



MUNICIPALITY OF  
**SHUNIAH**  
A Superior Living Experience

## Master Wastewater and Water Servicing Plan

FINAL

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## 1.0 INTRODUCTION

The Municipality of Shuniah (Municipality) is located east of the City of Thunder Bay. Properties exist along Lakeshore Drive, along Highways 11/17, 527 and 587, small municipal roads, along the shorelines of Lake Superior, Bass Lake, Loon Lake, and Sparks Lake. Property types include residential, recreational, commercial and institutional. Long-term demographic trends and an increased comfort level with commuting has created a potential demand in permanent residential property in areas that have historically been recreational. To address this demand in a structured manner that conforms to Provincial policy and regulatory directions, municipalities have focused initial energies on development of updated Official Plan (OP). These OP's require utility servicing approaches to be clearly addressed to ensure sustainable communities are developed and maintained. KGS Group has been retained to provide engineering services for a Master Wastewater and Water Servicing Plan Study for the Municipality of Shuniah to address this need.

The intention of the study is to identify current and projected high density development areas which may require municipal services and in doing so help provide the Municipality with a strategic framework for development for these areas. Additionally, the Municipality would like to explore the possibility of disregarding the distinction between seasonal residential and residential while retaining the policy to control further development impacts in high density areas. It is anticipated that through targeted infrastructure in projected high density development areas, some existing shoreline residential lots could become eligible for conversion to full time residential status.

In high density areas, there is greater risk associated with inadequate treatment of wastewater and water.

A review of the relevant Provincial and Municipal policies that influence service and infrastructure development within the Municipality of Shuniah is included as part of this report.

## 2.0 BACKGROUND / INFORMATION REVIEW

The Municipality of Shuniah has historically provided recreational properties for residents of the City of Thunder Bay and surrounding area, in addition to providing affordable permanent residency options for residents of the Municipality. The Municipality of Shuniah has a total area of approximately 55,000 hectares. As of the last census (2011) the Municipality had a total population of 2,737 people. During a review of preliminary information in late 2016 it was further reported that the Municipality had a current population of closer to 4,000 people.

Over the past generation the concept of living permanently in the Municipality, either as part of a retirement plan or due to improvements in commuting opportunities, has gained acceptance and permanent residential activity has become the predominant land use. Population growth is estimated to grow at a rate of 1.3% over the next 20 years and, as a result, the Municipality needs a long-range strategy that anticipates future servicing and infrastructure requirements, and considers the risk associated with water and wastewater treatment in high density areas.

As part of our work, KGS Group reviewed all documents provided by the Municipality of Shuniah for this report. The majority of the water and sanitary service data was collected by the Municipality's GIS software through the Municipal Property Assessment Corporation (MPAC) reports. Pertinent additional documents reviewed included the Summer Cottage Survey by the Lakehead Planning Board (1975) and the Conversion Study by F.J. Reinders and Associates Limited (1983). In the future, targeted additional information will need to be obtained from various associations to ensure an accurate overall service status has been authored.

Maps of existing land use were developed, areas viewed to provide opportunities for high density growth were reviewed and the opportunity subsequently discussed. Existing water and wastewater services were reviewed, and the regulatory framework from a planning perspective was examined. All of this work was targeted to provide decision makers with development strategies based on the vision put forward in the Municipalities 2013 OP namely; *Shuniah is committed to providing the highest quality of life by building healthy rural community through the delivery of essential services provided by responsible leadership, planning, and effective management of municipal resources.*

## 3.0 POLICY REVIEW

Provincial planning policies – namely the Provincial Policy Statement – in conjunction with Municipal Official Plans establish the regulatory framework and policy direction to guide long-range planning and development decisions, including servicing and municipal infrastructure. The following is an overview of relevant Provincial and Municipal policies with respect to planning for future infrastructure and servicing needs.

### 3.1 SUMMARY OF POLICIES

#### 3.1.1 Provincial Policy Statement (2005)

Prior to the update of the Provincial Policy Statement (PPS) in 2014, the 2005 PPS provided policy direction to land use planning and development across Ontario. The 2005 PPS promotes the protection of resources, public health, safety, the natural environment, and the efficient use of land, with an overarching goal of enhancing quality of life. As per the Planning Act, all local planning policies, including Municipal Official Plans, “shall be consistent” with the PPS.

According to the PPS, the *long-term* prosperity and social well-being of Ontario depends on the maintenance of strong communities through healthy environments and a strong economy. Growth is to be focused within key settlement areas that meet a full range of current and projected needs (S.1.1.3). Land use patterns must avoid unjustified and/or uneconomical expansion to encourage the efficient use of land and services (S. 1.1.3.2). Likewise, the PPS public service facilities should be co-located to promote cost-effectiveness and facilitate service integration (S. 1.6.3). Opportunity for intermunicipal coordination must always be carefully considered so that services are provided in an efficient and cost-effective manner. Wherever feasible, the use of existing infrastructure and public service facilities should be optimized before consideration is given to development of new infrastructure and/or public service facilities (S. 1.6.2). The 2005 PPS also encourages rural area development to be compatible with the infrastructure that is planned or available, in order to avoid the need for unjustified and/or uneconomical expansion (S. 1.1.4.1B). Development must also encourage the sustainability of air, water and other resources.

The PPS states clearly that municipal sewage/water services are the preferred form of servicing for all settlement areas in Ontario (S. 1.6.4.2). Lot creation is permitted only when there is confirmation of sufficient reserve sewage/water system capacity within municipal sewage/water services or private communal sewage/water services (S. 1.6.4.1). Determination of sufficient reserve sewage system capacity includes treatment capacity for hauled sewage from private communal sewage services and individual on-site sewage services. Individual on-site sewage/water services are to only be used for new development with five or less lots/private residences where municipal sewage/water service or private communal sewage/water services are not available (S. 1.6.4.4). Site conditions must be suitable for the *long-term* provision of such services.

Individual on-site sewage/water services may be used to service more than five lots or private residences in rural areas. Partial services are only permitted as infilling or rounding of existing partial services (S. 1.6.4.5). Thus, new development must be directed toward locations where appropriate levels of infrastructure and public service facilities are available to support current and projected needs.

In terms of settlement area expansion, the 2005 PPS allows for the expansion of settlement areas through the completion of a Comprehensive Review (S. 1.1.3.9) which stipulates four key tests to substantiate that the need for expansion is justified. One of those tests is to demonstrate that “the infrastructure and public service facilities which are planned or available are suitable for the development over the *long-term* and protect public health and safety”.

### **3.1.2 Provincial Policy Statement (2014)**

- Enacted after April 30, 2014, the 2014 PPS is fundamentally consistent with the overall directives of the 2005 PPS in a number of key areas, including its policy directions related to infrastructure and servicing (S. 1.6.6). Notwithstanding that, there are some important changes in the 2014 PPS that affect servicing in rural areas, along with a heightened emphasis overall on the impacts of climate change.
- The updated 2014 PPS is also deeply rooted in the recognition of rural areas as important catalysts of economic success in municipalities (S. 1.1.4). Just like urban areas, rural areas should utilize a coordinated, integrated and comprehensive approach to infrastructure systems across municipal boundaries. These systems must always consider impacts from climate change and be financially viable over their life cycle (S. 1.6.1). In addition, planning authorities should promote the use of green infrastructure to

complement existing infrastructure whenever feasible, and sewage/water services must always be taken from sustainable water sources (S. 1.6.2).

- Finally, the 2014 PPS also strengthens the requirement to assess infrastructure availability and capacity as part of a Comprehensive Review (S. 6.0 Definitions). In particular, a Comprehensive Review must now include confirmation of the following:
- Sufficient water quality/quantity and assimilative capacity of receiving water to accommodate the proposed development; and,
- That sewage and water services can be provided in accordance with policy 1.6.6.

### 3.1.3 D-5 Planning for Sewage and Water Services (2016)

The Province of Ontario provides an implementation guide for the provision of municipal sewage and water services to ensure an acceptable quantity/quality of water, and proper collection, treatment and disposal of sewage wastewater is provided across the province. The Ministry of Environment and Energy's interest in municipal planning for sewage and water services stems from their mandate in administering the *Environmental Protection Act, 1990*, *Ontario Water Resources Act, 1990*, and *Environmental Assessment Act, 1990*.

Objectives of the guide aim to enhance the quality of the environment and accommodate anticipated growth. Specifically, these objectives are (S 1.3):

- To plan for and direct development to areas where municipal water and sewage facilities are available, with sufficient uncommitted reserve capacity to service the proposed development or to areas where there has been a commitment to new services or the expansion of existing services (where services will be available at the time of development), in accordance with *long-term* planning as established through the principles of the Provincial Policy Statement;
- To use and prefer communal water and sewage services where multi-lot/unit development is considered for areas without full municipal services, to ensure the *long-term* viability of services through municipal responsibility that protects the environment and public health; and,
- To determine, in the context of *long-term* planning and approved growth management objectives, that the consideration of development in areas without full municipal services is appropriate and site specific environmental and public health considerations are addressed.

The guide maintains the importance of anticipating servicing needs and potential environmental impacts from municipal growth. Municipalities must not only consider local servicing needs, but also the needs of the Province through existing and planned infrastructure. Municipalities should communicate with neighbouring municipalities to develop cooperative approaches to the provision of sewage and water services. Likewise, the better understood the interrelationship between sewage/water servicing and natural water features, such as watersheds and sub-watersheds, the greater the efficiency of servicing over the *long-term* and the more effectively the natural environment is maintained.

- According to the guide, an effective means of planning for sewage and water services is the preparation of servicing strategies through multi-year servicing plans (S. 2.1.2). This is considered a component of planning for adequate growth management and the preparation of official plan policy. Matters for consideration in the preparation of multi-year sewage and water servicing plans in conjunction with official plan policy include, but are not limited to:
- Investigating measures to resolve existing sewage or water problems within the Municipality;
- Investigating servicing efficiency measures;
- Addressing how the Municipality intends to service anticipated growth;
- Accounting for the efficient use of available existing infrastructure;
- Identifying the physical and environmental constraints to development related to servicing;
- Adopting a hierarchy of servicing preferences as a guide for managing growth and settlement;
- Describing the type and level of water supply and sewage disposal services which would support municipal goals for environmental protection or enhancement that is efficient and cost effective;
- Drawing conclusions regarding the principle of whether to permit development in areas outside existing full municipal services;
- Determining appropriate areas to target growth on the basis of the best servicing option available within the context of criteria outlined under the Provincial Policy Statement; and,
- Addressing the issue of residuals management including hauled sewage (septage) utilization/disposal of septic tank systems and sludge utilization/disposal of digested sludge.

The guide encourages municipalities to adopt a hierarchy of servicing preferences within their official plans that are consistent with these principles, as well as the principles of the Provincial Policy Statement (see S. 2.1.3).

#### 3.1.4 Growth Plan for Northern Ontario 2011

- Planned under the Places to Grow Act (2005), the Growth Plan for Northern Ontario 2011 (GP) is a framework for planning and decision-making in six areas over the next 25 years. As one of the six areas, modern and efficient infrastructure is encouraged to ensure the economic success and prosperity of Northern Ontario (S. 5.1). The overall intent of the GP is to promote a balanced approach to decisions regarding growth, community building, strengths, opportunities and the efficient use of infrastructure that is interconnected with economic development and land use planning.

For the purpose of the plan, Northern Ontario includes 144 municipalities, 100+ First Nations, and more than 150 unincorporated communities. These communities are points of convergence for major infrastructure and should be considered as opportunities for amalgamation of shared services (S. 4.1). The optimization of existing infrastructure is highly encouraged and 'regional economic planning areas' have been identified as mechanisms for infrastructure development that crosses municipal boundaries (S. 4.5). Additionally, Strategic Core Areas have been identified as medium to high-density sites of municipal priority (e.g. downtown, significant nodes/corridors, etc.) that should be planned for *long-term* revitalization, intensification, and investment. These areas should also be the focus of major capital investments in education, health care, entertainment, integrated public transportation systems and more. For Shuniah, the City of Thunder Bay is an identified Strategic Core Area (S. 4.4).

In Northern Ontario, the Province gives priority to infrastructure investments that support the policies outlined in the GP (S. 5.2.2). Contributing to a 'culture of conservation', opportunities to reduce energy and water must be utilized through coordination with neighbouring municipalities and industries so that the *long-term* viability and sustainability of infrastructure investments is enhanced (S. 5.2.4, 5.2.5). The GP is to be used as a vehicle that aligns and coordinates infrastructure investments to support economic development priorities and meet the needs of existing and future residents. The Minister of Infrastructure and the Minister of Northern Development, Mines and Forestry have agreed to work with external partners in developing performance indicators that assist in GP monitoring and reporting (S. 8.4.2).



Finally, the plan recognizes First Nations communities as having a key role in infrastructure planning, both within their communities and as partners in broader regional initiatives (S. 8.1). A variety of consultation mechanisms must be employed for coordinated and collaborative decision making prior to the commencement of any infrastructure development (S. 8.2).

### **3.1.5 Municipality of Shuniah Official Plan (1996) + Amendments (In-force)**

Municipality of Shuniah's in-force 1996 Official Plan (OP) establishes a vision for the *long-term* development of the Township. Historic land use patterns in the Municipality have resulted in concentrations of development along the shoreline. Thus, the intent of the OP was to manage the resources of the area, guide current and future development initiatives, and establish development guidelines that ensure more desirable and stable land use patterns. This previous version of the OP is based on several assumptions, such as the continued growth of the Municipality and a more stable, year-round economy from increased industrial/commercial development and tourism. The Municipality also expect continuing rising residential pressures due to proximity to the City of Thunder Bay's new severance, subdivision, and residential developments.

- According to the 1996 OP, all development must present a servicing options report approved by the Ministry of the Environment and Energy (S. 3.2.2). Similarly, before a Zoning By-law amendment is passed by Council, a hydrogeological study must demonstrate that:
- There is adequate water supply in quantity and quality to service this development;
- The development will not negatively impact downstream ground water requirements; and,
- The development will not result in cross contamination between on site and downstream wells.
- For new subdivisions, lot sizes in residential developments must be directly related to the topography, vegetation, soil and drainage characteristics of the site (S. 3.2.4). An engineering report for road construction, hydrogeological assessment and servicing plans (proposed water supply, sewage disposal and storm drainage facilities) must be submitted to the satisfaction of the Ministries of the Environment, Transportation, Natural Resources and/or Conservation Authority. Development must be serviced by individual private septic tanks and tile field systems, with a report demonstrating an adequate supply of water to service the site and its intended use. Water must also meet the standards of both chemical and bacteriological parameters for potability under the Ontario Drinking Water Objectives.



Due to the development density potential of the shoreline, the Municipality has agreed that lands may require the installation of full municipal sewage and water systems at some future date. At the time of writing, the Municipality committed to conduct a municipal Servicing Study to identify current/projected high-density development areas that may eventually need to be serviced by municipal sewer/water systems, and to provide a *long-term* servicing strategy for these areas (S. 7.8).

- According to the plan, Cottage Association lots or sites may be issued certificates of conversion by the Municipality upon approval of two prerequisite documents (S. 7.5.1):
  - 1) A *Servicing Options Study*, including a recommended development concept plan, prepared independently on behalf of the individual association (or prepared on behalf of the Municipality as part of a Municipality Servicing Study), in accordance with Ministry of the Environment guidelines; and,
  - 2) A *Hydrogeological Study* prepared independently, as part of the Servicing Options Study on behalf of the individual association, or prepared on behalf of the Township as part of a Municipality Servicing Study, to address (at minimum):
    - ♦ the depth to the water table;
    - ♦ groundwater flow direction;
    - ♦ existing groundwater quality;
    - ♦ how to protect the groundwater as a potential drinking water source;
    - ♦ sources of contamination;
    - ♦ if lots can convert to permanent use in terms of impact to adjacent properties;
    - ♦ how to manage any environment risks; and,
    - ♦ examination of other servicing options such as communal systems.
- If the results of the above two studies are favourable, the studies may be jointly considered and incorporated into a site-specific development plan and corresponding site-specific Zoning By-law amendment through the use of a holding symbol (H). The holding symbol may be removed once the association has satisfied the Municipality by providing:
- A Reference Plan of Survey of the association lands; and,
- A detailed drawing or Survey of the applicant association's lands, prepared by a land surveyor or engineer, containing the locations of all existing roads, buildings, structures, wells, privies, septic tanks, and septic fields.
- Conversions will only be permitted on Cottage Association lands having, or capable of supporting, an approved Provincially-endorsed sewage disposal system as determined

by the Servicing Options and Hydrogeological Studies at a minimum capacity of 18 litres per minute and an acceptable bacteriological reading. A minimum 400 metre setback is required between residential and other sensitive land uses, and sewage treatment lagoons, liquid waste disposal sites, and liquid waste treatment lagoons.

- Individual Freehold lands may obtain approval for a private sewage system, however, conversions will only be permitted on property having (or being capable of) supporting an approved Class IV leaching bed sewage system. Holding tanks are not permitted (S. 7.4.1). A study of the impact of the conversion on the immediately abutting lands and related surrounding area is prerequisite to approval and installation of any new or upgraded private sewage system or well for lots with less than 30 metres of frontage and less than 1,800 square metres of area.
- Important to note is that in 2006, the Ministry of the Environment (MOE) conducted a computer modeling analysis of Loon Lake to understand the current water quality (S. 7.3.3). The results of the study indicated that to maintain Level 2 water quality (i.e. Total Phosphorous less than 18.5 ug/L or 18.5 parts per billion), Loon Lake can theoretically support additional development supplying no more than an additional maximum of 224 kg/yr of Total Phosphorous. The MOE has advised that the relative Total Phosphorous (TP) contributions from the various types of development contemplated by the Municipality on Loon Lake are:
  - 0.71 kg/year/lot for existing seasonal dwellings (i.e., Single Detached Residential Uses and/or Converted Dwelling Uses); or
  - 2.04 kg/year/lot for existing permanent homes (i.e., Single Detached Residential Uses and/or Converted Dwelling Uses); or
  - 1.33 kg/year/lot for conversion of existing seasonal dwellings to permanent homes (i.e., to Converted Dwelling Uses).

