utilities and site services both on and adjacent to the site. This was essential for developing the Stormwater Management study and Functional Servicing Report (Appendix 1.08).

.3 *Arborist Report (RJ Burnside - February 2023)*

The arboreal analysis started with a tree inventory. This required walking the site and identifying each tree that falls under the minimum parameters of trunk diameter and height. With the inventory completed in November 2022, RJ Burnside was able to prepare the Arborist Report and Tree Protection Plan. Along with the inventory this report identified specific trees that should be preserved and others that should be removed. It considered the proposed construction areas and recommended the types of Tree Protection fencing and details required for tree preservation. Refer to Appendix 1.03.

The Arborist report identified the species of 331 trees found on the site. It highlighted certain species that are endangered and provided recommendations for preservation. In total 247 were to be preserved. Drawings with details on how to preserve and protect listed trees were included with the report. The report confirmed trees that

will conflict with the proposed development and any trees that are diseased or problematic. It also confirmed that an arboretum was established in the south-east corner of the site with a number of the endangered trees. Of note, the Township is involved in a program to remove all ash trees due to the spread of Emerald Ash Borer disease. Two ash species have been identified with the trees tagged for removal.

.4 *Traffic Impact Study (RJ Burnside - May 2023)*

A Traffic Impact Study (TIS) was prepared to help anticipate the impact of the proposed development on the streets that service it. This includes any major roadways in the vicinity that may receive residual impact of more vehicle traffic. The study also investigates any proposed or future road expansion, and other impact studies done for neighboring sites. This was done with an analysis of existing traffic conditions along Gartshore St. and adjoining intersections. The proposed Operations Centre development and additional background conditions scenarios were analyzed as well, including the extension of Gartshore and Dickson Dr., increase in Transit, and Active Transportation. Refer to Appendix 1.04

The scope of work was confirmed with Wellington County, the Township of Centre Wellington, and Ministry of Transportation Ontario (MTO). The MTO confirmed that the proposed site is beyond their Permit Control, so no MTO review or permits are required. For the proposed Phase 1 development, extra lanes, and left-turn lanes off Gartshore St. into the site are not yet warranted. Traffic loading will not significantly increase until Dickson Drive and Gartshore St. are extended. With Gartshore, a proposed extension is still in concept stages, it will ultimately connect Gartshore to Highway 6 which will warrant widening it to two lanes each way.

.5 *Noise Study (RJ Burnside - February 2023)*

This Noise Study was undertaken to determine the anticipated noise levels that would be generated by the proposed use of the Gartshore site as a municipal operations centre. To do this, a list of probable equipment that would be operating outdoors was noted. Generators, snowplows, front-end loaders and other public works vehicles were highlighted as sources of stationary noise. RJ Burnside used past experience with these types of vehicles to register the anticipated noise levels, they then modeled the possible scenarios. It was determined that the activities on site will exceed the MECP limits of a Class 2 area so noise mitigation would be required. Refer to Appendix 1.05

One key recommendation was to shield the residential development to the south and any potential future residential development on the property located to the west of the site. This would involve using the proposed land berm along the south-west property line as a noise buffer.

.6 *Preliminary Geotechnical Investigation (JLP Services Inc. - December 2022)*

The soil investigation was undertaken to investigate the subsurface soil and groundwater conditions at the site. This information will assist with: foundation design, paving design, and stormwater management. Borehole testing for the soil and geotechnical analysis was delayed to allow the farm property tenant to complete their 2022 seasonal harvest without damage or disruption to crops. The harvest was completed in early October and on-site drilling rigs started soon after in late October. The on-site rig drilled boreholes around the footprint of the proposed main building, the locations of future developments, and the locations of some of the proposed heavy-duty paving. In total there were (7) boreholes completed. Boreholes 1 and 7 were fitted with nested monitoring wells. Locations are mapped in the report, Refer to Appendix 1.06.

The drilling augers were equipped to go up to 25m deep. Groundwater was noted in the open holes and considered to be located at about 1.2m to 3.8m below existing grade. Soil conditions are noted in the borehole logs (pages 20-31 of the report). All samples were sent to the JLP labs for testing.

The report concludes with engineered recommendations. The testing provided details to the types of soils removed and the borehole logs provided the depths of specific materials. This information informed the recommendations for the design of: building foundations, floor slab and basement wall designs, depths of site services, pavement design, and stormwater management facilities needed.

.7 *Hydrogeological Assessment (RJ Burnside - May 2023)*

With the drilling of the geotechnical boreholes RJ Burnside was able to fit the boreholes with monitoring wells after the sampling was complete. A total of (9) monitoring wells were established in (7) locations around the site. This groundwater monitoring network could then be monitored for a minimum of 3 seasons to be able to properly assess the ground water levels and the impact of the future development on the groundwater supply. There are local private wells within the vicinity including a municipal well along the north edge of the site. Therefore, properly delineating the elevation of the groundwater sources will ensure construction and/ or proposed use does not interfere with the local aquifer. Well nests were installed at boreholes 1 and 7. These nests are at different elevations than their paired well, allowing monitoring of the changes in groundwater elevations over the seasons.

Once they were established, the monitoring wells allowed for the following tests: Hydraulic conductivity; Infiltration Testing; Monitoring of groundwater levels; Water quality sampling; and Water balance calculations. The report also noted the ground geology and stratigraphy (layers of rock and soil). These are illustrated in the initial borehole logs but are shown in more context and detail in the report. Well records and water analysis results are also included. Refer to Appendix 1.07.

The results of the tests and monitoring helped to determine groundwater elevations by season, groundwater flow, hydrostatic pressure, discharge & recharge of groundwater, and water quality. The report also notes the impact of the proposed development on the groundwater including what depths of built forms will be affected by the water. The municipal supply just to the north of the property line was identified as having a wellhead protection area (WPA) located within the Gartshore property. No vulnerable aquifers have been identified on the subject property, and because of its depth the vulnerability of the wellhead is low. Given that, there was the recommendation to have a Threats Disclosure Report given the nature of the functions of the Operations Centre. Snow storage, fuel storage, salt storage and handling are examples of potential threats.

.8 *Functional Servicing Report (RJ Burnside - April 2023)*

The purpose of this report was to evaluate the sanitary and water demand for the proposed Public Works facility. The report identified the sanitary flow, domestic water flow, and firefighting flow requirements for the site. The demands identified in the Functional Servicing Report can be applied to the available capacity in the sanitary and water systems to determine if upgrades or adjustments to existing infrastructure are required. Refer to Appendix 1.08

Capacity in the existing sanitary and water systems were not examined as part of the FSR. Sanitary modelling for the existing system must be completed to determine if there's available capacity in the system. In the absence of flow data for the watermain fronting the site, hydrant tests will be required to determine if the system can accommodate the proposed domestic and fire demands

.9 Stormwater Management Report (RJ Burnside - April 2023)

This report incorporated information from the: site grading survey, geotechnical report, initial hydrogeological findings, and Environmental Investigation Study to determine how storm run-off and infiltration works on the existing site. It then applied the proposed development to determine the feasibility of stormwater control. Any proposed development needs to comply with Municipal standards.

