

Report
Town of Newmarket, Project 2020-075

Master Plan Municipal Class Environmental Assessment Project File Report

Old Main Street Tertiary Plan Area

Prepared for Town of Newmarket
by IBI Group
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**Master Plan Municipal Class EA Project File Report
Old Main Street Tertiary Plan Area**

IBI Group (IBI) is pleased to provide our Final Project File Report for the Old Main Street Tertiary Plan Area Class Environmental Assessment (EA) Study.

Best Regards,

IBI GROUP

A handwritten signature in black ink, appearing to read 'CHill', written over a light blue horizontal line.

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1 Introduction

IBI Group Professional Services (Canada) Inc. (IBI Group) was retained by the Town of Newmarket (the Town) to undertake a Municipal Class Environmental Assessment (EA) Master Plan Study to examine the existing condition, capacity and any required improvements for water, wastewater, storm drainage and transportation infrastructure needed to support the Town's redevelopment plans and policies for the Old Main Street area. This study includes a review and analysis of the Main Street North existing road right-of-way in order to develop an urban cross-section to meet the Town of Newmarket's Engineering Design Standards and Criteria, the Old Main Street Tertiary Plan objectives and the Town's policies.

The Old Main Street Master Plan EA meets the requirements of Schedule B Class Environmental Assessment process (Class EA, October 2000, as amended in 2007, 2011 and 2015). This Master Plan addresses and satisfies Phases 1 and 2 in the Planning and Design Process of the Municipal Class EA.

The Master Plan EA is a follow-up study to the 2019 Tertiary Plan Study and builds on the land use strategy and policies developed in the Old Main Street Tertiary Plan. The purpose of the Old Main Street Tertiary Plan was to provide direction on the possibilities of redevelopment along Main Street North in accordance with the provisions of the Town's plans and policies, the York Region Official Plan and the Town of Newmarket Official Plan. The Tertiary Plan incorporated planning, transportation and servicing reviews and analysis of relevant background information, as well as a robust public and stakeholder consultation process. The recommendations and guiding principles of the Tertiary Plan Study are as follows:

- Respect the Natural Heritage System and existing topography
- Enhance landscaping and open space features
- Establish pedestrian connections and gateway features
- Enhance the design of Old Main Street
- Respect prevailing site design characteristics
- Respect prevailing building design and architectural characteristics

The Old Main Street Tertiary Plan was adopted by Council in April 2019 providing guidance to the overall pattern of development in the area. An Official Plan amendment bringing the Tertiary Plan into effect was also adopted by Council in April 2019. The Old Main Street Master Plan EA has been undertaken in support of the Tertiary Plan, and consequently utilizes the land use, density, stormwater management, low impact development (LID), servicing infrastructure, transportation, and natural heritage policies established through the Tertiary Plan process.

1.1 Historical Report and Policies

The following contains a description of the findings and recommendations of relevant historical reports and policies which govern land use and servicing of the Study Area.

York Region Official Plan (2010) and Newmarket Official Plan (2008)

The York Region Official Plan, adopted in 2010, and Town of Newmarket Official Plan, adopted in 2008 and consolidated in September 2014, provide a framework for comprehensive, integrated, place-based and long-term planning that supports and integrates the principles of strong communities, a clean and healthy environment and economic growth, for the long term. York Region initiated a Municipal Comprehensive Review Update in 2020 to update its Official Plan. Town of Newmarket Official Plan Amendment No. 22 (OPA22) redesignated land use within the Study Area to implement the Old Main Street Tertiary Plan.

Municipal Zoning By-Law 2010-40 (Consolidation Nov 2018)

The purpose of the Town of Newmarket's Zoning By-Law is to implement the policies of the Official Plan. The Official Plan contains general policies that affect the use of land throughout the municipality. The role of the zoning by-law is to regulate every aspect of the built-form on a private lot.

Newmarket Engineering Design Standards and Criteria (2015)

The Town of Newmarket has consolidated its engineering design standards and criteria that govern the design and construction of new infrastructure. The Town's criteria cover general requirements as well as specific requirements for roads and transportation, storm drainage and stormwater management, watermain and appurtenances, sanitary sewers and appurtenances, lot grading, utilities and street lighting and easement requirements. These design standards and criteria were used to assess the adequacy of existing systems as well as to identify requirements for future. A summary of the relevant design standards and criteria is provided in **Appendix C**.

Provincial Policy Statement (PPS) (2020)

The PPS sets the policy foundation for regulating land use and development of provincial lands.

Growth Plan for the Greater Golden Horseshoe (Consolidation Aug 2020)

The Growth Plan provides a framework for implementing Ontario's vision for building complete communities that are compact, transit-supportive, protect agricultural and natural lands, and make efficient investments in infrastructure and public service facilities.

Urban Centres Secondary Plan - OPA10 (Consolidation Aug 2021)

The Newmarket Urban Centres Secondary Plan applies to an area located along the Davis Drive and Yonge Street Corridors. This plan updated the Official Plan Land Use categorization through these corridors and identified planning requirements for redevelopment of these lands. The Urban Centres Secondary Planning Area is where most of the future population growth for Newmarket will be located. It is noted that the Study Area for this study is outside of the Urban Centres Secondary Plan Area.

Old Main Street Tertiary Plan (2019)

The Old Main Street Tertiary Plan provided direction on the possibilities of redevelopment along Main Street North. The Tertiary Plan incorporated planning, transportation and servicing reviews and analysis of relevant background information, as well as a robust public and stakeholder consultation process. The Old Main Street Tertiary Plan forms part of an amendment to the Town of Newmarket Official Plan and will be used to inform an amendment to the Town of Newmarket Zoning By-Law.

As part of the Old Main Street Tertiary Plan Study, an Infrastructure and Natural Heritage Background Study was completed. This report defined existing servicing policies and identify existing servicing constraints.

Newmarket Water & Wastewater Master Plan (2017)

The 2017 Water and Wastewater Master Plan is a long-term plan that identified system improvements and/ or expansion to the Town's local water distribution and wastewater collection systems to meet servicing demands to 2041.

Newmarket Active Transportation Implementation Plan Report (2018)

The 2018 Active Transportation Implementation Plan (ATIP) included development of a complete, efficient, and accessible active transportation network. The ATIP was a follow-up study to the 2014 Active Transportation Study (ATS). The study identified active transportation connectivity opportunities to support walking and cycling as an attractive and viable mode of transportation for both recreational and commuter purposes.

Oak Ridges Moraine Conservation Plan (2017)

This plan is a policy framework for protecting the integrity of the Oak Ridges Moraine's key natural, hydrological and landform features. Municipal planning decisions are required to conform to this conservation plan, which prevails over municipal official plans.

Lake Simcoe Protection Plan (Ontario, 2009)

The Lake Simcoe Protection Plan (LSPP) was prepared in 2009 to protect, improve or restore elements that contribute to the ecological health of the Lake Simcoe watershed, including water quality, hydrology, key natural heritage features and their functions and key hydrologic features and their functions. The plan was designed to ensure the maintenance of a self-sustaining coldwater fish community in Lake Simcoe. The plan consists of targets, indicators and policies to address key policy themes of aquatic life, water quality, shorelines and natural heritage, other threats and activities including invasive species, climate change and recreation and implementation. The LSPP is intended to be considered in conjunction with the PPS, the Greenbelt Plan, the Growth Plan for the Greater Golden Horseshoe, the Oak Ridges Moraine Conservation Plan, the Clean Water Act, the Ontario Water Resources Act, the Conservation Authorities Act the Environmental Protection Act, the Public Lands Act and the Planning Act. The LSPP requires municipalities to prepare and implement a comprehensive stormwater management master plan.

Newmarket Comprehensive Stormwater Management Plan (2017)

The Town of Newmarket prepared the Newmarket Comprehensive Stormwater Management Plan in 2017 to provide an integrated assessment of existing and proposed/future conditions with respect to stormwater management. This study considered the LSPP requirements to develop recommendations. The study concluded with recommendations for improvements to existing stormwater management facilities, implementation of roadway cut and no curb systems where feasible to allow roadway runoff to be conveyed to planted systems or infiltration areas, installation of road oil grit separators, where feasible, as part of road reconstruction projects, stream corridor restoration, installation of LIDs on Town owned facilities and public education and engagement to encourage sustainable practices and stormwater management throughout the community. Where feasible, LID measures including bioswales, infiltration galleries, rain gardens, soil cells, permeable pavements are encouraged.

2 Study Area Description

The Study Area is located in the Town of Newmarket within the Regional Municipality of York and is comprised of properties that front onto Main Street North between Bexhill Crescent to the south and Old Main Street to the north. The Study Area is bounded by the Main Street North By-Pass to the southeast, Old Main Street to the north, the St. John Cemetery to the west and Bexhill Crescent to the south.

A rail corridor and the East Branch Holland River are located immediately south east of the Study Area. **Figure 2-1** presents the subject lands.

The following sections provide information on the Study Area including existing land use, future land use, and natural heritage features within the Study Area.

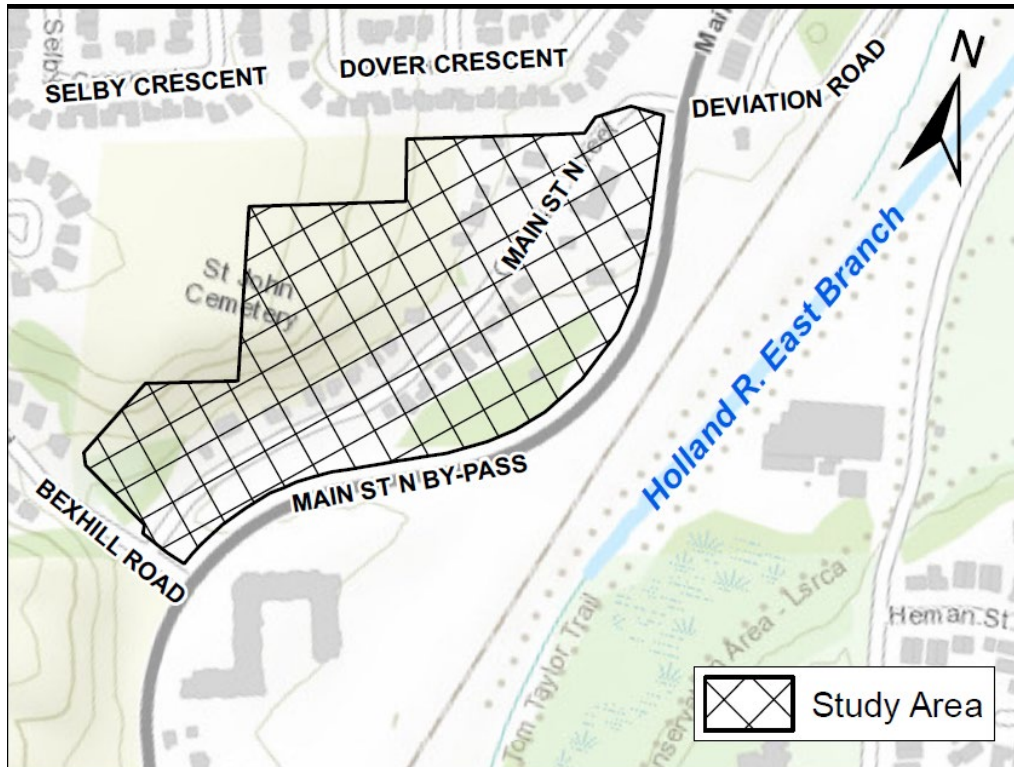


Figure 2-1 Study Area

2.1 Existing and Future Land Use

The character of the Main Street North neighbourhood has been influenced by a number of historic and spatial elements which combine to create a distinct 'sense of place'. Residents reported that the neighbourhood creates the feeling of living in a quiet, family-friendly rural village, despite proximity to Downtown Newmarket.

Main Street North was constructed prior to implementation of modern engineering and planning standards. Individual properties vary in size with some housing stock constructed over a long period of time. Several buildings are located within the regulatory floodplain of the East Holland River.

The Study Area was designated a 'Stable Residential Area' in Schedule A of the Town of Newmarket's 2016 Official Plan. The objective of the Stable Residential Areas policies is to sustain and enhance the character and identity of existing residential communities. Official Plan Amendment 22 (OPA22) re-designated the 'Stable Residential Area' land use classification to 'Natural Heritage System' designation and Tertiary Plan 'Residential' designation.

All municipally addressed properties along Main Street North, are privately owned and are comprised of single detached dwellings, with some accessory units. The land to the southern-most extent is publicly owned by the Town and is used by local residents and

functions as a component of the local existing stormwater management system and is utilized as an informal recreational and open space. The meandering nature of Main Street North and the mature tree canopy are central to the character of the neighbourhood. The tree canopy establishes a sense of enclosure and buffers the community from Old Main Street Bypass and the adjacent rail corridor.

The Study Area is located within direct walking distance from transit stations and terminals, including the Newmarket GO Station and a VIVA bus rapid transit stop. The Study Area also includes large and/or contiguous properties that are under-utilized, which classifies this community as an intensification area. There is increased interest in redeveloping some of the larger properties along Main Street North.

The Old Main Tertiary Plan was implemented in OPA22. Tertiary Plan lands were redesignated to new land use classifications, which are shown in **Figure 2-2**. Most properties within the Study Area were redesignated from 'Stable Residential' to the Tertiary Plan 'Residential' designation to allow for intensification. Limited intensification can still occur in stable residential neighbourhoods. New lots are to be compatible with the scale of the surrounding neighbourhood, be physical suitable to accommodate the proposed infill housing and have available hard services and road access requirements.

Opportunities exist to renew the neighbourhood, and expand upon the existing sense of community, through the introduction of new residents and families. Intensification is envisioned to occur through local infill development and the creation of accessory dwelling units.

2.1.1 Future Population

The Town has received a total of four recent development applications for properties in the Study Area. **Figure 2-3** presents the location of these recent development applications.

The existing population of the Study Area was estimated based on the 24 single family dwellings located in the Study Area and the Town's person per unit value of 3.8, resulting in an existing population estimate of 82 persons. There are no employment lands within the Study Area.

The future population was estimated based on OPA22 and Zoning By-Law 2010-40. A future buildout population of 569 persons was estimated for infrastructure planning purposes. An email from the Town's Planning Department confirming that this estimate was buildout population can be found in **Appendix A**. **Table 2.1** summarizes key land use and population information for the Study Area.

Table 2.1 Existing and Future Population Estimates

AREA	NUMBER OF LOTS	EXISTING POPULATION	BUILD-OUT POPULATION
Study Area	24	81	569

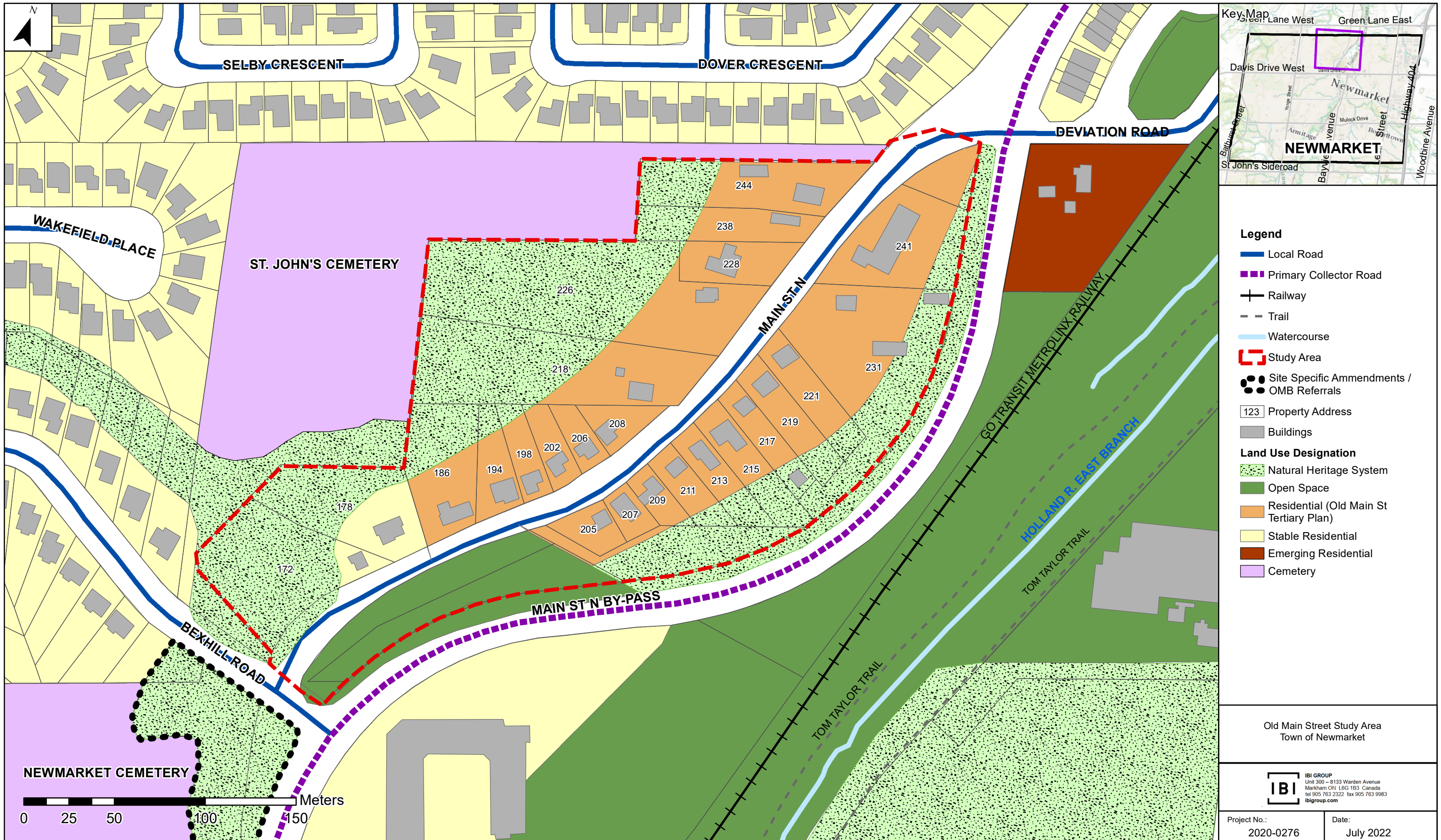
2.2 Park, Open Space and Natural Heritage Features

The following sections describe existing natural heritage features and also includes information on public open space, conservation areas and trails. Assessment of existing natural heritage features was completed as part of the Old Main Street Tertiary Plan Study and was documented in the Infrastructure and Natural Heritage Background Study (Dillon Consulting, 2018). **Figure 2-4** presents the location of parks, open space and natural heritage features.

2.2.1 Public Open Space

There are public open space lands within the Study Area as shown in **Figure 2-4**. Publicly owned lands along the east side of Main Street North, immediately north of Bexhill Crescent, function as informal open space commonly used by local residents for active and passive recreational activities.

Figure 2-2 Existing and Future Land Use Designations



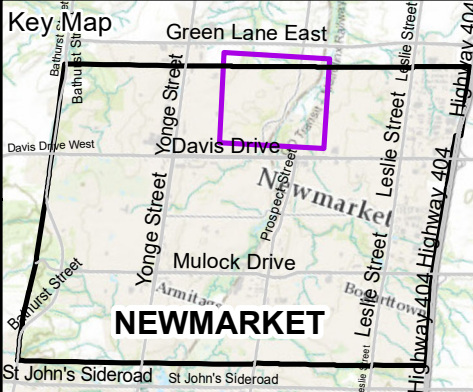
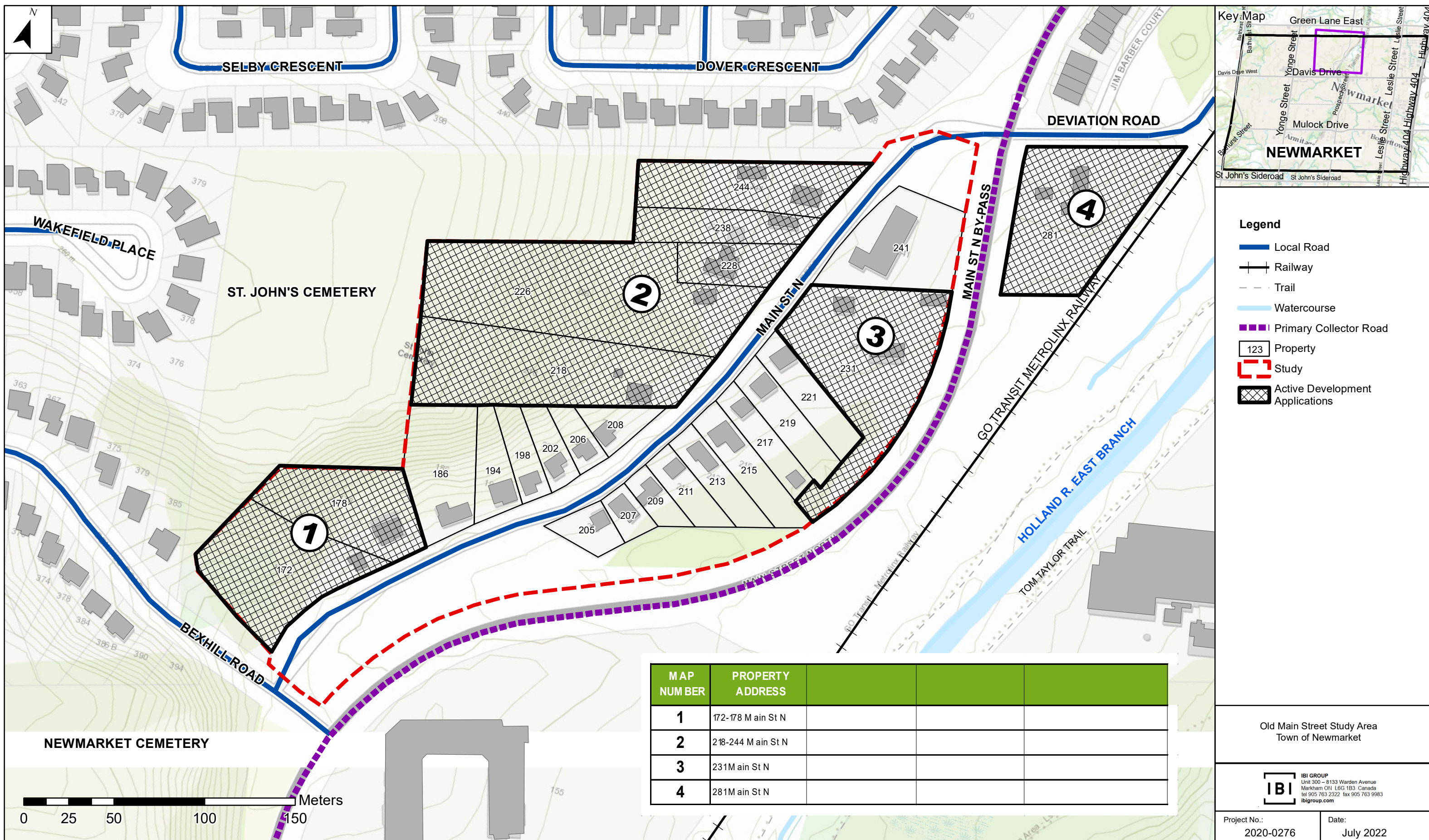
- Legend**
- Local Road
 - - - Primary Collector Road
 - + + + Railway
 - - - Trail
 - Watercourse
 - - - Study Area
 - ● ● Site Specific Ammendments / OMB Referrals
 - 123 Property Address
 - Buildings
- Land Use Designation**
- Natural Heritage System
 - Open Space
 - Residential (Old Main St Tertiary Plan)
 - Stable Residential
 - Emerging Residential
 - Cemetery

Old Main Street Study Area
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Figure 2-3 Active Development Applications



- Legend**
- Local Road
 - +— Railway
 - - - Trail
 - Watercourse
 - - - Primary Collector Road
 - 123 Property
 - Study
 - Active Development Applications

MAP NUMBER	PROPERTY ADDRESS			
1	172-178 Main St N			
2	218-244 Main St N			
3	231 Main St N			
4	281 Main St N			

Old Main Street Study Area
Town of Newmarket

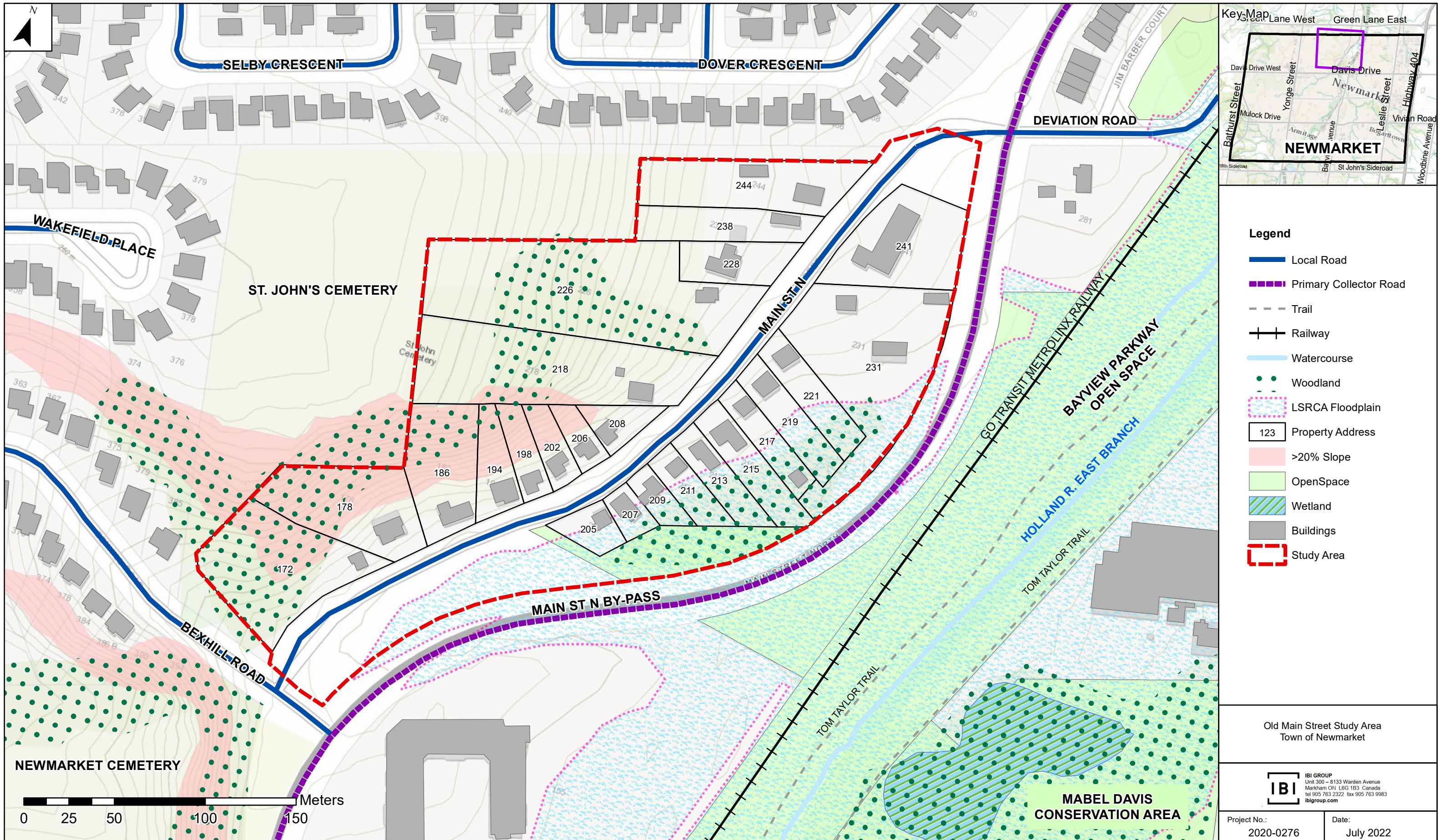


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Figure 2-4 Natural Heritage Features and Regulatory Floodplain



Old Main Street Study Area
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2.2.2 Conservation Areas and Trails

The Mabel Davis Conservation Area consists of 7ha of parkland, trails and waterways and is located east of the Study Area, as shown in **Figure 2-4**. The 1,400 meters of trails in this conservation area are part of a larger municipal trail system, the Nokiidaa Trail, which is connected to other conservation areas in Newmarket, East Gwillimbury and Aurora. The Tom Taylor and Nokiidaa Bicycle Trails run along either side of the East Holland River, immediately east of the Study Area. Trail access is provided by Deviation Road (north of the Study Area) and the Newmarket GO station (south of the Study Area). The trail system provides connections to a broader park and open space network.

2.2.3 Significant Woodland Area

Figure 2-4 presents the location of natural heritage features in the Study Area and shows the location of woodlot areas. There is one existing designated woodlot feature located in the southwestern portion of the Study Area (172 – 178 Main Street North). There are also several existing treed areas, located at the rear yards of properties on the east side of Main Street North.

2.2.4 Species at Risk

The Study Area does not overlap with established Natural Heritage Information Centre (NHIC) squares, and as such, there is no specific tracking of Species-at-Risk (SAR) within the Study Area (*Infrastructure & Natural Heritage Background Study, Dillon 2018*). However, there are five areas located within the vicinity of the Study Area with suitable habitat for SAR. **Table 2.2** provides information on potential SAR in the vicinity of the Study Area along with information on habitat.

Table 2.2 Species-at-Risk with Potential to Occur within the Study Area

SCIENTIFIC NAME	COMMON NAME	SARA	ESA	S-RANK ¹	INFO SOURCE ²	POTENTIAL HABITAT IN THE STUDY AREA
VASCULAR PLANTS						
Juglans cinera	Butternut	END	END	S3?	---	This species has the potential to occur in moist to moderately dry areas with well-drained, rich soils.
BIRDS						
Chaetura pelagica	Chimney Swift	THR	THR	S4B, S4N	OBBA	This species has the potential to be found in urban areas near buildings and is less likely nesting in hollow trees or chimneys.
Hirundo rustica	Barn Swallow	---	THR	S4B	MNRF, OBBA	This species has the potential to nest in buildings or other man-made structures.
MAMMALS						
Myotis lucifugus	Little Brown Myotis	END	END	S4	OMA	This species has the potential to roost in hollow trees or buildings.
Myotis septentrionalis	Northern Myotis	END	END	S3	OMA	This species has the potential to roost in houses, man-made structures, and hollow trees or under loose bark.

¹S-rank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5, with 5 being very common and 1 being the least common.

²Information sources include: MNRF = Ministry of Natural Resources and Forestry; OBBA = Ontario Breeding Bird Atlas; OMA = Ontario Mammals Atlas; --- denotes no information or not applicable.

2.2.5 Fish Habitat

There are no watercourses within the Study Area, however the East Holland River is located 100m east of the Study Area and receives stormwater runoff from the Study Area. The Lake Simcoe Region Conservation Authority (LSRCA) has extensive records of fish data collected in the East Holland River Watershed (*East Holland River Subwatershed Report, LSRCA 2010*). A total of 35 species have been captured within the East Holland River from 1930 to 2007 and are summarized in in **Table 2.3**.

Table 2.3 Fish Species Identified in LSRCA Surveys from 1930 -2007

COMMON NAME	SCIENTIFIC NAME	PROVINCIAL/ S RANK	COSEWIC
Black Crappie ^a	<i>Pomoxis nigromaculatus</i>	S4	-
Blackchin Shiner	<i>Notropis heterodon</i>	S4	NAR
Blacknose Dace	<i>Rhinichthys atratulus</i>	S5	-
Blacknose Shiner	<i>Notropis heterolepis</i>	S5	-
Bluegill	<i>Lepomis macrochirus</i>	S5	-
Bluntnose Minnow	<i>Pimephales notatus</i>	S5	-
Bowfin	<i>Amia calva</i>	S4	-
Brassy Minnow	<i>Hybognathus hankinsonii</i>	S5	-
Brook Stickleback	<i>Culaea inconstans</i>	S5	-
Brook Trout	<i>Salvelinus fontinalis</i>	S5	-
Brown Bullhead	<i>Ameiurus nebulosus</i>	S5	-
Central Mudminnow	<i>Umbra limi</i>	S5	-
Common Carp ^b	<i>Cyprinus carpio</i>	-	-
Common Shiner	<i>Luxilus cornutus</i>	S5	-
Creek Chub	<i>Semotilus atromaculatus</i>	S5	-
Emerald Shiner	<i>Notropis atherinoides</i>	S5	-
Fathead Minnow	<i>Pimephales promelas</i>	S5	-
Golden Shiner	<i>Notemigonus crysoleucas</i>	S5	-
Goldfish ^b	<i>Carassius auratus</i>	-	-
Greenside Darter	<i>Etheostoma blennioides</i>	S4	NAR
Iowa Darter	<i>Etheostoma exile</i>	S5	-
Largemouth Bass	<i>Micropterus salmoides</i>	S5	-
Longnose Dace	<i>Rhinichthys cataractae</i>	S5	-
Mottled Sculpin	<i>Cottus bairdii</i>	S5	-
Northern Pike	<i>Esox Lucius</i>	S5	-
Northern Redbelly Dace	<i>Phoxinus eos</i>	S5	-
Pumpkinseed	<i>Lepomis gibbosus</i>	S5	-
Rainbow Darter	<i>Etheostoma caeruleum</i>	S4	-
Redside Dace ^c	<i>Clinostomus elongatus</i>	S2	END
Rock Bass	<i>Ambloplites rupestris</i>	S5	-
Sand Shiner	<i>Notropis stramineus</i>	S4	-
Slimy Sculpin	<i>Cottus cognatus</i>	S5	-
Spottail Shiner	<i>Notropis hudsonius</i>	S5	-
Yellow Perch	<i>Perca flavescens</i>	S5	-
White Sucker	<i>Catostomus commersonii</i>	S5	-

Notes:
 Non-native species
 Non-native invasive species
 Endangered species
 S-rank: The Natural Heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. Definitions are as follows:
 S1 – Extremely rare in Ontario; usually 5 or fewer occurrences in the province or very few remaining individuals
 S2 – Very rare in Ontario; usually between 5 and 20 occurrences in the province or with many individuals in fewer occurrences
 S3 – Rare to uncommon in Ontario; usually between 20 and 100 occurrences in the province
 S4 – Common and apparently secure in Ontario; usually with more than 100 occurrences in the province
 S5 – Very common and demonstrably secure in Ontario
 SX – Extirpated from Ontario

Species at Risk are those species designated as Threatened or Endangered by the Status of Species at Risk in Ontario (COSSARO) and are protected under the Endangered Species Act 2007 (ESA).
 COSEWIC – Committee on the Status of Endangered Wildlife in Canada; NAR – not at risk; END – endangered
 Reference – East Holland River Subwatershed Report (LSRCA, 2010a); Upper York Sewage Solutions Environmental Assessment, Natural Environment Baseline Conditions Report (CRA et al., 2013)

2.3 Regulatory Floodplan

The Study Area is located in the East Holland River watershed which is located in the southwest portion of the Lake Simcoe watershed. This subwatershed extends from the Oak Ridges Moraine in the south to Lake Simcoe in the north. According to the LSRCA, the East Holland watershed is the most populated and environmentally degraded region of the Lake Simcoe watershed (East Holland River Subwatershed Report LSRCA, 2010a). The watershed is one of the most urbanized watersheds in the Lake Simcoe watershed with 27% of the area identified as urban area.

LSRCA provided regulatory flood limits for the Study Area. The regulatory floodplain is defined by the flood level corresponding to the Hurricane Hazel Regional Storm Event

(285mm of rain in 48 hours in October 1954). The regulatory flood line is periodically updated by LSRCA to reflect changes to the river morphology, hydraulic structures, and changes in topography and land use in the contributing watershed. The current regulatory floodplain was last updated in 2015.

Ten of the properties on the east side of Main Street North (Lots 205, 207, 209, 211, 213, 215, 217, 219, 221, and 231) and the open space in the southeast corner of the Study Area are partially located within the regulatory floodplain. **Figure 2-4** shows the extent of the regulatory floodplain limits. New development and site alterations within the limit of the floodplain plus a 30m setback are subject to Ontario Regulation 179/06 under the Conservation Authorities Act, 1990 and require approval from LSRCA.

2.4 Existing Area Topography

To support this project, a detailed topographical survey was completed and combined with LiDAR data provided by the Town. The survey picked up the location of the road centerline, edge of pavement, profile elevations and sag points along Main Street North, as well as existing sidewalks, culverts, maintenance holes, valve chambers, fire hydrants, overhead utilities, property and rail fences, retaining walls, edge of trees and hedges and other landscape features.

The survey confirmed elevations of underground infrastructure including inverts of all maintenance holes. Elevations of key storm drainage system features were also confirmed including inverts and sizes of all driveway and road culverts, ditch and swale inverts, intermittent watercourses and the Main Street By-Pass ditch.

2.5 Geotechnical and Hydrogeological Investigations

Geotechnical and hydrogeological investigations were completed to assess the subsurface soil and groundwater conditions and to provide information to support the development of alternatives. The following subsections summarize the findings of the investigations.
Subsurface Conditions

To assess existing subsurface conditions, a total of seven boreholes were located within the Study Area. The borehole samples were used to characterize soil types and determine soil hydraulic conductivity. **Figure 2-5** presents the location of the boreholes. It is noted that four boreholes (BH1, BH2, BH3 and BH4) were located within the pavement of Main Street North while three boreholes (BH5A, BH5B and BH6) were located in the open space area at the southeast corner of the Study Area.

The general subsurface stratigraphy generally comprised surficial topsoil and paving material (asphaltic concrete) overlying fill materials which are underlain by clayey silt or silt till, with occasional seams of sand layer in between. A surficial topsoil or asphaltic concrete (depending on the location of the borehole) layer was encountered at the boreholes with thicknesses varying between 50mm and 150mm.

Surficial fill materials, consisting generally of moist sand (78%) and clayey silt (13%), extended to depths ranging from 1.5m to 3.0m below the topsoil. The moisture content of the fill materials varied between 2% and 38%.

A variety of native sandy silt, silty sand, and gravelly sand layers were encountered below the fill material at different boreholes. Underlying these layers, a native silt till stratum was encountered extending to the borehole termination depth.

2.5.1 Groundwater Conditions

Groundwater conditions were recorded using piezometers installed at five borehole locations. A summary of long-term groundwater levels and depths is presented in **Table 2.4**. It is noted that groundwater levels are high in the Study Area and recorded at between 0.6m below the ground surface to 3.5m below the ground surface. A high groundwater table does limit the feasibility of both infiltration based and filtration based LID stormwater management measures.

Table 2.4 Groundwater Level Readings

BOREHOLE NUMBER	APPROXIMATE GROUND SURFACE ELEV.	HYDROSTATIC GROUNDWATER LEVEL ELEV. (DEPTH) May 31, 2021
BH3	237.85m	234.4m (3.5m from top of asphalt)
BH4	237.82m	236.5m (1.3m from top of asphalt)
BH5A	235.21m	233.7m (1.5m from ground elev)
BH5B	235.13m	233.5m (1.6m from ground elev)
BH6	233.12m	232.6m (0.6m from ground elev)

2.6 Existing Archaeological Conditions

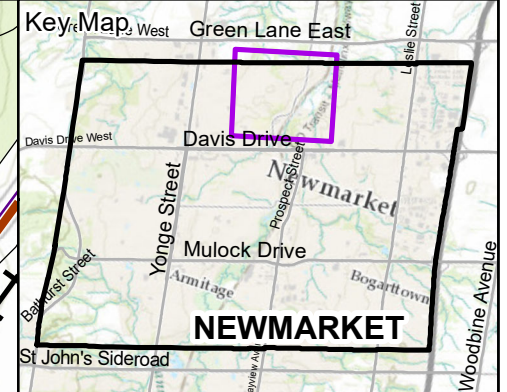
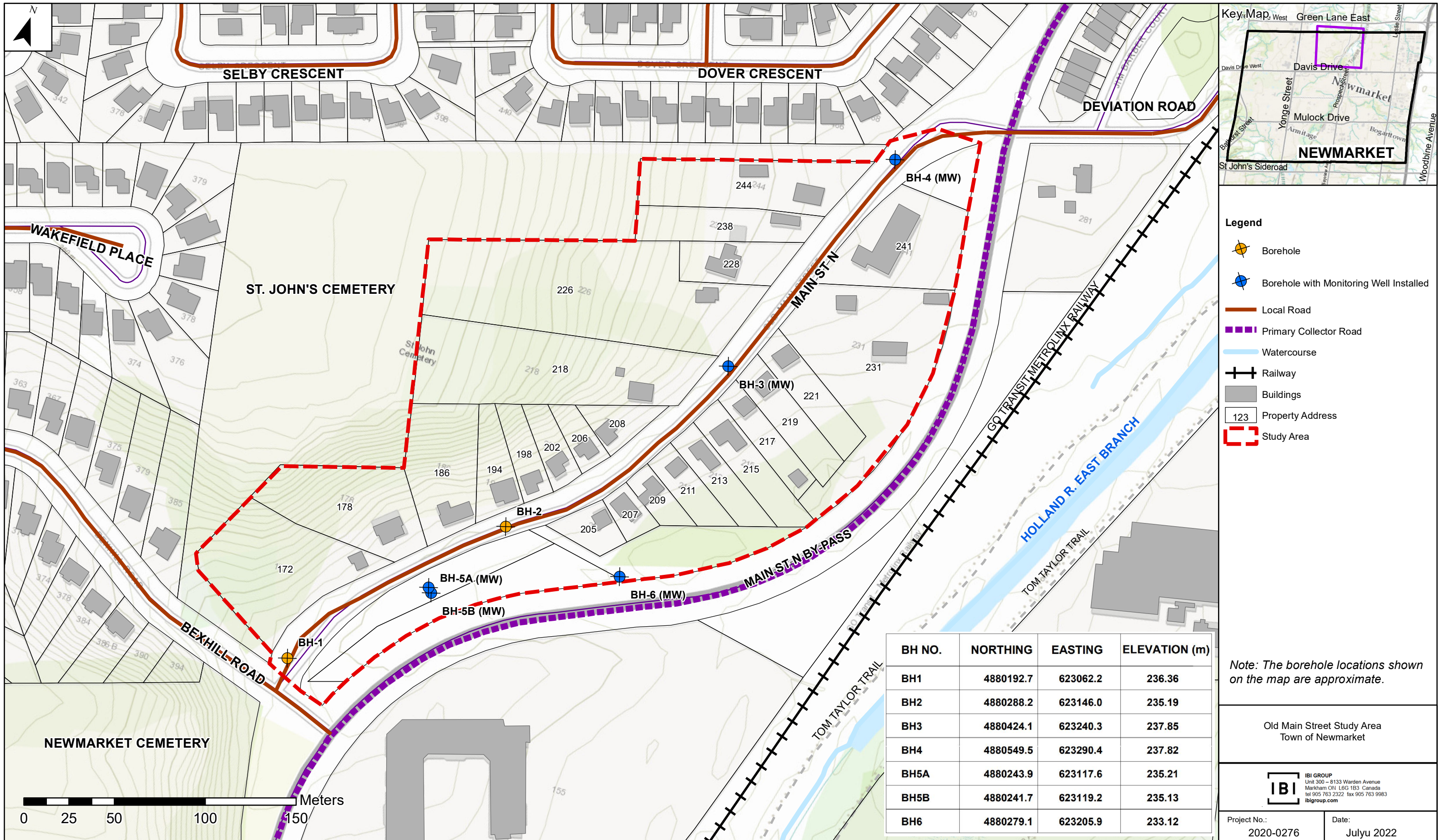
A Stage 1 Archaeological Assessment was completed by Archaeological Services Inc. (ASI) in support of this project. The assessment considered indigenous land use and settlement, oral histories as provided by the Curve Lake First Nation and Huron Wendat Nation, post-contact settlement, a map review, a review of aerial and orthoimaginery, archaeological context, previously completed archaeological inspections and an inspection of the property to assess the archaeological potential of the Study Area. **Appendix D** contains the completed report. Key findings of the report are as follows:

- One previously registered archaeological site was identified as located within 1km of the Study Area. St. John's Cemetery is located immediately adjacent to the Study Area and Newmarket Cemetery is located 20m from the Study Area.
- The property inspection determined that parts of the Study Area exhibit archaeological potential and will require a Stage 2 assessment. Figure 2-6 presents the results of the Stage 1 archaeological assessment.

The assessment recommended the following:

- Lands identified as having archaeological potential require a Stage 2 archaeological assessment by test pit survey at 5m intervals, where appropriate. The Stage 2 is required prior to any proposed construction activities.
- St. John's Cemetery is immediately adjacent to the Study Area and must be avoided by any proposed construction impacts. There is a low potential for burials outside of the documented legal cemetery property limits. Stage 3 cemetery investigation is not recommended within the Study Area.
- Newmarket Cemetery is located 20m south of the Study Area and must be avoided by all proposed construction impacts.
- The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, or slopes in excess of 20 degrees. These lands do not require further archaeological assessment.
- Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

Figure 2-5 Borehole and Monitoring Well Locations



- Legend**
- Borehole
 - Borehole with Monitoring Well Installed
 - Local Road
 - Primary Collector Road
 - Watercourse
 - Railway
 - Buildings
 - Property Address
 - Study Area

BH NO.	NORTHING	EASTING	ELEVATION (m)
BH1	4880192.7	623062.2	236.36
BH2	4880288.2	623146.0	235.19
BH3	4880424.1	623240.3	237.85
BH4	4880549.5	623290.4	237.82
BH5A	4880243.9	623117.6	235.21
BH5B	4880241.7	623119.2	235.13
BH6	4880279.1	623205.9	233.12

Note: The borehole locations shown on the map are approximate.

Old Main Street Study Area
Town of Newmarket

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Project No.: 2020-0276 Date: Julyu 2022

Figure 2-6 Stage 1 Archaeological Assessment – Old Main Street
Regional Municipality of York



3 Master Planning Process

The planning of major municipal projects or activities is subject to the Ontario Environmental Assessment Act, R.S.O. 1990, and requires the proponent to complete an Environmental Assessment, including an inventory and description of the existing environment in the area affected by the proposed activity.

The Class EA process was developed by the Municipal Engineers Association, in consultation with then Ministry of the Environment (MOE), now Ministry of Environment, Conservation and Parks (MECP) as an alternative to individual Environmental Assessments for recurring municipal projects that were similar in nature, usually limited in scale, and with a predictable range of environmental effects which were responsive to mitigating measures.

A Class EA Master Plan is a long-range plan that ties together the various needs of an overall system and is typically comprised of a set of separate projects that can be individually implemented over an extended period of time. A Master Plan considers the individual needs of a system within a broader context, and integrates infrastructure needs with environmental assessment planning principals. Master Plans address Phase 1 and 2 of the Municipal Class EA process and include a stakeholder consultation program. **Figure 3-1** illustrates the Class EA planning flowchart.

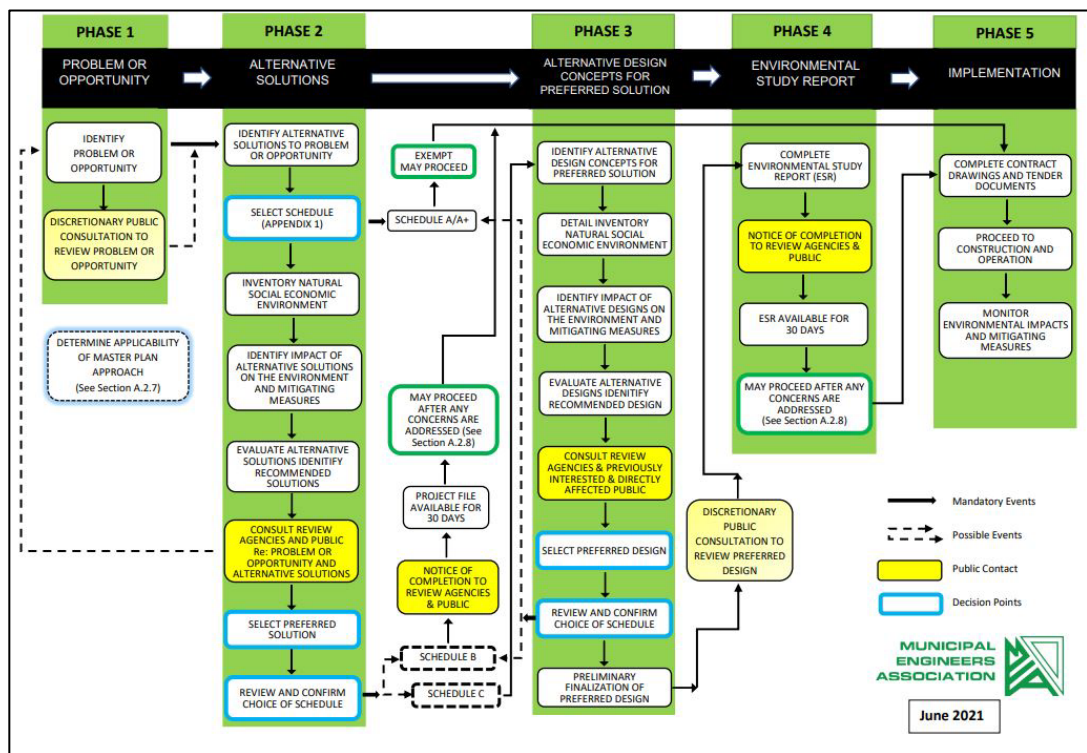


Figure 3-1 Municipal Class EA Planning Process

A Master Plan is typically subject to the approval of the municipality for which it was prepared. Prior to being approved, a clear and concise Master Plan report is made available for public comment. A Master Plan is finalized and approved following consideration of any public comment. A Master Plan also contains details on the timing of periodic updates.

The individual projects recommended under a Master Plan may be categorized as Schedule 'A', Schedule 'A+', Schedule 'B' or Schedule 'C' under the Municipal Class EA process. At the time that the individual projects included in the Master Plan are to be implemented, they are subject to the requirements of the Municipal Class EA process. For all projects identified within a Master Plan, the work undertaken during the development of the Master Plan can be used in support of the requirements of Phases 1 and 2 of the Municipal Class EA. For Schedule 'C' projects, further assessment would be needed and proponents are required to complete Phases 3 and 4 of the EA process.

For example, if an individual project is to be implemented and it is a Schedule 'C' project under the Municipal Class EA process, the work undertaken during the development of the

Master Plan can be used in support of the requirements of Phases 1 and 2 of the Municipal Class EA. It would be necessary to fulfil the additional requirements of Phases 3 and 4 of the Class EA process in order to consider the project specific issues that were beyond the scope of the Master Planning process.

For reference, the Class EA process provides for the following designations for projects depending upon potential impacts.

Schedule A: Projects are limited in scale, have minimal adverse environmental effects and include a number of municipal maintenance and operational activities. These projects are pre-approved. Schedule A projects generally include normal or emergency operational and maintenance activities.

Schedule A+: Projects are within existing buildings, utility corridors, rights-of-way, and have minimal adverse environmental effects. These projects are pre-approved; however, the public is to be notified prior to project implementation.

Schedule B: Projects have the potential for some adverse environmental effects. The proponent is required to undertake a screening process, involving mandatory contact with directly affected public and relevant review agencies, to ensure they are aware of the project and that their concerns are addressed. If there are no outstanding concerns, then the proponent may proceed to implementation. Schedule B projects generally include improvements and minor expansions to existing facilities.

Schedule C: Projects have the potential for significant environmental effects and must proceed under the full planning and documentation procedures specified in the Class EA document. Schedule C projects require that an Environmental Study Report be prepared and filed for review by the public and review agencies. Schedule C projects generally include the construction of new treatment facilities and major expansions to existing treatment facilities.

This Study followed Master Plan Approach 2, which involves the preparation of a Master Plan document at the end of Phases 1 and 2 of the Municipal Class EA process where the level of investigation, consultation and documentation are sufficient to fulfil the requirements for Schedule B projects. Accordingly the final public notice for the Master Plan can be considered to be the Notice of Completion of the Schedule B projects within it. Any Schedule C projects would require completion of Phases 3 and 4 of the EA process and filing of an Environmental Study Report (ESR).

The focus of Phase 1 of the EA process is to identify a problem or opportunity statement. Phase 2 of the EA Process is focused on the development and evaluation of alternatives to address the problem or opportunity statement identified in Phase 1. Phase 2 work involves development of alternatives, evaluation of alternatives, consultation and the selection of a preferred solution.

These steps are documented in the following sections of this Master Plan Project File Report. This document is intended to act as a summary report, documenting Phase 1 and 2 of the Class EA for identified Schedule 'A', 'A+' and 'B' projects. The Project File Report will be available for the mandatory 30-day public review by the public and agencies.

3.1 Public, Agency and First Nations Consultation

The public, agency and First Nations consultation program undertaken for this study included the following:

- A mailing list was created for the study. It included all review agency contacts, local residents who expressed interest in the project, all members of the public who requested to be added via telephone, email were included.
- A Notice of Project Commencement was placed in the Newmarket Era on March 18, 2021 and on March 25, 2021 and uploaded onto the Town's website.
- A Notice of Virtual Public Information Centre (PIC) was uploaded to the Town's website, sent to all parties on the project mailing list and hand delivered to all properties in the Study Area approximately one week prior to the PIC. The Notice was placed in the Newmarket Era on March 31, 2022.

- A Virtual Public Information Centre was held on April 12, 2022, which included a formal presentation along with a question and answer session. The session was recorded and formal notes of the meeting were prepared.
- A consultation meeting was held with the Lake Simcoe Region Conservation Authority (LSCRA) on March 7, 2022.
- Emails containing the Notice of Project Commencement and the Notice of PIC were sent to several First Nations including the Chippewas of Georgian Island, Curve Lake First Nation, Chippewas of Rama First Nation, Beausoleil First Nation, the Mississaugas of Scugog First Nation, and the Metis Nation of Ontario. Each email also included an invitation to meet with the Study Team.
- Central York Fire Services (CYFS) were consulted on the issue of the proposed pavement width.
- Metrolinx was also consulted directly on the issue of the stormwater management.
- A meeting was held with Curve Lake First Nation on December 20, 2022. In advance of the meeting, the Stage 1 Archaeological Assessment was shared. At the meeting, the development and evaluation of alternatives and the recommended preferred solution discussed and input was received. Curve Lake First Nation provided written comments and the Town has responded to the comments received.

Copies of all public consultation related materials and correspondence can be found in **Appendix A**.

4 Existing Condition Assessment

The following sections present information on the existing stormwater management, water and sanitary systems and existing transportation system and summarize the assessment of existing conditions and identification of system constraints.

4.1 Storm Drainage System

The storm drainage system that serves the Study Area includes a road side ditch on Main Street North, driveway culverts along the west side of Main Street North and three culverts that cross under Main Street North. Stormwater is discharged eastwards into a drainage ditch located on the west side of the Main Street By-Pass, where it is conveyed through several culverts and is ultimately discharged into the East Holland River. The Study Area encompasses 7.55ha of residential lands that slope eastward with elevations ranging from approximately 257m on the western side of Main Street North to 233m near the Main Street North By-Pass. The drop in elevation occurs largely to the west of Main Street North, where the average slope is greater than 10%. The eastern side of the Study Area lies within the floodplain of the East Holland River and has an average slope of 4%.

The following sections provide key information on existing culverts, private property downspouts and sump pump discharges, the overland drainage system and the existing storm sewer system that serves the Study Area. **Figure 4-1** presents the features of the existing storm drainage system.

4.1.1 Culverts

Figure 4-2 present the location of driveway and drainage culverts in the Study Area. A field inspection of existing culverts was completed during site visits conducted in the spring and fall of 2021.

Each culvert was assigned a good, fair or poor grade as follows:

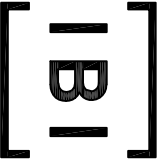
- Good – minor defects and culvert performs as intended;
- Fair – moderate defects with need for monitoring and potential repairs; and
- Poor – severe defects with culvert not functioning at service level. Need for major repairs or replacement.

A summary of the results of the culvert condition assessment, required improvements and the estimated capacity of each culvert is contained in **Table 4.1**.

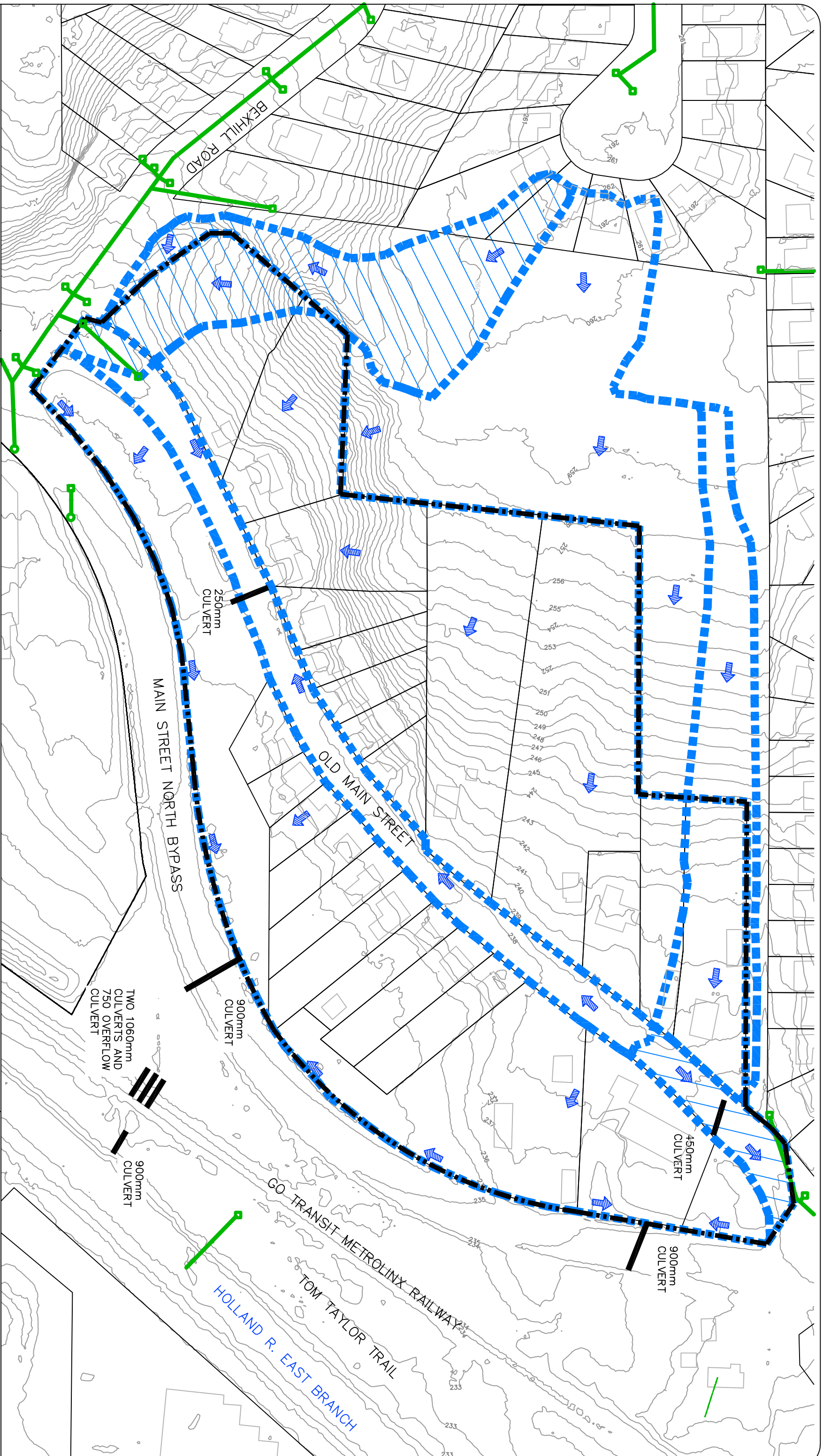
4.1.2 Downspout and Sump Pumps

A review of existing downspouts and sump pump discharge locations was completed using available data and information gained during a field visit. All observations were made from public property and no access was made onto private property.

Figure 4-3 presents the location of downspouts throughout the Study Area. For the most part, downspouts discharge to surface. There are seven properties along Main Street North where one or more downspouts were observed to discharge into a pipe system. Given the steep slope on the west side of Main Street North, it is very likely that downspouts located at four properties on the west side of Main Street North eventually discharge to surface through a pipe system. With flatter grades on the east side of Main Street North, downspouts at three properties likely discharge to the rear yard. Sump pump discharges were also investigated through the field visits. Based on the results, no evidence of sump pump discharges to surface were identified.



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LEGEND

- DRAINAGE AREA BOUNDARY
- PROPERTY BOUNDARY
- DRAINAGE CAPTURED BY STORM SEWERS
- OVERLAND FLOW DIRECTION
- EXISTING CULVERT
- STORM CATCHBASIN
- STORM LINKS
- STORM OUTFALL

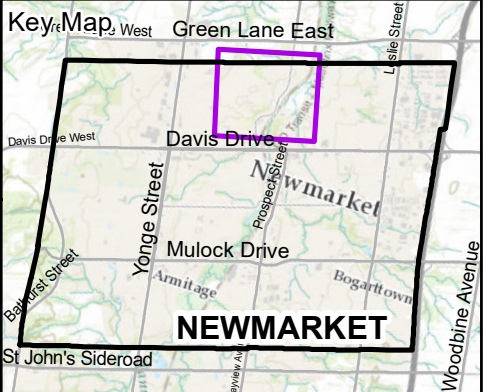
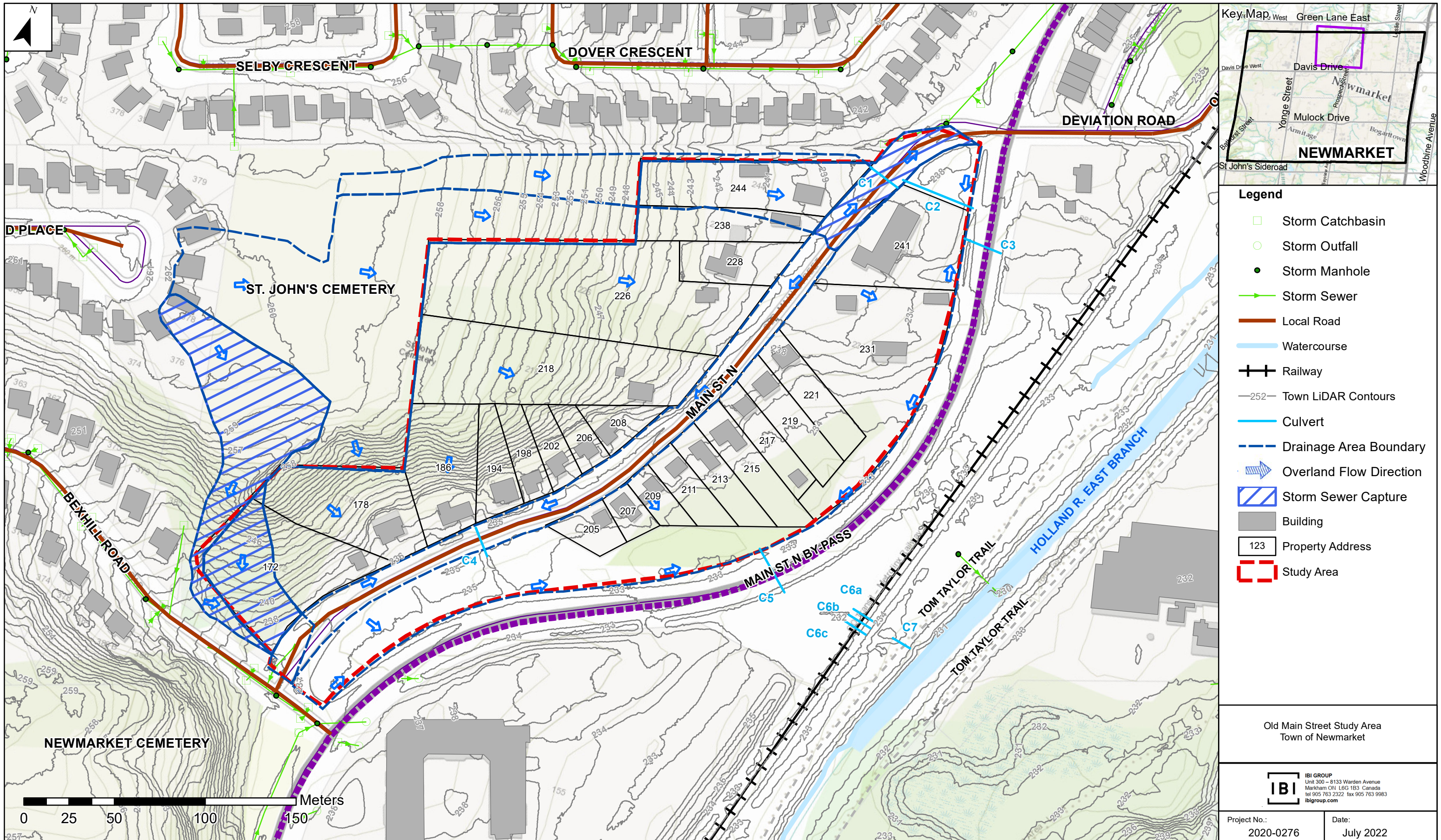
EXISTING STORMWATER DRAINAGE AREA PLAN

MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT
 OLD MAIN STREET
 TOWN OF NEWMARKET

DATE: JULY 20222
 SCALE: 1:1500

PROJECT No.: 2020-0276
 FIGURE No.: 4-1

Figure 4-2 Existing Culvert Locations



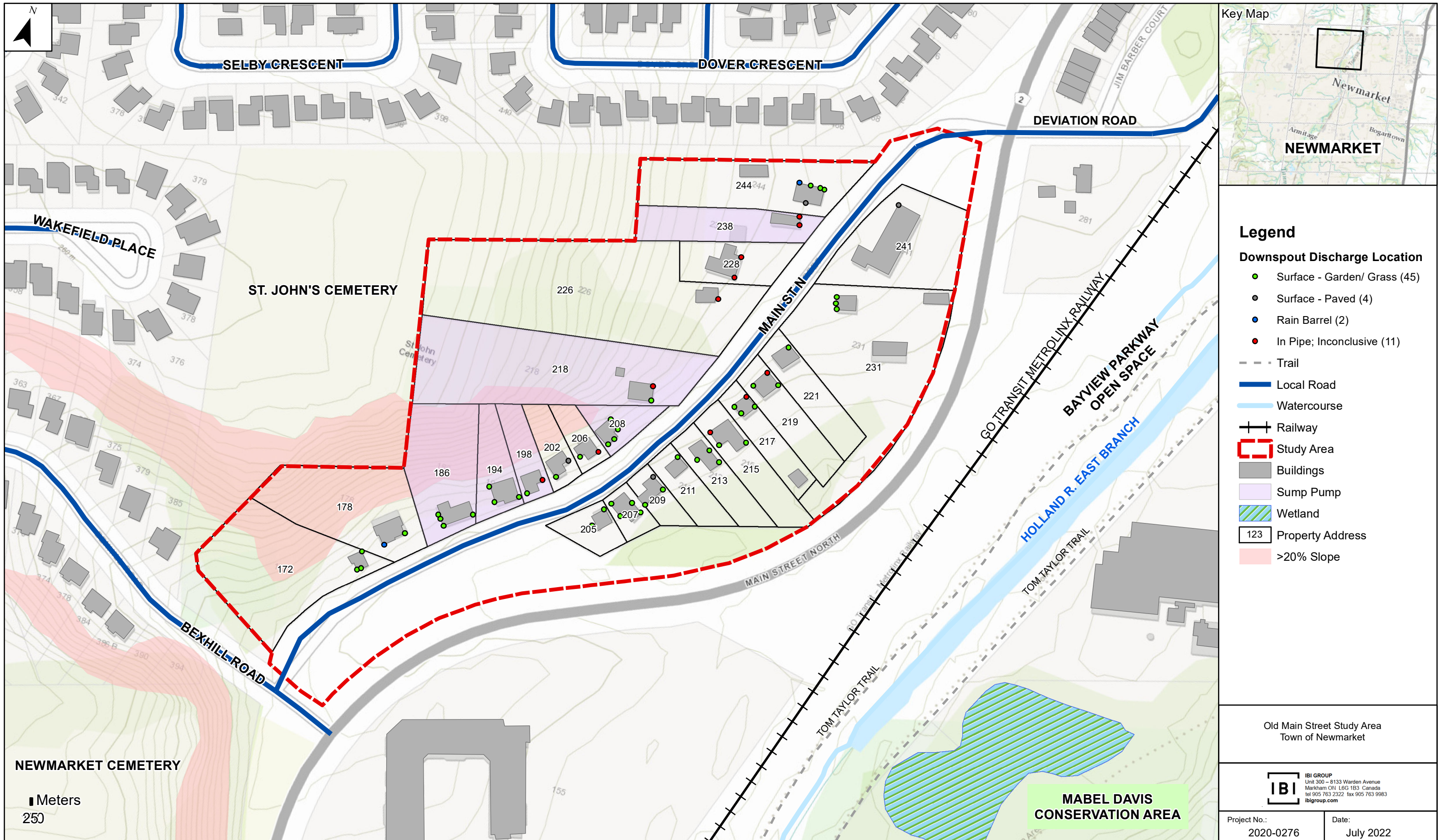
- Legend**
- Storm Catchbasin
 - Storm Outfall
 - Storm Manhole
 - Storm Sewer
 - Local Road
 - Watercourse
 - + + Railway
 - 252 Town LiDAR Contours
 - Culvert
 - - - Drainage Area Boundary
 - ▨ Overland Flow Direction
 - ▨ Storm Sewer Capture
 - Building
 - 123 Property Address
 - Study Area

Old Main Street Study Area
Town of Newmarket



Project No.: 2020-0276 Date: July 2022

Figure 4-3 Downspout Connection Details



- Legend**
- Downspout Discharge Location**
- Surface - Garden/ Grass (45)
 - Surface - Paved (4)
 - Rain Barrel (2)
 - In Pipe; Inconclusive (11)
- - - Trail
 - Local Road
 - Watercourse
 - + Railway
 - ▭ Study Area
 - ▭ Buildings
 - ▭ Sump Pump
 - ▭ Wetland
 - ▭ 123 Property Address
 - ▭ >20% Slope

Old Main Street Study Area
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Table 4.1 Culvert Condition Assessment Summary

ID	LOCATION	MATERIAL	DIAM (MM)	LENGTH (M)	INLET INVERT ELEVATION (M)T	OUTLET INVERT ELEVATION (M)	SLOPE (%)	CONDITION	REQUIRED IMPROVEMENTS	ESTIMATED CAPACITY (M ³ /S)
C1	Beneath Main St N directly south of entrance to St John Cemetery	HDPE	0400	12.2	237.32	236.93	3.20	Inlet: Good condition. Outlet: Good condition.	No action required.	0.368
C2	Beneath land parcel north of 241 Main St N	CSP	450	41.8	236.67	235.85	1.96	Inlet: Fair condition; minor debris build-up 20% blocked Outlet: Fair condition; minimal damage to top ridges; overgrown vegetation may impede flow	On private property; subject to proposed development	0.216
C3	Beneath the Bypass directly behind 241 Main St N	CSP	900	21.8	234.58	234.32	1.19	Inlet: Fair condition; 30% sedimentation Outlet: Fair condition; 40% sedimentation; overgrown vegetation may impede flow	Clean out culvert.	1.055
C4	Beneath Main St N at 186 Main St N	CSP	300	14.9	234.19	233.55	4.30	Inlet: Poor condition; wiring and stones at T-Joint junction impeding flow Outlet: Poor condition; 50% buried by sedimentation build-up	Replace culvert as part of the proposed storm sewer system.	0.109
C5	Beneath the Bypass directly behind 213 Main St N	CSP	900	23.2	232.33	232.26	0.30	Inlet: Poor condition; mass vegetation growth obstructing culvert entrance Outlet: Good condition.	Clean out culvert.	0.536
C6a	Multiple-culvert crossing beneath rail corridor – northern culvert of the set of 3	CSP	750	15.6	232.10	231.98	0.77	Inlet: Good condition. Outlet: Good condition; minimal 20% stone/ debris build-up	Clean out stones at culvert outlet	0.539
C6b	Multiple-culvert crossing beneath rail corridor – center culvert of the set of 3	CONC	1050	15.3	231.64	231.34	1.96	Inlet: Good condition. Outlet: Good condition; minimal 20% stone/ debris build-up	Clean out stones at culvert outlet	3.942
C6c	Multiple-culvert crossing beneath rail corridor – southern culvert of the set of 3	CONC	1050	15.2	231.66	231.53	0.86	Inlet: Good condition; minimal 20% stone/ debris build-up Outlet: Good condition; minimal 20% stone/ debris build-up	Clean out stones at culvert ends	2.590
C7	Beneath Tom Taylor Trail	CSP	900	12.2	231.27,	231.02	2.05	Inlet: Good condition; two (2) streams converging at inlet due to aquatic plants impeding flow in upstream standing water Outlet: Good condition; overgrown vegetation downstream	No action required.	1.386

4.1.3 Overland Surface Drainage

The majority of the Study Area, approximately 6.61ha, is serviced by a drainage system that conveys minor and major storm flows southeast towards the East Holland River. General overland drainage patterns and the location of culverts are shown in **Figure 4-2**.

Drainage from the properties on the west side of Main Street North flows eastward towards Main Street North where it is conveyed by a roadside swale. There are two culverts under Main Street North that convey drainage from the west side of the road to the east side of the road. There is an existing 450mm diameter culvert (Culvert C1) located south of Old Main Street and an existing 250mm diameter culvert (Culvert C4) located the west of the Town's open space lands. Culvert C2 conveys drainage from Culvert C1 towards to the west drainage ditch for the Main Street North By-Pass. Drainage from the east side of Main Street North is conveyed overland towards the drainage ditch along the west side of the Main Street By-Pass. There are two 900mm diameter culverts under the Main Street By-Pass. One of these (Culvert C3) is located south of Old Main Street and receives drainage from the northern part of the Study Area. The second 900mm diameter culvert (Culvert C5) receives the majority of the overland flow from the Study Area and discharges into a drainage ditch which leads to three culverts (2 1050mm diameter culverts plus a 750mm bypass culvert) (Culverts C6a, C6b, and C6c) located under the Go Transit Metrolinx Railway. These culverts discharge into a drainage ditch which leads to a 900mm diameter culvert (Culvert C7) under Tom Taylor Trail which discharges into the East Holland River.

4.1.4 Storm Sewer Service Area

The northeast and southwest corners of the Study Area, approximately 0.94 ha in total, are currently serviced by existing storm sewers, as shown in **Figure 4-2**.

An existing storm sewer on Bexhill Crescent receives runoff from a portion of the St. John's Cemetery, 172 Main Street North and a short section of Main Street North in the vicinity of Bexhill Crescent. There are two existing catchbasins located at the intersection of Main Street North and Bexhill Crescent which convey stormwater to the existing Bexhill Crescent storm sewer.

An existing storm sewer on Main Street North, north of the Study Area, receives storm drainage from a section of Main Street North within the Study Area. Overland flow is captured in one existing catchbasin which conveys stormwater to the existing storm sewer located north of the Study Area.

4.2 Existing Storm Drainage System Assessment

This section provides information on the assessment of the existing storm drainage system. It is noted that the existing stormwater drainage system was designed and constructed prior to current stormwater management quality and quantity requirements. To assess system performance, a 2D model of the storm drainage system model was developed using InfoWorks ICM. The model was validated and verified against historical flooding complaints.

A review of historical information collected from residents indicated that flooding on the east side of Main Street North has occurred. Residents have also reported that the roadside swales and driveway culverts located on the west side of the road are not generally maintained and regularly overtop during storm events. Residents also reported that stormwater from the west side of the road has overtopped the road and been discharged to the adjacent properties on the east side of the road.

4.2.1 Storm Drainage System Performance

The performance of the storm drainage system was assessed for storm events ranging from a 5-year design storm event to a 100-year design storm event.

The following sections provide further discussion of modelled results for the 5-year, 25-year, and 100-year design storms. The results of the assessment are summarized below:

- Model results for the 5-year storm event predict minimal flooding within the Study Area. Minor flooding is predicted at the rear yard of one property on the east side of Main Street North as high water levels in the Main Street By-Pass ditch extend to the low lying areas resulting in flood depths of approximately 15cm to 25cm. Under the 5-year storm event, driveway culverts and the two culverts under Main Street North (C1 and C4) are predicted to be surcharged due to downstream constraints. It is noted that storm drainage overtopping Main Street North is not predicted to occur as a result of a 5-year design storm event. Therefore, the overland flow system does have adequate capacity to convey flow peaks resulting from a 5-year design storm event.
- Model results for the 25-year storm event predict flooding on private property located on the east side of Main Street North, north of the Town owned lands. Flood depths are predicted to be up to 15cm on Main Street North and overtopping of the roadway is predicted. Flooding is also predicted to occur in the rear yards of properties located on the east side of Main Street North due to high water levels in the Main Street By-Pass ditch. Ponding is also predicted to occur at Culvert C1 under Main Street North. The majority of the driveway culverts are predicted to be surcharged. The surcharged culverts result in ponding in the roadside swale which in turn results in minor flooding on the east side of Main Street North. Downstream culverts are also predicted to be surcharged (Culverts C6a and C7). Overall, the overland flow system does not have adequate capacity to convey peak flows resulting from a 25-year design storm event.
- Model results for the 100-year storm event predict significant flooding along the east side of Main Street North with flooding predicted for five properties with flood depths ranging up to 25cm. The model also predicts that stormwater would overtop Main Street East, allowing stormwater to enter properties on the east side of the road. Rear yard flooding on the east side of Main Street North is also predicted due to surcharge conditions in the Main Street By-Pass ditch. Flooding is expected to extend to low lying areas resulting in flood depths up to 30cm. Ponding is also predicted to occur at Culvert C1 under Main Street North. Culvert C2 was predicted to be surcharged with peak flows in excess of capacity. Culverts C3, C4, C6a, C6b, C6c and C7 are also predicted to be surcharged as a result of the 100 year storm event. Overall, the overland flow system does not have adequate capacity to convey peak flows resulting from a 100-year design storm without causing potential significant impacts to private properties.