### 3.1.6 Municipality of Shuniah Official Plan (2014)

- The updated Draft OP for the Municipality of Shuniah (2014) provides a framework for community decision making and long-range development to the year 2030. The updated OP has not received final Ministry approval and is therefore not in-force. Notwithstanding that, it establishes the intended policy directions of the Municipality. The updated OP articulates Shuniah's Vision and Mission Statements as the foundation for long-term planning and development decisions (S. 2.1).
- *Vision Statement:* Shuniah is intended to be a modern and vibrant community with a strong sense of identity, located on the picturesque shores of Lake Superior, working together to build a safe, clean, friendly, and prosperous future.
- *Mission Statement:* Shuniah is committed to providing the highest quality of life by building a healthy rural community through the delivery of essential services provided by responsible leadership, planning, and effective management of municipal resources.

The updated OP also includes a Basis for Decision Making (1.3) section, outlining population trends (1976-2006) and projections (2006-2036) for Shuniah. Much of the Municipality's steady growth can be attributed to an aging population and the subsequent increased amount of retirement residential activity occurring along Lake Superior's shoreline. It is forecasted that the available supply of dwelling units is 290, with 135 being lakeshore lots in existing, registered or draft approval plans of subdivision (S. 1.1.15). Therefore, the Municipality must give consideration to the *long-term*, potential for municipal sewer/water services to areas with exceptionally small lots and less than ideal soil conditions (S. 1.3.7). In response, the OP commits to undertaking a Master Wastewater and Water Servicing Plan to identify potential future issues and establish *long-term* guidance for them.

An overarching goal for the Municipality of Shuniah is to promote the efficient and sustainable use of water resources, and water conservation (S. 3.10.1). The Municipality acknowledges that some recreational residential properties are currently serviced by pit privy, chemical toilets, or other such alternative sewage systems and, in some of these instances, lot sizes may not be of sufficient size to facilitate a traditional leaching based system. At this time, the Municipality will seek to protect, improve, and restore the quality and quantity of water by restricting development and site alteration through the use of setbacks, limitations, landscaping, drainage or other studies as part of the development proposal review process, to protect designated vulnerable areas and/or sensitive surface and/or ground water features and their hydrological function (S. 3.10.2).

Council intends to attract commercial and institutional activity to provide local services, activities, and a longer-term infrastructure and servicing strategy to Shuniah through infill and intensification (S. 2.2.7). Local commercial and institutional land use is permitted in residential designations, and it is an objective of development that residential density, particularly along Lakeshore Drive, is increased to a level where non-residential activities can be supported (S. 4.2.13.1). Section 2.5 outlines a number of other 'physical change' Planning Objectives, including, but not limited to:

- (a) *To promote a land use pattern, density of development, and mix of land uses that minimizes impacts upon municipal infrastructure and public services, and the length and number of vehicle trips taken by the residents of the municipality.*

- (b) *Ensuring that necessary infrastructure and public services/public service facilities are or will be made available to meet current and projected needs and that infrastructure and services are cost effective.*
  - (c) *Optimizing the use of existing infrastructure and public services; evaluating the need for future infrastructure; and promoting orderly, economic, efficient, and effective creation and delivery of common infrastructure, public services, and public service facilities to promote cost effective development standards and minimize land consumption/servicing costs.*
  - (d) *Completing a Master Wastewater and Water Servicing Plan within the current five year planning term and having findings available for the next five year official plan review.*
- Based on consultation with local community members, the OP also highlights an increased interest in residential development along Lakeshore Drive and the shorelines of Lake Superior, Loon, Bass and Sparks Lakes. However, there are a number of obstacles to this, including the lack of distinction between permanent and recreational residential building codes. At this time, the Municipality has identified a large number of recreational dwellings potentially eligible for conversion. For new residential lot creation (including infill and intensification of vacant and/or undeveloped lands) and cottage conversion, lands must have (S. 4.2.9):
    - Minimum lot area of 1.0 hectare;
    - Minimum frontage of 45 metres;
    - Demonstrate a capacity for private sewage treatment involving a Class IV leaching system;
    - Adequate water supply delivering no less than 18 litres per minute over a minimum period of one hour;
    - Adequate water quality in accordance with Ontario's water drinking standards.

All policies related to Cottage Conversion have been carried over from the 1996 plan and have not been amended in the updated OP. Due to the variability in the quantity and quality of well water within the Municipality, all new lot approvals must demonstrate adherence to the chemical and biological parameters of the Ontario Drinking Water Objectives (S. 3.10.7).

### 3.1.7 Second Dwelling Unit Legislation

According to Provincial legislation, Municipalities must now include policies for the regulation of secondary dwelling units within their official plans. The *Strong Communities through Affordable Housing Act, 2011* amended various sections of the *Planning Act* to facilitate the creation of secondary dwelling units by:

- Requiring municipalities to establish official plan policies and zoning by-law provisions allowing secondary dwelling units in detached, semi-detached and row houses, as well as in ancillary structures;
- Removing the ability to appeal the establishment of these official plan policies and zoning by-law provisions, except where such official plan policies are included in five-year updates of municipal official plans; and,
- Providing authority for the Minister of Municipal Affairs and Housing to make regulations authorizing the use of, and prescribing standards for, second units.

Changes to the *Planning Act* for secondary dwelling units came into effect on January 1, 2012. At this time, secondary dwelling units are permitted in existing and proposed developments, and with detached, semi-detached, row housing, and ancillary structures. Provisions permit one additional unit (i.e. secondary dwelling unit) either in a house (e.g. basement) or in an ancillary structure (e.g. above a garage) on the same lot. In some instances, municipalities may conclude it is appropriate to allow a second unit in both. However, in these situations, the sheltering of appeals does not extend to the third unit and any party would be able to appeal the authorization of the third unit to the Ontario Municipal Board.

- While the Act requires municipalities to permit secondary dwelling units, the government recognizes there may be constraints (i.e. areas prone to flooding, inadequate servicing) within communities, making them inappropriate for secondary dwelling units. Municipalities should consider all potential constraints in developing or reviewing secondary dwelling unit policies. Although the Act granted a regulation-making ability to the Minister of Municipal Affairs and Housing to prescribe minimum standards for secondary dwelling units, a regulation has not yet been issued under this authority. Therefore, municipalities are responsible for determining what standards or zoning provisions should apply to secondary dwelling units, such as minimum unit size or parking requirements, etc. Likewise, secondary dwelling units must comply with all applicable laws (i.e. Building Code, Fire Code, and property standards by-laws), and changes do not “grandfather” existing secondary dwelling units that do not meet applicable standards.

Shuniah's updated OP, includes new policy provisions for Secondary Dwellings in S. 3.20 – Affordable Housing, Garden Suites, and Second Dwelling Units. As per the updated OP, the Municipality is now considering appropriate locations for secondary dwelling units in existing and/or new residential dwellings to be consistent with recent *Planning Act* amendments (S. 3.20.1). The Municipality has determined that secondary dwelling units can be constructed within or attached to existing/new single-detached dwellings within the Residential land use designation along Lakeshore Drive, the various municipal roads intersecting with Lakeshore Drive, except on; Association Lands, shoreline lands on Lake Superior, or any inland lake within Shuniah. Secondary dwelling units are also permitted in permanent residential dwellings in any zone that allows residential development, except for lands at Loon and Bass Lake. Secondary dwellings units in Shuniah are subject to compliance with the following considerations:

- Lots supporting a second dwelling unit must meet the minimum lot area and frontage of the implementing residential zone, without amendment to the zone regulations; and,
- The capacity of the existing private sewage and water service to support a second dwelling unit must be demonstrated as existing or be proposed as part of the building or occupancy permit application for the second dwelling unit.

## 4.0 CURRENT LAND USE

The Municipality of Shuniah's current land use includes various developments along Highway 11/17 and Lakeshore Drive, Cottage Association Lands, registered plan areas along the North Shore, and cottage development on inland waters (Loon Lake, Bass Lake, Sparks Lake). The Township of Shuniah is illustrated on Drawing C01 in Appendix A.

- The development along Highway 11/17 and Lakeshore Drive (former alignment of Highway 11/17) is primarily single family residential. These homes tend to be permanent residences and are primarily serviced by septic fields and wells.
- Cottage associations exist primarily along the shoreline of Lake Superior. The cottage associations are commonly owned land and common expenses are shared among the corporation members. Although the camps on the association lands are owned privately, there are no legal lot lines between each of the camps. The primary use of cottage association lands is seasonal / recreational. The cottage association lands include Ishkibibble, Clover, Floral, Green Point, White Birch, Pebbly and West Green, East Green Bay, and Wild Goose. The Ishkibibble cottage association contains approximately 25 camps which encroach onto the rail right-of-way. Parking for the camps is primarily only to the railway line. Access is provided to Clover Beach, Green Point, Pebbly Beach, West Green Bay, East Green Back, and Wild Goose, and the eastern portion of Floral Beach by private road and railway crossing. Access to the western portion of Floral Beach is by private road only to the railway (vehicular access to individual camps does not exist). Access to Clover Beach, the White Birch Association, Cedar Bay, and Sunrise Beach is permitted by either roads or via Canadian National Rail land.
- The North and East Shore areas contain registered plans of subdivision. The properties are a combination of full time residential and seasonal recreational.
- The Municipality contains some commercial properties including offices for construction companies, a bed and breakfast, and auto repair shops. Other land uses within the Municipality involve places of worship, a fire hall, and a school.



## 5.0 CURRENT SERVICING TYPES

Many of the properties within in the Municipality contain water and sanitary services. The primary types of water services include wells and lake intakes. Some properties utilize a shared well. Existing sanitary services include septic fields, holding tanks, and pit privies.

- A. The development along Highway 11/17 and Lakeshore Drive primarily contains septic field systems and wells. These lots are large enough to service the developments without the need for new systems.
- B. Cottage Association lands are considered high density. The cottages are serviced mainly by pit privies, leaching pits, and holding tanks for sewage and wells and lake intakes for water. Many services are listed as “Unspecified Service” within the MPAC reports. Pit privies, leaching pits, and holding tanks are not preferred options to treat wastewater and are not acceptable for permanent resident use. They should not be considered for future development and existing properties, if converting to a permanent residence they would be required to upgrade their systems.
- C. The developments along the Lake Superior shoreline are serviced by pit privies, holding tanks, and septic fields for sewage and wells and lake intakes for water. Many services are listed as “Unspecified Service” within the MPAC reports. Pit privies, leaching pits, and holding tanks are not preferred options to treat wastewater and are not acceptable for permanent resident use. They should not be considered for future development and existing properties, if converting to a permanent residence. They would be required to upgrade their systems.

Communal services currently existing within the trailer parks and some areas within the cottage associations.



## 6.0 FUTURE LAND USE / DEVELOPMENT

The Municipality of Shuniah overlies the Canadian Shield which is composed of precambrian aged rock. Between Wild Goose Point and Silver Beach, and from Crystal Beach to the Sibley Peninsula, the shoreline overlies the Animike formation which is primarily sedimentary rock. The areas of Coral Beach and McKenzie Beach overlie the Archean formation which contains very hard igneous and metamorphic rock (F.J. Reinders and Associates Limited, 1983). The topography along the shoreline of Lake Superior consists of sandy beaches. Silver Harbour, Conmee Point, and Lambert Island has rock outcrops. Inland topography is more variable.

Constraints for future development include natural terrain breaks which include breaks between areas such as streams, hills, etc. Development constraints consist of *right-of-ways* for railway, hydro and roads, as well as the ability to provide adequate water and wastewater services.

Potential growth limits for each area can be established based on distance, topography and geology. Areas identified as potential options for residential growth areas are shown on Drawings C02 to C05 in Appendix A, and were determined based on proximity to existing development. These areas could accommodate approximately 1000 new lots. Additional development could be considered elsewhere within the Municipality. There is limited space available for growth along the shoreline of Lake Superior.

New industrial and commercial development is less defined by existing development and could occur in-land within the Municipality. The Municipality has plans for a new industrial park North of Highway 11/17 at MacGregor Road. Other than areas designated as hazard land and under environmental protection, water and wastewater services can be provided in the remainder of the municipality by the use of wells and Class IV septic systems.

## **7.0 CONVERTED LAND USE**

As per discussion with Municipal representatives, conversion to full time residency is currently granted without a study if the property can meet minimum lot size requirements: an area of 1800 m<sup>2</sup> and a frontage of 30 m, as outlined in the Municipality's Zoning By-law. A review of the properties in the Municipality revealed that many properties along the shoreline of Lake Superior do not meet these minimum lot size requirements.

## 8.0 HIGH DENSITY AREAS

High Density areas for the purpose of this report can be classified as areas where properties and / or buildings are concentrated in close proximity to each other. Areas considered in this report include all properties along the shoreline of Lake Superior, Loon Lake, Bass Lake, and Sparks Lake. High density areas have an elevated risk associated with improper wastewater management. Trailer parks are also considered high density areas.

Table 1 shows a summary of the areas in the Municipality of Shuniah, with the values of year-round, seasonal, and vacant properties for each area. The table also shows the number of properties with inadequate space for individual water and sewer services based both on the Municipality's current Zoning By-law, and the Provincial standard. Data used to determine these values was based solely on Municipal Property Assessment Corporation (MPAC) data.

**TABLE 1**  
**HIGH DENSITY AREAS**

Location	Number of Properties	No. Year-Round Residential Properties	No. Seasonal / Recreational Properties	No. Vacant Properties	No. of properties with inadequate space for individual services		Drawing Reference
					Zoning By-Law Frontage > 30m Area >= 1800m <sup>2</sup>	Provincial Standard Frontage > 45m Area >= 1.0 ha	
Ishkibibble Limited – Cottage Association*	Maximum 59	-	-	-	All properties	All properties	C07 - A1
Clover Beach Limited – Cottage Association*	Maximum 47	-	-	-	All properties	All properties	C07 – A1/A2
Floral Beach – Cottage Association*	Maximum 70	-	-	-	All properties	All properties	C07 – A2
Green Point Campers' Association*	Maximum 55	-	-	-	All properties	All properties	C07 – A2
White Birch*		No Data					C08 – A3
West Green Bay / Pebbly Beach Association*	Maximum 73	-	-	-	All properties	All properties	C08 – A3

Location	Number of Properties	No. Year-Round Residential Properties	No. Seasonal / Recreational Properties	No. Vacant Properties	No. of properties with inadequate space for individual services		Drawing Reference
					Zoning By-Law Frontage > 30m Area >= 1800m <sup>2</sup>	Provincial Standard Frontage > 45m Area >= 1.0 ha	
East Green Bay Campers' Association*	Maximum 48	-	-	-	All properties	All properties	C08 – A3
Wild Goose Bay Beach Campers*	Maximum 38	-	-	-	All properties	All properties	C08 – A3
Grandview Beach Dr	25	5	16	4	24	25	C09 – A5
Silver Beach Dr	40	9	31	-	38	40	C10 – A6
Silver Harbour Dr	44	14	30	-	36	44	C10 – A6
Mickelson's Vacant Land Condo		No Data					C10 – A6
Coral Bay Dr	38	22	12	4	15	38	C11 – A7
MacKenzie Beach Ave	96	18	74	4	84	95	C11 – A7 / C12 – A8
Crystal Beach Ave	28	12	15	1	23	27	C12 – A8
Sunnyside Beach Ave	61	16	44	1	52	61	C12 – A8
Amethyst Ave & Amethyst Hbr	108	19	80	9	80	106	C12 – A8 / C13 – A9
Scott Dr	58	18	33	7	17	58	C13 – A9 / C14 – A10
Birch Beach Road & Knobel Point	110	26	66	18	61	106	C14 – A10 / C14 – A11
Eldorado Beach Rd & O'Connor Pt	37	11	19	7	8	35	C15 – A11 / C16 – A12
Nelson Dr. & Nelson Pt	53	13	29	15	19	52	C16 – A12
Grann Drive	31	10	21	79	-	103	C17 – A13 / A14
Superior Shores	22	2	20	21	-	18	C18 – A15
Bass Lake	37	5	24	9	27	36	C19 – A16
Loon Lake	214	3	186	11	170	214	C20 – A17
Sparks Lake	8	4	5	1	4	8	C21 – A18
<b>TOTAL</b>	<b>1400</b>	<b>207</b>	<b>705</b>	<b>191</b>	<b>1048</b>	<b>1456</b>	

\* Cottage Association

The high density areas are shown in drawings C02 to C05 in Appendix A. More detailed drawings are included on drawings C06 to C22 in Appendix B, which contain 19 schedules of the high density areas. Each schedule indicates if the property is listed as a year-round residence, and if the property meets the minimum size requirements outlined in the Municipality's Zoning By-law. The drawings also illustrate how each property is serviced for water and sanitary, if the data was available.

Each schedule is described as follows:

**Schedule A1 (Drawing C07)**

- Includes: Ishkibbible and Clover Beach Cottage Associations
- No. Cottages / Houses: Undefined
- No. Compliant: None
- Room for New Properties: No space available

Schedule A1 includes the Ishkibbible and Clover Beach Cottage Associations. The Canadian National Railway runs through the property. The cottages are all located in close proximity to each other with no defined lot lines. A representative image of the area is shown below. Until a full status of servicing is known, future planning and development should not take place. It is recommended that further impact studies and environmental reviews be completed for this area.



### **Schedule A2 (Drawing C07)**

- Includes: Floral Beach and Green Point Campers Association
- No. Cottages / Houses: Undefined
- No. Compliant: None
- Room for New Properties: No space available

Schedule A2 includes Floral Beach and Green Point Campers Association. The Canadian National Railway runs through the property. The cottages are all located in close proximity to each other with no defined lot lines. Until a full status of servicing is known, future planning and development should not take place. A representative image of the area is shown below. It is recommended that further impact studies and environmental reviews be completed for this area.



### **Schedule A3 (Drawing C08)**

- Includes: West Green Bay / Pebbly Beach Association, East Green Bay Campers' Association and Wild Goose Bay Beach Campers Association
- No. Cottages / Houses: Undefined
- No. Compliant: None
- Room for New Properties: No space available

Schedule A3 includes West Green Bay / Pebbly Beach Association, East Green Bay Campers' Association and Wild Goose Bay Beach Campers Association. The cottages are all located in close proximity to each other with no defined lot lines. A representative image of the area is



shown below. Until a full status of servicing is known, future planning and development should not take place. It is recommended that further impact studies and environmental reviews be completed for this area.



#### **Schedule A4 (Drawing C08)**

- Includes: Blind Creek Drive
- No. Cottages / Houses: 18
- No. Compliant: 18
- No. Non-Compliant: 0
- Room for New Properties: There is space for further shoreline development to the East and West of Blind Creek Drive should the existing lots be subdivided.