The grading plan finds that the site slopes up to 3.9m down from east to west, therefore it drains via overland flow, from east to west and onto the neighboring agricultural property. Off property drainage on the west is to be mitigated to ensure control of stormwater on the Operations Site. Re-grading and a proposed storm pond will be used for west direction drainage, swales are to capture most of the overland runoff to the east side. The subject property's proximity to the municipal well and the location of the SWM facility and outlet regarding the groundwater recharge zone sees several measures proposed to mitigate the risk of impact to the groundwater supply. The proposed SWM facility and outlet will have a clay liner to remove the opportunity for low flows to infiltrate into the ground. The SWM facility will also implement pre-treatment in the form of an Oil/Grit separator to further reduce the risk to the groundwater. Refer to Appendix 1.08

.10 Excess Soil Management (JLP Services Inc. - December 2022)

This is an outline procedure for dealing with excess topsoil and/or extra soil from any proposed re-grading or excavations. Excess soil is often transported off-site. However it would be ideal to re-use the soil on site if it meets O.Reg. 406/19 standards. Given the previous use, any potential contamination must be identified and a plan to deal with it noted before any excavation or re-grading starts. The three Excess Soil Management (ESC) reports provide the likely risks on this site, a procedure to identify these risks, and a method to deal with these risks.

Assessment of Past Uses (APU) Report by JLP Services - December 2022. This report has identified historical uses for the site and its surroundings. Given that, certain uses may have brought contamination and that the site has been consistently agricultural for the past 100 years, it is possible the soil is contaminated from Potentially Contaminating Activities (PCA) related to farming but not industrial uses. In this case, farming using pesticides is identified as an Area of Potential Environmental Concern (APEC) and therefore the soil should be sampled. This will inform the Soil Characterization Report (SCR) but first, a Sampling and Analysis Plan (SAP) will be required. Refer to Appendix 1.09.

The recommendation from the APU report is to perform an SAP and then an SCR to confirm if there are any contaminants and what hazards they may pose.

Sampling and Analysis Plan (SAP) by JLP Services - December 2022. The Sampling and Analysis Plan (SAP) is initiated if the APU recommends it. In this case an SAP and SCR were recommended for analysis of the soil. The SAP recommended what steps are needed to sample soil in the areas identified as an APEC. This SAP done by JLP proposed using the soil collected from the Geotechnical borehole sampling and testing done in October of 2022. This report outlines the soil analysis procedures and requirements.

The SAP identified the contaminants of concern: Petroleum Hydrocarbon Fractions F1 to F4 including Benzene, Toluene, Ethylbenzene and Xylenes, Organochloric pesticides, Metals and hydride forming metals, PH, Electrical conductivity and Sodium adsorption ratio. Testing specifically to these materials should be used. Field screening for hydrocarbons was done on site and nothing of concern was found with the samples taken. More sampling and

testing will be required in the highlighted areas noted in the report. Refer to Appendix 1.10

Excess Soil Characterization Report (SCR) by JLP Services - December 2022. This report outlines the procedures of the APU and SAP that are to inform this report. Because this property has been used solely as an agricultural farm, a Record of Site Condition is not required. This report was done in accordance with MECP Ontario Regulation 406/19. The field screening and laboratory testing yielded low levels of contamination, all within acceptable standard levels for Industrial/ Institutional use so no leachate analysis is required. Soil samples also yielded results within the acceptable range for potable ground water use. Refer to Appendix 1.11

This report makes the following recommendations:

- Additional sampling will be required, as noted in the SAP. This is because of the sample: locations, low volume, and depth of original removal.
- This SCR will need to be updated when the additional sampling results are completed.
- If soil is removed from the site, a qualified inspection team should be on site to review the material being loaded out. This is to ensure there are no environmental concerns.

.11 Environmental Impact Study (RJ Burnside - April 2023)

An Environmental Impact Study (EIS) is required by the Grand River Conservation Authority (GRCA). The project site falls within a portion of the GRCA regulated lands. The final report, including proposed development plan, was submitted in April of 2023. Refer to Appendix 1.12.

This report assessed the natural habitats present on, or adjacent to, the property and will recommend mitigation if necessary. This typically looks at wetlands and other habitats for migratory birds and any listed endangered species. It also notes protected natural areas and requires measures to prevent the pollution, alteration, or removal of these areas. There are no wetlands present on the project site. There is an adjacent wetland floodplain, its 30m setback skirts the northern edge of the site. There is also the GRCA regulation limit which covers almost the entire northern quarter of the site. The report also identifies the Wellington County Forest Conservation By-Law that the Arborist Report addresses. There are currently no significant woodlands or areas of natural interest on the site. The property is currently classified as agricultural and notes no significant wildlife habitats and no Species at Risk on the site. The nearby creek does offer habitats and there are a number of Endangered or Species of Special Concern that historically frequent the creek and its wetlands. Barn Swallows are a Species of Concern and are known to nest in structures adjacent to open areas, no Swallows or Bats were found in the 965 Gartshore site on inspection.

Any construction work on the site will need to follow the Tree Protection Plan (Refer appendix 1.03). Demolition of existing structures and land clearing should be done outside of bird breeding season. Erosion and sediment control fences should be used to deter wildlife away from construction. Exclusion measures to prevent bat roosting and barn swallow nesting should be installed outside the roosting/ nesting window (April 1 - Sept. 30).

.12 Cultural Heritage Evaluation Report (ARA - January 2023)

The team from ARA Ltd. made a site visit to assess the heritage value of the buildings on the Gartshore site. This was done in August 2022 with a draft Cultural Heritage Evaluation Report (CHER) done in October 2022 and a final CHER report submitted in January 2023. Refer to Appendix 1.13. These reports identified any heritage attributes deemed worthy of conservation under the *Ontario Heritage Act*.

The property has been found to meet the criteria of O.Reg 569/22 and can be considered an evolved cultural heritage landscape. It is representative of a Historic Ontario Farmstead. There are elements that should be preserved if possible: The late 19th century red brick farmhouse, the tree-lined entrance driveway framing the farmhouse from Gartshore St., the large bank barn, and the poured concrete silo next to the barn. It was recommended that a Heritage Impact Assessment should be undertaken, to identify impacts to cultural heritage. The Township has the authority to decide moving forward, whether these elements are worthy of Historical designation. A building condition assessment was performed on the buildings to assess the viability of preservation or re-use. The property has cultural heritage value and there is a proposed development of the property. Therefore a Heritage Impact Assessment should be undertaken to identify the impacts to the cultural heritage value.

.13 *Heritage Impact Assessment (ARA - May 2023)*

A Stage 1 archeological assessment was undertaken by ARA Ltd. in August of 2022 and a Cultural Heritage Evaluation Report (CHER) submitted. This included background research and a recommendation to perform a Stage II property assessment in the noted areas. The property information and Stage 1 results were registered into the Ontario Public Register of Archeological Reports. Refer to Appendix 1.14

The HIA forms the second stage of the heritage and archeological study of the site. It proposes four (4) options to address the noted 'farm cluster' structures including the grove of trees.