In general, the existing drainage system meets the Town's Standards for a 5-year design storm event but does not meet the Town's Standards for the 25-year or 100-year storm events. Key limitations include:

- The conveyance capacities of all driveway culverts and the two roadway culverts under Main Street North (Culvert C1 and C4) are inadequate to convey peak flows resulting from the 25-year and 100-year design storm events. Surcharge conditions within the roadside swales result in overtopping of the road and potential flooding of properties on the east side of Main Street North.
- The configuration of the western drainage ditch at the Main Street By-Pass and the operation of the Main Street By-Pass Culvert results in excessive ponding during the 25-year and 100-year design storm events, resulting in backwater conditions and flooding of low-lying areas in the rear yard areas of properties on the east side of Main Street North.

- It is noted that several culverts were observed to be blocked by sediment or deformed and some swales and ditches had dense vegetation. This was observed for Culvert C5, under the Main Street North By-Pass.

It was also determined the existing vegetated swales and ditches do provide a level of water quality control through filtering of stormwater runoff. However, existing systems do not meet LSRCA, MECP or Town water quality requirements.

Further improvement and expansion of the stormwater drainage system will be necessary to address existing flooding issues and to manage stormwater from an urbanized Main Street North roadway. Water quality controls will also be needed.

4.3 Existing Water Distribution System

Figure 4-4 presents the location of the existing water distribution system within the Study Area. There is an existing 200mm diameter watermain along Main Street North extending from Old Main Street to Bexhill Crescent along with three fire hydrants and five valve chambers within the Study Area. The existing watermain is ageing and has been identified as requiring replacement in the Town's Asset Management Plan.

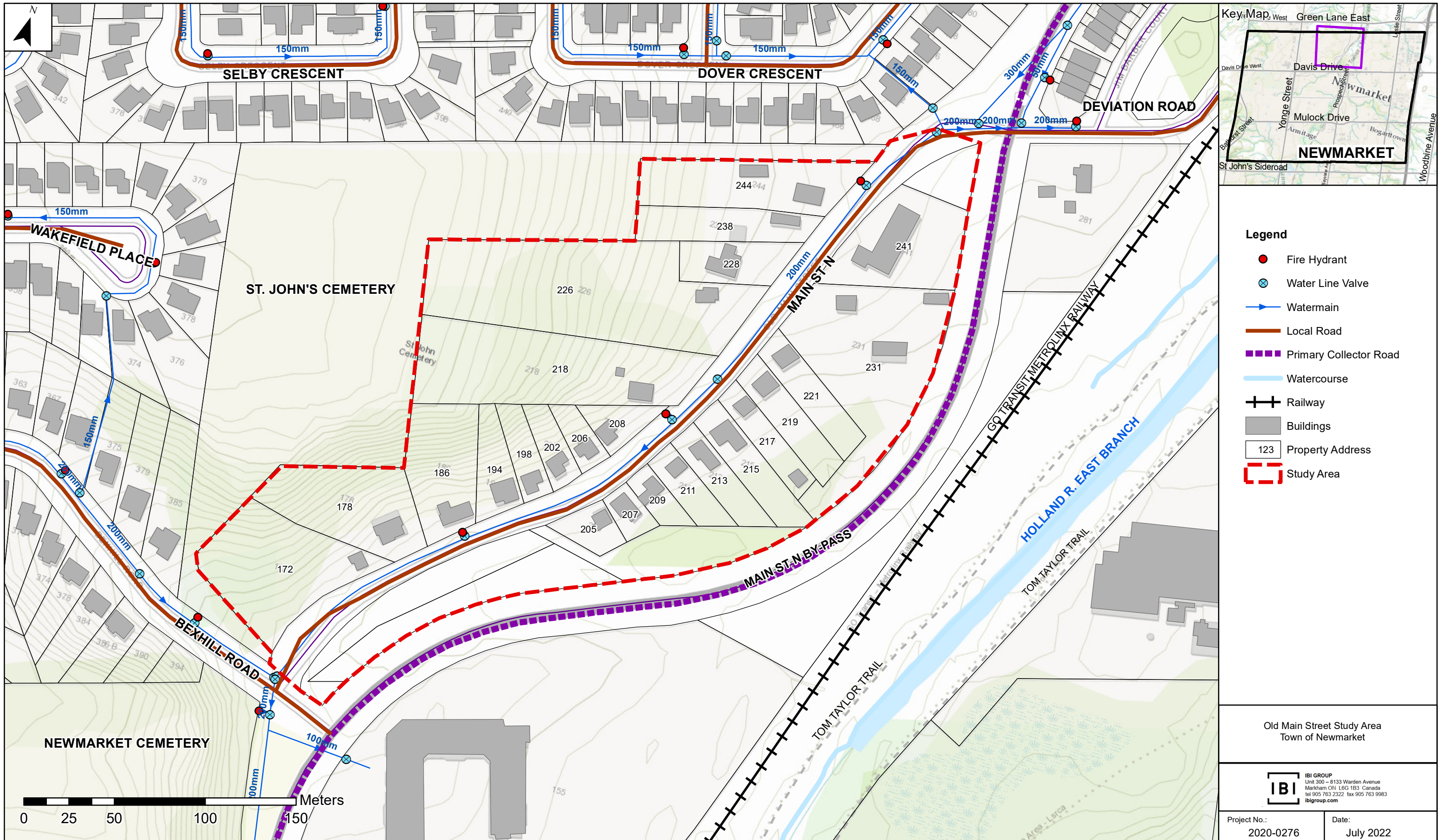
The Study Area is located within the Newmarket Central (NC) Zone. The NC Zone is supplied by the municipal wells located along Yonge Street between Mulock Drive and Davis Drive. Additional water supply is provided from the Aurora Central Zone through connections along Yonge Street and Bayview Avenue. The Glenway Reservoir has a low-water level of 300.8m and a high-water level of 308.4m and it provides water storage while maintaining system pressure.

An existing system capacity assessment was completed that included field and C-factor testing. A summary of the results is as follows:

- Pressure testing completed identified that the existing watermain could provide a fire flow of 200 L/s and that system pressures ranged from 500 kPa and 700 kPa. The fire flow required for this area is estimated to be 167 L/s at a pressure of 140 kPa.
- C-Factor values were estimated based on the pressure testing results and hydraulic modelling. Based on the assessment, a C-Factor of 100 was determined, which is considered acceptable.
- Modelling analyses show that the existing watermain does have sufficient capacity to service existing growth and meet the Town's Standards. Since the pressures are estimated to be larger than 550 kPa, pressure reducing valves (PRVs) are required on each service downstream of the water meter.
- Modelling analyses completed for future conditions predicts that the existing watermain has sufficient capacity to meet future water demands under fire flow conditions. A peak hour water demand of 6L/s has been estimated for future conditions.

Although the existing watermain does have sufficient capacity to meet future needs, it has been identified for replacement by the Town's Asset Management Plan due to age. Replacement of the existing watermain with a larger 300mm looped watermain would improve performance. Replacement should be considered at the same time as road reconstruction to avoid additional costs for road reinstatement.

Figure 4-4 Existing Water Distribution System



4.4 Existing Sanitary Sewer System

Figure 4-5 presents the location of the existing sanitary sewer system within the Study Area. Currently, there is an existing 250mm diameter sanitary sewer located on Main Street North. Sanitary flow from most of the buildings in the Study Area is conveyed to this existing sanitary sewer. However, there are six properties within the Study Area that are not connected to the existing sanitary sewer system and have private on-lot sewage treatment systems or septic tanks. The location of these properties is shown in **Figure 4-5**.

Existing sanitary sewers extend along Main Street North from the northern limit of the Study Area to Maintenance Hole (MH) 1780, which is located in front of 194 Main Street North. Existing sanitary sewers also extend along Main Street North from the southern limit of the Study Area at Bexhill Crescent to MH 1780. An existing 250mm diameter sanitary sewer located on Town owned property conveys sanitary sewer from the north and south sections of the Main Street North sanitary sewers to an existing 850mm diameter York Region trunk sanitary sewer, located adjacent to the East Holland River.

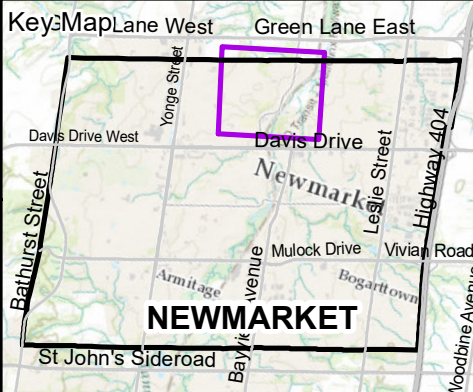
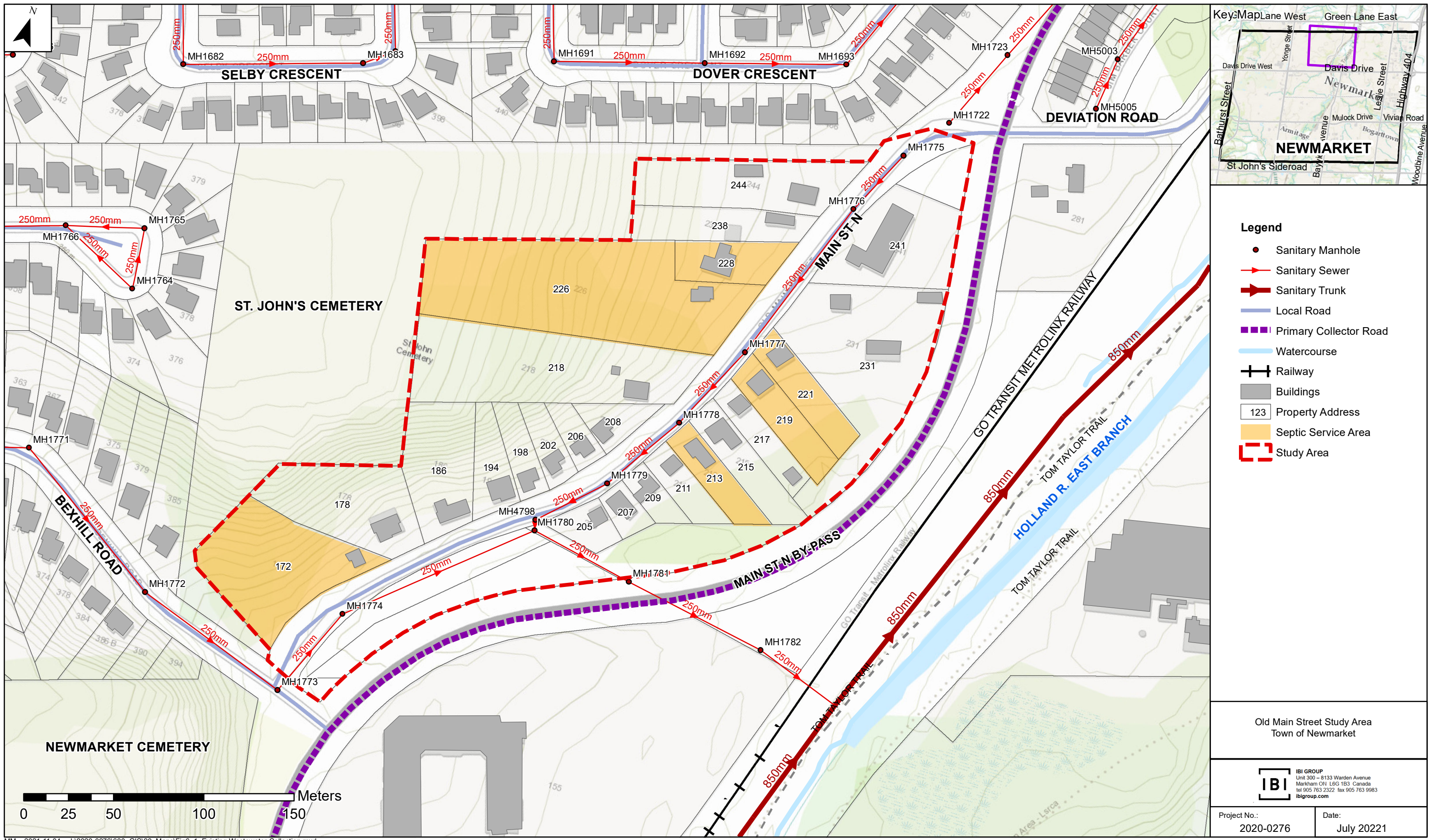
To assess the current condition and capacity of the existing sanitary sewer system, a review of CCTV inspection results and hydraulic modelling were completed. The following presents a summary of the results:

- The Town completed a CCTV inspection of the Main Street North sanitary sewer in 2021. Condition grades were assigned for ten sections of sanitary sewer. Five sections received a grade of excellent with no defects identified, two sections received a condition grade of good with minor defects, two sections received a fair condition grade with defects identified, and one section received a poor condition with defects identified that require attention in the near future. Infiltration runners were identified in one of the sections identified in fair condition and in the poor condition section. Repairs/ replacement is needed to address condition issues that have resulted from ageing infrastructure.
- The CCTV inspection results concluded that all properties on Main Street North have a sanitary sewer connection. For properties with existing on-lot private sanitary systems or septic systems, it is expected that the existing sanitary sewer connection extends only to the property line.
- Modelling of the existing system under both existing and future conditions predicted that the existing sanitary sewer system has adequate capacity to convey existing and future peak design flows and meet all performance and design criteria. The existing sanitary sewer system has a capacity ranging from 37 L/s to 145 L/s while the predicted peak flow under future conditions is estimated to 22.3 L/s.
- The alignment of the existing sanitary sewer poses a challenge for a future road reconstruction as the existing sanitary sewer is located on Town owned property and not within the road allowance, as required by Town Standards in the southern part of the Study Area.

4.5 Existing Transportation System

The existing transportation system within the Study Area is shown in **Figure 4-6**. Main Street North is a north-south local road that extends from Bexhill Crescent to Old Main Street, extending approximately 530 meters in length. The posted speed is 40km/h. The intersection of Main Street North with Bexhill Crescent is a 3-legged intersection (T-intersection) with Main Street North under Stop control. The intersection of Main Street North is a 4-legged intersection with Old Main Street under stop control.

Figure 4-5 Existing Sanitary Sewer Collection System



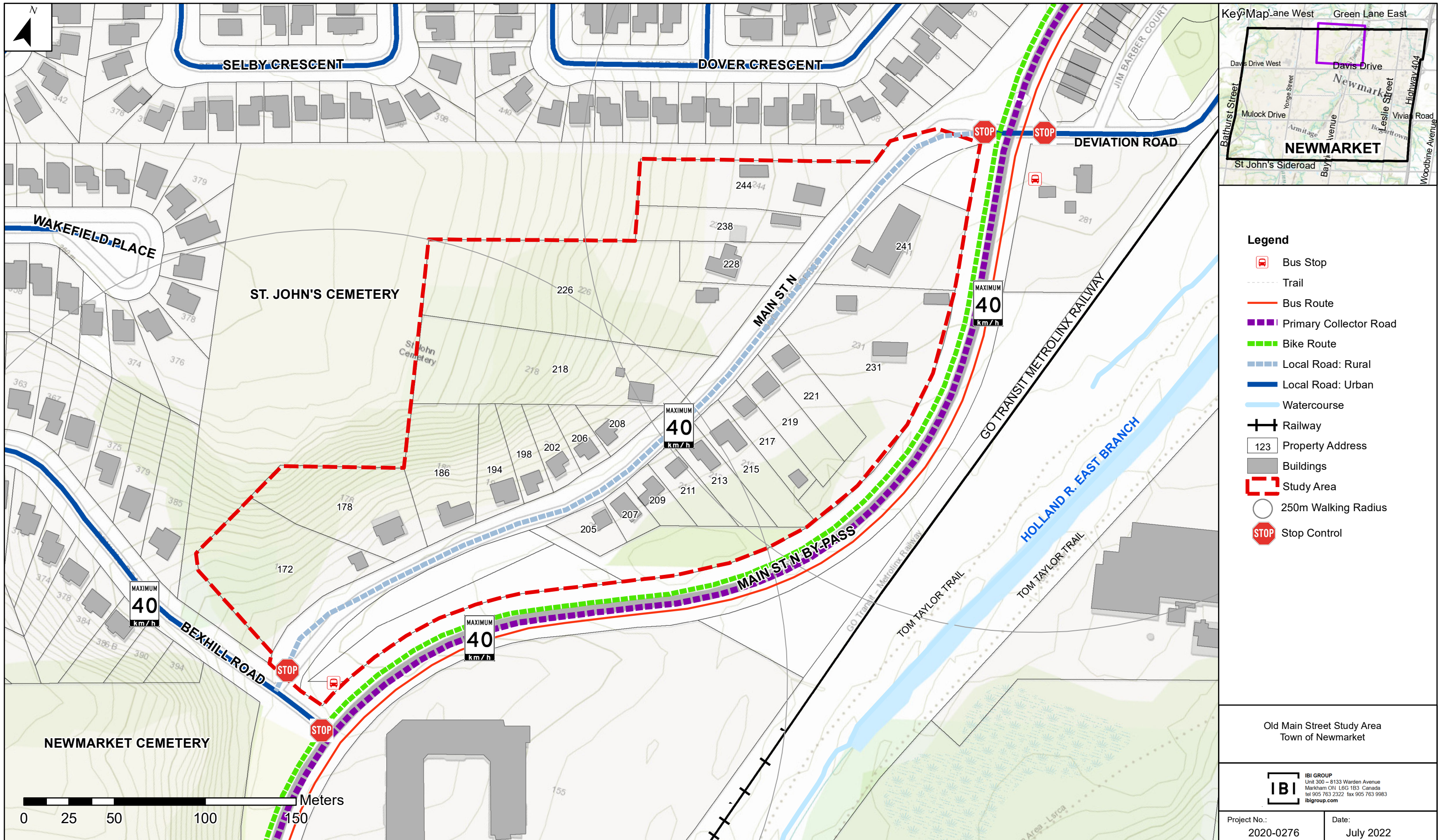
- Legend**
- Sanitary Manhole
 - Sanitary Sewer
 - ➔ Sanitary Trunk
 - Local Road
 - ▬ Primary Collector Road
 - Watercourse
 - + Railway
 - Buildings
 - 123 Property Address
 - Septic Service Area
 - ▭ Study Area

Old Main Street Study Area
 Town of Newmarket



Project No.: 2020-0276 Date: July 2021

Figure 4-6 Existing Transportation System



The topographical survey and available property information shows that the existing right-of-way width varies from a sub-standard 10.6m to 23m. Pavement width also varies between from a narrow 7m to 11m along the corridor. Given these restrictions, the existing cross-section provides minimal to non-existent shoulders and poorly defined or non-existent road ditches. There are ditches and swales on the west side of Main Street North. There are no sidewalks, except at the far south end of the road on the east side of Main Street North from the Bexhill Crescent intersection up to the community mailbox site. Utilities are provided along the west side of the road, where streetlights are also provided mounted on hydro poles.

The horizontal alignment shows a meandering centreline with three well defined curves, one of them on the northern limit, being a sharp turn. The vertical alignment also meanders showing seven vertical curves.

As part of the Old Main Street Area Tertiary Plan, data was gathered and analyzed to determine the level of service for existing conditions and for a future scenario for 100 additional units without the need to upgrading the intersections to signal control. Future growth in the study is anticipated to increase the population to 569 persons.

The results of the speed survey indicate that some vehicles are travelling at speeds higher than posted with a small portion of those going faster than the design speed. Traffic calming measures and additional signage measures can be considered to encourage more reasonable driving behaviour.

An assessment of the existing transportation system was completed and **Table 4.2** presents a comparison of the results with the Town’s Standards. Key constraints include tie-ins to existing driveways, heavily vegetated areas adjacent to the road, the location of existing utilities and steep slopes on the west side of the road. Another key limitation is the width of the road allowance.

Table 4.2 Transportation System – Assessment of Existing Conditions

DESIGN PARAMETER	EXISTING CONDITIONS	TOWN DESIGN STANDARD	TAC DESIGN STANDARD	FUTURE CONDITIONS	KEY CONSTRAINTS
Road Classification	Local	Local (Section B3.00)	Local	Local	-
Design Speed	50 km/h	50 km/h (Section B3.00)	-	50 Km/h	
Posted Speed	40 km/h	40 km/h (Section B5.03)	-	40 km/h	
Road Width	Varies (10.6m-23m)	18m	-	18m	Non-standard municipally owned road allowance
Design Vehicle for Turning Movements	-	-	-	Developed by MSU standard	-
Minimum Stopping Sight Distance	-	65m (B3.00)	65m	65m	-
Minimum 'K' Sag		6 (Section B3.00)	13 (headlight) 5-6 (Comfort)	6	Will be achieved through profile changes
Minimum 'K' Crest	-	7 (Section B03.00)	7	7	Achieved through profile changes
Minimum Grades	Existing minimum grade of 0%	-	0.5	0.5	Achieved through profile changes
Maximum Grades	Existing maximum grade of 3.2%	6% (Section B3.00)	8%	6%	
Pavement Crossfall Grade	-	2% (Section B3.00)	2%	2%	
Minimum Horizontal Radius	-	N/A	115m (reverse crown)	115m except for approach to Main Street	Achieved through changes to existing centreline
Superelevation	N/A	-	-	-	-
Lanes and widths	2 lanes – pavement width varies between 7m and 11m	Pavement width (curb to curb) of 8m (Section B3.00)	-	-	2 Lanes – pavement width of 8m

DESIGN PARAMETER	EXISTING CONDITIONS	TOWN DESIGN STANDARD	TAC DESIGN STANDARD	FUTURE CONDITIONS	KEY CONSTRAINTS
Grading Forslope/ Backslope	Varies	-	-	Max 3:1	
Curb Standard	N/A	OPSD 600.040 1 stage OPSD 600.700-2 stage OPSD 351.010 – driveway depressions (Section B8.00)	-	OPSD 600.040	-
Sidewalk width	1.5m	1.5m (Section B9.00)	-	1.5m	
Minimum Tangent Between Curves	N/A	50m (Section B3.00)	-	50m	Achieved through changes to existing centreline
Intersection Control	Stop	-	-	Stop	
Intersection Curb Radius	N/A	8m (Section B4.04)	To fit design vehicle	8	
Intersection Daylight Triangles	N/A	Local to local 5mx5m, Town to Region 15mx15m (Section B4.05)		Local to local 5mx5m, Town to Region 15mx15m	

5 Study Problem Statement

Following the assessment of existing and future conditions, the study problem statement is as follows:

- The existing water distribution and sanitary sewer systems have sufficient capacity to service existing growth and future growth in the Study Area while meeting the Town's Standards. However, watermain replacement on Main Street North is necessary as the existing watermain has been identified for replacement under the Town's Asset Management Plan due to age. A portion of the existing sanitary sewer will require relocation as it is not located within the road allowance of Main Street North. In addition, repairs/ replacement will be needed to address deficiencies identified through CCTV inspection.
- The existing storm drainage system requires improvements to meet Town and LSRCA requirements. Existing storm drainage is provided through a limited storm sewer system, swales, ditches and culverts which convey stormwater to the East Holland River. Existing ditches, swales and culverts are undersized to meet the Town's Standards and improvements and expansion of the stormwater drainage system will be necessary to address current flooding issues and to meet current stormwater management requirements. Water quality controls are also needed to meet LSRCA technical guidelines.
- Improvements to the existing roadway will be necessary to support future growth and meet the Town's level-of-service and design criteria requirements. Constraints will include the steep slope on the west side of Main Street North as well as the non-standard road allowance and property lines.

6 Development of Alternatives

To address the study problem statement, alternatives were developed and evaluated to identify a recommended preferred solution. The following sections provide details for each alternative and presents the evaluation of the alternatives. All alternatives were developed to meet Town's Standards, LSRCA Technical Guidelines and MECP requirements. Details of these standards can be found in **Appendix C**.

6.1 Alternatives Development

The alternatives development process combined consideration of the Study Problem Statement, the policies and recommendations of the Old Main Street Tertiary Plan and the various constraints within the Study Area.

The Old Main Street Tertiary Plan provides a number of policies, specific to water, sanitary, stormwater management and transportation that have been considered in the development and evaluation of alternatives.

The Tertiary Plan presented a vision for the Study Area that included retention of the rural, cottage-like and scenic natural character while accommodating contextually-sensitive development. The Tertiary Plan recommended that Main Street North be reconstructed to an urban road cross section.

Future development is to be planned and designed in a manner that respects the existing natural heritage system and topography, enhances existing landscaping and open space features while introducing new and improved stormwater management facilities, facilitates the establishment of new pedestrian connections, gateway features and enhancement of the Old Main Street, respects prevailing site, building and architectural characteristics.

Relevant transportation policies include:

- The Main Street North right-of-way is to be widened to approximately 18.0m, local road, between Bexhill Crescent and Main Street North, where feasible.
- The redesign of Main Street North is to acknowledge the quiet, meandering and rural character of the existing street.
- The redesign of Main Street North is to endeavor to incorporate 2 sets of 3.5m wide travel lanes, 2 sets of 0.5m wide curb zones, a 1.4m wide pole zone on the east side of Main Street North, a 1.5m wide sidewalk adjacent to the pole zone on the east side of main Street North, 2.5m wide parking bays, provided in combination with landscape bump-outs at key locations and where space permits to provide supplementary visitor parking, a 4m wide boulevard with soft landscaping on the west side of Main Street North, adjacent to the curb with a 2.1m wide boulevard with soft landscaping on the east side of Main Street North.
- The redesign is to mitigate stormwater impacts and endeavor to include low impact development features and permeable surface materials, where appropriate and formal traffic calming measures including boulevard bump-outs, raised pedestrian crossings, special surface paving treatments and signage.

Relevant utility and servicing policies include:

- Future development should improve and expand on the existing wastewater system in order to reduce reliance on individual septic systems.
- Future development should connect to the municipal water system.

- Finished floor grades for buildings are to be set to ensure that water is directed away from the building and neighbouring properties and towards the adjacent street.
- Existing grades, as set by the average grade of the neighbouring properties, are to be maintained.
- Landscape design is to incorporate strategies to minimize stormwater runoff and reduce water consumption.
- Site drainage and grading plans are to be completed for all properties with detached accessory dwellings are proposed in order to ensure that development sufficiently mitigates potential impacts on adjacent properties and manages stormwater runoff.
- Future development should consider visual impact and location of existing above and below grade utilities including telephone, hydro, water and natural gas.
- Future development should consider the implications from the potential need to relocate and/or bury existing utilities.
- Existing vehicle-oriented lighting standards should be replaced with new pedestrian-oriented lighting standards.
- Waste and recycling storage areas are to be located to the side or rear of buildings or screened from view on Main Street North.
- Utilities, infrastructure and servicing are to be located so as not to interfere with existing trees, mature tree growth or landscaping.

Relevant stormwater management policies include:

- The existing linear swale and culvert system along the west side of Main Street North is to be replaced with a sub-surface storm sewer system with stormwater management controls to meet Town and LSRCA requirements and guidelines.
- For future developments, opportunities to improve on-site stormwater management are to be explored.
- Future developments should incorporate LIDs, where feasible, to manage on-site stormwater. LIDs for consideration should include bioswales, infiltration galleries, rain gardens and soil cells.
- Consideration should also be given to the use of LIDs within the Main Street North right-of-way including the potential use of permeable pavements in sidewalk areas.

Relevant open spaces and natural heritage policies include:

- Existing woodlots and significant portions of naturalized areas are to be protected to maintain a continuous natural heritage system.
- An adequate buffer between development, existing woodlots and naturalized areas are to be maintained to protect the form and ecological function of these naturalized areas.
- Future development is to respect the Regional Greenlands system and resulting limitations on development.
- Future development should enhance the appearance of landscaped boulevard along the length of Main Street North by incorporating accent planting and increasing the urban tree canopy, where feasible.
- The existing informal open space and recreational area along the east side of Main Street North should be enhanced.
- Future development should maintain existing landscape buffers which mitigate acoustic and visual impacts associated with vehicle traffic on Main Street North.

- Consideration should be given to the introduction of accent planting, enhanced landscaping, boulevard bump-outs, raised pedestrian crossings, special surface pavement treatments and signage at either end of Main Street North.
- Consideration should be given to improving pedestrian connections between Main Street North and the surrounding park, open space, trail and public transit networks, through the provision of dedicated pedestrian crossings.

The alternatives development process also considered a number of physical constraints within the Study Area. Many of these constraints were identified through various assessments and supporting studies, conducted as part of this study and are documented in Section 2 (Study Area Description) and Section 5 (Existing Conditions Assessment). **Table 6.1** presents the consolidation of all Study Area constraints.

Table 6.1 Existing Study Area Constraints

CONSTRAINT	CONSTRAINT DESCRIPTION
History of Flooding along Old Main Street	The existing stormwater drainage system or major system does not have sufficiently capacity to convey peak flows resulting from the 100-year design storm event under existing conditions. There have also been reports of flooding on the east side of Main Street North.
Shallow groundwater table	The shallow groundwater table limits the application of infiltration-based and filtration-based LID measures. Infiltration based LID measures are infeasible throughout the entire Study Area due to the shallow groundwater table. Filtration based LID measures can only be implemented along a portion of the western boulevard along Main Street North, where the groundwater table is not as shallow.
Potential for blockages in the Main Street Bypass culvert	The single Main Street Bypass culvert does not provide redundancy and could lead to flooding if a blockage in the culvert were to occur. There is significant vegetation at both the inlet and outlet of this culvert.
Steep driveway slopes on the west side of Main Street North and some existing driveways have slopes greater than Town's standards.	The steep driveway slopes on the west side of Main Street North limit the ability to lower the road as this would only increase the existing driveway slopes on the west side of Main Street North.
Many driveways on the east side of Main Street North have negative slopes and allow storm drainage to be conveyed from the roadway onto private property.	Any changes to the road elevation to reduce or flatten driveway slopes on the west side of Main Street North would result in steeper negative driveway slopes on the east side of Main Street North, which would also not meet Town's standards.
LSRCA Regional Storm and 100-year storm elevations in the downstream East Holland River restricts the ability to install a new storm sewer at Town standard depth.	A new storm sewer installed at Town's standard depth will not allow Town and LSRCA stormwater management standards to be met due to downstream constraints and the Regional and 100-year flood levels in the East Holland River.
Flat or negative grades on the east side of Main Street North	The flat or negative grade from the road to the properties on the east side of Main Street North restricts the ability to capture stormwater from properties on the east side of Main Street North in a new storm sewer on Main Street North. To capture drainage from the east side of Main Street North would require a deeper storm sewer which is not feasible due to downstream restrictions and the 100-year flood level in the East Holland River.
Non-standard and varying pavement width under existing conditions	The current pavement width varies along Main Street North and is less than 6m in some parts of Main Street North.
Non-standard municipal road allowance width in some sections of Main Street North	The existing road allowance varies in width along Main Street North and the existing road allowance width is less than the Town standard and would not allow for the implementation of the Town's standard urban road cross section.

CONSTRAINT	CONSTRAINT DESCRIPTION
Space limitations for stormwater management features	The narrow existing municipal right of way limits the application of LID measures and swales. A wet stormwater management pond could be constructed on Town-owned lands which are currently open space community lands. However, the pond would restrict the use of these lands for community use.
Maintenance requirements for stormwater management measures	Some stormwater management measures, such as wet ponds, would increase the operations and maintenance requirements of the Town.
Provision for on street parking on Main Street North, as per Tertiary Plan	To implement on-street parking on Main Street North would require a wider pavement width and road allowance than currently exists for Main Street North. The Town would need to acquire property. There are also grading challenges with implementing on-street parking as steeper grades and retaining walls along the west boulevard would be cut into the existing slope to accommodate on-street parking spaces. On the east side of the road, a steeper negative grade/ retaining walls would be needed to accommodate on-street parking and contain stormwater drainage from the 100-year storm event within the road allowance.
Location and condition of existing sanitary sewers	The existing Main Street North sanitary sewer in the southern half of the Study Area is not located within the Main Street North road allowance, which does not meet Town Standards. In addition, there are condition issues on several sections of existing sanitary sewer that do require attention.
Local watermain age and condition	The existing watermain under Main Street North has been identified for replacement in the Town's Asset Management Plan due to age.

6.2 Alternative Solutions

To address the Study Problem Statement with consideration given to the Old Main Street Tertiary Plan policies and the Study Area constraints, three alternatives were developed to address water, sanitary, stormwater management and transportation servicing needs for the Study Area. These alternatives include:

- **Alternative 1 - Do Nothing**
- **Alternative 2 – Enhanced Swale and Stormwater Management Pond**
- **Alternative 3 – Hybrid Approach**

The following sections present information on each alternative.

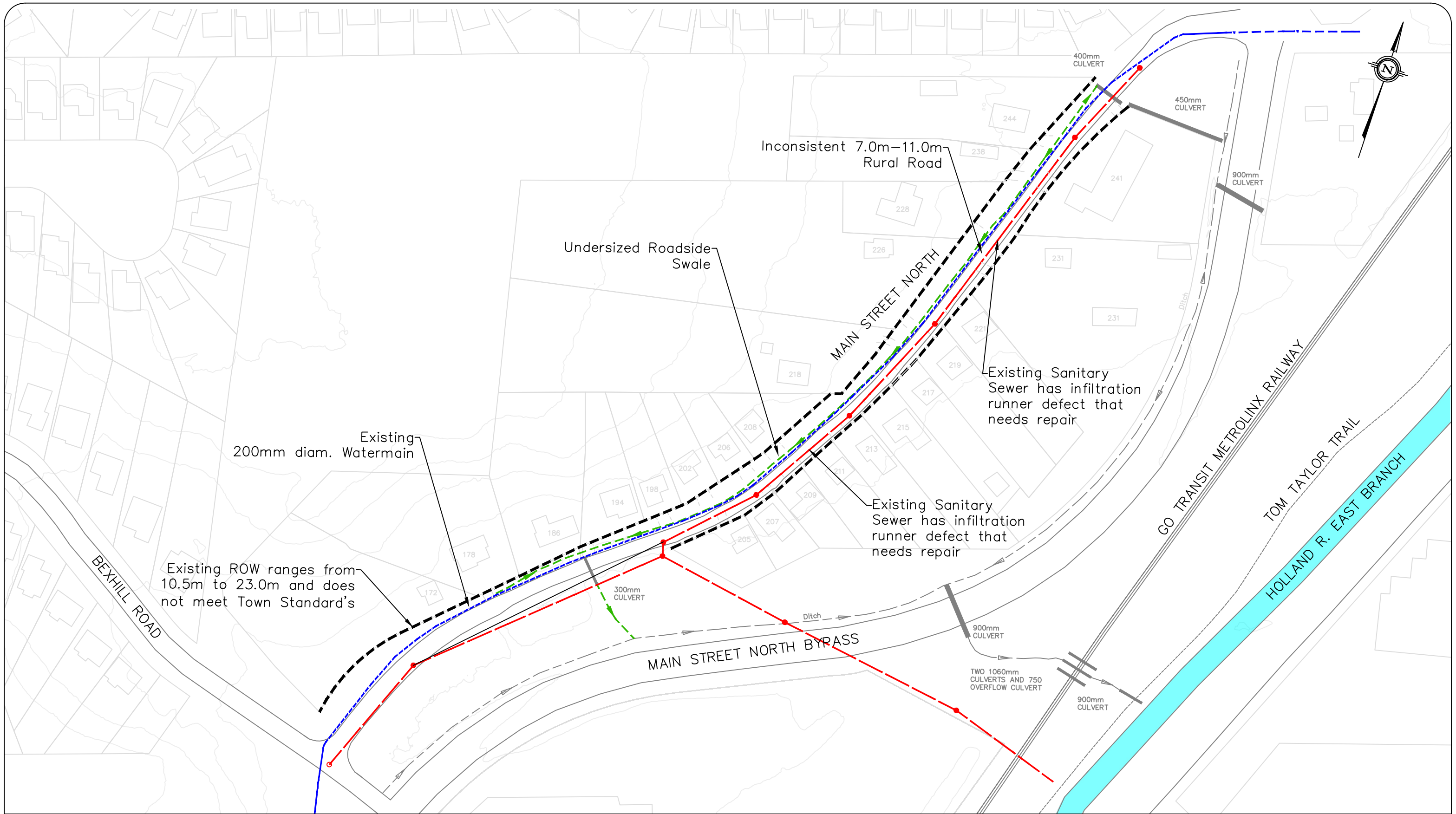
6.2.1 Alternative 1 – Do Nothing

The Class EA process requires that a do nothing alternative be considered through the alternative evaluation process. **Figure 6-1** presents this alternative. This alternative would consist of the following:

- Growth and redevelopment within the Study Area in a manner consistent with redevelopment identified through the Town's Old Main Street Tertiary Plan.
- No improvements to existing water, sanitary, stormwater management or transportation infrastructure

6.2.2 Alternative 2 – Enhanced Swale and Stormwater Management Pond

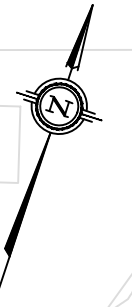
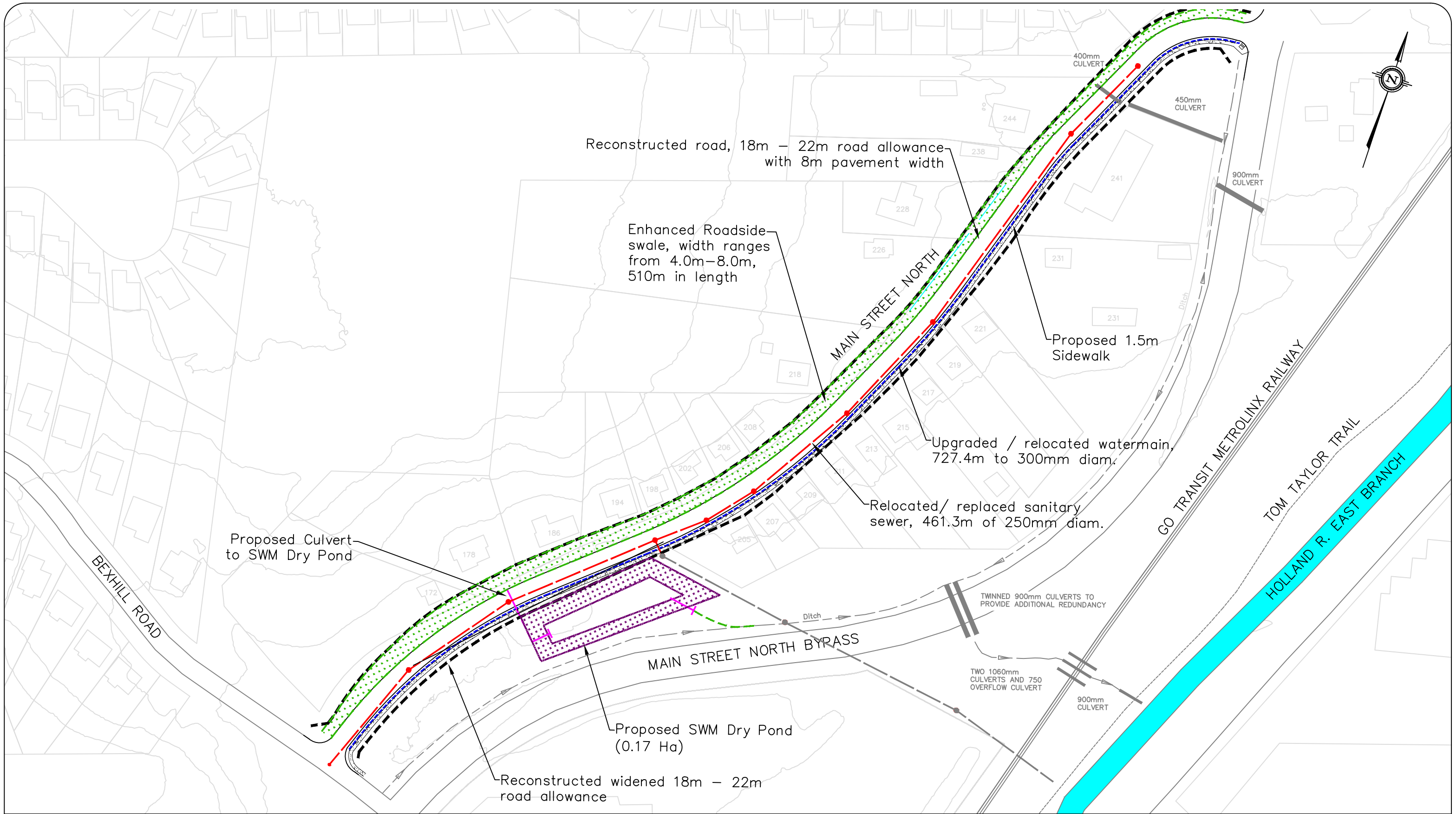
Alternative 2 addresses all servicing needs within the Study Area including water, sanitary, stormwater management and transportation improvements. **Figure 6-2** and **Table 6.2** provide the location and descriptions of the improvements included in this alternative.



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LEGEND					
	PROPERTY BOUNDARY		EXISTING ROW		EXISTING ROAD SWALE
	EXISTING ROAD		BY-PASS DITCH		EXISTING SANITARY SEWER
	EXISTING CULVERT				EXISTING WATERMAIN

ALTERNATIVE 1 - DO NOTHING			
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT			
OLD MAIN STREET			
TOWN OF NEWMARKET			
DATE:	JULY 2022	PROJECT No.:	2020-0276
SCALE:	1:1500	FIGURE No.:	Figure 6-1



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LEGEND			
	PROPERTY BOUNDARY		BY-PASS DITCH
	EXISTING ROAD		PROPOSED ROW
	EXISTING CULVERT		PROPOSED ROAD
			PROPOSED SANITARY SEWER
			PROPOSED WATERMAIN
			PROPOSED ROADSIDE SWALE

ALTERNATIVE 2 - ENHANCED SWALE AND SWM POND
 MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT
 OLD MAIN STREET
 TOWN OF NEWMARKET

DATE :	JULY 2022	PROJECT No.:	2020-0276
SCALE	1:1500	FIGURE No.:	6-2

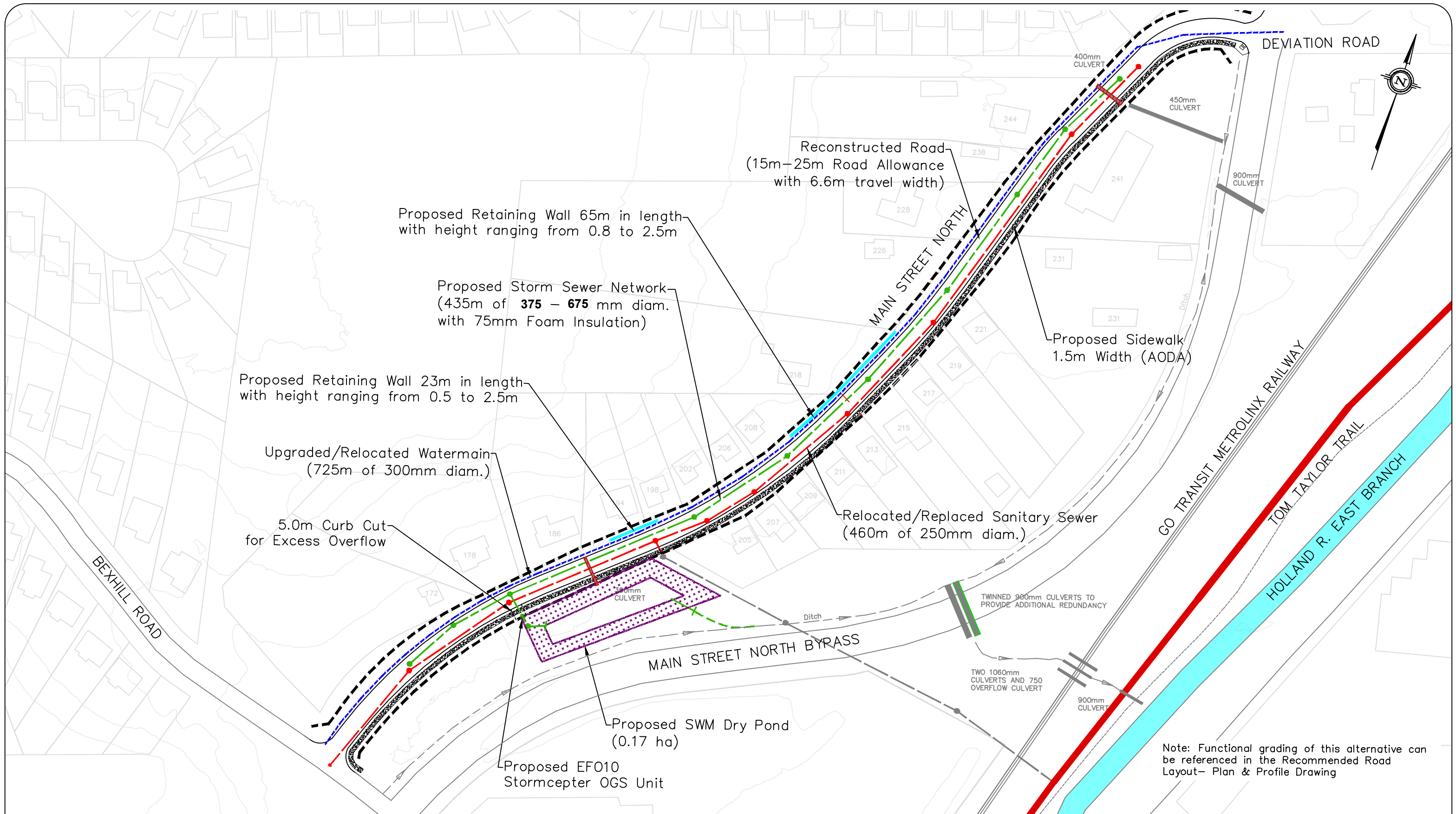
Table 6.2 Features of Alternative 2- Enhanced Swale and Stormwater Management Pond

IMPROVEMENT	DESCRIPTION
Watermain replacement	Replacement of existing 250mm diameter watermain with 727m of new 300mm diameter watermain within the Main Street North road allowance as per Town Standards. This improvement is necessary as the existing watermain is ageing and has been identified for replacement in the Town's Asset Management Plan.
Sanitary sewer improvements	Replacement and relocation of 460m of existing 250mm diameter sanitary sewer with a new 250mm diameter sanitary. This improvement is necessary to address condition issues in the existing sanitary sewer system and to locate the new sanitary sewer within the Main Street North road allowance, as per Town Standards. This new sanitary sewer will have sufficient capacity to provide servicing for existing and future growth including servicing of those properties that currently have private on-site sewage treatment systems or septic tanks.
New Drainage Swale	Construction of a new drainage swale on the west side of Main Street North to convey stormwater drainage from the reconstructed roadway and overland drainage from lands on the west side of Main Street North to the new stormwater management pond. The swale will range in width from 4m to 8m and will be approximately 510mm deep.
New Culvert	A new culvert under Main Street North to convey stormwater from the new drainage swale into the proposed stormwater management dry pond. The two existing culverts under Main Street North (Culvert C1 and Culvert C4) would be removed.
New Stormwater Management Pond	A new stormwater management dry pond to be located on Town owned property, currently open space lands.
Downstream Culvert Improvements	A twin of the existing culvert under the Main Street North By-Pass to provide redundancy within the stormwater drainage system.
Road reconstruction	Reconstruction of Main Street North Road with a 18m to 22m road allowance width with an 8m pavement width. A new 1.5m (AODA compliant) sidewalk would be located on the east side of the road.
On-site stormwater management controls	For future development properties, on-site stormwater management quality and quantity controls will be needed to meet LSRCA Technical Guidelines and Town of Newmarket Standards.

To implement Alternative 2, the Town would need to acquire property on the west side of Main Street North to accommodate the new drainage swale.

6.2.3 Alternative 3 – Hybrid Alternative

Alternative 3 addresses all servicing needs within the Study Area including water, sanitary, stormwater management and transportation improvements. **Figure 6-3** and **Table 6.3** provide the location and descriptions of the improvements included in this alternative.



Note: Functional grading of this alternative can be referenced in the Recommended Road Layout- Plan & Profile Drawing

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LEGEND	
	PROPERTY BOUNDARY
	EXISTING ROAD
	PROPOSED ROAD
	PROPOSED ROW
	BY-PASS DITCH
	EXISTING CULVERT TO BE REMOVED
	EXISTING CULVERT TO REMAIN
	PROPOSED CULVERT
	PROPOSED STORM SEWER
	PROPOSED WATERMAIN
	PROPOSED SANITARY SEWER
	EXISTING SANITARY SEWER
	EXISTING SANITARY TRUNK SEWER
	PROPOSED RETAINING WALL

ALTERNATIVE 3 - HYBRID ALTERNATIVE MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT OLD MAIN STREET TOWN OF NEWMARKET			
DATE:	JULY 2022	PROJECT No.:	2020-0276
SCALE:	1:1500	FIGURE No.:	6-3

Table 6.3 Features of Alternative 3- Hybrid Alternative

IMPROVEMENT	DESCRIPTION
Watermain replacement	Replacement of existing 250mm diameter watermain with 727m of new 300mm diameter watermain within the road allowance as per Town Standards. Improvement identified in Town's Asset Management Plan.
Sanitary sewer improvements	Replacement and relocation of 460m of existing 250mm diameter sanitary sewer. Improvement is needed to address existing condition issues and relocate sanitary sewer within the Main Street North road allowance, as per Town Standards. New sanitary sewer will have sufficient capacity for future growth and servicing of properties currently serviced by private on-lot systems.
Main Street North Culvert Removals	Removal of existing culverts under Main Street North (Culverts C1 and C4).
New Storm sewer	435m of new shallow 450mm to 675mm diameter storm sewer on Main Street North from the intersection of Old Main Street and Main Street North to a new stormwater management dry pond. A shallow and insulated installation is necessary to allow stormwater to be conveyed to the East Holland River without backwater impacts due to flood levels in the East Holland River during a 100-year storm event.
Curb cut features	A new 5.0m curb cut at the location of the new stormwater management to allow drainage from the roadway to enter the stormwater management pond.
Water Quality	A new oil grit separator to be located upstream of the new stormwater management pond to capture oil and grit and enhance stormwater quality.
Downstream Culvert Improvements	A twin of the existing culvert under the Main Street North By-Pass to provide redundancy within the stormwater drainage system.
Road reconstruction	Reconstruction of Main Street North Road with an urban cross section, 15m to 25m road allowance width and a 6.6m pavement width. A new 1.5m (AODA compliant) sidewalk would be located on the east side of the road.
On-site stormwater management controls	For future development properties, on-site stormwater management quality and quantity controls will be needed to meet LSRCA Technical Guidelines and Town of Newmarket Standards.
Retaining Walls	Two sections of retaining walls (35m and 65m) to be located on the west side of Main Street North to match existing grades.

To implement Alternative 3, the Town will need to acquire a small piece of property to allow for the reconstruction of the road.

6.3 Evaluation of Alternatives

The alternatives were evaluated to select a recommended preferred alternative for presentation to relevant review agencies, the public and Indigenous Groups. The following sections present the evaluation methodology and criteria and the evaluation of alternatives.

6.3.1 Evaluation Methodology and Criteria

To evaluate the developed alternatives, a set of evaluation criteria were developed based on the following broad categories:

- **Natural Environment** – potential for natural environmental impacts including potential impacts to terrestrial and aquatic environments.
- **Social-Cultural Environment** – potential for impacts to the social and cultural environmental including impacts on residents, neighbourhoods, community character, land use, community features, archaeology, and cultural heritage.

- **Technical Environment** – technical considerations including constructability, operational requirements, conformance with design standards and requirements; and
- **Financial Environment** – cost considerations including capital cost to implement and ongoing operations and maintenance costs. Land acquisition requirements were also considered.

Table 6.4 presents the complete comparative evaluation criteria.

Table 6.4 Evaluation Criteria

CRITERIA	DESCRIPTION
Natural Environment	
Watercourse and Aquatic Impacts	Potential impacts to surface water, groundwater, floodplain, watercourse and fish habitat
Terrestrial / Greenspace and Natural Heritage Impacts	Loss of vegetation, terrestrial habitat, wildlife and endangered species
Social and Cultural Environment	
Traffic Impacts	Potential for temporary disruption to traffic flow during construction
Community and Neighbourhood Impacts	Potential for impacts to community features including parklands and open space areas used by residents
Nuisance Impacts	Potential for visual distraction, vibration, dust and noise impacts during construction and following implementation
Consistency with Land Use Designations, Approved Development Plans and Tertiary Plan Land Use Designations	Ability of alternative to support existing and future land use
Cultural / Heritage Areas / Potential Archaeological Resource Impacts	Potential impact to cultural / heritage / built heritage areas and archaeological resources
Recreation & Aesthetics	Opportunities for improvement of recreational trails, sidewalks, and aesthetic value
Technical and Engineering Considerations	
Constructability	Potential for encountering problems during construction (e.g., soil stability, geotechnical considerations, ease of excavation, utility relocations required) and potential need for permits/ approvals
Operation Requirements	Potential increase on operational requirements over current conditions
Compliance with Standards	Ability to meet the Town's engineering and design standards for water, sanitary, stormwater and transportation systems, Town's level of service requirements and approval agency requirements (i.e. LSRCA)
Construction Schedule Impacts	Potential length of construction schedule
Economic Considerations	
Capital Costs	Estimate of total capital costs based on preliminary costing
Operations and Maintenance Costs	Estimate of level of operating/ maintenance costs
Land Acquisition / Easement Requirements	Potential for land acquisition including permanent land acquisition easements and construction easements

To complete the evaluation of alternatives, the following steps were followed:

- For each criteria, the potential impacts of each alternative were identified based on assessment of Study Area features.

- For each criteria, alternatives were ranked as most preferred, less preferred or least preferred based on the potential impacts identified.
- For each criteria category (natural environment, social/ cultural environment, technical and economic considerations), alternatives were identified as most preferred, less preferred or least preferred based on the summation of individual criteria within the category.
- Alternatives were identified as most preferred, less preferred or least preferred based on the summation of the results for each criteria category.

6.4 Evaluation of Alternatives

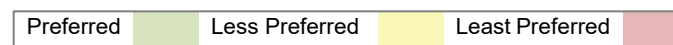
Table 6.5 presents the evaluation of the alternatives for the Study Area.

As indicated in **Table 6.5**, Alternative 3 - Hybrid Solution has been identified as the recommended preferred solution. This alternative has the following key benefits:

- This alternative will provide a robust stormwater management system that will include a new storm sewer, new oil grit separator and dry stormwater management pond all designed to meet all of the Town's Standards and LRSCA Technical Guidelines. This improved system will provide protection against flooding for residents for storm events up to the 100-year storm event. In addition, future developments within the Study Area will have site specific stormwater management requirements and will be encouraged to evaluate and implement LID stormwater management measures, where feasible, within their on-site stormwater management systems.
- This alternative includes improvements to the existing water distribution and sanitary sewer systems that will provide an enhanced level of service to existing residents and meet the needs of future planned development. The replacement of the existing watermain has already been identified as required due to age. The replacement/ repair of the existing sanitary sewer will address current condition issues and also relocate the sanitary sewer within the road allowance, which will meet Town Standards. The sanitary sewer improvements will allow for the gradual elimination of private on-lot sewage systems, or septic tanks, within the Study Area as any new development will be required to connect to the Town's sanitary sewer and existing residents will be able to connect over time. The gradual removal of the septic systems will improve local groundwater quality and have a benefit to the downstream water resources of the East Holland River and Lake Simcoe.
- This alternative includes the reconstruction of Main Street North as a new urban road. This narrow urban road, with a travel width of 6.6m, will reduce the potential for speeding while allowing for unfettered access for fire and emergency vehicles. Additional traffic calming measures can be incorporated into the detailed design of the road including pavement markings (centreline road painting) and this section of road can also be added to the Town's solar speed board rotation list. The new urban roadway, with curb and gutter has a benefit for stormwater management control as stormwater drainage from the road will be contained within the roadway for storms up to the 100-year design storm event, minimizing of stormwater overtopping the road and entering the lower lying properties on the east side of Main Street North.

Table 6.5 Evaluation of Alternative Solutions

Alternative 1 Do Nothing		Alternative 2 Enhanced Swale and Stormwater Management Pond	Alternative 3 Hybrid Alternative
Natural Environment Criteria			
Watercourses and Aquatic Impacts	Potential impacts to downstream aquatic fish habitat and aquatic species in East Holland River as stormwater quality and quantity controls will not be put into place. Lack of water quantity controls will continue to result in high peak flows which will impact on habitat. Lack of water quality controls will continue to degrade water quality in the River which will impact on aquatic species.	Stormwater management controls included in Alternative 2 will reduce the potential impacts to habitat and aquatic species in the East Holland River. The enhanced swale and dry pond will provide water quality improvement and control peak flows into the East Holland River. On site stormwater management measures for new development will also enhance water quality and control peak flows.	Stormwater management controls included in Alternative 3 will reduce potential impacts to habitat and aquatic species in the East Holland River. The oil grit separator and dry pond will provide additional water quality improvement and control peak flows into the East Holland River. On site stormwater management measures for new development will also enhance water quality and control peak flows.
Terrestrial / Greenspace and Natural Heritage Impacts	Alternative 1 will not involve any new construction within green space or natural heritage lands. Impacts are not anticipated.	Alternative 2 includes a new drainage swale on the west side of Main Street North which will require removal of existing vegetation. This impact can be mitigated through additional plantings elsewhere. Alternative 2 also includes a new stormwater management dry pond which will be constructed on open space lands owned by the Town.	Alternative 3 includes a new stormwater management dry pond which will be constructed on open space lands owned by the Town. Currently this a grassed area and new dry stormwater management pond will also be grassed area. Potential impact will be mitigated through landscape design.
Summary of Natural Environment	Alternative is least preferred as potential impacts have been identified to aquatic habitat and species.	Alternative is less preferred as measures to enhance water quality will be less effective than Alternative 3. This alternative will also have impacts on existing vegetation on the west side of Main Street North.	Alternative is most preferred as potential impacts to aquatic habitat and species can be mitigated due to water quality and quantity controls and potential impacts to terrestrial features can be mitigated through landscape design.
Social and Cultural Environment			
Traffic Impacts	As no construction will occur on Main Street North, there will be no impact on traffic.	Anticipated disruption to Main Street North traffic during construction. Impacts can be mitigated through good construction practices.	Anticipated disruptions to Main Street North traffic during construction. Impacts can be mitigated through good construction practices.
Community and Neighborhood Impacts	Flooding will continue to occur during large storm events which will have a significant impact on the community and property owners.	Alternative 2 will protect properties from potential for storms up to the 100-year design storm event. Alternative includes a new dry stormwater management pond which will be constructed on open space lands owned by the Town. During and following rainfall events, the pond will contain stormwater runoff and may be inaccessible for resident use.	Alternative 3 will protect properties from potential for storms up to the 100-year design storm event. Alternative includes a new dry stormwater management pond which will be constructed on open space lands owned by the Town. During and following rainfall events, the pond will contain stormwater runoff and may be inaccessible for resident use.
Nuisance Impacts	No construction-related impacts as no construction will occur.	Noise, dust, and other nuisance impacts during construction can be mitigated through good construction practices.	Noise, dust, and other nuisance impacts during construction can be mitigated through measures identified in design.
Consistency with Land Use Designations, Approved Development Plans and Tertiary Plan Land Use Designations	Servicing policies contained in the Tertiary Plan will not be met.	Alternative will enable development as per Tertiary Plan while meeting Town Standard and LSRCA technical guidelines. This alternative will require the Town to acquire property in order to construct a drainage swale located on the west side of Main Street North.	Alternative will enable development as per Tertiary Plan while meeting Town Standard and LSRCA technical guidelines. This alternative will require the Town to acquire a small piece of property in order to reconstruct Main Street North as an urban cross section.
Cultural / Heritage Areas / Potential Archaeological Resource Impacts	No cultural heritage areas or known archaeological resources will be impacted.	No cultural heritage areas or known archaeological resources will be impacted.	No cultural heritage areas or known archaeological resources will be impacted.



	Alternative 1 Do Nothing	Alternative 2 Enhanced Swale and Stormwater Management Pond	Alternative 3 Hybrid Alternative
Recreation & Aesthetics	No opportunities for improvement of sidewalks or pedestrian connections.	Improved right-of-way and sidewalk connectivity to adjacent areas.	Improved right-of-way and sidewalk connectivity to adjacent areas
Summary of Social/ Cultural Environment	Alternative is least preferred as flooding will continue to occur during large storm events and servicing policies identified in the Old Main Street Area Tertiary Plan will not be met.	Alternative is less preferred as it will provide protection against flooding up to the 100-year storm event but will require land acquisition on the west side of Main Street to construct a new 4m to 8m wide drainage swale.	Alternative is most preferred as it will provide protection against flooding up to the 100-year storm event and will require the Town to acquire a small piece of property to accommodate construction of an urban roadway.
Technical Considerations			
Constructability	There will no construction activities on Town owned property.	This alternative includes construction of new sanitary sewer, new watermain, new drainage swale and new stormwater management pond. The high groundwater table in the Study Area will present challenges during construction. Construction of the new drainage swale will require careful staging to minimize disruption to existing residents as the swale will require reconstruction of existing driveways. Property acquisition from multiple property owners will be needed for new swale construction. Removal and relocation of existing hydro and telecommunications infrastructure will be needed to allow for construction of the drainage swale. Approvals will be needed from LSRCA to permit construction of a stormwater management dry pond.	Alternative 3 includes construction of new sanitary sewer, new watermain, new storm sewer and a new stormwater management pond. The high groundwater table in the Study Area will present challenges during construction. Alternative involves construction of new retaining walls on Town owned property. Removal and relocation of existing hydro and telecommunications infrastructure will be needed to allow for the construction of the new urban road. Approvals will be needed from LSRCA to permit construction of the stormwater management dry pond. The Town will need to acquire a small piece of property from a single property owner to accommodate the roadway construction.
Operation Requirements	Alternative will not increase the Town's operation requirements.	Alternative will increase operational and maintenance requirements due to construction of drainage swale and stormwater management dry pond.	Alternative will increase operational and maintenance requirements due to construction of oil grit separator and stormwater management dry pond.
Compliance with Standards	Alternative will not meet Town Standards for stormwater management, LSRCA technical guidelines or Old Main Street Tertiary Plan servicing policies.	Alternative will meet Town Standards for stormwater management, LSRCA technical guidelines and Old Main Street Tertiary Plan servicing policies.	Alternative will meet Town Standards for stormwater management, LSRCA technical guidelines and Old Main Street Tertiary Plan servicing policies.
Construction Schedule Impacts	No construction works anticipated.	Construction can be completed within a single project.	Construction can be completed within a single project.
Summary of Technical Considerations	Alternative will not meet Town Standards for stormwater management and flood control, LSRCA technical guidelines or Old Main Street Tertiary Plan servicing policies.	Alternative will meet Town Standards for stormwater management and flood control, LSRCA technical guidelines and Old Main Street Tertiary Plan servicing policies. Potential challenges associated with maintaining driveway access to properties on the west side of Main Street North during construction of drainage swale and the need to acquire property from multiple property owners.	Alternative will meet Town Standards for stormwater management and flood control, LSRCA technical guidelines and Old Main Street Tertiary Plan servicing policies. The Town will need to acquire a small piece of property from a single property owner to accommodate the road construction.

Alternative 1 Do Nothing		Alternative 2 Enhanced Swale and Stormwater Management Pond	Alternative 3 Hybrid Alternative
Economic Considerations			
Capital Costs	No capital costs.	Moderate-high costs for construction.	High costs for construction or implementation.
Operation and Maintenance Costs	No increase in O&M costs	Typical dry pond operating and maintenance costs	Typical dry pond operating and maintenance costs
Land Acquisition / Easement Requirements	No land acquisition required.	Land will need to be acquired to accommodate construction of the new drainage swale on the west side of Main Street North from multiple property owners.	A small parcel of land will need to be acquired by the Town to permit construction of the new urban roadway from a single property owner.
Summary of Economic Considerations	Alternative is preferred due to low costs	Alternative is least preferred due to costs associated with new infrastructure and new land acquisition.	Alternative is less preferred due to cost associated with new infrastructure and small amount of land acquisition.
Overall Evaluation	<i>Alternative is least preferred as it does not provide flood control protection to existing and future residents.</i>	<i>Alternative is less preferred as it meets all standards and criteria but requires significant acquisition.</i>	<i>Alternative is most preferred as it meets all standards and criteria while requiring acquisition of a small parcel.</i>

- This alternative will require minimal property acquisition in order to implement. A small parcel of property will need to be acquired by the Town to allow for the reconstruction of Main Street North with a consistent travel width and allow for space for a new sidewalk, hydro poles and other utilities. This new road will also minimize impacts on existing driveways and existing grades will be matched at property line. To do this, some sections of driveway within the road allowance will be reconstructed. Driveway grades on the west side of Main Street North will be less steep than under existing conditions and will meet Town's Standards. Driveways on the east side of Main Street North will be reconstructed to create a high point at the property line. This high point will ensure stormwater during the 100-year design storm event, is contained within the road allowance and does not enter properties on the east side of Main Street North.
- This alternative includes construction two segments of retaining wall, which are necessary to match existing grades at property line. The Town will continue to explore opportunities to reduce and/or eliminate the need for these retaining walls through detailed design and through review of future development applications.

Following selection of the recommended preferred alternative, a Virtual Public Information Centre (PIC) was held on April 12, 2022, where the recommended preferred alternative was presented to the public and an opportunity was provided for those who attended the meeting to provide comments. The PIC presentation was also posted on the Town's website and comments were accepted via email for a two-week period following the PIC. Following receipt and consideration of all comments received, a preferred solution was finalized.

7 Recommended Preferred Solution

The following sections provide details on the elements of the preferred solution, presents performance information, identifies the Class EA schedule for each project element and provides information on impact mitigation measures. **Appendix B** provides further details on the recommended improvements included in the preferred solution. **Figure 7-1** presents the recommended preferred solution.

7.1.1 Sanitary Sewer System Improvements

Table 7.1 presents the elements of the sanitary sewer system improvements included in the preferred solution.

Table 7.1 Preferred Solution Sanitary Sewer System Improvements

PROJECT ELEMENT	DESCRIPTION
Sanitary Sewer Replacement/ rehabilitation	Replacement of 287.2 of existing 250mm diameter sanitary with a new 250mm diameter sanitary sewer from existing MH1775 to existing MH4798 to address defects identified through CCTV. There is one section of sanitary that has been deformed as well as two infiltration runners. As an alternative to replacement, the Town could consider spot repairs to address the defects identified through CCTV inspection.
Sanitary Sewer Replacement	Replacement of 175m of existing 250mm diameter sanitary sewer with a new 250mm diameter sanitary sewer from existing MH1773 to MH4798. The new sanitary sewer would be located within the road allowance of Main Street North.

7.1.2 Water Distribution System

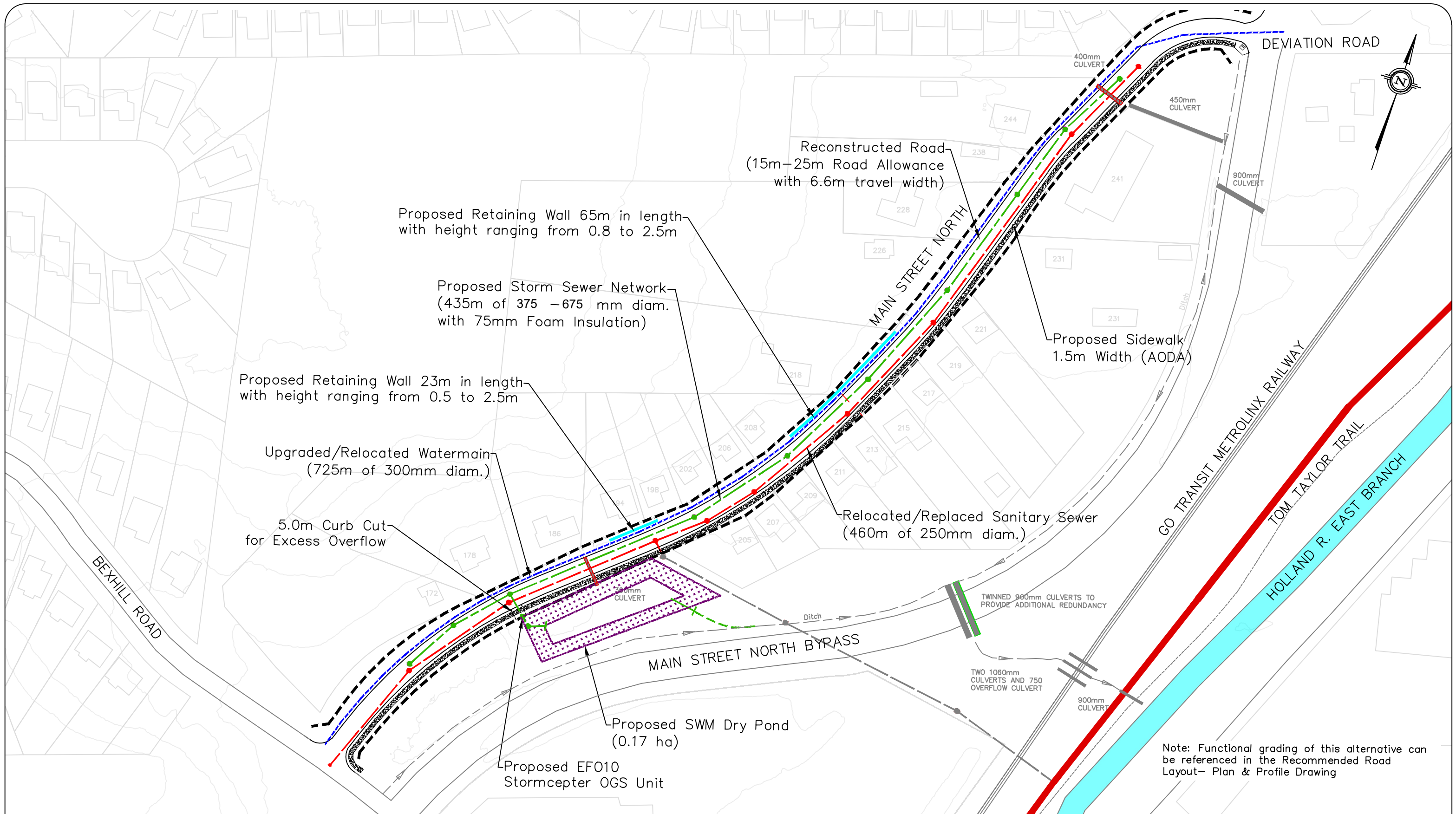
Table 7.2 presents the elements of the watermain distribution system improvements included in the preferred solution.

Table 7.2 Preferred Solution – Water Distribution System Improvements

PROJECT ELEMENT	DESCRIPTION
Watermain replacement	Upgrade and relocate existing 727m of existing 200mm diameter watermain with a new 300mm diameter watermain. The new watermain will become part of a looped watermain system and is recommended to be located on the west boulevard of the road allowance of Main Street North, as per Town Standards.

7.1.3 Storm Drainage System

Figure 7-1 presents the elements of the storm drainage system improvements included in the preferred solution.



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LEGEND	
	PROPERTY BOUNDARY
	EXISTING ROAD
	PROPOSED ROAD
	PROPOSED ROW
	BY-PASS DITCH
	EXISTING CULVERT TO BE REMOVED
	EXISTING CULVERT TO REMAIN
	PROPOSED CULVERT
	PROPOSED STORM SEWER
	PROPOSED WATERMAIN
	PROPOSED SANITARY SEWER
	EXISTING SANITARY SEWER
	EXISTING SANITARY TRUNK SEWER
	PROPOSED RETAINING WALL

PREFERRED SOLUTION			
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT			
OLD MAIN STREET			
TOWN OF NEWMARKET			
DATE:	JULY 2022	PROJECT No.:	2020-0276
SCALE:	1:1500	FIGURE No.:	7-1

Table 7.3 Preferred Solution – Storm Drainage System

PROJECT ELEMENT	DESCRIPTION
New Storm Sewer	A new shallow storm sewer along Main Street North from south of the intersection of Main Street North and Old Main Street to a new maintenance hole (MH1-MH8) with lengths of 66.4m (375mm), 101.6 (450mm), 95.2m (525mm) and 85.3m (600mm). This new shallow storm sewer will be insulated.
New Storm Sewer	A new shallow storm sewer along Main Street North from the north of the intersection of Bexhill Crescent to a new maintenance hole (MH 10- MH 8) with a total length of 52.6m (450mm). This new shallow storm sewer will be insulated.
New Storm Sewer	A new shallow storm sewer from MH8 to a new stormwater management dry pond with a total length of 30.9m (675mm). This new shallow storm sewer will be insulated.
Curb Cut	A new 5.0m wide curb cut immediately adjacent to the proposed stormwater management dry pond to allow overland drainage from Main Street North to enter the new stormwater management dry pond.
Oil Grit Separator	An EF010 Stormceptor oil grit separator unit to provide water quality control
Stormwater Management Dry Pond	A new 608m ³ stormwater management dry pond to control peak flow discharges downstream and provide Level 1 quality control. The new pond would be located on Town owned property and would occupy 0.17ha.
On-Lot Stormwater Management Controls	On-Lot stormwater management controls will be required for any future development applications to control post development peak flows to pre-development levels and to provide on-site water quality controls to meet LSRCA technical guidelines.
Main Street By-Pass Culvert Improvement	A new twin 900mm diameter culvert to be installed under the Main Street By-Pass to provide redundant culvert capacity. Existing culverts under Main Street North are to be removed.

7.1.4 Road Improvements

Table 7.4 presents the elements of road right-of-way improvements included in the preferred solution.