Schedule A4 includes Blind Creek Drive. The properties vary in size and shape. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below. All of the properties in this schedule meet the zoning by-law size requirements for conversion. A representative image of the area is shown below.



#### **Schedule A5 (Drawing C09)**

- Includes: Cedar Bay Road, Sunrise Beach Drive, Silver Beach Drive
- No. Cottages / Houses: 86
- No. Compliant: 36
- No. Non-Compliant: 50
- Room for New Properties: There are six (6) vacant lots in this schedule. There is no room for further shoreline expansion.

Schedule A5 includes Cedar Bay Road, Sunrise Beach Drive, and portions of Silver Beach Drive. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 58% of the properties do not meet the zoning by-law size requirements for conversion. Although there are isolated non-conforming properties, the majority of these properties are adjacent to each other. The Canadian National Rail runs along the back of these properties, limiting room for expansion. Communal septic systems could be utilized for groups of up to five cottages, but space for these systems is not presently available without crossing below the CNR *right-of-way*, clearing substantial land and confirming soil properties, or purchasing properties from adjacent cottage owners. For the schedule shown, nine communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$360,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing



batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



#### **Schedule A6 (Drawing C10)**

- Includes: Silver Beach Drive, Silver Harbour Drive
- No. Cottages / Houses: 68
- No. Compliant: 11
- No. Non-Compliant: 57
- Room for New Properties: There is one (1) vacant lot in this schedule. The property to the East of Silver Harbour Drive is owned by the Lakehead Regional Conservation Authority (LRCA). East of the LRCA property is title "Thunder Bay Condo Plan" and is privately owned.

Schedule A6 includes portions of Silver Beach Drive and Silver Harbour Drive. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 85% of the properties do not meet the zoning by-law size requirements for conversion. Although there are isolated non-conforming properties, the majority of these properties are adjacent to each other. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the North of Silver Beach Drive / Silver Harbour Drive. Substantial clearing of land and confirmation of soil properties would be required. Along Silver Harbour Drive many of the properties are long and narrow. A communal system could be placed at the rear of these

properties. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, 11 communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$440,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



#### **Schedule A7 (Drawing C11)**

- Includes: Coral Bay Drive, MacKenzie Beach Avenue
- No. Cottages / Houses: 113
- No. Compliant: 36
- No. Non-Compliant: 77
- Room for New Properties: There are nine (9) vacant lots in this schedule. There is no space for further shoreline expansion.

Schedule A7 includes Coral Bay Drive and portions of MacKenzie Beach Avenue. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 68% of the properties

do not meet the zoning by-law size requirements for conversion. Although there are isolated non-conforming properties, the majority of these properties are adjacent to each other. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the North of Coral Bay Drive and North / West of McKenzie Beach Ave, provided soil properties were confirmed and it was understood that significant clearing may be required. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, 10 communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$400,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



#### **Schedule A8 (Drawing C12)**

- Includes: MacKenzie Beach Avenue, Crystal Beach Avenue, Amethyst Avenue
- No. Cottages / Houses: 112
- No. Compliant: 55
- No. Non-Compliant: 57
- Room for New Properties: This is one (1) vacant lot in this schedule. There is no room for further shoreline expansion.

Schedule A8 includes portions of MacKenzie Beach Avenue, Crystal Beach Avenue, and portions of Amethyst Avenue. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 51% of the properties do not meet the zoning by-law size requirements for conversion. Although there are isolated non-conforming properties, the majority of these properties are adjacent to each other. The Canadian National Rail runs along the back of McKenzie Beach Avenue and Crystal Beach Avenue, limiting room for expansion. Communal septic systems could be utilized groups of up to five cottages, but space for these systems is not presently available without crossing below the CNR *right-of-way*, or purchasing properties from cottage owners. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the North of Amethyst Avenue, clearing substantial land and confirming soil properties. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, 11 communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$440,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



### **Schedule A9 (Drawing C13)**

- Includes: Amethyst Avenue, Amethyst Harbour South Bay Avenue, Amethyst Harbour Cliff Avenue, Amethyst Harbour East Bay Avenue, Amethyst Harbour North Bay Avenue, Scott Drive
- No. Cottages / Houses: 109
- No. Compliant: 57
- No. Non-Compliant: 52
- Room for New Properties: There are four (4) vacant lots in this schedule. There is no space for further expansion.

Schedule A9 includes portions of Amethyst Avenue, Amethyst Harbour South Bay Avenue, Amethyst Harbour Cliff Avenue, Amethyst Harbour East Bay Avenue, Amethyst Harbour North Bay Avenue, and portions of Scott Drive. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 48% of the properties do not meet the zoning by-law size requirements for conversion. The majority of these properties are adjacent to each other. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the North of the roadways, or between Amethyst Harbour South Bay Avenue and Amethyst Harbour East Bay Avenue. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, nine communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$360,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.





### **Schedule A10 (Drawing C14)**

- Includes: Scott Drive, Birch Beach Road
- No. Cottages / Houses: 65
- No. Compliant: 34
- No. Non-Compliant: 31
- Room for New Properties: There are 11 vacant lots in this schedule. There is no space for further shoreline expansion.

Schedule A10 includes portions of Scott Drive and Birch Beach Road. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 44% of the properties do not meet the zoning by-law size requirements for conversion, the large majority of these being on Birch Beach Road. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the North of the roadways. Clearing of land and confirmation of soil properties would be required. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, five communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$200,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing

batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



**Schedule A11 (Drawing C15)**

- Includes: Birch Beach Road, Knobel Point, Eldorado Beach Road
- No. Cottages / Houses: 72
- No. Compliant: 34
- No. Non-Compliant: 38
- Room for New Properties: There are 12 vacant lots in this schedule. There is no space for further shoreline expansion.

Schedule A11 includes portions of Birch Beach Road, Knobel Point, and Eldorado Beach Road. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 53% of the properties do not meet the zoning by-law size requirements for conversion, the large majority of these being on Birch Beach Road. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the North / West of the roadways. Substantial clearing of land and confirmation of soil properties would be required. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, seven communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$280,000.00. Class IV septic systems and wells should be utilized where adequate separation

requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



#### **Schedule A12 (Drawing C16)**

- Includes: Eldorado Beach Road, O'Connor Point, Nelson Drive, Nelson Point
- No. Cottages / Houses: 56
- No. Compliant: 56
- No. Non-Compliant: 0
- Room for New Properties: There are 20 vacant lots in this schedule. There is no space for further shoreline expansion.

Schedule A12 includes portions of Eldorado Beach Road, O'Connor Point, Nelson Drive, and Nelson Point. The properties vary in size and shape. Class IV septic systems and wells should



be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below. All of the properties in this schedule meet zoning by-law size requirements for conversion. A representative image of the area is shown below.



#### **Schedules A13 and A14 (Drawing C17)**

- Includes: Grann Drive
- No. Cottages / Houses: 31
- No. Compliant: 31
- No. Non-Compliant: 0
- Room for New Properties: There are 79 vacant lots in these schedules. There is space for further shoreline expansion to the North or South.

Schedules A13 and A14 include Grann Drive. The properties vary in size and shape. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be

accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below. All of the properties in this schedule meet zoning by-law size requirements for conversion. A representative image of the area is shown below.



#### **Schedule A15 (Drawing C18)**

- Includes: Superior Shores Road
- No. Cottages / Houses: 22
- No. Compliant: 22
- No. Non-Compliant: 0
- Room for New Properties: There are 21 vacant lots in this schedule. There is space for further shoreline expansion to the North.

Schedules A15 includes Superior Shores Road. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below. All of the

properties in this schedule meet zoning by-law size requirements for conversion. A representative image of the area is shown below.



**Schedule A16 (Drawing C19)**

- Includes: Bass Lake
- No. Cottages / Houses: 29
- No. Compliant: 5
- No. Non-Compliant: 24
- Room for New Properties: There is no space for further shoreline expansion without completion of an Environmental Impact Study for Bass Lake.

Schedule A16 includes Bass Lake. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 83% of the properties do not meet the zoning by-law size requirements for conversion. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to the South of Bass Lake Road. Clearing of land and confirmation of soil properties would be required. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, four communal systems would be required provided that during a detailed design is determined that the properties can be connected. At \$40,000.00 a system, this would equate to \$160,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow.

Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



**Schedule A17 (Drawing C20)**

- Includes: Loon Lake
- No. Cottages / Houses: 199
- No. Compliant: 63
- No. Non-Compliant: 136
- Room for New Properties: There is no space for further shoreline expansion.

Schedule A17 includes Loon Lake. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 68% of the properties do not meet the zoning by-law size requirements for conversion. Communal septic systems could be utilized groups of up to five cottages provided that land could be obtained to across the roadways. Clearing of land and confirmation of soil properties would be required. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, 26 communal systems would be required provided that during a detailed design is determined that the properties can

be connected. At \$40,000.00 a system, this would equate to \$1,040,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below. A representative image of the area is shown below.



#### **Schedule A18 (Drawing C21)**

- Includes: Sparks Lake
- No. Cottages / Houses: 8
- No. Compliant: 4
- No. Non-Compliant: 4
- Room for New Properties: There is no space for further shoreline expansion without completion of an Environmental Impact Study for Sparks Lake.

Schedule A18 includes Sparks Lake. The properties vary in size and shape. Individual septic and water systems should be utilized where lots meet zoning by-law size requirements for conversion. Approximately 50% of the properties do not meet the zoning by-law size requirements for conversion. Communal septic systems could be utilized groups of up to five



cottages provided that land could be obtained to the South of McKenzie Station Road, provided substantial clearing of land and confirmation of soil properties is completed. Alternatively, lots could be purchased from adjacent cottage owners for a septic system. For the schedule shown, one communal systems would be required provided that during a detailed design is determined that the properties can be connected. This would equate to \$40,000.00. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below.



#### **Schedule A19 (Drawing C22)**

- Includes: Isku Park
- No. Cottages / Houses: 9
- No. Compliant: 9
- No. Non-Compliant: 0
- Room for New Properties: There are no vacant lots in this schedule.

Schedules A13 includes Isku Park. The properties vary in size and shape. Class IV septic systems and wells should be utilized where adequate separation requirements in accordance with the Ontario Building Code can be achieved and site conditions allow. Alternative treatment methods, such as sequencing batch reactors and lake intakes, may be accepted on an individual basis if a traditional system cannot fit on site, or the site conditions are not ideal. The cost associated with a Class IV septic system is \$10-20K per system, and the cost associated with a sequencing batch reactor is approximately \$10-20K per unit. A representative image of the area is shown below. All of the properties in this schedule meet zoning by-law size requirements for conversion. A representative image of the area is shown below.





## 9.0 SERVICING OPTIONS

A significant number of existing properties in the high density areas do not meeting the sizing requirements as set out by the Province and the Zoning By-law. These dimensions define the required area for water and septic services. Septic systems are approved in accordance with the Ontario Building code, and permits were issued for systems that met all requirements, regardless if the property abided by the sizing requirements or not. Areas having inadequate space for individual services create a challenge for the Municipality of Shuniah, as property owners continue to replace existing structures or expand existing structures to new structures with much larger footprints, increasing the risk of inadequately treating water and wastewater. Reducing future environmental impacts of historical practices is a significant challenge both from a regulatory and practical perspective.

During a preliminary review of *long-term* servicing options it became apparent that significant population growth is not anticipated. What is anticipated is a significant adjustment in *long-term* permanent residency numbers within the Municipality. The future demand created by an aging demographic therefore could be viewed as an opportunity to merge required future municipal infrastructure with existing non-compliant locations to facilitate a sustainable response to environmental stewardship.

### 9.1 CENTRALIZED WASTEWATER OPTIONS

Wastewater treatment, storage and effluent management requirements have increased significantly over the past generation as the environmental impacts of inadequately treated municipal wastewater has become evident giving rise to its studied effects and regulatory framework.

For the Municipality of Shuniah, these requirements are particularly imposing given the limited population, vast size and environmentally sensitive areas within its jurisdiction.

Upon review of the opportunities available to the Municipality's High Density Growth Areas, the intended effluent management approach collectively must be reviewed. Given the receiving environment nutrient reduction for any larger collective wastewater treatment system more than

likely will be required. Package treatment plants that are capable of manipulating the nitrogen cycle and reducing phosphorus in addition to Biological Oxygen Demand (BOD), Total Suspended Solids (TSS) and bacteriological parameters are available in the market today. These facilities require sufficient population to spread capital and operational costs, and may not be practical for the Municipality.

From a regulatory perspective systems for treating wastewater can be classified into two categories: small and large. Small systems include systems with a design flow equal to or less than 10,000 L/day (20-30 people) and are administered by the Thunder Bay District Health Unit.

Large systems include systems with design flows greater than 10,000 L/day (more than 20-30 people) and must be approved by the Ministry of the Environment under the Ontario Water Resources Act.

One obvious choice would be to connect directly to the City of Thunder Bay's collection system, where it could properly be handled. This approach would create opportunities for growth in these locations, although may be economically impractical. Furthermore, it is recognized that this direct linkage would require significant additional distance within the City to connect.

Areas significantly outside of the City of Thunder Bay could also consider a centralized treatment system; and, producing effluent quality that meets future Municipal Wastewater Effluent standards.

In either of these scenarios, collection systems to either a centralized facilities or a main pumping station (in the case of connection to the City of Thunder Bay) could be via low pressure wastewater collection system from the individual homes.

## **9.2 CENTRALIZED WATER TREATMENT OPTIONS**

Water treatment must comply with the Clean Water Act, which exists to protect existing and future sources of drinking water. The Municipality of Shuniah falls into the jurisdiction of the Lakehead Region Conservation Authority (LCRA) which maintains an "Approved Source

Protection Plan”. The LCRA also has a previously completed study entitled the “Thunder Bay Aquifer Characterization Groundwater Management and Protection Study”.

From initial draft communications, it is recognized that while significant population growth is not anticipated, a shift to permanent residency could be the driver to infrastructure expansion and renewal and that the topographical and geographical realities dictate a more communal development approach as the most preferred option for servicing of the entire area.

From a practical perspective, the first option reviewed was a centralized system for the entire region based on a pipeline from the City of Thunder Bay.

This option when reviewed from the entire Municipality would involve the City providing average day usage to reservoir(s) within the Municipality followed by repumping.

A second option considered during the review process was the concept of separate larger water treatment, storage and distribution facilities for various areas within the Municipality of Shuniah. Similar to the initial option, capital costs for this option would be significant. For a development in an area contemplated to be high density, a standalone water treatment plant would also require significant operational costs and oversight. Certified operations from a water treatment perspective can certainly be onerous particularly if surface water is the chosen water source. Risks associated with operating smaller water treatment plants (especially surface water) can also be greater than any direct connection option (City of Thunder Bay connection).

A third centralized option considered during the review process was viewed to be the most practical and that was a hybrid approach, one that would allow areas of the Municipality located closest to the City of Thunder Bay, to connect to the city and then pump from a centralized storage location. Areas of the Municipality located further from the City of Thunder Bay would opt for a centralized water treatment plant, complete with the operational costs and risks associated with this option. As our review process moved forward, this option was viewed to being the most practical, from a centralized perspective.

In any of these centralized options a localized distribution system perspective, regional piped system directly into homes or into a holding tank would be considered. Smaller diameter water

mains with reservoirs/pumps at each high density node could be more economical in the long run than numerous separate treatment facilities at each high density area. There is a balance that must be achieved based on demand.

### **9.3 INDIVIDUAL PROPERTIES AND CLUSTER FACILITIES - WASTEWATER**

Where the size of lots provide an option for wastewater treatment, options still remain for individual lots to develop in areas that a centralized facility is not available.

For individual lots large enough to treat wastewater, an option for sewage treatment include the municipalities existing treatment approach: the Class IV leachate fields. Limitations to this approach include the distance from the water source, size of lot and frontage requirements. The minimum distance from a drilled well for a standard system, as per the Ontario Building Code, is 15 m to the distribution piping, and septic tank. The minimum distance from a dug well is 30 m. Alternative options to traditional distribution piping include systems that are designed to reduce the footprint of the system, making it a more suitable option for smaller lots. Peat based systems transfer effluent into through a medium to a filter bed where it can infiltrate into the ground. The minimum distance for a peat based system from any type of water source is 15 m. All potential options for individual treatment would require Ministry of Health approval.

From a treatment perspective a Sequencing Batch Reactor (SBR) is another option for individual lots. A SBR treats waste water through a sequence of aeration, sedimentation and clear water removal, and uses gravity to separate waste. The sequences happen in a single tank with two separate chambers – one to collect waste water and one where water is transferred to allow the biological process to occur. Direct effluent release again would require Ministry of Health approval.

### **9.4 INDIVIDUAL PROPERTIES AND CLUSTER FACILITIES – WATER SERVICING**

Options still remain for individual lots looking to develop in areas that a centralized facility is not available. Water servicing can still be achieved by wells or by lake intake from Lake Superior. Likewise, a single well could be drilled between multiple properties to service multiple buildings. Surface water, taken from a lake intake, is more challenging to adequately treat than water

acquired through the use of wells and thus poses a greater risk if not adequately treated. When possible, wells should be considered as a first choice for water.

Flexibility with regards to development is anticipated to be available from a development of a well if circumstances dictate that communal sewage has already been provided. This approach may provide some economic flexibility particularly with regards to conversion opportunities.

## **10.0 BUDGET ESTIMATES**

### **10.1 LARGE SCALE**

The provision of municipal water and wastewater services to the entire Municipality of Shuniah was reviewed from a holistic perspective. The initial big picture cost estimate was derived from the scenario where the entire Municipality was connected to the City of Thunder Bay. It is recognized this option is not practical but provided to “paint the picture”.

The linear distance was estimated at 77 kilometres, which when we utilize a very rough estimate of \$500-750/metre cost, provides an initial budgetary cost range of \$35-55M cost for just one service. When reservoirs and localized pumping nodes are added (est. 4-5) an additional cost of \$5-6M would be added thereby providing a capital range of \$40-60M for one utility minus any localized distribution/collection or connection cost. When the costs are spread out amongst a built out population of 5000 (it is recognized a limited overall population increase is expected), and both utilities are contemplated, the cost becomes significant (\$80-120M). Presently, it should be emphasized that the number of existing facilities includes 868 permanent and 796 recreational residences, not including the break out of cottage associations. Limited population increases have been anticipated through growth based on conversion with the regulatory authority.