1. Do nothing, leave the cluster and farm as-is. This leaves the noted heritage elements but leaves them at risk of deteriorating further and pose a risk to human and animal health and safety.
2. Removal of structures. This involves the demolition of the buildings and trees.
3. Retention of Heritage Attributes. This involves keeping the Farmhouse and tree-lined driveway but removing the barn and silo due to their poor state of condition and cost of preservation.
4. Retention of Heritage elements. This is option 3 with mitigation measures and design recommendations as noted in 7.0 and 8.0 of the HIA report. This is the noted preferred option. Refer to Appendix 1.14

The report does also state that given the site's use as a farm, there could be areas of archeological potential. The report concluded that a Stage 2 archeological assessment is required prior to the start of construction.

.14 *Planning Justification Report (GSP Group - May 2023)*

The Planning Justification Report is the document to support the Zoning By-Law Amendment (ZBA) to re-zone the 965 Gartshore property (Site 1) from Agricultural to Industrial. This requires the support of the preceding Site Investigation reports included with this Site Development Report. The ZBA is required to start planning and constructing the future Operations Centre on this site. The ZBA is also intended to include the adjacent Township owned properties on 101 Gregson Court (Site 2), and 970 Gartshore (Site 3). These sites will also require a County Wellington Official Plan Amendment to rezone from Future Development (FD) to Industrial M2.

The Planning Justification Report also includes the Planning Policy Framework which puts forward appropriate reasons to make the proposed amendments. The Ontario Planning Act, and the Provincial Policy Statement

provide a path to development of agricultural land if it is in the Provincial interest. The site is under-utilized, the proposed use will be a benefit to, and provide a service to the community. The Report also makes the argument that the site selection done by the Township was thorough and included properties within the non-agricultural boundaries of Fergus and Elora. The property on Gartshore St. was the only available land in the Township that was of a suitable size and proportion for its intended use. The County Wellington Official Plan States that Prime Agricultural land can be used for new community services. The proposed growth of the Township means that the Township needs to plan for accommodating the delivery of services for which the proposed Operations Centre will address for the next 20 years of growth. The existing Operations facilities could not expand to fulfill the Township's obligations in the future.

The Planning Justification Report was initially drafted in March of 2023 and presented to Township of Centre Wellington Council. The draft noted the two design concept options being considered by the Township:

Concept 1 - The full site plan incorporating all elements of the Space Needs Study;

Concept 2 - Concept 1 with the addition of the Planning Department staff and any future projected Planning Dept. additions. Administrative spaces are spread out over 2 storeys.

The Township decided to proceed with Concept 2. The Justification Report was revised to reflect these changes, and presented to the Council in June of 2023. Refer to Appendix 1.15

2.4 Existing Buildings Reports

.01 Building Condition Assessment (RJ Burnside - November 2022)

A Building Condition Assessment (BCA) was started by a team from RJ Burnside who in August 2022 physically inspected the 3 main buildings of interest on the Gartshore site. The Farmhouse was more thoroughly inspected noting architectural, structural, mechanical, and electrical conditions.

The second part of the report includes recommendations for immediate or future replacement or repair of various building systems or components. Ongoing maintenance and other mitigation measures are also discussed to help extend the longevity of the existing building. The final report was submitted November 2022 and included a capital plan noting when repairs or replacement is anticipated to keep the farmhouse building in a serviceable condition. A number of photographs and the As-built drawings were included to support the findings. Refer to Appendix 1.16

.02 Designated Substances and Hazardous Materials Survey

A Designated Substances Survey (DSS) was undertaken by a team from RJ Burnside in August of 2022 with a follow-up visit in November 2022. The report was submitted in December 2022. A list of hazardous substances was made with location and concentrations. Refer to Appendix 1.17

Findings of note were: Through sampling, plumbing pipe elbows have been identified as containing some asbestos, hazardous removal measures need to be taken if and when these are replaced. Also of note, the standard warning that there is silica in the masonry and concrete, proper ventilation and breathing protection must be made when cutting or drilling.

.03 *Operations Centre Outline Specification (RDHA - February 2023)*

This is a summary of requirements and an itemized list of proposed materials and products that make up the concept design of the Operations Centre buildings and site elements. This also includes the landscape features and buildings included in Phase 1 of the project. Refer to Appendix 1.18.

The appendix document does not include the Space Needs Program or Functional Service Report. More current versions of these are found in the appendix of this Site Development report.

2.5 Drawings and Large Format Documents

.1 *Legal Survey (Van Harten Surveying - November 2021)*

- This is the survey of the 965 Gartshore provided at the start of the site development process undertaken by Van Harten Surveying in November of 2021. The intent was to plot the legal limits of the Gartshore property and any property lines abutting it. It referenced plot points, length of property lines and legal information. This is for real estate purposes only. A digital CAD file was made available to plot the legal limits of the 965 property using UTM Zone 17 NAD83 coordinates.

.2 *Topographic Survey (Callon Dietz - September 2022)*

- This is a new survey of the 965 Gartshore site undertaken by Callon Dietz surveyors. The intent was to accurately mark all structures, services, major trees and note surface materials on the property. It also shows topographic features including grade lines and spot elevations.

This information is important to accurately identify and locate the major structures that are being preserved as well as services that are along Gartshore. This will inform the Functional Service Report and help with locates for the Geotechnical study.

.3 *Farmhouse As-Built Drawings*

In August of 2022 a team from RDHA performed an in-person site measure of the existing farmhouse. All walls, doors, windows, stairs and other major elements were measured and documented as red-line hand drawings to be later inputted into digital CAD format. Floor plans and exterior elevations were drawn noting structural, mechanical and electrical elements.

These drawings were distributed to RJ Burnside to serve as a basis and reference for the Building Condition Assessments and DSS Reports. These drawings can be used in the future as a basis for any renovation or improvement design studies and documents. The farmhouse is being considered for integration into the facility as a possible meeting space and office area. It would probably remain separated from any of the proposed buildings but could be connected via paved landscaping.