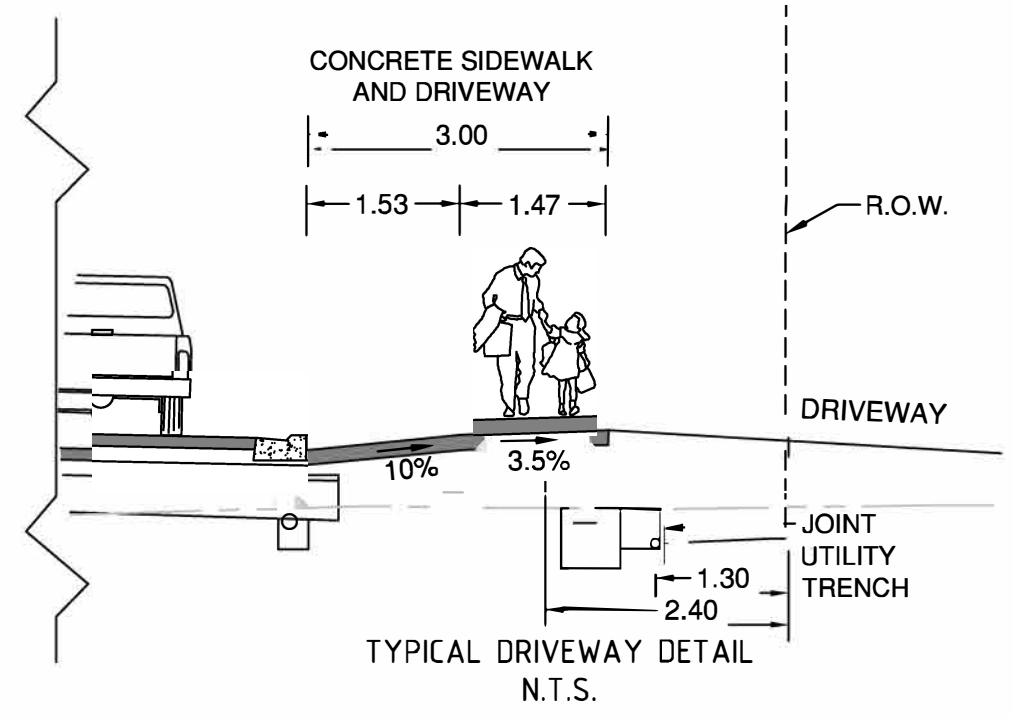
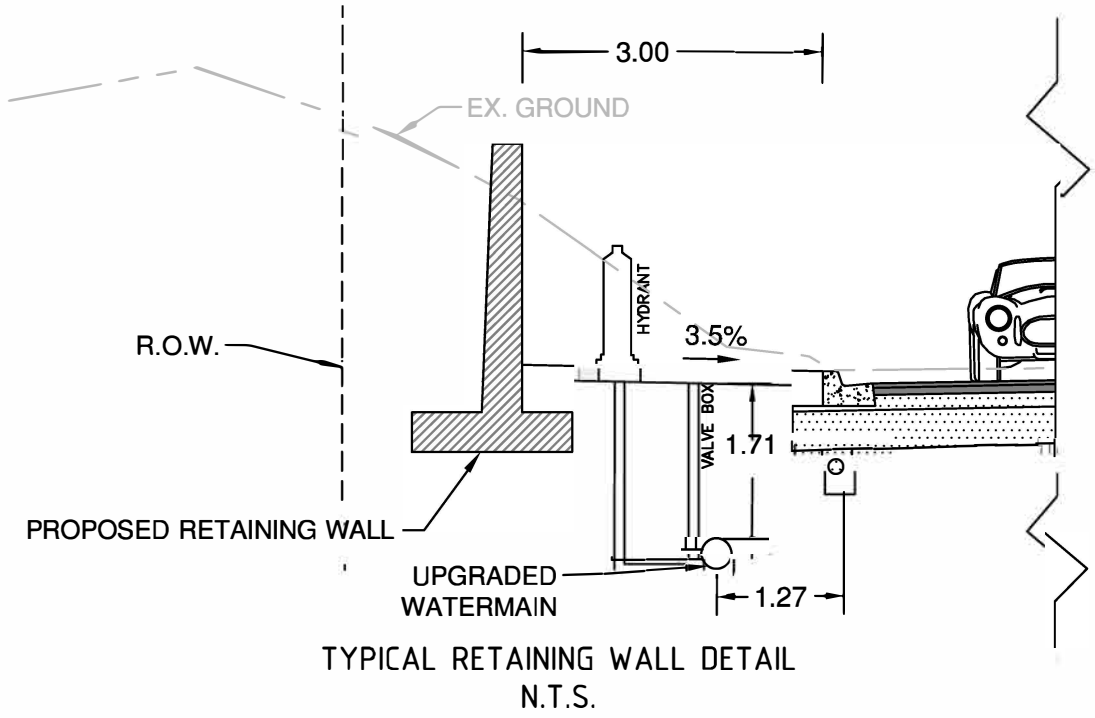
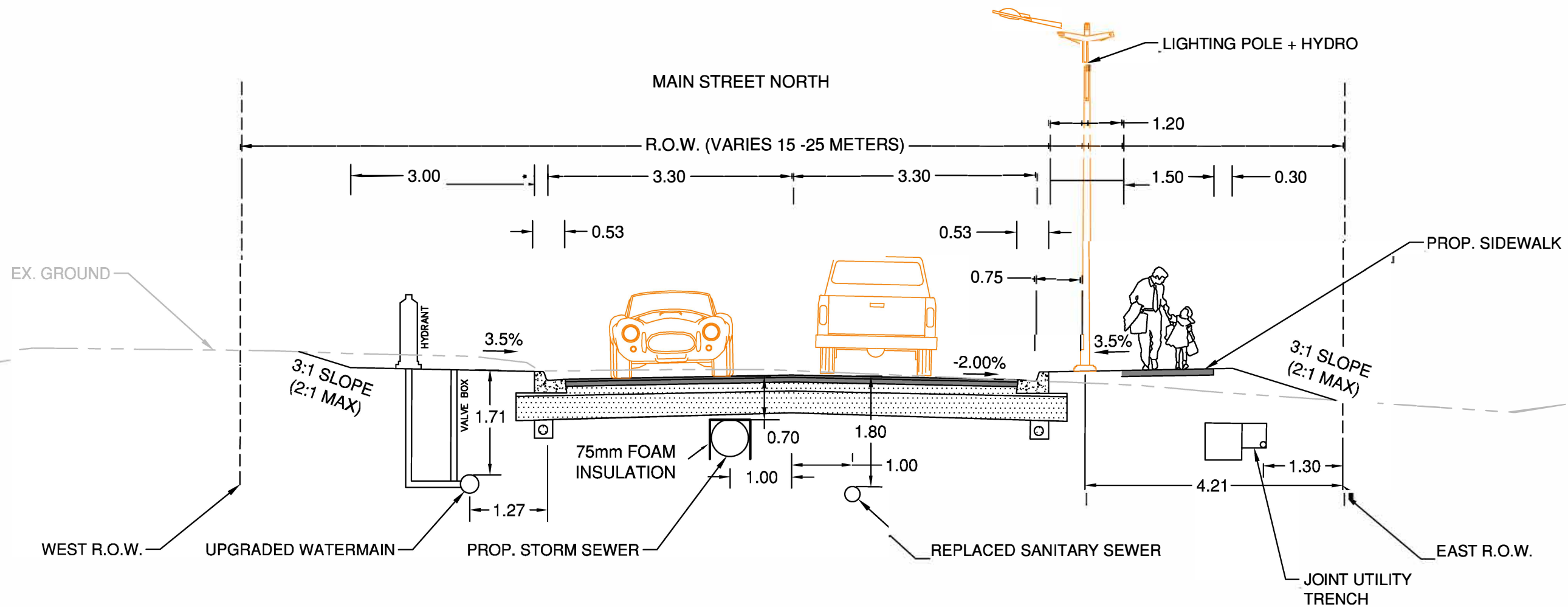
Table 7.4 Preferred Solution - Road Right-of-Way Improvements

PROJECT ELEMENT	DESCRIPTION
Reconstructed Road	Reconstructed urban road within a 15m-25m road allowance with a 6.6m travel width and 1.5m sidewalk (AODA compliant)
Retaining walls	Two sections of 23m and 65m long retaining wall to match existing grade at property line. Retaining walls are to located within the road allowance.

Figure 7-2 presents the typical road cross section for the preferred solution.

7.2 Preferred Solution Performance Assessment

The preferred solution will provide an enhanced level of service to existing residents and meet all Town Standards and LSRCA requirements for new development areas. The following describes the performance improvements which will be achieved with the preferred solution implementation.



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LEGEND

TYPICAL ROAD CROSS SECTION			
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT OLD MAIN STREET			
TOWN OF NEWMARKET			
DATE:	JULY 2022	PROJECT No.:	2020-0276
SCALE:	1:75	FIGURE No.:	7-2

7.2.1 Water Distribution and Sanitary Sewer Systems

The assessment of existing conditions identified that the existing water distribution system and existing sanitary sewer system have sufficient capacity to meet Town Standards under both existing and future conditions. The preferred solution does include improvements to these systems which will provide an enhanced level of service for both existing and future conditions as follows:

- A new 300mm diameter looped watermain will replace the existing watermain, which is ageing. This new 300mm diameter watermain will meet the Town's Standards for new and existing residents and meet maximum day, maximum hour and fire flow water demands within the required pressures.
- The preferred solution includes a relocated/ repaired existing sanitary sewer. A portion of the sanitary sewer will be relocated within the road allowance of Main Street North. The Town does require new sanitary sewers be constructed within the road allowance. In addition to the relocation, repairs/ replacement will also be made to the existing sanitary sewer to address deficiencies. There are two infiltration runners within the sections of sanitary sewer which will require repair or replacement to correct these defects. Infiltration contributes higher than expected peak flows to the Town's sanitary sewer system, impacts the capacity available to service existing and future residents, results in higher operations and maintenance costs and can result in an increased risk of basement flooding in downstream systems within the Town. The preferred solution will also accommodate flow from existing properties, currently serviced by private on-lot sanitary systems. The relocated/ repaired sanitary sewer will meet the Town's Standards.

7.2.2 Stormwater Drainage

The preferred solution includes a new shallow storm sewer, a new urban road cross section which will retain stormwater drainage within the road allowance, a new oil grit separator, a new stormwater management dry pond, culvert improvements, and on-lot stormwater management controls for new development. The preferred solution meets all Town Standards and LSRCA requirements. The following section presents the performance of the storm sewer and storm drainage system included in the preferred solution.

Figure 7-3 shows predicted water depths within the Study Area as a result of a 5-year storm under both existing conditions and with the preferred solution in place. This figure demonstrates that the preferred solution will result in lower water depths on the surface with the preferred solution. On the west side of Main Street North, the maximum depth of water on the surface is estimated to be reduced from 250mm to 15mm with implementation of the preferred solution. In addition, ditches and culverts which were identified as surcharged under existing conditions are to be removed and replaced by a new storm sewer, with adequate capacity. On the east side of Main Street North, water depths in the rear yards will be reduced from 250mm in some rear yards under existing conditions to 15mm with the implementation of the preferred solution. The depth of water in the Main Street By-Pass ditch will also be reduced and the extent of water in the ditch will also be reduced with the implementation of the preferred solution.

Figure 7-4 shows predicted water depths within the Study Area as a result of a 25-year storm under both existing conditions and with the preferred solution. This figure demonstrates that the preferred solution will result in lower water depths on the surface with the preferred solution. Under existing conditions, stormwater is predicted to overtop the road with water depths on the road of 15mm to 25mm predicted. The depth of water in the Main Street By-Pass ditch is predicted to be more than 500mm at the culvert inlet with water depths predicted in the rear yards of properties on the east side of Main Street North. A risk of flooding has been identified for properties on the east side of Main Street North. With the implementation of the preferred solution, water depth on the roadway will be minimal and will be concentrated in the area adjacent to the proposed stormwater management dry pond where a curb cut will allow water to

flow into the pond. The extent of ponding in the rear yards of properties will be significantly reduced and the risk of basement flooding to properties on the east side of Main Street North will be eliminated as a result of a 25-year design storm event.

Figure 7-5 presents a comparison of predicted water surface depths under existing conditions with the implementation of the preferred solution for a 100-year storm event.

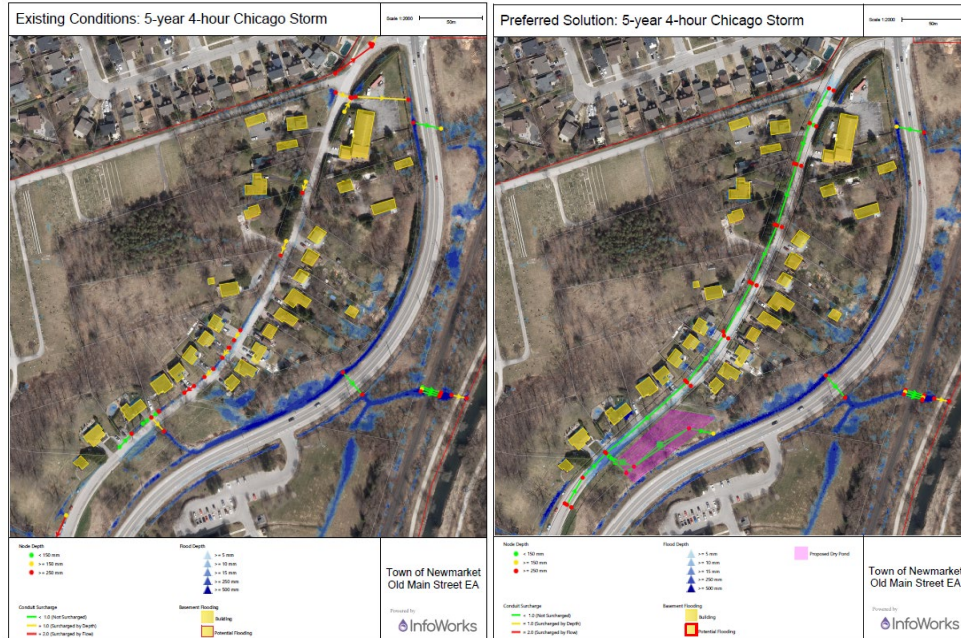


Figure 7-3 Comparison of Existing Conditions and Preferred Solution – Water Surface Depths During a 5-Year Storm Event

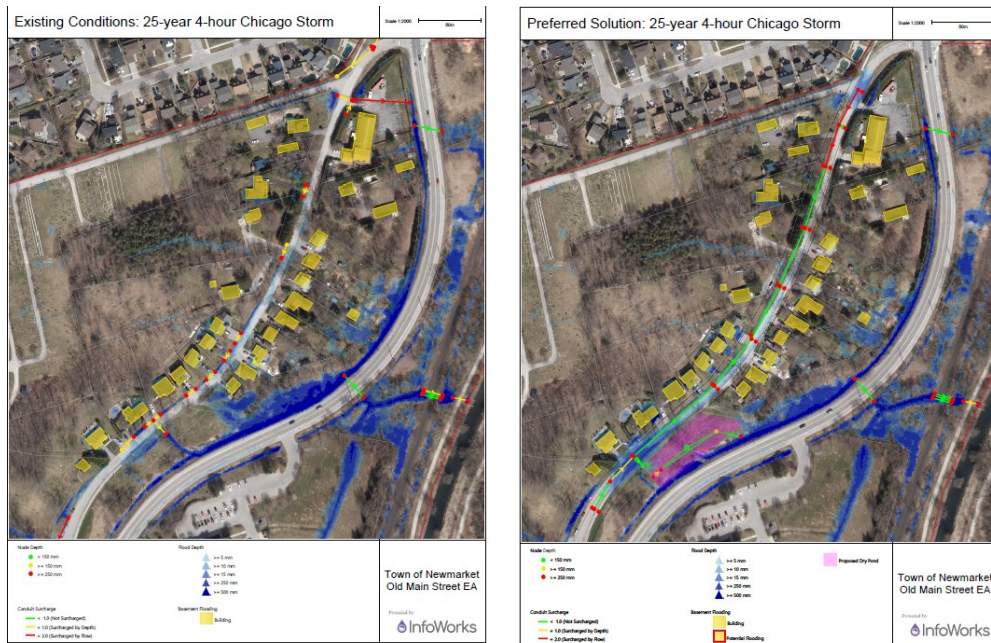


Figure 7-4 Comparison of Existing Conditions and Preferred Solution – Water Surface Depths During a 25-Year Storm Event

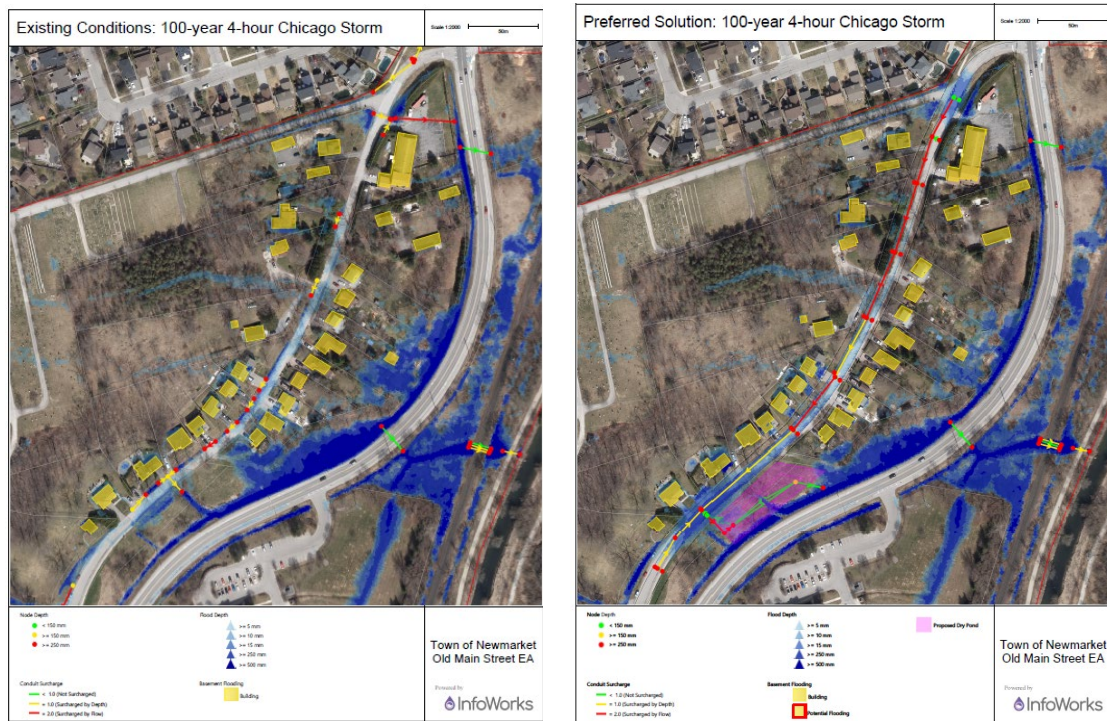


Figure 7-5 Comparison of Existing Conditions and Preferred Solution – Water Surface Depths During a 100-Year Storm Event

Figure 7-5 demonstrates the benefits of the preferred solution during a 100-year storm event. Under existing conditions, existing road culverts are surcharged, there is 15cm to 25cm of water on the roadway, up to 500mm of water depth in the Main Street By-Pass and ponding extends into the rear yards of many properties of the east side of Main Street North and there is a risk of flooding at five properties on the east side of Main Street North. With the implementation of the preferred solution, the depth of water in the road is reduced to 15cm and will be contained within the road allowance, the extent of ponding in the rear yards on the east side of Main Street North is reduced to the area surrounding the ditch and the risk of flooding for properties on the east side of Main Street North has been eliminated.

7.3 Class EA Schedule and Costs

Table 7.5 presents the Class EA schedule and costs for all improvements identified in this Master Plan.

Table 7.5 Master Plan Projects

PROJECT ELEMENT	DESCRIPTION	CLASS EA SCHEDULE	ESTIMATED PROJECT COST
Sanitary Sewer Replacement/ rehabilitation	Replace/ repair 287 m of 250mm dia. sanitary from MH1775 to MH4798, 175m of 250mm dia. sanitary sewer from MH1773 to MH4798 including new lateral sewers to the property line.	A+	\$1,463,000
Watermain Replacement	Upgrade and relocate 727m of existing 200mm diameter watermain with a new 300mm diameter looped watermain.	A+	\$2,020,000

PROJECT ELEMENT	DESCRIPTION	CLASS EA SCHEDULE	ESTIMATED PROJECT COST
Roadworks	Construct 520m of urban road with 15m-25m road allowance and 6.6m travel width complete with streetlighting and sidewalk	B	\$430,000
Grading and retaining walls	Construct 120m of new retaining wall along west side of Main Street North and regrade boulevard areas	B	\$152,000
Storm Sewer	Construct 432m of new shallow storm sewer, 375mm to 675mm	A	\$1,222,000
Oil Grit Separator	An EF010 Stormceptor oil grit separator unit to provide water quality control	A+	\$226,000
Stormwater Management Dry Pond	A new 608m ³ stormwater management dry pond to control peak flow discharges downstream and provide Level 1 quality control. The new pond would be located on Town owned property.	B	\$255,000
On-Lot Stormwater Management Controls	On-Lot stormwater management controls will be required for any future development applications to control post development peak flows to pre-development levels and to provide on-site water quality controls to meet LSRCA technical guidelines.	-	Responsibility of development proponents
Main Street By-Pass Culvert Improvement	A new twin 900mm diameter culvert to be installed under the Main Street By-Pass to provide redundant culvert capacity.	A+	\$416,000

7.4 Mitigation Measures

The potential environmental impacts associated with the preferred solution are related to the construction and implementation of the new road, drainage improvements and underground services. Most of these impacts will occur during the construction period. These impacts, their potential sources and mitigation, are identified in the following sections.

7.4.1 Traffic

Potential concerns include local traffic disruption during construction due to partial closure of Main Street North and the blockage of driveways to permit construction. The following mitigation measures are proposed:

- Preparation and implementation of a traffic management plan to maintain access to private property during construction and to maintain traffic flow during the construction period.
- Homeowners are to be notified if temporary blockage to their driveways during construction has to be considered. Any driveway blockages should be minimized and alternative short-term parking provided.
- Consultation and notification of York Region and Central York Fire Services of any temporary closures or blockages during construction.

7.4.2 Noise and Vibration

The potential source of noise and vibration are related to truck traffic and construction activities. The following mitigation measures are proposed to reduce these impacts:

- Establish construction access routes from Bexhill Crescent or Old Main Street North to minimize potential impact of truck traffic.

- Enforce the Town's noise by-law for construction activities.
- Set hours of construction operations based on the Town's noise bylaw requirements.
- Undertake a pre-construction survey for homes along Main Street North, which may be affected by vibration during construction.
- Minimize rock excavation, where possible. If rock excavation is required, blasting will not be permitted.

7.4.3 Sedimentation

Potential sources of sedimentation related to construction activities include sediments distributed and deposited by construction vehicles and blowing sand and dust. The following mitigation measures are proposed:

- Tire washing facilities are to be utilized for vehicles leaving the construction site.
- Sediment traps and rock filters are to be installed within overland drainage routes to trap sediment.
- A silt fence is to be installed along the perimeter of the construction site, where appropriate to keep silt out of area drainage system.
- To minimize the nuisance of blowing sand and dust, surfaces are to be watered as required to suppress dust.
- Exposed excavated materials are to be covered to prevent erosion by rain and wind.
- All new catchbasins should be covered by filter fabric during construction to prevent the migration of sediments into the downstream drainage ditches and ultimately the East Holland River and Lake Simcoe.

7.4.4 Trees

The removal of existing trees and vegetation is a potential concern. Final design requirements should be finalized between the Town Parks Department, Public Works and LSRCA. The following mitigation measures are proposed:

- As part of the detailed design, a tree inventory and field investigation will be needed.
- The detailed design should include efforts to keep infrastructure away from mature trees to prevent removal. Construction alignment should take into consideration the health and size of the trees along Main Street North and within the Town owned open space lands. Removal of mature trees should be avoided. Small trees, if removed, should be replaced or replanted, in accordance with Town Standards.
- Root pruning, if needed, will be completed in accordance with Town Parks Department requirements.
- It is recommended that the tree inventory be shared with First Nations.

7.4.5 Fisheries and Aquatic Species

The potential for fisheries and aquatic species impacts from construction activities is a concern that has been raised through our First Nations Consultation. The following mitigation measures are proposed:

- As part of detailed design, a species screening for Cultural Keystone Species should be completed including the preparation of an impact assessment and identification of mitigation measures to address any identified impacts.
- The Town should involve First Nations in the completion of species screening and impact assessment.
- Additional data and information collected in future should be considered in the screening and assessment.

7.4.6 Restoration

All sites / areas disturbed by construction activities will be restored. The proposed mitigation measures include the following:

- Disturbed driveways and parking areas are to be restored to their existing condition following construction.
- Removed small trees be replanted or replaced.
- Any disturbance to the existing open space lands is to be restored to their existing conditions or better.
- Disturbance to private properties are to be restored to original conditions or better.

7.4.7 Archaeology

The completed Stage 1 Archaeological Assessment did identify areas with as having archaeological potential within the Study Area. The following mitigation measures are recommended:

- Lands identified as having archaeological potential require a Stage 2 archaeological assessment by test pit survey at 5m intervals, where appropriate. The Stage 2 is required prior to any proposed construction activities. It is recommended that the Town invite First Nations, including Curve Lake First Nation, to participate in the Stage 2 archaeological assessment.
- St. John's Cemetery is immediately adjacent to the Study Area and must be avoided by any proposed construction impacts. There is a low potential for burials outside of the documented legal cemetery property limits. Stage 3 cemetery investigation is not recommended within the Study Area.
- Newmarket Cemetery is located 20m south of the Study Area and must be avoided by all proposed construction impacts.
- The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, or slopes in excess of 20 degrees. These lands do not require further archaeological assessment.
- Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

In the event that isolated or deeply buried archaeological remains are found during construction activities, ASI, the Town and the Cultural Programs Unit of the Ministry of Tourism, Culture and Sport are to be notified.

8 Recommendations and Conclusions

The following conclusions can be drawn from the completion of this study:

- The existing storm drainage system consists of roadside ditches, swales and culverts which convey stormwater to the downstream East Holland River. The Study Area drains eastward overland with steep grades on the west side of Main Street North and negative grades on the east side of Main Street North. During large storm events, the existing stormwater drainage system does not have sufficient capacity to provide the Town's required 100-year storm level of service. Properties on the east side of Main Street North are at risk of flooding as stormwater can overtop the road and flow towards the properties on the east side of the road.
- The existing watermain does have sufficient capacity to meet current and future water demands, under both maximum hour and fire flow conditions. However, the existing watermain is ageing and has been identified as requiring replacement in the Town's Asset Management Plan.
- The existing sanitary sewer does have sufficient capacity to convey current and future peak flows from the Study Area. However, a section of existing sanitary sewer is located outside of the existing road allowance on open space lands which are owned by the Town. Furthermore, a review of the condition of the current sanitary sewer identified deficiencies including two infiltration runners that allow stormwater to enter into the sanitary sewer system.
- Within the Study Area, there are a small number of existing properties where private on-lot sanitary systems, or septic systems, are used to provide sanitary servicing. Should these properties be redeveloped, the Town will require a connection to the sanitary sewer system.
- The existing roadway is a non-standard rural road with road-side ditches on the west side of the road, a non-standard and variable travel width and no sidewalk for pedestrian use. There are existing hydro poles on the west side of the roadway. There is also no centreline road marking.
- Existing residents report that excessive speed has been an issue along Main Street North. The lack of traffic calming features and the lack of a centreline marking could contribute to excessive speeding.
- There are two existing culverts under Main Street North, one existing culvert under the Main Street By-Pass and two culverts under the Metrolinx Go Rail. There is heavy vegetation around the inlet and outlet of the Main Street By-Pass culvert, which has restricted Town maintenance activities.
- Within the Study Area, stormwater drainage flows overland. There are a small number of downspouts that discharge into pipe systems and there is no evidence that there are any sump pump discharges into the sanitary sewer system.
- The existing storm drainage system does not meet the Town's level of service requirements for stormwater management quantity or quality control. Furthermore, there is no stormwater treatment train that would improve the quality of stormwater discharges into the East Holland River.
- Existing driveways, within the road allowance and on private property, have steep slopes on the west side of Main Street North and negative slopes on the east side of Main Street North. Driveway slopes do exceed the Town's Standards, in some cases.
- A geotechnical and hydrogeological study of the Study Area identified that infiltration based LID stormwater management measures are not feasible due to the

high groundwater table throughout the Study Area. Filtration based LID stormwater management measures are feasible in limited areas where the groundwater table is lower.

- The existing 100-year flood level in the downstream East Holland River restricts the ability to construct a standard depth storm sewer on Main Street North. A shallow storm sewer, with insulation, is feasible.
- The Stage 1 archaeological assessment did identify lands within the Study Area that retain archaeological potential, where a Stage 2 assessment would be required.

The following is recommended:

- The Town should implement the preferred solution identified in this study and move forward with reconstruction of Main Street North as an urban road with a new AODA compliant sidewalk and utilities located on the east side of Main Street North. The road allowance width will vary from 15m to 25m with a 6.6m travel width.
- The preferred solution road cross section will include a new high point at the property line on the east side of Main Street North. This new high point will enable stormwater drainage, for storm events up to the 100-year storm event, to be retained within the road allowance which will protect to lower lying properties on the east side of Main Street North from flooding.
- To implement the preferred solution for the road alignment, a small portion of property will need to be acquired by the Town.
- The Town should replace the existing 200mm diameter watermain with a new 300mm diameter looped watermain as part of the road reconstruction. This improvement has already been identified by the Town as part of the Town's Asset Management Plan and is needed due as the existing watermain is ageing.
- The Town should relocate the portion of the existing sanitary sewer located adjacent to the proposed stormwater management dry pond to within the road allowance of Main Street North. The Town should consider whether to replace the remaining sections of sanitary sewer or whether to complete sanitary sewer rehabilitation to address any condition issues at the time of detailed design.
- As part of the new sanitary sewer improvements, the Town should ensure all properties have a sanitary sewer connection at property line. Residents with existing on-lot sanitary system or septic systems, should be encouraged to connect to the sanitary sewer on Main Street North. Over time, the Town should move towards gradual elimination of all private on-lot sanitary systems. If development is proposed on any of these properties, the Town should require connection to the sanitary sewer system, in keeping with the Old Main Street Tertiary Plan servicing policies.
- On-lot stormwater management controls and stormwater management quality controls should be implemented for any new development lands, ensuring that post development peak flows do not exceed pre-development levels and that all LSRCA and Town stormwater management requirements are met, including 100% phosphorus control. LID measures should also be encouraged, where these measures are identified as feasible, based on site specific conditions.
- It is recommended that the Town twin the existing 900mm diameter culvert under the Main Street By-Pass to provide additional redundancy to the existing storm drainage system.
- Stormwater management quality controls are recommended to be implemented in the Study including a new stormceptor oil grit separator and new stormwater management pond dry.

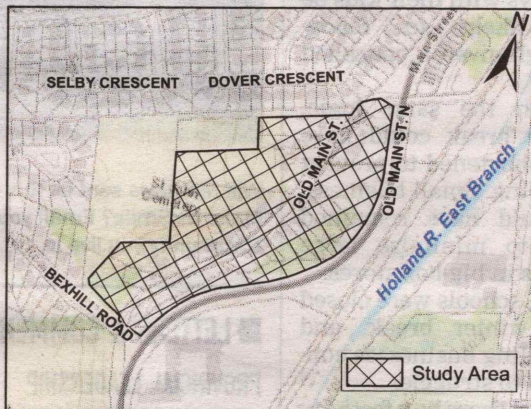
- It is recommended that more stringent on-lot stormwater management controls be imposed to meet LSRCA's requirement to capture and retain/ treat runoff from a 25mm rainfall event for the reconstructed roadway.
- The Town should construct two sections of retaining wall on the west side of the new road alignment for Main Street North. These two sections of retaining will enable the driveway grades to meet Town Standards while matching grades at property line. It is recommended that the Town revisit the need for these walls as part of the detailed design process and work with development proponents to change the grade at the property line.
- The Town should initiate a Stage 2 archaeological assessment to address the recommendations of the Stage 1 archaeological assessment. Of particular note, the location of the stormwater management dry pond in the preferred solution will require a Stage 2 archaeological assessment. It is recommended that the Town invite First Nations, including Curve Lake First Nation, to participate in the Stage 2 archaeological assessment.
- The Town should complete a species screening for Cultural Keystone Species and include the preparation of an impact assessment and identification of mitigation measures to address any identified impacts. It is recommended that the Town involve First Nations in the assessment, including representatives of Curve Lake First Nation.
- As part of detailed design, it is recommended that the Town complete a tree inventory and investigation. The detailed design should consider refinements to avoid the removal of mature trees. It is also recommended that the tree inventory be shared with First Nations, including representatives of Curve Lake First Nation. As part of detailed design, the Town should also consider mitigation measures necessary to mitigate potential impacts on water resources, including the unevaluated wetland, located on the east side of the East Holland River, outside of the Study Area. It is recommended that the Town submit the proposed mitigation measures to Curve Lake First Nations for comment.

Appendix A

Public Consultation and Correspondence

Town of Newmarket Old Main Street Tertiary Plan Area Master Plan Municipal Class Environmental Assessment Study Notice of Study Commencement

The Town of Newmarket is undertaking a Municipal Class Environmental Assessment (EA) Study to assess the existing condition, capacity and any required improvements for water, wastewater and storm drainage infrastructure needed to support the policies of the Old Main Street Tertiary Plan. This study will also include a review and analysis of the Old Main Street existing road right-of-way in order to develop an urban road cross-section to meet the Town of Newmarket's Engineering Design Standards and Criteria, the Old Main Street Tertiary Plan objectives, and the Town's policies. The study area is shown in the figure below.



This Master Plan will be prepared in accordance with the requirements of the Municipal Class Environmental Assessment process (Class EA, October 2000, as amended in 2007, 2011 and 2015).

Public consultation is vital to the success of this study. The Town of Newmarket wants to ensure that anyone interested in the

Master Plan has the opportunity to provide input. It is anticipated that a Public Information Centre (PIC) will be held in the fall of 2021 to receive public input on the alternatives that were studied and the recommended preferred alternative. A notice will be published in advance of the consultation. Interested stakeholders can sign up for the study mailing list so that they can be kept informed of the Master Plan's progress. Members of the public are encouraged to provide their comments throughout this study to ensure that concerns can be adequately addressed. At the completion of the planning process, the Master Plan will be publicly published.

We are interested in hearing any comments or concerns that you might have. Communications received during the course of this study will be included in the final Master Plan document. The names of local residents will be excluded from public record to maintain their privacy. Please contact either of the representatives listed below if you have any questions or wish to be included on the mailing list.

Christine Hill, M.Eng., P.Eng.,
Associate Director,
Practice Lead- Water Facilities

IBI Group

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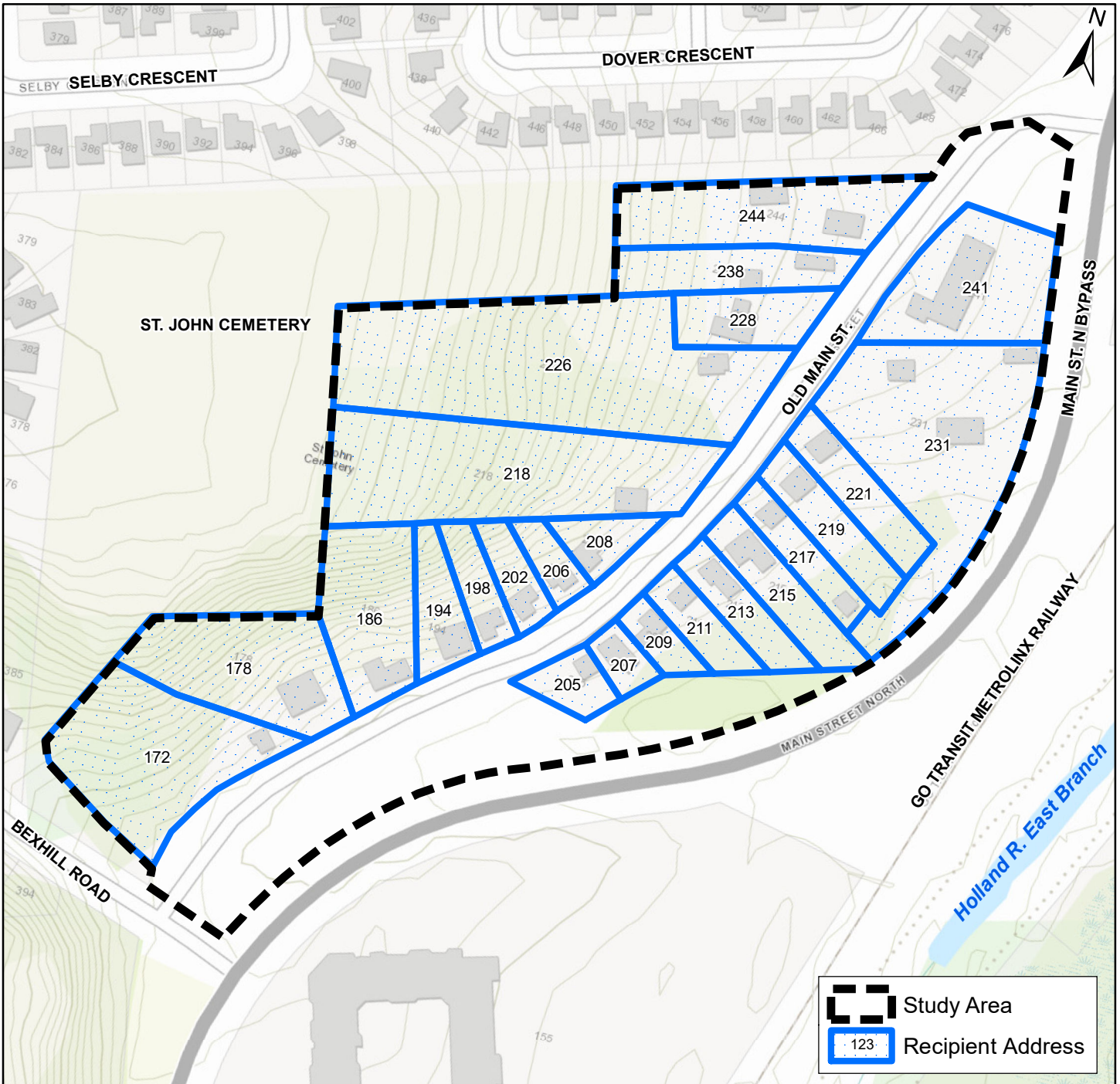
Sepideh Majdi, M.Sc., P.Eng.,
Manager,
Development Engineering
Engineering Services

Town of Newmarket

395 Mulock Drive
PO BOX 328 STN
Newmarket, ON L3Y 4X7
smajdi@newmarket.ca

FEDERAL AGENCIES																
Comms. PIC	Compl. Adr	Remove	Mr./Ms.	First Name	Last Name	Name	Job Title	Company	Address 1	Address 2	City	Prov	Post Code	Phone	Fax	Email
✓			Mr.	David	Nanang	Mr. David Nanang	Regional Director General, Central and Arctic Region	Department of Fisheries and Oceans	Regional Director Generals Office	520 Emouath Street	Sarnia	ON	N7T 8B1	519-383-1810	519-464-5128	david.nanang@dfo-mpo.gc.ca
✓			Ms.	Esther	Bobet	Ms. Esther Bobet	Regional Director	Environment Canada	Environmental Protection Operations	4905 Dufferin Street	Toronto	ON	M3H 5T4	416-739-5880	416-739-4797	esther.bobet@ec.gc.ca
✓			Mr.	Rob	Dobos	Mr. Rob Dobos	Manager	Environment Canada	Environmental Assessment Section	867 Lakeshore Road, Box 5050	Burlington	ON	L7R 4A6	905-336-4953	905-336-8901	rob.dobos@canada.ca
PROVINCIAL AGENCIES																
Comms. PIC	Compl. Adr	Remove	Mr./Ms.	First Name	Last Name	Name	Job Title	Company	Address 1	Address 2	City	Prov	Post Code	Phone	Fax	Email
✓			Mr.	Lukasz	Grobel	Mr. Lukasz Grobel	Senior Project Engineer	Ministry of Transportation	Transportation Infrastructure Management Division	Bl'dg B, 125 Sir William Hearst Ave	Toronto	ON	M3M 0B6	416-235-5616		lukasz.grobel@ontario.ca
✓			Ms.	Irina	Khvashchetskaya	Ms. Irina Khvashchetskaya	Regional Advisor	Ministry of Heritage, Sport, Tourism and Culture Industries	Regional Services and Corporate Support Branch, Central Region	2nd Flr, 400 University Ave	Toronto	ON	L2R 7R4	416-314-6044	416-314-2024	irina.khvashchetskaya@ontario.ca
✓			Ms.	Diane	Zimnica	Ms. Diane Zimnica	Director	Ministry of Natural Resources and Forestry	Legal Services Branch	Whitney Block Rm 3420, 99 Wellesley St W	Toronto	ON	M7A 1W3	416-314-5173		diane.zimnica@ontario.ca
✓			Mr.	Timothy	Haldenby	Mr. Timothy Haldenby	Team Lead	Ministry of Municipal Affairs and Housing	Central Municipal Services Office	College Park 13th Flr, 777 Bay St	Toronto	ON	M7A 2J3	416-585-6559		tim.haldenby@ontario.ca
✓			Ms.	Heather	Malcolmson	Ms. Heather Malcolmson	Director	Ministry of Environment, Conservation and Parks	Environmental Permissions Branch	135 St Clair Ave W	Toronto	ON	M4V 1P5	416-302-4063		heather.malcolmson@ontario.ca
✓			Ms.	Kathleen	O'Neill	Ms. Kathleen O'Neill	Environmental Assessment Director	Ministry of Environment, Conservation and Parks	Environmental Permissions Branch	135 St Clair Ave W	Toronto	ON	M4V 1P5			kathleen.chevill@ontario.ca
INDIGENOUS COMMUNITIES																
Comms. PIC	Compl. Adr	Remove	Mr./Ms.	First Name	Last Name	Name	Job Title	Company	Address 1	Address 2	City	Prov	Post Code	Phone	Fax	Email
✓			Ms.	Donna	Big Canoe	Ms. Donna Big Canoe	Chief	Chippewas of Georgina Island	Administration Office	R.R.#2 Box N-13	Sutton West	ON	L0E 1R0	705-437-1337	705-437-4597	donna.bigcanoe@georginaisland.com
	✓		Mr.	Brandon	Stiles	Ms. Brandon Stiles	Environment Co-ordinator	Chippewas of Georgina Island	Administration Office	R.R.#2 Box N-13	Sutton West	ON	L0E 1R0	705-437-1337	705-437-4597	brandon.stiles@georginaisland.com
	✓		Ms.	Natasha	Charles	Ms. Natasha Charles	Executive Assistance to Chief in Council	Chippewas of Georgina Island	Administration Office	R.R.#2 Box N-13	Sutton West	ON	L0E 1R0	705-437-1337	705-437-4597	natasha.charles@georginaisland.com
✓			Ms.	Sharday	James	Ms. Sharday James	Community Consultation	Chippewas of Rama First Nation	Administration Office	5884 Rama Road, Suite 200	Rama	ON	L3V 6H6	705-325-3611Ext. 1633		shardayj@ramafirstnation.ca
✓			✓	Chief	Guy	Hariton Monague	Chief	Beausoleil First Nation	Administration Office	11 O'Gemma Street	Christian Island	ON	L9M 0A9	705-247-2051		hfnchief@chimissing.ca
✓			✓	Ms.	Dana	Monague	Ms. Dana Monague	Lands Compliance Officer	Administration Office	11 O'Gemma Street	Christian Island	ON	L9M 0A9	705-247-8974		danamonague@chimissing.ca
✓			✓	Ms.	Monica	Sanford	Ms. Monica Sanford	Community Consultation Administrative Assistant	Administration Office	22521 Island Road	Port Perry	ON	L9L 1B6	905-985-3337		monifer@scugogfirstnation.com
✓			✓	Ms.	Kaitlin	Hill	Ms. Kaitlin Hill	Lands and Resources Consultation Liaison	Administration Office	22 Winookeda Street	Curve Lake	ON	K0L 1R0	705-657-8045		Emily.W@curvelake.ca
✓			✓					Métis Nation of Ontario	Head Office	Suite 1100 - 11th Floor, 66 Slater Street	Ottawa	ON	K1P 5H1	613-798-1488 Ext 100		mno@metisnation.org
✓			✓					Métis Nation of Ontario	Lands, Resources and Consultation Branch							consultation@metisnation.org
Comms. PIC	Compl. Adr	Remove	Mr./Ms.	First Name	Last Name	Name	Job Title	Company	Address 1	Address 2	City	Prov	Post Code	Phone	Fax	Email
✓			Mr.	Dave	Ruggie	Mr. Dave Ruggie	Planner	Lake Simcoe Region Conservation Authority		120 Bayview Parkway	Newmarket	ON		905-895-1281 ext 240	905-853-5880	d.ruggie@lsvca.on.ca
✓			Mr.	Glen	MacMillan	Mr. Glenn MacMillan	General Manager of Planning, Development and Watershed Restoration Services	Lake Simcoe Region Conservation Authority		120 Bayview Parkway	Newmarket	ON		905-895-1281 ext 331	905-853-5881	g.mcmillan@lsvca.on.ca
✓			Mr.	John A.	Buckley	Mr. John A. Buckley	LARKIN+ land use planners inc.		849 Gorham St.		Newmarket	ON	L3Y1L7	Work: 905 895 0554 x 107 Mob: 416 580 1410		john@larkinplus.com
✓			Mr.	Aaron M.	Gillard	Mr. Aaron M. Gillard	LARKIN+ land use planners inc.		849 Gorham St.		Newmarket	ON	L3Y1L7			aam@larkinplus.com
✓			Ms.	Ziya	Cao	Ms. Ziya Cao	Planner	Macaulay Shiomi Howson Ltd.	#202-520 Industrial Pkwy 5 Aurora, ON L4G 6W8	600 Annette St Toronto ON M6S 2C4			T: 905 503 3440 (Aurora) T: 416 487 4101 (Toronto)	F: 905 503 3442 (Aurora) F: 416 487 5489 (Toronto)	zyca@shelton.ca	

Notice of Commencement Delivery Map





IBI GROUP
8133 Warden Avenue, Unit 300
Markham ON L6G 1B3 Canada
tel 905 754 8060 fax 905 940 2064
ibigroup.com

April 26, 2021

Dear Property Owners and Residents:

RE: UPCOMING GEOTECHNICAL INVESTIGATION IN YOUR AREA

The Town of Newmarket is undertaking a Municipal Class Environmental Assessment (EA) Study to assess the existing condition, capacity and any required improvements for water, wastewater and storm drainage infrastructure needed to support the policies of the Old Main Street Tertiary Plan. All residents residing in the study limits recently received a Commencement Notice in the mail regarding this master plan study.

Peto MacCallum Limited (PML) has been retained by IBI Group Limited, the study's engineering consultant, to provide Geotechnical Investigation and Chemical Analysis services to support the Town of Newmarket's Master Plan Class EA for Old Main Street Tertiary Plan Area.

The purpose of this letter is to notify residents of the upcoming Geotechnical Investigation field work. PML's workplan includes drilling seven (7) boreholes to reasonably define soil conditions and groundwater elevations across the study area and to identify potential concerns related to subsoil conditions. Boreholes will be positioned along Main St. N right-of-way and municipally owned lands.

The PML workplan will utilize multiple drilling crews and should be completed in four (4) days weather permitting and provided there are no access issues at the site. Groundwater measurements will be taken during drilling, upon completion of drilling work and for a period of one to two weeks after completion of the borehole drilling work. The geotechnical investigation is scheduled to begin first week of May 2021, dates are dependent on locates and field permit applications.

You may experience intermittent noise and vibration from drilling operations. Access for emergency vehicles will be maintained at all times. Efforts have been made to manage traffic in the area for the safety of workers, road users and residents. Road users may experience delays as a result of increased traffic on nearby main and side streets if temporary road closures or lane reductions in the work area are required to complete work safely. All field work will be supervised by qualified PML technical field staff.

In addition, you may have encountered Lloyd & Purcell Ltd. Ontario Land Surveyors completing field work over the last couple of weeks. This work is also in support of this engineering study to provide land survey services.

If you have any comments or concerns, please contact either of the representatives listed below.

Will Heywood, P.Eng.
Associate Manager, Stormwater Management
IBI Group Ltd.
8133 Warden Ave, Unit 300
Markham ON L6G 1B3
T: 416-770-5936
will.heywood@ibigroup.com

Sepideh Majdi, M.Sc., P.Eng.
Manager, Development Engineering
Engineering Services
Town of Newmarket
395 Mulock Drive, PO BOX 328 STN
Newmarket, ON L3Y 4X7
smajdi@newmarket.ca



IBI GROUP
8133 Warden Avenue, Unit 300
Markham ON L6G 1B3 Canada
tel 905 754 8060 fax 905 940 2064
ibigroup.com

March 18, 2021

Local Resident
172 Old Main Street
Town of Newmarket
L3Y 8C2, ON

Dear Resident:

**Re: Master Plan Class Environmental Assessment
Old Main Street Tertiary Plan Area**

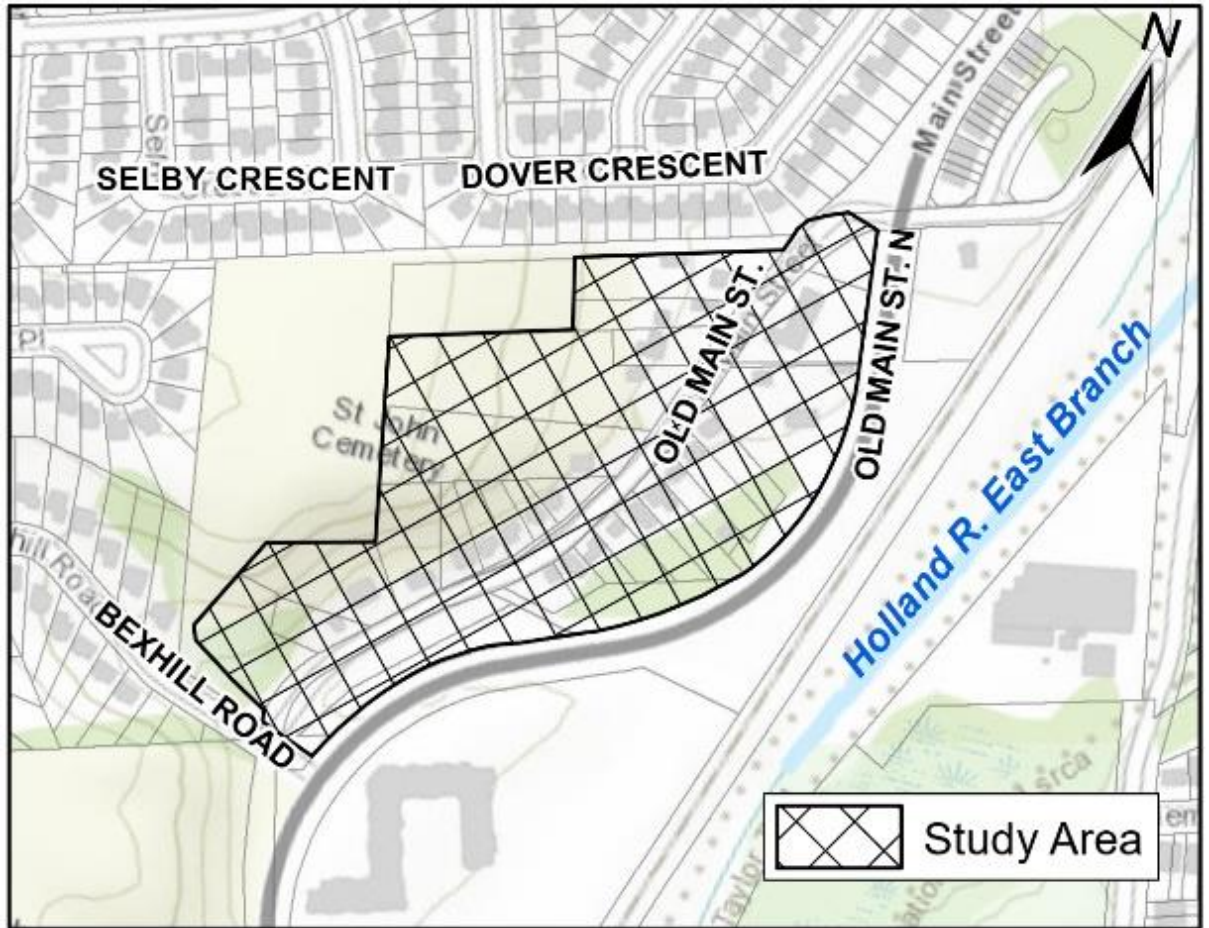
The Town of Newmarket is undertaking a Master Plan Municipal Class Environmental Assessment Study to assess the existing condition, capacity and the required improvements for water, wastewater and storm drainage infrastructure needed to support the policies in the Old Main Street Tertiary Plan. This study will also include a review and analysis of the Old Main Street existing road right-of-way in order to develop an urban road cross-section to meet the Town of Newmarket's Engineering Design Standards and Criteria, the Old Main Street Tertiary Plan objectives and Town policies. The study area is shown in the figure below.

This Master Plan will be prepared in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA process, October 2000, as amended in 2007, 2011 and 2015). The Master Plan will follow Approach 2 in the Class EA which entails completion of Phases 1 and 2 of Schedule B projects identified. Based on the approach selected, any specific projects identified within the Master Plan must fulfil all Class EA requirements for Schedule A, A+ and B projects and recommend completion of Phases 3 and 4 to satisfy EA requirements for any Schedule C projects.

Public consultation is vital to the success of this study. The Town of Newmarket wants to ensure that anyone interested in the Master Plan has the opportunity to provide input. It is anticipated that a Public Information Centre (PIC) will be held in 2021 to receive public input on the alternatives developed and the recommended preferred alternative. A notice will be published in advance of the consultation. Interested stakeholders can sign up for the study mailing list so that they can be kept informed of the Master Plan's progress. Members of the public are encouraged to provide their comments throughout this study to ensure that concerns can be adequately addressed. At the completion of the planning process, the Master Plan will be publicly published.

We are interested in hearing any comments or concerns that you may have. Communications received during the course of this study will be included in the final Master Plan document. The names of local residents will be excluded from public record to maintain their privacy. Please contact either one of the representatives listed below if you have any questions or wish to be included on the mailing list.

Master Plan Class Environmental Assessment
 Old Main Street Tertiary Plan Area



<p>Christine Hill, M.Eng., P.Eng., Associate Director, Practice Lead- Water Facilities IBI Group 2620 Bristol Circle, Suite 300 Oakville ON L6H 6Z7 Phone: 416-606-8762 Fax: 905-940-2064 Email: christine.hill@ibigroup.com</p>	<p>Sepideh Majdi, M.Sc., P.Eng., Manager, Development Engineering Engineering Services Town of Newmarket 395 Mulock Drive PO BOX 328 STN Newmarket, ON L3Y 4X7 T: 905-953-5300, ext. 2522 Email: smajdi@newmarket.ca</p>
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ibigroup.com

March 18, 2021

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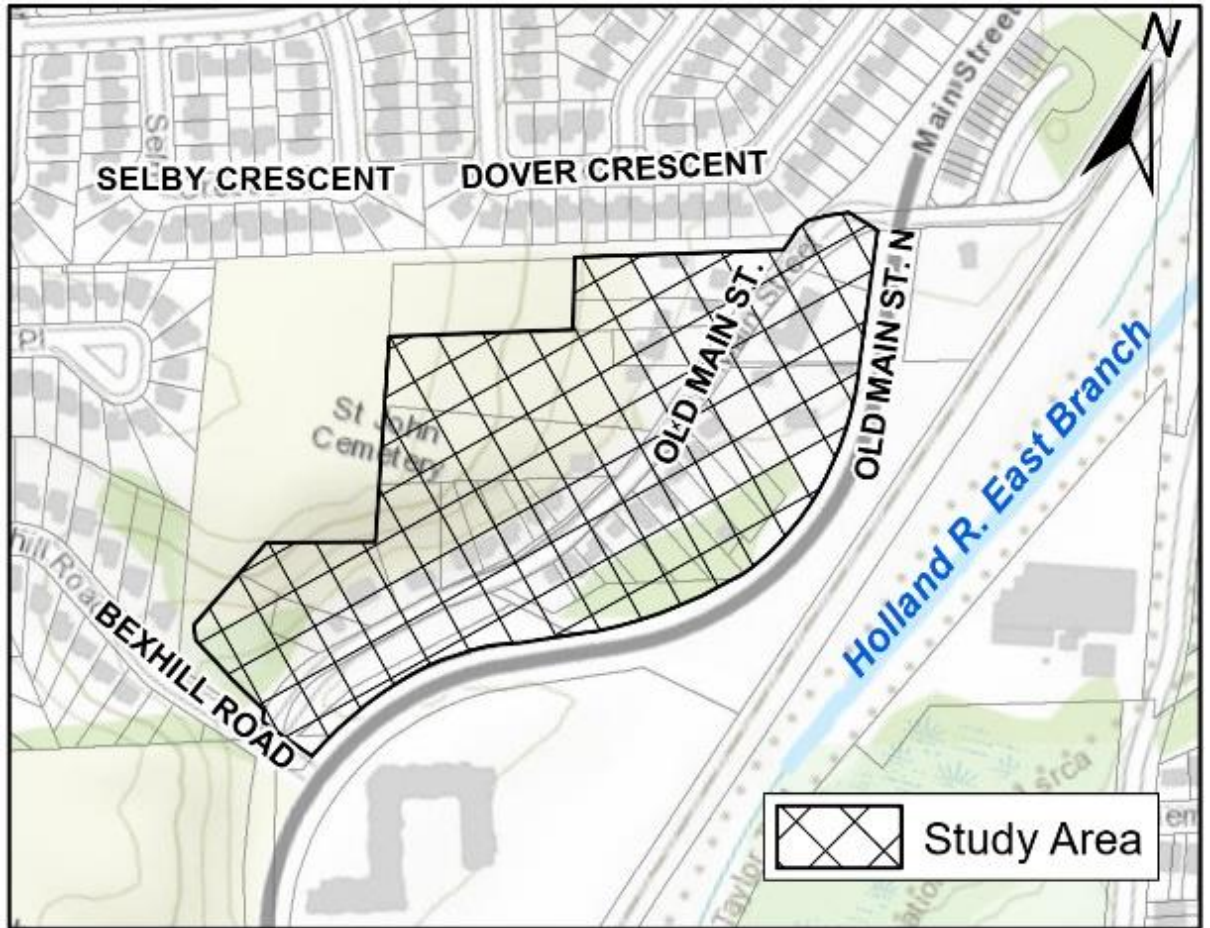
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March 18, 2021

Local Resident
186 Old Main Street
Town of Newmarket
L3Y 8C2, ON

Dear Resident:

**Re: Master Plan Class Environmental Assessment
Old Main Street Tertiary Plan Area**

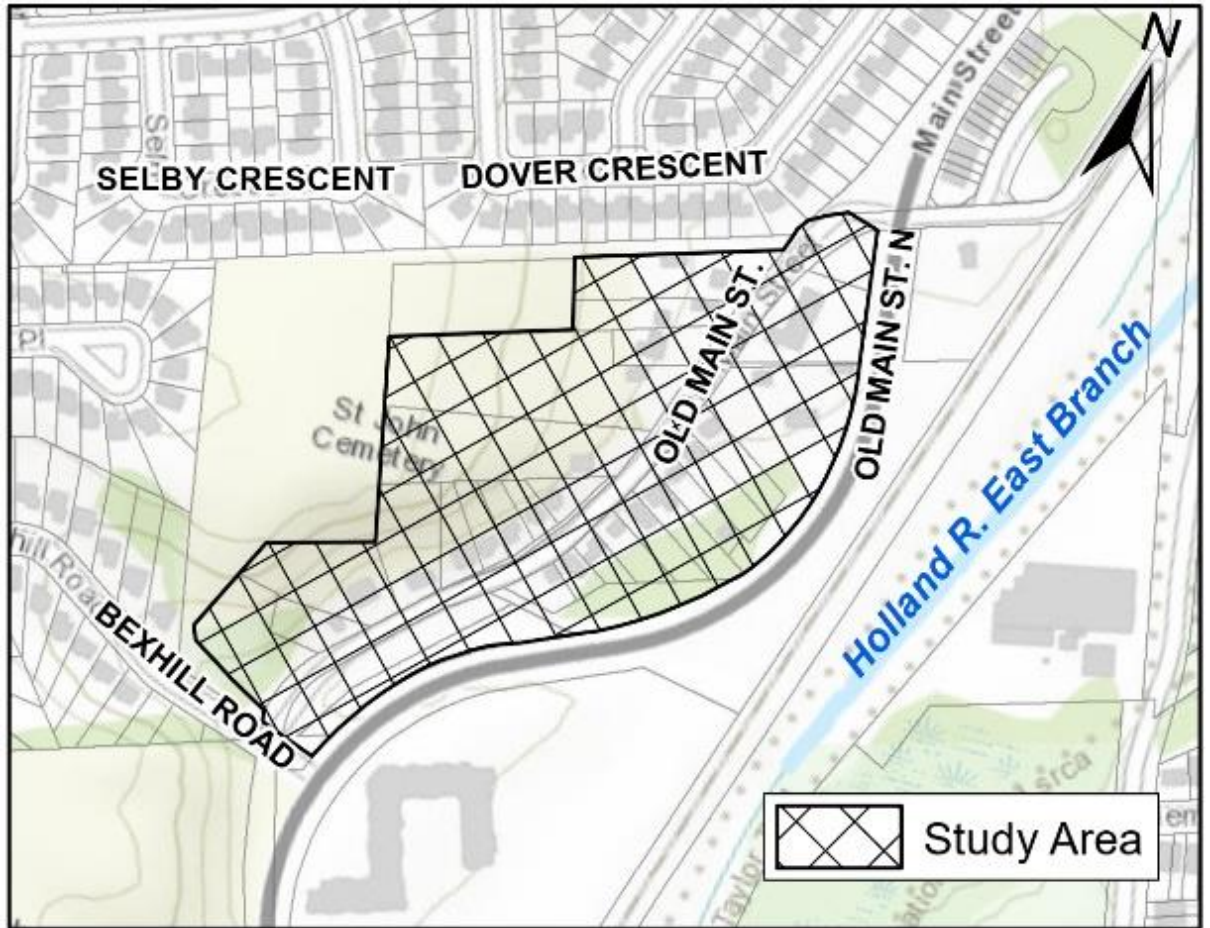
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 Associate Director,
 Practice Lead- Water Facilities
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March 18, 2021

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Old Main Street Tertiary Plan Area**

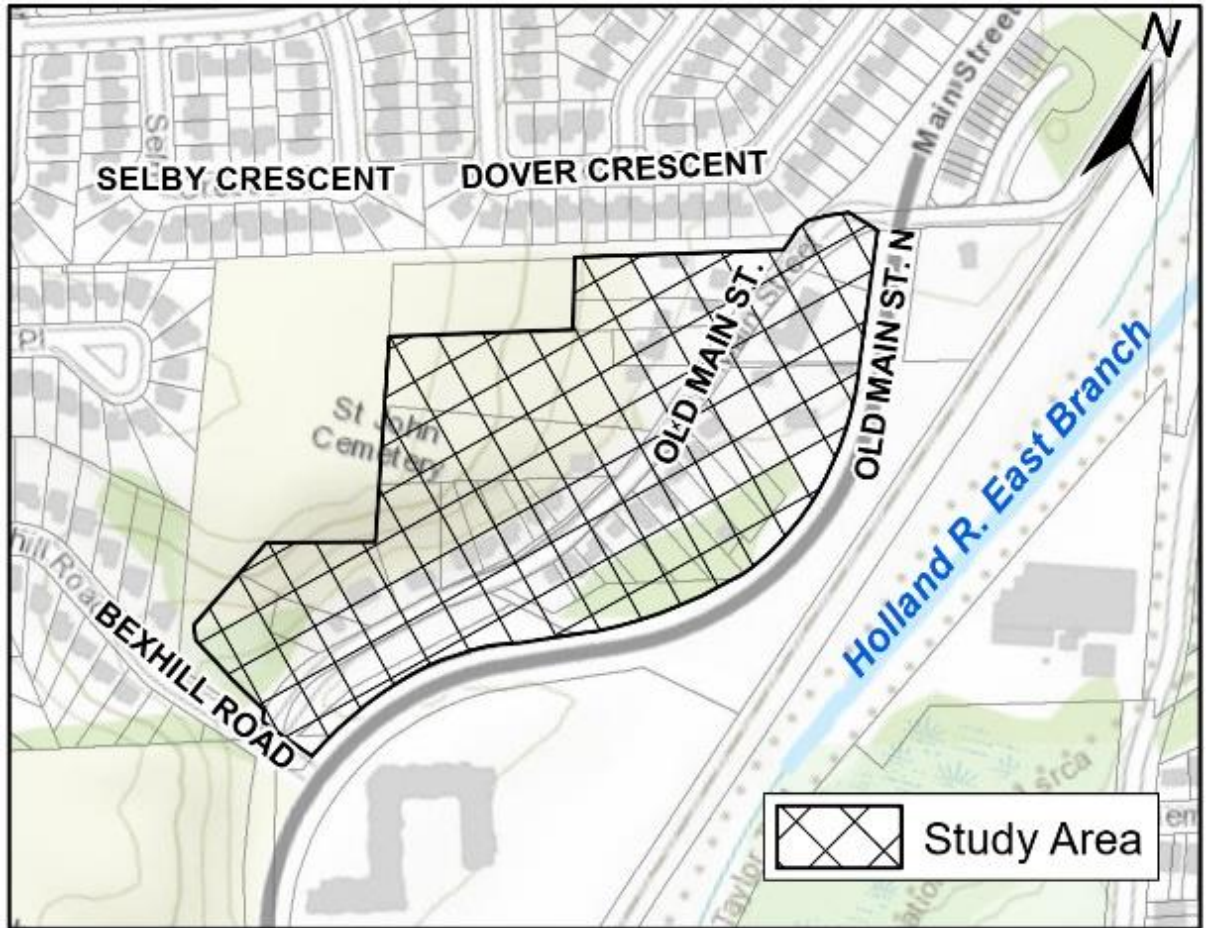
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Master Plan Class Environmental Assessment
 Old Main Street Tertiary Plan Area



<p>Christine Hill, M.Eng., P.Eng., Associate Director, Practice Lead- Water Facilities IBI Group 2620 Bristol Circle, Suite 300 Oakville ON L6H 6Z7 Phone: 416-606-8762 Fax: 905-940-2064 Email: christine.hill@ibigroup.com</p>	<p>Sepideh Majdi, M.Sc., P.Eng., Manager, Development Engineering Engineering Services Town of Newmarket 395 Mulock Drive PO BOX 328 STN Newmarket, ON L3Y 4X7 T: 905-953-5300, ext. 2522 Email: smajdi@newmarket.ca</p>
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ibigroup.com

March 18, 2021

Local Resident
198 Old Main Street
Town of Newmarket
L3Y 8C2, ON

Dear Resident:

**Re: Master Plan Class Environmental Assessment
Old Main Street Tertiary Plan Area**

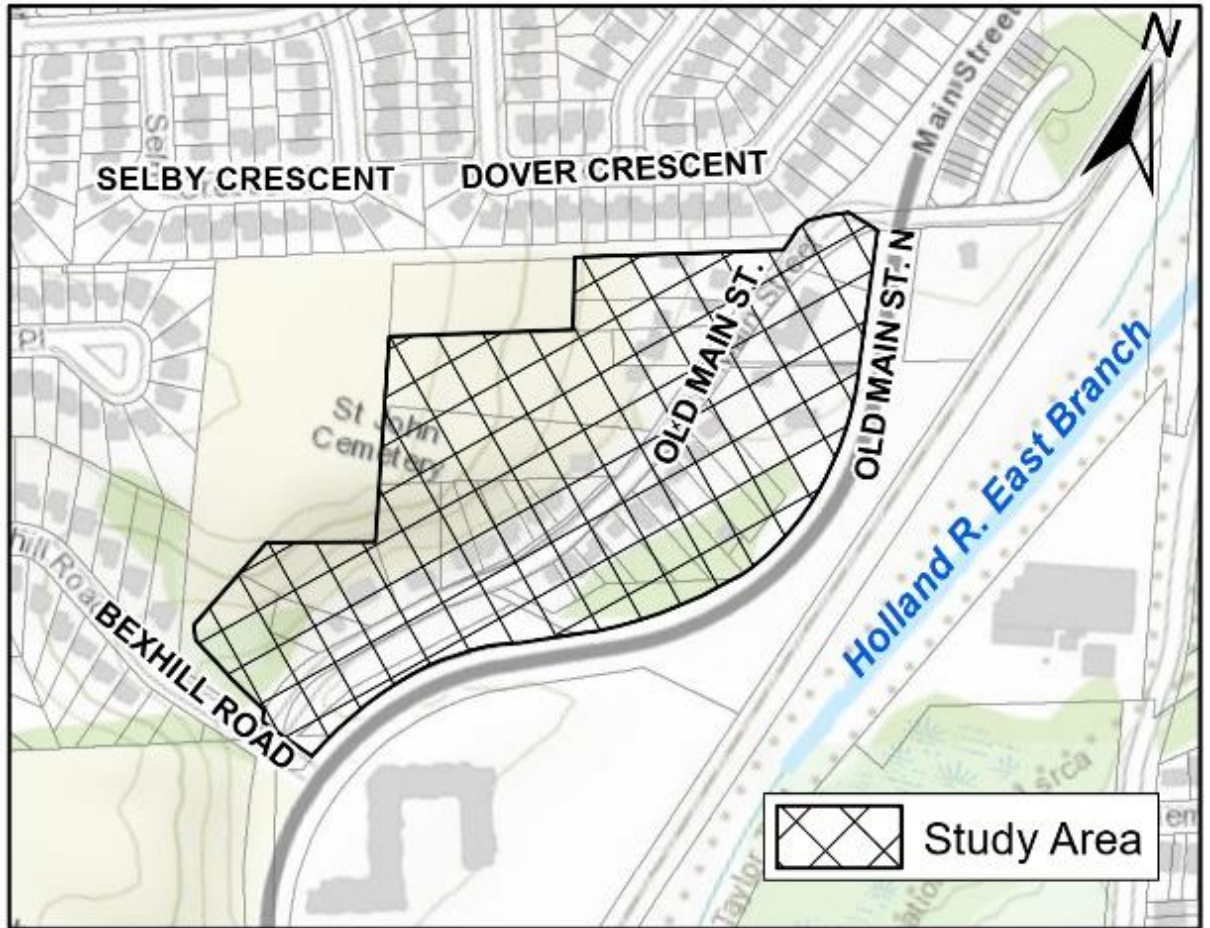
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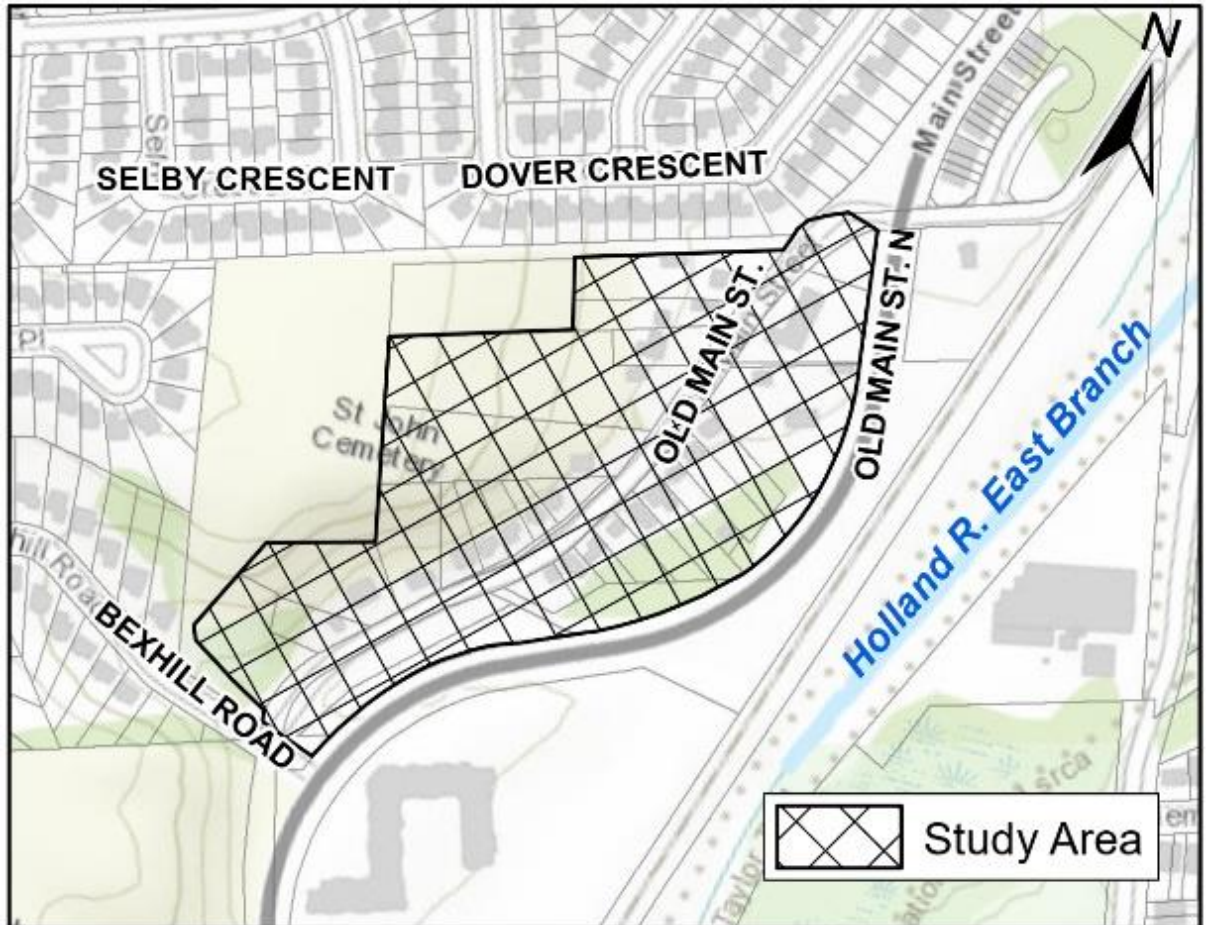
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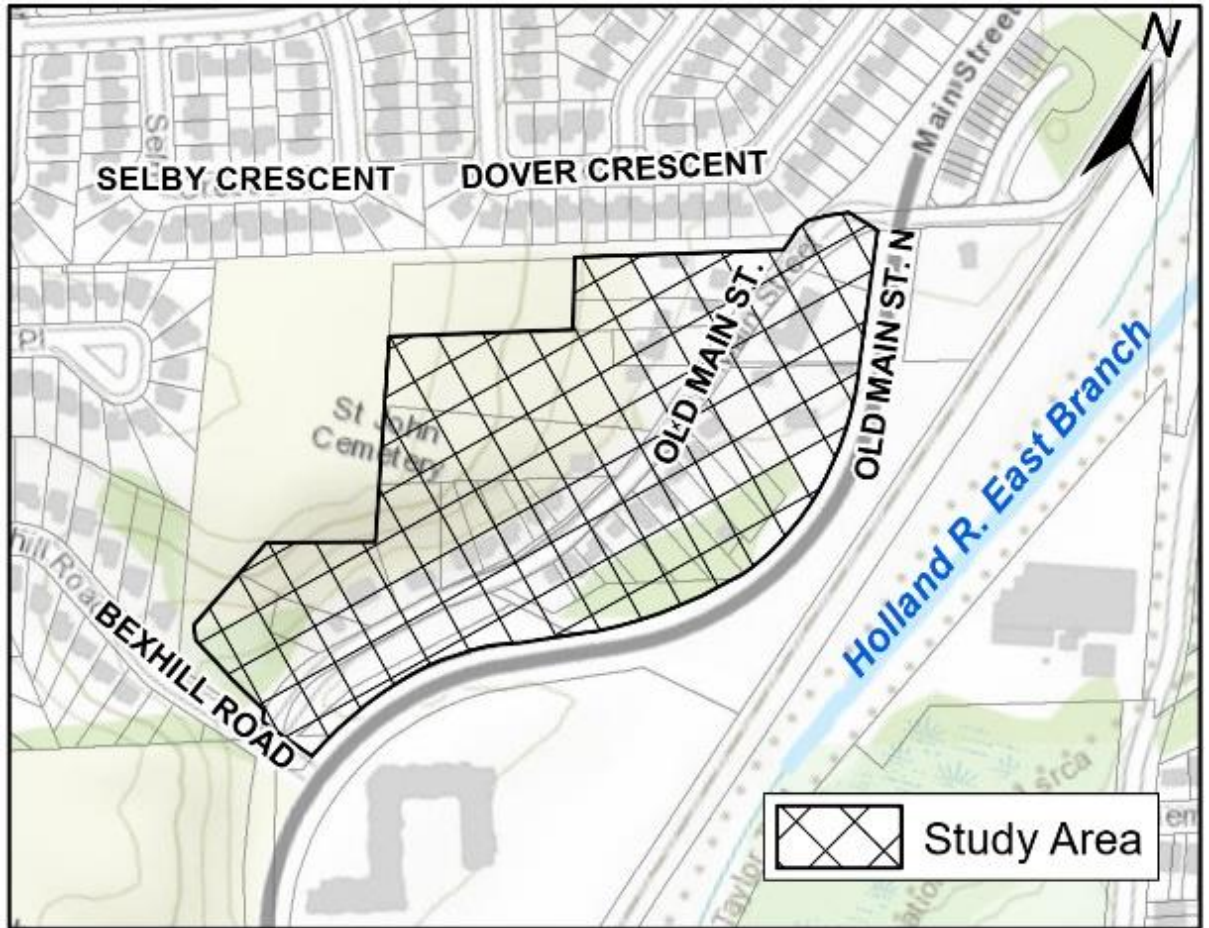
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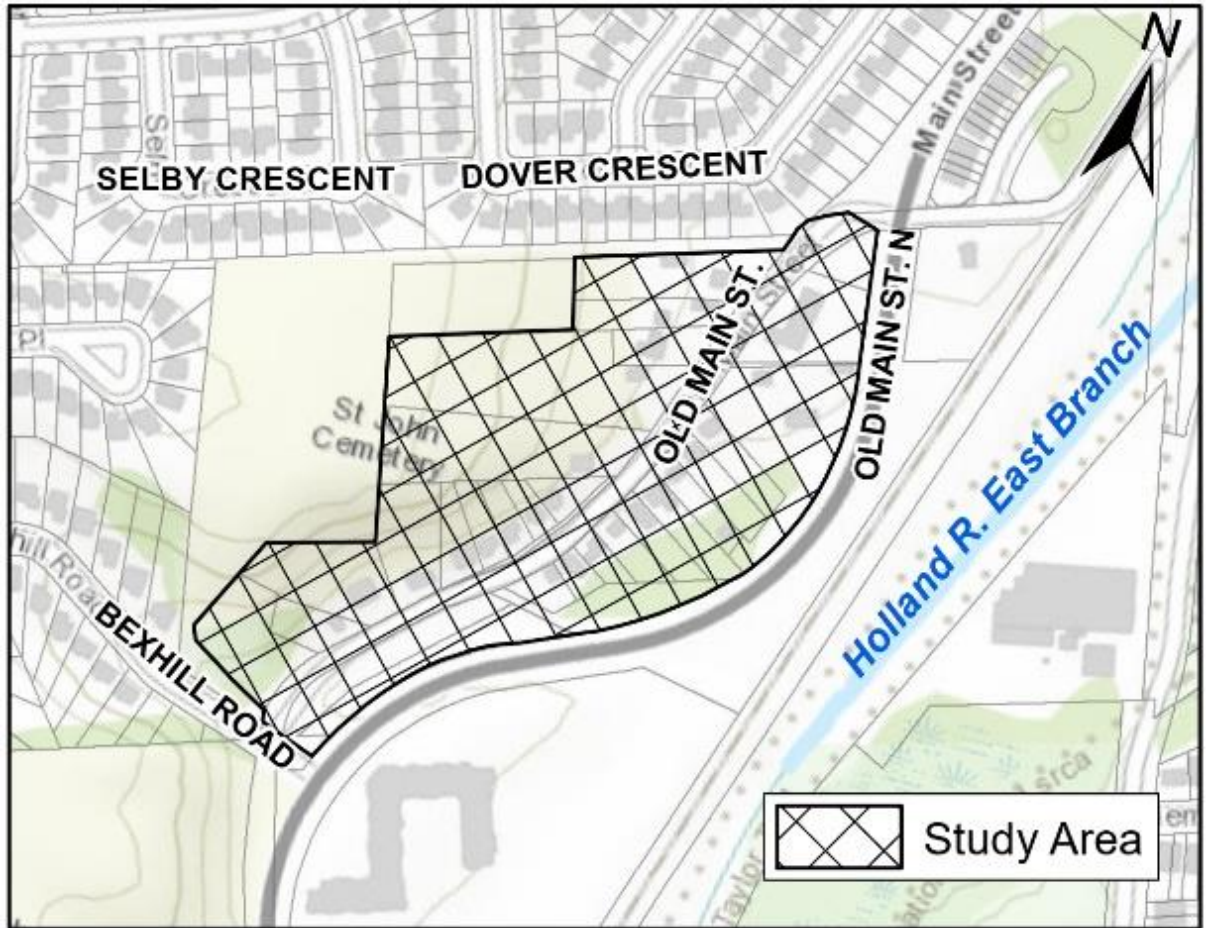
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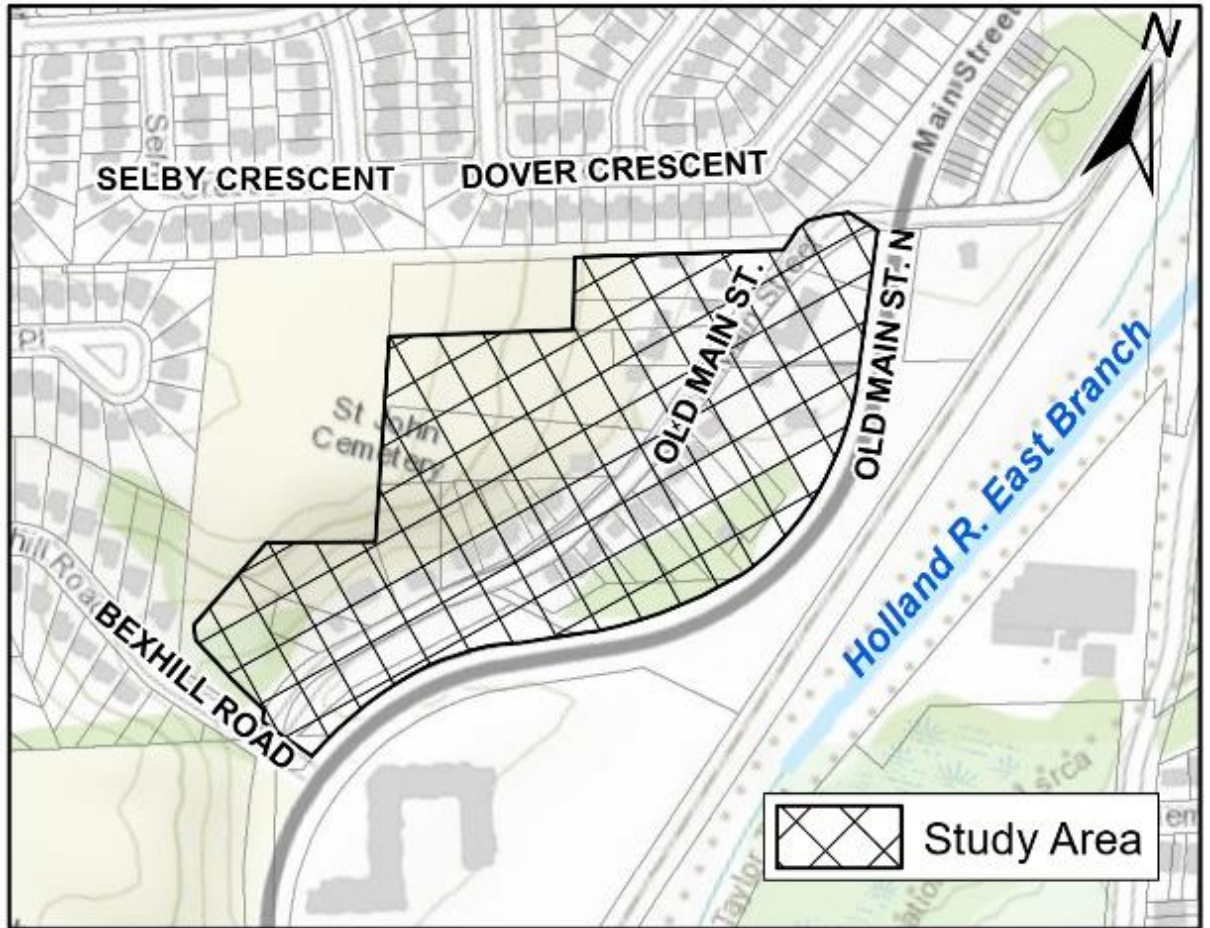
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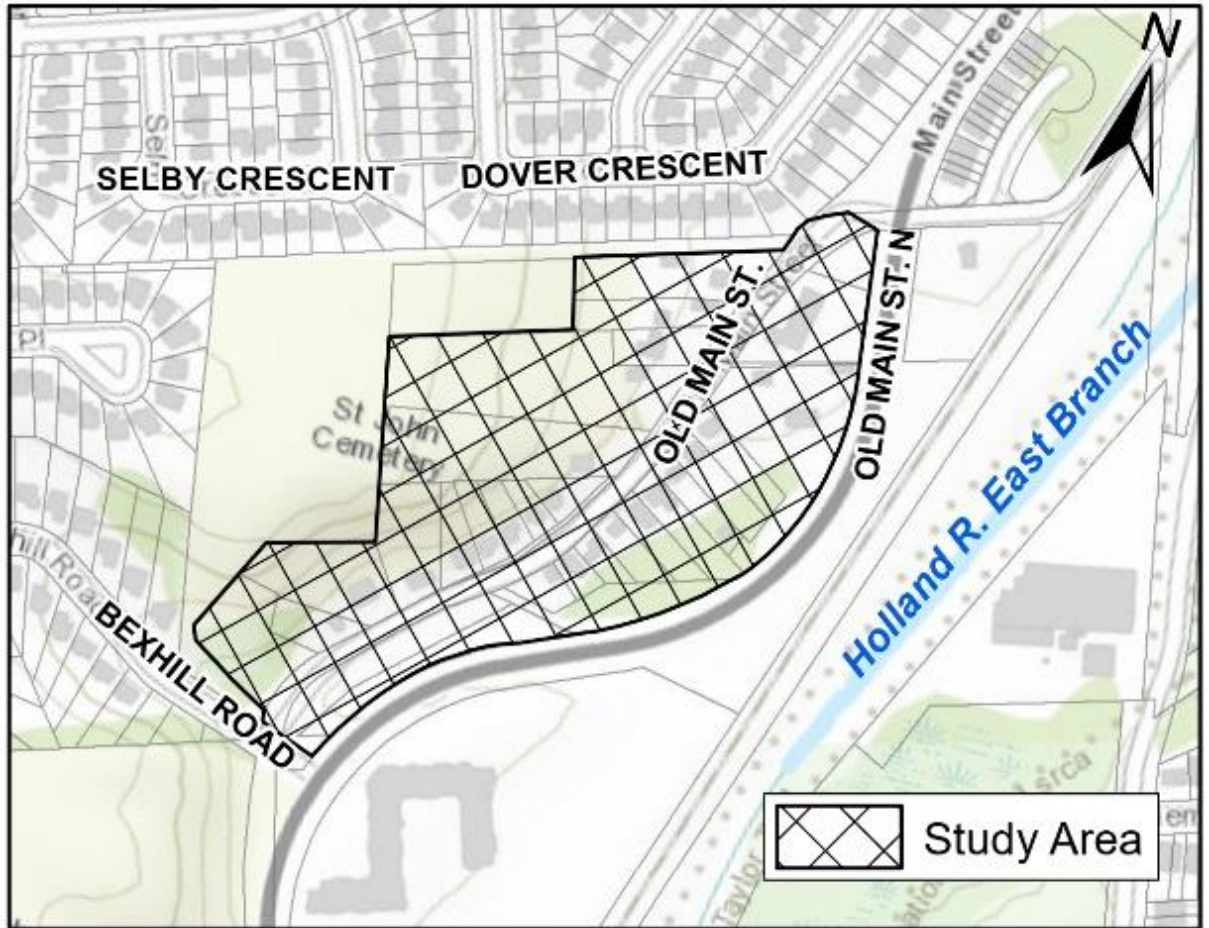
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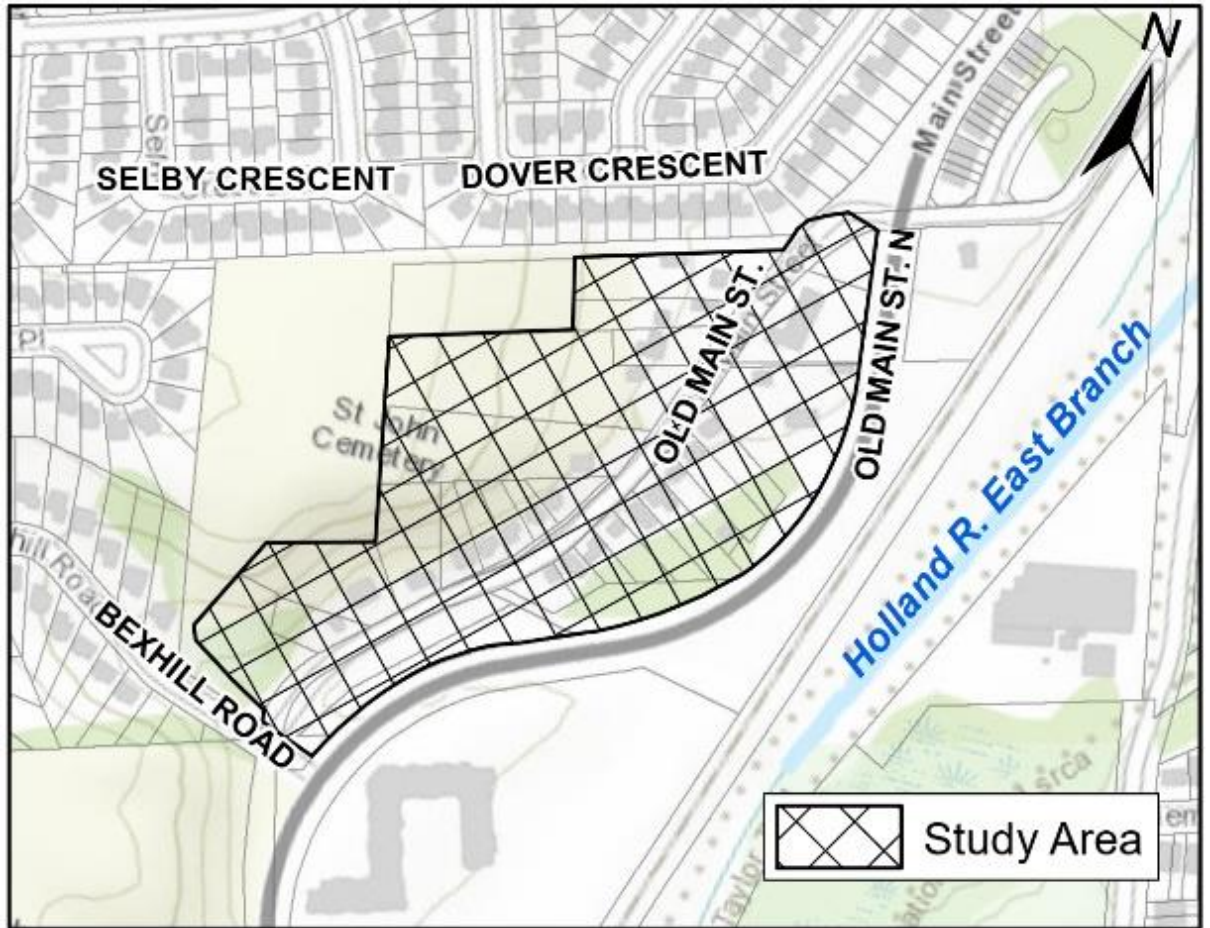
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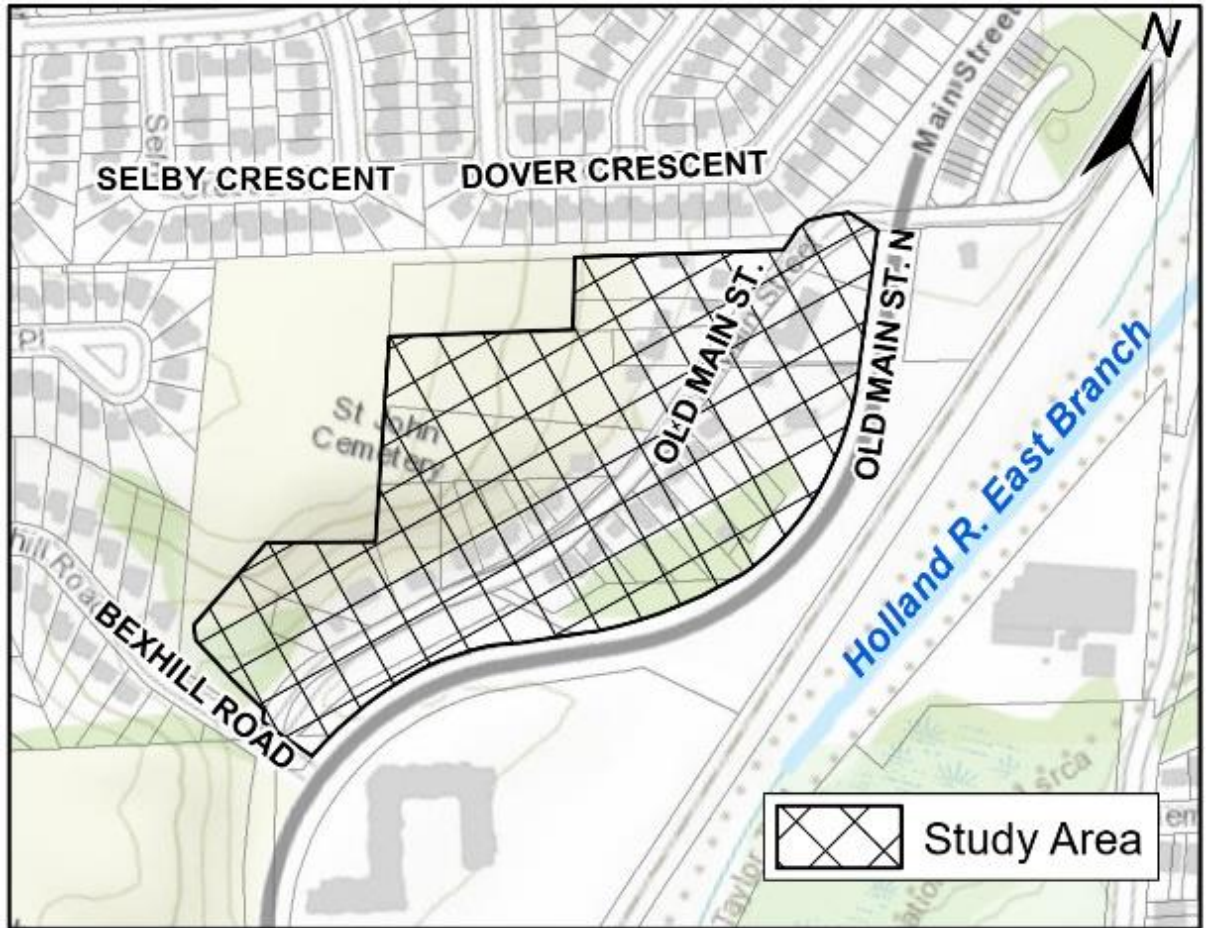
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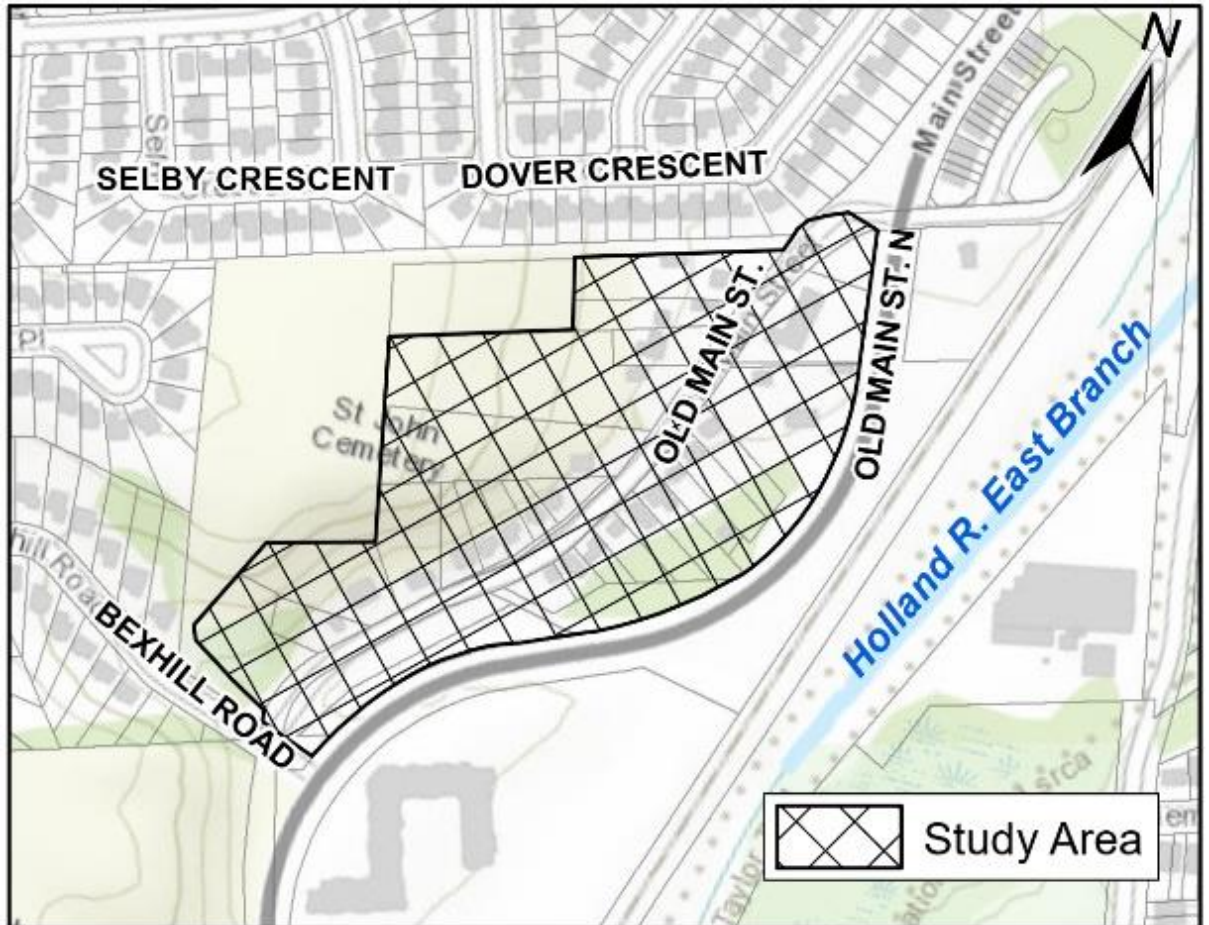
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**Re: Master Plan Class Environmental Assessment
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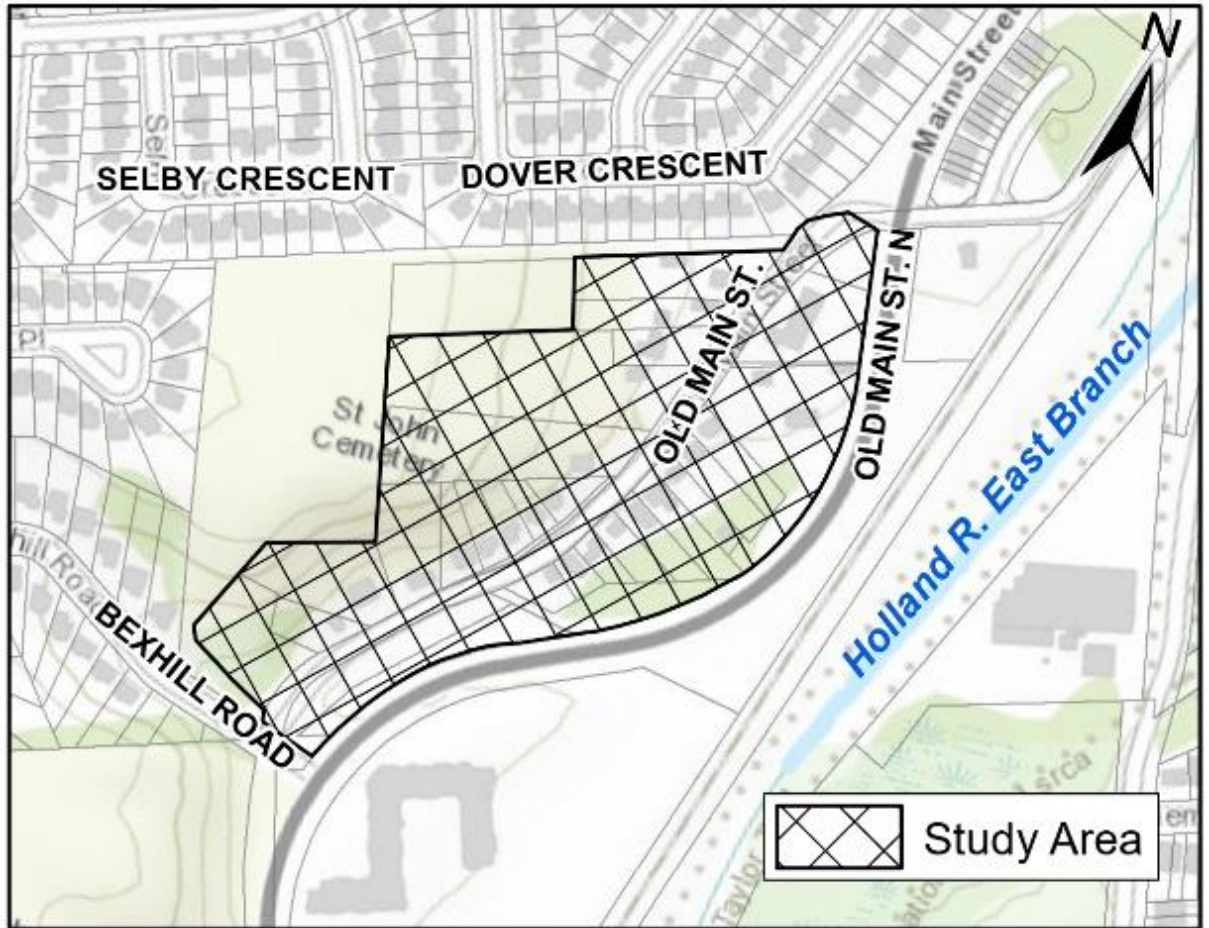
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March 18, 2021

Local Resident
217 Old Main Street
Town of Newmarket
L3Y 8C2, ON

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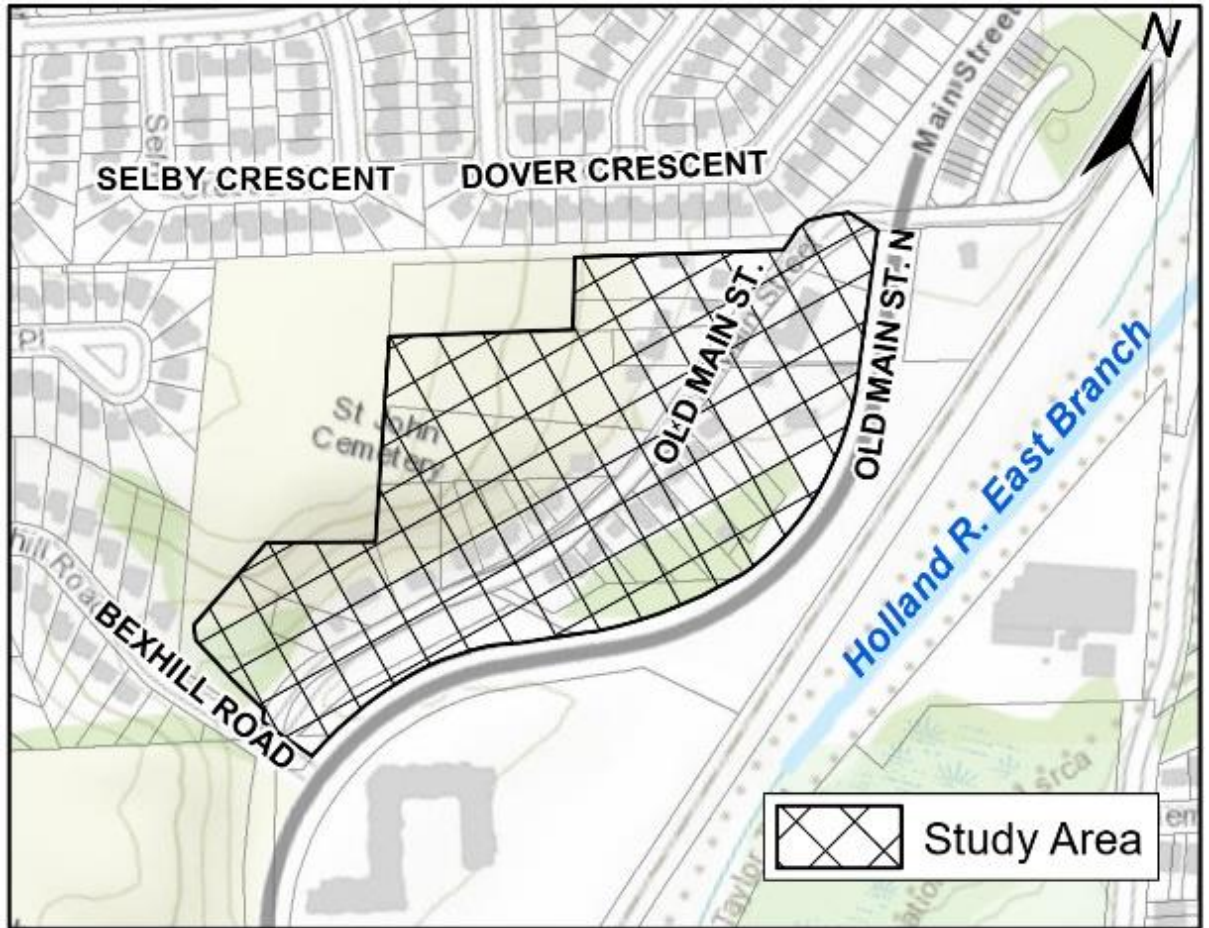
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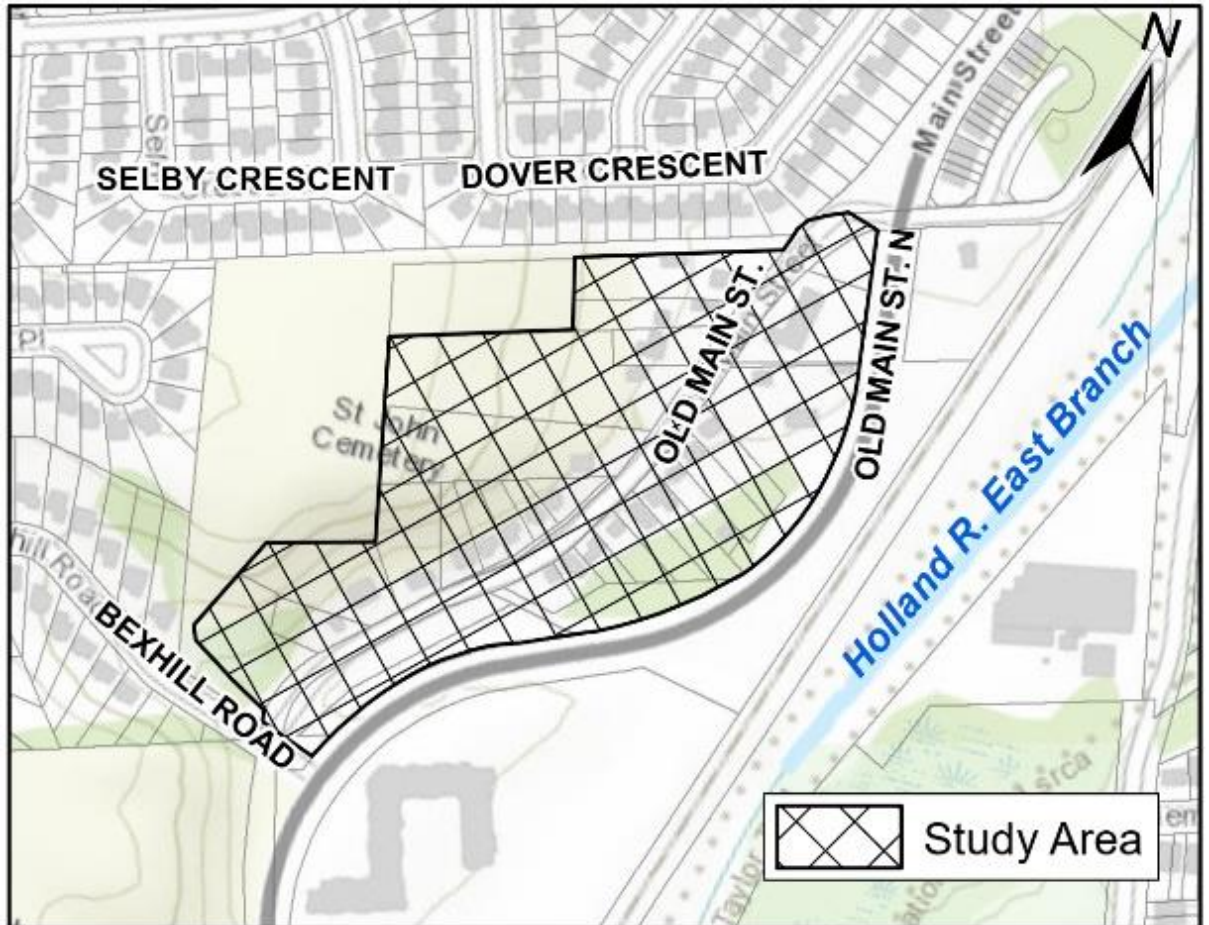
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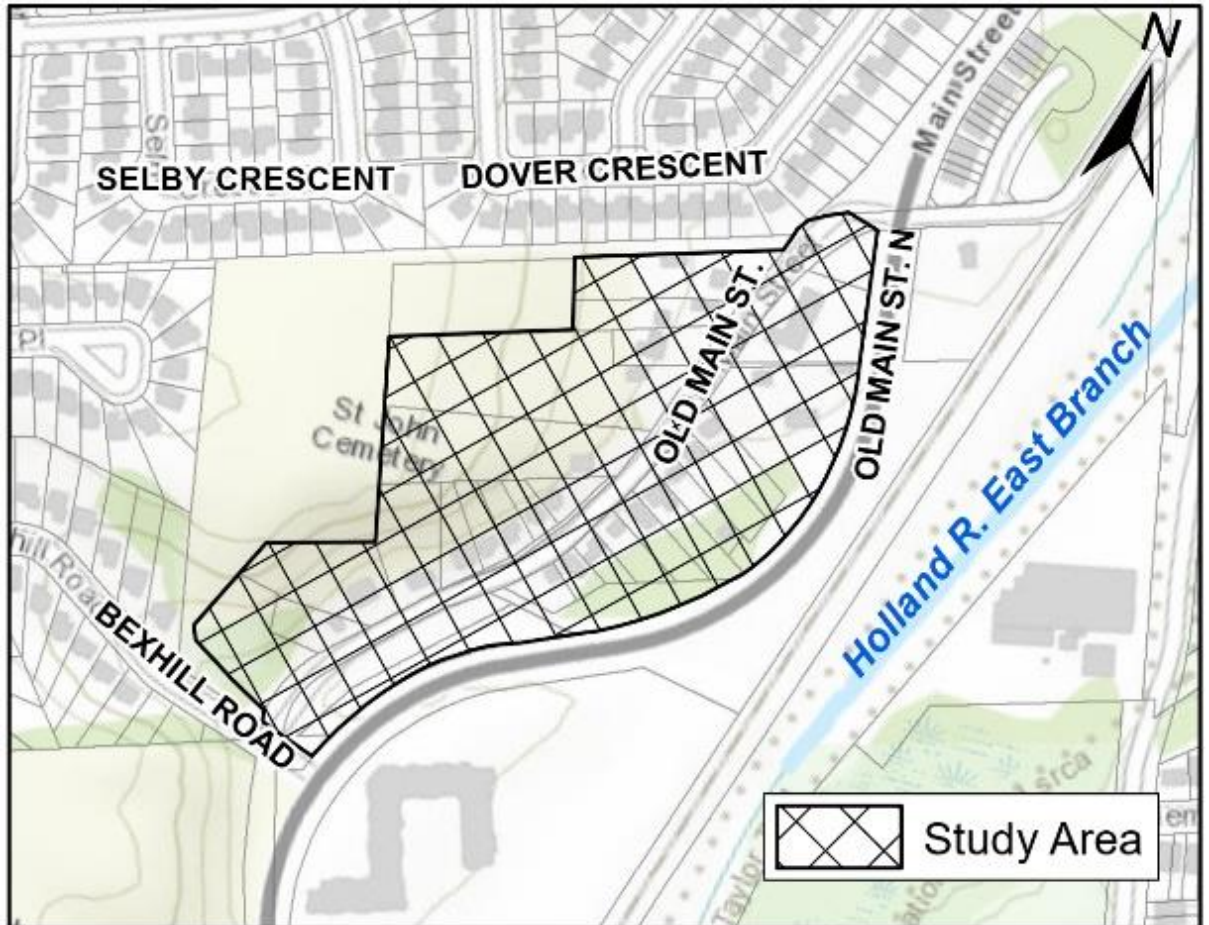
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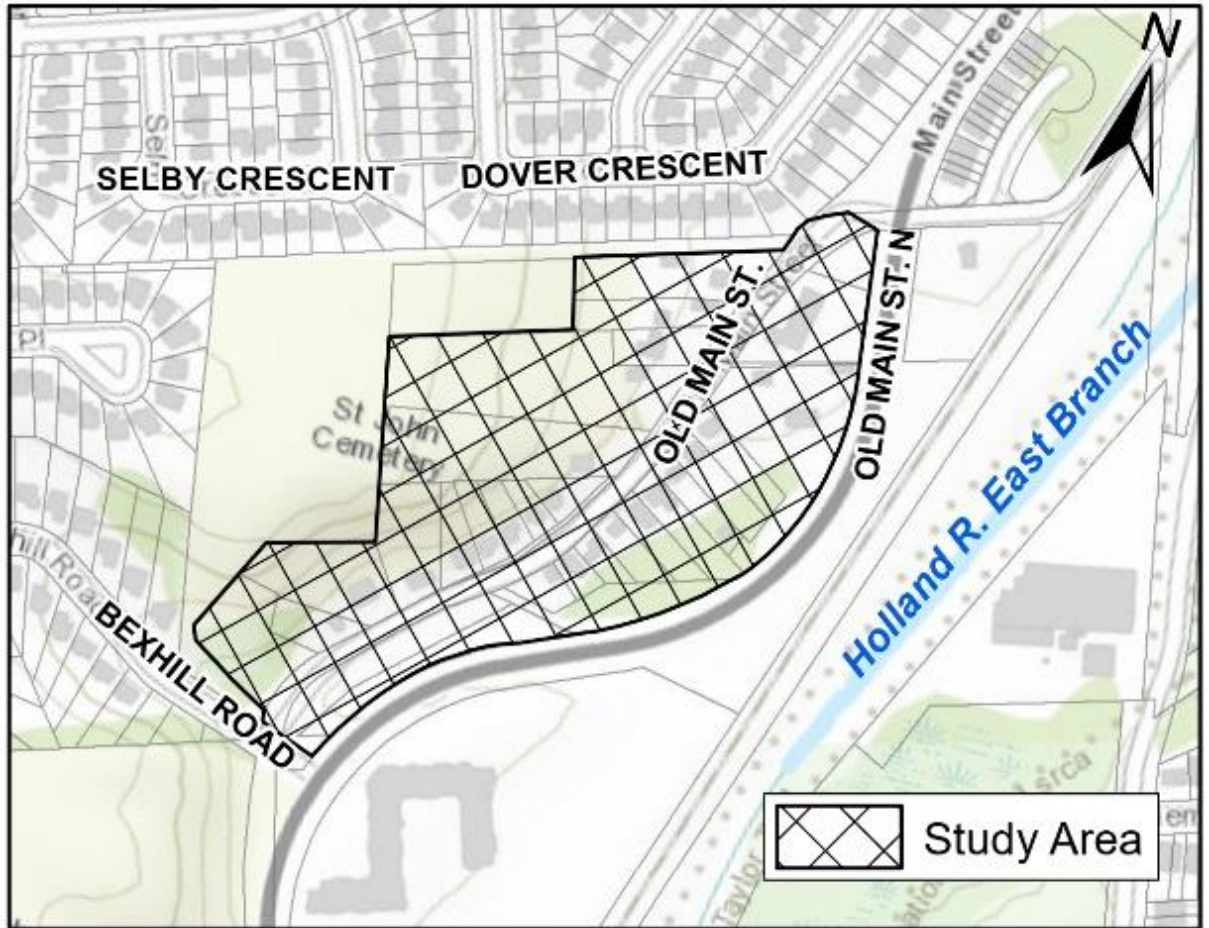
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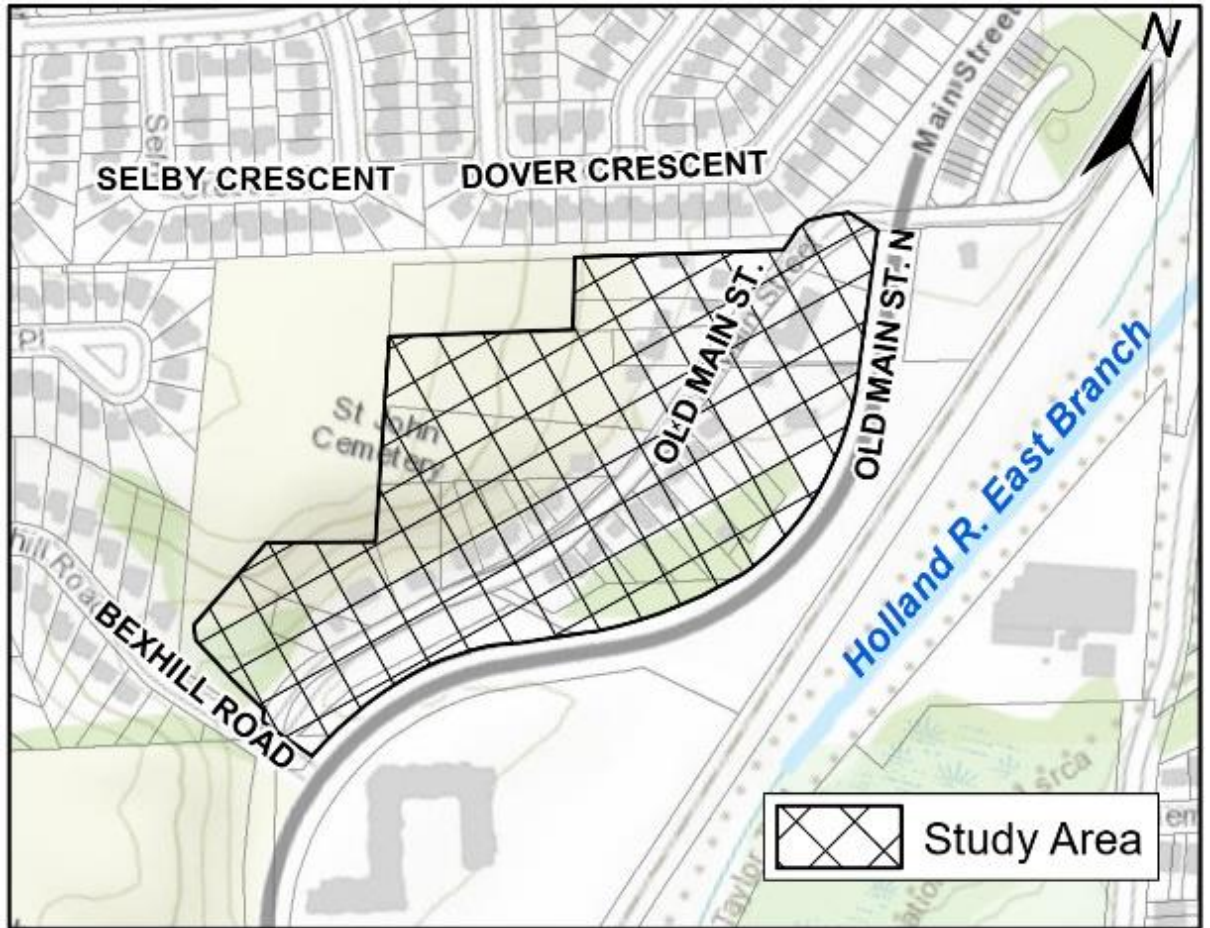
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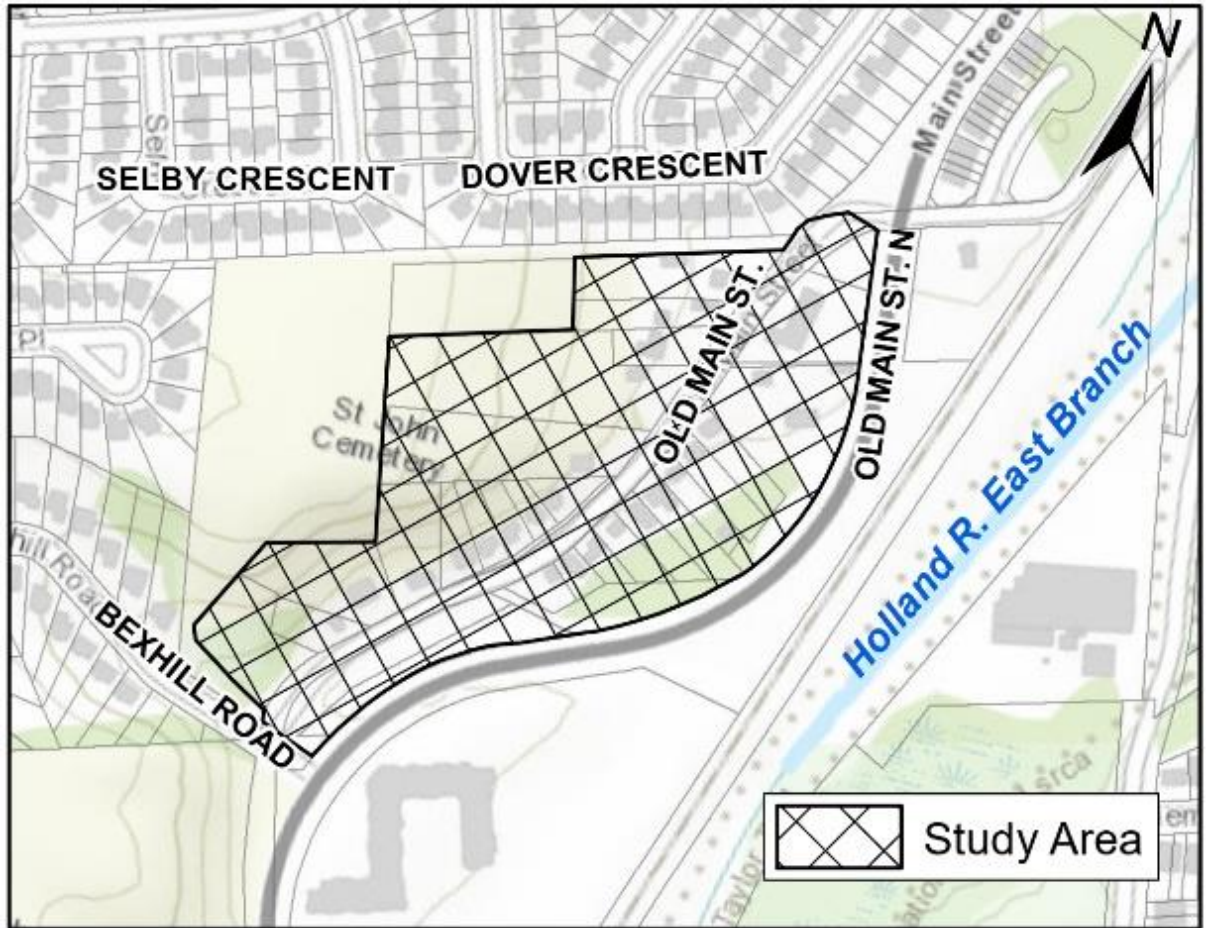
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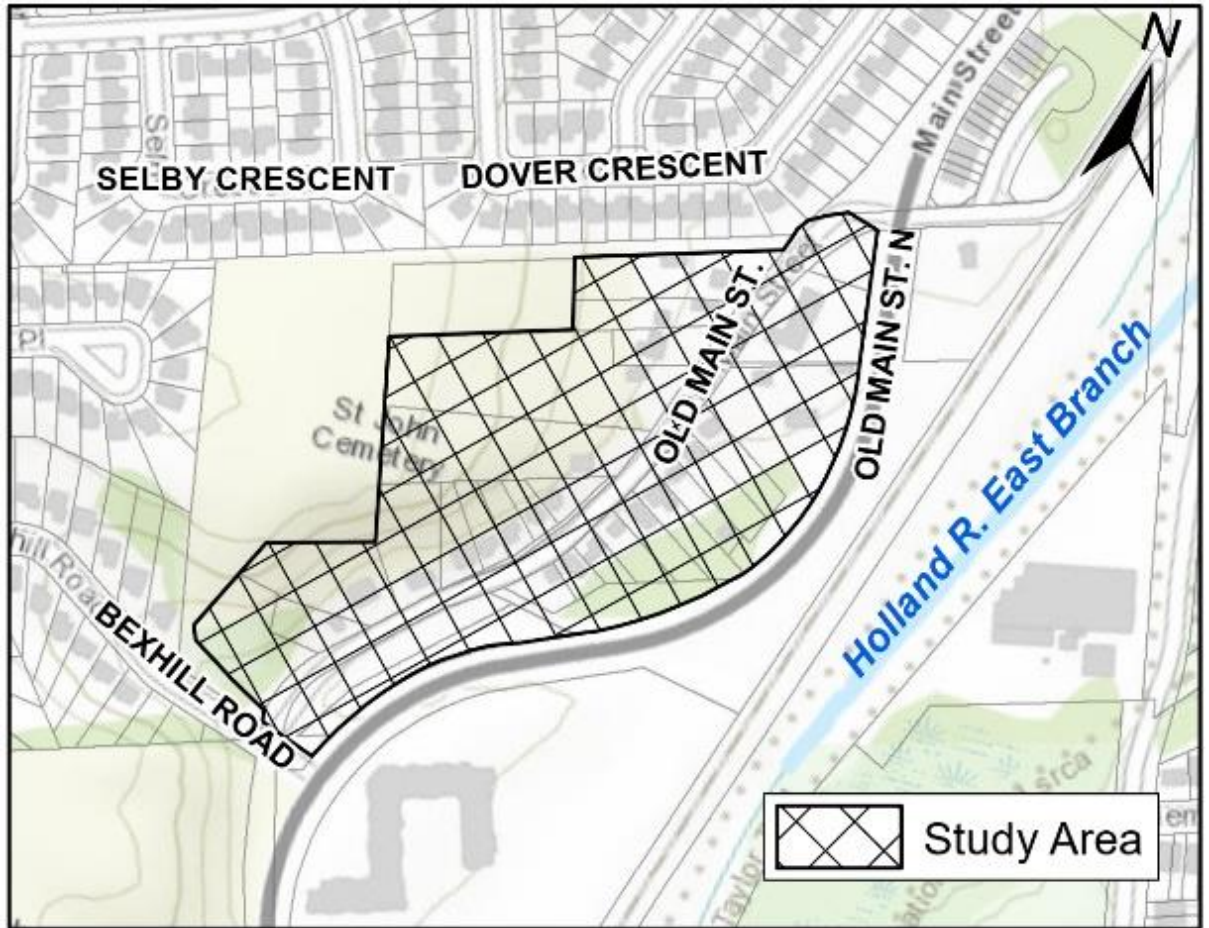
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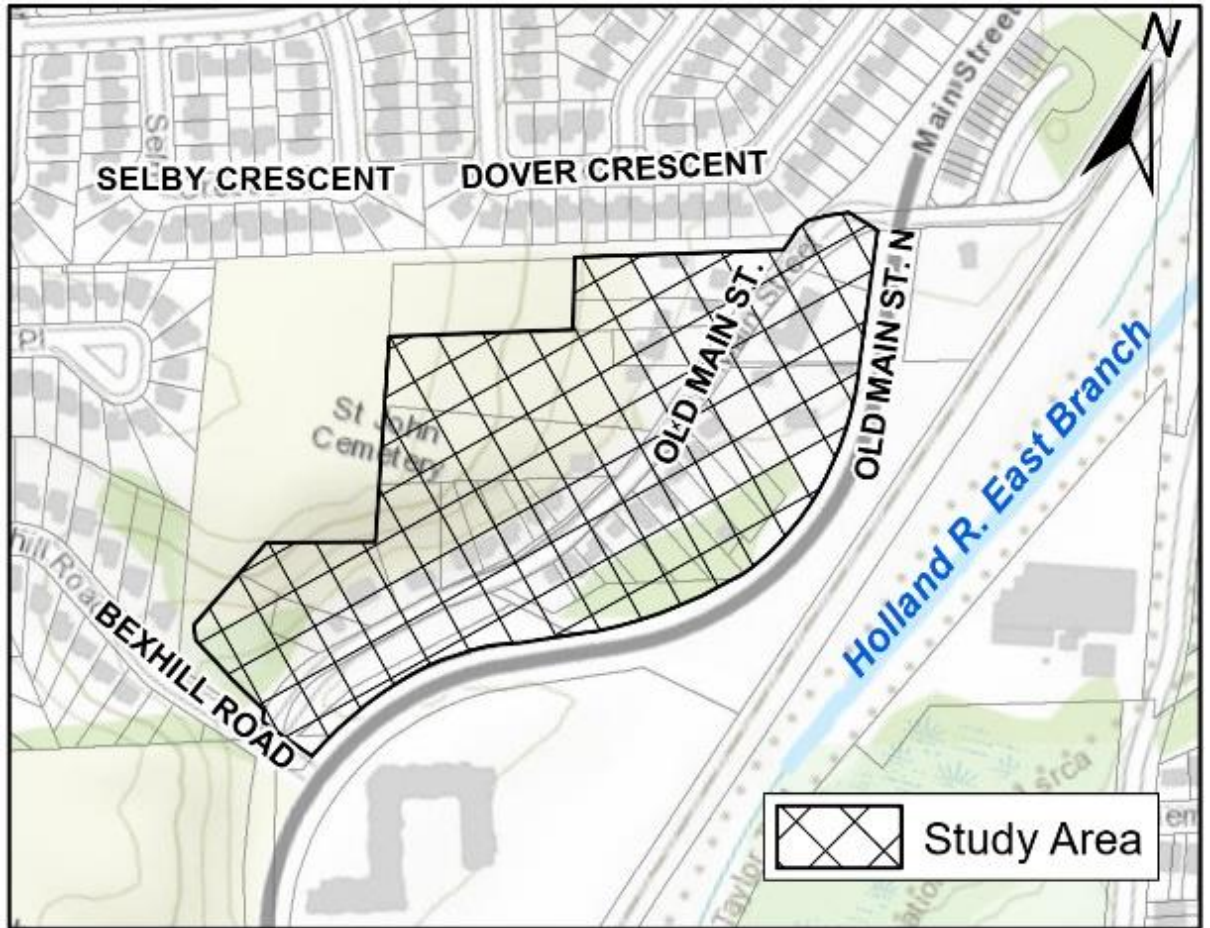
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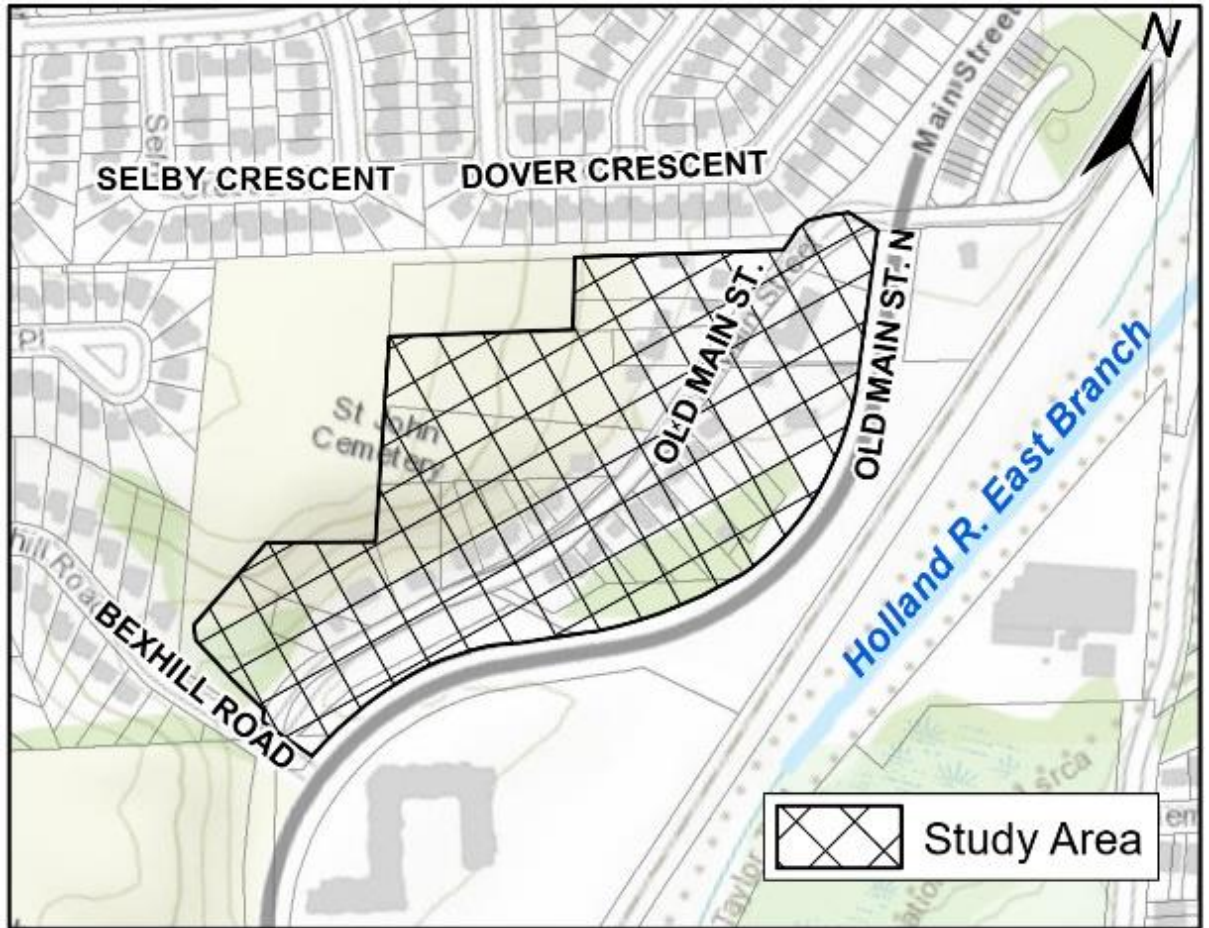
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Town of Newmarket
L3Y 8C2, ON

Dear Resident:

**Re: Master Plan Class Environmental Assessment
Old Main Street Tertiary Plan Area**

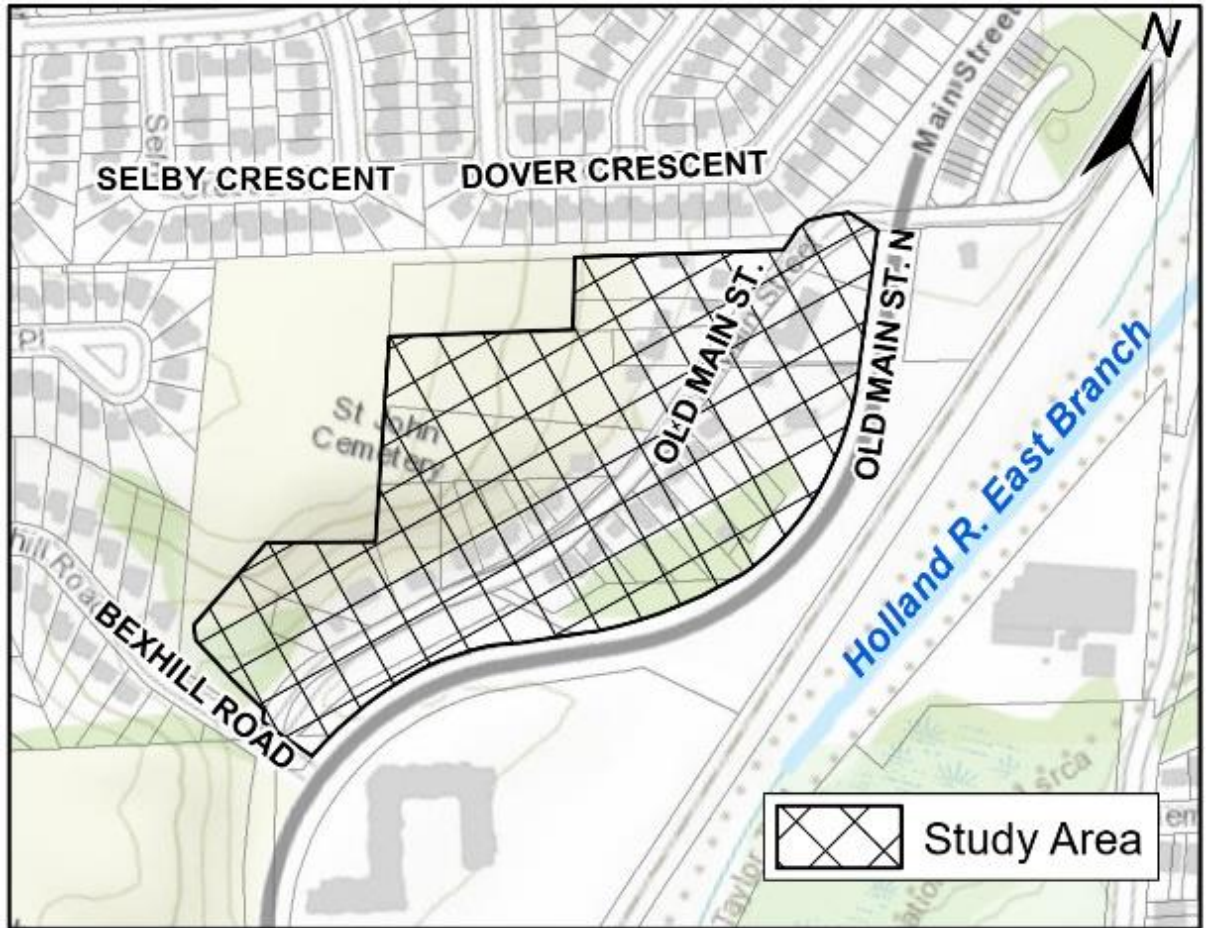
The Town of Newmarket is undertaking a Master Plan Municipal Class Environmental Assessment Study to assess the existing condition, capacity and the required improvements for water, wastewater and storm drainage infrastructure needed to support the policies in the Old Main Street Tertiary Plan. This study will also include a review and analysis of the Old Main Street existing road right-of-way in order to develop an urban road cross-section to meet the Town of Newmarket's Engineering Design Standards and Criteria, the Old Main Street Tertiary Plan objectives and Town policies. The study area is shown in the figure below.

This Master Plan will be prepared in accordance with the requirements of the Municipal Class Environmental Assessment (Class EA process, October 2000, as amended in 2007, 2011 and 2015). The Master Plan will follow Approach 2 in the Class EA which entails completion of Phases 1 and 2 of Schedule B projects identified. Based on the approach selected, any specific projects identified within the Master Plan must fulfil all Class EA requirements for Schedule A, A+ and B projects and recommend completion of Phases 3 and 4 to satisfy EA requirements for any Schedule C projects.

Public consultation is vital to the success of this study. The Town of Newmarket wants to ensure that anyone interested in the Master Plan has the opportunity to provide input. It is anticipated that a Public Information Centre (PIC) will be held in 2021 to receive public input on the alternatives developed and the recommended preferred alternative. A notice will be published in advance of the consultation. Interested stakeholders can sign up for the study mailing list so that they can be kept informed of the Master Plan's progress. Members of the public are encouraged to provide their comments throughout this study to ensure that concerns can be adequately addressed. At the completion of the planning process, the Master Plan will be publicly published.

We are interested in hearing any comments or concerns that you may have. Communications received during the course of this study will be included in the final Master Plan document. The names of local residents will be excluded from public record to maintain their privacy. Please contact either one of the representatives listed below if you have any questions or wish to be included on the mailing list.

Master Plan Class Environmental Assessment
 Old Main Street Tertiary Plan Area



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 Practice Lead- Water Facilities
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	heritage constraints, species at risk HVA/Source protection. WH also requested any available reports associated with the study area. PT requested a plan showing the area of concern for the study (attached).		
4.	<p><u>LSRCA Requirements/Discussion</u></p> <ul style="list-style-type: none"> - PT noted that some data (mainly pdf copies) can be provided straight away but that any GIS/digital data will require completion of a Data Agreement - PT also noted that depending on the level of details the study should identify any permitting requirements that would impact future works associated with the proposed upgrades to the drainage and roadworks. 	IBI	
5.	<p><u>Deliverables</u></p> <ul style="list-style-type: none"> - WH will forward plan of the proposed impacted area and the data request log. 	IBI	
6.	<p><u>Communications</u></p> <ul style="list-style-type: none"> - IBI is committed to including LSRCA staff in any communication that could impact LSRCA areas of concern. PT requested that all communication be direct to DR with copies to himself. 	IBI	
7.	<p><u>Other Business</u></p> <ul style="list-style-type: none"> - 	All	
8.	-		
9.	-		

Summary of Actions

ITEM	ACTION	LEAD	DUE DATE
1.	Provide data request log	IBI	10 Feb 2021
2.	Prepare figure showing scope of project for LSRCA mapping	IBI	10 Feb 2021

Next Meeting: To be determined as required

Minutes Recorded By: Will Heywood

Distribution: All Invitees



Minutes

To/Attention Project Team **Date** March 7, 2022
2:00pm – 3:00pm
From Kiera Macdonald, IBI **Project No** 2020-0276
Subject Master Plan Class EA – Old Main St Tertiary Area
Monthly Progress Meeting – Project Updates

Present

Sepideh Majdi (SM), Town of Newmarket
Brahms Bennett (BB), Town of Newmarket
Cynthia Chiu Chen (CCC), Town of Newmarket
Dave Ruggle (DR) LSRCA
Phil Thase (PT), LSRCA
Christine Hill (CH), IBI
Will Heywood (WH), IBI
Carlos Aquino (CA), IBI
Kiera Macdonald (KM), IBI

Regrets:

Adham Bakr (AB), IBI

Item Discussed

Action By

	Item Discussed	Action By
1.	Introductions	
2.	EA Study Details & Overview a. Study Area b. Existing Conditions – Stormwater Drainage c. Alternative Solutions d. Evaluation Criteria & Matrix e. Recommended Preferred Alternative Overview	IBI
3.	LSRCA Comments	IBI
4.	Next Steps	IBI

Item Discussed**Action By****1. Introductions**

- Staff introductions
- CH (IBI) noted that the purpose of this meeting is to present the recommended preferred alternative to LSRCA staff and garner input in advance of a PIC, which is scheduled for April 12, 2022

2. EA Study Details & Overview**Background**

- The Town has been advancing a thorough, systematic approach to redevelopment of the Old Main Street Area through a hierarchy of the Official Plan, Secondary Plan and Tertiary Plan
- The Master Plan EA is a follow-up study to the 2019 Tertiary Plan, and consequently utilizes the land use, density, stormwater management, low impact development (LID), servicing infrastructure, transportation, and natural heritage policies established through the Tertiary Plan process

Purpose

- The Town initiated a Master Plan EA to identify preferred alternatives for providing water, wastewater, storm drainage, and transportation services to service both future growth and existing land use within the Old Main Street Area

Problem Statement

- Assessment of existing infrastructure identified need for upgrades to support future development:

Water Distribution:

- o Sufficient flow capacity to accommodate planned redevelopment
- o Watermain replacement required due to ageing infrastructure

Sanitary:

- o Adequate capacity to accommodate planned redevelopment
- o Realignment is required to accommodate new stormwater infrastructure
- o Repair/ replacement will be necessary based on condition/ age

Stormwater Drainage:

- o Significant improvements and expansions required to resolve existing flooding issues and manage increased stormwater runoff from redevelopment

Transportation:

- o Inconsistent right-of-way width and grading issues present with narrow substandard road width in some areas
 - o Existing rural road to be reconstructed to urban local road cross section
- SM (Town) noted that the 172 – 178 Main Street development recently received site plan approval. The Town is working on the agreement to finalize conditions

Item Discussed**Action By**

- There are properties at the northern end (218 – 244, 231, and 241 Main Street N) with active development applications which are currently under review
- WH (IBI) presented the existing stormwater drainage conditions, alternatives considered, evaluation criteria and matrix results, and the recommended preferred alternative*

**Refer to the Ppt presentation with further details enclosed with minutes*

Recommended Preferred Alternative

- Site constraints pose significant challenges and IBI has developed a solution to address challenges e.g. inconsistent right-of-way, steep western slope, flat eastern property reverse slope driveways, and shallow groundwater

Reconstruction of rural road to urban local road:

- ROW ranges from 16 – 18m with 8m pavement width and 1.5m sidewalk on east side
- Retaining walls will be required at certain locations
- Road grading has been refined to minimize the impact on driveways on both sides of Main Street N

Urban Storm Sewer System:

- Construction of new 432m of 375mm to 675mm storm sewer
- Double high-capacity catchbasins included at sag points to minimize ponding

Stormwater Treatment Train Approach:

- LID measures were considered but were determined to be infeasible due to high groundwater and ROW constraints
- OGS (Stormceptor EFO10) at dry pond inlet to provide 60% TSS removal (ETV verified)
- Dry pond facility to provide remaining quality treatment to meet the Town's 80% TSS removal requirement

Twin 900mm culvert beneath Bypass

- The culvert twin has been included to provide redundancy

Function Grading Plan of Recommended Preferred Alternative

- Storm sewer southern section near the low point will be shallow due to constraints. Insulation will be included.
- Regulatory flood level tailwater conditions have been checked and the dry pond outlet will not be impacted by existing flooding in this area
- Proposed urban local road is designed to contain all overland flow within the ROW with freeboard, therefore the road runoff will not spill onto adjacent properties

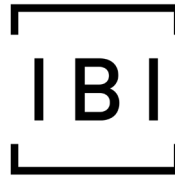
Item Discussed	Action By
<p>3. <u>LSRCA Comments/ Feedback</u></p>	
<ul style="list-style-type: none"> - CH (IBI) noted the presentation of the preferred alternative is in the format that IBI intends to present to public. IBI is looking for LSRCA comments and input on the recommended preferred alternative prior to the PIC, to be held on April 12, 2022. 	
<ul style="list-style-type: none"> - PT (LSRCA) inquired about peak flow control. He asked if the impervious area will be increased or whether the recommended preferred alternative will overcontrol storm discharges to mitigate existing flooding issues. WH (IBI) noted there is a slight increase in impervious area due to the introduction of a sidewalk, consistent right-of-way width and future urbanization. 	
<ul style="list-style-type: none"> - PT (LSRCA) asked if there is any underground storage provided and WH (IBI) noted that during the 100-year storm event, the pond would back up into the storm sewer which could be considered additional storage, however it is not a significant amount. 	
<ul style="list-style-type: none"> - PT (LSRCA) noted that from a quality control (TSS removal) standpoint, the OGS unit and dry pond combined should achieve 80% TSS enhance quality control and would be considered acceptable 	
<ul style="list-style-type: none"> - PT (LSRCA) asked IBI to confirm that there will be no grading changes within the Regional floodplain. WH (IBI) confirmed no grading changes within the Regional floodplain area included in the recommended preferred alternative. PT (LSRCA) noted that the Town would be required to demonstrate this as part of a subsequent detailed design submission. IBI to consider in preparation of the Phase 2 report. 	
<ul style="list-style-type: none"> - PT (LSRCA) inquired about volume control criteria. PT (LSRCA) wanted to ensure the recommended preferred alternative addressed LSRCA volume criteria. LSRCA does not exempt linear projects from achieving this criterion. PT (LSRCA) requested that IBI provide an explanation of how the volume control will be achieved in recommended preferred design alternative. PT (LSRCA) suggested that IBI go through LSRCA criteria which provides details on water reuse, rate control and overcontrol. IBI to provide documentation in their Phase 2 report. 	<p>IBI</p>
<ul style="list-style-type: none"> - DR (LSRCA) identified that the recommended preferred alternative would be acceptable to LSRCA as it mitigates impacts to natural heritage features in East Holland River. DR requests a copy of the powerpoint presentation be forwarded to LSRCA. 	<p>IBI</p>
<ul style="list-style-type: none"> - CH (IBI) asked if LSRCA requires any documentation for review prior to the PIC date. LSRCA will provide comment to EA materials, if necessary. It was noted that LSRCA permits would be required at the detailed design phase. 	
<ul style="list-style-type: none"> - SM (Town) thanked LSRCA for providing input. 	

Item Discussed	Action By
4. <u>Other Business</u>	
- Minutes and the powerpoint presentation will be circulated to group	

Next Meeting: Town Meeting - March 23, 2022 11am

Minutes Recorded By: Kiera Macdonald

Distribution: All Attendees



OLD MAIN STREET MASTER PLAN
CLASS ENVIRONMENTAL ASSESSMENT (EA)



LSRCA MEETING
MARCH 7, 2022

Meeting Agenda

1. Introduction and Current Status
2. Overview of Study Area
3. Existing Conditions – Stormwater Drainage
4. Alternative Solutions
5. Evaluation Criteria & Matrix
6. Recommended Preferred Alternative Overview
7. Stormwater Treatment Train Approach

Old Main Street Master Plan Class EA

Background

The Town has been advancing a thorough, systematic approach to redevelopment of the Old Main Street Area through a hierarchy of the Official Plan, Secondary Plan and the Tertiary Plan.

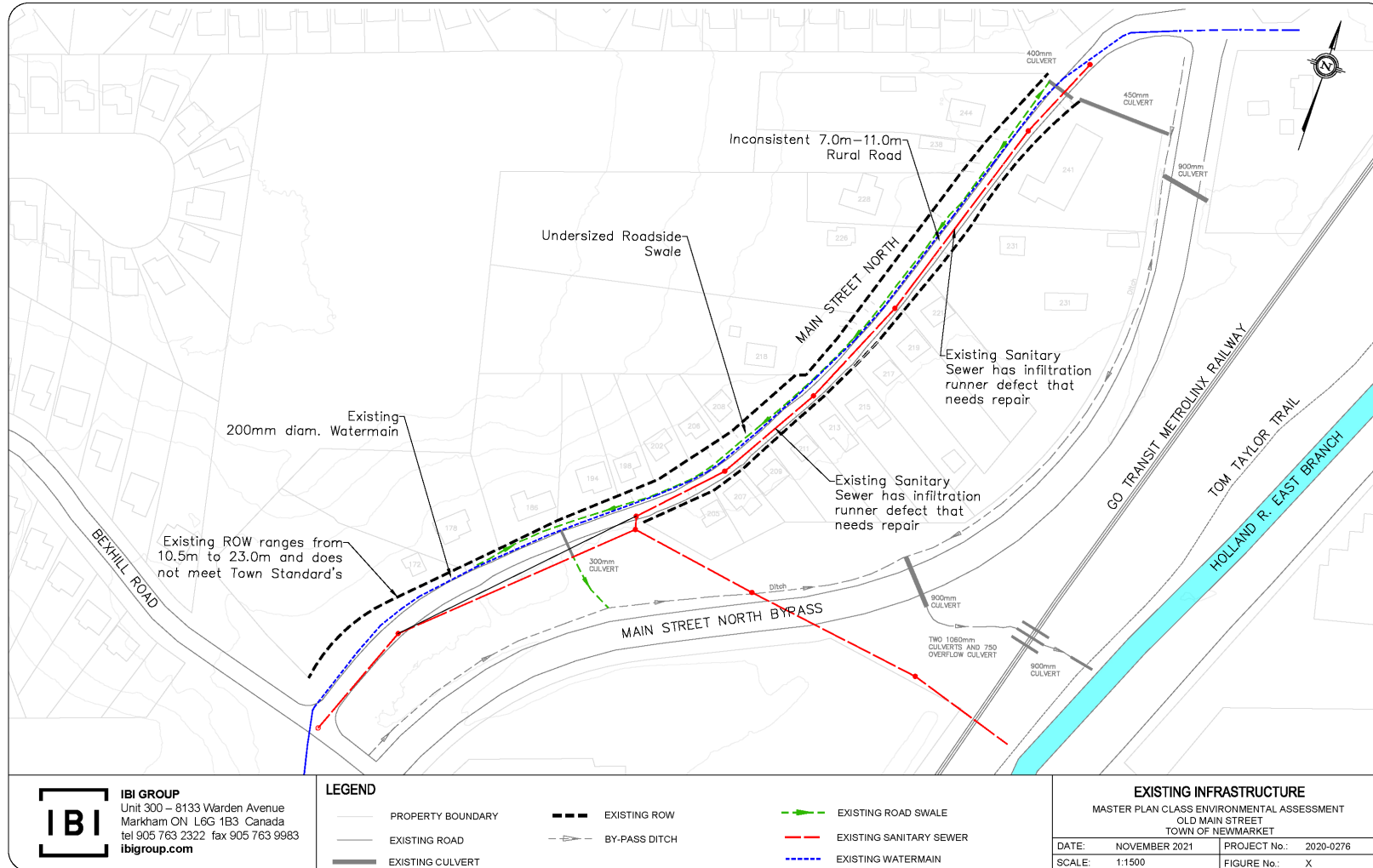
The Master Plan EA is a follow-up study to the 2019 Tertiary Plan, and consequently utilizes the land use, density, stormwater management, low impact development (LID), servicing infrastructure, transportation, and natural heritage policies established through the Tertiary Plan process.

Study Purpose

The Town initiated a Master Plan EA to identify preferred alternatives for providing water, wastewater, storm drainage, and transportation services to service both future growth and existing land use within the Old Main Street Area.