A second preliminary approach of installing a significant number of smaller centralized water and wastewater treatment facilities was also reviewed. From a cost perspective, the technology needed to treat surface water and/or wastewater to a level that provides regulatory compliance for discharge will have a minimum flow rate. It is suggested that 40-50 homes would be the minimum cluster size for treatment of this nature. Costs associated with building and operating upwards of 80 facilities (when growth is included) is going to be significant and challenging to coordinate. The operator requirements alone would drive operating costs for the facilities. If a smaller water treatment plant alone were to cost in the \$500K range (not including a localized distribution system) the capital cost alone would be \$40M. When the costs are spread out amongst a built out population of 5000, and both utilities are contemplated, the cost becomes significant (\$80-100M).

A third hybrid approach was reviewed, which meshed the merits of each of the initial approaches: a smaller number of water/wastewater centralized facilities combined with economically viable connections to the City of Thunder Bay. This approach targeted 3-4 centralized facilities located at areas that geographically made the most sense, in addition to utility connections out of the City of Thunder Bay. Economies of scale benefits for phased expansion of 3 or 4 targeted facilities would allow for development flexibility. From a cost perspective, capital costs of three or four facilities servicing 400 homes (each costing \$3-4M) would end up in the \$24-32M range, with reduced operating costs and logistical challenges for the Municipality over the long haul.

## **10.2 SMALL SCALE**

The provision of municipal water and wastewater services to existing lots was also reviewed and considered. The significant centralized costs, driven primarily by topographical and geographical constraints, also sanitary treatment systems for individual lots could include Sequencing Batch Reactors or Septic Fields. Costs associated with a Sequencing Batch Reactor may be anywhere from \$10-20K. A septic field for an individual lot would range from \$10-20K. For communal systems costs associated with a SBR would increase to \$20-40K. Costs for a septic field would range from \$15-30K. These costs do not include acquisition of land and clearing of land, if required, or crossing beneath a roadway or railway, and must be balanced against be able to find acceptable soil conditions for construction.

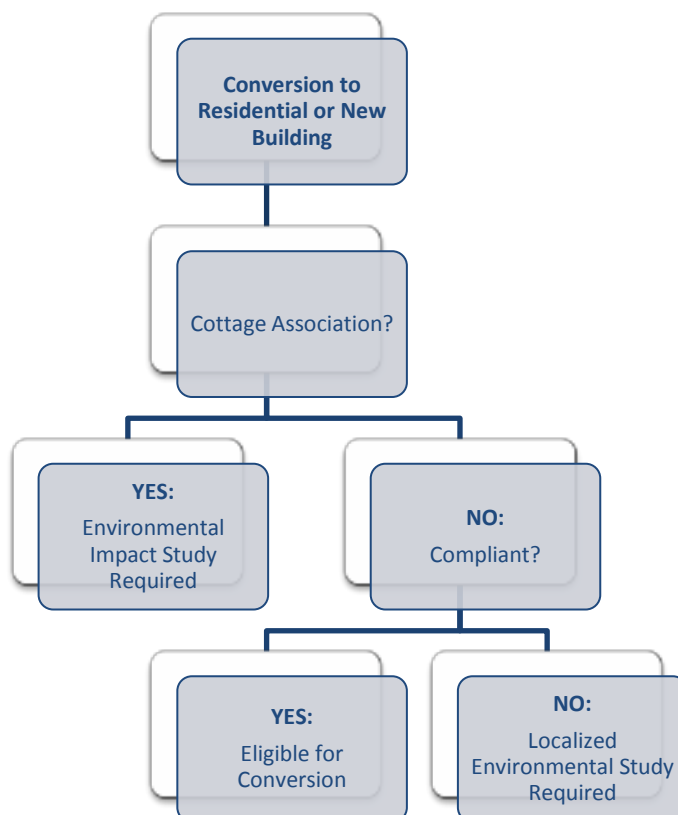


## 11.0 DISCUSSION & RECOMMENDATIONS

The Municipality of Shuniah has options to provide centralized water and wastewater services to properties within the Municipality. When reviewed from a 'big picture' perspective and compared against the population served, the linear nature of the existing development and topography, it is clear that costs are prohibitive

Conversion demands and new builds are however a reality and a significant percentage of existing properties are non-compliant (Table 1) from a land size perspective, in accordance with the zoning by-law. The option of individual or multiple dwelling servicing for wastewater is the primary practical option and would require the purchase of additional land to provide wastewater services. Thus, new lots should be sized to adequately treat water and wastewater on an individual lot basis. In addition it has become apparent that over the past two decades residential and seasonal designation differences have become blurred and serious consideration to designating all facilities as residential should be considered.

If however the Municipality chooses to maintain designation differences thereby maintaining a conversion requirement it is recommended that any property wishing to convert to residential status or build to residential status should first review the size of the lot to determine if it meets the zoning requirements. This is illustrated in the following flow chart:



Outside of lot sizes, compliance for facilities of appropriate sizing must include receipt of a proper regulatory permit for their chosen wastewater treatment system. If the Municipality chooses to remove designation differences the recommendation for environmental study in areas of concern would remain.

KGS Group met with representatives of the Municipality of Shuniah, the Ministry of Municipal Affairs and Housing, the Ministry of the Environment, and the Thunder Bay District Health Unit on February 22<sup>nd</sup>, 2017. The Ministry of the Environment and the Thunder Bay District Health Unit both stated that they were unaware of any existing concerns in regards to water and septic services within the Municipality of Shuniah.

In the case of the Cottage Associations where individual lot sizing cannot be confirmed an Environmental Impact Study for the association is recommended. While failure of a permitted wastewater facility is recognized to be obvious, the collective impact of permitted and potential non permitted facilities is unknown. A routine bacteriological water sampling program to proactively address potential collaborative concerns provides an additional barrier of safety for

residents within the association. Similarly for individually owned properties that do not meet sizing requirements, a localized environmental study should be completed to ensure that the new service will not affect neighbouring properties. In either case an environmental study would begin with water samples.

Which leads us to the most practical approach to a proactive and implementable recommendation: during our review it became evident that the primary missing piece of information was confirmation of the extent existing facilities were actually creating an environmental impact. The most prudent initial approach in this regard is to initiate a targeted water testing monitoring program throughout the Municipality, one that is coordinated with the Thunder Bay Health District, and the Ministry of Environment. Key components to this program would include:

- Reliable testing (certified water sampling technicians);
- Investment in a practical database for Municipal utilization which would include mapping capacity;
- Consistent regular testing requirements; and,
- Setting up as a potential pilot plan.

## **12.0 IMPLEMENTATION**

Shuniah's limited population when combined with extensive linear distance, diverse land use and the local topography makes funding a one size fits all solution difficult. From a practical perspective, the prospect of full scale conversion implementation is not viable. Budget estimates provided in Section 10.0 were provided as confirmation. It is therefore suggested that the Municipality implement an incremental approach for addressing this significant challenge that:

- begins with the establishment of a monitoring program;
- includes a dedicated sampling plan; and
- includes an associated public communications strategy.

### **12.1 MONITORING AND WATER QUALITY TESTING**

Cottage associations and non-association properties generally obtain permits for sanitary systems through the Ministry of the Environment and Climate Change (MOECC) or the Thunder Bay District Health Unit (TBDHU). Once a permit is obtained, there are no ongoing requirements from the MOECC for monitoring and/or water quality testing. The lack of an operational permit with monitoring requirements in this challenging situation is the target of this proactive approach.

Building on TBDHU's existing drinking water testing initiative, the Municipality should establish and maintain a water quality monitoring program. Regular water quality testing and inspections should be done in coordination with TBDHU and MOECC, with results publicly reported on the Municipality's website.

It should be acknowledged that existing infrastructure both from a human and physical perspective simply does not exist to establish such a program. What would be required for a bacteriological monitoring program would include equivalent labour costs for certified staff to collect the samples, as well as a physical database for data to be collected and reported. It is suggested that the costs for establishing such a monitoring program including labour, and material could be submitted for potential infrastructure funding to the Province. An inadequate

monitoring and reporting program will not properly serve the long-term needs of the municipality.

## **12.2 COMMUNICATIONS STRATEGY**

Although the Municipality has advised that it has previously had meetings with the Cottage Associations, servicing compliance remains a sensitive issue.

The Municipality of Shuniah, in collaboration with the TBH DU and MOECC, should develop and implement a communications strategy to educate property owners on the importance of proper (i.e. compliant) treatment of water and wastewater, and the public health risks associated with contamination.

A communications strategy could be implemented in the form of occasional newsletters or public meetings. If monitoring has occurred, residents should be advised of any negative results that were encountered during testing.

The intent is to build public awareness and understanding as an initial step as the Municipality moves to adopt and enforce more stringent servicing standards.

## **12.3 PLANNING FRAMEWORK / HEIGHTENED SERVICING STANDARDS**

Provincial planning policy provides a number of broad directives pertaining to municipal infrastructure, with specific reference to sewage, water and stormwater servicing. Those directives include:

- Promoting cost-efficient development patterns – minimize servicing costs;
- Ensuring necessary infrastructure to meeting current/projected needs;
- Promoting an integrated/coordinated approach to infrastructure planning;
- Optimizing and efficient use of existing water and wastewater services;
- Protecting human and environmental health; and,
- Promoting water conservation, and minimizing environmental impacts.

Ultimately, municipal policies must be consistent with these Provincial policy directives. The updated/pending Official Plan provides a logical starting point in terms of establishing an appropriate and defensible approach to ensuring that new developments are compliant with current servicing standards.

When it comes to redevelopment (i.e. conversion), historic development patterns and recreational land use add a level of complexity to the issue of compliance.

Recognizing this, the updated/pending Official Plan eliminated the 'Shoreline Residential' designation implemented in the current and previous Official Plans. It is a recommendation of this report that the Municipality adhere to the intent of its pending Official Plan and establish a single Residential land use designation that does not distinguish between permanent and seasonal/recreational occupancy.

This move towards a single set of standards applicable to all Residential uses will, in the long-term, simplify implementation, provide clarity on applicable standards and, as a consequence, ease enforcement.

Notwithstanding that, some additional policy options may be considered in recognition of Shuniah's historic development pattern:

- Recognition of historic camp developments – rather than occupancy (which is difficult to enforce), establish size limits on building additions and/or specific improvement thresholds to define cottage conversion.
- Placing greater onus on Cottage Associations and individual property owners to demonstrate compliance through studies and/or upgrade systems as a condition of planning/development approvals – place restrictions on issuance of building permits until level of impact is demonstrated and/or compliance is achieved.
- Development Agreements – the Municipality can potentially embed specific conditions around use/occupancy through Development Agreements. While legally enforceable, time and resources are required to ensure that terms are being adhered to.

Appendix C articulates a series of proposed draft policies for inclusion in the Municipality of Shuniah's Official Plan to implement the recommendation of this report.

## **12.4 MUNICIPAL-LED CAPITAL INFRASTRUCTURE INVESTMENTS**

Although this study has concluded that investment in large scale water/waste water systems are not economically feasible, the Municipality can lead by participating in smaller scale capital improvements and/or incentivizing private investment in individual or communal system upgrades.

Potential funding sources or financial tools, could include:

- Federal or Provincial infrastructure dollars;
- Grants, loans or tax assistance through a Community Improvement Planning process;
- Special district financing or special infrastructure levy – could be applied on a municipal-wide basis or on a district or cottage association basis (levy could be included added to the property tax bill and applied for a limited time); and,
- Federation of Canadian Municipalities – Green Municipal Fund provides capital financing for innovative water-related capital projects (competitive process).

## **12.5 RECOMMENDATIONS / PATH FORWARD**

- Adhere to the intent of its pending Official Plan and establish a single Residential land use designation that does not distinguish between permanent and seasonal/recreational occupancy.
- Develop a Municipal-led water quality monitoring program that will:
  - Sample various locations throughout the Municipality for water quality;
  - Continue to sample at sample locations to identify areas of concern;
  - Create a database of monitoring results;
  - Inform residents of potential concerns.
- Implement interim restrictions on the issuance of new building permits in areas of non-compliance or in associations without targeted understanding of impact.
- Require Associations to demonstrate that their collective wastewater management approach is not impacting the environment (2-3 years).



- Place a restriction on back lots in Camper Association areas for potential need for communal systems, unless they complete additional studies to demonstrate that they can support these structures with no negative impacts to the environment.
- Require existing / other non-compliant landowners to demonstrate their respective wastewater management approaches are not impacting the environment (2-3 years).
- Explore funding opportunities with the Provincial and Federal Government as well as potential assistance for coordinated monitoring plans (i.e. development of a data base).

### **13.0 PUBLIC MEETING / COMMENTS**

A public meeting was held on March 2, 2017, to inform the public, present the draft report, receive comments, and answer any questions.

There was concern that a monitoring program would be a gateway to more stringent testing requirements from the general public. KGS Group confirmed that at this point our recommendation remains to implement a monitoring program to confirm the quality of the groundwater, and to educate property owners of any risks that may exist.

A comment was made about another Township who implemented a requirement for a septic re-inspection every five or six years. At this point we do not feel that there is a requirement to enforce re-inspections of septic systems.

## **14.0 STATEMENT OF LIMITATIONS AND CONDITIONS**

### **14.1 THIRD PARTY USE OF REPORT**

This report has been prepared for the Municipality of Shuniah to whom this report has been addressed and any use a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions undertaken based on this report. This report has been prepared for the Municipality of Shuniah to whom this report has been addressed and any use a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. KGS Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions undertaken based on this report.

### **14.2 CAPITAL COST ESTIMATE STATEMENT OF LIMITATIONS**

The cost estimates included with this report have been prepared by KGS Group using its professional judgment and exercising due care consistent with the level of detail required for the stage of the project for which the estimate has been developed. These estimates represent KGS Group's opinion of the probable costs and are based on factors over which KGS has no control. These factors include, without limitation, site conditions, availability of qualified labour and materials, present workload of the Bidders at the time of tendering and overall market conditions. KGS does not assume any responsibility to the Municipality of Shuniah, in contract, tort or otherwise in connection with such estimates and shall not be liable to the Municipality of Shuniah if such estimates prove to be inaccurate or incorrect.

### **14.3 OTHER LIMITATIONS**

The above Statements of Limitations are intended to address certain types of services. In the event that KGS Group has provided services of a nature other than the above, and which the Author/Issuer or the Reviewer/Approver agree would warrant a Statement of Limitations to address potential risks or liabilities, such a Statement of Limitations should be developed and

included with the report. Any project-specific Statement of Limitations should be reviewed by the Principals and/or KGS Group's General Counsel before being included in the report.

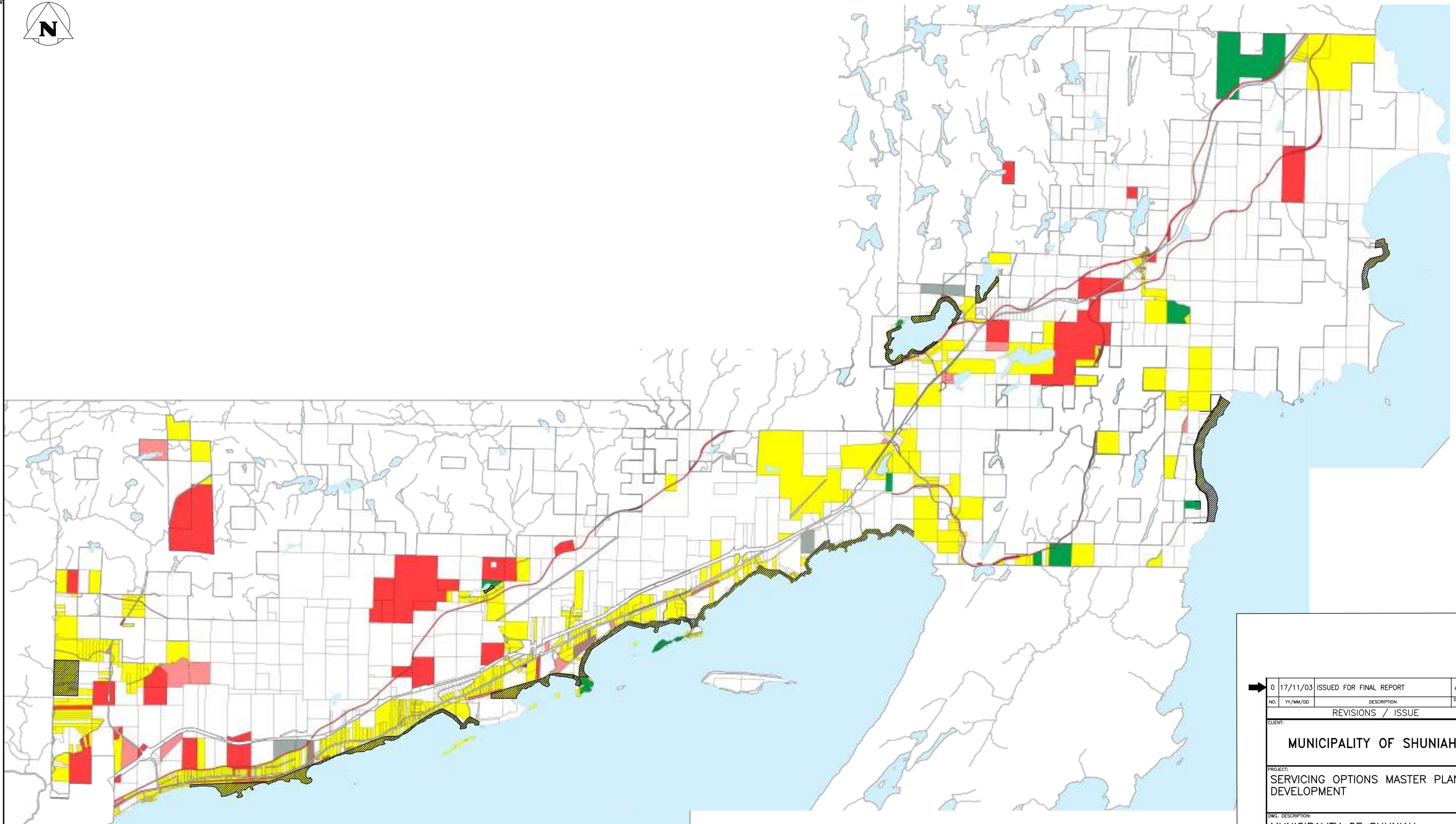
**APPENDIX A**

**DRAWINGS**

**HIGH DENSITY AREAS AND POTENTIAL GROWTH AREAS**



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**MUNICIPALITY OF SHUNIAH**

**LEGEND**

HIGH DENSITY

**PROPERTY CODES:**

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

➡	0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
	NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
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CLIENT:  
**MUNICIPALITY OF SHUNIAH**