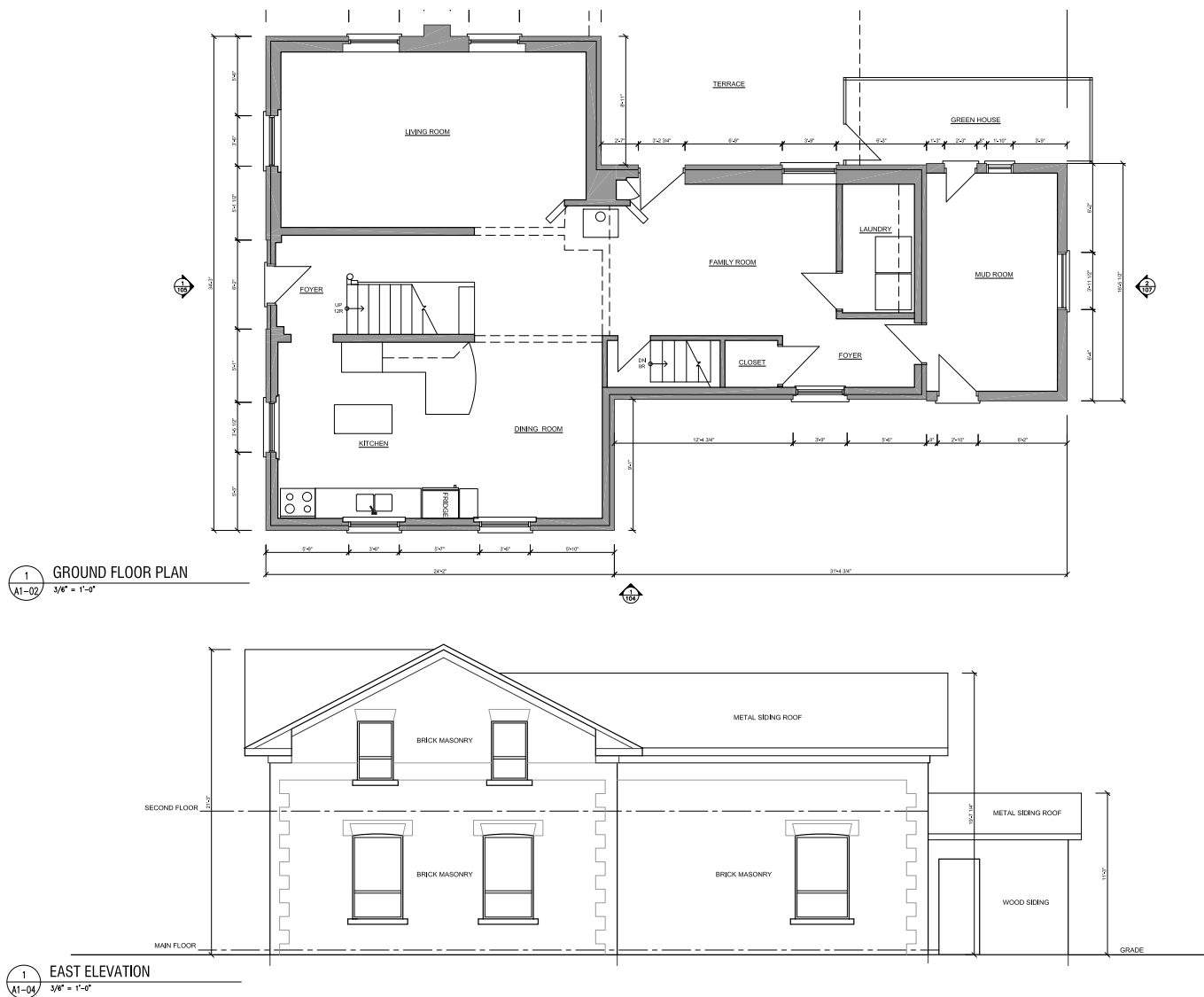
.4 *Tree Inventory*

A tree inventory was carried out on site in July 2022 with a report that followed, all by RJ Burnside. The report identified 326 trees which are listed on the schedule and placed within the aerial view drawings. Refer to Appendix - Reports 02. This inventory informs the Arborist report and supplies plans with each listed tree noted on the site.

This inventory includes an overall site plan noting each tree inventoried with a scale representation on the drawing and an ID code. These codes should then be referenced in the Charts which supply tree data. Not every tree could be inventoried or inventoried thoroughly, there are limitations due to access and size.

.5 Other Drawings

Large format Functional Service and Grading Site Plans are included with their respective reports.



3.0 Design Brief

3.1 Informed Decisions from Site Investigations

The concept plan developed for 965 Gartshore responds to the site conditions and the recommendations in the accompanying reports. Recommendations and input to the site design, listed by report:

.1 *Space Needs Program*

- This program was used as a basis to start concept design. All spaces were plotted and scaled as per their respective areas. They were then arranged as per the Adjacency Study. The program was edited to add the Planning Department staff and the support spaces they need, this includes future growth. The program document provided a useful tool to keep the total area up to date.

.2 *Topographic Survey Report*

- The topo survey was used to help with preliminary grading calculations by RJ Burnside. This allowed for planning the stormwater management plan including the storm pond.

.3 *Arborist Report*

- Existing trees to the east of the farmhouse have been noted as a possible arboretum. These trees, along with the trees lining Gartshore Street will be retained to the extent feasible.

.4 *Traffic Impact Study*

- Most of the recommendations noted in the TIS do not directly affect the 965 Gartshore site. However, the traffic widening setback on Gartshore needed to be accommodated on the new site plan. This resulted in the wide berth from the edge of the current street paving to the location of the proposed fencing and paving on the proposed Operations yard.

.5 *Noise Study*

- A large earth berm is being proposed to run along the west edge of the site. It will provide both a visual and noise barrier to the existing and proposed residential districts to the south and west of the Operations site. The proposed berm is to be 2.5m high along the entire length of the property line. An additional acoustic barrier will need to be installed on top of the berm. A 2.6m high wall along the southern 190m of the property line. Beyond that it will transition to 2.2m high wall along the northern 245m of the west property line.

.6 *Preliminary Geotechnical Investigation*

- The Geotechnical Report made recommendations for the design of the stormwater management facility (retention pond). The pond is to have a geosynthetic liner to prevent substantial ground infiltration.
- Recommendations for foundations, concrete slab and paving design and construction are made. The building can be supported with spread footings. This will inform the cost analysis for the Class D estimate.
- The proposed Works Yard will need to be relatively level. This will require some cut and fill.

.7 Hydrogeological Assessment

- There are high ground water levels at the north end of the site. No construction is proposed there but the pond liner may require mitigation to prevent uplift from rising groundwater.
- The high groundwater levels are just below the proposed levels of excavation. However, dewatering should be factored into any construction plans to deal with seasonal fluctuations.
- All new buildings including the renovated farmhouse will be connected to the municipal water supply. Any existing wells can and will need to be decommissioned.

.8 Functional Servicing Report

- Water demand has been estimated based on the concept design. This includes fire hydrants and vehicle wash loads. Hydrant flow is just below the minimum threshold. More hydrant tests will need to be done during the design phases to more accurately determine the flow rate. If the levels are still low, fire pumps may be required.
- The existing sanitary servicing along Gartshore St. terminates near the intersection with Gregson Ct. Expansion of the sanitary line north will not be started until Gartshore St. is extended later in this decade. The tie-in will need to be done in this intersection. This will limit how far into the site sanitary connections can extend without extensive site build-up or pumps. Gravity flow is most reliable and preferred. Thus, the main building and any facilities requiring sanitary connections will need to be concentrated at the south end of the site.
- Further design work should include discussion about mitigation measures needed to ensure that the pond is protective of groundwater (given proximity to the municipal well)

.9 Stormwater Management

- The Wellhead Protection Area (WHPA.A) has been delineated and covers a large swath of the north end of the Operations site. No development will be located on the WHPA.A so there is no risk of contaminated run-off seeping into the Wellhead area.
- The existing grading and ground slope provides an opportunity to direct surface run-off to the north-west corner of the site and store it there in a stormwater management facility. This run-off will be significant given the large amount of impervious paving proposed for the operations yard. This stormwater management facility will be a detention pond. The location is within the GVRCA protection zone so certain measures need to be taken to ensure there is no infiltration into the WHPA.A zone. The outlet for the pond is directed via lined channel to the Gartshore St. right-of-way culvert. The SWM report provides calculations and design of the pond.
- To achieve stormwater management requirements, a stormwater pond is located at the northwest corner of the site. The pond will not be located in the Wellhead protection area but as a further precaution, the pond will be lined to limit water infiltration into the wellhead protection area.