Old Main Street Master Plan Class EA

Overview of Study Area – Existing Infrastructure



Old Main Street Master Plan Class EA

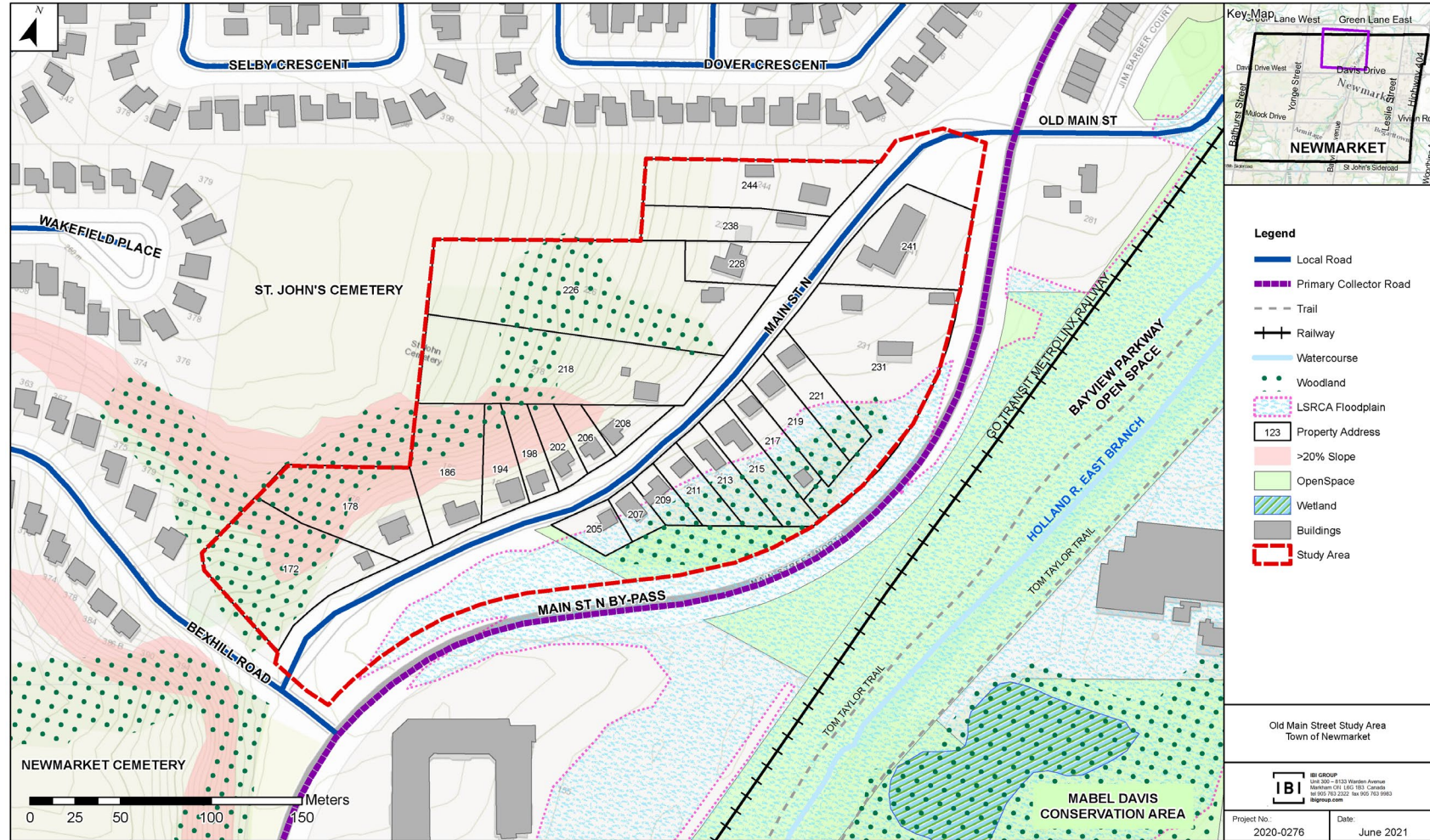
Problem Statement

Assessment of existing infrastructure identified need for upgrades to support future development:

INFRASTRUCTURE	ASSESSMENT FINDINGS
Water Distribution	<ul style="list-style-type: none"> • Sufficient flow capacity to accommodate planned redevelopment • Watermain replacement required due to ageing infrastructure
Sanitary	<ul style="list-style-type: none"> • Adequate capacity to accommodate planned redevelopment • Realignment is required to accommodate new stormwater infrastructure • Repair / replacement will be necessary based on condition / age
Stormwater Drainage	<ul style="list-style-type: none"> • Significant improvements and expansions required to resolve existing flooding issues and manage increased stormwater runoff from redevelopment
Transportation	<ul style="list-style-type: none"> • Inconsistent right-of-way width and grading issues present • Existing rural road to be reconstructed to urban local road cross section

Old Main Street Master Plan Class EA

Existing Conditions – Natural Heritage



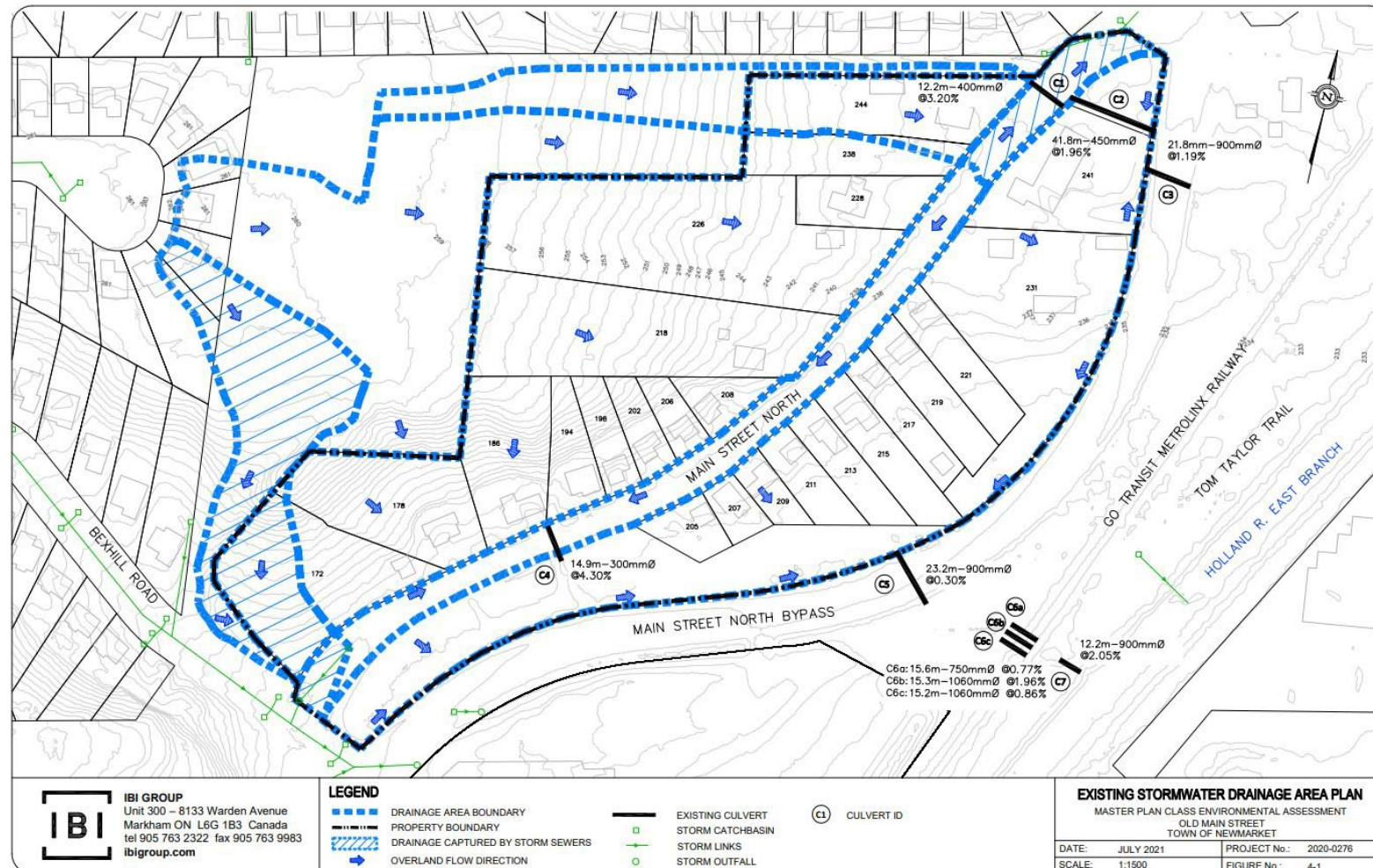
Old Main Street Master Plan Class EA

Existing Conditions – Storm Drainage System

Existing storm drainage system consists of:

- Roadside swale along the western side of Main Street North
- Road culverts conveying flows east to the By-Pass ditch and ultimately to East Holland River.

Flooding issues have been reported by residents.



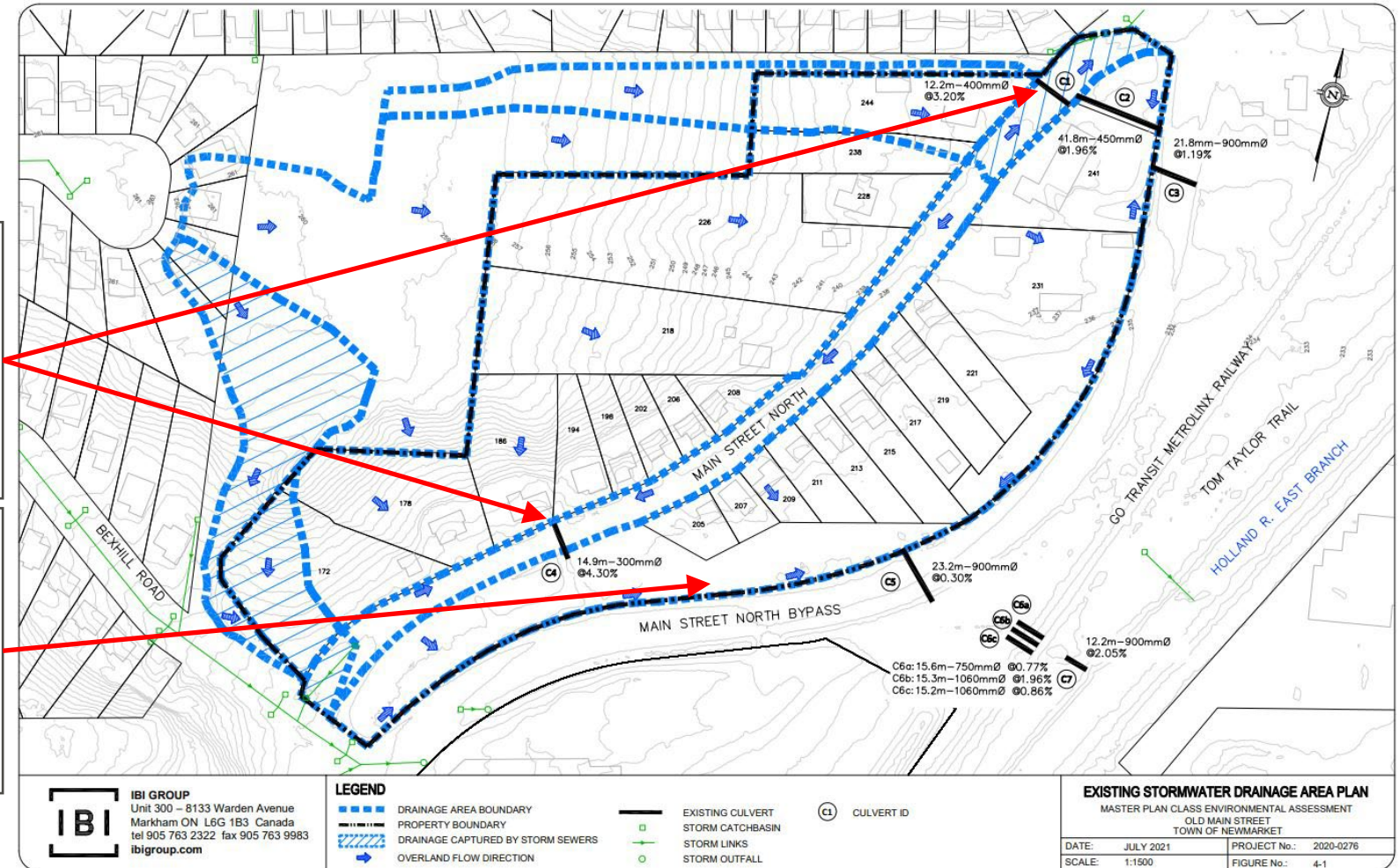
Old Main Street Master Plan Class EA

Existing Conditions – Storm Drainage System

Assessment of existing storm drainage system indicates:

Conveyance capacities of the swales and road culverts along Main Street North are inadequate, causing overtopping of the road and potential flooding on eastern properties

Conveyance capacity of the drainage ditch running along the western side of the By-Pass is inadequate, resulting in flooding of rear backyards of some eastern properties.

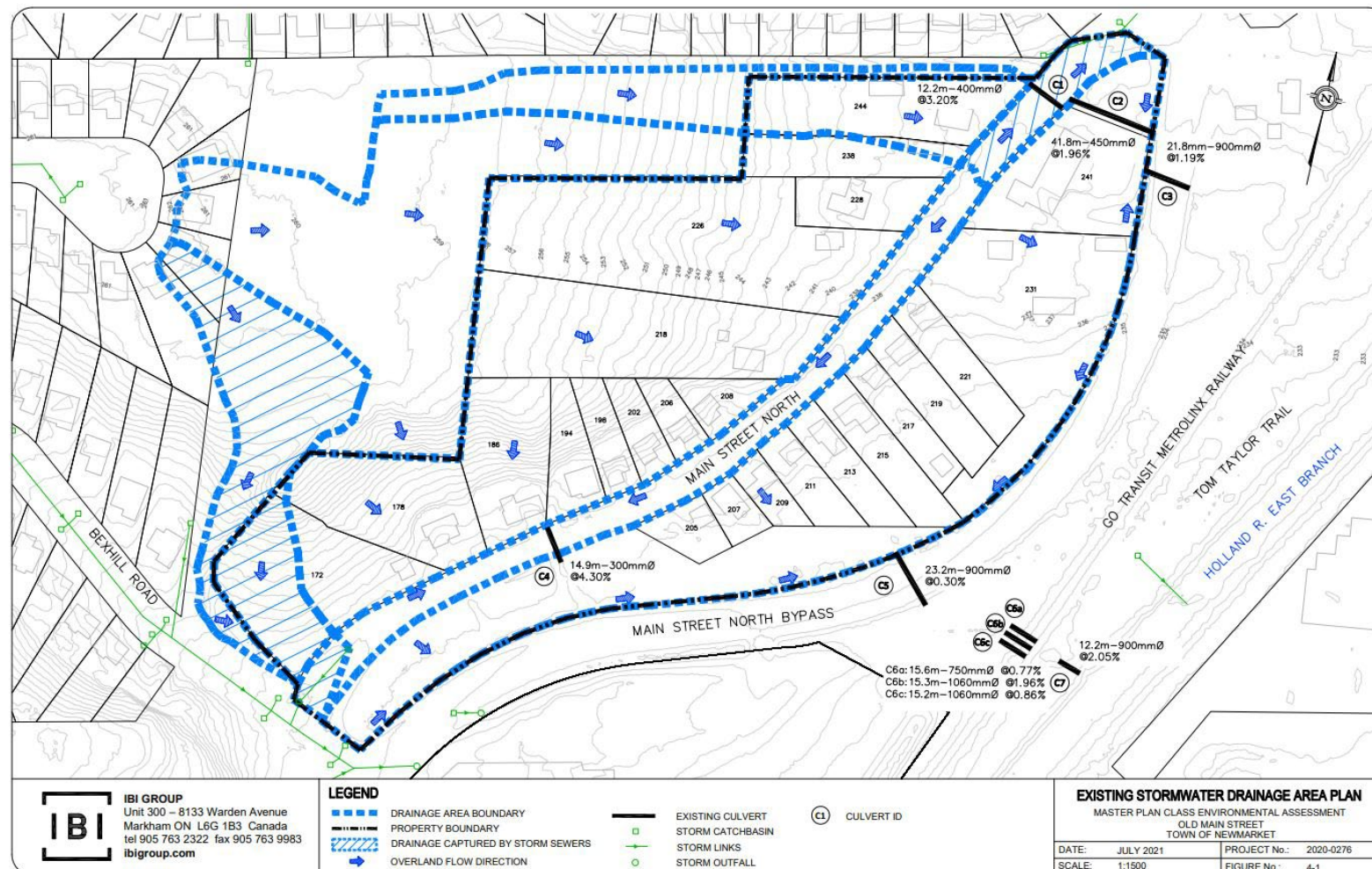


Old Main Street Master Plan Class EA

Existing Conditions – Storm Drainage System

Significant upgrades will be required to:

- Mitigate existing flooding issues along east side of Main Street North
- Manage increased stormwater runoff to support future intensification.



Old Main Street Master Plan Class EA

Existing Conditions – Storm Drainage System

Stormwater modelling results for the 100-year storm event show:

- Potential flooding of properties 205, 207, 209, 217 and 219 (~15 to 25 cm)
- Rear yard flooding from the western By-Pass ditch (~10 to 30 cm)



Node Depth

- < 150 mm
- >= 150 mm
- >= 250 mm

Conduit Surcharge

- < 1.0 (Not Surcharged)
- = 1.0 (Surcharged by Depth)
- = 2.0 (Surcharged by Flow)

Flood Depth

- >= 5 cm
- >= 10 cm
- >= 15 cm
- >= 25 cm
- >= 50 cm

Basement Flooding

- Building
- Potential Flooding

Old Main Street Master Plan Class EA

Existing Conditions – Transportation



Image 1: At Bexhill Rd facing north from west side



Image 2: At 221 Main St N facing south



Image 3: At 228 Main St N facing north



Image 4: At Bexhill Rd facing north from east side



Image 5: At 231 Main St N facing south



Image 6: At intersection with Main St Bypass facing southwest

Old Main Street Master Plan Class EA

Alternatives

- **Alternative 1 – Do Nothing:** No changes to the stormwater, sanitary, and water distribution systems. The existing rural road remains. Nothing done to mitigate existing flooding issues.
- **Alternative 2 – Urban Storm Sewer System:** Main Street North is reconstructed to an urban road with a new storm sewer system. Sanitary and water distribution systems are re-aligned and replaced / upgraded.
- **Alternative 3 – Enhanced Swale & SWM Pond:** Main Street North is re-aligned to a new rural road with an enhanced swale along the western side that discharges to a new stormwater management dry pond. Sanitary and water distribution systems are re-aligned and replaced / upgraded.



Old Main Street Master Plan Class EA

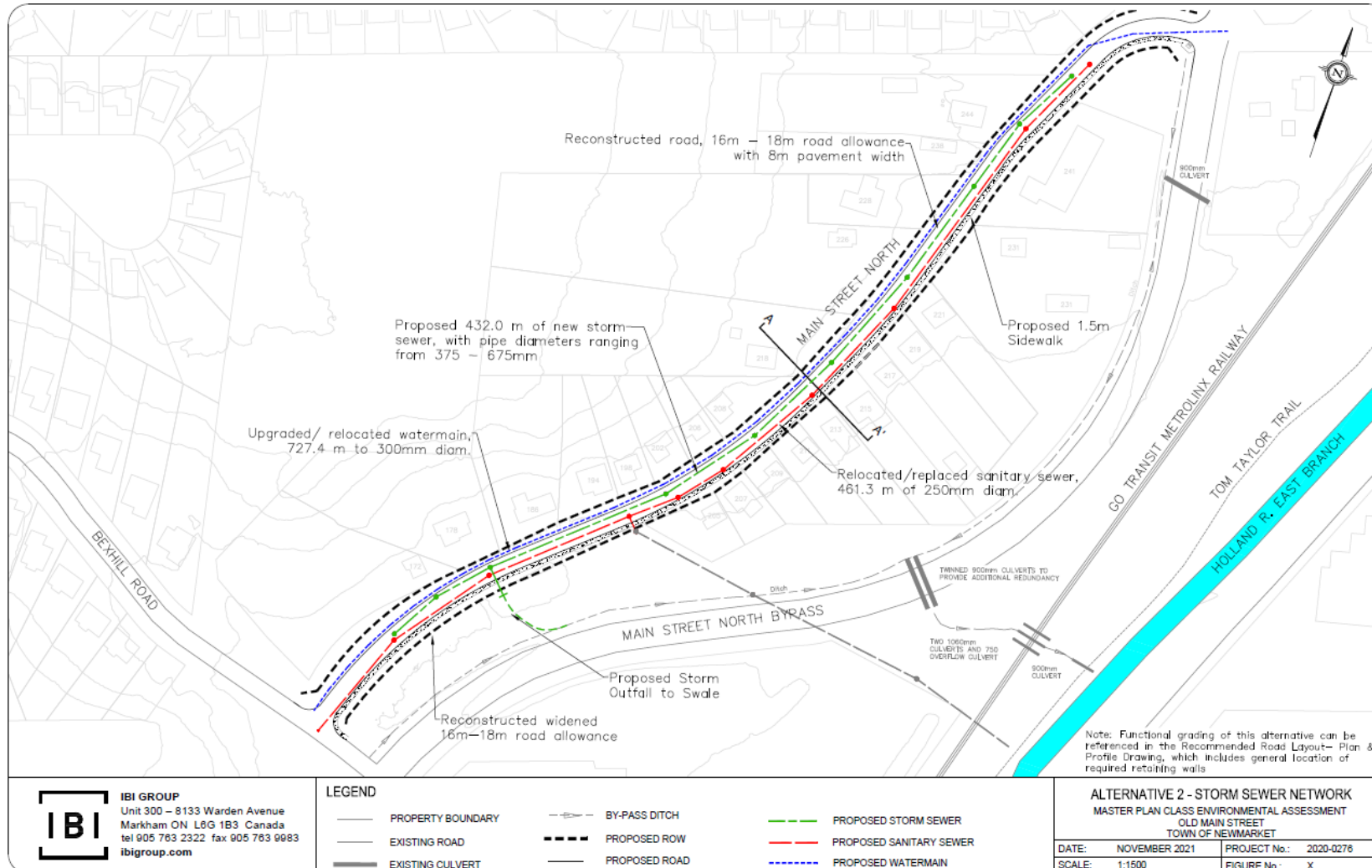
Alternatives - Continued

- **Alternative 4 – Low Impact Development:** Main Street North is reconstructed to an urban road with biofilter cells along the western boulevard. Sanitary and water distribution systems are re-aligned and replaced / upgraded.
- **Alternative 5 – Hybrid Approach:** Main Street North is reconstructed to an urban road with a combination of a storm sewer system, OGS and stormwater management dry pond. Sanitary and water distribution systems are re-aligned and replaced / upgraded.



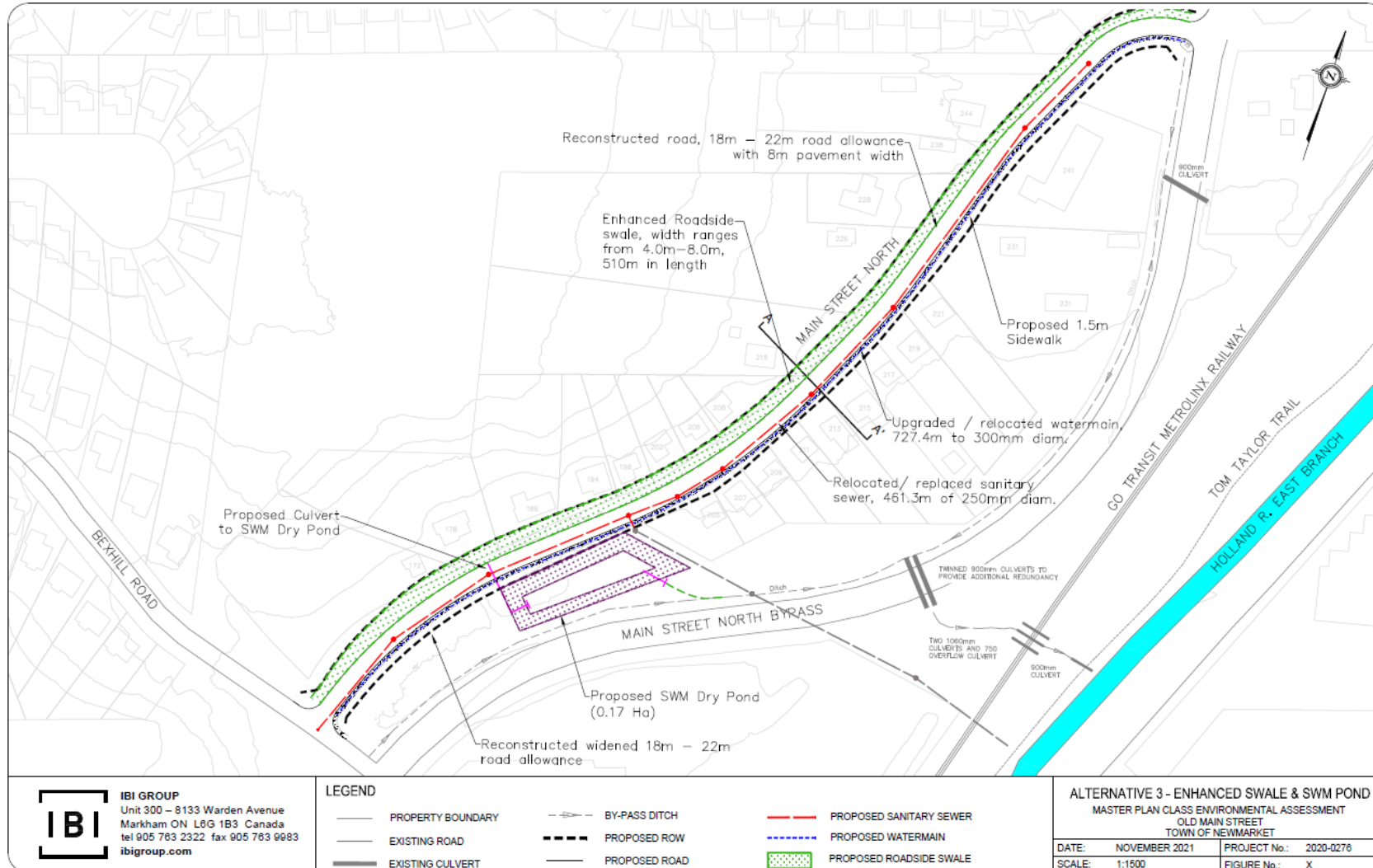
Old Main Street Master Plan Class EA

Alternative 2 – Urban Storm Sewer System



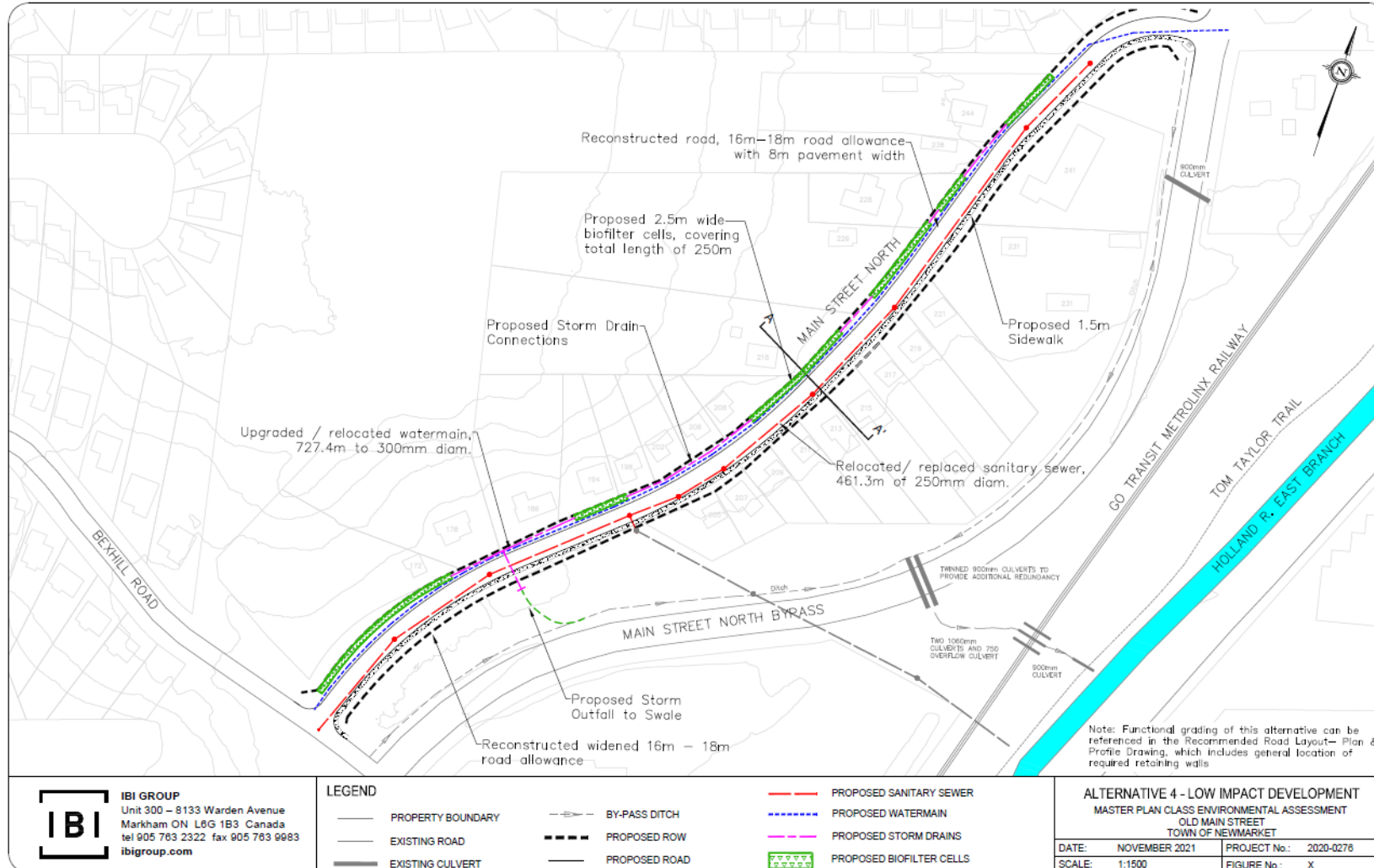
Old Main Street Master Plan Class EA

Alternative 3 – Enhanced Swale & SWM Pond



Old Main Street Master Plan Class EA

Alternative 4 – Low Impact Developments



Evaluation Criteria



CRITERIA		MEASURES
Natural Environment	Watercourse and Aquatic Impacts	Potential impacts to surface water, groundwater, floodplain, watercourse aquatic habitat and species
	Terrestrial/ Greenspace and Natural Heritage Impacts	Loss of vegetation, terrestrial habitat, wildlife and endangered species
Social and Cultural Environment	Traffic Impacts	Potential for temporary disruption to traffic flow during construction
	Community and Neighborhood Impacts	Potential for impacts to community features including parklands and open space areas used by residents
	Nuisance Impacts	Potential for visual distraction, vibration, dust and noise impacts during construction and following implementation
	Consistency with Land Use Designations, Approved Development Plans and Tertiary Plan Land Use Designations	Ability of alternative to support existing and future land use
	Cultural / Heritage Areas / Potential Archaeological Resource Impacts	Potential impact to cultural / heritage / built heritage areas and archaeological resources
	Recreation & Aesthetics	Opportunities for improvement of recreational trails, sidewalks, and aesthetic value
Technical & Engineering Considerations	Constructability	Potential for encountering problems during construction (e.g., soil stability, geotechnical considerations, ease of excavation, utility relocations required) and potential need for permits/ approvals
	Operation Requirements	Potential increase on operational requirements over current conditions
	Compliance with Standards	Ability to meet the Town's engineering and design standards for water, wastewater, stormwater and transportation systems, Town's level of service requirements and approval agency requirements (i.e. LSRCA)
	Construction Schedule Impacts	Potential length of construction schedule
Economic Considerations	Capital Costs	Relative capital costs of alternative
	Operations and Maintenance Costs	Relative difference in operations and maintenance cost for alternative
	Land Acquisition/ Easement Requirements	Potential for land acquisition including permanent land acquisition easements and construction easements

Old Main Street Master Plan Class EA



Summary of Evaluation of Alternatives

EVALUATION CRITERIA	Alternative 1 Do Nothing	Alternative 2 Urban Sewer System	Alternative 3 Enhanced Swale & SWM Pond	Alternative 4 Low Impact Development	Alternative 5 Hybrid Approach
Natural Environment	Impact to aquatic species and habitat	Impact to aquatic species and habitat	Impacts to aquatic species and habitat will be mitigated	Impact to aquatic species and habitat	Impacts to aquatic species and habitat will be mitigated
Social and Cultural Environment	Alternative is inconsistent with Town's Tertiary Plan	Alternative is inconsistent with Town's Tertiary Plan	Alternative is inconsistent with Town's Tertiary Plan	Alternative is consistent with Tertiary Plan. Some easement will be needed	Alternative is consistent with Tertiary Plan. Some easements will be needed with new dry pond on community lands
Technical Impacts	Alternative does not meet Town Engineering standards or LSRCA criteria	Alternative does not fully meet Town engineering standards	Constructability issues due to shallow groundwater table	Alternative does not fully meet Town engineering standards	Alternative fully meets Town and LSRCA Engineering requirements
Economic Considerations	Low Cost	Moderate capital cost	Moderate capital cost	Low capital cost	Higher capital cost
OVERALL RANKING	NOT RECOMMENDED Alternative does not meet the Town's Engineering Standards or Tertiary Plan policies	LESS RECOMMENDED Alternative does not fully meet Town's Engineering Standards for stormwater quality and quantity control	LESS RECOMMENDED Alternative does not fully meet Town's Engineering Standards for stormwater quality and quantity control	LESS RECOMMENDED Alternative does not fully meet Town's Engineering Standards for stormwater quality and quantity control	RECOMMENDED Integrated design solution has operational flexibility and fully meets Town's Engineering Standards and Tertiary Plan policies at highest cost

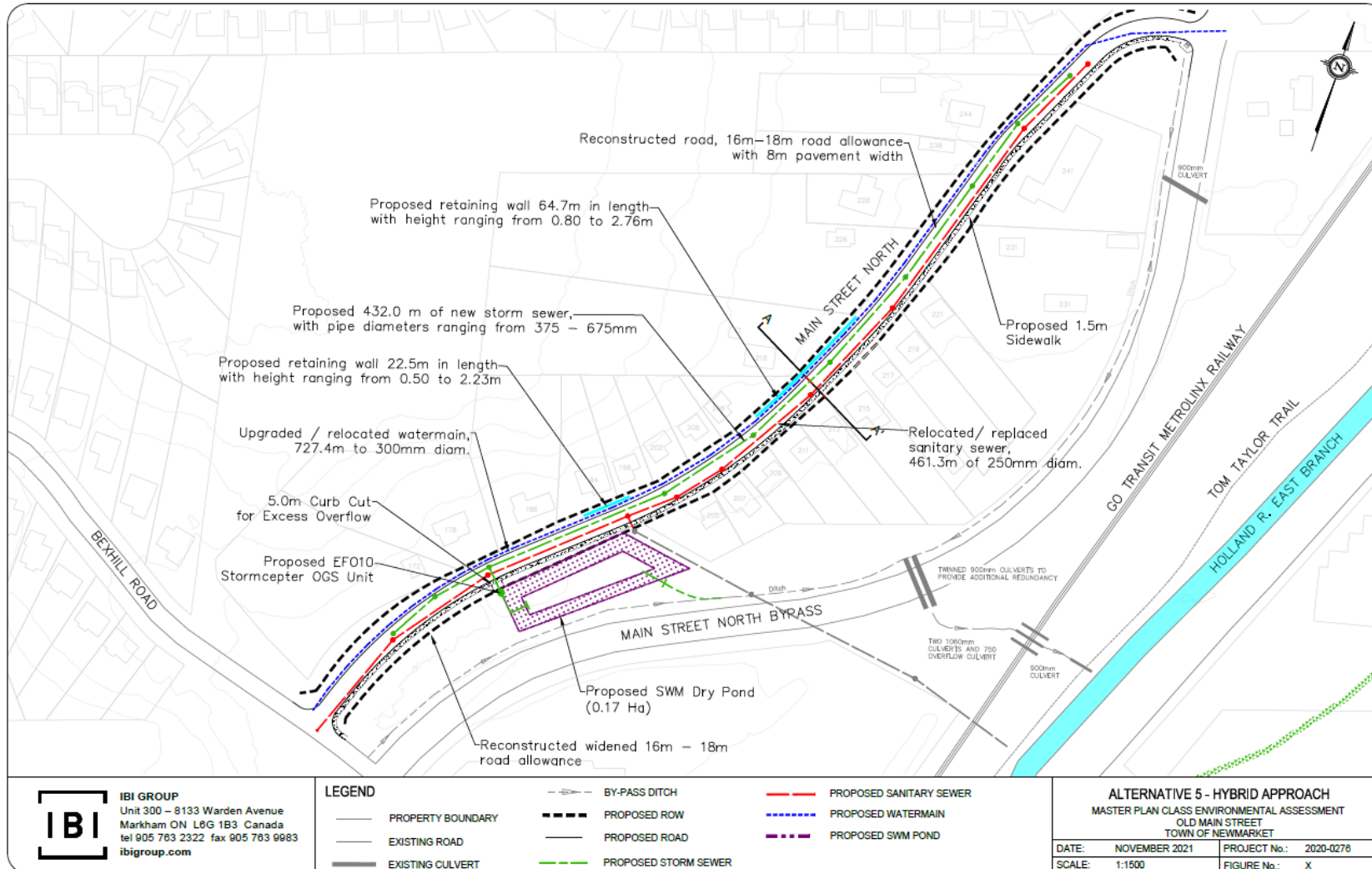
Preferred Less Preferred Least Preferred

Recommended Preferred Alternative Overview

- Reconstruction of rural road to urban local road
 - Right-of-Way ranges from 16.0m to 18.0m with 8.0m pavement width and 1.5m wide sidewalk
 - Retaining walls will be required at certain areas to provide adequate cover for underground services
 - Road grading has been refined to minimize impact on driveways on both sides of Main Street North
- New storm sewer system
 - Construction of new 432m storm sewer alignment consisting of 375mm – 675mm diam. sewers
 - Double high-capacity catchbasins at sag points to minimize ponding
- Stormwater treatment train approach
 - LID measures were considered but not feasible due to high groundwater and ROW constraints
 - OGS (Stormceptor EFO10) at dry pond inlet to provide 60% TSS removal (ETV verified)
 - Dry pond facility to provide remaining quality treatment to meet the Town's 80% TSS removal requirement
- Twin 900mm culvert beneath Bypass to address redundancy issues

Old Main Street Master Plan Class EA

Recommended Preferred Solution – Hybrid Approach



Old Main Street Master Plan Class EA

Recommended Preferred Solution – Stormwater Flood Mapping

Stormwater modelling results for the 100-year storm event show:

- Mitigation of flooding along eastern properties (no road overtopping)
- Reduction in rear yard flooding from the By-Pass ditch



Node Depth

- < 150 mm
- ≥ 150 mm
- ≥ 250 mm

Conduit Surcharge

- < 1.0 (Not Surcharged)
- = 1.0 (Surcharged by Depth)
- = 2.0 (Surcharged by Flow)

Flood Depth

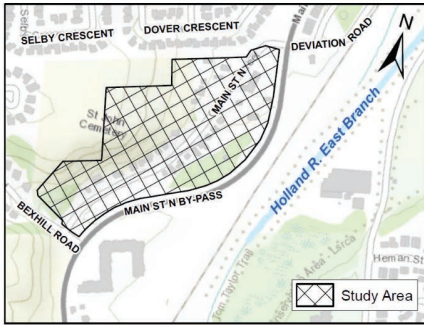
- ▲ ≥ 5 cm
- ▲ ≥ 10 cm
- ▲ ≥ 15 cm
- ▲ ≥ 25 cm
- ▲ ≥ 50 cm

Basement Flooding

- Building
- Potential Flooding

Town of Newmarket Old Main Street Tertiary Plan Area Master Plan Municipal Class Environmental Assessment Study Notice of Virtual Public Information Centre

The Town of Newmarket initiated a Master Plan Municipal Class Environmental Assessment (EA) Study to assess the existing conditions, capacity and required improvements for water, wastewater and storm drainage infrastructure needed to support the Town's policies in the Old Main Street Tertiary Plan. This study includes a review and analysis of the



Old Main Street existing road right-of-way in order to develop an urban road cross-section to meet the Town of Newmarket's Engineering Design Standards and Criteria, the Old Main Street Tertiary Plan objectives and the Town's other policies. The study area is shown in the figure below.

This Master Plan has been prepared in accordance with the requirements

of the Municipal Class Environmental Assessment process (Municipal Class Environmental Assessment, October 2000, as amended in 2007, 2011 and 2015).

Consultation with the public, key stakeholders, indigenous groups and regulatory agencies is an important component of the Class EA process. The Town of Newmarket wants to ensure that anyone interested in the Master Plan has the opportunity to provide input.

A Public Information Centre (PIC) will be held on **April 12, 2022, from 7 to 8:30 p.m.** to provide the background and present information and materials used for the Master Plan. The public is invited to provide feedback and input on the alternatives that were considered and the recommended preferred alternative. In light of COVID-19 and associated physical distancing requirements for the foreseeable future, the PIC will be held virtually. Members of the public are encouraged to participate and provide their comments to ensure that their concerns can be adequately addressed. The virtual PIC can be accessed online by visiting heynewmarket.ca/oldmainstreetpic

At the completion of the planning process, the Master Plan will be publicly published. Information and communications will be collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record. Please contact either one of the representatives listed below if you have any questions, comments or require further information.

Christine Hill, M.Eng., P.Eng.,
Associate Director,
Practice Lead- Water Facilities

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Sepideh Majdi, M.Sc., P.Eng.,
Manager,
Development Engineering
Engineering Services

Town of Newmarket

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PO BOX 328 STN

Newmarket, ON L3Y 4X7

smajdi@newmarket.ca



OLD MAIN STREET MASTER PLAN
CLASS ENVIRONMENTAL ASSESSMENT (EA)



VIRTUAL PUBLIC INFORMATION CENTRE

APRIL 12, 2022

Old Main Street Master Plan Class EA

Background

The Town has been advancing a thorough, systematic approach for redevelopment of the Old Main Street Area through a hierarchy of the Official Plan, Secondary Plan and the Tertiary Plan.

This Master Plan EA is a follow-up study to the 2019 Tertiary Plan, and utilized the land use, density, stormwater management, low impact development (LID), servicing infrastructure, transportation, and natural heritage policies established through the Tertiary Plan process.

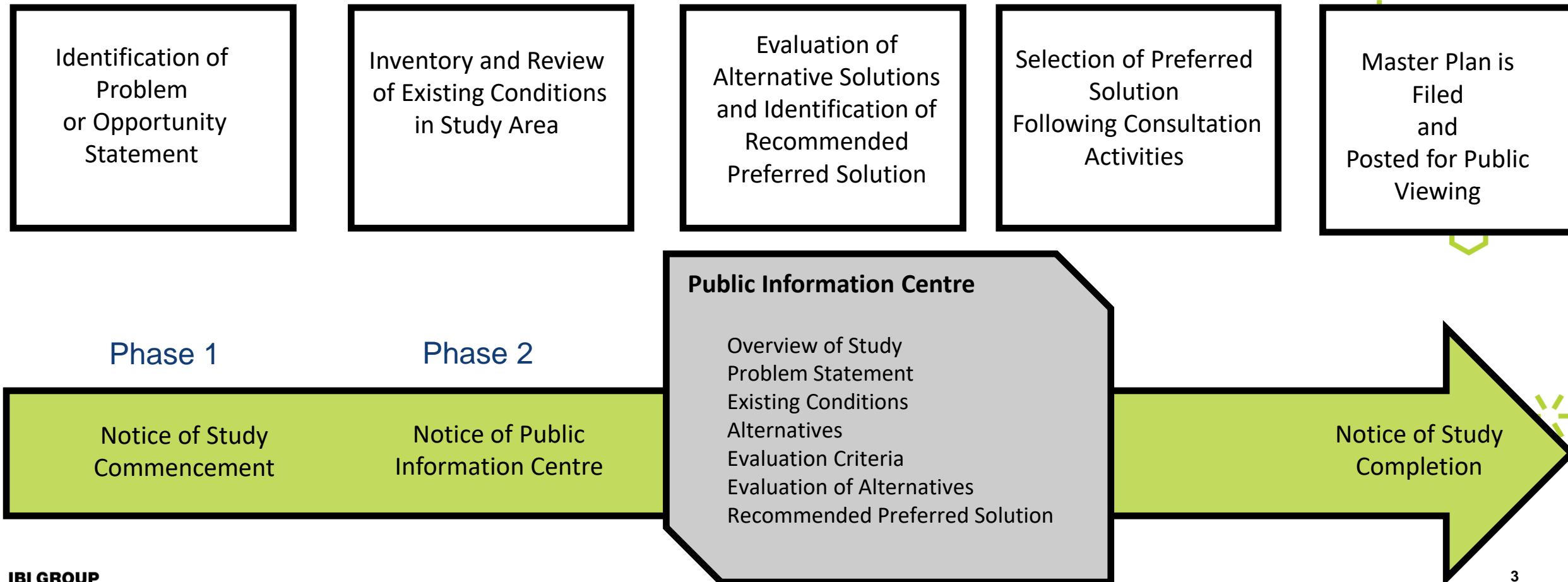
Study Purpose

The Town initiated a Master Plan EA to identify a preferred solution for providing water, sanitary, storm drainage and transportation services for existing and future land use within the Old Main Street Area.



Old Main Street Master Plan Class EA

Municipal Class Environmental Assessment (EA) Process



Old Main Street Master Plan Class EA

This Public Information Centre is designed to:

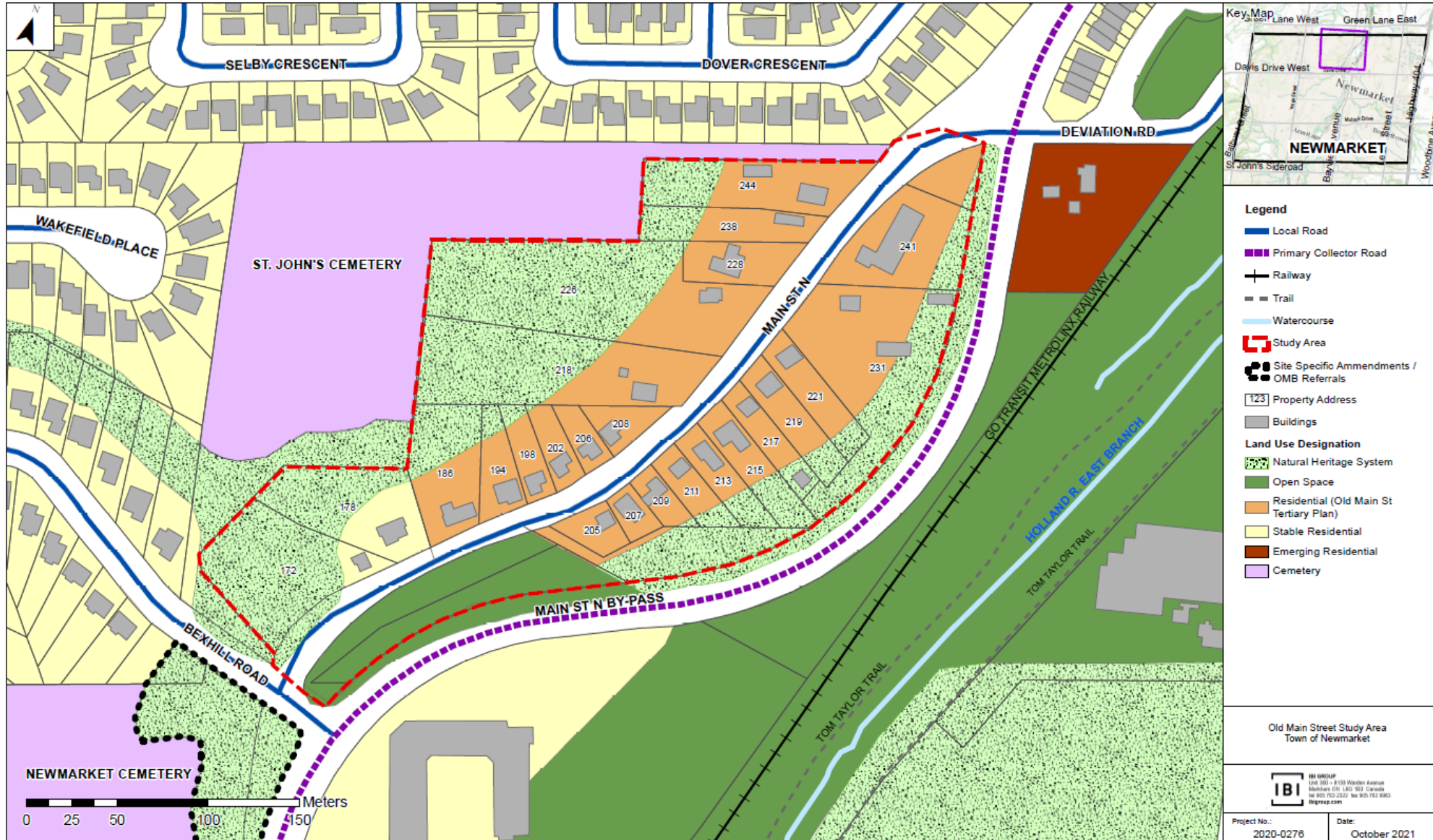
- Present assessment of existing systems
- Present alternatives and the evaluation of alternatives
- Present recommended preferred solution

To gain your input on:

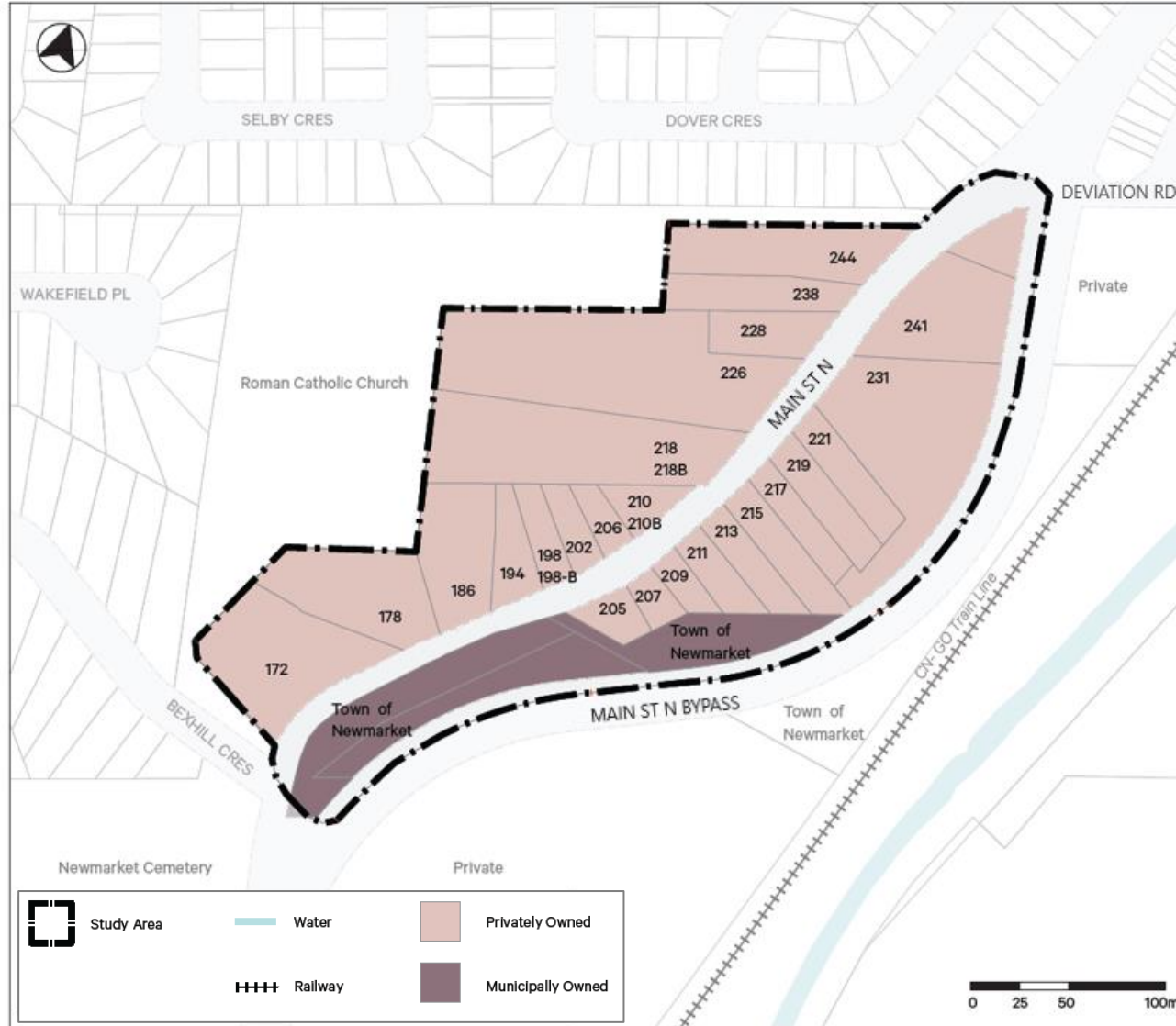
- Existing conditions
- Development and evaluation of alternatives
- The recommended preferred solution
- Following your input, a preferred solution will be identified



Overview of Study Area – Land Use

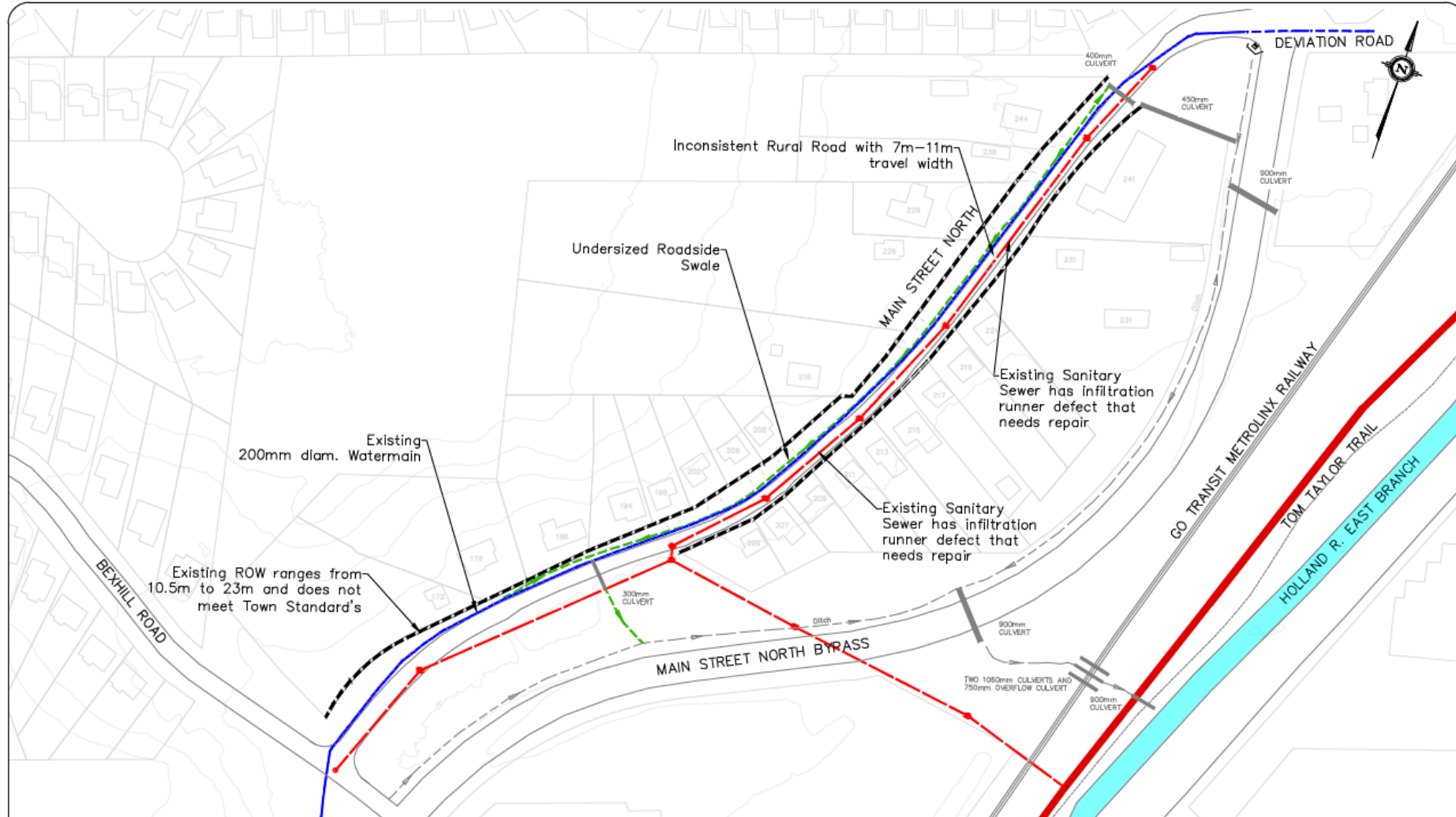


Overview of Study Area – Land Ownership



Note: Figure from Old Main St Planning & Land Use Background Report, 2018, p. 8

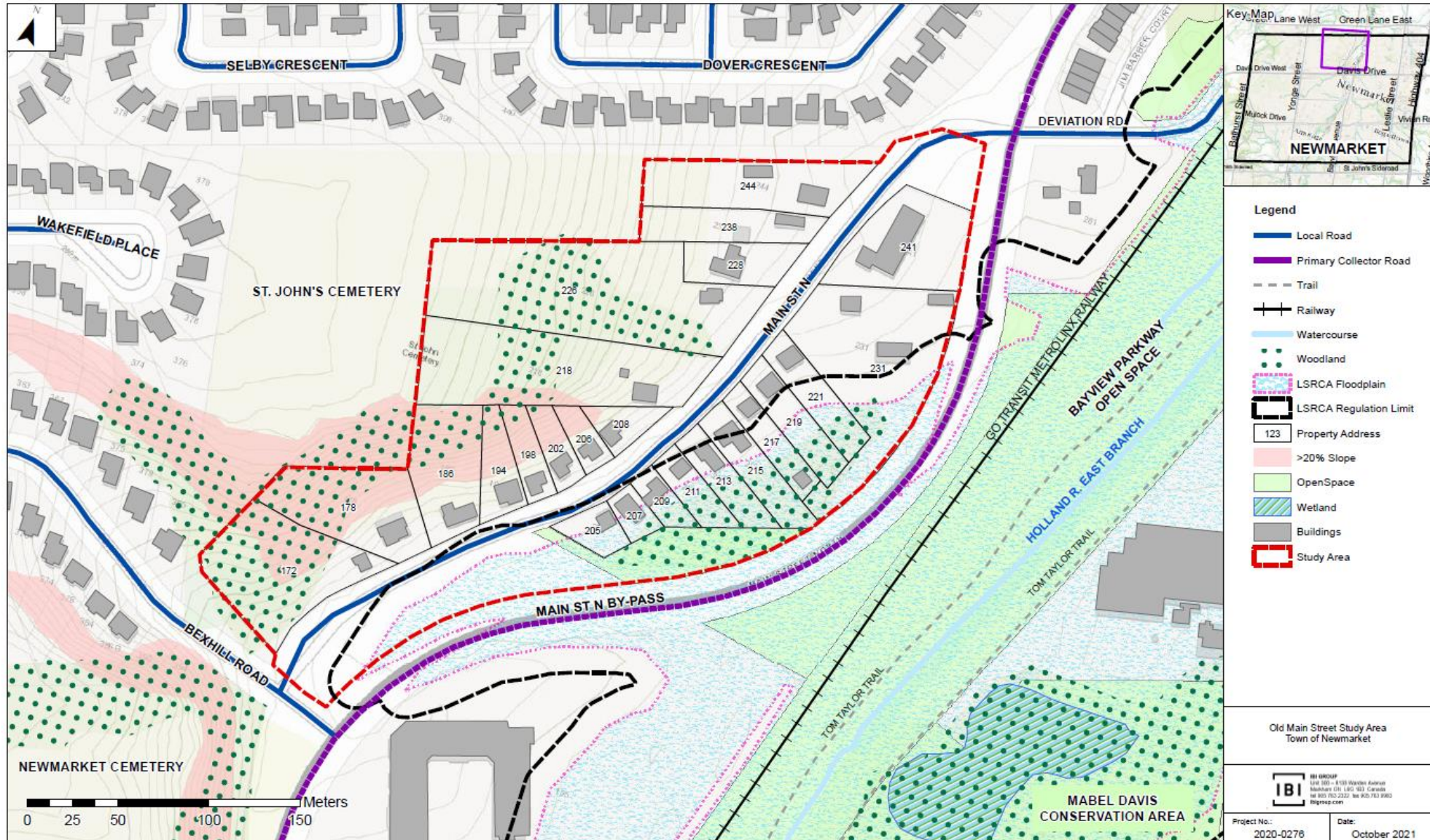
Overview of Study Area – Existing Infrastructure



LEGEND	
	PROPERTY BOUNDARY
	EXISTING ROAD
	EXISTING ROW
	EXISTING ROAD SWALE
	BY-PASS DITCH
	EXISTING CULVERT
	EXISTING SANITARY SEWER
	EXISTING SANITARY TRUNK SEWER
	EXISTING WATERMAIN

EXISTING INFRASTRUCTURE	
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT	
OLD MAIN STREET TOWN OF NEWMARKET	
DATE: NOVEMBER 2021	PROJECT No.: 2020-0276
SCALE: 1:1500	FIGURE No.: X

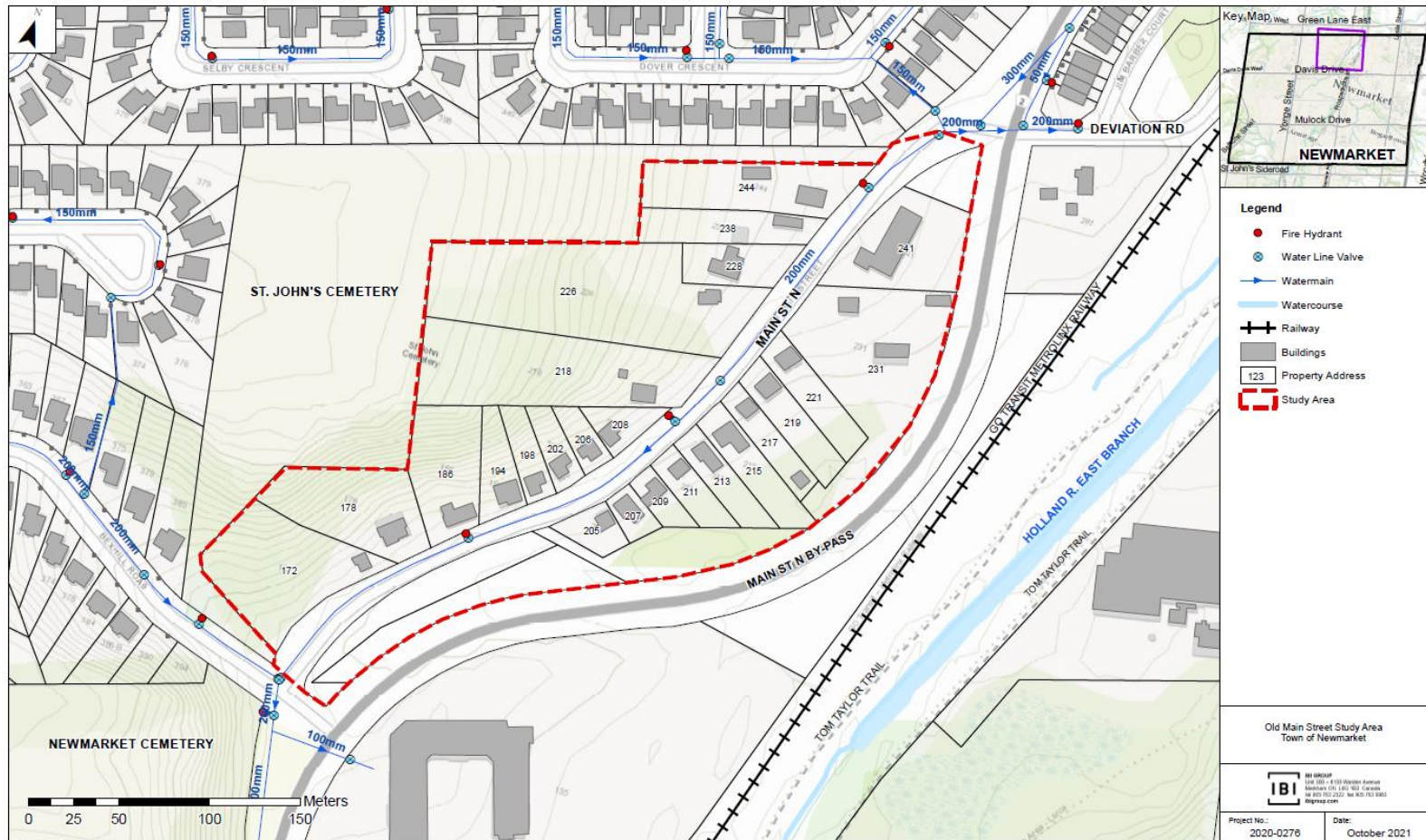
Natural Heritage – Existing Conditions



Water Distribution System – Existing Conditions

Assessment of the water distribution system confirmed:

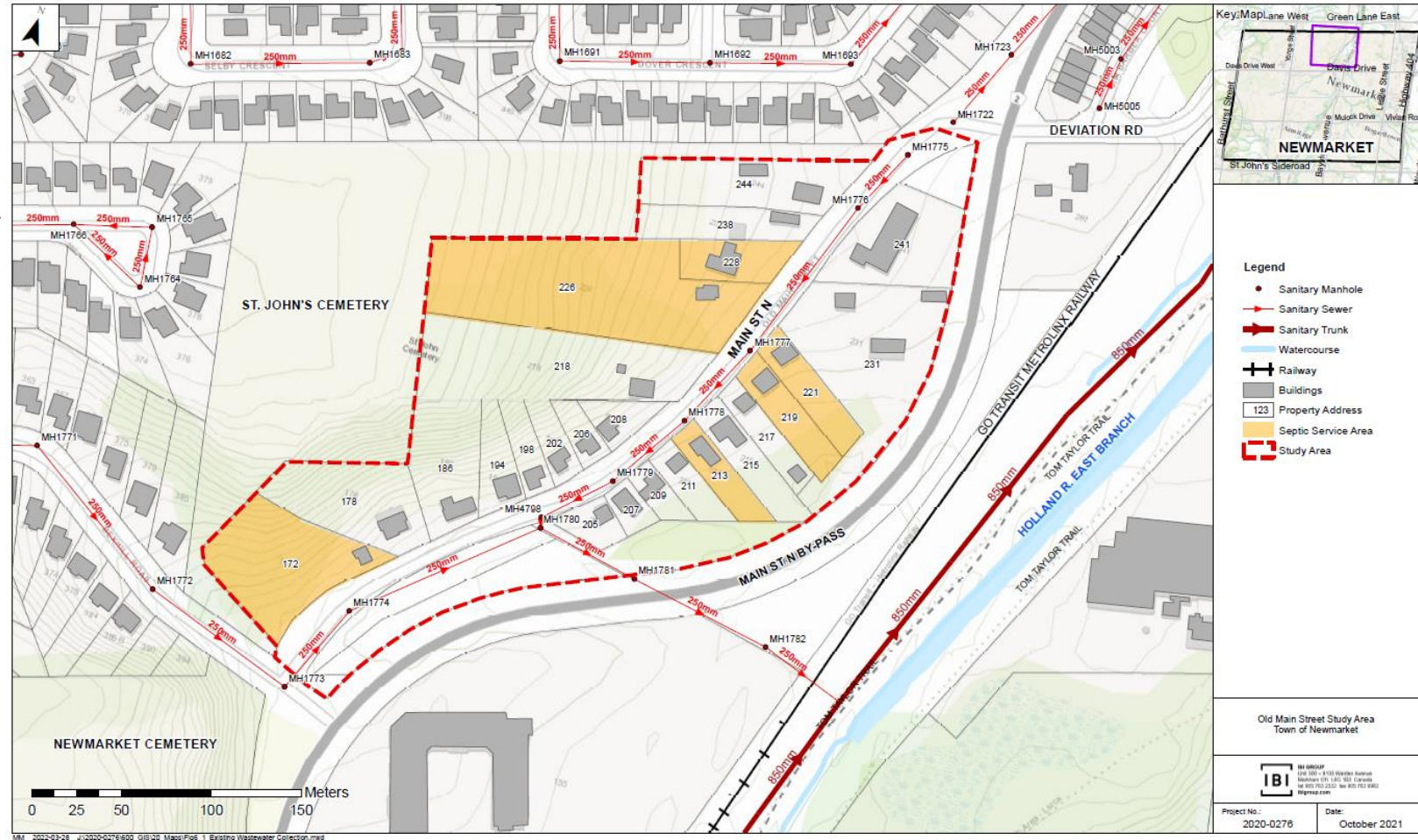
- Existing system can provide adequate water supply, storage and fire flow to meet current and future needs but infrastructure is ageing
- Replacement of the existing 200mm diameter ductile iron watermain with a 300mm diameter PVC watermain will enhance the current level of service



Sanitary System – Existing Conditions

Assessment of the sanitary system confirmed:

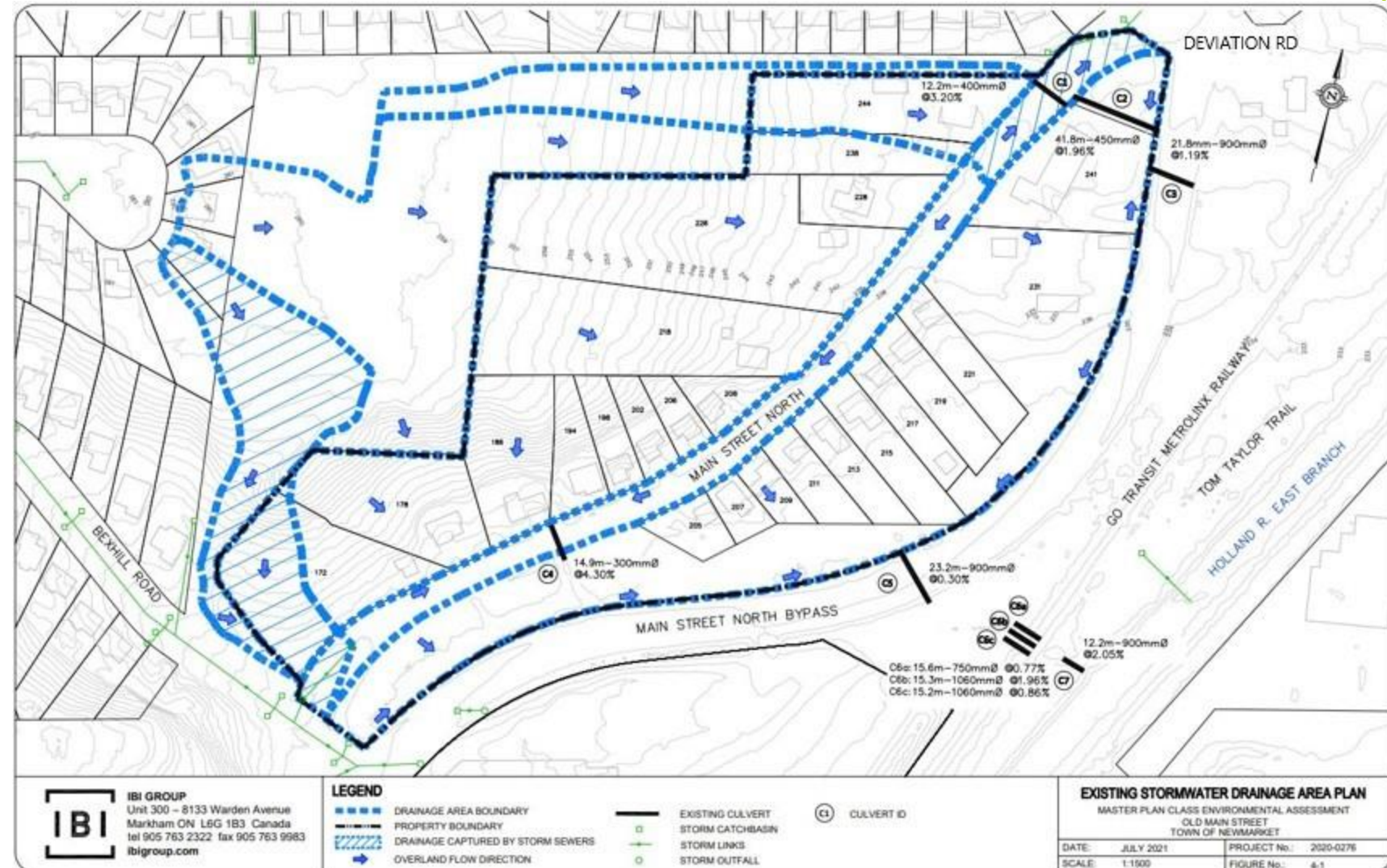
- Existing 250mm diameter PVC sanitary sewer has adequate capacity to meet current and future needs
- Repairs or replacement is needed as infrastructure is ageing
- Some sections of existing sanitary sewer are not located within the road allowance and will need to be realigned with the road to meet Town standards



Stormwater Drainage System – Existing Conditions

Existing storm drainage system consists of:

- Roadside swale on the west side of Main Street North
- Existing culverts convey drainage to an existing culvert under the Main Street North Bypass and ultimately to the East Holland River
- **Flooding issues have been reported by residents.**

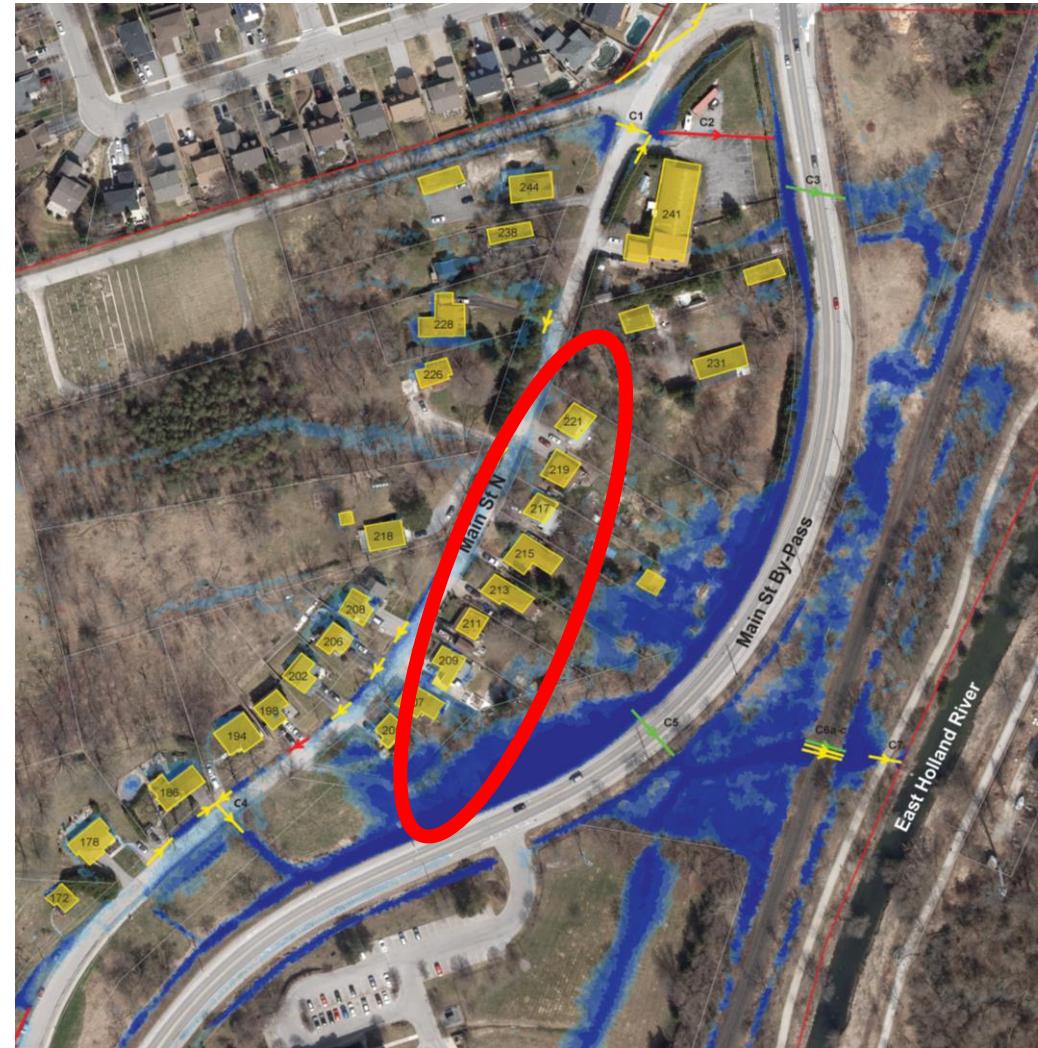


Storm Drainage System – Existing Conditions (Cont'd)

Potential Flooding

Stormwater modelling results for the 100-year storm event show:

- Potential flooding of properties on the east side of Main Street North
- Rear yard flooding is due to downstream capacity constraints
- **Results are consistent with flooding reported by residents**



Conduit Surcharge

- Under Capacity
- At Capacity
- Over Capacity

Flood Depth

- ▲ ≥ 5 cm
- ▲ ≥ 10 cm
- ▲ ≥ 15 cm
- ▲ ≥ 25 cm
- ▲ ≥ 50 cm

Basement Flooding

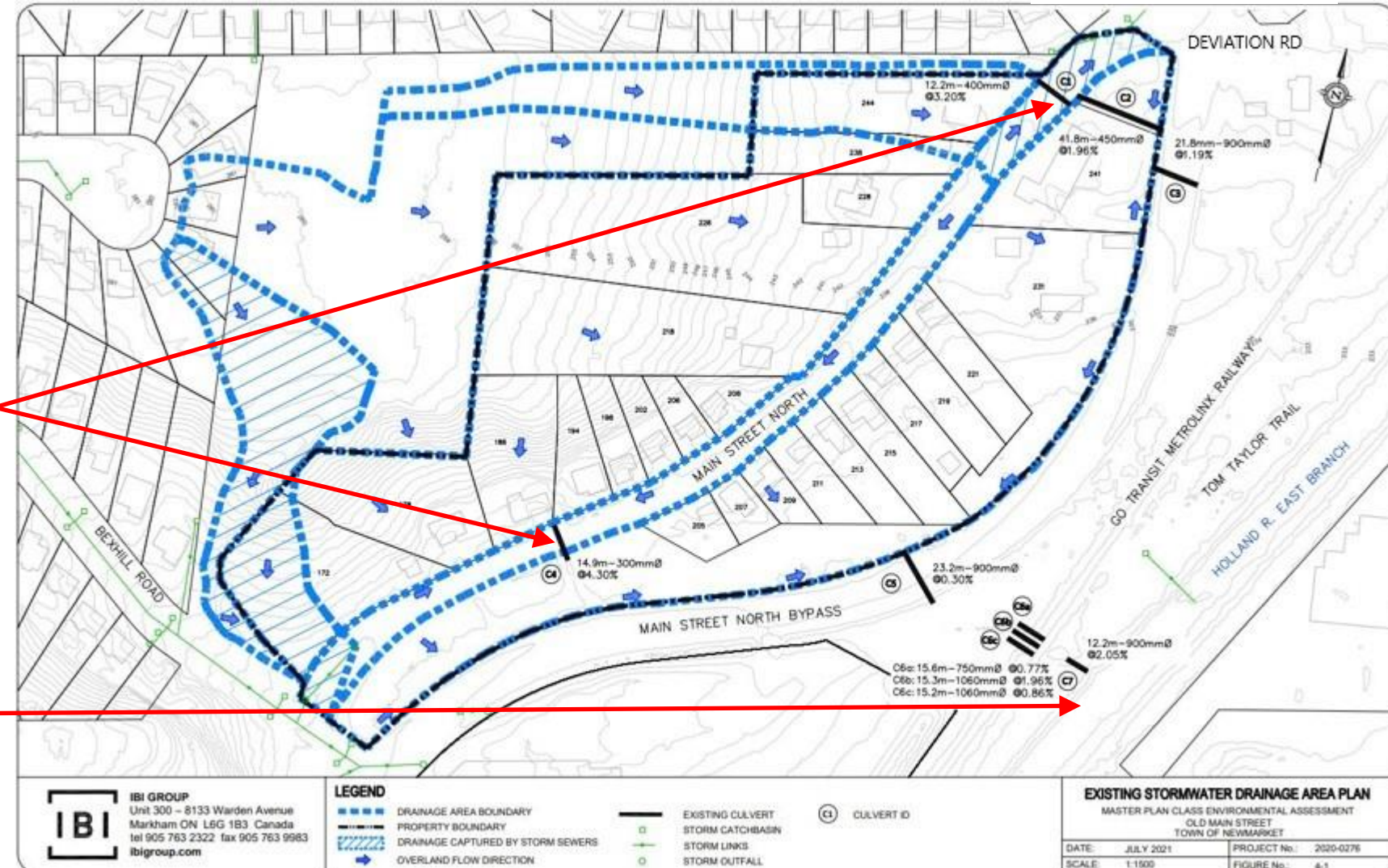
- Building
- Potential Flooding

Storm Drainage System – Existing Conditions (Cont'd)