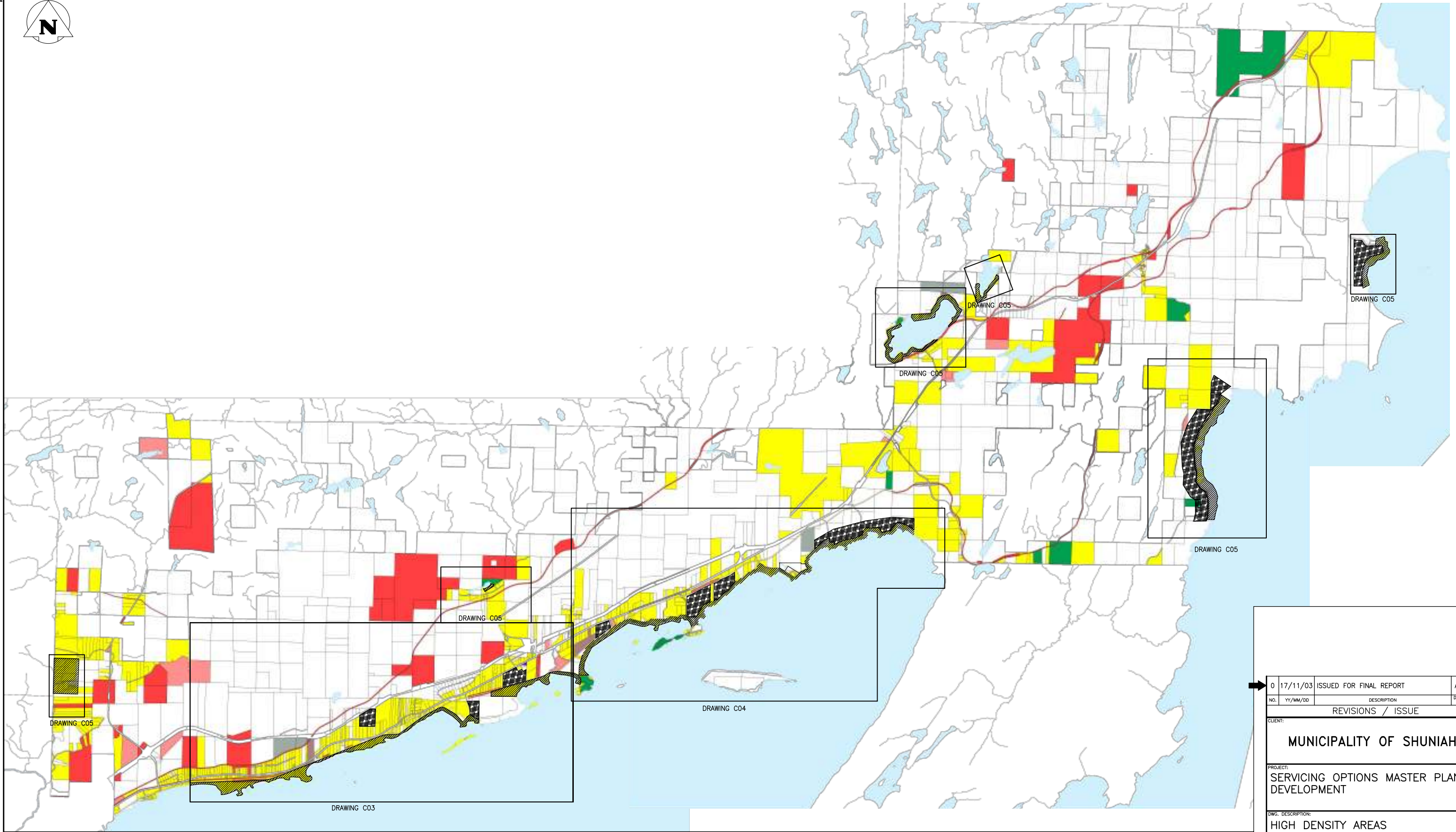
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SERVICING OPTIONS MASTER PLAN DEVELOPMENT

DWG. DESCRIPTION:  
MUNICIPALITY OF SHUNIAH

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## MUNICIPALITY OF SHUNIAH

### LEGEND

- HIGH DENSITY
- POTENTIAL RESIDENTIAL GROWTH AREAS

### PROPERTY CODES:

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

**PRELIMINARY**  
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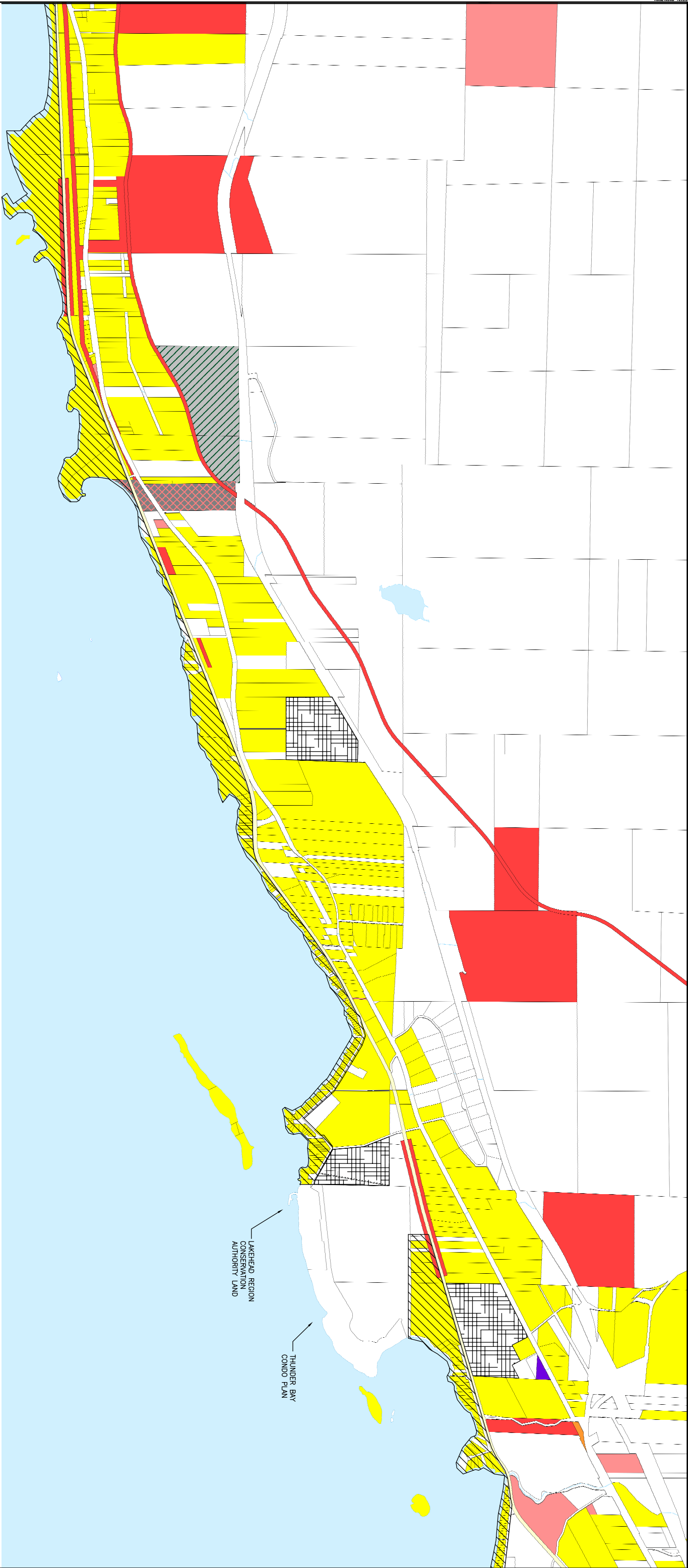
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PROJECT:  
SERVICING OPTIONS MASTER PLAN DEVELOPMENT

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**LEGEND**

HIGH DENSITY

POTENTIAL RESIDENTIAL GROWTH AREAS

VACANT

FARM

RESIDENTIAL

COMMERCIAL

INDUSTRIAL

INSTITUTIONAL

SPECIAL PURPOSE

GOVERNMENT

ACCESS WAYS

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

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MUNICIPALITY OF SHUNIAH

SERVICING OPTIONS MASTER PLAN DEVELOPMENT

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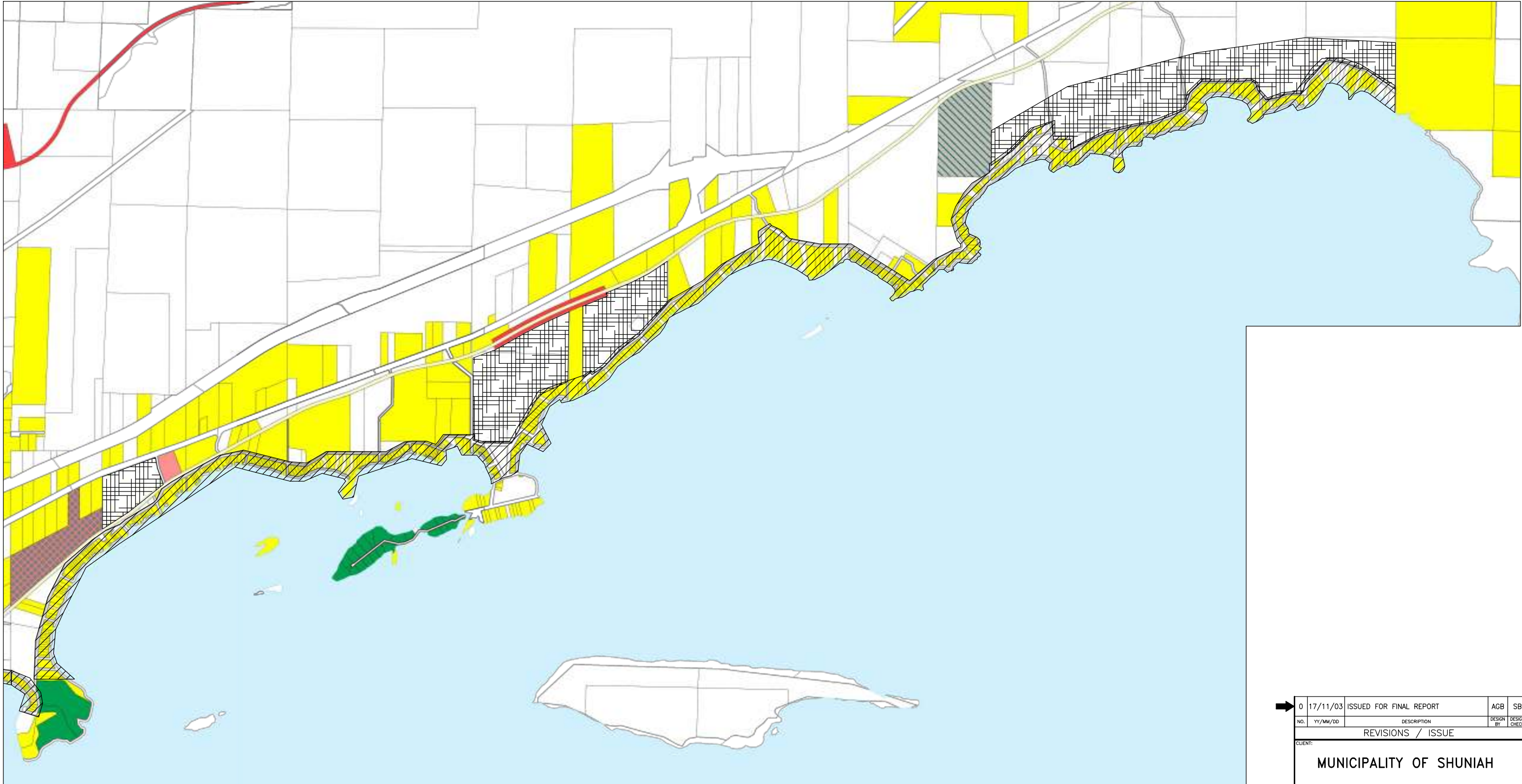
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**LEGEND**  
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[Symbol] POTENTIAL RESIDENTIAL GROWTH AREAS

**PROPERTY CODES:**  
[Symbol] VACANT  
[Symbol] FARM  
[Symbol] RESIDENTIAL  
[Symbol] COMMERCIAL  
[Symbol] INDUSTRIAL  
[Symbol] INSTITUTIONAL  
[Symbol] SPECIAL PURPOSE  
[Symbol] GOVERNMENT  
[Symbol] ACCESS WAYS

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

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MUNICIPALITY OF SHUNIAH

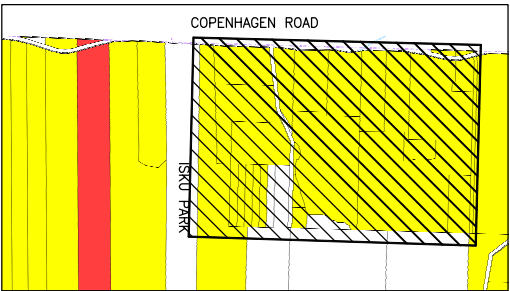
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SERVICING OPTIONS MASTER PLAN DEVELOPMENT

**DWG. DESCRIPTION:**  
HIGH DENSITY AREAS

**KGS GROUP**  
CONSULTING ENGINEERS

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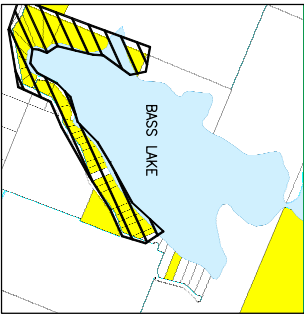
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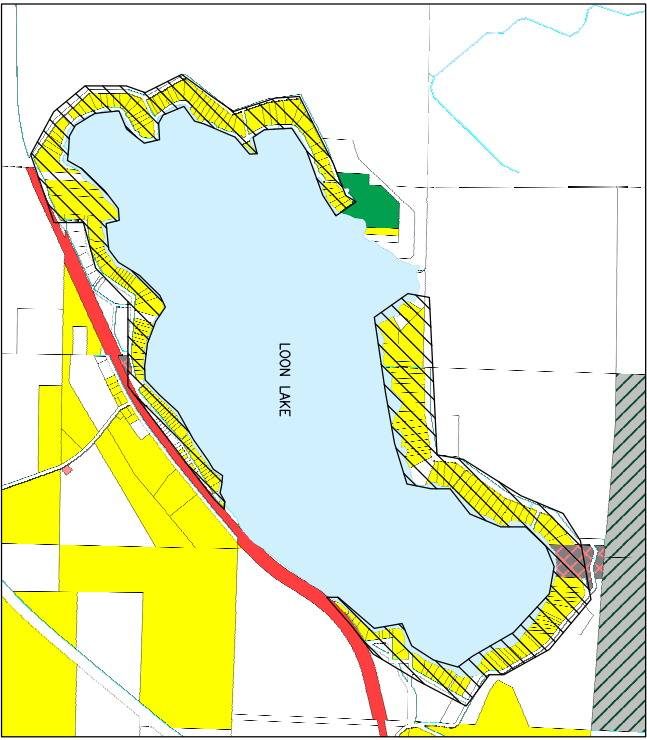
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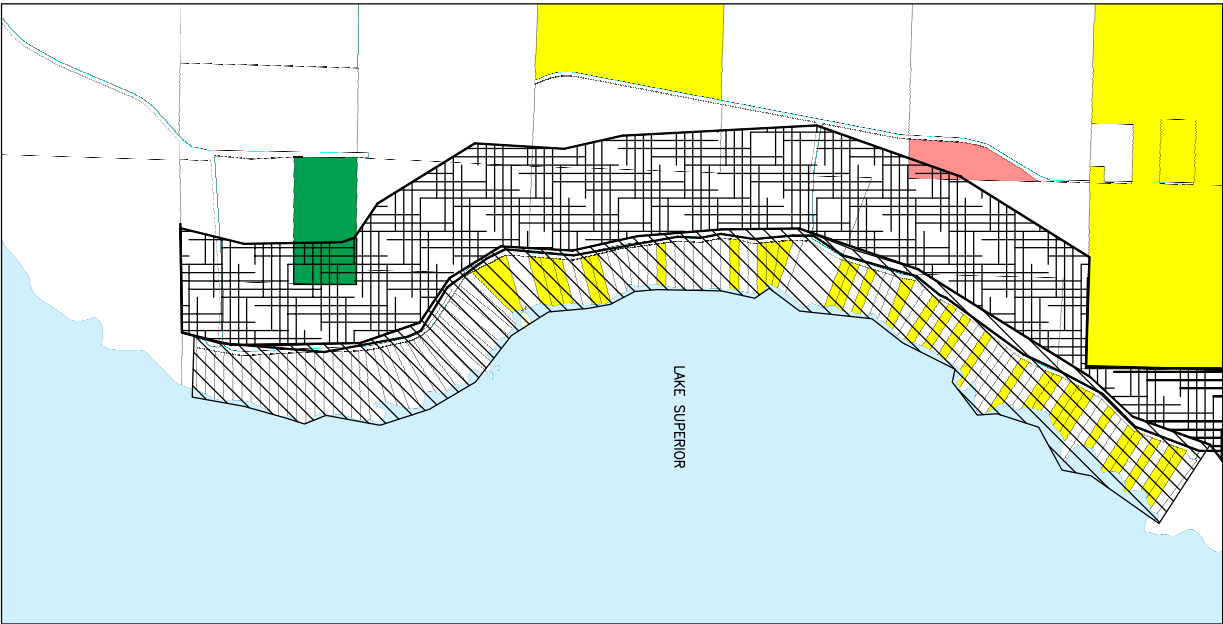
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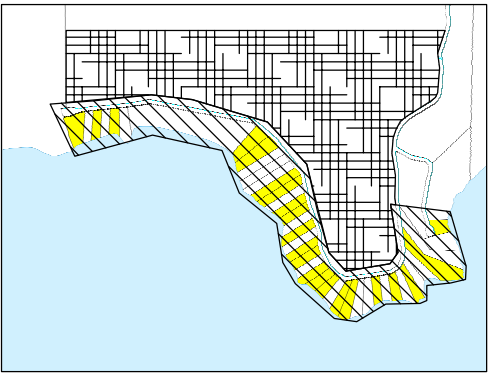
BASS LAKE