.10 Excess Soil Management

- The excess soil program noted that once a grading plan is developed and soil disposal calculations are totaled and locations identified, re-testing of soil in the areas noted in the SAP will be required. Testing and analysis results are acceptable for a period of 2 years.
- Given the above and the general high cost of removing topsoil from site, it was determined that a strategy to minimize removal and off-site disposal of soil if possible. The requirement of the high sound attenuation berm presents an opportunity to re-locate soil on site to build the berm. The berm does not require structural fill, just clean fill at the base with topsoil reused to top off.

.11 Environmental Investigation Study

- In addition to the WHPA.A limit, the proposed facility will not pave or construct any structures within the GVRCA Regulation Limit on the property. This overlaps the WHPA.A and wetland setback but also extends a little further to the west. The exception will be the storm detention pond and overflow channel. To mitigate any leachate into the GVRCA wetlands the pond and channel will be lined to prevent ground saturation of the storm run-off underneath.
- Demolition of the barn, silo and any large trees should occur outside of breeding season and Bat active window (April 01 - September 30).
- Additional measures to mitigate impact to the environment are listed in table 8.1 of the EIS.

.12 Archeological Assessments

- The existing farmhouse is integrated into the design as it has been identified as having heritage value. It has the potential to be restored and used as auxiliary office, meeting, storage and/or community space. It will be accessible to visitors and Township staff without entering the secure works yard portion of the site.
- The construction documents should include the Mitigation Measures noted in 7.0 of the HIA report. This will ensure protection of the farmhouse and trees, it also offers alternate uses for the barn timber and how to salvage it for alternate uses.

.13 Planning Justification Report

- The noted design decisions based on the studies will also inform the Planning report and the final Concept design will be presented to Council to support the Zoning By-Law Amendment.

.14 Other key Design Decisions

- Personal vehicle traffic to and from the parking lot is kept entirely segregated from the main Works yard site entry and exit points. This will eliminate possible interactions between fleet vehicles, personal vehicles, and pedestrians. This is intended to make the site safer and more secure.
- The site plan outlines the path of Snowplows as they perform their routine during a snow event. Part of the driving route was designed to minimize right-hand turns by the plows. The right side of a plow has many blind spots, so the routes were planned to minimize right-hand turns, which will make on site operation easier, more efficient and safer.
- The main operations building is T-shaped, with an administration wing oriented perpendicular to Gartshore Street. The staff and visitor parking lot is along the southeast edge of the site, rather than street facing, giving the operations building and in particular the administrative wing more presence along the street. The administration wing is two-storey, the operations wing is single story, although the operations bays may include mezzanine spaces for service rooms and storage.
- No snow storage or snow disposal is planned for this site.

3.2 Proposed Sustainability Initiatives

The Operations Centre has the potential to integrate many sustainable design features, both active and passive in nature. We suggest that the Township consider integrating some or all of the following:

Solar

- Photovoltaic (PV) panels on rooftops, at grade, in green areas, and/or as shade structures over the parking lot. This will be coordinated with the local utility, PVs would feed into the existing electrical grid. This can reduce regular utility costs. PVs can also be optimized for certain seasons to keep production high when electricity demand or electricity costs are highest.
- Solar domestic hot water heating panels. These can be mounted on the roof and on a 'Solar Wall' to heat hot water tanks. This takes pressure of the boiler system whether it is gas or electrically powered.
- Solar walls work with a flat black metal siding panel mounted on an exterior wall, preferably facing south or west. The cavity between the siding and back-up wall heats up when there is sunshine. This heated air can be blown to a heat exchanger. These systems can also work hydronically, the heated siding can also have copper piping with conductive fluid that is heated and pumped to the boiler tanks, or a combination of air and hydronic.

Heat Pumps

- Geothermal (ground source) heating and cooling. Most of rural Ontario has ideal soil conditions for ground source heat. Deep wells are best but if the ground does not support it, a shallow field array can be used. These systems can supplement a buildings boiler system and are effective year-round. With costs coming down in the past 20 years it is a good option if the site allows it.

Water Management & Conservation

- Collection of rooftop rainwater in a cistern, for use in irrigation, equipment washing, and toilet flushing. This reduces the demand of potable water and contributes to stormwater management on site. It works with irrigation systems and can also be mated to a grey water system, which filters and uses the rainwater for flushing toilets and urinals.
- Recycling of wash bay water. This reduces the high flow of sanitary waste when vehicles are washed and also reduces demand for potable water.
- Low flow, touch-less fixtures throughout all washrooms, change rooms and kitchens.
- Maintain a minimum 20% soft landscaping for low heat gain, and more stormwater infiltration.
- Use of permeable pavers in the personal vehicles parking lot and on paved pedestrian and landscape areas for additional stormwater infiltration as noted above.

Energy

- Use of diffused natural light in large or commonly dark spaces. This can provide a great amount of diffused ambient light which makes many typically dark spaces brighter. Spaces underneath trucks, in storage mezzanines and in most workshops ambient light has reduced the number of activated light fixtures saving electricity and providing a more pleasant ambience.
- Energy modeling exercises during design to optimize the insulation value of walls and roofs, given the location and amount of glazing. All this with the aim of achieving the best value in terms of occupant comfort, long-term energy costs, and construction capital cost.

3.3 Sustainability Targets and Standards

LEED™, NetZero™ and PassiveHouse™ are now common sustainability targets for many municipal projects across Canada. Methods to achieve either of these standards can be considered as the selected Concept plan is developed. However, a commitment needs to be made at the beginning stages of design. Qualified consultants, registrations and proper planning are essential to successfully achieving all targets.

Leadership in Energy and Environmental Design (LEED™) comprises site attributes, accommodation and access to transit and alternate mobility, as well as sustainable construction techniques to achieve the LEED™ targets of Silver, Gold and Platinum.

NetZero™ can be defined by the Owner to suit any project specific constraints. But in essence any and all energy consumed by the facilities must be generated on site. Photovoltaics and Geothermal are two of the most common and achievable methods to balance energy production with usage. Energy conservation plays an important factor in achieving NetZero™.

PassiveHouse™ (Passivhaus) standard is a high-performance building framework. Originally started for residential projects in Germany its goal is to reduce the amount of energy that a building uses, particularly with heating and cooling. Now 30 years later the standard has been expanded to apply to commercial and institutional projects in North America. Passive House buildings are well known to operate at an incredibly low level of energy consumption, with up to 90% less heating and cooling demand. Envelope performance far exceeds the current Ontario Building code requirements. In addition to envelope and energy performance it also assists with indoor air quality as well.

Sustainability design standards often require intense oversight and planning in design and construction. Although this can provide reduced energy costs and healthier buildings, shadowing the energy efficiency portions without the erroneous framework is also an option to provide healthy buildings and save on long term operational costs.



Figure 4.1 - Barrie Operations Centre - proposed NetZero

4.0 Concept Design

The concept plan developed for 965 Gartshore is a product of the information and recommendations provided with the Site investigation findings. These findings added constraints and clarification to assumptions made in the original test-fit concept produced in September 2021. Refer to the Test Fit Study drawing (left). This captures all elements and areas listed in the final Space Needs Program document including the three building phases and future expansion.