Assessment of existing storm drainage system confirmed:

Capacity of the swales and road culverts along Main Street North are inadequate. Stormwater can overtop the road and flood properties on the east of Main Street North during large storms

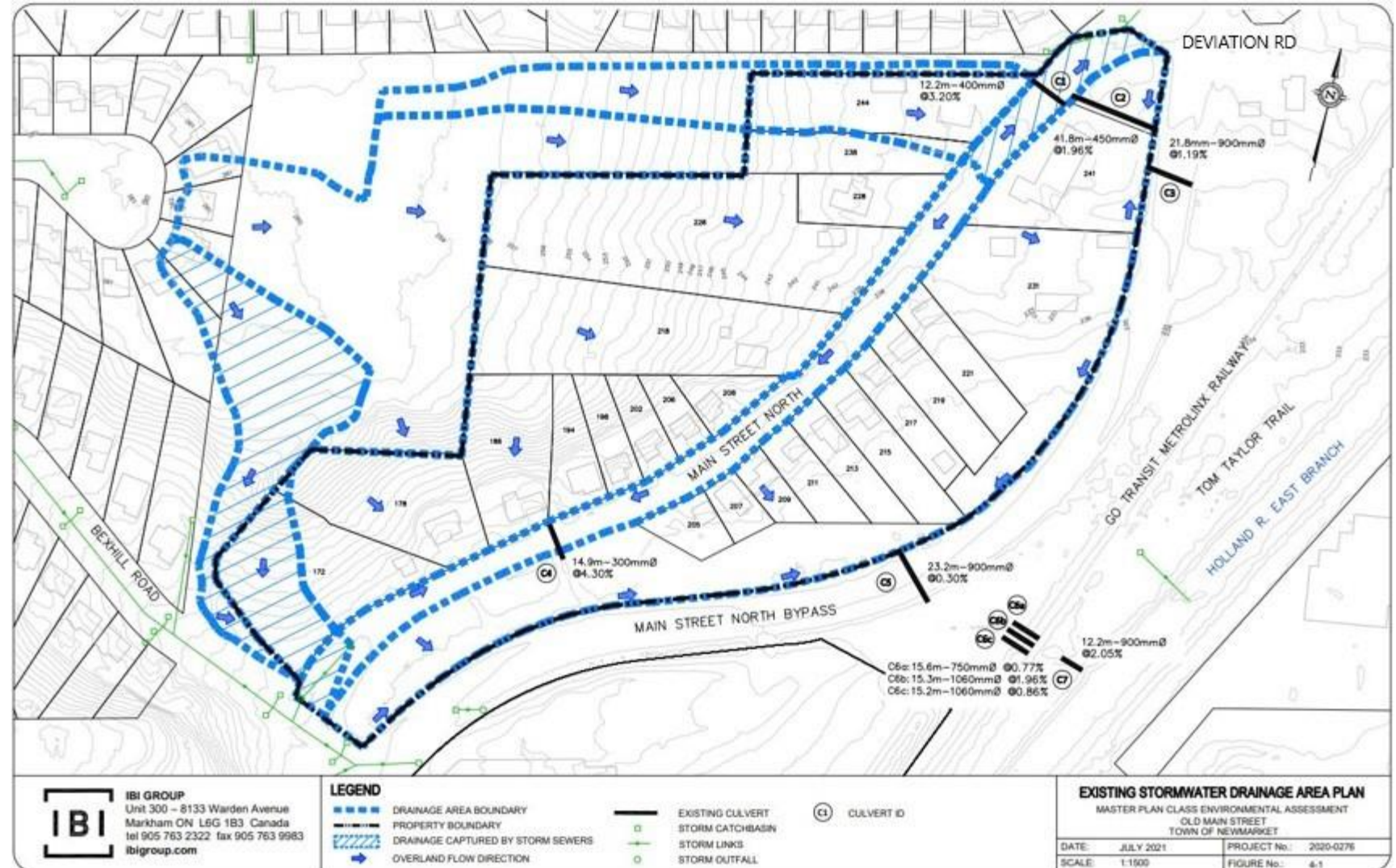
Flooding of the rear yards of some properties on the east side of Main Street North can occur due to the impact of high water flood levels in the East Holland River during large storms



Storm Drainage System – Existing Conditions (Cont'd)

Upgrades to the existing storm drainage system are needed to:

- Reduce the risk of flooding of properties on the east side of Main Street North
- Manage stormwater from a reconstructed urbanized Main Street North

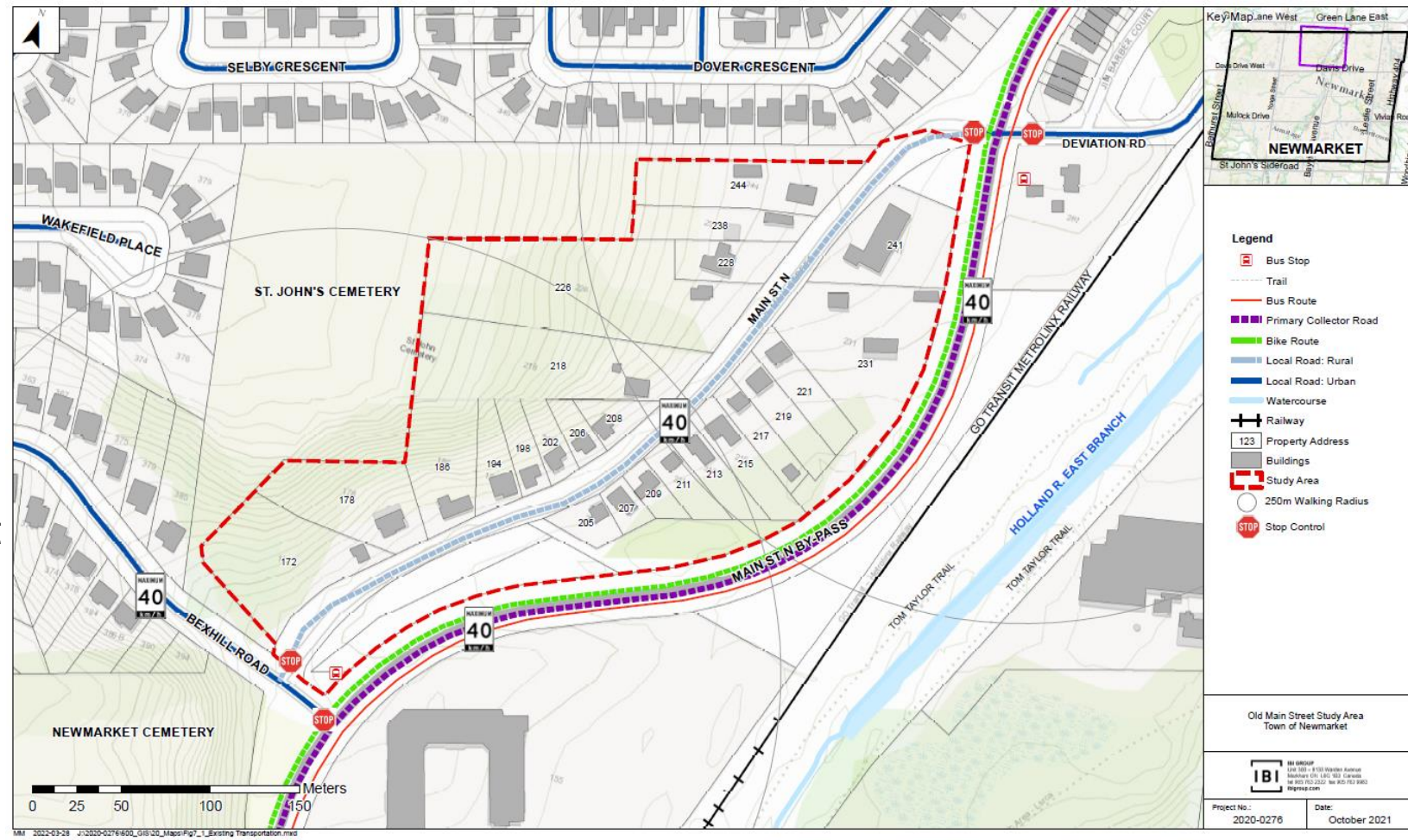


Transportation – Existing Conditions

The Tertiary Plan recommended that Main Street North be reconstructed to an urban road with:

- Traffic calming to better control vehicle speed
- Consider tie-ins with existing driveways, steep slopes adjacent to the road, existing vegetation and utilities

Alternatives for the road were developed in concert with storm drainage alternatives



Transportation – Existing Conditions (Cont'd)



At Bexhill Road facing north from west side



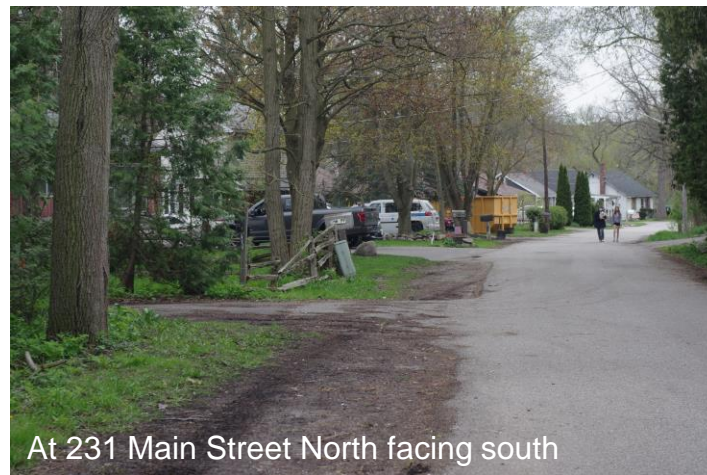
At 221 Main Street North facing south



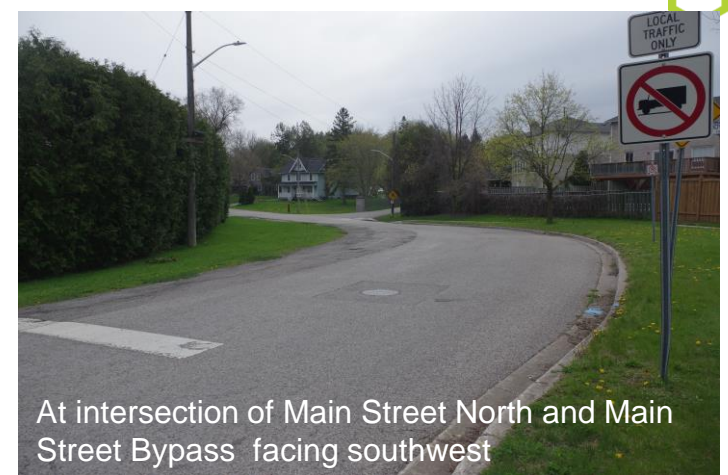
At 228 Main Street North facing north



At Bexhill Road facing north from east side



At 231 Main Street North facing south



At intersection of Main Street North and Main Street Bypass facing southwest

Old Main Street Master Plan Class EA

Problem Statement

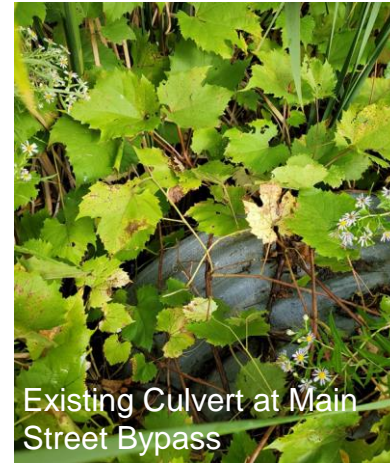
Assessment of existing infrastructure identified the need for upgrades to support current and future needs

INFRASTRUCTURE	ASSESSMENT FINDINGS
Water Distribution	<ul style="list-style-type: none"> Existing watermain has capacity to meet current and future needs Watermain replacement is required due to ageing infrastructure
Sanitary	<ul style="list-style-type: none"> Existing sanitary sewer has capacity to meet current and future needs Repairs/ replacement is needed due to ageing infrastructure Realignment with road is needed to meet Town standards
Stormwater Drainage	<ul style="list-style-type: none"> Improvements are needed to reduce the risk of flooding during large storms and to manage stormwater from an urbanized Main Street North
Transportation	<ul style="list-style-type: none"> Existing rural road is to be reconstructed as an urban road while maintaining tie-ins with existing driveways, existing vegetation and utilities

Study Area Constraints



Steep slopes on west side of Main Street North allows stormwater to drain onto the road



If a blockage were to occur in the single Main Street Bypass culvert, flooding of properties on Main Street North could result during a large storm event



Flat and negative slopes on the east side of Main Street North allows stormwater to drain from the road towards existing properties



High groundwater conditions restrict the use of Low Impact Development (LID) stormwater management measures that allow stormwater to infiltrate into the ground

Study Area Constraints (Cont'd)



In areas where low impact development (LID) infiltration measures could be used, there is limited space in the road allowance



The pavement width of Main Street North varies and is not consistent with Town standards



Shallow ditches do not have enough capacity to convey stormwater from the road



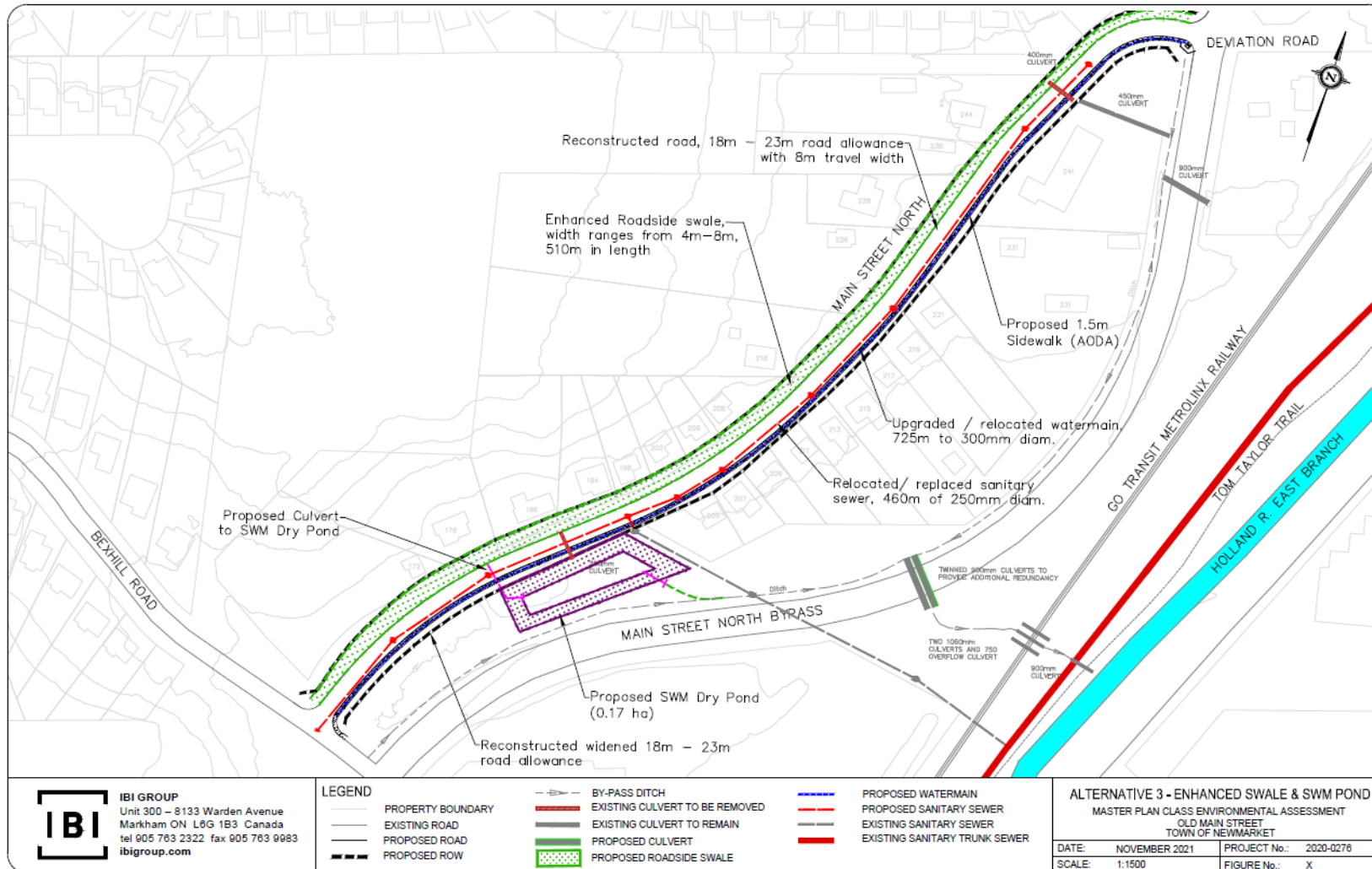
Old Main Street Master Plan Class EA

Alternative Solutions

- **Alternative 1 – Do Nothing:** No changes to the existing water, sanitary or storm drainage systems maintenance of existing rural road while allowing future growth to proceed
- **Alternative 2 – Enhanced Swale and SWM Pond:** Existing watermain and sanitary sewer are repaired, upgraded and realigned. Main Street North is reconstructed as a new rural road with a larger swale on west side of the street and a new stormwater management dry pond
- **Alternative 3 – Hybrid Approach:** Existing watermain and sanitary sewer are repaired, upgraded and realigned. Main Street North is reconstructed to an urban road with a new storm sewer system, oil grit separator and stormwater management dry pond



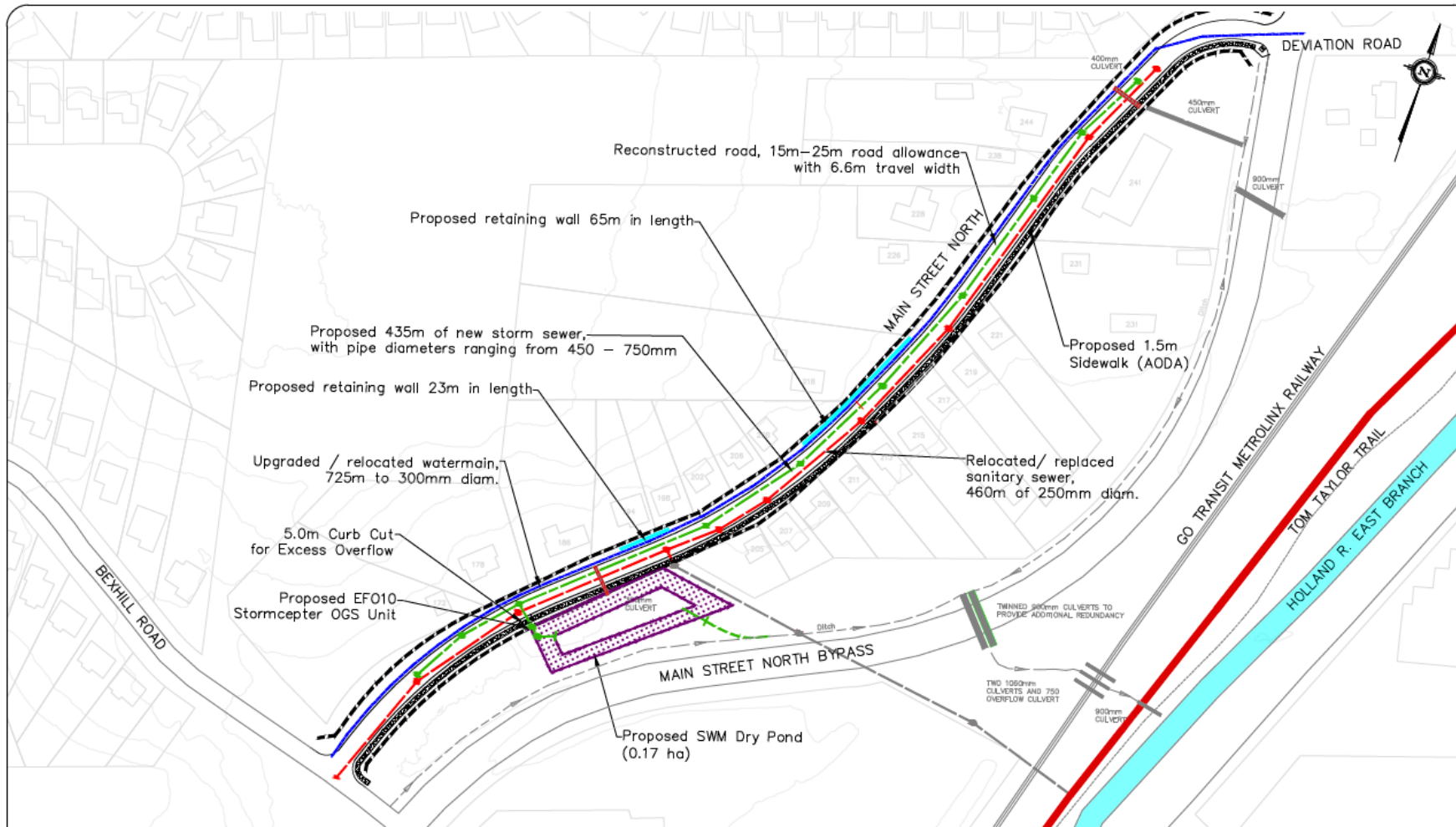
Alternative 2 – Enhanced Swale and Pond



Key Features:

- Deep and wide swale on the west side of Main Street North
- Rural road with a travel width of 8m and a road allowance width of 18m to 23m
- A new stormwater dry pond located on Town owned property
- A twin culvert under the Main Street North Bypass

Alternative 3 – Hybrid Approach

















Key Features:

- Urban road with a travel width of 6.6m, 1.5m sidewalk (AODA compliant) and road allowance width of 15m to 25m
- A new storm sewer, a new stormwater dry pond and an oil grit separator
- Two short sections of retaining wall to maintain existing grades at the property line on west side of Main Street North
- A twin culvert under the Main Street North Bypass



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 tel 905 763 2322 fax 905 763 9983
 ibigroup.com

LEGEND

	PROPERTY BOUNDARY		BY-PASS DITCH		PROPOSED WATERMAIN
	EXISTING ROAD		EXISTING CULVERT TO BE REMOVED		PROPOSED SANITARY SEWER
	PROPOSED ROAD		EXISTING CULVERT TO REMAIN		EXISTING SANITARY SEWER
	PROPOSED ROW		PROPOSED CULVERT		EXISTING SANITARY TRUNK SEWER
			PROPOSED STORM SEWER		PROPOSED RETAINING WALL

ALTERNATIVE 5 - HYBRID APPROACH
 MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT
 OLD MAIN STREET
 TOWN OF NEWMARKET

DATE: NOVEMBER 2021	PROJECT No.: 2020-0276
SCALE: 1:1500	FIGURE No.: X

Evaluation Criteria



Category	Criteria	Description
Natural Environment	Water course and aquatic impacts	<ul style="list-style-type: none"> Potential impacts to surface water, groundwater, floodplain, habitat and aquatic species
	Terrestrial greenspace and natural heritage impacts	<ul style="list-style-type: none"> Potential loss of vegetation, terrestrial habitat, wildlife and endangered species
Social/ Cultural Environment	Traffic impacts	<ul style="list-style-type: none"> Potential for temporary disruption to traffic flow during construction
	Community and neighbourhood impacts	<ul style="list-style-type: none"> Potential for impacts to community features including parklands and open space areas used by residents
	Nuisance impacts	<ul style="list-style-type: none"> Potential for visual distraction, vibration, dust and noise impacts during construction and following implementation
	Consistency with land use designations, approved development plans and Tertiary Plan land use designations	<ul style="list-style-type: none"> Ability of alternative to support existing and future land use
	Cultural / Heritage Areas / Potential Archaeological Resource Impacts	<ul style="list-style-type: none"> Potential impact to cultural / heritage / built heritage areas and archaeological resources
	Recreation & Aesthetics	<ul style="list-style-type: none"> Opportunities for improvement of recreational trails, sidewalks, and aesthetic value

Evaluation Criteria (Cont'd)



Category	Criteria	Description
Technical Considerations	Constructability	<ul style="list-style-type: none"> Potential for encountering problems during construction (e.g., soil stability, geotechnical considerations, ease of excavation, utility relocations required) and potential need for permits/ approvals
	Operation Requirements	<ul style="list-style-type: none"> Potential increase on operational requirements over current conditions
	Compliance with Standards	<ul style="list-style-type: none"> Ability to meet the Town's engineering and design standards for water, sanitary, stormwater and transportation systems, Town's level of service requirements and approval agency requirements including the Lake Simcoe Region Conservation Authority stormwater management requirements
	Construction Schedule Impacts	<ul style="list-style-type: none"> Potential length of construction schedule
Economic Considerations	Capital Costs	<ul style="list-style-type: none"> Relative capital implementation cost of alternative
	Operations and Maintenance Costs	<ul style="list-style-type: none"> Relative difference in operations and maintenance cost for alternative
	Land Acquisition/ Easement Requirements	<ul style="list-style-type: none"> Potential for land acquisition including permanent land acquisition easements and construction easements

Summary of Evaluation of Alternatives

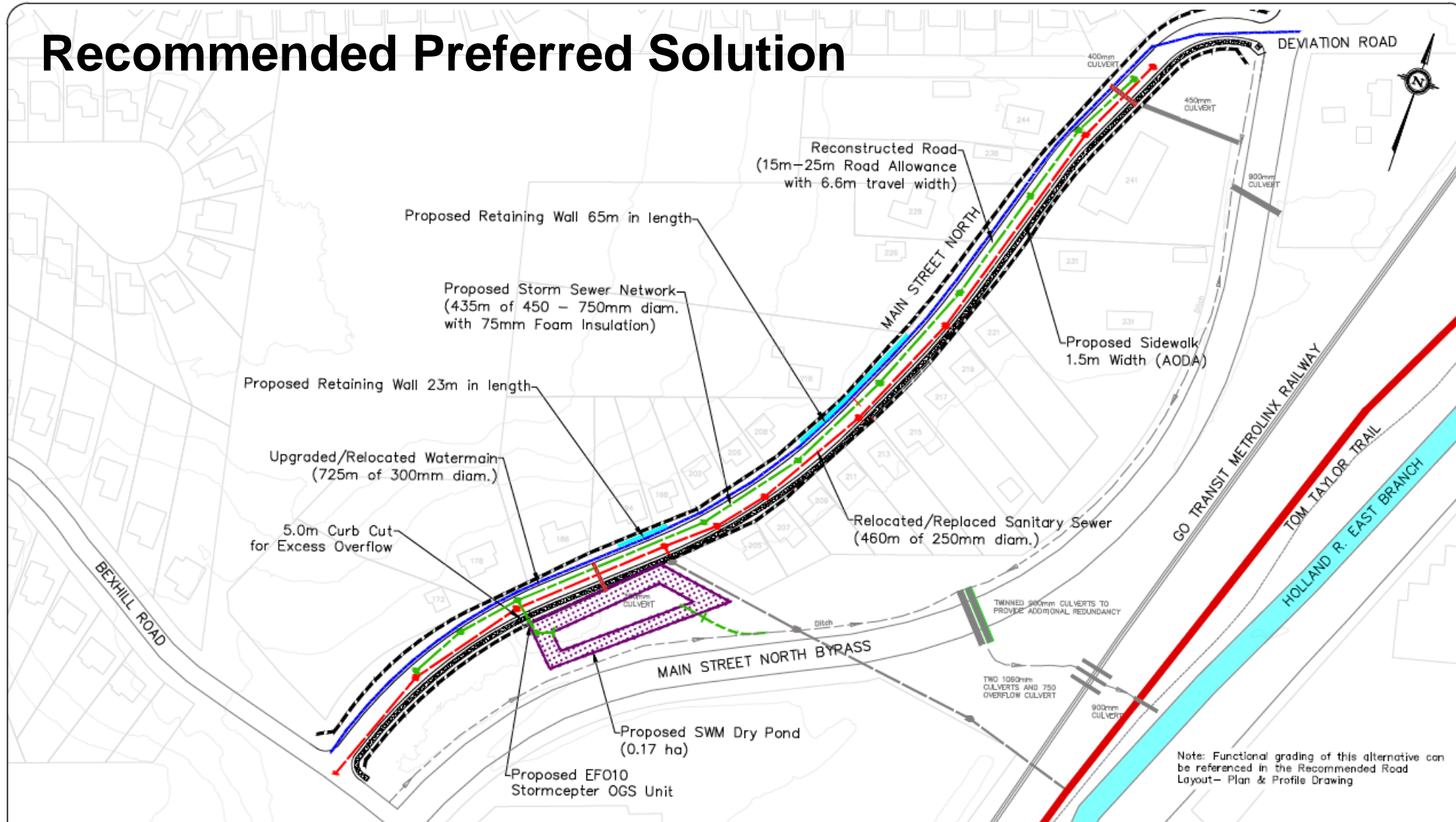
Criteria	Alternative 1 – Do Nothing	Alternative 2 – Enhanced Swale and Pond	Alternative 3 – Hybrid Approach
Summary of Natural Environment	Impacts on water quality, aquatic species and habitat	Impacts on water quality, aquatic species and habitat can be mitigated	Impacts on water quality, aquatic species and habitat can be mitigated
Summary of Social and Cultural Environment	Alternative is inconsistent with Town's Tertiary Plan policies for flood control and intensification	Property will need to be acquired to allow for construction of wide and deep swale on west side of Main Street North	Alternative is consistent with Town's Tertiary Plan policies for flood control and intensification
Summary of Technical Considerations	Alternative does not meet Town standards or LSRCA criteria for stormwater management	Constructability issues due to high groundwater conditions	Alternative fully meets Town Standards and LSRCA criteria for stormwater management
Summary of Costs	Low cost	Moderate cost	High cost
Overall Ranking	NOT RECOMMENDED	LESS RECOMMENDED	RECOMMENDED

Preferred

Less Preferred

Least Preferred

Recommended Preferred Solution

















Note: Functional grading of this alternative can be referenced in the Recommended Road Layout- Plan & Profile Drawing



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 ibigroup.com

LEGEND

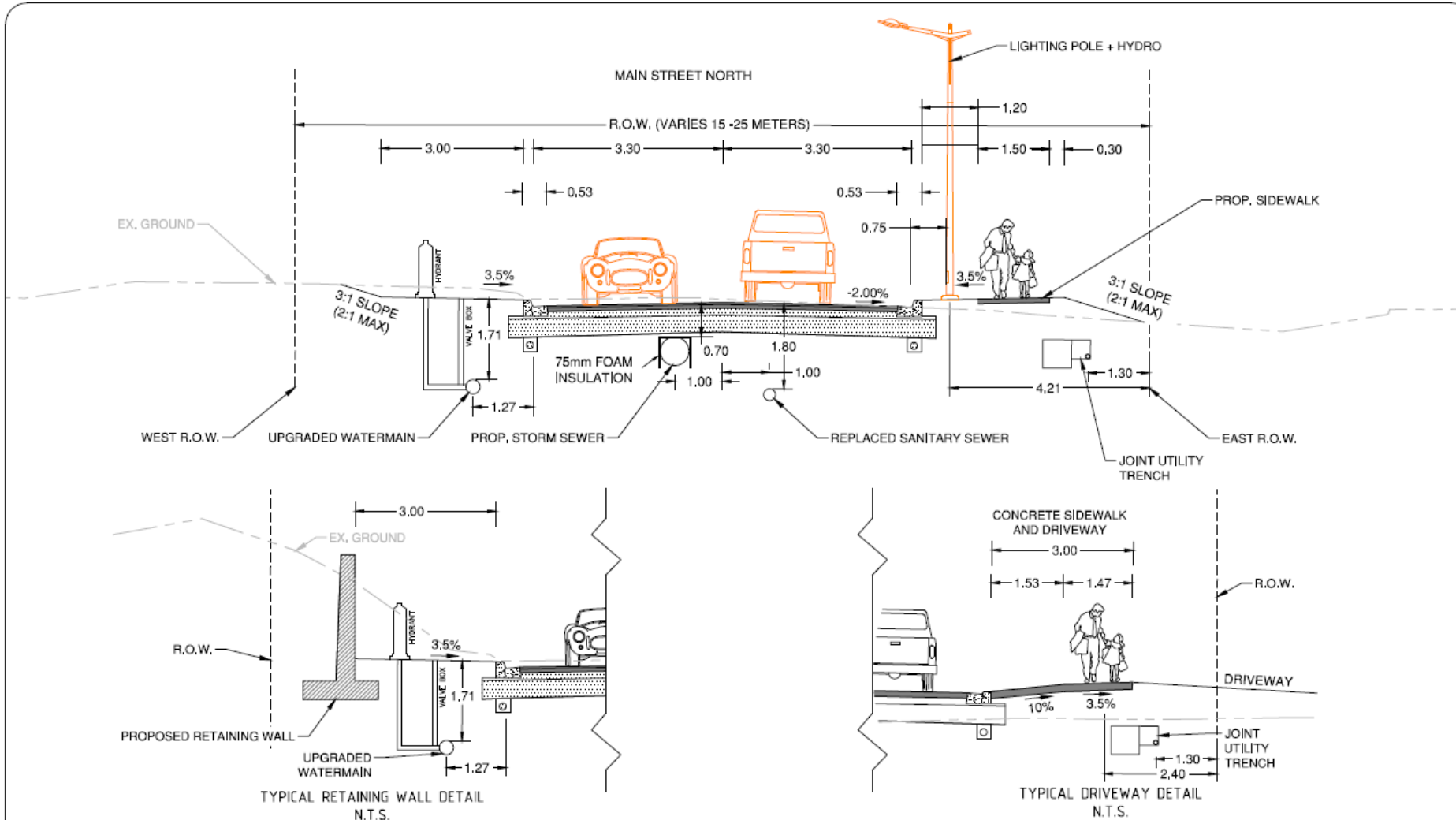
- | | | | | | |
|---|-------------------|---|--------------------------------|---|-------------------------------|
|  | BY-PASS DITCH |  | EXISTING CULVERT TO BE REMOVED |  | PROPOSED WATERMAIN |
|  | PROPERTY BOUNDARY |  | EXISTING CULVERT TO REMAIN |  | PROPOSED SANITARY SEWER |
|  | EXISTING ROAD |  | PROPOSED CULVERT |  | EXISTING SANITARY SEWER |
|  | PROPOSED ROAD |  | PROPOSED STORM SEWER |  | EXISTING SANITARY TRUNK SEWER |
|  | PROPOSED ROW | | |  | PROPOSED RETAINING WALL |

RECOMMENDED PREFERRED ALTERNATIVE

MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT
 OLD MAIN STREET
 TOWN OF NEWMARKET

DATE:	FEBRUARY 2022	PROJECT No.:	2020-0278
SCALE:	1:1500	FIGURE No.:	X

Typical Road Cross Section



Benefits of Recommended Preferred Solution

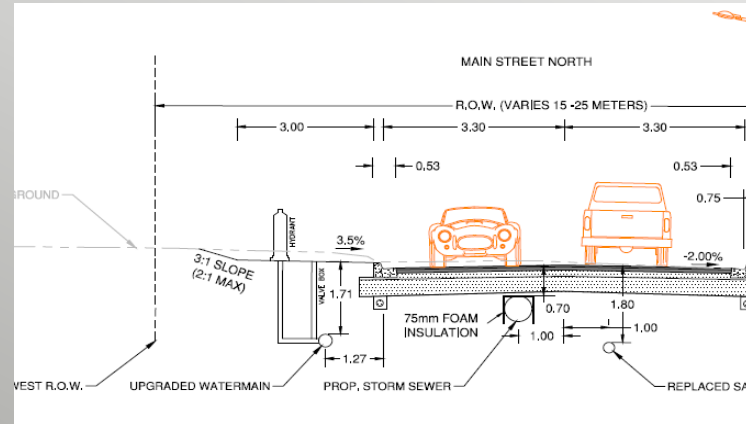
<p>New storm sewer, dry pond, oil grit separator and twin culvert will provide a robust storm drainage system which will reduce the risk of flooding and meet Town and LSRCA stormwater management requirements</p> <p>The use of low impact development (LID) stormwater management measures will be encouraged in any new development</p>	<p>Narrow and consistent pavement width will reduce potential for speeding vehicles while allowing for unfettered fire and emergency vehicle access</p> <p>Additional traffic calming measures will be incorporated into the final road design including pavement marking (centre line painting) and this section of road will be added to the solar speed board rotation list</p>
<p>Short sections of retaining walls will allow current grades to be maintained at the property line. The Town will explore opportunities to reduce/ eliminate the need for these walls for any new development by changing the grade at the property line</p>	<p>New larger looped watermain will provide an enhanced level of service to residents</p> <p>Sanitary sewer improvements will allow for gradual elimination of septic systems over time as residents decide to connect to the Town's system</p>



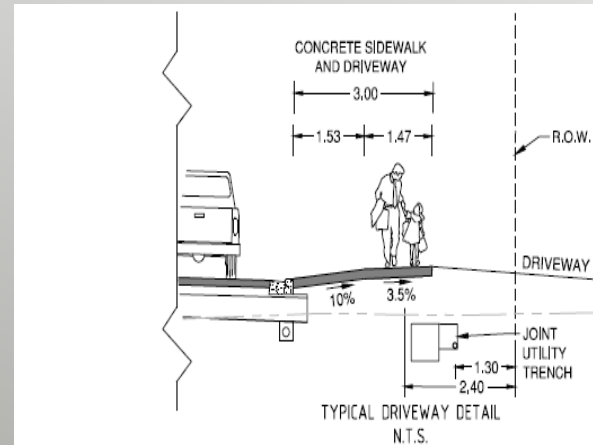
Benefits of Recommended Preferred Solution (Cont'd)

Existing driveways will be tied into the new road

For properties on the west side of Main Street North, the portion of the driveway located within the road allowance will be less steep than it is today

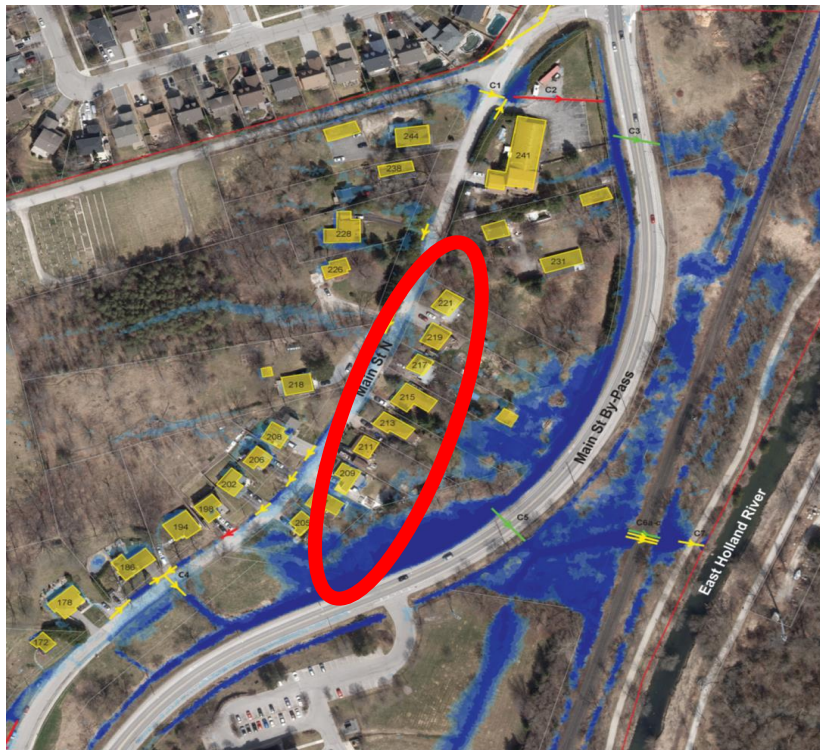


For properties on the east side of Main Street north, a new high point will be created on each driveway within the road allowance. This highpoint will keep stormwater contained on the road and prevent road drainage from entering private property



Old Main Street Master Plan Class EA

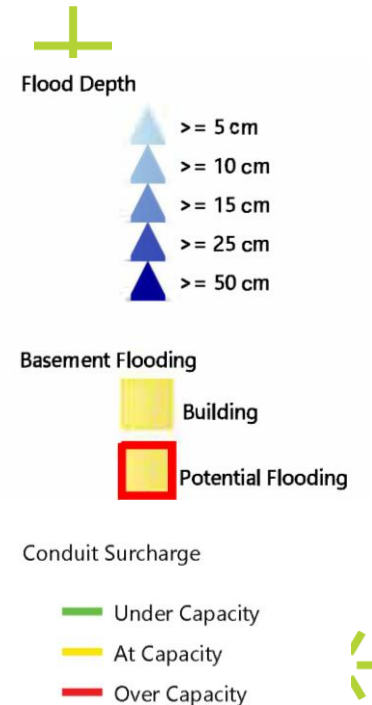
Recommended Preferred Solution will reduce flooding of properties and rear yards for storms up to a 100-year storm event



Existing Conditions



With Recommended Preferred Solution in Place



Old Main Street Master Plan Class EA

Thank You!

Thank you for attending this Public Information Centre
Please type your questions into the chat box

If you have any additional comments or questions please contact:

Ms. Sepideh Majdi, M.Sc., P.Eng.
Manager, Development Engineering
Engineering Services
The Town of Newmarket
395 Mulock Drive, P.O. Box 328
Newmarket, ON L3Y 4X7
Email: smajdi@newmarket.ca

Ms. Christine Hill, M.Eng., P.Eng.
Associate Director/ Practice Lead
Water Facilities
IBI Group
8133 Warden Avenue
Markham, ON L3R 5K3
Phone: 416-606-8762
Email: Christine.hill@ibigroup.com



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Fax: 705.657.8708
www.curvelakefirstnation.ca

June 15, 2022
VIA E-MAIL

Patricia Becker, MES
Environmental-Consultation Specialist
IBI Group
cell: 416-529-3613
pbecker@pathcom.com

CC:
Christine Hill, IBI Group
Sepideh Majdi, Town of Newmarket

RE: Town of Newmarket Old Main Street Tertiary Plan Area - Master Plan Municipal Class Environmental Assessment Study

Dear Patricia Becker,

I would like to acknowledge receipt of correspondence, which was received on April 12th, 2022, regarding the above noted project. As you may be aware, the area in which your project is proposed is situated within the Traditional Territory of Curve Lake First Nation. Our First Nation's Territory is incorporated within the Williams Treaties Territory and was the subject of a claim under Canada's Specific Claims Policy, which has now been settled. All 7 First Nations within the Williams Treaties have had their harvesting rights legally re-affirmed and recognized through this settlement.

Curve Lake First Nation is requiring a File Fee for this project in the amount of \$250.00 as outlined in our *Consultation and Accommodation Standards*. This Fee includes project updates as well as review of standard material and project overviews. Depending on the amount of documents to be reviewed by the Consultation Department, additional fees may apply. **Please make this payment to Curve Lake First Nation Consultation Department and please indicate the project name or number on the cheque.**

If you do not have a copy of *Curve Lake First Nation's Consultation and Accommodation Standards* they are available at <https://www.curvelakefirstnation.ca/services-departments/lands-rights-resources/consultation/>. Hard copies are available upon request.

Based on the information that you have provided us with respect to the Town of Newmarket Old Main Street Tertiary Plan Area - Master Plan Municipal Class Environmental Assessment Study, Curve Lake First Nation may require a Special Consultation Framework for this project. Information

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on this Framework can be found on page 9 of our *Consultation and Accommodation Standards* document.

In order to assist us in providing you with timely input, it would be appreciated if you could provide a summary statement indicating how the project will address the following areas that are of concern to our First Nation within our Traditional and Treaty Territory: possible environmental impact to our drinking water; endangerment to fish and wild game; impact on Aboriginal heritage and cultural values; and to endangered species; lands; savannas etc.

After the information is reviewed it is expected that you or a representative will be in contact to make arrangements to discuss this matter in more detail and possibly set up a date and time to meet with Curve Lake First Nation in person (or virtually).

Although we have not conducted exhaustive research nor have we the resources to do so, there may be the presence of burial or archaeological sites in your proposed project area. Please note, that we have particular concern for the remains of our ancestors. Should excavation unearth bones, remains, or other such evidence of a native burial site or any other archaeological findings, we must be notified without delay. In the case of a burial site, Council reminds you of your obligations under the *Cemeteries Act* to notify the nearest First Nation Government or other community of Aboriginal people which is willing to act as a representative and whose members have a close cultural affinity to the interred person. As I am sure you are aware, the regulations further state that the representative is needed before the remains and associated artifacts can be removed. Should such a find occur, we request that you contact our First Nation immediately.

Furthermore, Curve Lake First Nation also has available, trained Cultural Heritage Liaisons who are able to actively participate in the archaeological assessment process as a member of a field crew, the cost of which will be borne by the proponent. **Curve Lake First Nation expects engagement at Stage 1 of an archaeological assessment** so that we may include Indigenous Knowledge of the land in the process. We insist that at least one of our Cultural Heritage Liaisons be involved in any Stage 2-4 assessments, including test pitting, and/or pedestrian surveys to full excavation.

Although we may not always have representation at all stakeholder meetings, as rights holders', it is our wish to be kept apprised throughout all phases of this project. Please note that this letter does not constitute consultation, but it does represent the initial engagement process.

Should you have further questions or if you wish to hire a Liaison for a project, please contact Julie Kapyrka or Kaitlin Hill, Lands and Resources Consultation Liaisons, at 705-657-8045 or via email at JulieK@Curvelake.ca and KaitlinH@Curvelake.ca.

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Curve Lake, Ontario K0L1R0



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Fax: 705.657.8708
www.curvelakefirstnation.ca

Yours sincerely,

A handwritten signature in blue ink, appearing to be "Emily Whetung", is written over a light blue circular stamp or watermark.

Chief Emily Whetung
Curve Lake First Nation



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Oakville ON L6H 6Z7 Canada
tel 905 754 8060 fax 905 940 2064
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Minutes

To/Attention Public Information Centre **Date** May 25, 2022
From Christine Hill **Project No** 131142 (2020-0276)

Subject Old Main Street Master Plan Class Environmental Assessment
Public Information Centre
Virtual
April 12, 2022 7:00 pm

Present Sepideh Majdi, Town of Newmarket
Cynthia Chiu Chen, Town of Newmarket
Councillor Woodhouse, Town of Newmarket
Councillor Morrison, Town of Newmarket
Mayor Taylor, Town of Newmarket
Christine Hill, IBI Group
Will Heywood, IBI Group

Distribution

Item Discussed

Action By

Item Discussed

Action By

1. Major Taylor, Councillor Woodhouse and Councillor Morrison thanked all attendees for joining the meeting. Sepideh Majdi provided an introduction to the project and encouraged attendees to use the chat box to ask questions. Christine Hill provided a presentation on the project and concluded with the recommended preferred solution for water, wastewater, stormwater and transportation servicing for the Study Area. She noted that a preferred alternative would be selected following comments received from attendees. These minutes reflect the questions received and answers provided.
2. A question was asked about the location of woodlots shown on the existing conditions maps and whether the area shown as woodlot would be open for redevelopment. Christine noted that there is a small section of woodlot at 226 Main Street North.
3. It was noted that the presentation referred to future growth and the presenter was asked to define future growth and some growth. Christine noted that the Old Main Street Tertiary Plan contained a number of policies that the Town will be using to guide future development. These policies define the nature and extent of development that would be permitted within the Old Main Street area. Christine noted that this study considered the extent of future growth that could occur based on the Tertiary Plan policies.
4. One resident commented on the map showing the properties that are currently serviced by private septic systems and noted that 228 Main Street North is connected to the Town's sanitary sewer. Christine noted that mapping would be updated to reflect.
5. A question was asked about the proposed replacement of the existing 200mm diameter watermain with a new 300mm diameter watermain. Christine noted that the existing 200mm diameter watermain is adequate to service existing development and meet the Town's level of service requirements. She did note that the existing watermain is ageing and requires replacement due to age. A new larger watermain will provide enhanced service to residents.
6. A question was raised about the nature of future growth. Christine noted that future growth was defined as part of the Old Main Tertiary Plan Study and that this Master Plan has developed a preferred solution to provide water, wastewater, stormwater and transportation servicing for the growth envisioned through the Tertiary Plan.
7. A question was raised about whether the Town has made a decision about reconstruction of Main Street North. Christine noted that Main Street North was recommended for reconstruction in the Tertiary Plan and the Tertiary Plan did include a number of recommendations that provided the basis for the recommended preferred solution for the roadway.

Item Discussed

Action By

8. A question was raised about proposed development of 172-178 Main Street North and concern expressed about whether the proposed development would cut into the slope to provide flat land for the construction of 12 semi detached homes. Sepideh Majdi responded that the development application was being thoroughly reviewed to ensure that the proposed development plan would meet the Town's design standards and criteria and specific requirements.
9. A question was raised as to whether the Town had made a decision on urbanization of Main Street North. Christine responded that the Tertiary Plan did recommend urbanization of Main Street North. The Tertiary Plan is the basis of the Class EA Study and has developed alternatives to urbanize the road.
10. A question was raised about financing of improvements. Sepideh Majdi noted that the Town is reviewing alternatives for financing this project.
11. A question was raised about consideration for future development and densities that could be implemented in the Study Area. Christine responded that the Tertiary Plan Study examined the potential for future growth and concluded with the identification of a number of specific policies to manage growth in the study area.
12. A question was raised about the location of the dry pond in Alternative 2. Christine noted that a dry pond would be located on Town owned property on the east side of Main Street North in the vicinity of Bexhil Road.
13. A question was raised about land acquisition required to implement the recommended preferred alternative. Specifically, it was noted that the Tertiary Plan had identified lands to be acquired on the east side of Main Street North and that the current study has identified lands to be acquired on the west side of Main Street North. Christine noted that alternatives were developed with the goal of minimizing the amount of land that would need to be acquired by the Town. As part of the recommended preferred alternative, a small piece of property has been identified for acquisition on the west side of Main Street North. This acquisition is necessary to provide sufficient space to include the road, sidewalk and other utilities.
14. A question was raised about whether the 8m swale included in Alternative 2 would cut into existing properties. Christine answered that additional property acquisition would be required to construct the swale identified in Alternative 2. She did note that this alternative is not the recommended preferred alternative.
15. A question was raised about whether the information generated as part of this study could be used in EIS studies for individual developments. Christine noted that the findings of this study

Item Discussed

Action By

- would be documented in the Project File Report, which will be a public document.
16. A question was asked about the cost of the recommended preferred alternative. Christine noted that a comparative cost assessment was completed for the purposes of the alternative evaluation. The Study Team is continuing to estimate the cost of the preferred alternative and will be providing the information to the Town.
 17. A question was raised about whether densification would be proceeding the study area. Sepideh Majdi responded that the Tertiary Plan Study had concluded with a series of policies to manage growth in the study area. This Class EA study has considered servicing necessary to support the recommendations of the Tertiary Plan.
 18. A question was raised about whether current private property owners would be responsible for any part of the solution for Alternative 3. Sepideh Majdi responded that the Town is reviewing alternatives for financing this project. Works on private property would be identified through the site plan development process with individual development plans.
 19. A question was raised about how much development was assumed to calculate stormwater management requirements for the future. Will Heywood responded that stormwater management requirements were determined based on consideration of the development of the future road and based on needs to meet the Town's level of service. He noted that under current conditions, the Town's level of service for stormwater management is not met and that there has been reports of flooding. The recommended preferred alternative includes stormwater management improvements that will meet the Town's level of service requirements and LRSCA's requirements for redevelopment of the road right of way. Any future developments will also need to meet the Town's design standards and LSRCA requirements for stormwater management.
 20. A question was raised on whether future development would definitely occur. Sepideh Majdi responded that the Town's Official Plan and Tertiary Plan identified this area as a potential growth area.
 21. The presentation was requested to be provided. Christine responded that the presentation would be provided on the Town's website.
 22. A question was raised as to whether the preferred solution would reduce the elevation of floodplain on the lands east of Main Street North. Will Heywood responded that the elevation of the floodplain would not change.

Item Discussed

A question was raised about the timing of development and whether development would be allowed to proceed if the study recommendations are not fully implemented. Sefideh Majdi noted that the Town will be reviewing development applications and will provide comments on applications which incorporate the main objectives of the EA Study.

Action By

From: [Kiera Macdonald](mailto:kiera.macdonald@biggroup.com)
To: [Christine Hill; Sepideh Majidi](mailto:Christine.Hill_Sepideh.Majidi)
Subject: FW: 2020-0276 - Old Main St. EA - Proposed Road Design
Date: Friday, March 25, 2022 9:14:16 AM
Attachments: [image001.png](#)

See Tim Tustin's response that notes a 6m width is the minimum operating width required.

From: Tim Tustin <ttustin@cyfs.ca>
Sent: Thursday, March 24, 2022 5:02 PM
To: Kiera Macdonald <kiera.macdonald@biggroup.com>
Subject: RE: 2020-0276 - Old Main St. EA - Proposed Road Design

Hi Kiera,

Thank you for your email. A 6 metre width is the minimum operating width required by the OBC for our fire apparatus to set up properly. This is typically the width of a fire route or private condo road. Please note that any access that is only 6M in width will be completely obstructed when a fire apparatus is set up and there will be no other vehicular movement possible past the emergency scene.

Thanks,



Tim Tustin
Fire Prevention Officer, CFEI
Central York Fire Services
Direct: 905-953-5129, ext. 3030
Fax: 905-895-1900
ttustin@cyfs.ca
www.cyfs.ca

From: Kiera Macdonald <kiera.macdonald@biggroup.com>
Sent: March 23, 2022 5:08 PM
To: Ryan Schell <rschell@cyfs.ca>; Tim Tustin <ttustin@cyfs.ca>
Cc: Will Heywood <will.heywood@biggroup.com>; Adham Bakr <adham.bakr@biggroup.com>; Christine Hill <christine.hill@biggroup.com>
Subject: 2020-0276 - Old Main St. EA - Proposed Road Design

CAUTION: This email originated outside of the Town of Newmarket. **DO NOT** click links or open attachments unless you recognize the sender and trusted content.

Good Afternoon Ryan and Tim,

We are in the process of completing a Master Plan Municipal Class EA Study for the Old Main Street Tertiary Plan Area. This involved the review and analysis of the Main Street North existing road right-of-way in order to develop an urban road cross-section. Site constraints, which include but are not limited to an existing inconsistent right-of-way, steep slope towards road on west side and flat eastern properties, and shallow groundwater pose significant challenges. The recommended preferred alternative design we have proposed has a 6m pavement width (6.6m gutter to gutter) see attached typical road cross section. Can you confirm that a 6m pavement width is sufficient to accommodate emergency vehicles?

The Virtual Public Information Centre is scheduled for Apr 12th from 7 – 8:30pm. The design must be finalized by April 4th, so if you could provide us with a response as soon as possible that would be great. Your prompt attention to this matter is much appreciated.

Let us know if you have any questions/ concerns.
Thank you,

Kiera Macdonald EIT

Engineering Intern

WE HAVE MOVED: Our new address is 8133 Warden Ave, Unit 300, Markham, ON L6G 1B3. Our phone and fax number remain the same.

IBI GROUP
8133 Warden Ave, Unit 300
Markham ON L6G 1B3 Canada
tel +1 905 763 2322 ext 63555



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NOTE: Ce courriel peut contenir de l'information privilégiée et confidentielle. Si vous avez reçu ce message par erreur, veuillez le mentionner immédiatement à l'expéditeur et effacer ce courriel.

This email was scanned by Bitdefender



OLD MAIN STREET MASTER PLAN
CLASS ENVIRONMENTAL ASSESSMENT (EA)



CURVE LAKE FIRST NATION PRESENTATION
DECEMBER 20, 2022

Old Main Street Master Plan Class EA

Background

The Town has been advancing a thorough, systematic approach for redevelopment of the Old Main Street Area through a hierarchy of the Official Plan, Secondary Plan and the Tertiary Plan.

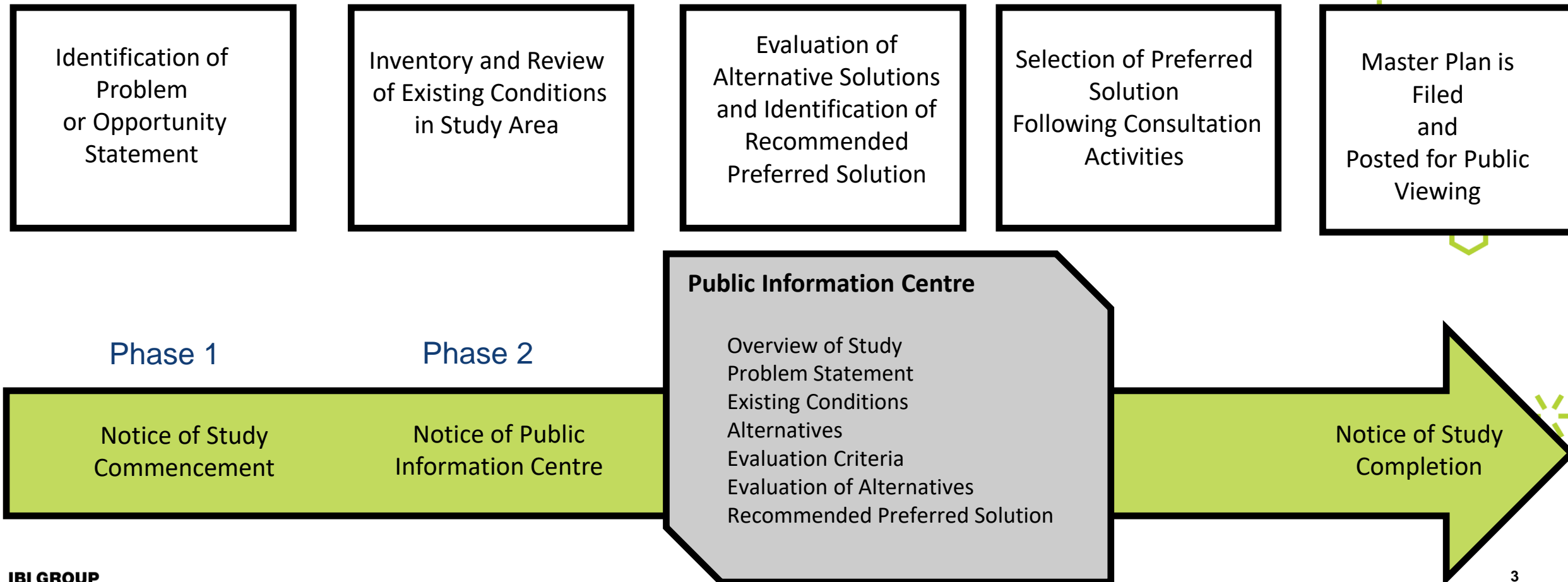
This Master Plan EA is a follow-up study to the 2019 Tertiary Plan, and utilized the land use, density, stormwater management, low impact development (LID), servicing infrastructure, transportation, and natural heritage policies established through the Tertiary Plan process.

Study Purpose

The Town initiated a Master Plan EA to identify a preferred solution for providing water, sanitary, storm drainage and transportation services for existing and future land use within the Old Main Street Area.

Old Main Street Master Plan Class EA

Municipal Class Environmental Assessment (EA) Process



Old Main Street Master Plan Class EA

This presentation is designed to:

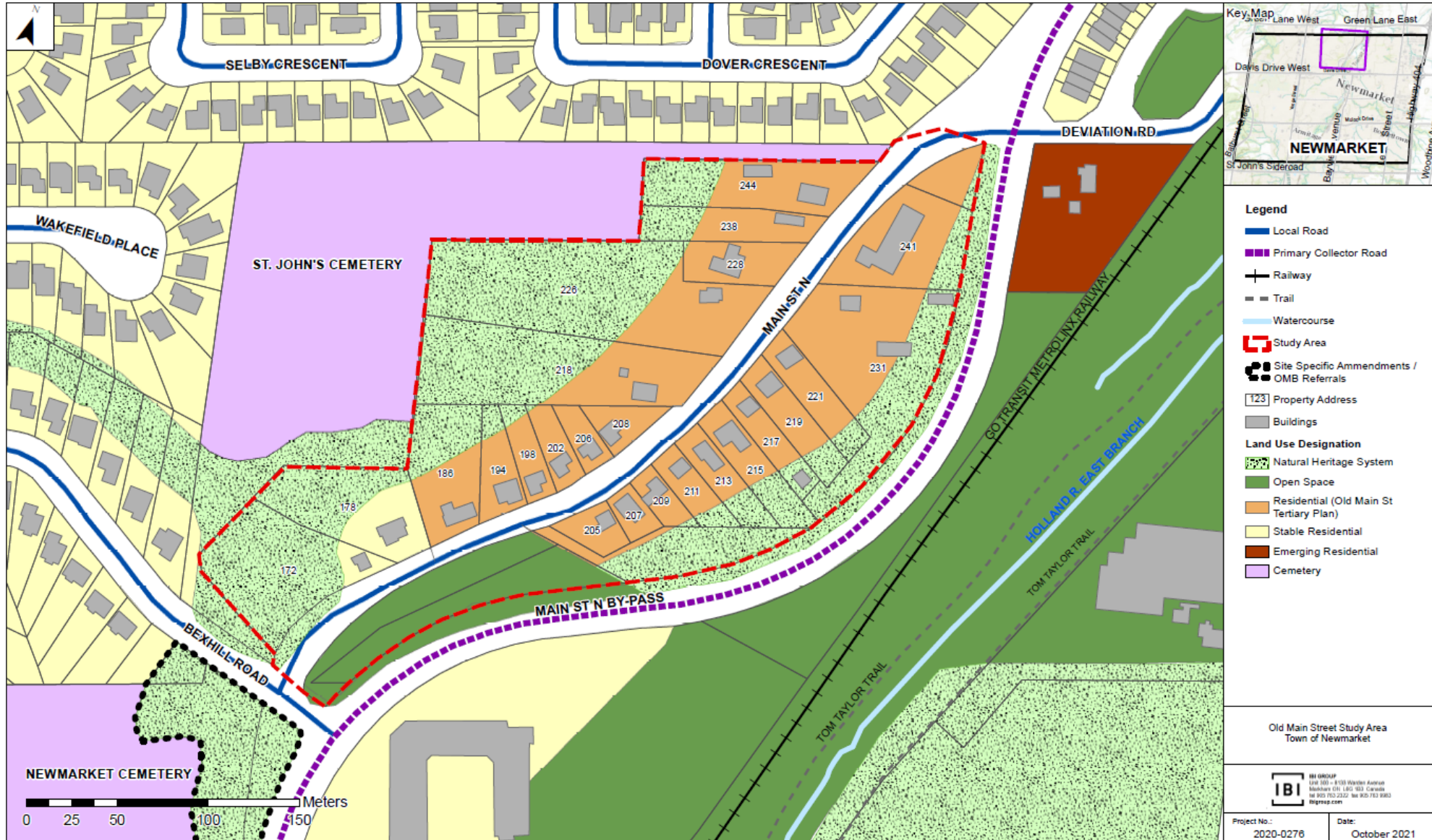
- Present assessment of existing systems
- Present alternatives and the evaluation of alternatives
- Present recommended preferred solution

To gain your input on:

- Existing conditions
- Development and evaluation of alternatives
- The recommended preferred solution
- Following your input, a preferred solution will be identified



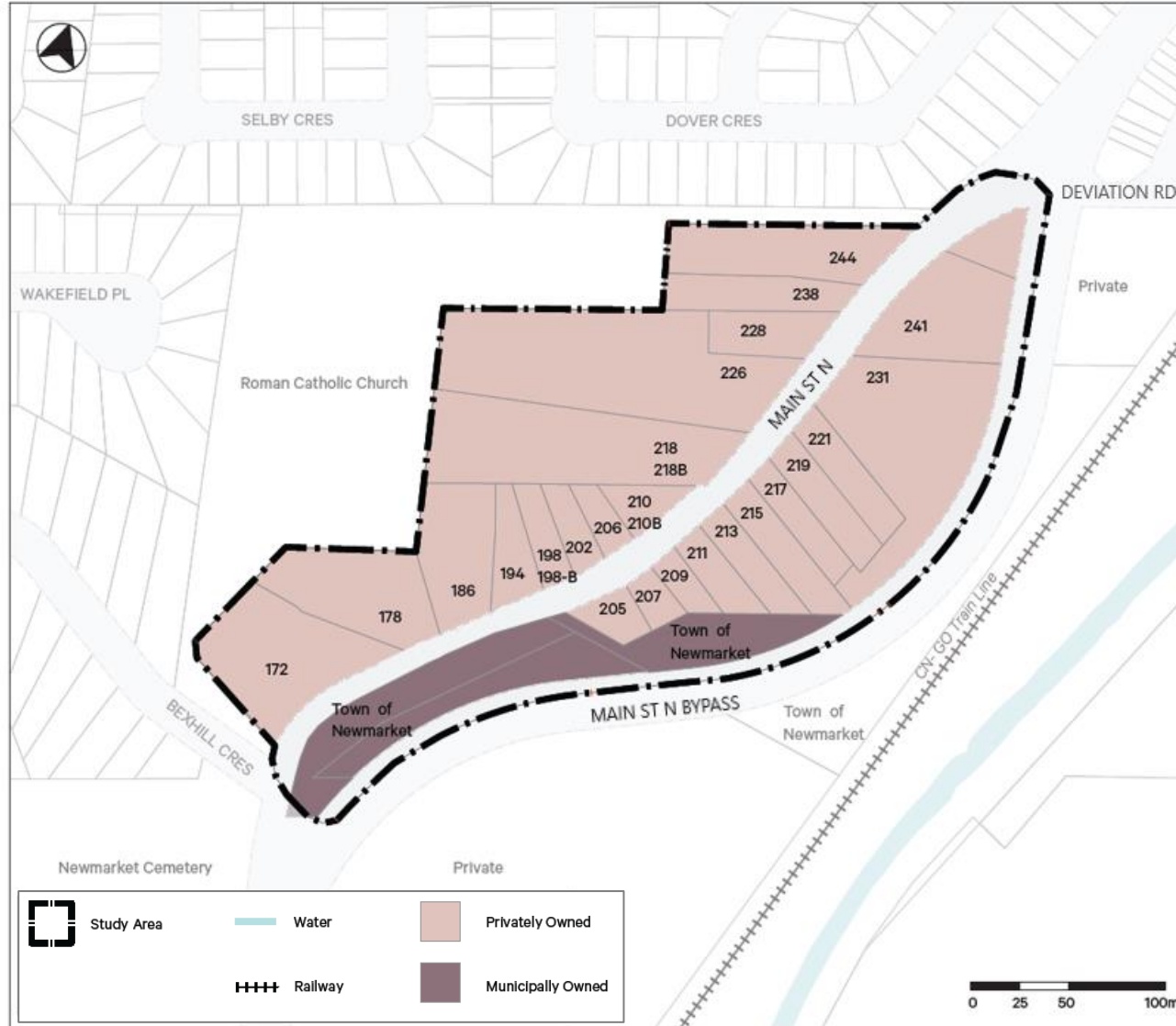
Overview of Study Area – Land Use



Areas of Archaeological Potential

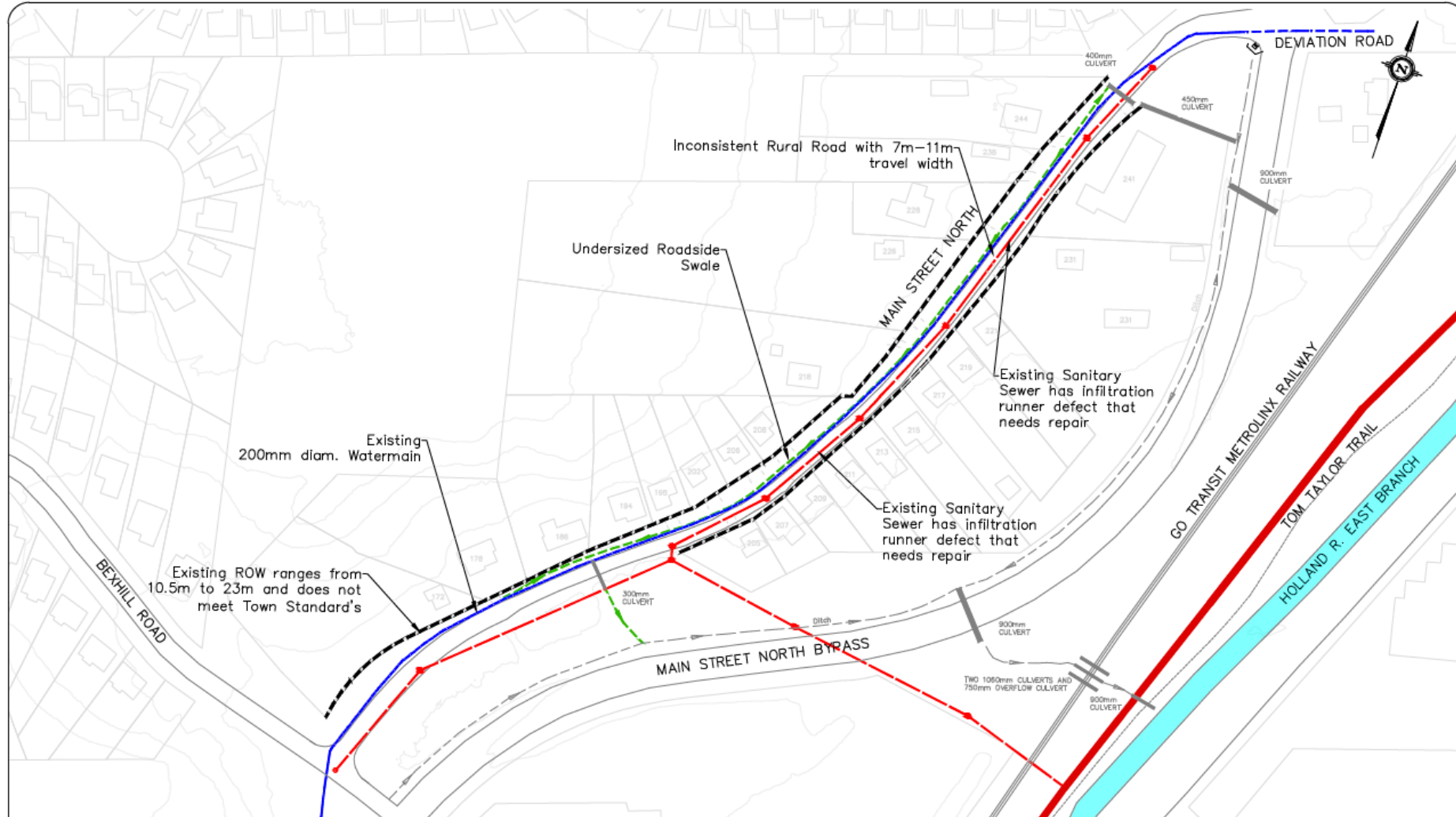


Overview of Study Area – Land Ownership



Note: Figure from Old Main St Planning & Land Use Background Report, 2018, p. 8

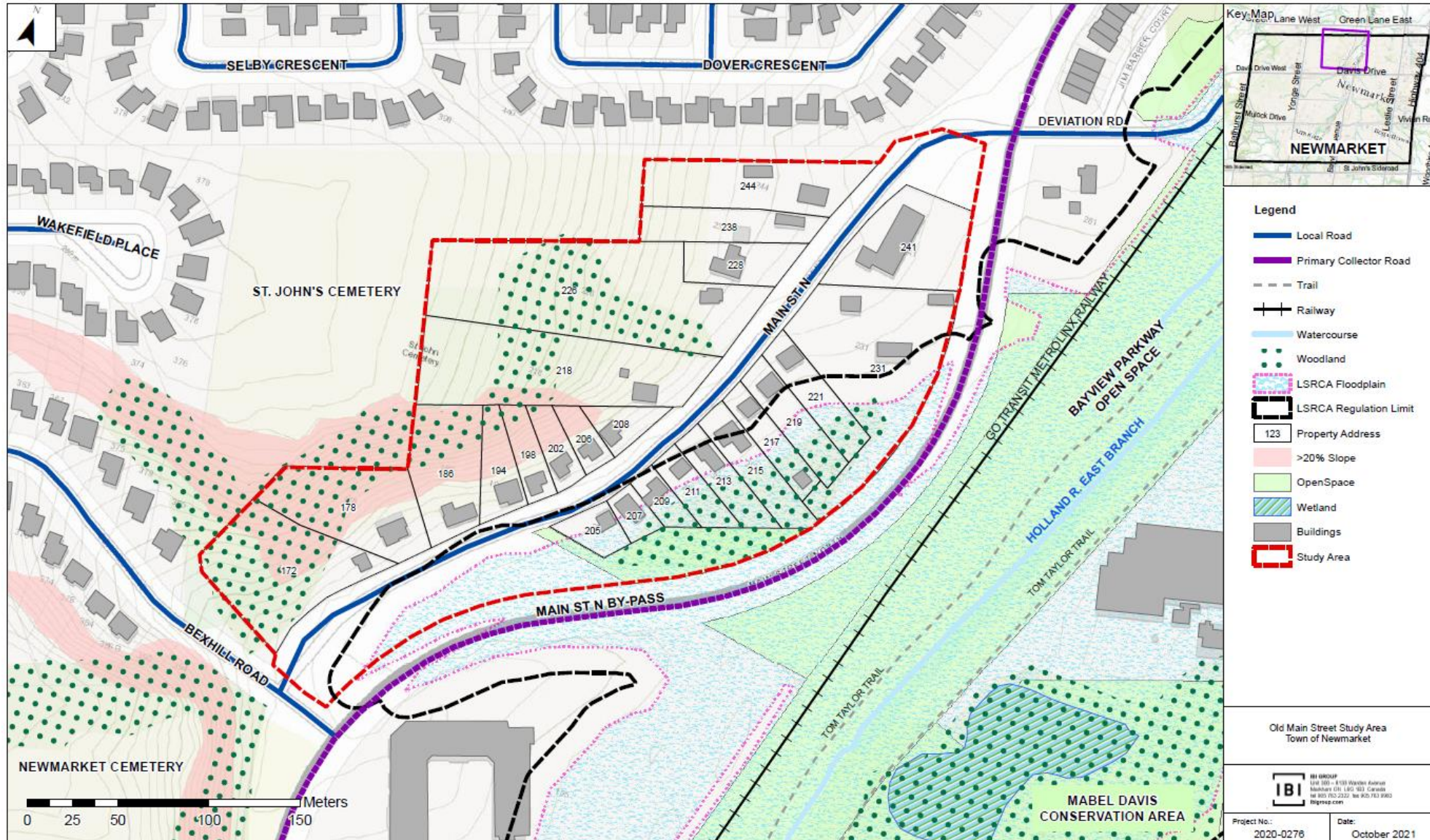
Overview of Study Area – Existing Infrastructure



LEGEND	
	PROPERTY BOUNDARY
	EXISTING ROAD
	EXISTING ROW
	EXISTING ROAD SWALE
	BY-PASS DITCH
	EXISTING CULVERT
	EXISTING SANITARY SEWER
	EXISTING SANITARY TRUNK SEWER
	EXISTING WATERMAIN

EXISTING INFRASTRUCTURE	
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT	
OLD MAIN STREET	
TOWN OF NEWMARKET	
DATE: NOVEMBER 2021	PROJECT No.: 2020-0276
SCALE: 1:1500	FIGURE No.: X

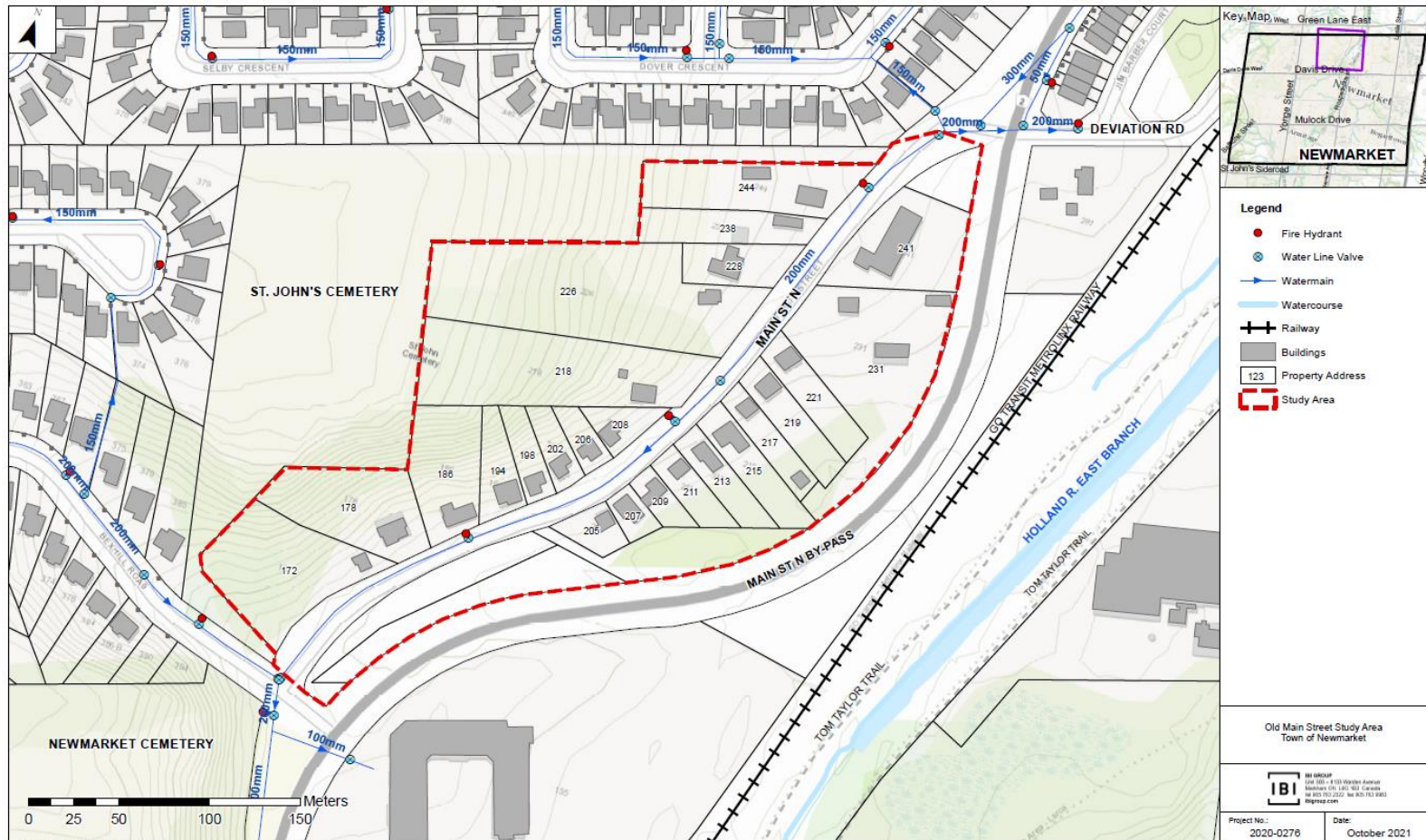
Natural Heritage – Existing Conditions



Water Distribution System – Existing Conditions

Assessment of the water distribution system confirmed:

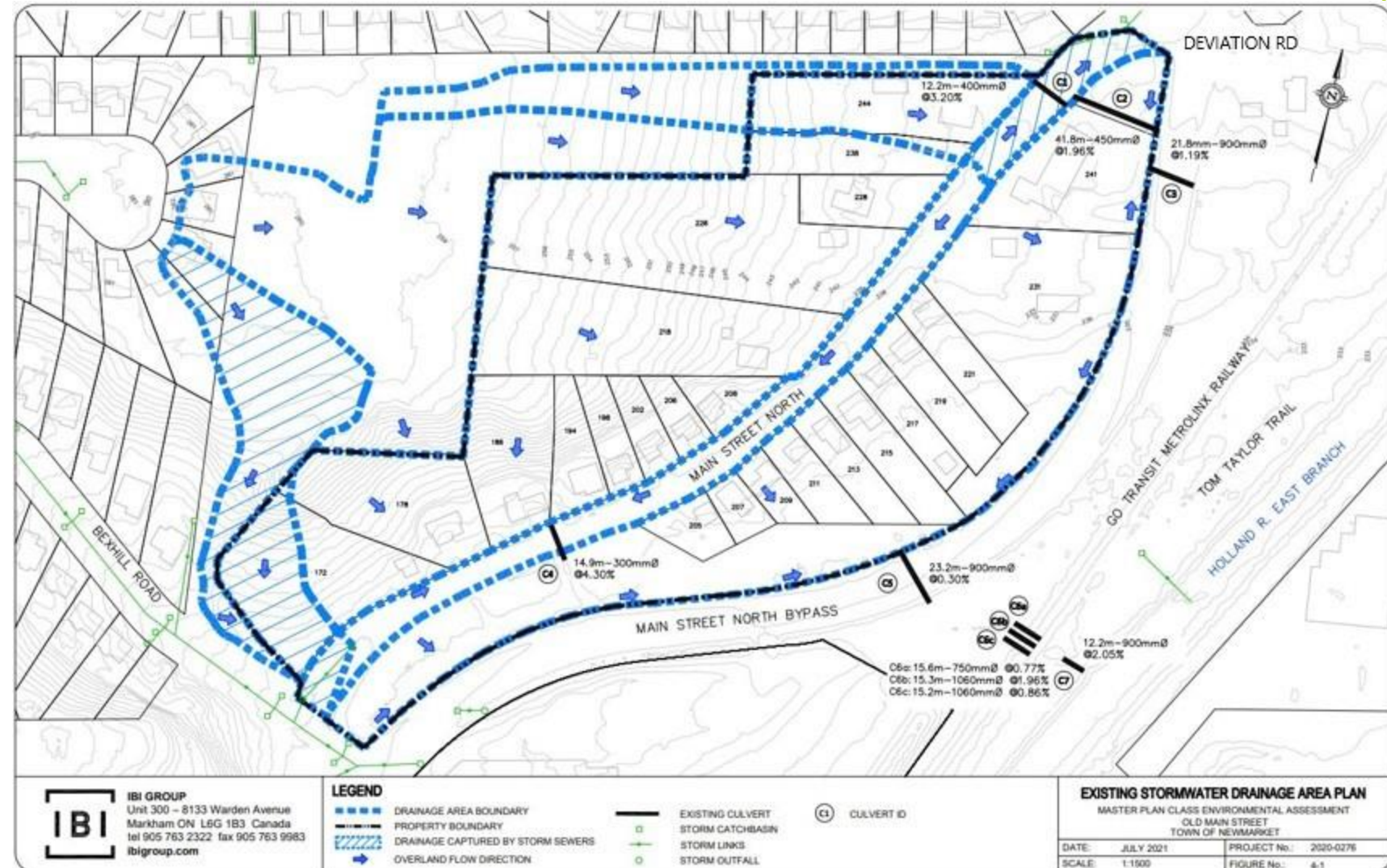
- Existing system can provide adequate water supply, storage and fire flow to meet current and future needs but infrastructure is ageing
- Replacement of the existing 200mm diameter ductile iron watermain with a 300mm diameter PVC watermain will enhance the current level of service



Stormwater Drainage System – Existing Conditions

Existing storm drainage system consists of:

- Roadside swale on the west side of Main Street North
- Existing culverts convey drainage to an existing culvert under the Main Street North Bypass and ultimately to the East Holland River
- **Flooding issues have been reported by residents.**

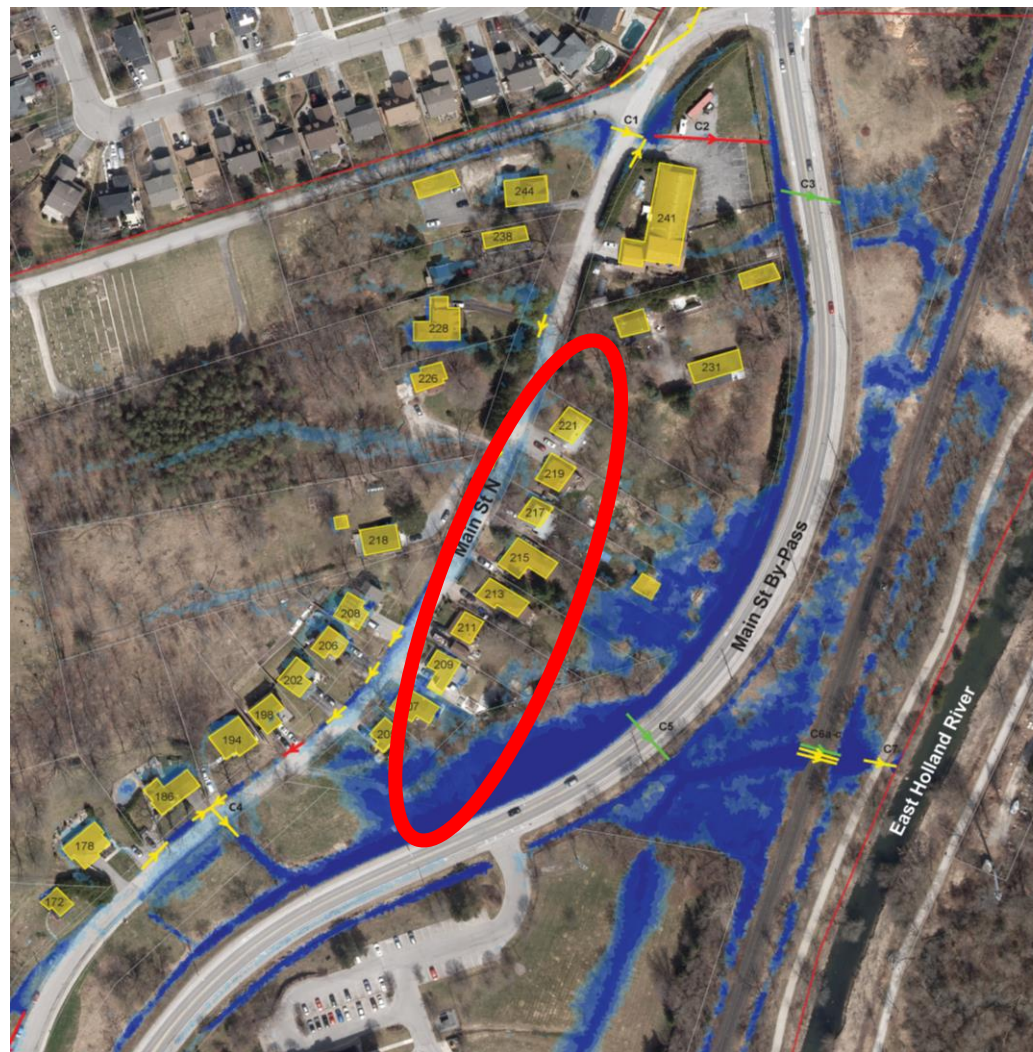


Storm Drainage System – Existing Conditions (Cont'd)

Potential Flooding

Stormwater modelling results for the 100-year storm event show:

- Potential flooding of properties on the east side of Main Street North
- Rear yard flooding is due to downstream capacity constraints
- **Results are consistent with flooding reported by residents**



Conduit Surcharge

- Under Capacity
- At Capacity
- Over Capacity

Flood Depth

- ▲ ≥ 5 cm
- ▲ ≥ 10 cm
- ▲ ≥ 15 cm
- ▲ ≥ 25 cm
- ▲ ≥ 50 cm

Basement Flooding

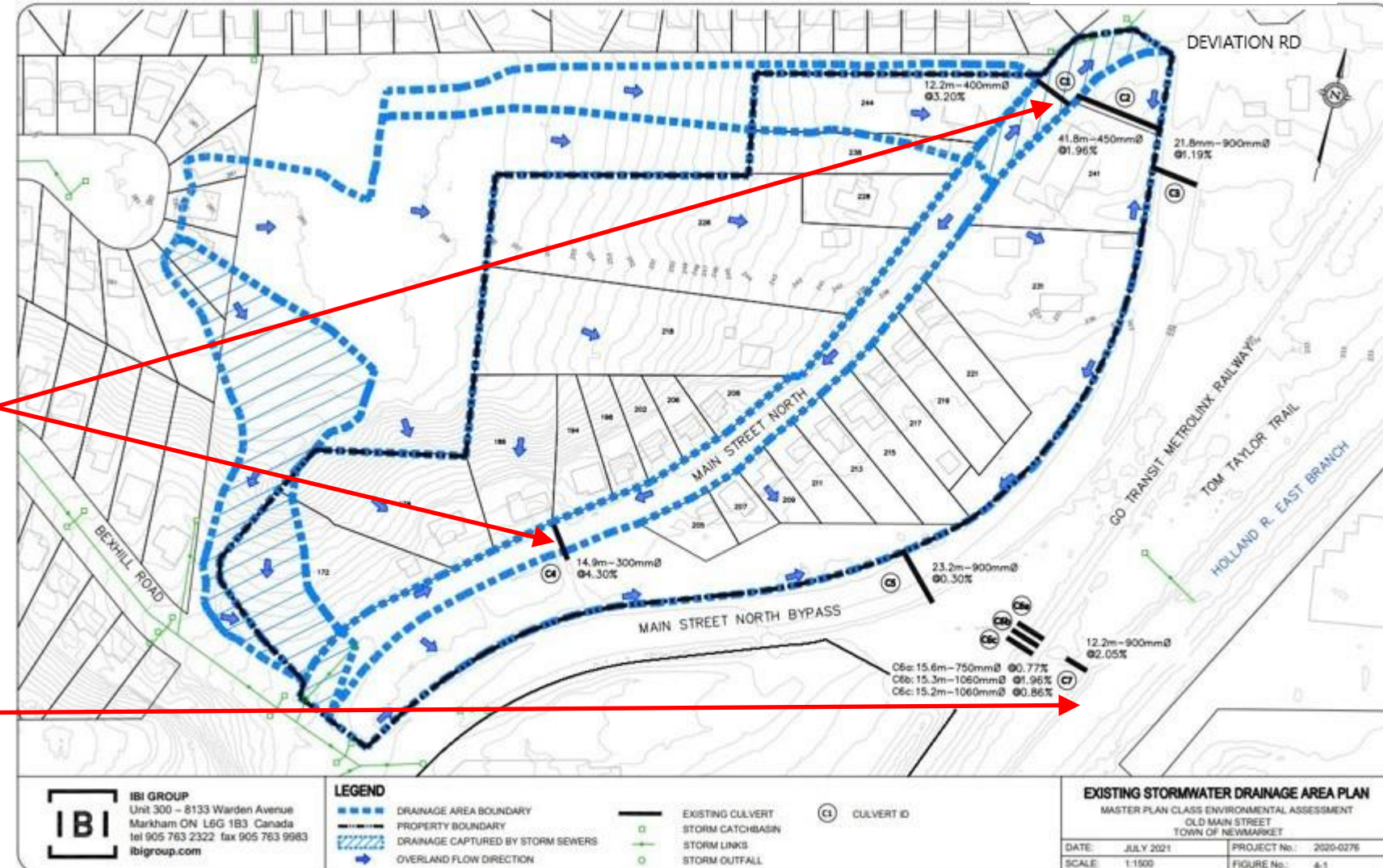
- Building
- Potential Flooding

Storm Drainage System – Existing Conditions (Cont'd)

Assessment of existing storm drainage system confirmed:

Capacity of the swales and road culverts along Main Street North are inadequate. Stormwater can overtop the road and flood properties on the east of Main Street North during large storms

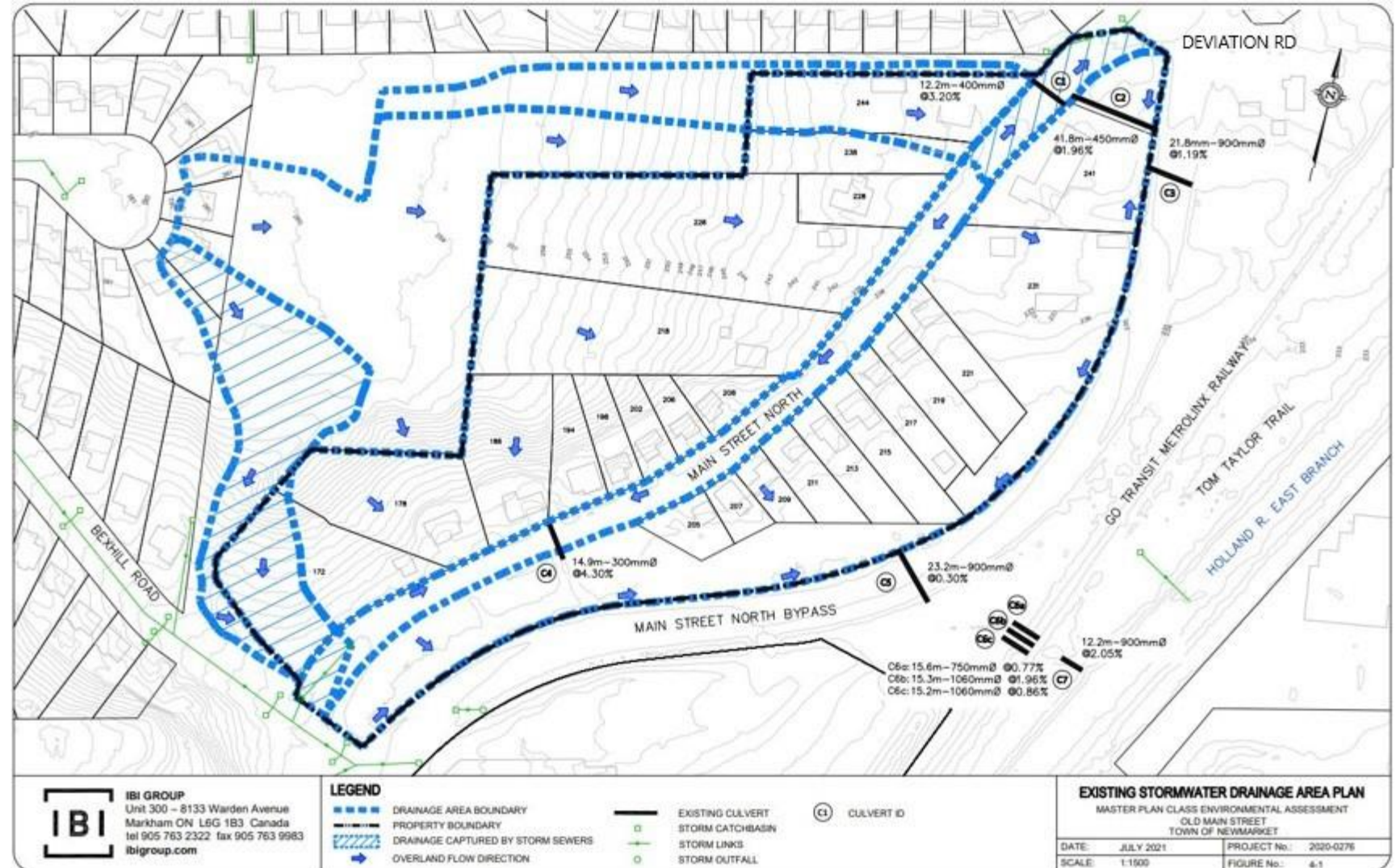
Flooding of the rear yards of some properties on the east side of Main Street North can occur due to the impact of high water flood levels in the East Holland River during large storms



Storm Drainage System – Existing Conditions (Cont'd)

Upgrades to the existing storm drainage system are needed to:

- Reduce the risk of flooding of properties on the east side of Main Street North
- Manage stormwater from a reconstructed urbanized Main Street North



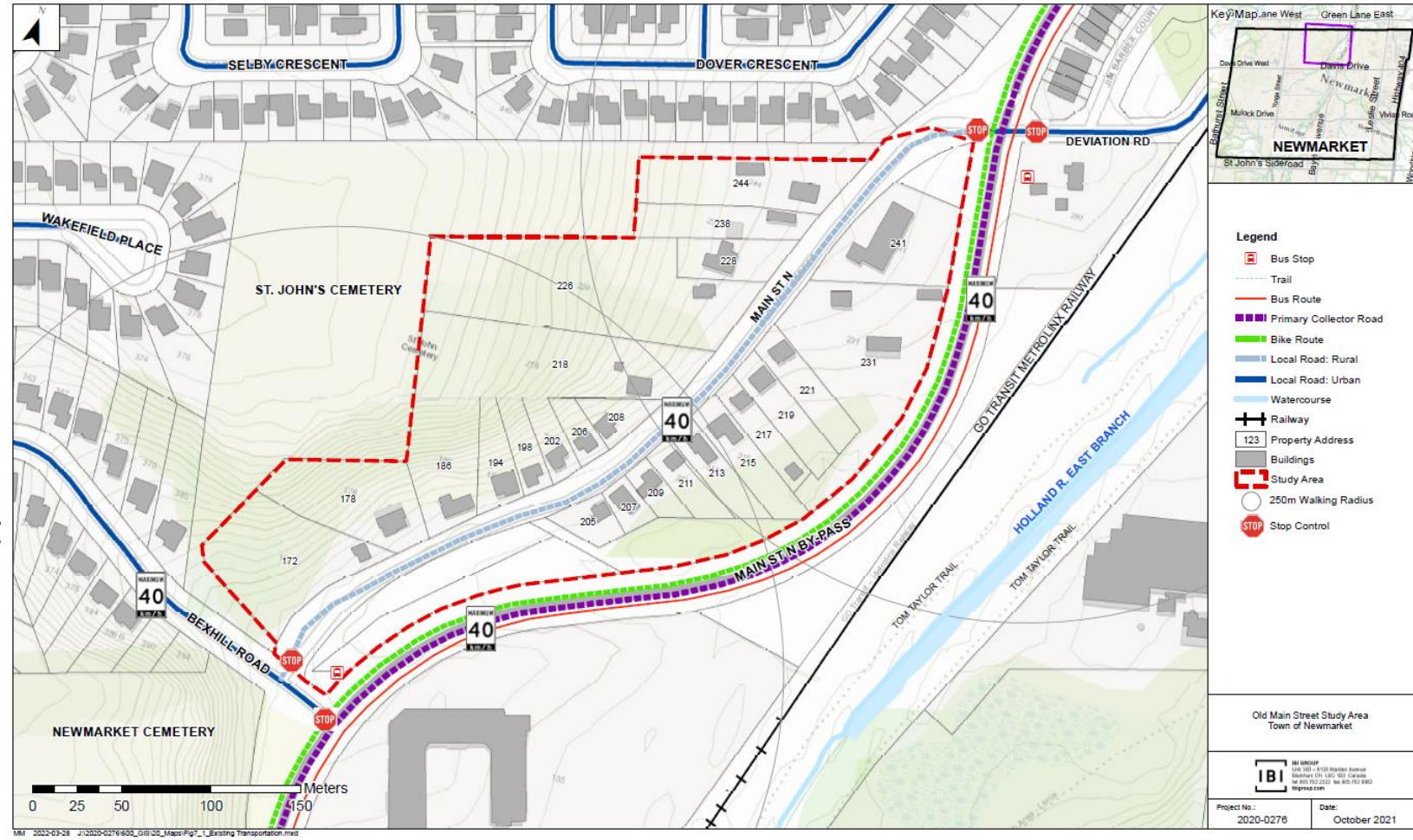
Transportation – Existing Conditions



The Tertiary Plan recommended that Main Street North be reconstructed to an urban road with:

- Traffic calming to better control vehicle speed
- Consider tie-ins with existing driveways, steep slopes adjacent to the road, existing vegetation and utilities

Alternatives for the road were developed in concert with storm drainage alternatives



Transportation – Existing Conditions (Cont'd)



At Bexhill Road facing north from west side



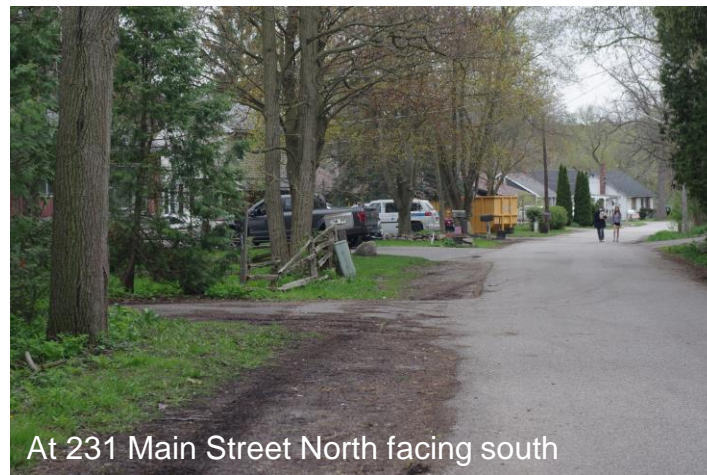
At 221 Main Street North facing south



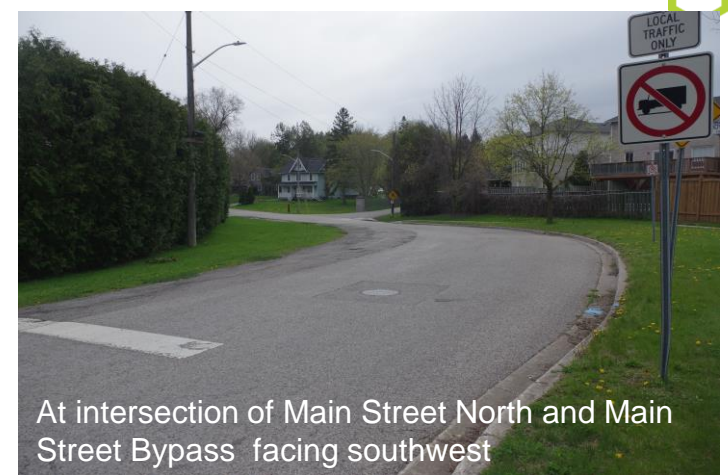
At 228 Main Street North facing north



At Bexhill Road facing north from east side



At 231 Main Street North facing south



At intersection of Main Street North and Main Street Bypass facing southwest

Old Main Street Master Plan Class EA

Problem Statement

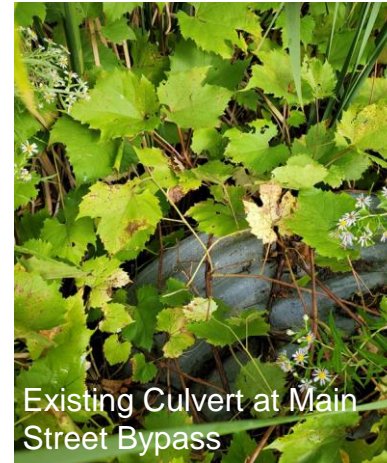
Assessment of existing infrastructure identified the need for upgrades to support current and future needs

INFRASTRUCTURE	ASSESSMENT FINDINGS
Water Distribution	<ul style="list-style-type: none"> Existing watermain has capacity to meet current and future needs Watermain replacement is required due to ageing infrastructure
Sanitary	<ul style="list-style-type: none"> Existing sanitary sewer has capacity to meet current and future needs Repairs/ replacement is needed due to ageing infrastructure Realignment with road is needed to meet Town standards
Stormwater Drainage	<ul style="list-style-type: none"> Improvements are needed to reduce the risk of flooding during large storms and to manage stormwater from an urbanized Main Street North
Transportation	<ul style="list-style-type: none"> Existing rural road is to be reconstructed as an urban road while maintaining tie-ins with existing driveways, existing vegetation and utilities

Study Area Constraints



Steep slopes on west side of Main Street North allows stormwater to drain onto the road



If a blockage were to occur in the single Main Street Bypass culvert, flooding of properties on Main Street North could result during a large storm event



Flat and negative slopes on the east side of Main Street North allows stormwater to drain from the road towards existing properties



High groundwater conditions restrict the use of Low Impact Development (LID) stormwater management measures that allow stormwater to infiltrate into the ground

Study Area Constraints (Cont'd)



In areas where low impact development (LID) infiltration measures could be used, there is limited space in the road allowance



The pavement width of Main Street North varies and is not consistent with Town standards



Shallow ditches do not have enough capacity to convey stormwater from the road



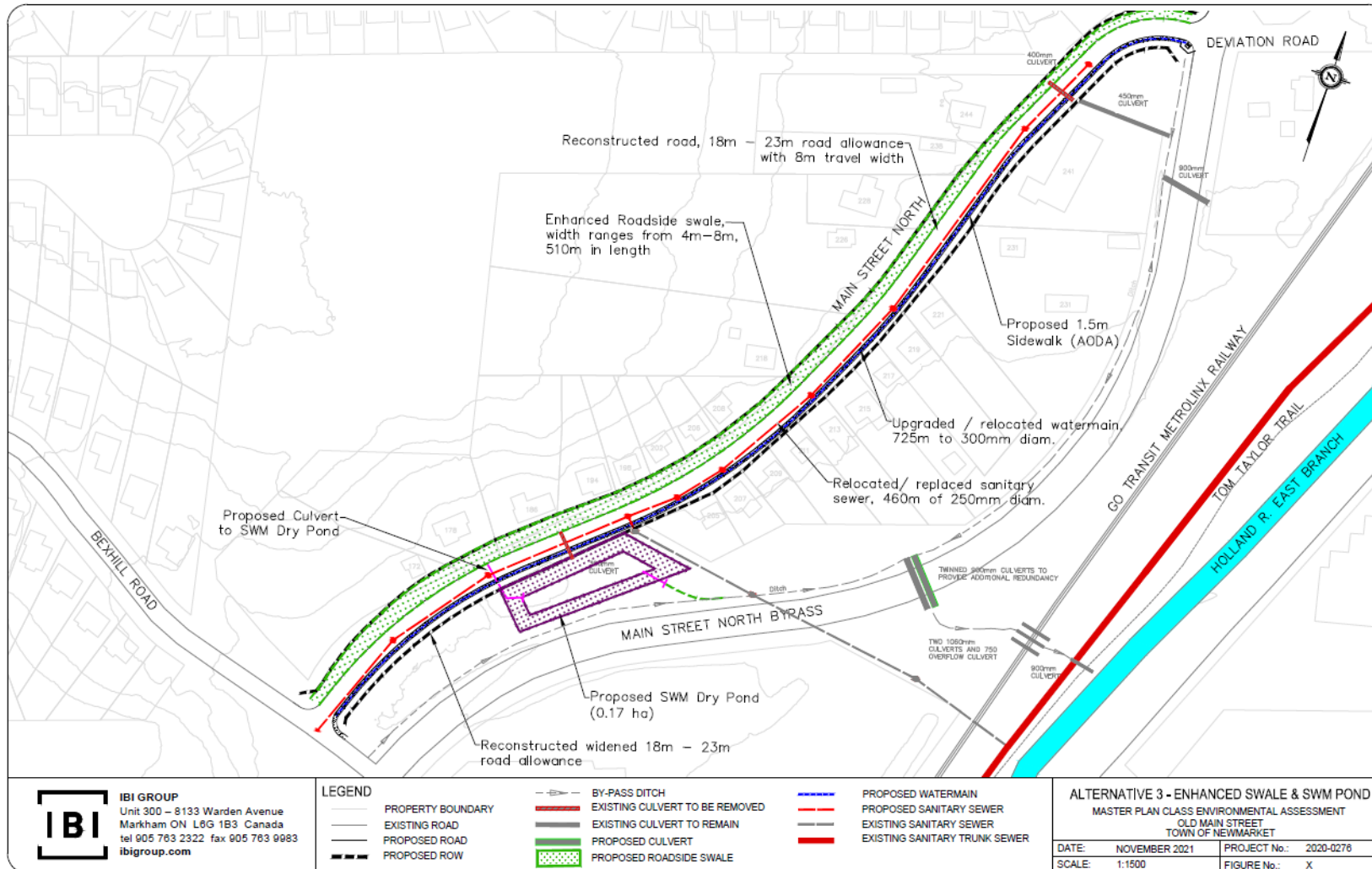
Old Main Street Master Plan Class EA

Alternative Solutions

- **Alternative 1 – Do Nothing:** No changes to the existing water, sanitary or storm drainage systems maintenance of existing rural road while allowing future growth to proceed
- **Alternative 2 – Enhanced Swale and SWM Pond:** Existing watermain and sanitary sewer are repaired, upgraded and realigned. Main Street North is reconstructed as a new rural road with a larger swale on west side of the street and a new stormwater management dry pond
- **Alternative 3 – Hybrid Approach:** Existing watermain and sanitary sewer are repaired, upgraded and realigned. Main Street North is reconstructed to an urban road with a new storm sewer system, oil grit separator and stormwater management dry pond



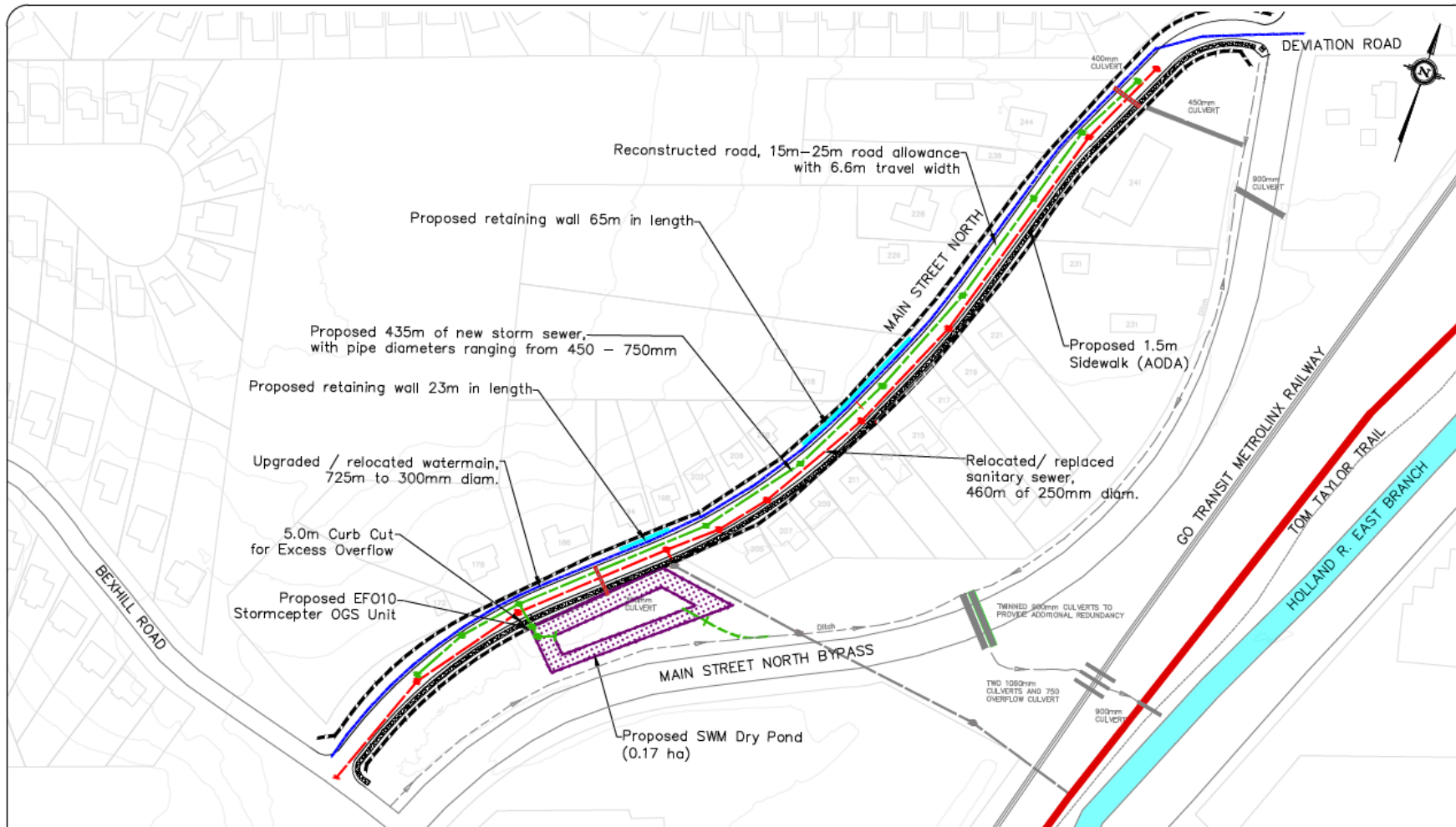
Alternative 2 – Enhanced Swale and Pond



Key Features:

- Deep and wide swale on the west side of Main Street North
- Rural road with a travel width of 8m and a road allowance width of 18m to 23m
- A new stormwater dry pond located on Town owned property
- A twin culvert under the Main Street North Bypass

Alternative 3 – Hybrid Approach



Key Features:

- Urban road with a travel width of 6.6m, 1.5m sidewalk (AODA compliant) and road allowance width of 15m to 25m
- A new storm sewer, a new stormwater dry pond and an oil grit separator
- Two short sections of retaining wall to maintain existing grades at the property line on west side of Main Street North
- A twin culvert under the Main Street North Bypass



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 tel 905 763 2322 fax 905 763 9983
 ibigroup.com

LEGEND

— PROPERTY BOUNDARY
 — EXISTING ROAD
 — PROPOSED ROAD
 - - - PROPOSED ROW

- - - BY-PASS DITCH
 — EXISTING CULVERT TO BE REMOVED
 — EXISTING CULVERT TO REMAIN
 — PROPOSED CULVERT
 — PROPOSED STORM SEWER

— PROPOSED WATERMAIN
 — PROPOSED SANITARY SEWER
 — EXISTING SANITARY SEWER
 — EXISTING SANITARY TRUNK SEWER
 — PROPOSED RETAINING WALL

ALTERNATIVE 5 - HYBRID APPROACH
 MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT
 OLD MAIN STREET
 TOWN OF NEWMARKET

DATE: NOVEMBER 2021 PROJECT No.: 2020-0278
 SCALE: 1:1500 FIGURE No.: X

Evaluation Criteria



Category	Criteria	Description
Natural Environment	Water course and aquatic impacts	<ul style="list-style-type: none"> Potential impacts to surface water, groundwater, floodplain, habitat and aquatic species
	Terrestrial greenspace and natural heritage impacts	<ul style="list-style-type: none"> Potential loss of vegetation, terrestrial habitat, wildlife and endangered species
Social/ Cultural Environment	Traffic impacts	<ul style="list-style-type: none"> Potential for temporary disruption to traffic flow during construction
	Community and neighbourhood impacts	<ul style="list-style-type: none"> Potential for impacts to community features including parklands and open space areas used by residents
	Nuisance impacts	<ul style="list-style-type: none"> Potential for visual distraction, vibration, dust and noise impacts during construction and following implementation
	Consistency with land use designations, approved development plans and Tertiary Plan land use designations	<ul style="list-style-type: none"> Ability of alternative to support existing and future land use
	Cultural / Heritage Areas / Potential Archaeological Resource Impacts	<ul style="list-style-type: none"> Potential impact to cultural / heritage / built heritage areas and archaeological resources
	Recreation & Aesthetics	<ul style="list-style-type: none"> Opportunities for improvement of recreational trails, sidewalks, and aesthetic value

Evaluation Criteria (Cont'd)

Category	Criteria	Description
Technical Considerations	Constructability	<ul style="list-style-type: none"> Potential for encountering problems during construction (e.g., soil stability, geotechnical considerations, ease of excavation, utility relocations required) and potential need for permits/ approvals
	Operation Requirements	<ul style="list-style-type: none"> Potential increase on operational requirements over current conditions
	Compliance with Standards	<ul style="list-style-type: none"> Ability to meet the Town's engineering and design standards for water, sanitary, stormwater and transportation systems, Town's level of service requirements and approval agency requirements including the Lake Simcoe Region Conservation Authority stormwater management requirements
	Construction Schedule Impacts	<ul style="list-style-type: none"> Potential length of construction schedule
Economic Considerations	Capital Costs	<ul style="list-style-type: none"> Relative capital implementation cost of alternative
	Operations and Maintenance Costs	<ul style="list-style-type: none"> Relative difference in operations and maintenance cost for alternative
	Land Acquisition/ Easement Requirements	<ul style="list-style-type: none"> Potential for land acquisition including permanent land acquisition easements and construction easements

Summary of Evaluation of Alternatives

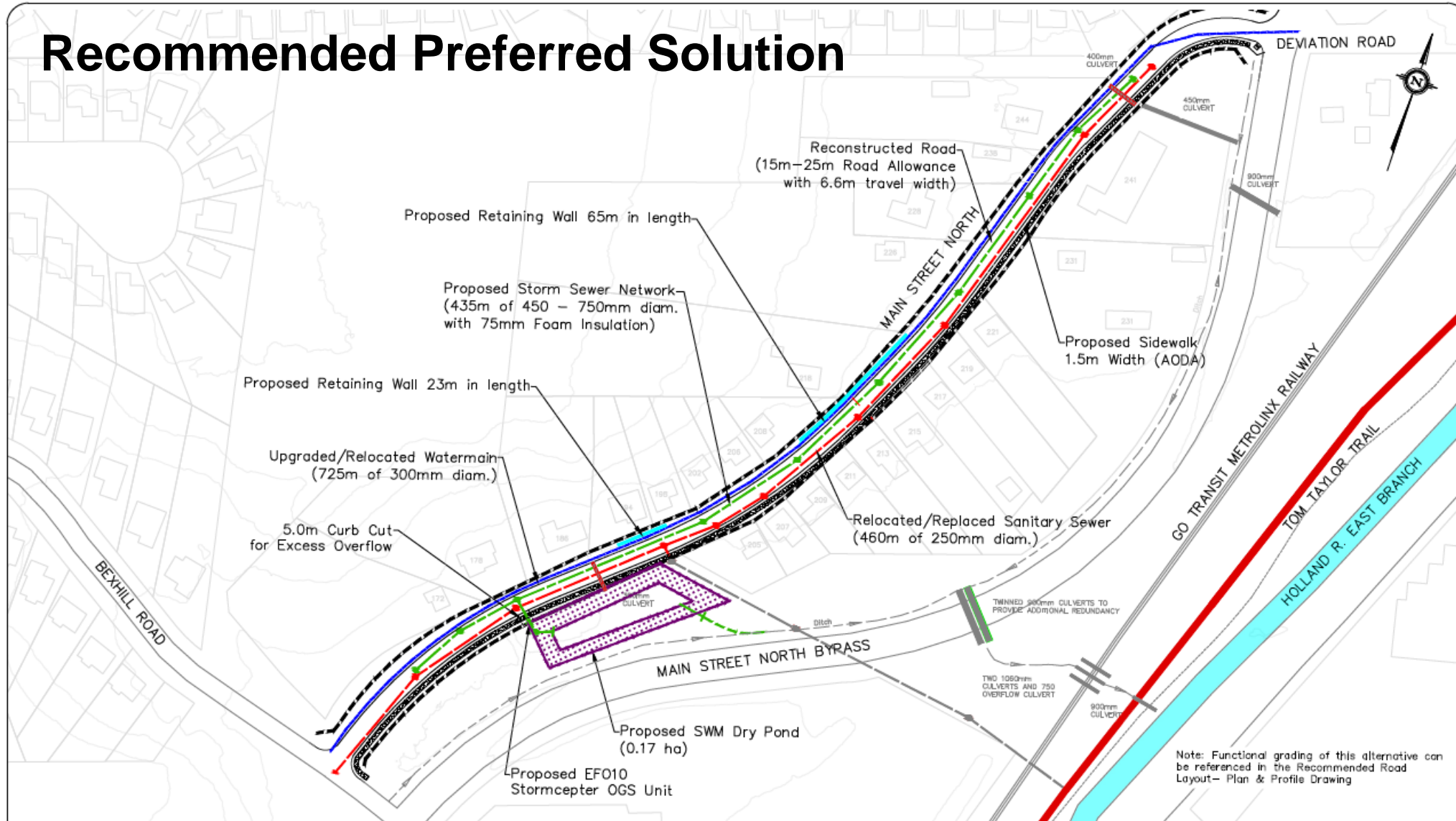
Criteria	Alternative 1 – Do Nothing	Alternative 2 – Enhanced Swale and Pond	Alternative 3 – Hybrid Approach
Summary of Natural Environment	Impacts on water quality, aquatic species and habitat	Impacts on water quality, aquatic species and habitat can be mitigated	Impacts on water quality, aquatic species and habitat can be mitigated
Summary of Social and Cultural Environment	Alternative is inconsistent with Town's Tertiary Plan policies for flood control and intensification	Property will need to be acquired to allow for construction of wide and deep swale on west side of Main Street North	Alternative is consistent with Town's Tertiary Plan policies for flood control and intensification
Summary of Technical Considerations	Alternative does not meet Town standards or LSRCA criteria for stormwater management	Constructability issues due to high groundwater conditions	Alternative fully meets Town Standards and LSRCA criteria for stormwater management
Summary of Costs	Low cost	Moderate cost	High cost
Overall Ranking	NOT RECOMMENDED	LESS RECOMMENDED	RECOMMENDED

Preferred

Less Preferred

Least Preferred

Recommended Preferred Solution



Note: Functional grading of this alternative can be referenced in the Recommended Road Layout- Plan & Profile Drawing



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LEGEND

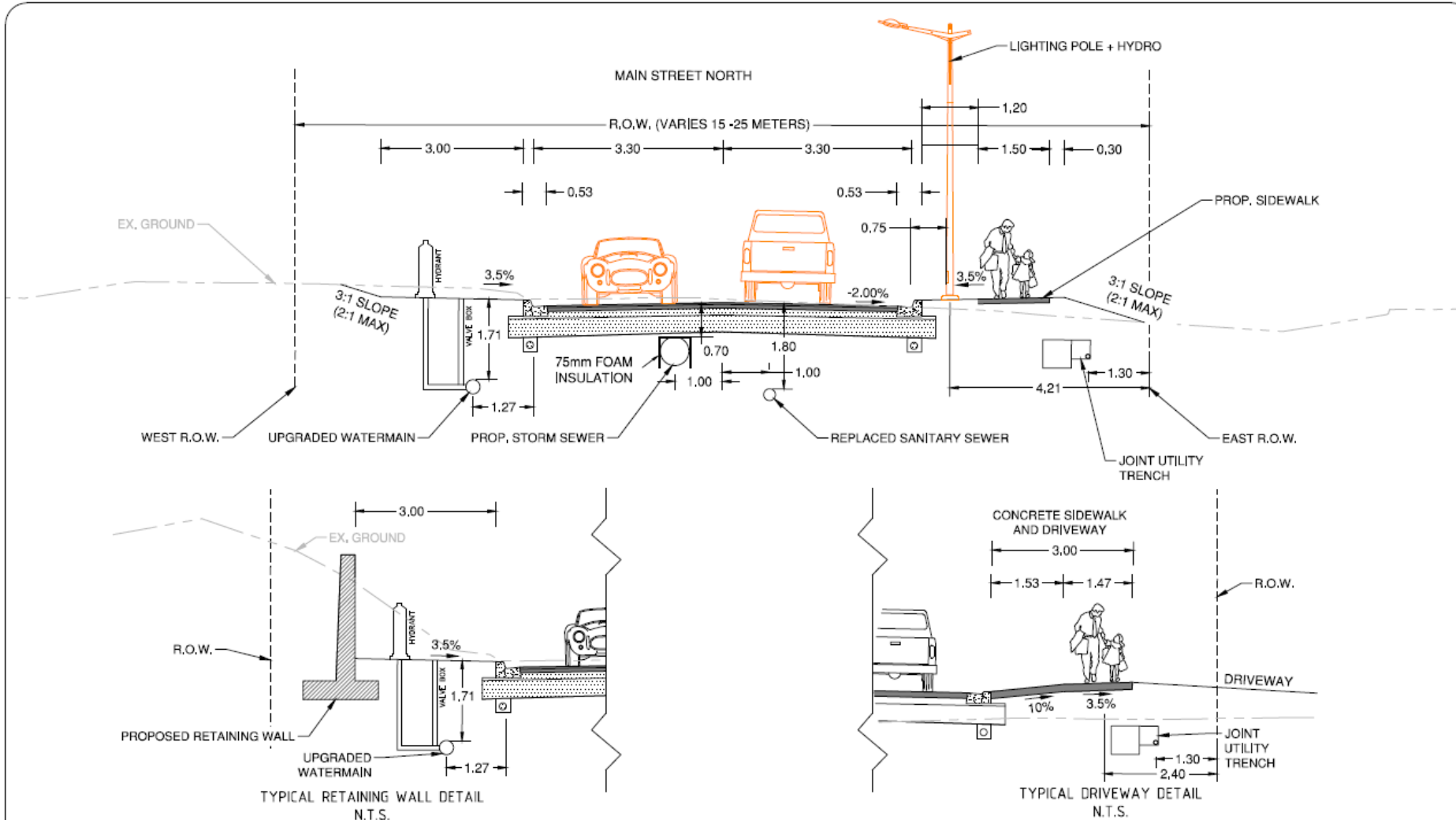
- | | | |
|-------------------|--------------------------------|-------------------------------|
| BY-PASS DITCH | EXISTING CULVERT TO BE REMOVED | PROPOSED WATERMAIN |
| PROPERTY BOUNDARY | EXISTING CULVERT TO REMAIN | PROPOSED SANITARY SEWER |
| EXISTING ROAD | PROPOSED CULVERT | EXISTING SANITARY SEWER |
| PROPOSED ROAD | PROPOSED STORM SEWER | EXISTING SANITARY TRUNK SEWER |
| PROPOSED ROW | | PROPOSED RETAINING WALL |

RECOMMENDED PREFERRED ALTERNATIVE

MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT
 OLD MAIN STREET
 TOWN OF NEWMARKET

DATE:	FEBRUARY 2022	PROJECT No.:	2020-0278
SCALE:	1:1500	FIGURE No.:	X

Typical Road Cross Section



Benefits of Recommended Preferred Solution

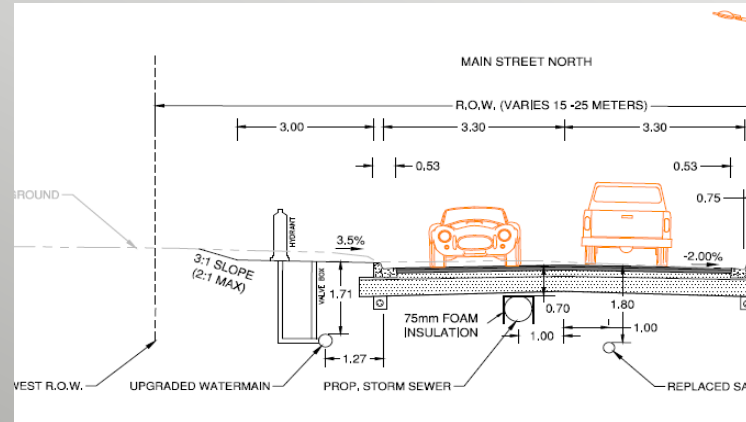
<p>New storm sewer, dry pond, oil grit separator and twin culvert will provide a robust storm drainage system which will reduce the risk of flooding and meet Town and LSRCA stormwater management requirements</p> <p>The use of low impact development (LID) stormwater management measures will be encouraged in any new development</p>	<p>Narrow and consistent pavement width will reduce potential for speeding vehicles while allowing for unfettered fire and emergency vehicle access</p> <p>Additional traffic calming measures will be incorporated into the final road design including pavement marking (centre line painting) and this section of road will be added to the solar speed board rotation list</p>
<p>Short sections of retaining walls will allow current grades to be maintained at the property line. The Town will explore opportunities to reduce/ eliminate the need for these walls for any new development by changing the grade at the property line</p>	<p>New larger looped watermain will provide an enhanced level of service to residents</p> <p>Sanitary sewer improvements will allow for gradual elimination of septic systems over time as residents decide to connect to the Town's system</p>



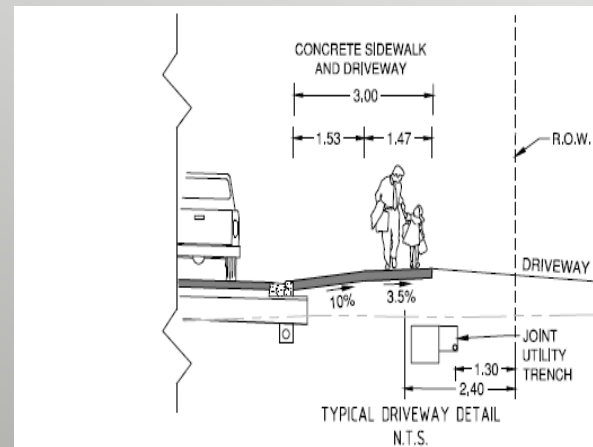
Benefits of Recommended Preferred Solution (Cont'd)

Existing driveways will be tied into the new road

For properties on the west side of Main Street North, the portion of the driveway located within the road allowance will be less steep than it is today

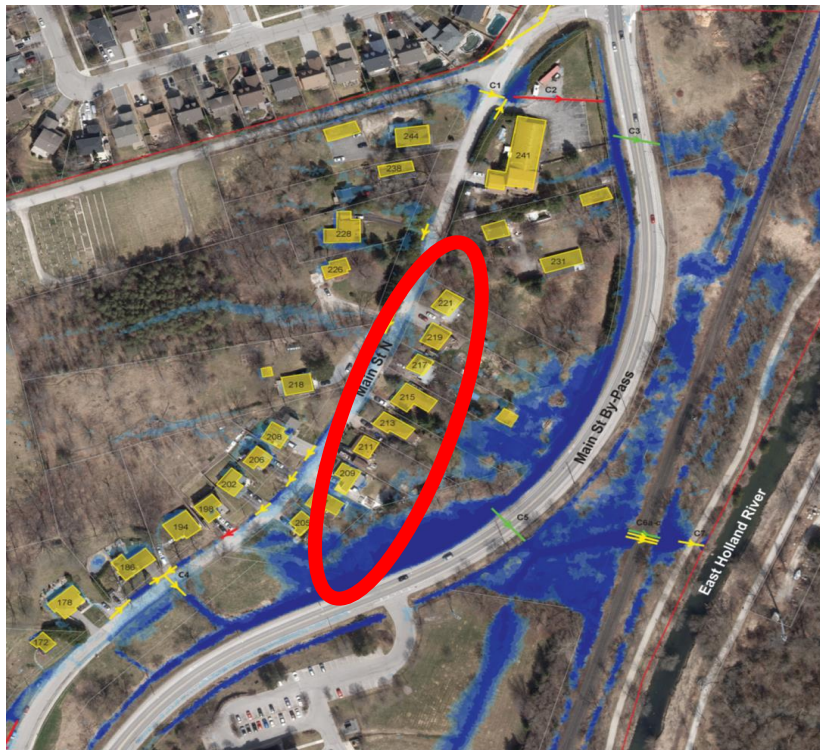


For properties on the east side of Main Street north, a new high point will be created on each driveway within the road allowance. This highpoint will keep stormwater contained on the road and prevent road drainage from entering private property



Old Main Street Master Plan Class EA

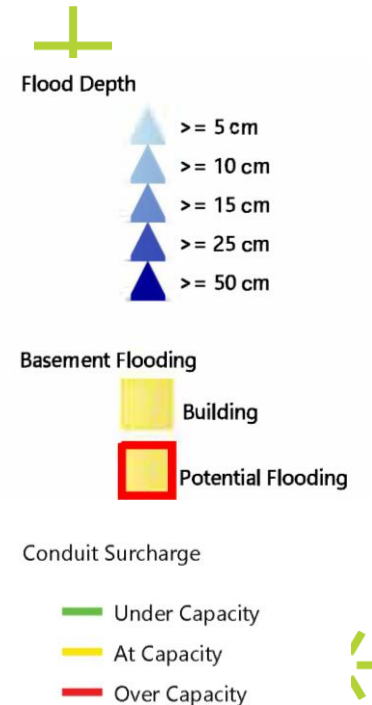
Recommended Preferred Solution will reduce flooding of properties and rear yards for storms up to a 100-year storm event



Existing Conditions



With Recommended Preferred Solution in Place



Old Main Street Master Plan Class EA

Thank You!

Thank you for attending this Public Information Centre
Please type your questions into the chat box

If you have any additional comments or questions please contact:

Ms. Sepideh Majdi, M.Sc., P.Eng.
Manager, Development Engineering
Engineering Services
The Town of Newmarket
395 Mulock Drive, P.O. Box 328
Newmarket, ON L3Y 4X7
Email: smajdi@newmarket.ca

Ms. Christine Hill, M.Eng., P.Eng.
Associate Director/ Practice Lead
Water Facilities
IBI Group
8133 Warden Avenue
Markham, ON L3R 5K3
Phone: 416-606-8762
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Government Services Building
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Fax: 705.657.8708
www.curvelakefirstnation.ca

January 23, 2022

Sepideh Majdi
Manager, Development Engineering
Engineering Services
Town of New Market
905-953-5300 x2522
smajdi@newmarket.ca

CC: IBI Group

Delivered by Email

Dear Ms. Majdi,

RE: CLFN Review of Metrolinx Finch-Kennedy SmartTrack Station - Natural Environment Memo (NEM) and Arborist Report

On behalf of our Consultation Department at Curve Lake First Nation (CLFN), we are writing to submit to you the CLFN review of the Newmarket Old Main Street project. CLFN has accepted the review and recommendations from 4 Directions of Conservation Consulting Services for the environmental review. Please refer to details in Appendix A for details.

The archaeological comments are as follows:

- The study should have looked a little farther than the required 1km-radius for archaeological sites in order to give a fuller picture. This archaeological record helps inform people of the possible chances of finding artifacts. Consider this for Stage 2 archaeology when the time comes.
- CLFN agrees that a Stage 2 should be done, and on the areas illustrated in the mapping provided.
- CLFN's Liaison would have interest in participating in the Stage 2 assessment whenever the archaeologist plans to proceed to that level of investigation.
- We believe the likelihood of finding archaeological and cultural resources is quite great in this area, so we will see what the next stage reveals for us.
- In future projects, CLFN would like to review in the draft report iteration prior to submission with the Ministry

Our Consultation Department has emphasized that environmental protection and sustainability is an integral component of the future of the Curve Lake First Nation. Working with Curve Lake to develop project concept, design, planning, assessment, potential and actual impacts, monitoring, etc. are necessary steps in our process. All plans and activities must be viewed through the lens of environmental protection and sustainability. These requirements ensure that Curve Lake First Nation's

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22 Winookeedaa Road
Curve Lake, Ontario K0L1R0



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www.curvelakefirstnation.ca

interests and rights are being protected within our territory; that we are able to protect the ability to exercise our rights as a people – physically, culturally, and spiritually; that we are able to foster sovereignty, cultural identity, and sustainable succession. This is central to all relationships being progressed with various regulators and proponents.

Curve Lake First Nation is the steward and caretaker of the lands and waters within our territory in perpetuity, as we have been for thousands of years, and we have an obligation to continue to steadfastly maintain this responsibility to ensure their health and integrity for generations to come. Protection, conservation, and sustainable collaborative management are priorities for Curve Lake First Nation.

Curve Lake's vision statement must be central to development in the territory: "Upon the foundation of community values and vision that promotes and preserves our relationship with mother earth, which has defined and will continue to define our identity and culture as Anishnaabe People, the Consultation Department will build and secure the framework for our First Nation lands by putting into place ways and laws that will provide both the protection and the freedom for each person, their family, and the whole community to fulfill their potential. Each way and law will be given the consideration to its importance for our next seven generations."

We thank you, IBI Group and Newmarket for working with us to understand and incorporate our comments. We thank you for working with us to provide capacity funding, this has helped in our ability to conduct this review. We look forward to future interactions on the project and others in Newmarket.

We do this work to uphold our responsibilities to care for the earth and waters, for our people, our nation, and for all our relations. Our foundational belief is balance; our values and principles are built upon the respect, care, and nurturing of all life as part of an interconnected whole and necessary for the balance and harmony required for Mino-Bimaadiziwin now and for future generations.

Sincerely,

On behalf of the Curve Lake First Nation Consultation Department

Gary Pritchard
Representing Curve Lake First Nation
CEO & Indigenous Conservation Ecologist
4 Directions of Conservation Consulting Services

Francis Chua
Support to CLFN Consultation Department

cc:
Chief Keith Knott, Curve Lake First Nation

Government Services Building
22 Winookeedaa Road
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Kaitlin Hill, Lands & Resources Consultation Liaison, CLFN
Tiffany McLellan, Archaeology Program Administrator, CLFN
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Appendix A: Environmental Review of the Newmarket Old Main Street Project



January 23, 2023

Attn: **Consultation Department**
Curve Lake First Nation
22 Winookeeda Road,
Curve Lake ON K0L1R0
P: (705) 657-8045

RE: Newmarket Old Main Street Review

4 Directions File No: 23-031

4 Directions of Conservation Consulting Services (4 Directions) is pleased to present our review and recommendations regarding documents prepared by Dillon Consulting (Dillon). These documents were presented to Curve Lake First Nation (CLFN) from the Town of Newmarket under their Duty to Consult and Accommodate. 4 Directions' review of the report, *Town of Newmarket Old Main Street Tertiary Plan Infrastructure and Natural Heritage Background Study*, is broken down into two main sections. Relevant statements, questions and concerns are identified in the following document under their respective headings:

- Concerns Regarding Michi Saagiig Inherent and Treaty Rights
- Concerns Regarding the Environment

Although it should be noted that 4 Directions acknowledges that the two above-mentioned topics are inextricably linked, the review has been organized under these section headings for clarity purposes. After these sections, 4 Directions provides a brief summary of identified recommendations for the Town of Newmarket followed by closing remarks.





Background

Dillon's report, titled, *Town of Newmarket Old Main Street Tertiary Plan Infrastructure and Natural Heritage Background Study*, was reviewed under the provided context:

"The Town of Newmarket (the Town) has retained SvN Architects and Planners (SvN) and Dillon Consulting Limited (Dillon) to develop a Tertiary Plan for the properties on Old Main Street bounded by Bexhill Road to the southwest, St. John's Cemetery to the northwest and Main Street Bypass to the northeast and southeast (Figure 1). The Plan is intended to encourage and provide direction for the comprehensive development of the study area, as opposed to piecemeal redevelopments which may have negative impacts on the existing community. The Plan will address matters such as land use, layout of development blocks, and other urban design considerations, as well as the required infrastructure and existing natural heritage system..."

(Page 1, Section 1.1).





1.0 Concerns Regarding Michi Saagiig Rights

1.1.1.1 Statement

The proposed project is situated within Gunshot Treaty Territory, the 1923 Williams Treaty First Nations Clause #2 area. Given this, Michi Saagiig Inherent and Treaty Rights, including harvesting rights and sovereignty over water-related matters, must be upheld throughout all project works (Curve Lake First Nation, 2013; Chiefs of Ontario, 2008).

1.1.1.2 Question

Why is there no mention of the Gunshot Treaty in the report?

How are Michi Saagiig Inherent and Treaty Rights upheld throughout the provided report?

1.1.2 Quotation

“Background MNR mapping indicates that no watercourses are present within the study area (Figure 7). As a result, suitable habitat for fish does not exist within the study area. However, East Holland River is located 100 m east of the community and receives stormwater runoff from the study area.”

(Page 35, Section 7.2.2).

AND

“What is the way forward? There are significant gaps in the available design information for the local storm sewers, and it is recommended that these be filled as a first step to improvements to the existing stormwater management system. A second step would be to complete comprehensive modelling of the local storm sewer and surface drainage systems for a better understanding of the causes of the current stormwater management issues, and to evaluate alternatives for improving and expanding the system to manage stormwater runoff under existing and future conditions.”

(Page 30, Section 6.7).





1.1.2.1 Statement

It should be noted that there is no statement of Michi Saagiig Rights to water anywhere in this report. This is concerning, given that it is stated in the 2008 Water Declaration that,

“2. First Nations in Ontario have our own territories that include the waters which include the rain waters, waterfalls, rivers, streams, creeks, lakes, mountain springs, swamp springs, bedrock water veins, snow, oceans, icebergs and the seas”.

The stormwater runoff to the Holland River is of major concern to CLFN as the Michi Saagiig have deeply intertwined relationships with the Holland River that reach back generations. The Holland River is of great importance to the Michi Saagiig and given the 2008 water declaration, the protection and management of the river is the responsibility of the Michi Saagiig.

1.1.2.2 Question

Are Dillon and the Town of Newmarket aware that the 2008 Water Declaration states clear authority and responsibility to First Nations in Ontario in making decisions related to the waters [Right to Water and Treaties, P. 4]?

1.1.2.3 Recommendation

CLFN must be included in discussions regarding the protection of the Holland River by improving the management of stormwater runoff. This will ensure the Michi Saagiig are included in the decision-making process involving the water as it is their responsibility and under their authority.





2.0 Concerns Regarding the Environment

2.1 Cultural Keystone Species

2.1.1.1 Statement

There is no mention of Cultural Keystone Species of the Michi Saagiig anywhere in this infrastructure and natural heritage background study. Cultural Keystone Species of the Michi Saagiig are critical to the survival of culture, community and to the territory.

2.1.1.2 Question

How does this infrastructure and natural heritage background study account for impacts on Michi Saagiig Cultural Keystone Species?

How will the Town of Newmarket protect Cultural Keystone Species if they were not identified by Dillon in the reporting process?

2.1.1.3 Recommendation

Any species identified from both desktop review and field investigations should be screened for those identified as Cultural Keystone Species of the Michi Saagiig. This will allow for an assessment of the level of impact on these species and the subsequent cumulative impacts on Michi Saagiig Treaty and Inherent Rights. Failure to identify and accommodate Michi Saagiig values pertaining to culturally significant species infringes on Michi Saagiig Treaty Rights reaffirmed through section 35 of the Constitution Act (1982).





2.2 Natural Heritage Features

2.2.1 Quotation

“A natural heritage feature is located in the southwestern portion of the study area and is identified as a Woodlot on Schedule B – Natural Heritage System of the Town’s Official Plan. There is another Woodlot south of the study area and separated from it by Bexhill Road.”

(Page 32, Section 7.2).

AND

“Other treed areas within the study area have not been identified as Woodlot; however, one treed area is contiguous with a mapped Woodlot feature and could meet the definition of woodlands under the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005 (OMNR 2010) or the Forestry Act, 1990; and therefore, may require further consideration in subsequent stages in the land use planning process.”

(Page 32, Section 7.2).

2.2.1.1 Statement

All woodlots (e.g. hardwood forest stands) are afforded protection under the Williams Treaty. The woodlots located on and adjacent to the study area are of concern to CLFN as it is unclear how they will be protected by the Town of Newmarket. Failure to identify and accommodate Michi Saagiig values pertaining to woodlots infringes on Michi Saagiig Treaty Rights reaffirmed through section 35 of the Constitution Act (1982).

2.2.1.2 Question

How will the Town of Newmarket protect the identified woodlots while respecting Michi Saagiig Treaty Rights?





2.2.1.3 Recommendation

The Town of Newmarket should explain how they propose to protect these woodlots and ensure Michi Saagiig Treaty Rights are upheld.

The other treed area (2nd quotation in 2.2.1) that needs further planning should be done in conjunction with the Michi Saagiig to ensure their Treaty Rights are respected and the woodlot is reevaluated with Michi Saagiig knowledge systems.

2.2.2 Quotation

“Moreover, some of the eastern woodland is identified as unevaluated wetland approximately 100 m east of the study area.”

(Page 32, Section 7.2).

2.2.2.1 Statement

All wetlands, regardless of evaluation under provincial standards, are afforded rights and protection under the Williams Treaty. All wetlands are afforded a 120m buffer to ensure their protection and survival. Failure to identify and accommodate Michi Saagiig values pertaining to wetlands infringes on Michi Saagiig Treaty Rights reaffirmed through section 35 of the Constitution Act (1982).

2.2.2.2 Question

How does the Town of Newmarket plan to respect the rights and protection of wetlands under the Williams Treaty?

2.2.2.3 Recommendation

The Town of Newmarket must discuss with CLFN how exactly they will protect these wetlands and therefore uphold and respect the Treaty Rights of the Michi Saagiig.





2.2.3 Quotation

“As stated within the East Holland River Subwatershed Plan, fisheries data has been collected within the East Holland River Subwatershed from 1930 to 2007 (LSRCA 2010). The most recent sampling was conducted by the LSRCA from 1930 to 2007, yielding a total of 35 species included in Table 8, below.”

(Page 34, Section 7.2.2).

2.2.3.1 Statement

This data from the East Holland River Subwatershed was collected more than 10 years ago. This data does not adequately represent the fish species seen today within the East Holland River subwatershed. Additionally, this data is also missing first-hand knowledge, about the fisheries, from the Michi Saagiig who, as previously mentioned, have had deep relationships with the East Holland River for generations.

2.2.3.2 Question

How can this outdated data inform the protection and management of the East Holland River Watershed for this Project?

Without the discussion of first-hand fisheries knowledge with the Michi Saagiig, how does the Town of Newmarket expect to adequately protect the fish species within the East Holland River subwatershed?

2.2.3.3 Recommendation

This data should be updated to reflect the East Holland River subwatershed fisheries seen today. This should also include first-hand knowledge from Michi Saagiig who frequently use the East Holland River.





Summary of Recommendations

- CLFN must be included in discussions regarding the protection of the Holland River by improving the management of stormwater runoff. This will ensure the Michi Saagiig are included in the decision-making process involving the water as it is their responsibility and under their authority.
- Any species identified from both desktop review and field investigations should be screened for those identified as Cultural Keystone Species of the Michi Saagiig. This will allow for an assessment of the level of impact on these species and the subsequent cumulative impacts on Michi Saagiig Treaty and Inherent Rights. Failure to identify and accommodate Michi Saagiig values pertaining to culturally significant species infringes on Michi Saagiig Treaty Rights reaffirmed through section 35 of the Constitution Act (1982).
- The Town of Newmarket should explain how they propose to protect these woodlots and ensure Michi Saagiig Treaty Rights are upheld.
- The other treed area (2nd quotation in 2.2.1) that needs further planning should be done in conjunction with the Michi Saagiig to ensure their Treaty Rights are respected and the woodlot is reevaluated with Michi Saagiig knowledge systems.
- The Town of Newmarket must discuss with CLFN how exactly they will protect these wetlands and therefore uphold and respect the Treaty Rights of the Michi Saagiig.
- This data should be updated to reflect the East Holland River subwatershed fisheries seen today. This should also include first-hand knowledge from Michi Saagiig who frequently use the East Holland River.





Closing Remarks

4 Directions staff are generally satisfied with the information provided within the Town of Newmarket Old Main Street Tertiary Plan Infrastructure and Natural Heritage Background Study. As noted in the summary of recommendations, 4 Directions encourages the Town of Newmarket to provide further clarity regarding how Indigenous Inherent and Treaty rights are upheld throughout the Tertiary Plan and future plans for this project.

We trust that this information aids in your engagement process and the next steps forward. If you have any questions, please do not hesitate to contact us.

Miigwetch,

A handwritten signature in blue ink, appearing to read "H. Tosello".

Hannah Tosello, MEnvSc

Aquatic Ecologist
4 Directions of Conservation Consulting Services.
(e): htosello@4directionsconservation.com

A handwritten signature in blue ink, appearing to read "C. Robichaud".

Courtney Robichaud, PhD

Senior Ecologist
4 Directions of Conservation Consulting Services.
(e): crobichaud@4directionsconservation.com





Works Cited

Chiefs of Ontario. (2008). Water Declaration of the First Nations in Ontario; Chiefs of Ontario: Toronto, ON, Canada;

Available online: <http://www.onwa.ca/upload/documents/coo-water-declaration.pdf>

Curve Lake First Nation. (2013). Curve Lake First Nation Consultation and Accommodation Standards. Available at: <https://curvelakefirstnation.ca/wp-content/uploads/2021/04/CLFN-Consultation-and-Accommodation-Standards-2016.pdf>





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ibigroup.com

January 24, 2023

Gary Pritchard
Representing Curve Lake First Nation
CEO & Indigenous Conservation Ecologist, 4 Directions of Conservation Consulting Services
22 Winookeedaa Road, Curve Lake, ON, K0L 1R0

Dear Mr. Pritchard:

OLD MAIN STREET MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT, TOWN OF NEWMARKET

We thank you for completing your review of our submitted documentation for the above noted project and for providing comments in your correspondence to Sepideh Majdi, of the Town of Newmarket dated, January 23, 2023. We are pleased to provide the following indicating how the Town intends to address the comments you have raised.

- *Comment 1 - The study should have looked a little farther than the required 1km-radius for archaeological sites in order to give a fuller picture. This archaeological record helps inform people of the possible chances of finding artifacts. Consider this for Stage 2 archaeology when the time comes.*
- *Comment 1 Response: We thank you for providing this comment on the scope and area considered in the Stage 1 Archaeological Assessment. We selected the study area for the Stage 1 assessment to align with the Study Area for the Class Environmental Assessment Study. For the Stage 2 assessment, the Town will solicit your input on the study area extents as part of the development of a Terms of Reference for the Stage 2 Archaeological Assessment.*
- *Comment 2: Curve Lake First Nation's (CLFN's) Liaison would have interest in participating in the Stage 2 assessment whenever the archaeologist plans to proceed to that level of investigation.*
- *Comment 2 Response: The Town of Newmarket welcomes the participation of the CLFN's Liaison in the Stage 2 Assessment and we will notify you in advance of undertaking of the study, so that CLFN can participate in all fieldwork. We will provide a draft copy of the completed Stage 2 Report for your review and comments prior to finalization and submission to the Ministry of Tourism, Culture and Sport.*
- *Comment 3: We believe the likelihood of finding archaeological and cultural resources is quite great in this area, so we will see what the next stage reveals for us.*
- *Comment 3 Response: The Town looks forward to working with the CLFN on the Stage 2 assessment study and we look forward to receiving recommendations from the study.*
- *Comment 4 - In future projects, CLFN would like to review during the draft report iteration prior to submission with the Ministry.*

Gary Pritchard – January 24, 2023

- *Comment 4 Response: The Town acknowledges your comment and will circulate the Stage 2 draft report to CLFN for this study to obtain your comments, before the report is finalized and submitted to the Ministry of Tourism, Culture and Sport. The Town will follow this process in future.*

We thank you again for your prompt review of our submission and the Town will engage with you for the preparation of a Terms of Reference for the Stage 2 Archaeological Assessment.

Yours Truly,



Christine Hill, M.Eng., P.Eng.

Associate Director/ Practice Lead – Water Facilities

Arcadis IBI Group

c.c.

Sepideh Majdi – Town of Newmarket

Francis Chua - 4 Directions of Conservation Consulting Services

Kayla Wright – 4 Directions of Conservation Consulting Services

Chief Keith Knott, Curve Lake First Nation

Katie Young-Haddlesey, Chief Operating Officer, CLFN

Kaitlin Hill, Lands & Resources Consultation Liaison, CLFN

Tiffany McLellan, Archaeology Program Administrator, CLFN

Paige Williams, Consultation Clerk, CLFN



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January 26, 2023

Gary Pritchard
Representing Curve Lake First Nation
CEO & Indigenous Conservation Ecologist, 4 Directions of Conservation Consulting Services
22 Winookeedaa Road, Curve Lake, ON, K0L 1R0

Dear Mr. Pritchard:

OLD MAIN STREET MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT, TOWN OF NEWMARKET

We thank you for completing your review of our submitted documentation for the above noted project and for providing comments in your correspondence to Sepideh Majdi, of the Town of Newmarket dated, January 23, 2023. We are pleased to provide the following indicating how the Town intends to address the comments you have raised regarding supporting documents to the Old Main Street Master Plan Class Environmental Assessment, specifically, the Town of Newmarket Old Main Street Tertiary Plan Infrastructure and Natural Heritage Background Study, prepared by Dillon Consulting in 2018. We note that the Infrastructure and Natural Heritage Background Study was considered a previously completed background study and was a key source of information for the Old Main Street Master Plan Class Environmental Assessment Study and is part of the final documentation for the Old Main Street Tertiary Plan. The Old Main Street Class Environmental Assessment Master Plan Study sought to build on the work already completed as part of the Tertiary Plan Study. Our responses address how your comments have been addressed in the current Master Plan and how they will be addressed by the Town in future. We have organized our responses to correspond to the recommendations provided in your letter.

1. Recommendation 1 - CLFN must be included in discussions regarding the protection of the Holland River by improving the management of stormwater runoff. This will ensure the Michi Saagiig are included in the decision-making process involving the water as it is their responsibility and under their authority.

Town of Newmarket Response – The Town acknowledges your comments and continues to work to meet the stormwater management requirements and regulations identified by MECP and Lake Simcoe Conservation Authority. In Old Main Street Master Plan Class EA, we have undertaken a comprehensive review of existing storm drainage system, identified a number of deficiencies, and have identified a preferred alternative which will meet stormwater management requirements for baseflow, erosion, quality and quantity control. Our study also includes a recommendation for site plan developments to consider implementation of site-specific LID measures to achieve stormwater management criteria. Based on our analysis, implementation of the preferred alternative will improve the quality of stormwater runoff from the Old Main Street area. The Town of Newmarket is one of several municipal participants in watershed planning initiatives that are led by LSRCA. It is our understanding that LSRCA is engaged with a number of First Nations on watershed planning and decision making. The Town continues to support LSRCA in its efforts.

Gary Pritchard – January 26, 2023

2. Recommendation 2 - Any species identified from both desktop review and field investigations should be screened for those identified as Cultural Keystone Species of the Michi Saagiig. This will allow for an assessment of the level of impact on these species and the subsequent cumulative impacts on Michi Saagiig Treaty and Inherent Rights. Failure to identify and accommodate Michi Saagiig values pertaining to culturally significant species infringes on Michi Saagiig Treaty Rights reaffirmed through section 35 of the Constitution Act (1982).

Town of Newmarket Response: We thank you for this comment. We have updated our Master Plan Class EA Project File Report to include additional mitigation measures including the completion of a species screening for Cultural Keystone Species and the preparation of an impact assessment and identification of mitigation measures to address identified impacts. The Town welcomes the input of CLFN to the Cultural Keystone Species screening and impact assessment. The Town expects to complete this work in future.

3. Recommendation 3 - The Town of Newmarket should explain how they propose to protect these woodlots and ensure Michi Saagiig Treaty Rights are upheld.

Town of Newmarket response: We note we have not identified proposed works within any area identified as woodlot. We have identified the need to mitigate potential impacts to trees in our Class EA Project File Report for this project. We have recommended that a tree inventory and field investigation be completed as part of detailed design and that the need to minimize or potentially eliminate the need to remove trees be considered through the detailed design of the preferred solution. We have recommended that suitable tree replacement be completed for any trees that are ultimately removed as part of the implementation. With regard to woodlot areas located within future development areas in the study area, we note that the Old Main Street Tertiary Plan contained the following relevant land use policies:

1. *Existing woodlots and significant portions of naturalized areas shall be protected in order maintain a continuous natural heritage system.*
 2. *An adequate buffer between development, the existing woodlots and naturalized areas shall be maintained to protect the form and ecological function of these natural/ naturalized features.*
 3. *Future development shall respect the significance of the Regional Greenlands system and resulting limitations placed on infill and redevelopment in select locations.*
 4. *The protection of existing woodlots and naturalized areas does not mean that they will come under public ownership. They may be protected through buffers or zoning or a combination of both.*
4. Recommendation 4 - The other treed area (2nd quotation in 2.2.1) that needs further planning should be done in conjunction with the Michi Saagiig to ensure their Treaty Rights are respected and the woodlot is re-evaluated with Michi Saagiig knowledge systems.

Town of Newmarket Response: Section 2.2.1 refers the Town owned property located north of Bexhill Road along the east side of Main Street North. The Master Plan Class EA preferred solution identifies a new stormwater management facility at this location. The Town has committed to the involving CLFN in a Stage 2 archaeological assessment of this area. The tree mitigations measures identified above in our response to your Recommendation 3 will also apply to this area.