LOON LAKE



GRANN DRIVE



SUPERIOR SHORES

- LEGEND**
- HIGH DENSITY
  - POTENTIAL RESIDENTIAL GROWTH AREAS
- PROPERTY CODES:**
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS



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CLIENT: **MUNICIPALITY OF SHUNIAH**

PROJECT: **SERVICING OPTIONS MASTER PLAN DEVELOPMENT**

DATE DESCRIPTION

**HIGH DENSITY AREAS**

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**KGS GROUP**  
CONSULTING ENGINEERS

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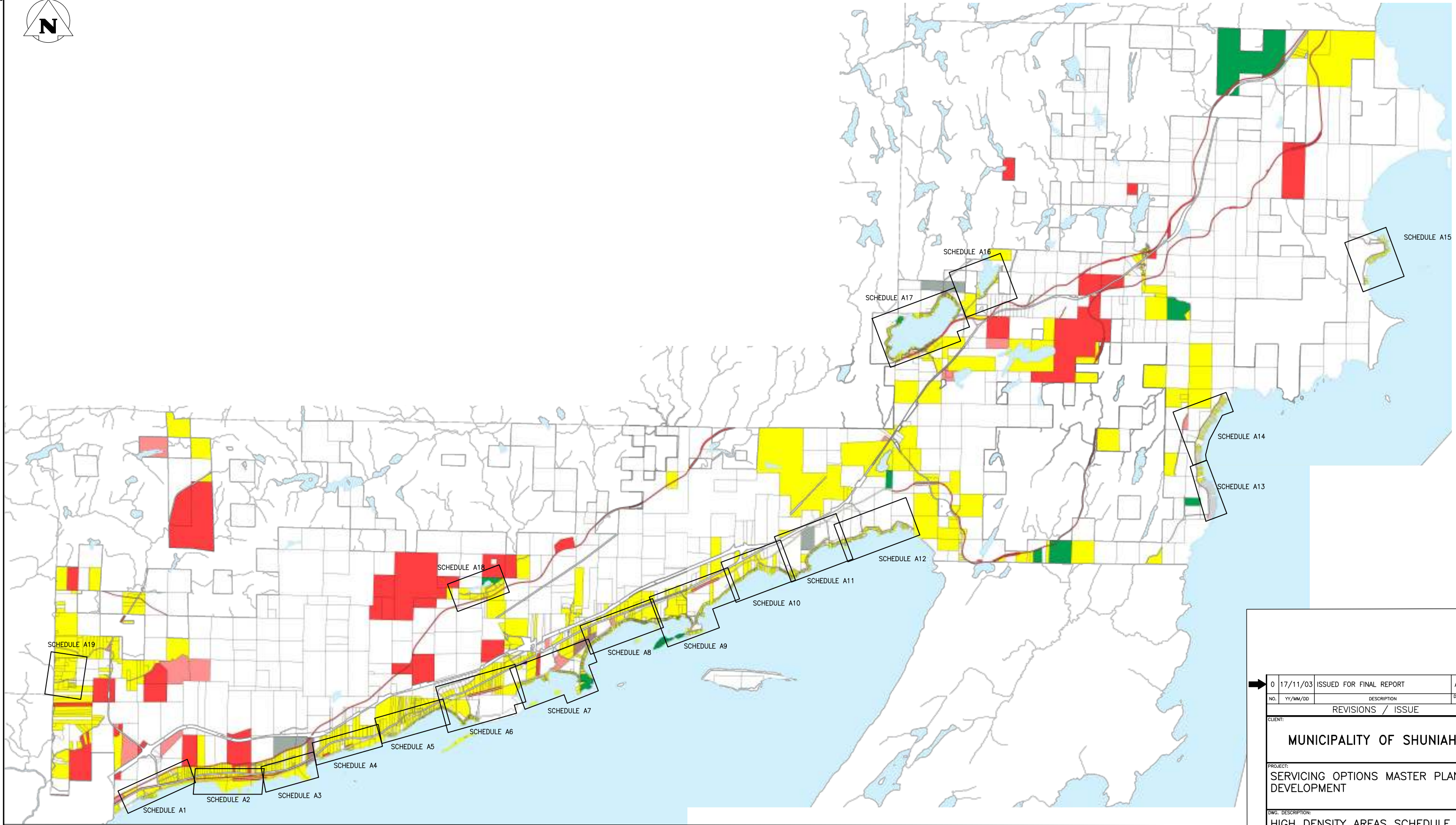
## **APPENDIX B**

### **DETAILED HIGH DENSITY AREAS**





File Name: J:\FMS\16-0519-001\16-0519-001\_C06.dwg - Tab: C06 Plotted By: CMacDonald 17/10/31 [Tue 1:53pm]  
24"x36" / PLOT SCALE: 1"=1'



PROPERTY CODES:  
VACANT  
FARM  
RESIDENTIAL  
COMMERCIAL  
INDUSTRIAL  
INSTITUTIONAL  
SPECIAL PURPOSE  
GOVERNMENT  
ACCESS WAYS

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTIONS MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
HIGH DENSITY AREAS SCHEDULE				
<div><div>KGS</div><div>GROUP</div><div>CONSULTING ENGINEERS</div></div>	DESIGN BY:	AGB	DATE (YY/MM/DD):	16/10/31
	DESIGN CHECK:	SB	DATE:	16/10/31
	DRAWN BY:	CM	DATE:	16/10/31
	DWG CHECK:	AGB	DATE:	16/10/31
DWG. NO.			REV:	
16-0519-001 C06				0



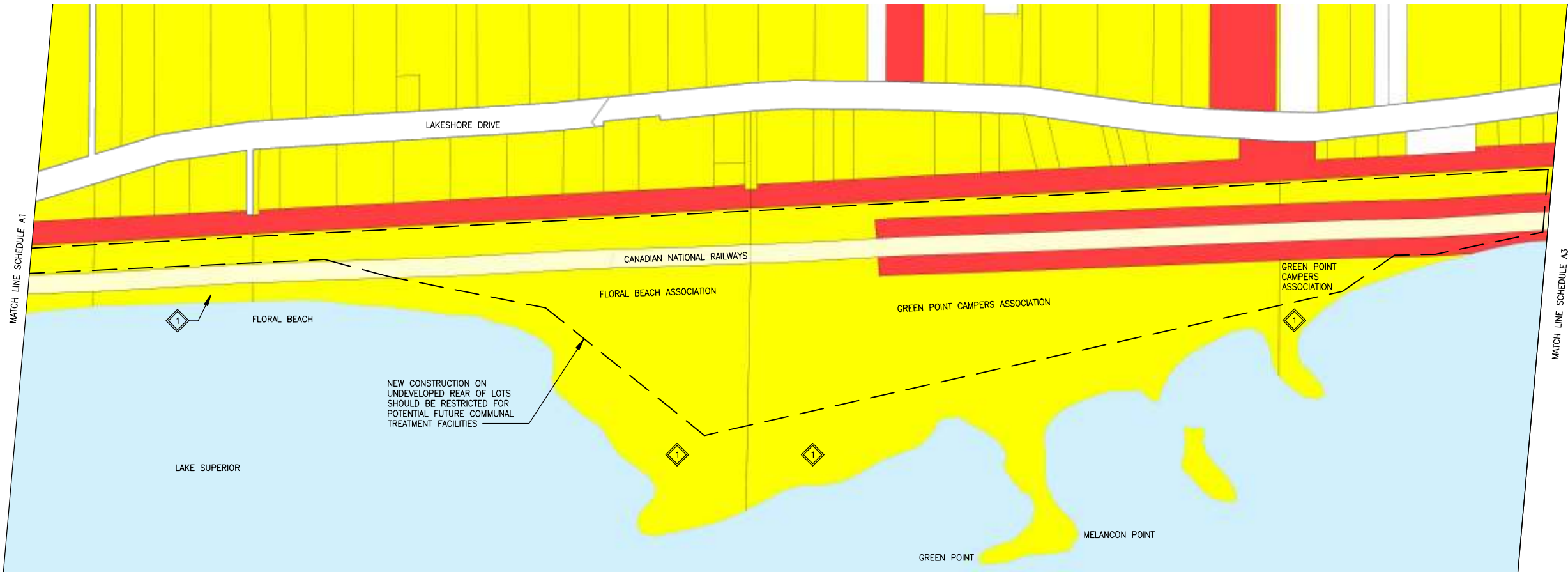
File Name: U:\A\B\16-0519-001\16-0519-001\_C07.dwg - Tab: C07 Plotted By: CMacDonald 17/10/31 [Tue 1:40pm]  
24 X 36 / PLOT SCALE: 1 = 1



**SCHEDULE A1** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 2.5km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 17km.

- LEGEND**
- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM
- SANITARY SERVICES:
- ⊙ HOLDING TANK
  - ⊙ SANITARY SERVICES - SEPTIC
  - ⊙ UNSPECIFIED SEPTIC SERVICE
- PROPERTY CODES:
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS
- NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

- KEY NOTES**
- ⊙ WATER AND WASTEWATER SERVICING DATA NOT AVAILABLE

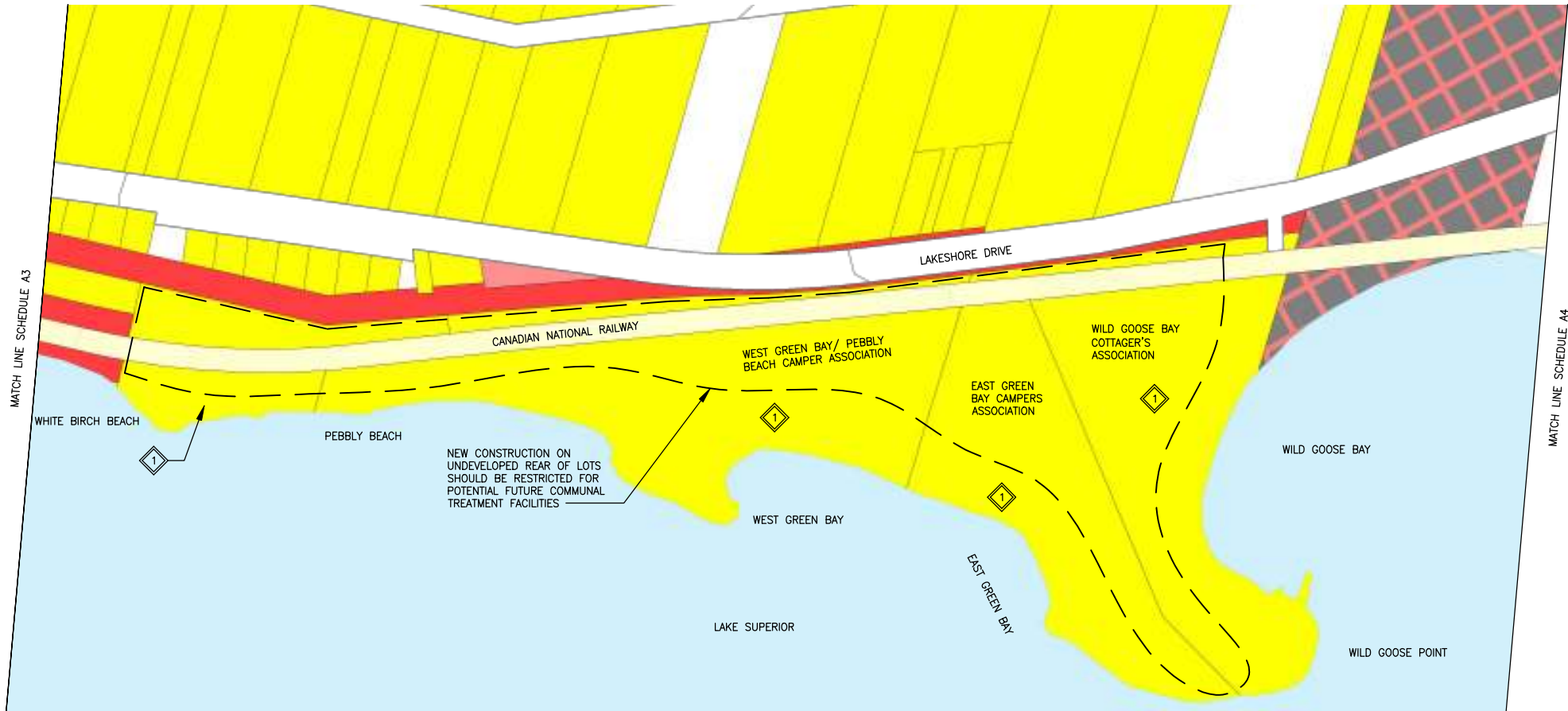


**SCHEDULE A2** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 6km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 20km.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A1 AND A2				
<b>KGS GROUP</b> CONSULTING ENGINEERS	DESIGN BY:	AGB	DATE (YY/MM/DD):	16/10/31
	DESIGN CHECK:	SB	DATE:	16/10/31
	DRAWN BY:	CM	DATE:	16/10/31
	DWG CHECK:	AGB	DATE:	16/10/31
DWG. NO. 16-0519-001 C07				REV: 0

File Name: J:\A\DWG\16-0519-001\16-0519-001\_C08.dwg - Tab: C08 Plotted By: CMacDonald 17/10/31 [Tue 1:38pm]  
24 A38 / PLOT SCALE: 1 = 1



**SCHEDULE A3** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 8km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 22km.



**SCHEDULE A4** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 11km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 25km.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
- RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

**WATER SERVICES:**

- ⊙ WELL
- ⊙ LAKE INTAKE
- ⊙ UNSPECIFIED WATER SERVICE
- ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

**SANITARY SERVICES:**

- ⊙ HOLDING TANK
- ⊙ SANITARY SERVICES - SEPTIC
- ⊙ UNSPECIFIED SEPTIC SERVICE

**PROPERTY CODES:**

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

**KEY NOTES**

- ⊙ WATER AND WASTEWATER SERVICING DATA NOT AVAILABLE

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A3 AND A4				
<b>KGS GROUP</b> CONSULTING ENGINEERS	DESIGN BY:	AGB	DATE (YY/MM/DD):	16/10/31
	DESIGN CHECK:	SB	DATE:	16/10/31
	DRAWN BY:	CM	DATE:	16/10/31
	DWG CHECK:	AGB	DATE:	16/10/31
DWG. NO. 16-0519-001 C08				REV: 0



File Name: J:\FMS\16-0519-001\16-0519-001\_C09.dwg - Tab: C09 Plotted By: CH MacDonald 17/10/31 [Tue 2:30pm]  
24"x36" / PLOT SCALE: 1"=1'



**SCHEDULE A5** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 13km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 26km.

**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
- \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
  - ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:
  - ⊙ HOLDING TANK
  - ⊙ SANITARY SERVICES – SEPTIC
  - ⊙ UNSPECIFIED SEPTIC SERVICE

**PROPERTY CODES:**

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A5				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
		DWG. NO.	16-0519-001 C09	REV: 0

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

File Name: J:\FMS\16-0519-001\16-0519-001\_C10.dwg - Tab: C10 Plotted By: CMacDonald 17/10/31 [Tue 2:27pm]  
24"x36" / PLOT SCALE: 1"=1'



**SCHEDULE A6**

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 15km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 29km.

NOTE: SIZE REQUIREMENTS ARE BASED  
ON MUNICIPALITY OF SHUNIAH  
ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

- LEGEND**
- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - WATER SERVICES:
    - ⊙ WELL
    - ⊕ LAKE INTAKE
    - ⊖ UNSPECIFIED WATER SERVICE
    - ⊗ PROPOSED COMMUNAL SEPTIC SYSTEM

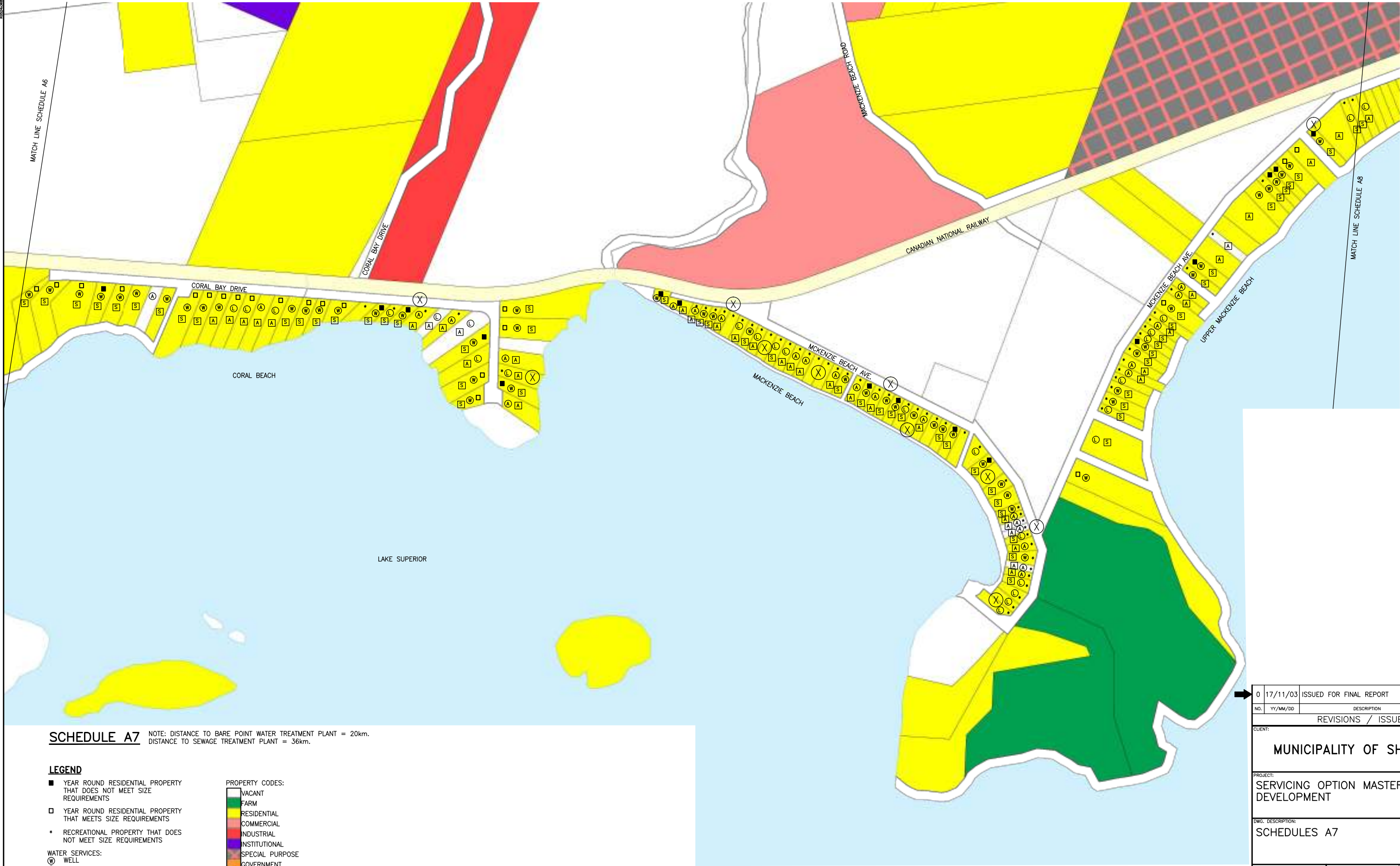
- SANITARY SERVICES:
- H HOLDING TANK
  - S SANITARY SERVICES - SEPTIC
  - A UNSPECIFIED SEPTIC SERVICE
- PROPERTY CODES:
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A6				
<b>KGS GROUP</b> CONSULTING ENGINEERS	DESIGN BY:	AGB	DATE (YY/MM/DD):	16/10/31
	DESIGN CHECK:	SB	DATE:	16/10/31
	DRAWN BY:	CM	DATE:	16/10/31
	DWG CHECK:	AGB	DATE:	16/10/31
	DWG. NO.	16-0519-001 C10	REV:	0



File Name: J:\FMS\16-0519-001\16-0519-001\_C11.dwg - Tab: C11 Plotted By: CMacDonald 17/10/31 [Tue 2:25pm]  
24"x36" / PLOT SCALE: 1"=1'



## SCHEDULE A7

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 20km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 36km.