Phase 1 - Main Operations Building with Administration Offices, Workshops, Maintenance Bays and warm Storage Bays.

- The Wash Bay is also included and shown as a part of the main bays.
- Vehicle Storage Pole Barn
- Concrete Storage Bunkers
- Waste Bins
- Farmhouse renovation
- Parking for 100 staff and visitor vehicles.
- Outdoor Materials storage
- Storm Pond
- Greenhouse

Phase 2 - Addition of administration space in the Operations Building

- Addition of 10 warm bays to the Operations Building
- Addition to the Pole Barn doubling its size.
- Sand & Salt Storage shed building with Brine making and storage.
- Addition of 55 staff parking spaces.
- Fueling Station

Phase 3 - Addition of 145m² administration space to the Operations Building

- Addition of 4 warm bays to the Operations Building
- Additional Materials Storage space
- Additional Greenhouse

4.1 Design Options

In late 2022 the initial Site investigations started to be submitted and the site layout was altered to incorporate initial recommendations and design decisions made as a result of initial site information that came available. At this time it was also decided to

Concept 1a - All elements as noted above. The site plan showing phase 1 and future phase 2 and 3 areas in dashed lines. Areas noted 'Future' are phase 3. Refer to figure 4.2

Concept 1b - the same as Concept 1a above but with the addition of the Planning Department from the Town Hall. This involves adding 19 of the current staff to the administrative wing of the Operations Centre. 19 parking spaces have also been added. Future expansion will add another 16 Planning staff and parking spaces to the future expansion program. Refer to figure 4.3

4.3 Final Design Concept

In early 2023 The design of Concept 1b was further refined. Site investigations were starting to be finalized and submitted to the design team. Refer to figure 4.4 The Site layout was altered further to add the following:

- Final design of the Storm Pond with access road.
- Earth berm along the west property line.
- The Operations Building was shifted to the west to allow the Greenhouses to be located closer to the 'Front' of the building and Farmhouse.
- The original driveway is to be kept and paved.
- The main Building is to have a 2-storey administration wing to comfortably accommodate the future expansion and allow the greenspace shown in Phase 1 to remain.
- The back-up generator is now shown.
- Greenhouse is divided into (2) smaller Greenhouses, with an additional (2) to be added as future expansion.
- The start of a biking/ hiking trail network at the south end of the site, connecting the landscaped areas with a planned trail that would start at the south-west corner of the site.
- A truck turning diagram was generated by inputting typical snowplow dimensions and turning radii into the AutoTurn app and overlaying it onto the site plan. Refer to figure 4.5
- The phasing is re-arranged eliminating Phase 3 and rolling all expansion into phase 2.

This new concept was presented to the Council juxtaposed with the former Concept 1b. The 2 storey administration wing version is recommended and selected to be included in the Zoning By-Law Amendment application. Council also confirmed the inclusion of the Planning Department in the Space Needs Program. The Council then adopted the Amendment and approved the site for development of the Operations Centre.

No further refinements to the site plan were done, but there was discussion to redefine the construction phasing.

Phase 0 - would be major site works, re-grading and underground site services work.

Phase 1 - The main Operations Building, Greenhouses, Pole Barn, concrete bunkers and Yard paving.

Phase 2 - Warm bays addition, Pole barn expansion, Sand & Salt Storage shed.

Materials, discussions and possible directions: Exterior Workshop walls to be Insulated Metal Panels which are economical and can provide high insulating values. The Administration wing is to have more architectural finishes, including stone cladding at the main level to address the colloquial construction material that has a historical connection to Wellington County. Wood solar fins to shade the second floor from direct sunlight which would be functional, aesthetically warm the building and speak to the materiality of the former barn. Refer to figures 5.1 and 5.2 for visual representation.

Drawings & documents produced and submitted:

- | | |
|--|--------------------|
| - Operations Centre Site Plan Concept - 1 sheet | - Appendix 2-E |
| - Operations Centre Paving Plan - 1 sheet | - Appendix 2-E |
| - Site Plan Render - 1 sheet | - Appendix 2-F |
| - Two Storey Concept Aerial Rendering - 1 sheet | - Appendix 2-G |
| - Two Storey Concept Street View Rendering - 1 sheet | - Appendix 2-G |
| - Civil Site Plans | - Appendix 2-H |
|
- FSR and SWM Report FINAL - 52 pages |
- Appendix 1-8 |