### LEGEND

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- W WELL
  - L LAKE INTAKE
  - A UNSPECIFIED WATER SERVICE
  - X PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:
- H HOLDING TANK
  - S SANITARY SERVICES - SEPTIC
  - A UNSPECIFIED SEPTIC SERVICE

PROPERTY CODES:

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK

REVISIONS / ISSUE

CLIENT:

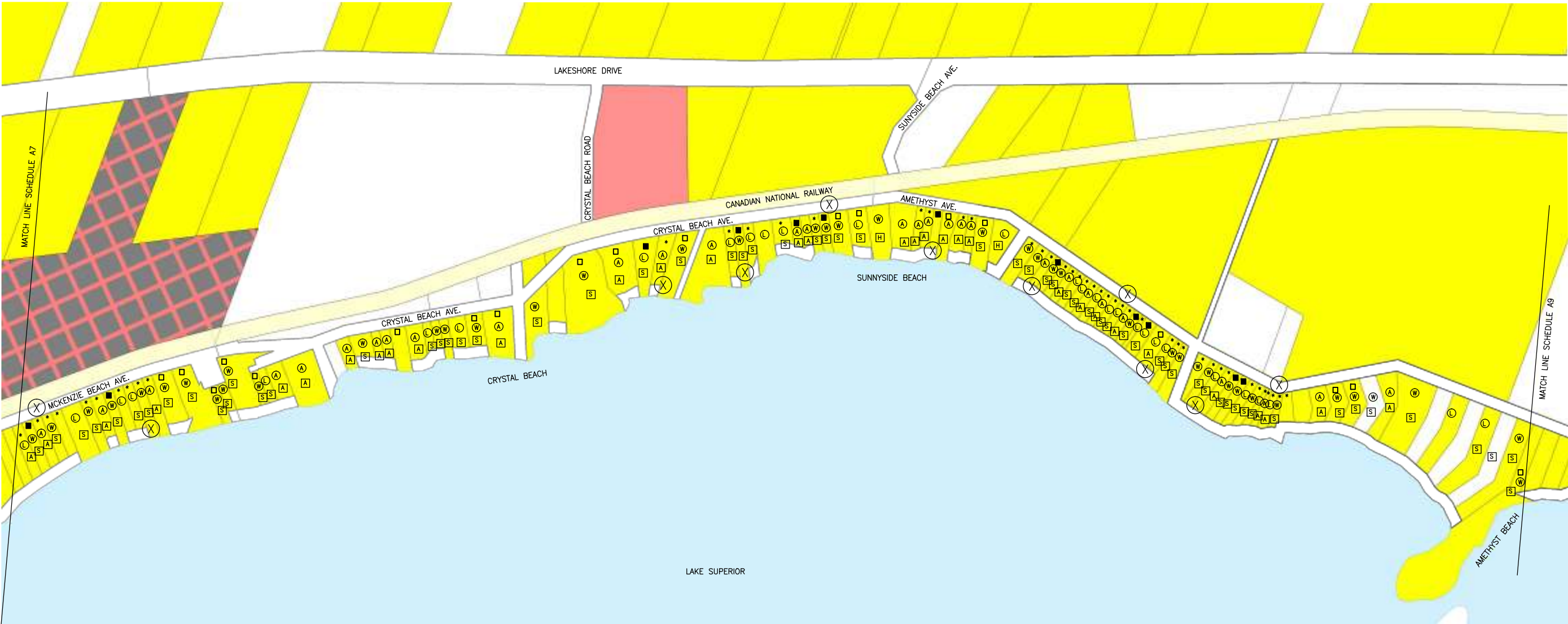
MUNICIPALITY OF SHUNIAH

PROJECT:  
SERVICING OPTION MASTER PLAN DEVELOPMENT

DWG. DESCRIPTION:  
SCHEDULES A7

<b>KGS GROUP</b> CONSULTING ENGINEERS	DESIGN BY:	AGB	DATE (YY/MM/DD):	16/10/31
	DESIGN CHECK:	SB	DATE:	16/10/31
	DRAWN BY:	CM	DATE:	16/10/31
	DWG CHECK:	AGB	DATE:	16/10/31

DWG. NO.	REV:
16-0519-001 C11	0



**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
- \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

WATER SERVICES:

- ⊙ WELL
- ⊙ LAKE INTAKE
- ⊙ UNSPECIFIED WATER SERVICE
- ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

SANITARY SERVICES:

- ⊙ HOLDING TANK
- ⊙ SANITARY SERVICES – SEPTIC
- ⊙ UNSPECIFIED SEPTIC SERVICE

PROPERTY CODES:

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

**SCHEDULE A8** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 22km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 36km.

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A8				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
		DWG. NO.	16-0519-001 C12	REV: 0

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION



File Name: U:\Projects\16-0519-001\16-0519-001\_C13.dwg - Tab: C13 Plotted By: CMacDonald 17/10/31 [Tue 2:24pm]  
24 x 36 / PLOT SCALE: 1 = 1



**SCHEDULE A9** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 26km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 40km.

**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
- \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
  - ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:
  - [H] HOLDING TANK
  - [S] SANITARY SERVICES - SEPTIC
  - [A] UNSPECIFIED SEPTIC SERVICE

- PROPERTY CODES:
  - VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH  
ZONING BY-LAW  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A9				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
DWG. NO. 16-0519-001 C13		REV: 0		

File Name: U:\Projects\16-0519-001\16-0519-001\_C14.dwg - Tab: C14 Plotted By: CMacDonald 17/10/31 [Tue 2:24pm]  
24 x 36 / PLOT SCALE: 1 = 1



- LEGEND**
- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:**
- ⊙ WELL
  - ⊕ LAKE INTAKE
  - ⊖ UNSPECIFIED WATER SERVICE
  - ⊗ PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:**
- ⊙ HOLDING TANK
  - ⊕ SANITARY SERVICES - SEPTIC
  - ⊖ UNSPECIFIED SEPTIC SERVICE

- PROPERTY CODES:**
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

**SCHEDULE A10**

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 28km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 42km.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT		AGB	SB	
NO.	YY/MM/DD	DESCRIPTION			DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE						
CLIENT:						
MUNICIPALITY OF SHUNIAH						
PROJECT:						
SERVICING OPTION MASTER PLAN DEVELOPMENT						
DWG. DESCRIPTION:						
SCHEDULES A10						
<div>KGS GROUP CONSULTING ENGINEERS</div>		DESIGN BY:		DATE (YY/MM/DD):		
		AGB		16/10/31		
		DESIGN CHECK:		DATE:		
		SB		16/10/31		
		DRAWN BY:		DATE:		
		CM		16/10/31		
		DWG CHECK:		DATE:		
		AGB		16/10/31		
DWG. NO.					REV:	
16-0519-001 C14					0	



File Name: J:\FMS\16-0519-001\16-0519-001\_C15.dwg - Tab: C15 Plotted By: CMacDonald 17/10/31 [Tue 2:36pm]  
24"x36" / PLOT SCALE: 1"=1'



#### LEGEND

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
- \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

- WATER SERVICES:
- ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:
- ⊙ HOLDING TANK
  - ⊙ SANITARY SERVICES - SEPTIC
  - ⊙ UNSPECIFIED SEPTIC SERVICE

- PROPERTY CODES:
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

#### SCHEDULE A11

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 31km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 45km.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A11				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
		DWG. NO.	16-0519-001 C15	REV: 0

File Name: J:\FMS\16-0519-001\16-0519-001\_C16.dwg - Tab: C16 Plotted By: CMacDonald 17/10/31 [Tue 2:46pm]  
24"x36" / PLOT SCALE: 1"=1'



LEGEND

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM
- SANITARY SERVICES:
- ⊙ HOLDING TANK
  - ⊙ SANITARY SERVICES – SEPTIC
  - ⊙ UNSPECIFIED SEPTIC SERVICE

PROPERTY CODES:

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

SCHEDULE A12

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 32km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 46km.

PRELIMINARY  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A12				
KGS GROUP CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
DWG. NO. 16-0519-001 C16				REV: 0



File Name: J:\FMS\16-0519-001\16-0519-001\_C17.dwg - Tab: C17 Plotted By: CMacDonald 17/10/31 [Tue 2:48pm]  
24"x36" PLOT SCALE: 1"=1'

SCHEDULE A13

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 51km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 66km.

SCHEDULE A14

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 54km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 68km.

LEGEND

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- W WELL
  - L LAKE INTAKE
  - A UNSPECIFIED WATER SERVICE
  - X PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:
- H HOLDING TANK
  - S SANITARY SERVICES - SEPTIC
  - A UNSPECIFIED SEPTIC SERVICE

- PROPERTY CODES:
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

PRELIMINARY

NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK

REVISIONS / ISSUE

CLIENT:  
**MUNICIPALITY OF SHUNIAH**

PROJECT:  
**SERVICING OPTION MASTER PLAN DEVELOPMENT**

DWG. DESCRIPTION:  
**SCHEDULES A13 & A14**

<b>KGS GROUP</b> CONSULTING ENGINEERS	DESIGN BY:	AGB	DATE (YY/MM/DD):	16/10/31
	DESIGN CHECK:	SB	DATE:	16/10/31
	DRAWN BY:	CM	DATE:	16/10/31
	DWG CHECK:	AGB	DATE:	16/10/31
DWG. NO. 16-0519-001 C17				REV: 0

File Name: J:\FMS\16-0519-001\16-0519-001\_C18.dwg - Tab: C18 Plotted By: CMacDonald 17/10/31 [Tue 2:45pm]  
24"x36" / PLOT SCALE: 1"=1'



## SCHEDULE A15

NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 63km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 77km.

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

### LEGEND

■ YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

□ YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS

\* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

#### WATER SERVICES:

⊙ WELL

⊙ LAKE INTAKE

⊙ UNSPECIFIED WATER SERVICE

⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

#### SANITARY SERVICES:

⊙ HOLDING TANK

⊙ SANITARY SERVICES - SEPTIC

⊙ UNSPECIFIED SEPTIC SERVICE

#### PROPERTY CODES:

VACANT

FARM

RESIDENTIAL

COMMERCIAL

INDUSTRIAL

INSTITUTIONAL

SPECIAL PURPOSE

GOVERNMENT

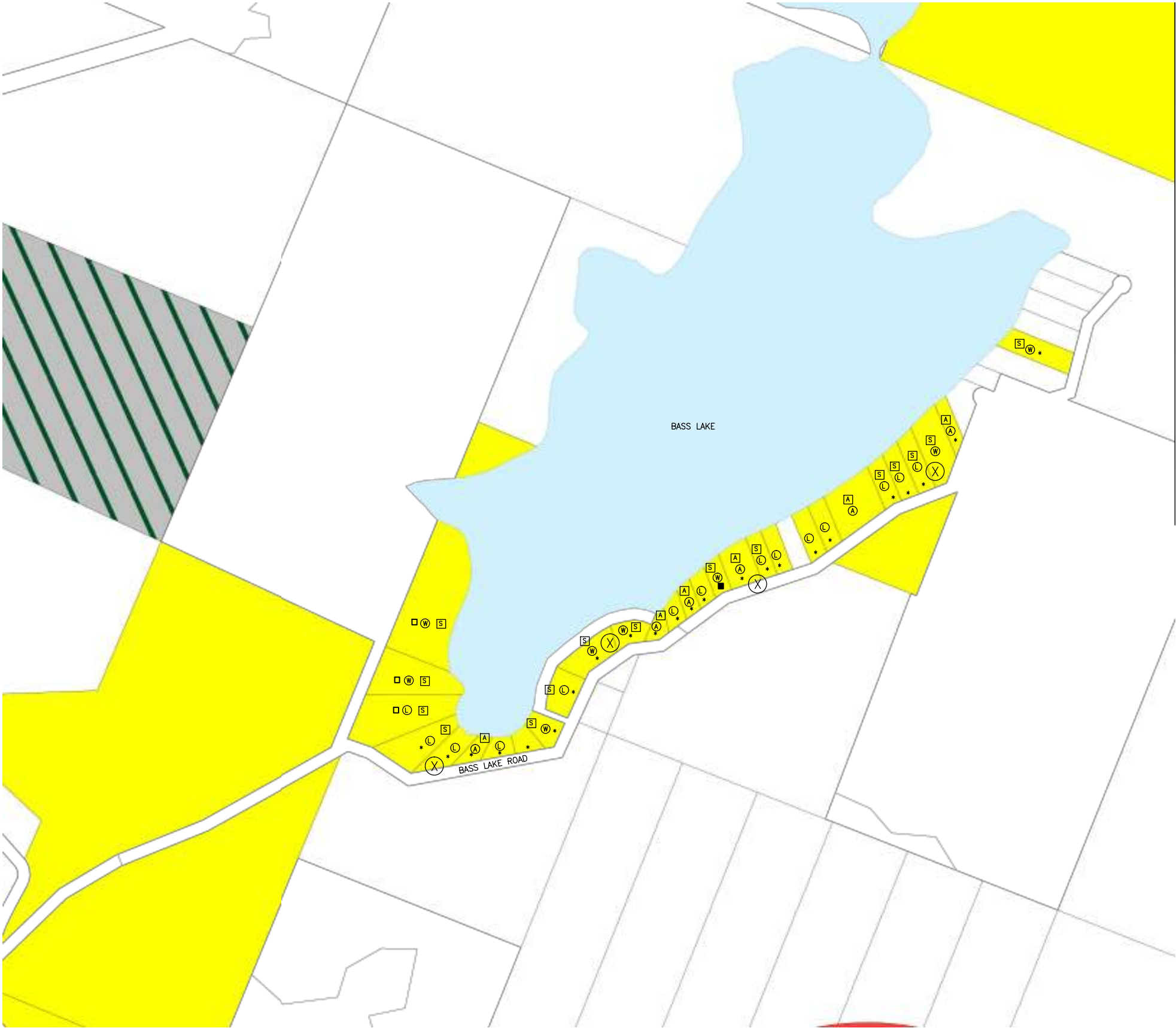
ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A15				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
		DWG. NO.	16-0519-001 C18	REV: 0



File Name: J:\FMS\16-0519-001\16-0519-001\_C19.dwg - Tab: C19 Plotted By: CH MacDonald 17/10/31 [Tue 2:45pm]  
24"x36" / PLOT SCALE: 1"=1'



**SCHEDULE A16** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 41km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 55km.