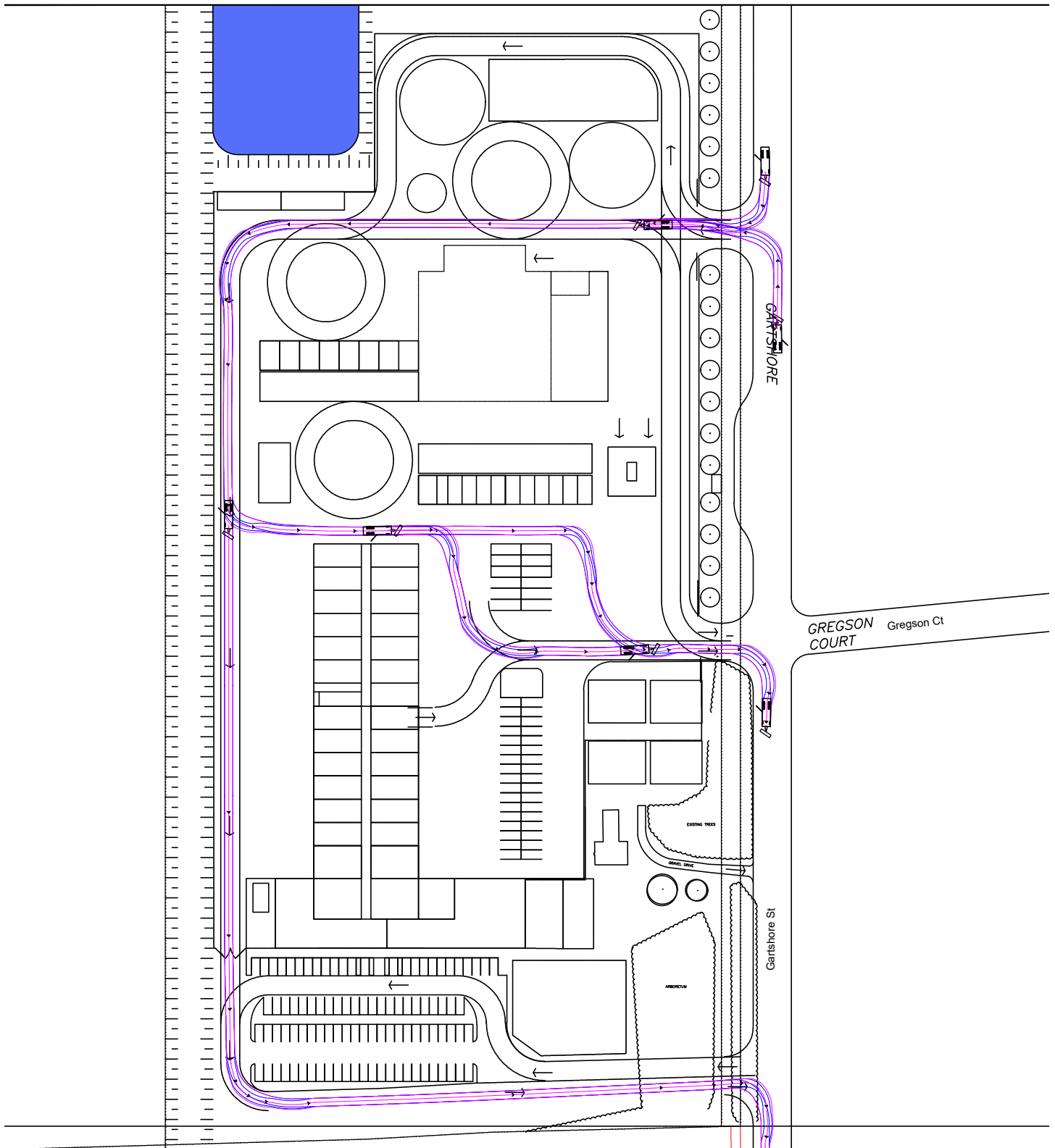


Figure 4.5 - Snow plow Truck turning plan



Figure 5.1 - Aerial Rendering of 2-storey Concept



Figure 5.2 - Streetview Rendering of 2-storey Concept

5.0 Overview of Project Delivery Models

As part of this feasibility study the Township has requested that we provide some preliminary descriptions and analysis of various project delivery models that could be implemented for the TCW Operations Centre redevelopment project. The following is a very high-level summary of Design-Bid-Build (DBB), Design Build (DB), Construction Management (CM), Integrated Project Delivery (IPD), and Public Private Partnership (PPP) models.

We are not recommending any one delivery model as many would be viable for this project, but we have provided some high level benefit, challenge and risk mitigation measures associated with each option.

Design-Bid-Build (DBB)

DBB has been the most common project delivery model in North America for more than 100 years. In this model the owner engages a consultant team to create a design followed by the preparation of construction documents (CD) that will be used to procure a General Contractor. In this model the consultant team or owner typically engages a Quantity Surveyor or Cost Consultant to prepare cost estimates during the design and construction document phases to estimate what the construction value of the project will likely be. In this model the construction document package is issued for 4–6-week tender period during which General Contractors distribute the documents to various trades to attain quotes. At the end of the tender period the GC submits a lump sum bid to build the project.

Benefits

The owner has the maximum control and participation in the development of the design.

The industry knows and understands this model and consequently the project will receive the largest and most diverse number of General Contractors and subtrade bids potentially resulting in highly competitive bid values.

Challenges

The diversity of the GC and subtrade participation typically results in aggressive pricing and the potential of the GC and/or subtrades identifying potential change requests within the bid documents as part of their bidding strategy, which results in significant change requests and associated values throughout the construction period.

Risk Mitigation Measures

To mitigate the above noted concerns the owner may choose to undertake a separate Request for Qualifications (RFQ) process to pre-qualify GC's and potentially major trades, and to establish a more substantial construction contingency value in their project budget to accommodate the likelihood that the competitive prices will likely result in aggressive change requests.

Design-Build (DB)

In the DB model the owner engages a consultant team to prepare detailed Functional Program and Statement of Requirements (SOR) that identifies the operational requirements of the facility, the staffing levels, and the equipment that will be in the facility. And area requirements for the SOR will also include all planning, zoning, and code requirements and in some cases a Reference Concept Design that is more conceptual in nature and is not meant to be the design but rather proof of concept.

These documents are to be provided to DB Teams that typically include the constructor as the lead as well as a full team of architects, engineers and specialty consultants that will be given a period of time to develop their own design that incorporates all of the requirements, and the owner then chooses to award the project to the DB team that they feel provides the best overall value to them.

Benefits

One of the benefits is that the DB Teams will use their combined design and building expertise to arrive at the most efficient and cost-effective solution.

The DB bid price is all inclusive and there should be a limited number of changes through construction except for client-initiated change requests and unforeseen issues and circumstances the DB could not have reasonably understood and incorporated into their bid.

Challenges

The DB model provides the least amount of design control by the Owner as the DB teams develop their design solely from the DB documents. Another potential challenge is that DB bids are often focused on reducing capital cost values over operating cost values, which may result in a lower DB bid but may wind up costing the owner significantly more money over the life of the project related to increased energy use and equipment repair and replacement, due to lower quality and less efficient equipment and building systems.

Risk Mitigation Measures

In order mitigate the operating cost concerns the SOR documents can be developed to include more stringent sustainability requirements including heightened equipment and material performance standards.

Construction Management (CM)

In the CM model the owner engages a construction management builder soon after they engage their consultant team or potentially at the same time. The model allows for the traditional relationship between the owner and consultant including the preparation of detailed design and construction documents. In this model the CM participates in the design process by preparing cost estimates based on their reaching out to trades for pricing and provide the consultant team with pre-construction advice on material and equipment availability and constructability of their details. They are also able to initiate early tender packages for demolition, early site works such as site servicing and long lead mechanical and electrical equipment.

Benefits

Although there are some benefits in assisting the design team with issues of coordination and constructability the biggest advantage of this delivery model is that the above noted early tenders may allow the project to progress at an earlier date than a traditional DBB or even DB delivery model. Another possible benefit is that the CM could engage major subtrades such as steel, mechanical and/or electrical to assist the consultant team with means and methods of materials and equipment that could save money and/or be installed earlier. CM contracts are typically less confrontation during the construction and ideally have a lower number of change requests. This is because the Owner, consultants and CM have been working together through the design phases and major issues related to coordination or constructability should have been addressed.

Challenges

CM cost estimates are typically higher than a Quantity Surveyor's estimate because when they prepare cost estimates they are relying on industry trade partners to review documents and provide prices which do not typically reflect competitive tender prices. This often translates into the final bid prices as well, as the CM will go out to a minimum of three trades that they believe are best suited for the project rather than the truly open market of the DBB. Also, unlike DBB where the Owner receives firm bids for the whole project, in a CM contract, bids are typically issued sequentially so it may be many months before the Owner has a final construction cost.

Risk Mitigation Measures

In some CM contracts the Owner requests that the CM provides a Guaranteed Maximum Price (GMP) prior to issuing the bulk of the project tenders. This value will likely be higher than in an open DBB tender but theoretically there will be minimum changes during construction, only ones related to client-initiated changes and truly unforeseen changes.

Integrated Project Delivery (IPD)

Although IPD has been around for quite some time it is only recently in Canada that municipalities are undertaking this project delivery model which is focused on a collaborative design and construction process that engages owner, consultants, and builder from the very beginning of the project. In an IPD the owner initiates an RFP process that engages the architect and key engineers and specialty consultants as well as the builder and their key subtrades. Once the IPD consultant and builder teams have been engaged they are required to come into a joint phased contract with clear deliverables in each phase, establish a base hourly rate with overhead and no profit for everyone who will be working on the project, and a schedule for received profit when milestones are attained, shared profit if costs savings have been made and loss of profit if the project exceeds the budget. The pre-validation phase is for the team to establish the project's program and values, followed by a validation phase in which all members of the team sign on to design with a firm budget and schedule and an implementation phase in which they complete the design and build the project.

Benefits

The IPD process is truly collaborative in nature, and it requires dedicated representatives of the owner consultant team and builder to participate in Big Room workshops in which all parties work together to find the most efficient and best value solutions for the design and construction, which virtually eliminates aggressive and confrontational relationships than can often come about in more traditional delivery models. It also provides the owner with some cost assuredness at a relatively early stage.

Challenges

This delivery model is relatively new and many municipal procurement departments are not set up to approve this model. It also requires a commitment by the owner in the process which includes a significant involvement of their staff members' time and effort during the pre-validation and validation phases. It is not certain that this model produces the lowest cost without competing bids, but the assumption is that lower construction costs will result from the collaborative nature of consultants and builders working together to find the most efficient means and methods, and by sharing the profit, loss or gain risk together.

Risk Mitigation Measures

It is important that some key members of the IPD team have IPD experience and if the owner does not that they engage an IPD specialist consultant to establish the process and to train staff members.

Public Private Partnership (PPP) models

PPP delivery models come in many forms that include, Design, Build & Finance (DBF), Design, Build, Finance & Operate (DBFO), and Design, Build, Finance, Operate & Maintain (DBFOM) to name a few. In all forms the emphasis of this delivery model is to transfer risk from the owner to the private sector. This model is typically utilized for large public infrastructure projects such as hospitals, courthouses, jails, & public transit facilities.

PPP projects require a significant management infrastructure including the engagement of a consultant team to prepare the project's Functional Program, Statement of Requirements including regulations and guidelines of all authorities having jurisdiction and possibly a reference concept design. These documents are then issued to approximately 3 consortiums that were short-listed through an RFQ process. The consortiums develop their designs over a number of months in which they have interim presentations. When a consortium has been awarded the project, they become responsible for the project financing, attaining site plan and building permit approvals and the construction of the facility.

Benefits

The benefits of a PPP model are that the owner does not take on the initial large capital cost into their capital budget program. The project financing is from the awarded consortium that includes builders, consultants, financial institutions, and possibly companies who specialized in operations and maintenance. Other benefits may include some price assuredness upon award to a consortium.

Challenges

PPP projects provide the Owner with more design control and input than a DB process, but it does not provide the ongoing collaborative design of a DBB, CM or IPD delivery model. This model requires that a significant stipend be provided to each consortium as the cost to prepare a PPP design is significant. By transferring much of the financing and building risk on to the consortium the costs to construct the facility appear to be higher than other delivery models.

Risk Mitigation Measures

It is important that everyone involved in this delivery model has direct PPP experience and if the owner does not that they engage an PPP specialist consultant to establish the process and to train staff members.

6.0 Wrap-Up and Next Steps

The master plan concept for the site was developed from information provided in the investigation reports. The following bulleted information had a significant impact on the development of the design:

- The wellhead protection area and GRCA Regulation zone prevents any type of development. These zones occupy most of the northern quarter of the site. Proposed paving adjacent to these zones should be kept to a minimum.
- Setbacks and easements as required for an Industrial zone should be followed along all property lines.
- The storm pond should be in a lower elevation area of the site to allow gravity surface drainage.
- Existing water and sanitary services under Gartshore St. go no further north than the intersection of Gregson Ct. Connections at this intersection would be most feasible. Because of this and the higher grades all sanitary sources should be located on the southern have of the site, to allow for gravity drainage.
- The existing farmhouse, barn, silo and tree-lined driveway all have heritage value and should be retained or accommodated. The farmhouse is in relatively good condition and is in a location that complements the proposed design, the barn and silo are not. The farmhouse and original driveway are to be integrated into the site design. The barn & silo are located centrally in the property and for practical and operational effectiveness of the new facility the township should mark these elements for relocation or more likely disassembled and sold for materials
- There will be a significant amount of topsoil to be removed in the proposed yard and storm pond. This can be kept on site and used to help construct the sound barrier berm required on the west property line.
- A walking and biking trail network is shown to connect the undeveloped lands north of the site with the existing trails and proposed parks to the south. This will also help divert trail traffic away from the Operations yard driveways and vehicle paths.
- The existing arboretum at the southeast corner of the site has been accommodated.
- The 965 Gartshore site is of adequate size but given the restrictions as noted above, accommodating the multi-phase program requires thoughtful and efficient planning.

Although very preliminary and conceptual the proposed layout of the main Operations building has been developed using the following principles which should be considered in the future design:

- Separation of staff and visitor personal vehicles with the fleet. This includes entrances, circulation and parking. A separate staff driveway has been added leading to the main parking lot.
- The administrative wing will provide the face of the facility and should be adjacent to the parking lot. This wing is a 2-storey space with a 4m floor to floor height. This will allow for a larger program area than originally planned without reducing the already limited usable site area.
- Vehicle storage bays and fleet maintenance bays require multiple vehicle access doors to eliminate any indoor vehicle circulation. This requires a long narrow building approximately 27 – 35m in depth. This will accommodate parking or servicing a full-length tandem plow on each side. This will allow vehicles to access each space without interference or allow drive-through storage bays. This layout also requires 17 – 25m clear space on each side of the building for vehicles to maneuver. This layout also allows for expansion by growing in the linear direction.
- The site layout has been arranged to accommodate full days winter operation of plows and salters during a weather event including reducing retracing of paths and minimizing right turns.

In a preliminary report to the Council in March 2023 the two concept options were presented. The Council decided to proceed with a two-storey building that incorporates future staff and the Planning & Development Department. With the compilation of Site Investigations and Planning Justification Report completed in May 2023, Township staff had presented the Zoning By-law Amendment and Concept to the Council on June 26, 2023, in a public meeting.

No objections to the amendment application were received and the Council approved the amendment. This meant that the proposed Operations site at 965 Gartshore was to be rezoned from “A” agricultural to “Site Specific IN” Industrial. The neighbouring properties at 970 Gartshore and 101 Gregson Court were to change their zoning from Future Development (FD) to M2 General Industrial. Amendment No. 11 to the Official Plan for the Township of Centre Wellington became official on July 31st, 2023. With this By-Law Amendment the site can be used for the development of a municipal operations centre.

Given the data collection provided in the reports and studies noted in section 2, and the conclusions summarized in section 3, there was sufficient information to conceive and support a proposed building and site layout design. This design and report can be used as the basis and starting point for the next stage of design services. The next step for the project will be to implement Detailed Design which will likely require another request for proposal (RFP) issued by the Township for design services. Although it is not necessary it may be prudent to decide on the project delivery method prior to a design services RFP. The type of delivery can affect the wording of RFP documents and contracts. In some instances, a Construction Manager can assist with the RFP and selection of the design team.

There should be some consideration to adding services to any design contract when proceeding further:

- Additional Geotechnical testing should be done once the footprint and exact location of the proposed buildings have been solidified. This work would be outside an architectural contract but should be budgeted.
- Follow-up on the existing groundwater monitoring wells.
- Heritage and Conservation services for the farmhouse and barn.
- A decision on delegated design for the proposed Greenhouses.
- A decision on delegated design for Brine making systems (if added to scope).
- Scheduled design workshops with the various Infrastructure Services staff to assess any changes since the space needs assessment was done, as well as gathering more detailed information on accommodation of specialty equipment and tools.