**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM

- SANITARY SERVICES:
- ⊙ HOLDING TANK
  - ⊙ SANITARY SERVICES - SEPTIC
  - ⊙ UNSPECIFIED SEPTIC SERVICE

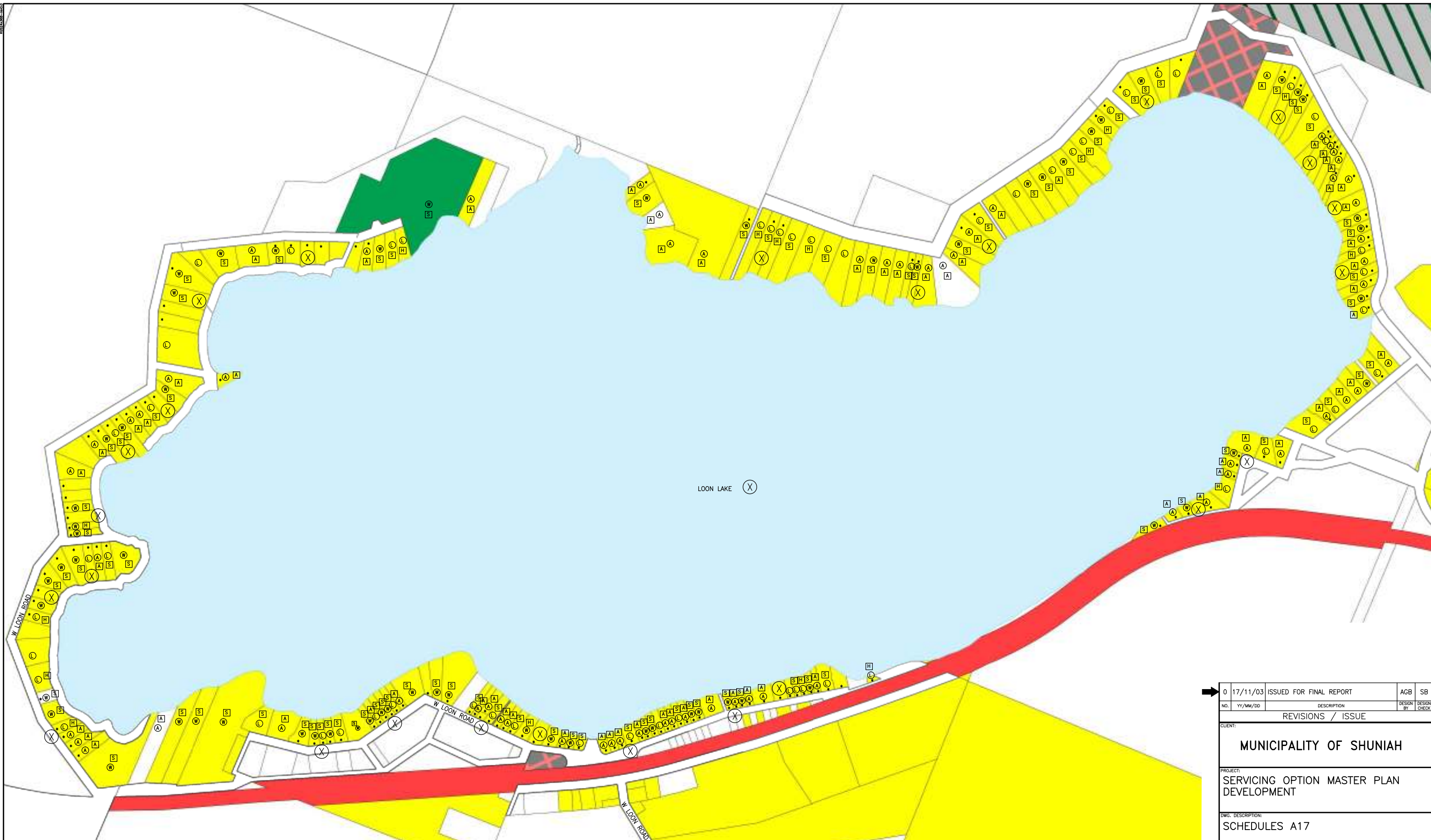
- PROPERTY CODES:
- VACANT
  - FARM
  - RESIDENTIAL
  - COMMERCIAL
  - INDUSTRIAL
  - INSTITUTIONAL
  - SPECIAL PURPOSE
  - GOVERNMENT
  - ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A16				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
		DRAWN BY:	CM	DATE: 16/10/31
		DWG CHECK:	AGB	DATE: 16/10/31
		DWG. NO.	16-0519-001 C19	REV: 0

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

File Name: J:\FMS\16-0519-001\16-0519-001\_C20.dwg - Tab: C20 Plotted By: CMacDonald 17/10/31 [Tue 2:44pm]  
24"x36" / PLOT SCALE: 1"=1'



### SCHEDULE A17

#### LEGEND

■ YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

□ YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS

\* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS

#### WATER SERVICES:

⊙ WELL

⊖ LAKE INTAKE

⊕ UNSPECIFIED WATER SERVICE

⊗ PROPOSED COMMUNAL SEPTIC SYSTEM

#### SANITARY SERVICES:

H HOLDING TANK

S SANITARY SERVICES - SEPTIC

A UNSPECIFIED SEPTIC SERVICE

#### PROPERTY CODES:

V VACANT

F FARM

R RESIDENTIAL

C COMMERCIAL

I INDUSTRIAL

N INSTITUTIONAL

SP SPECIAL PURPOSE

G GOVERNMENT

AW ACCESS WAYS

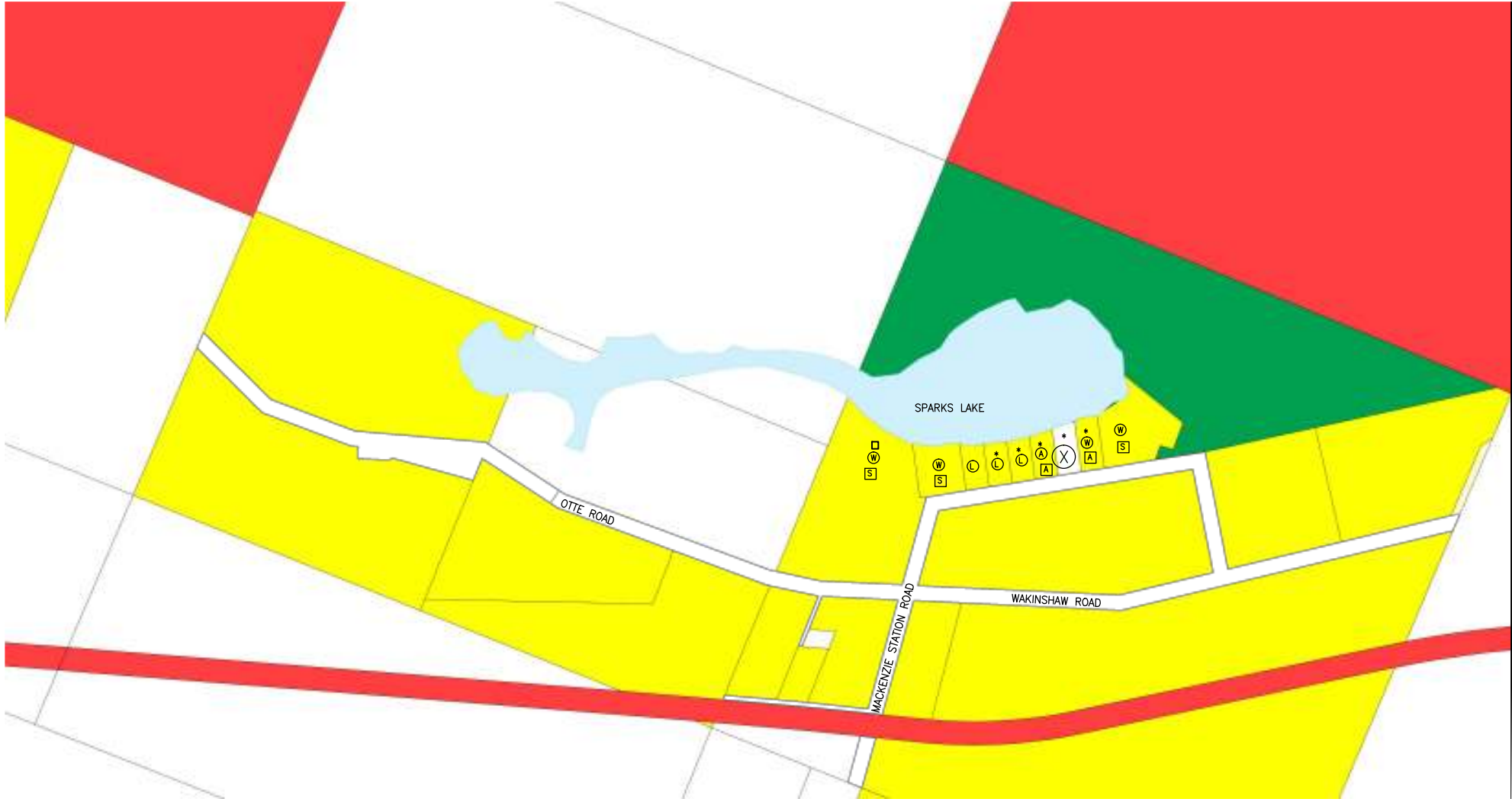
NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m<sup>2</sup>

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A17				
DESIGN BY:		AGB	DATE (YY/MM/DD):	16/10/31
DESIGN CHECK:		SB	DATE:	16/10/31
DRAWN BY:		CM	DATE:	16/10/31
DWG CHECK:		AGB	DATE:	16/10/31
DWG. NO.				REV:
16-0519-001 C20				0



File Name: J:\FMS\16-0519-001\16-0519-001\_C21.dwg - Tab: C21 Plotted By: CMacDonald 17/10/31 [Tue 2:44pm]  
24"x36" / PLOT SCALE: 1"=1'



**SCHEDULE A18** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 21km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 36km.

**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊙ PROPOSED COMMUNAL SEPTIC SYSTEM
- SANITARY SERVICES:
- ⊙ HOLDING TANK
  - ⊙ SANITARY SERVICES – SEPTIC
  - ⊙ UNSPECIFIED SEPTIC SERVICE

**PROPERTY CODES:**

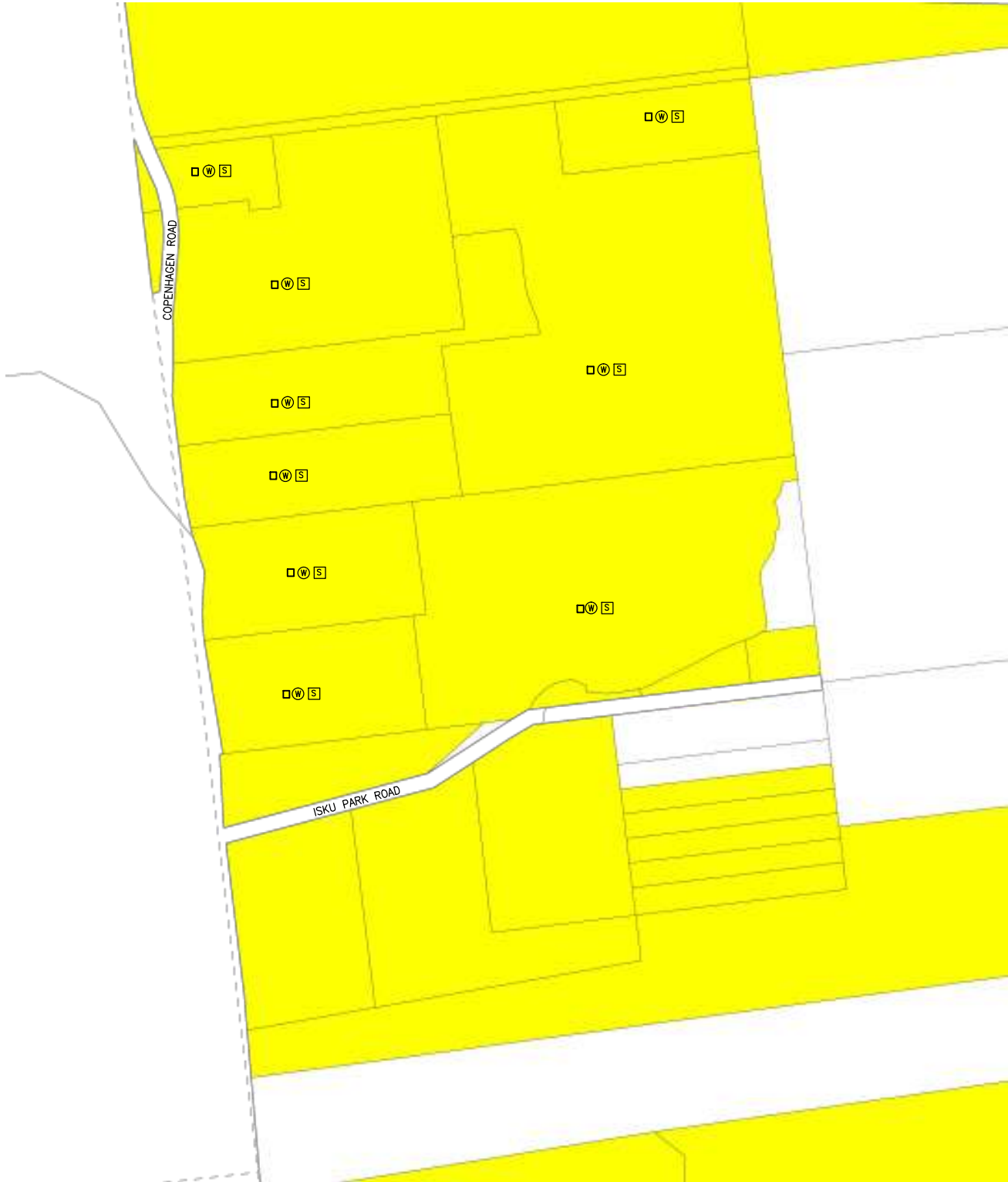
- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m²

0	17/11/03	ISSUED FOR FINAL REPORT	AGB	SB
NO.	YY/MM/DD	DESCRIPTION	DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE				
CLIENT:				
MUNICIPALITY OF SHUNIAH				
PROJECT:				
SERVICING OPTION MASTER PLAN DEVELOPMENT				
DWG. DESCRIPTION:				
SCHEDULES A18				
<b>KGS GROUP</b> CONSULTING ENGINEERS		DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31
		DESIGN CHECK:	SB	DATE: 16/10/31
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		DWG CHECK:	AGB	DATE: 16/10/31
		REV: 0		
DWG. NO. 16-0519-001 C21				

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

File Name: J:\FMS\16-0519-001\16-0519-001\_C22.dwg - Tab: C22 Plotted By: CMacDonald 17/10/31 [Tue 2:49pm]  
24"x36"/PLOT SCALE: 1"=1'



**SCHEDULE A19** NOTE: DISTANCE TO BARE POINT WATER TREATMENT PLANT = 9km.  
DISTANCE TO SEWAGE TREATMENT PLANT = 19km.

**LEGEND**

- YEAR ROUND RESIDENTIAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
  - YEAR ROUND RESIDENTIAL PROPERTY THAT MEETS SIZE REQUIREMENTS
  - \* RECREATIONAL PROPERTY THAT DOES NOT MEET SIZE REQUIREMENTS
- WATER SERVICES:
- ⊙ WELL
  - ⊙ LAKE INTAKE
  - ⊙ UNSPECIFIED WATER SERVICE
  - ⊗ PROPOSED COMMUNAL SEPTIC SYSTEM
- SANITARY SERVICES:
- ⊠ HOLDING TANK
  - ⊠ SANITARY SERVICES – SEPTIC
  - ⊠ UNSPECIFIED SEPTIC SERVICE

**PROPERTY CODES:**

- VACANT
- FARM
- RESIDENTIAL
- COMMERCIAL
- INDUSTRIAL
- INSTITUTIONAL
- SPECIAL PURPOSE
- GOVERNMENT
- ACCESS WAYS

NOTE: SIZE REQUIREMENTS ARE BASED ON MUNICIPALITY OF SHUNIAH ZONING BY-LAW.  
FRONTAGE >= 30m  
AREA >= 1800m²

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NO.	YY/MM/DD		DESCRIPTION			DESIGN BY	DESIGN CHECK
REVISIONS / ISSUE							
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MUNICIPALITY OF SHUNIAH							
PROJECT:							
SERVICING OPTION MASTER PLAN DEVELOPMENT							
DWG. DESCRIPTION:							
SCHEDULES A19							
<b>KGS GROUP</b> CONSULTING ENGINEERS			DESIGN BY:	AGB	DATE (YY/MM/DD): 16/10/31		
			DESIGN CHECK:	SB	DATE: 16/10/31		
			DRAWN BY:	CM	DATE: 16/10/31		
			DWG CHECK:	AGB	DATE: 16/10/31		
DWG. NO. 16-0519-001 C22						REV: 0	

**PRELIMINARY**  
NOT TO BE USED FOR CONSTRUCTION

## **APPENDIX C**

### **PROPOSED OFFICIAL PLAN POLICIES**

## **APPENDIX C: Proposed Official Plan Policies**

The following are a series proposed draft Official Plan policies intended to implement the findings and recommendations of the Servicing Options Master Plan. The appropriate section numbers, schedules numbers and cross-references are to be added as part of the overall Official Plan update process.

1. The Municipality of Shuniah is committed to creating a strong, prosperous and healthy community by ensuring all residents have equal opportunity for accessing safe drinking water. In order to achieve this aim, the Municipality will:
  - a. Work with the various Cottage Associations, as identified on Schedule X, to create freehold lands while respecting their unique characteristics;
  - b. Enhance efforts to inform residents and property owners on the importance of compliant water and wastewater treatment and the public health risks associated with contamination;
  - c. Establish a Local Drinking Water Protection Area and associated water and wastewater monitoring program;
  - d. Establish a Water and Wastewater Protection Area; and,
  - e. Designate the entire Municipality as a Community Improvement Project Area under Section 28 of the Planning Act, in order to implement future servicing upgrades and support other priority community investments.
  - f. Pursue Federal and Provincial funding opportunities to support future servicing infrastructure investments.
2. Local Drinking Water Protection Area
  - 2.1 The Local Drinking Water Protection Area (LDWPA) is characterized by residential development with highly variable water and waste-water services in the High Density Area, many of which do not meet current legislation and guidelines which protect human health.
  - 2.2 High Density Areas are those areas identified in the Servicing Options Master Plan where properties and/or buildings are tightly clustered together. They are shown on Schedule X.
  - 2.3 While there have not been any reported contamination issues, the LDWPA is subject to a 2-3 year water and wastewater monitoring program in partnership with the Province and Thunder Bay District Health Unit in



accordance with the recommendations of the Servicing Options Master Plan.

- 2.4 Until the results of the monitoring program are available, no further development is permitted (i.e. no Building Permits will be issued) in the LDWPA unless it can be demonstrated, to Council's satisfaction, that the proposed development will improve safe servicing in accordance with the Servicing Options Master Plan.
  - 2.5 Only sensitive uses are permitted in accordance with the current designation and Zoning By-law.
  - 2.6 The intent of the monitoring program is to identify specific areas where servicing upgrades are necessary.
  - 2.7 If servicing upgrades are necessary to address contamination/health issues, the preferred option(s) will be selected by the community through an engagement process based on the analysis and information provided in the Servicing Options Master Plan and outcomes of the monitoring program.
  - 2.8 If there are servicing upgrades which result in greater development potential, the Municipality may amend the Official Plan. Any increase in density will be accompanied by enhanced publicly-accessible shared amenity space.
3. Water and Wastewater Protection Area
    - 3.1 The Water and Wastewater Protection Area (WWPA) is delineated by a dotted line over groups of lots in the High Density Area. The dotted line encompasses the space that may be required for future communal servicing of existing lots that are undersized in relation to current health protection legislation and guidelines.
    - 3.2 Only temporary structures and uses which facilitate or will not impede potential communal servicing may be permitted inside the WWPA as determined by Council and in accordance with the Servicing Options Master Plan. A site visit will be required by Municipal Staff to establish site-specific location. The Zoning By-law will be updated to reflect the affected area.
    - 3.3 The WWPA will be removed by an Official Plan and Zoning By-law Amendment once the undersized lots in a single grouping (per the Report) are proven to be capable of safely supporting individual on-site services

(well and class IV septic) through either the Thunder Bay District Health Unit or a Hydrogeological Assessment Study, to the satisfaction of Council.