Gary Pritchard – January 26, 2023

5. Recommendation 5 - The Town of Newmarket must discuss with CLFN how exactly they will protect these wetlands and therefore uphold and respect the Treaty Rights of the Michi Saagiig.

Town of Newmarket Response: An unevaluated wetland was identified in Figure 7 of Dillon Report as located on the east side of the East Holland River approximately 100m outside of the Study Area. We note that there are no proposed works identified in the vicinity of this wetland identified in our Master Plan. We have identified mitigation measures aimed at minimizing the potential for sedimentation resulting from construction activities in our Project File Report. The proposed measures will be further developed in detailed design and the Town will submit the recommended plan to CLFN for review during detailed design.

6. Recommendation 6 - This data should be updated to reflect the East Holland River sub watershed fisheries seen today. This should also include first-hand knowledge from Michi Saagiig who frequently use the East Holland River.

Town of Newmarket Response: The Master Plan Class EA study relied on existing information and data collected through the Old Main Street Tertiary Plan Study (completed in 2019) as well as long -term data collected by LSRCA. We note that LSRCA conducts watershed studies to assess the overall health of watersheds and undertakes continual monitoring and evaluation and communicates results through a variety of means. The of Newmarket continues to support LSRCA in their efforts to assess the health of watersheds, including fisheries and also supports LSRCA's broader efforts at building strong working relationships with First Nations, including CLFN. We would encourage CLFN to provide Michi Saagiig first hand knowledge to LSRCA so that it can be incorporated into the datasets used to assess watershed health. Should additional information be available during detailed design, it will be considered in the development of mitigation plans.

We thank you again for your prompt review of our submission and look forward to engaging with you in future phases of this project.

Yours Truly,



Christine Hill, M.Eng., P.Eng.

Associate Director/ Practice Lead – Water Facilities

Arcadis IBI Group

c.c.

Sepideh Majdi – Town of Newmarket

Francis Chua - 4 Directions of Conservation Consulting Services

Kayla Wright – 4 Directions of Conservation Consulting Services

Chief Keith Knott, Curve Lake First Nation

Katie Young-Haddlesey, Chief Operating Officer, CLFN

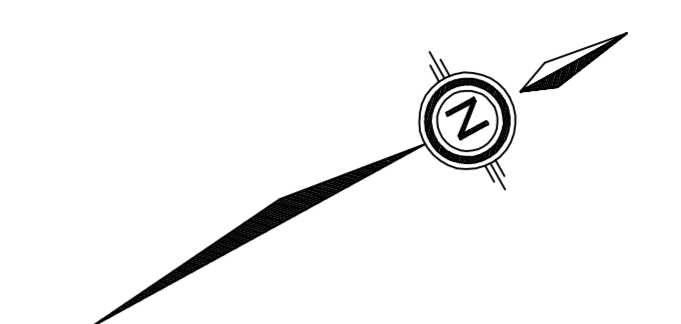
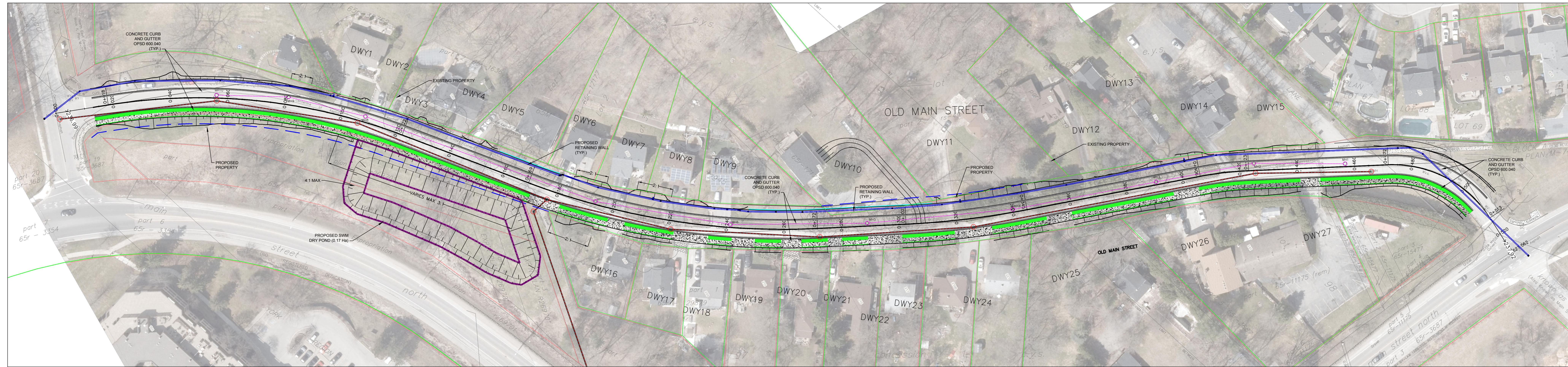
Kaitlin Hill, Lands & Resources Consultation Liaison, CLFN

Gary Pritchard – January 26, 2023

Tiffany McLellan, Archaeology Program Administrator, CLFN
Paige Williams, Consultation Clerk, CLFN

Appendix B

Recommended Improvements



LEGEND

- PROPOSED PROPERTY
- EXISTING PROPERTY
- RETAINING WALL
- STORM WATER PIPE
- SANITARY PIPE
- WATERMAIN
- CONCRETE CURB AND GUTTER
- BOULEVARD / GRASS AREA
- CONCRETE SIDEWALK

NO.	DATE	NAME	REVISIONS
3	22/03/14	CA	ISSUE FOR CLIENT REVIEW
2	21/12/10	CA	ISSUE FOR CLIENT REVIEW
1	21/11/29	CA	ISSUE FOR CLIENT REVIEW

CONTRACTOR TO BE RESPONSIBLE FOR LOCATION OF ALL EXISTING U/G & OVERHEAD UTILITIES. VARIOUS UTILITIES REQUIRE ADVANCE NOTICE PRIOR TO DIGGING FOR STAKE OUT. THE REGION ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE LOCATION OF EXISTING UTILITIES AS INDICATED ON THIS DRAWING.

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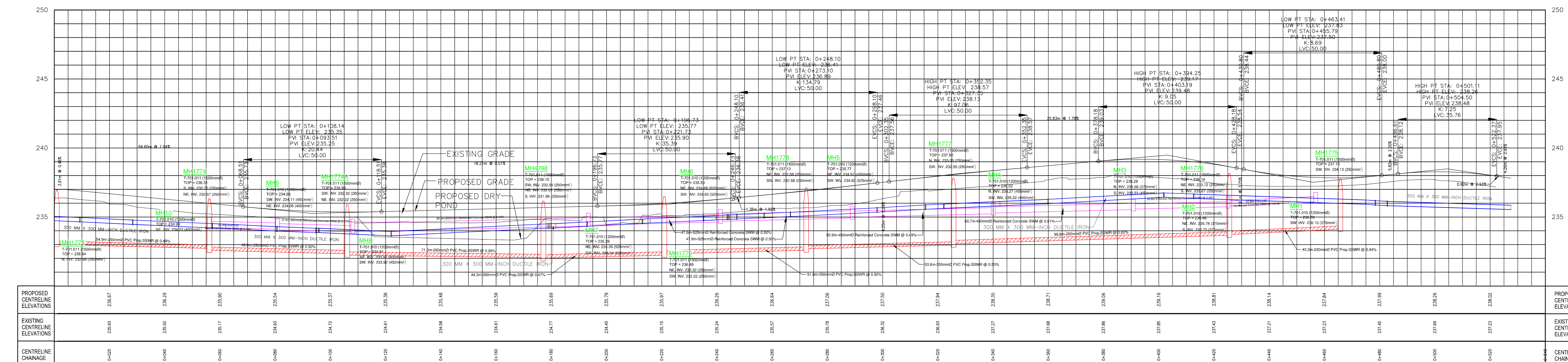
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DESIGN: FD	DATE: 2021 11
CHECKED: CA	DATE: 2021 11
APPROVED: CA	DATE: 2021 11



OLD MAIN STREET - EA
RECOMMENDED ROAD LAYOUT - PLAN AND PROFILE

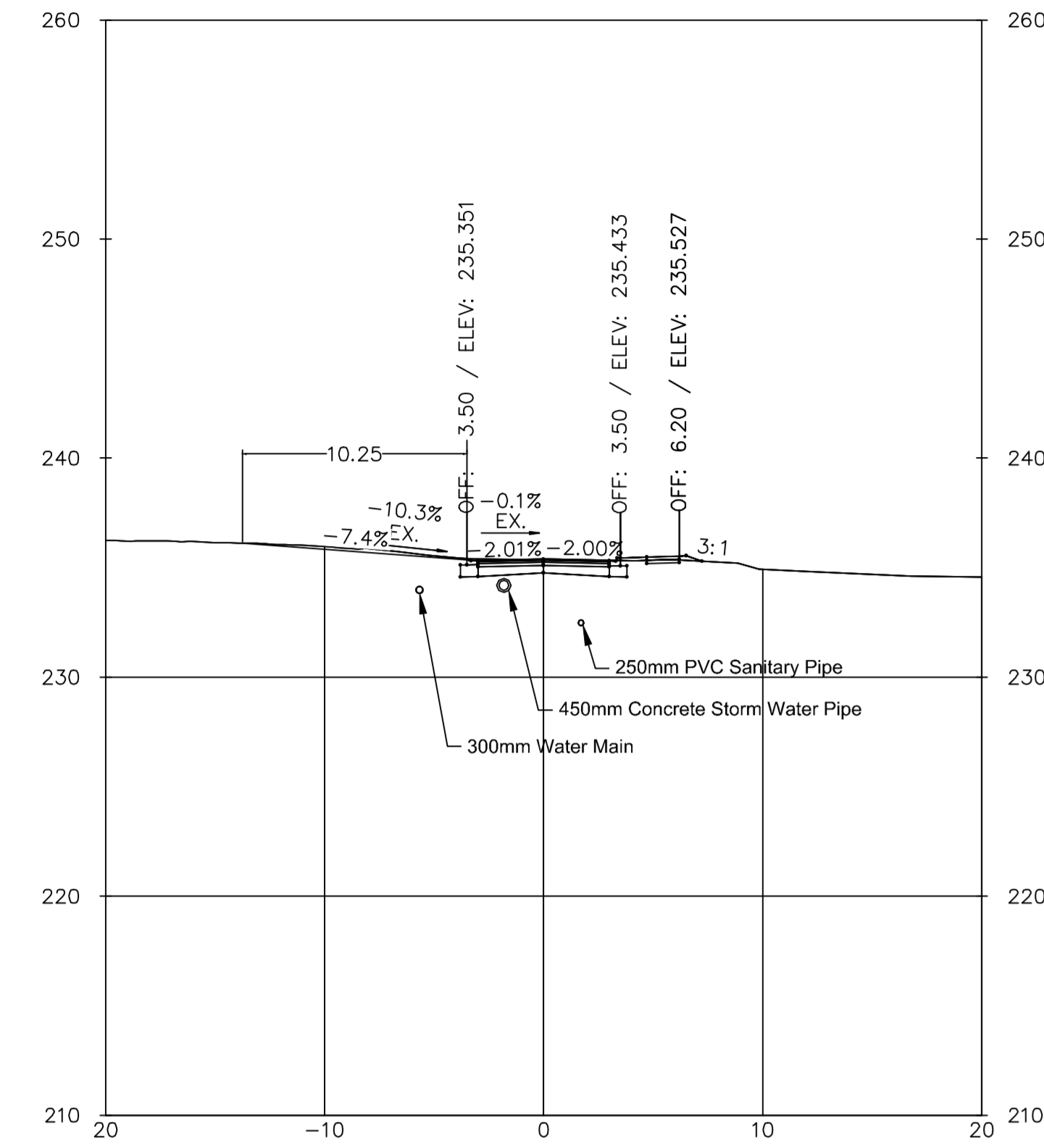
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DRAWING NUMBER	CONTRACT NUMBER	SHEET NUMBER
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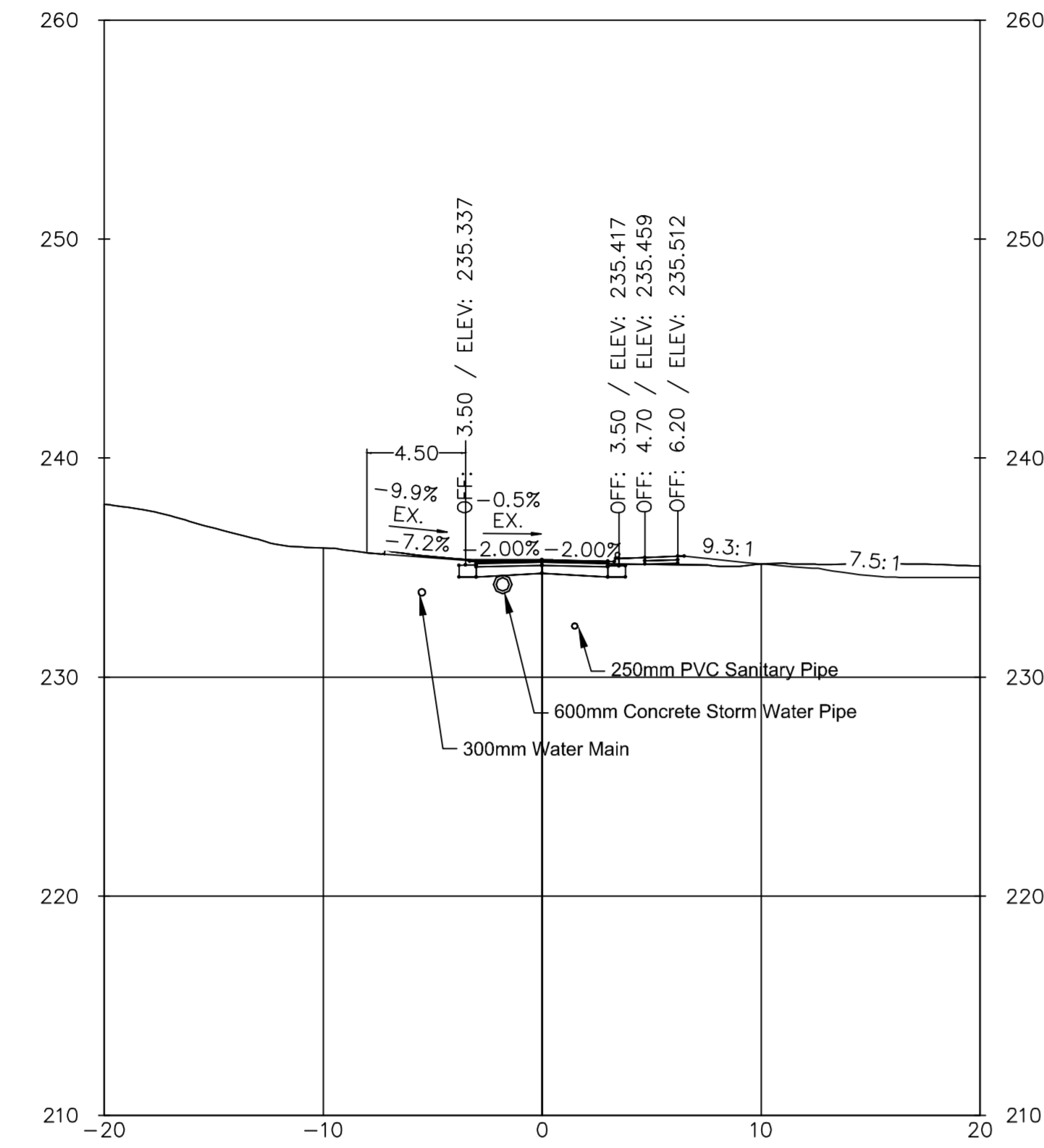
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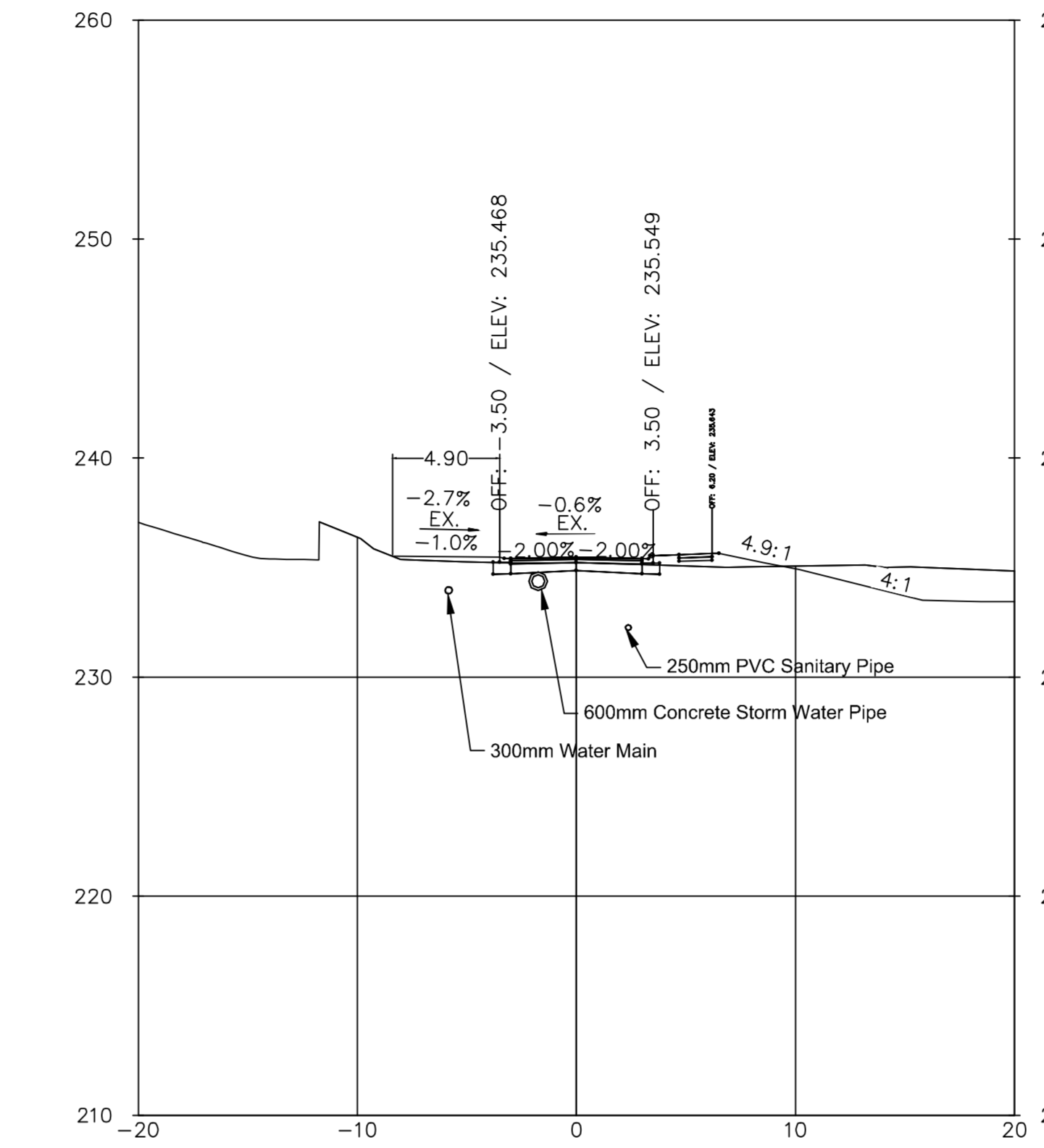
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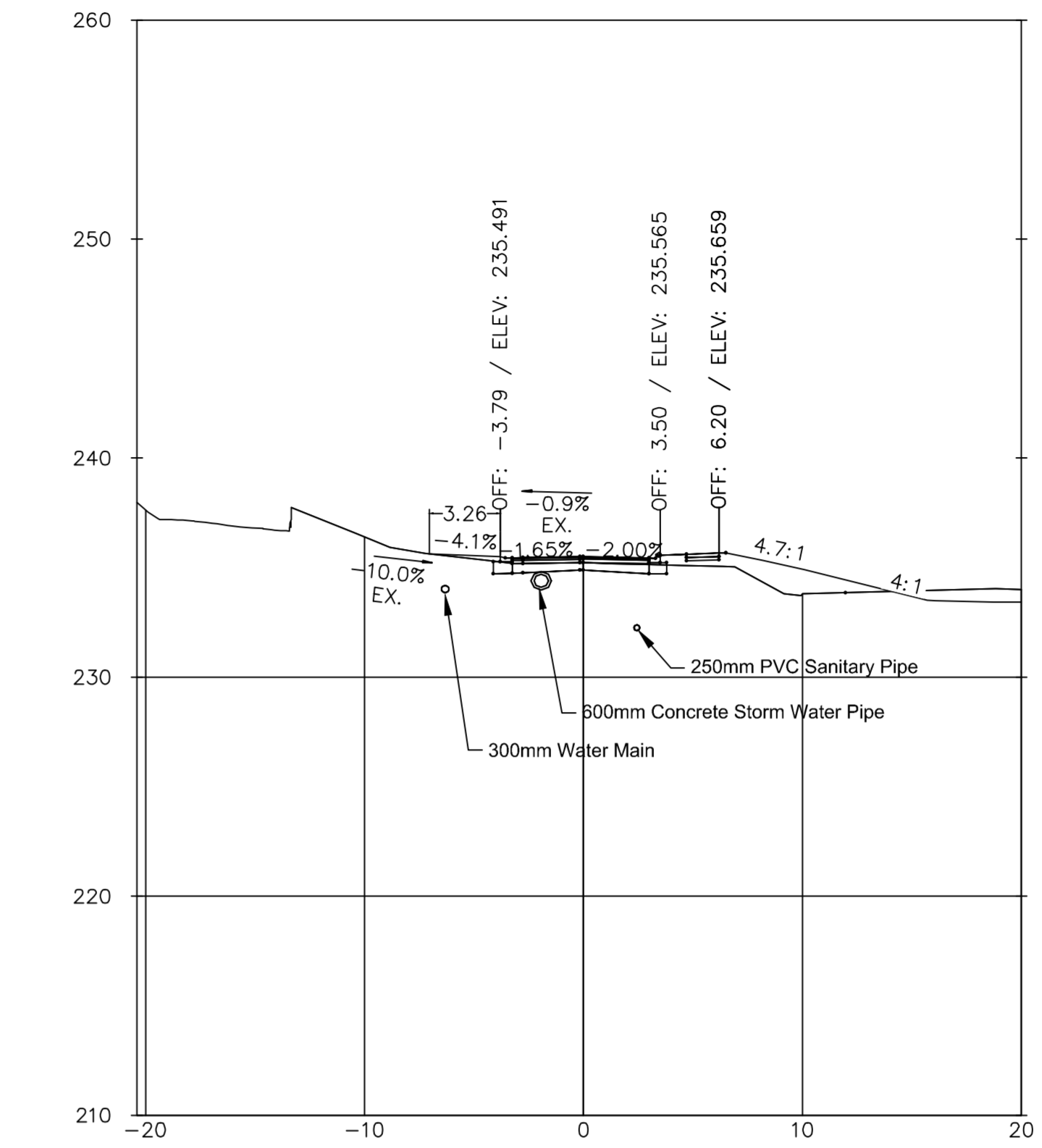
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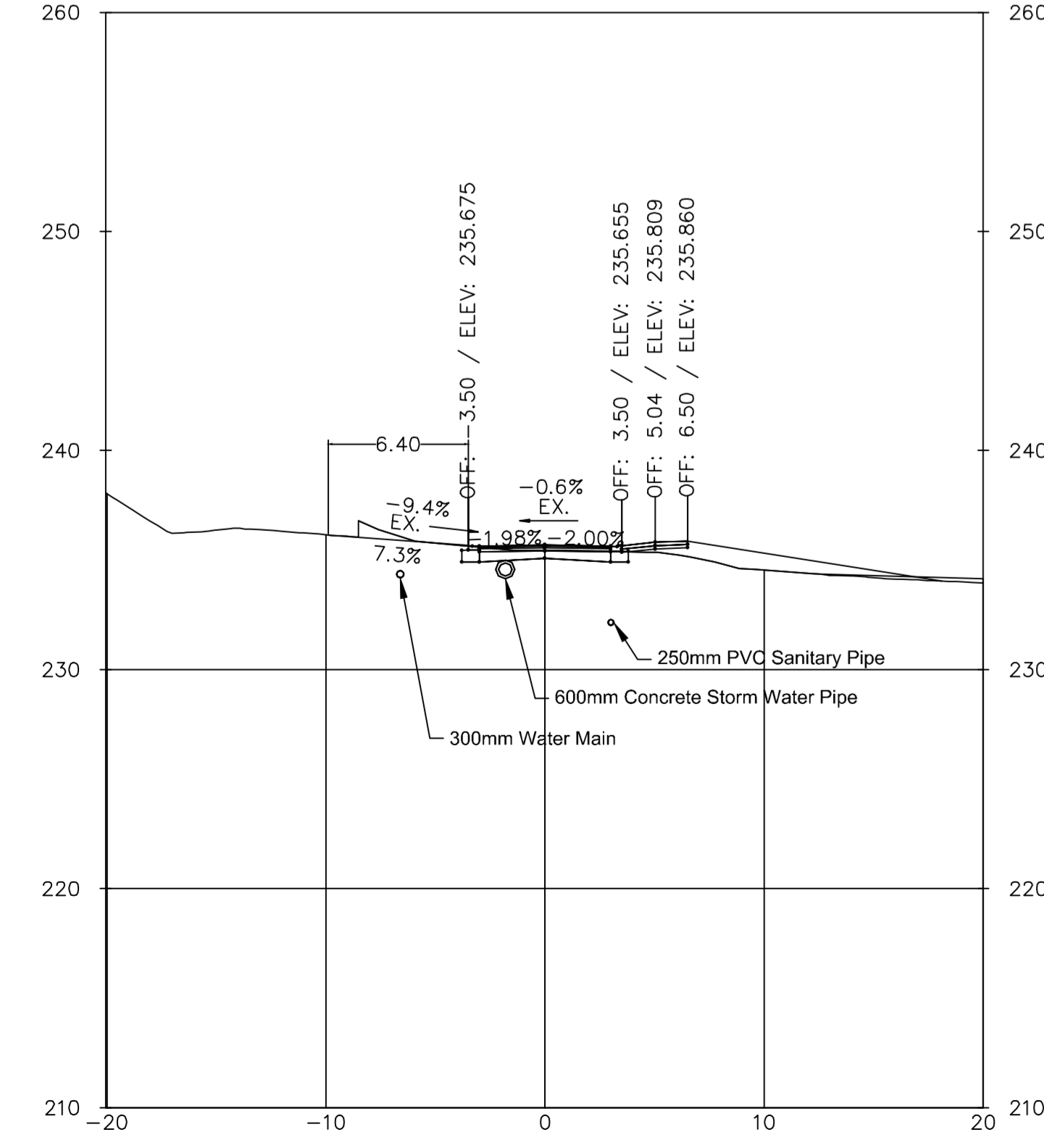
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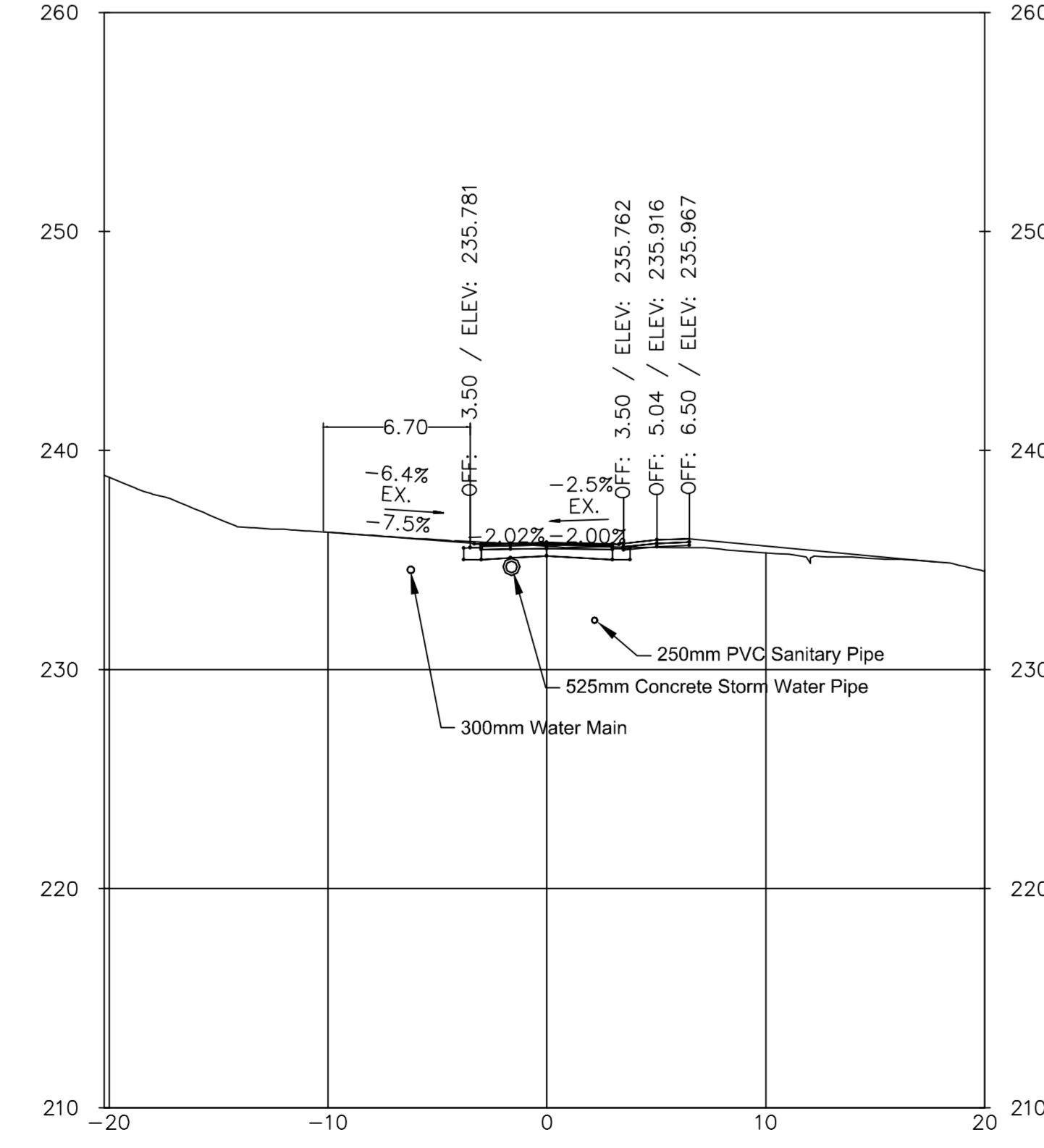
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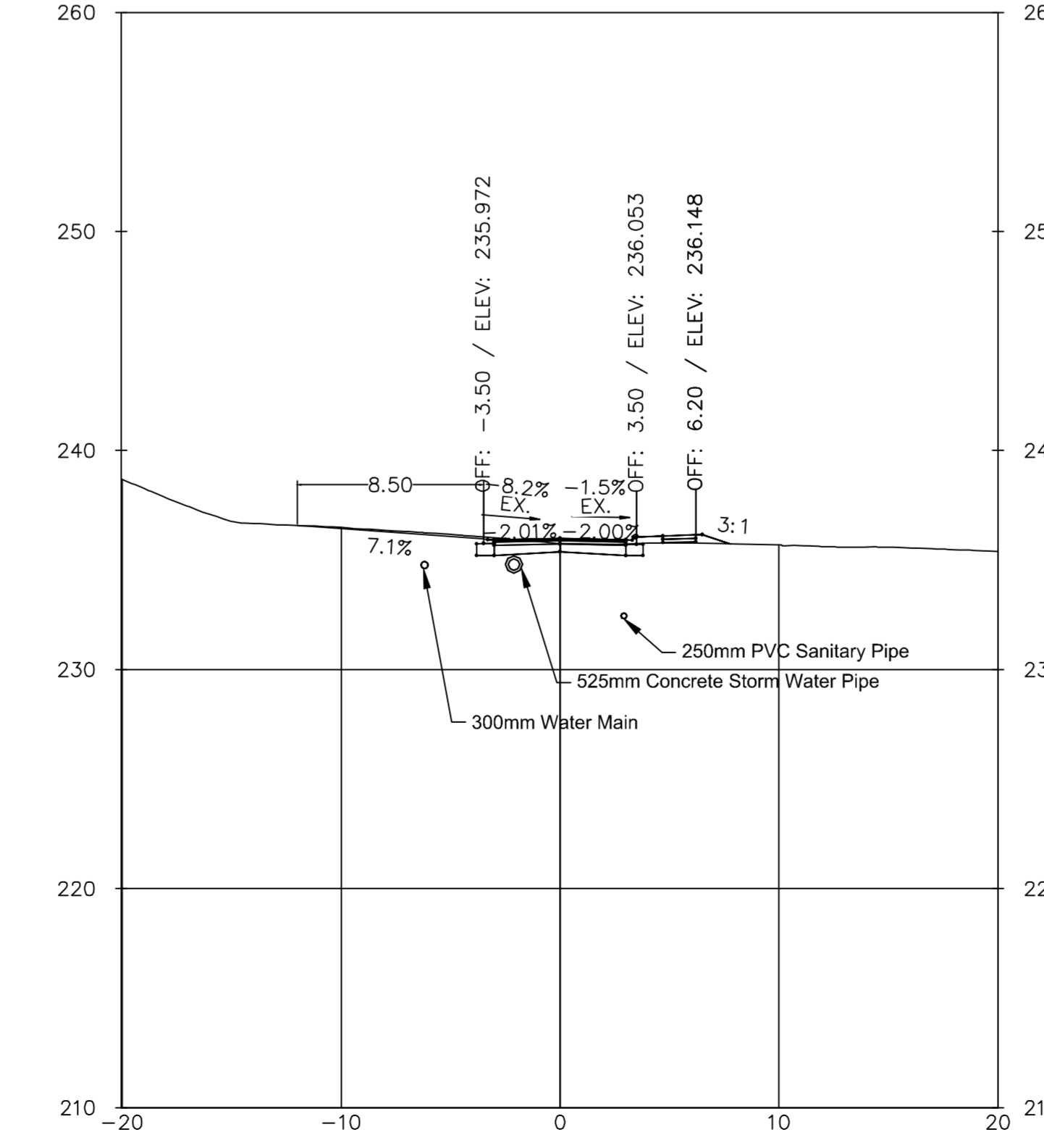
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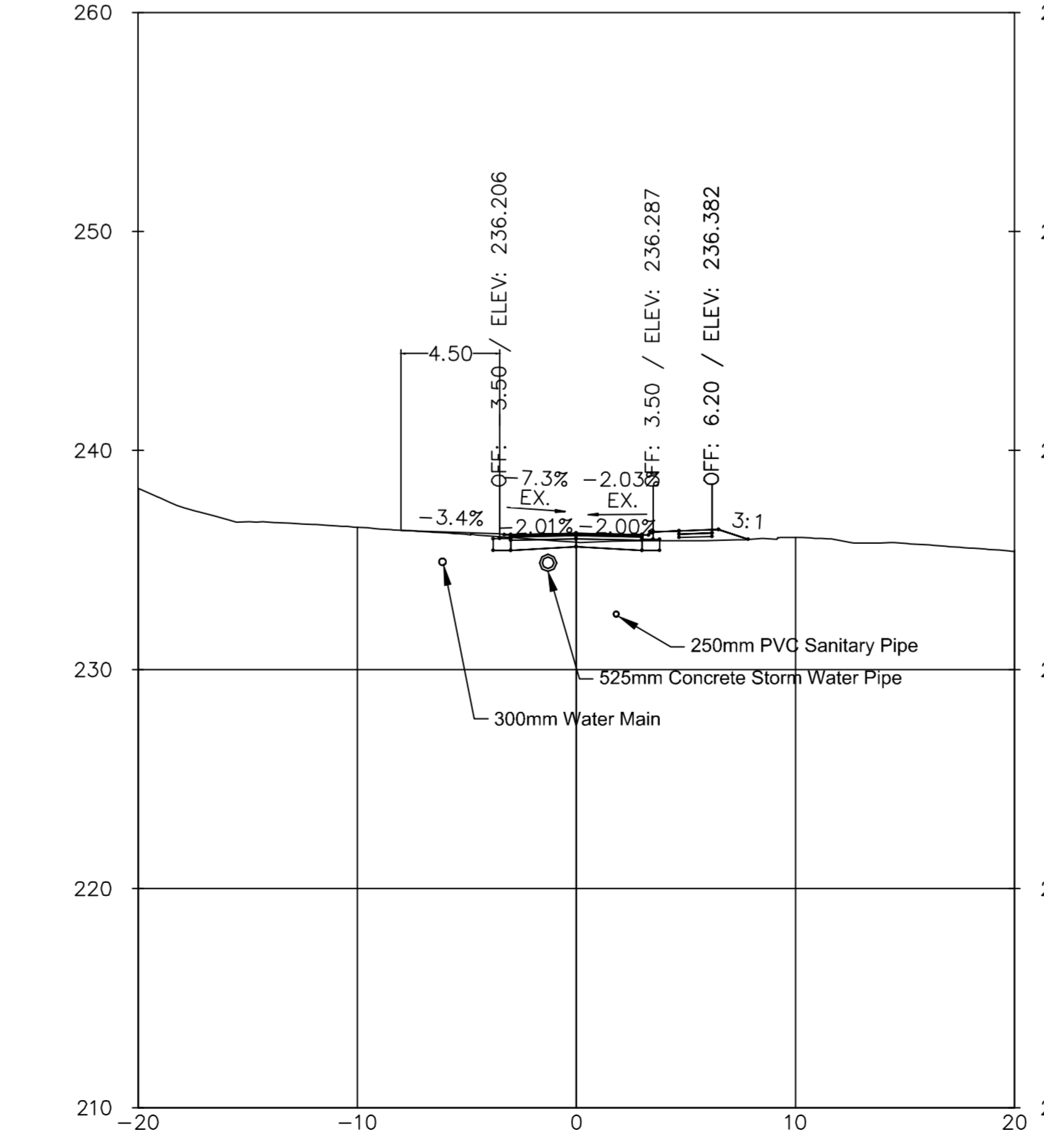
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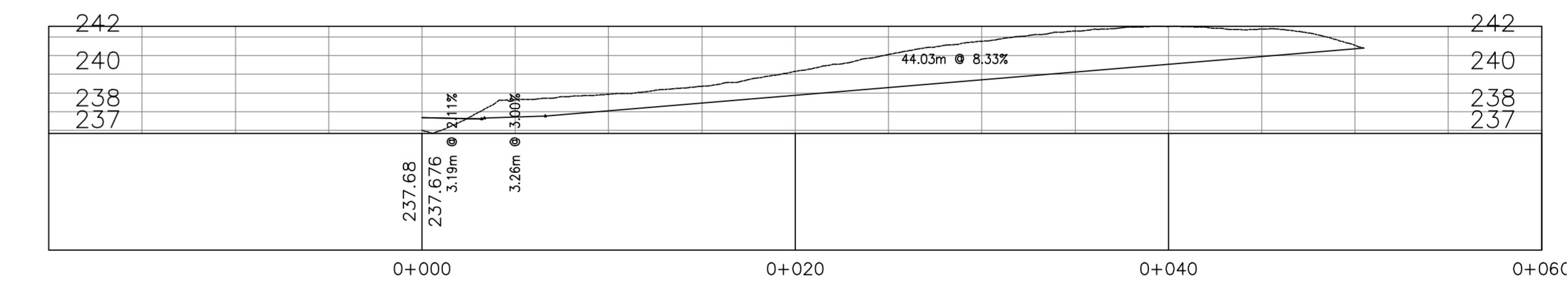
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DWY10
Centerline PROFILE

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NO.	DATE	NAME	REVISIONS
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2	22/02/03	CA	ISSUE FOR CLIENT REVIEW
1	21/12/20	CA	ISSUE FOR CLIENT REVIEW

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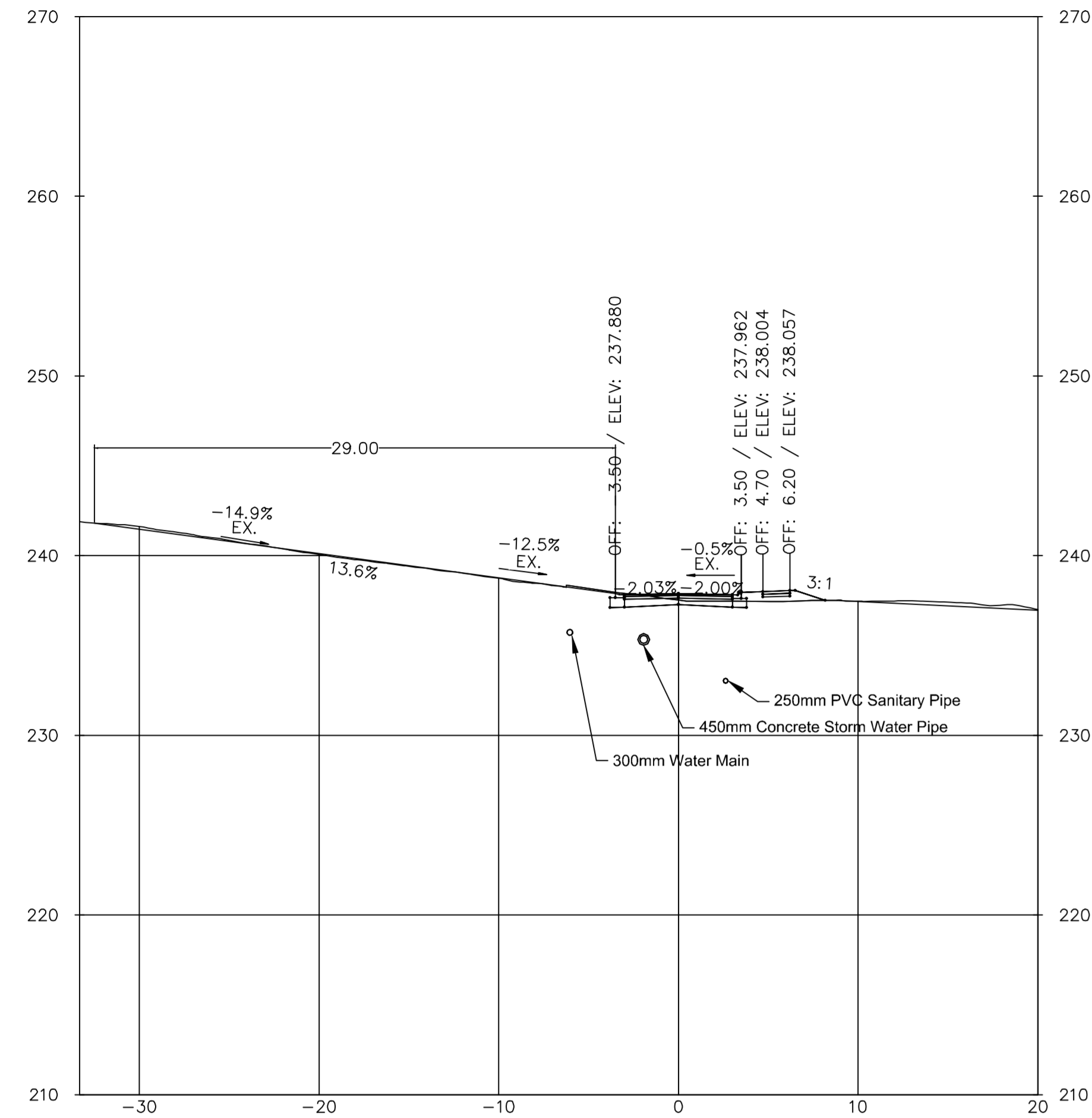
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CONCEPTUAL DRIVEWAYS CROSS-SECTIONS

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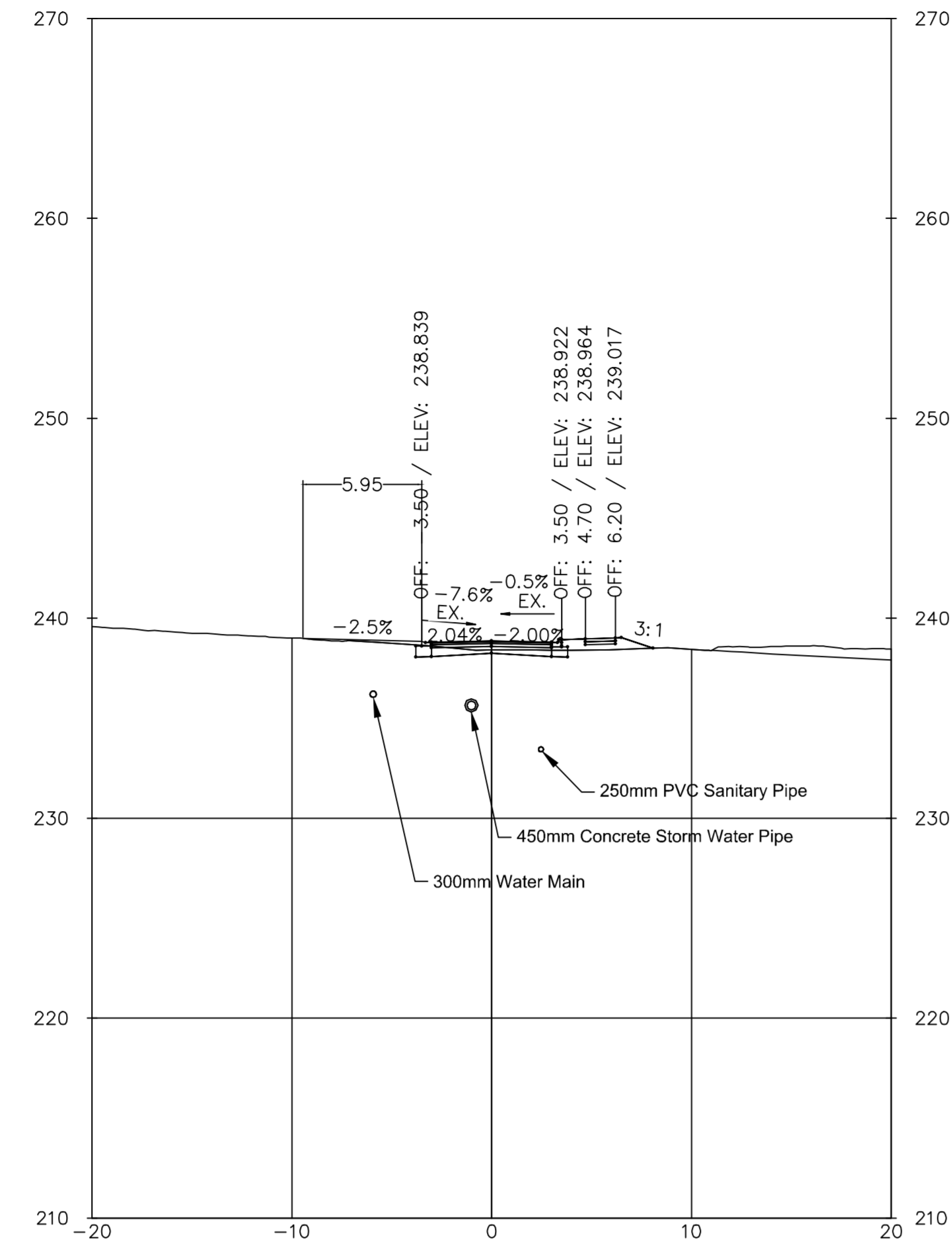
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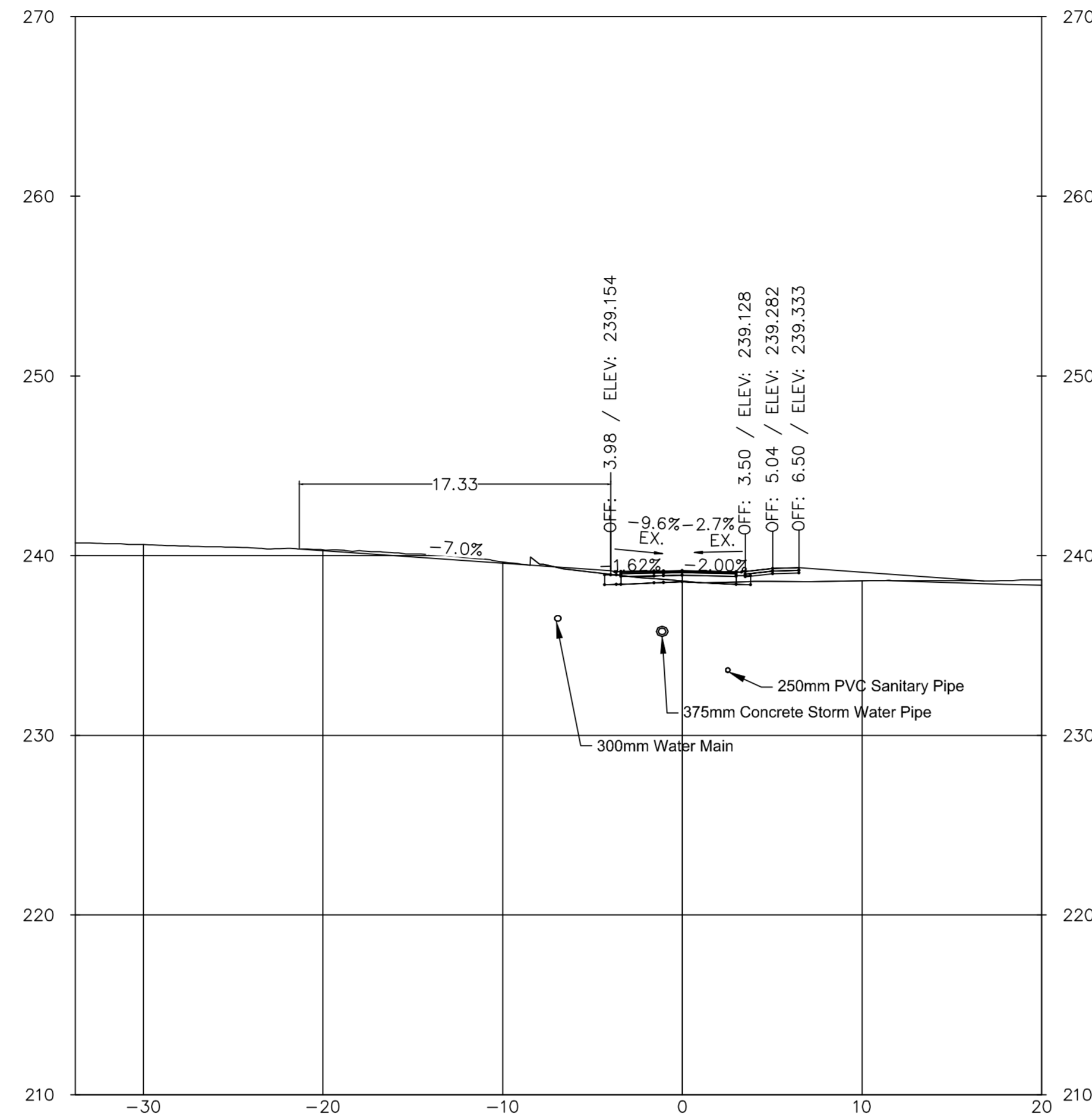
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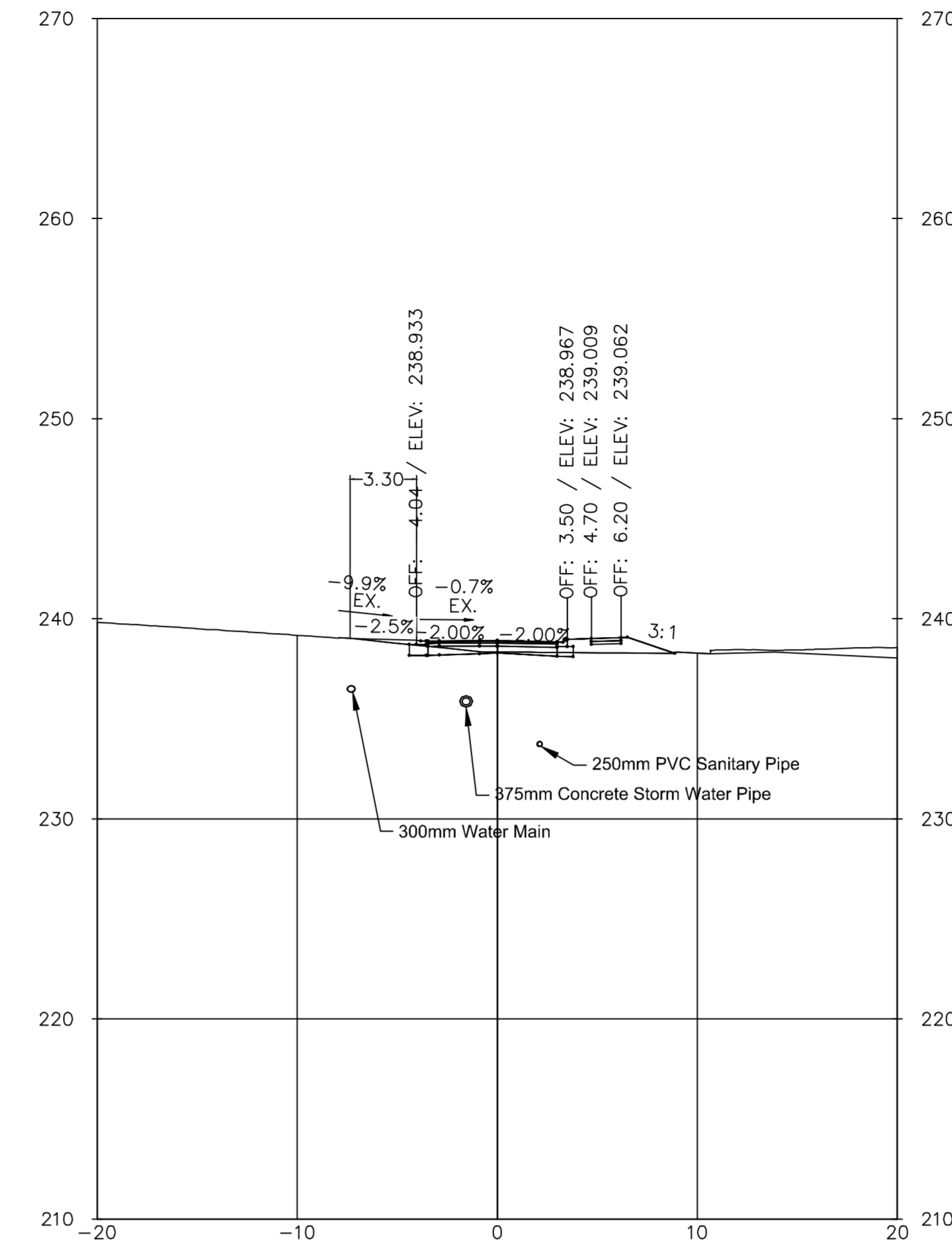
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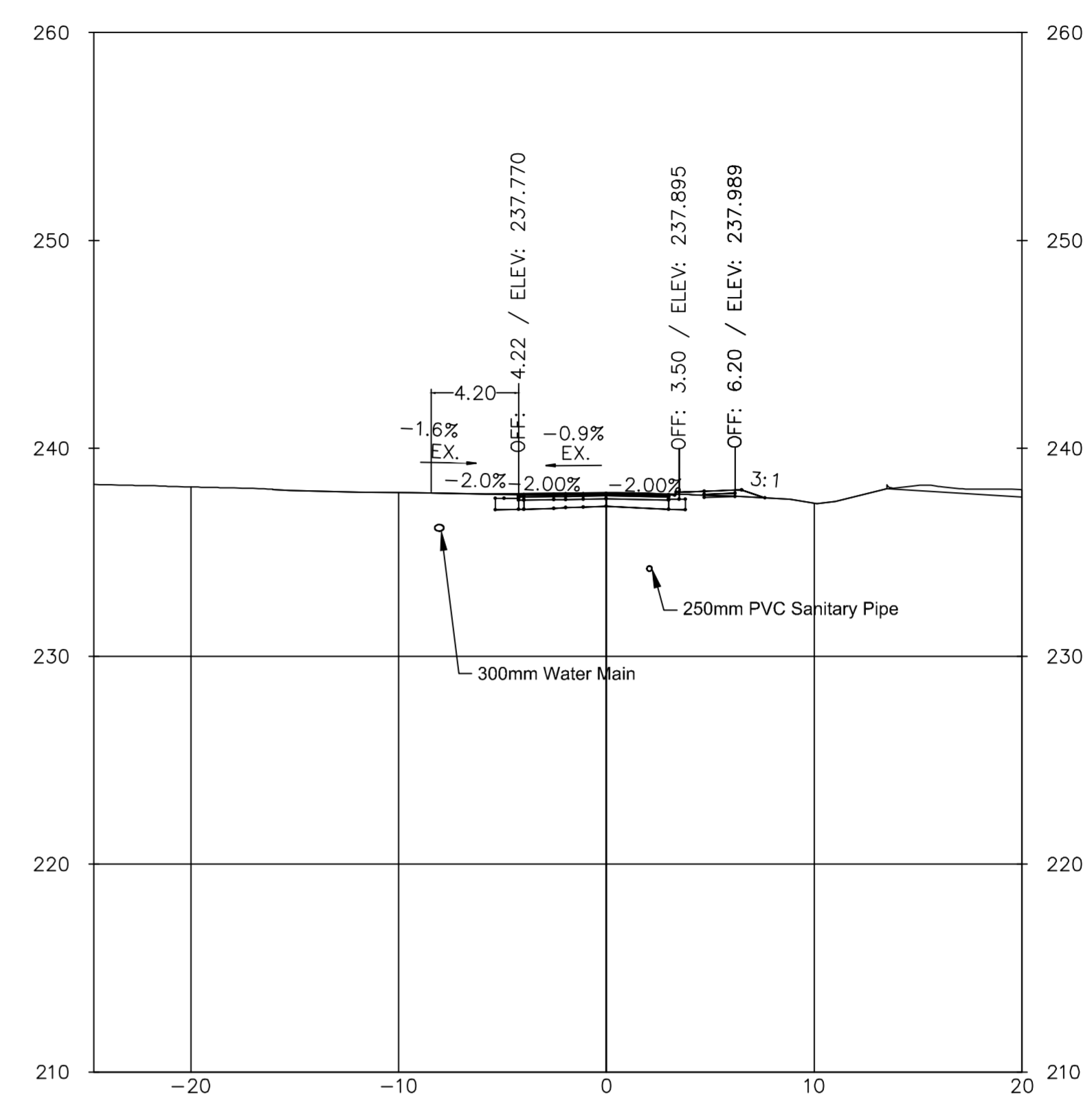
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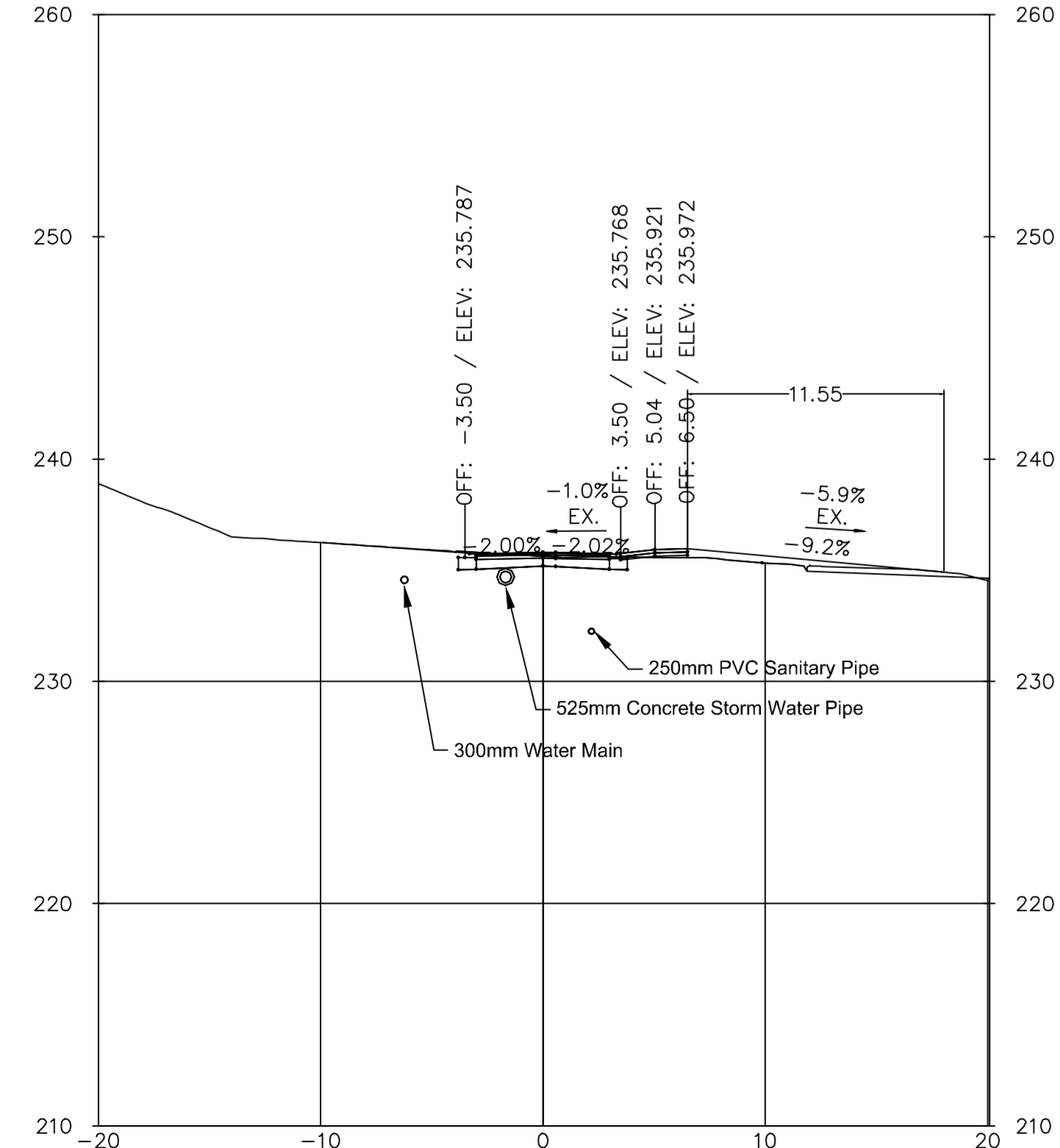
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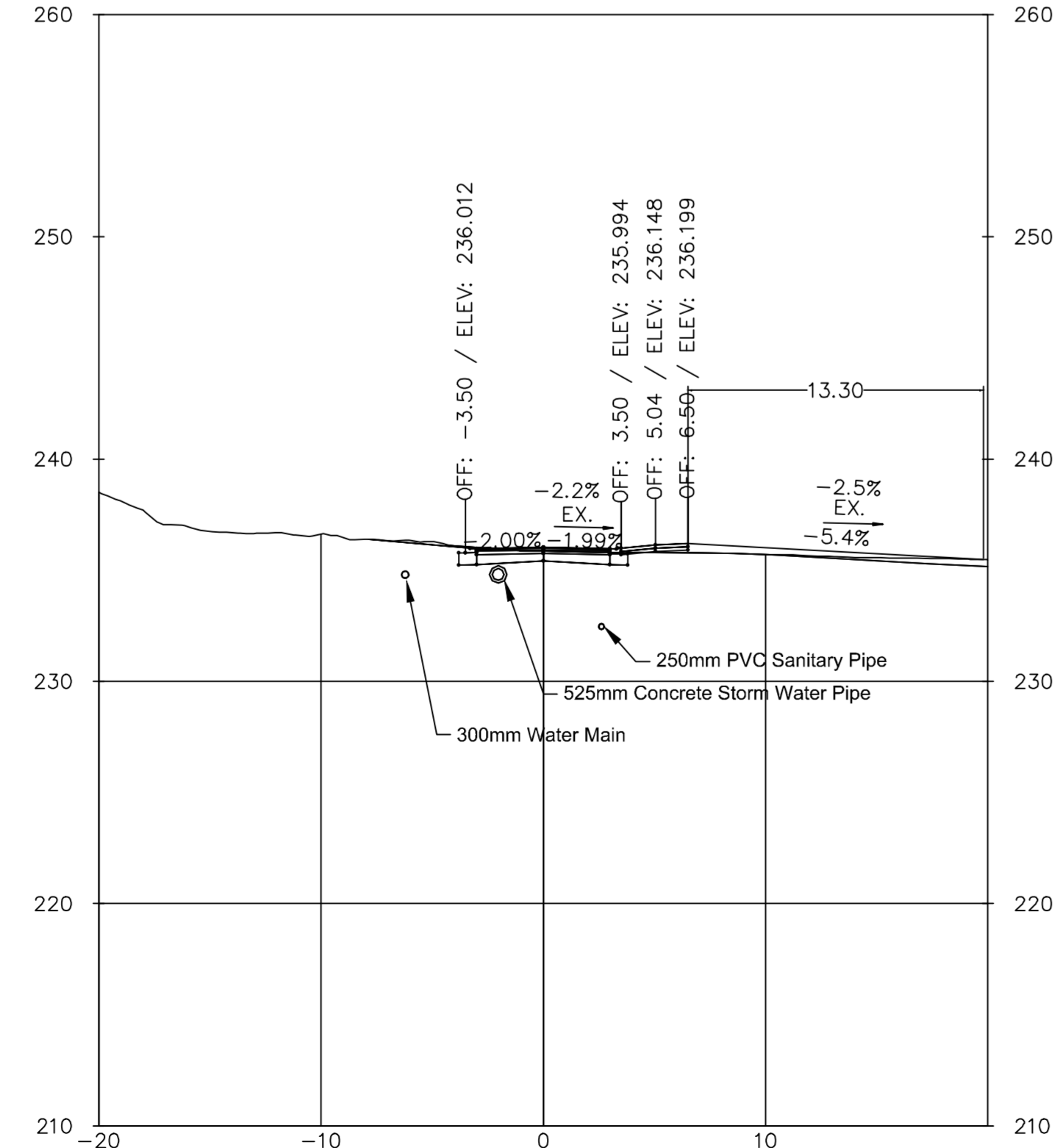
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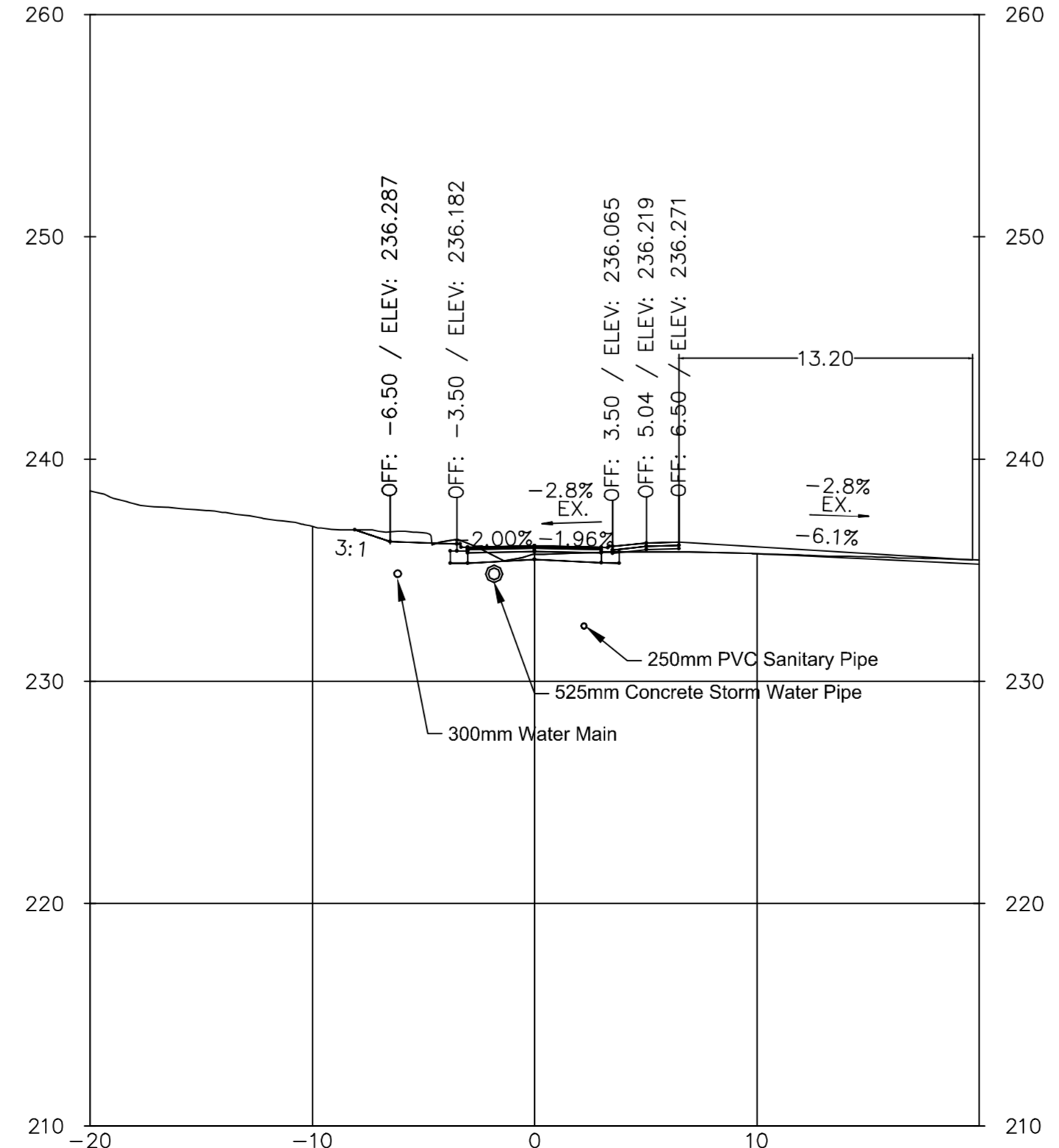
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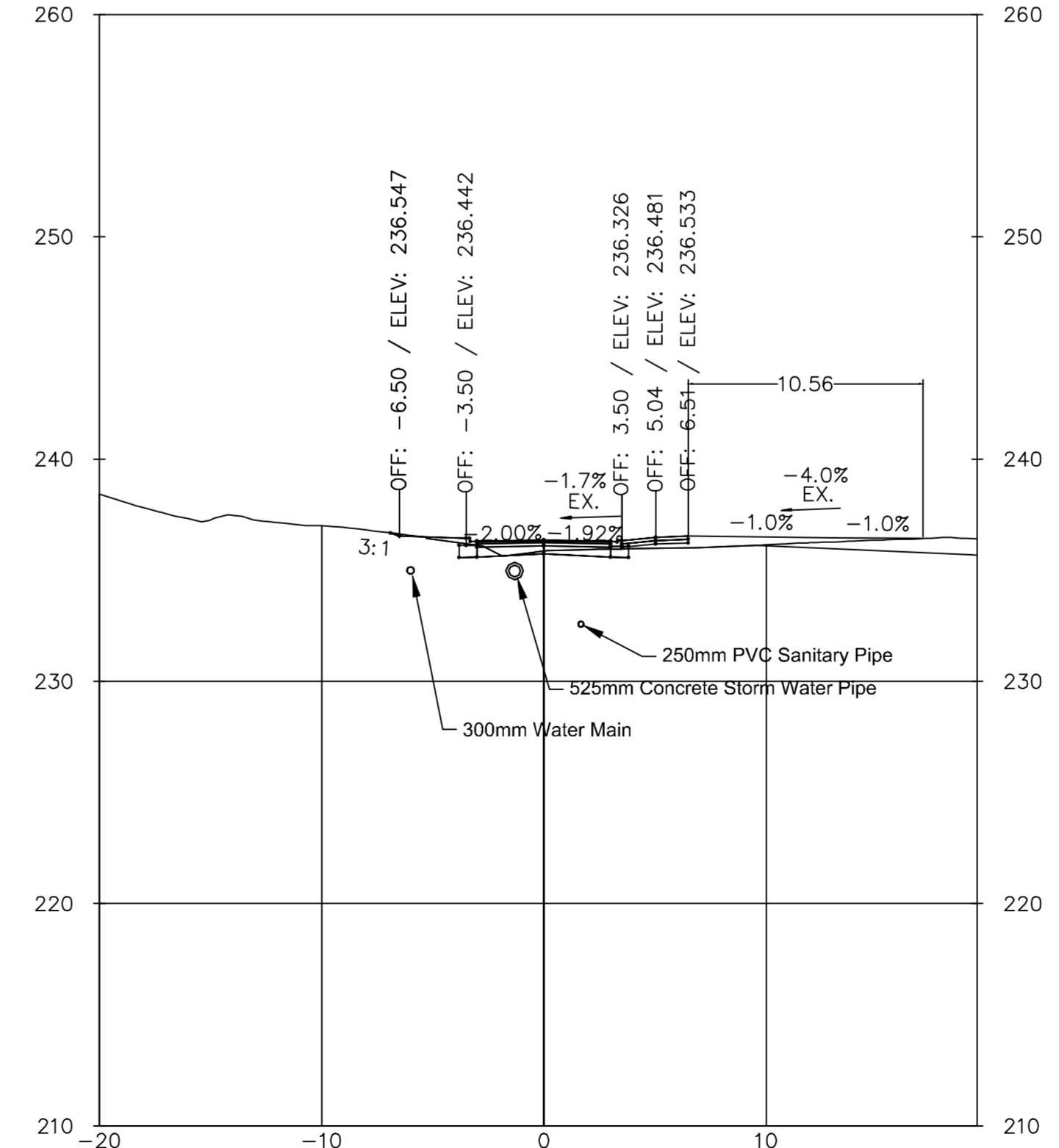
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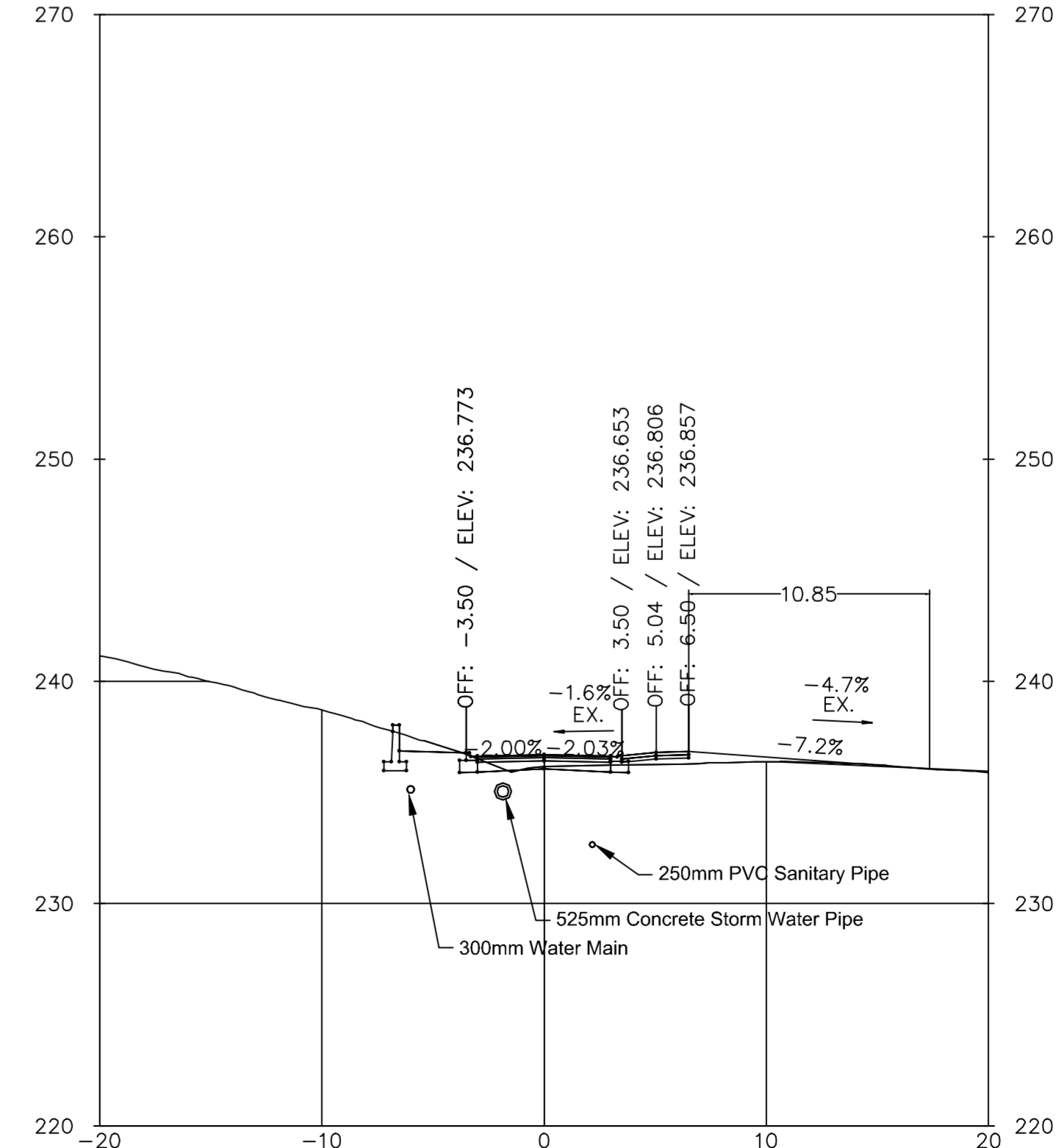
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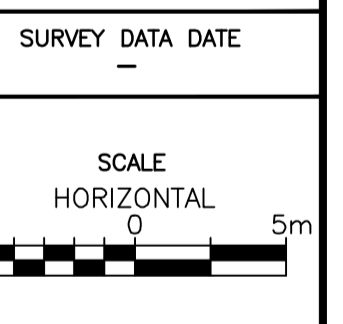
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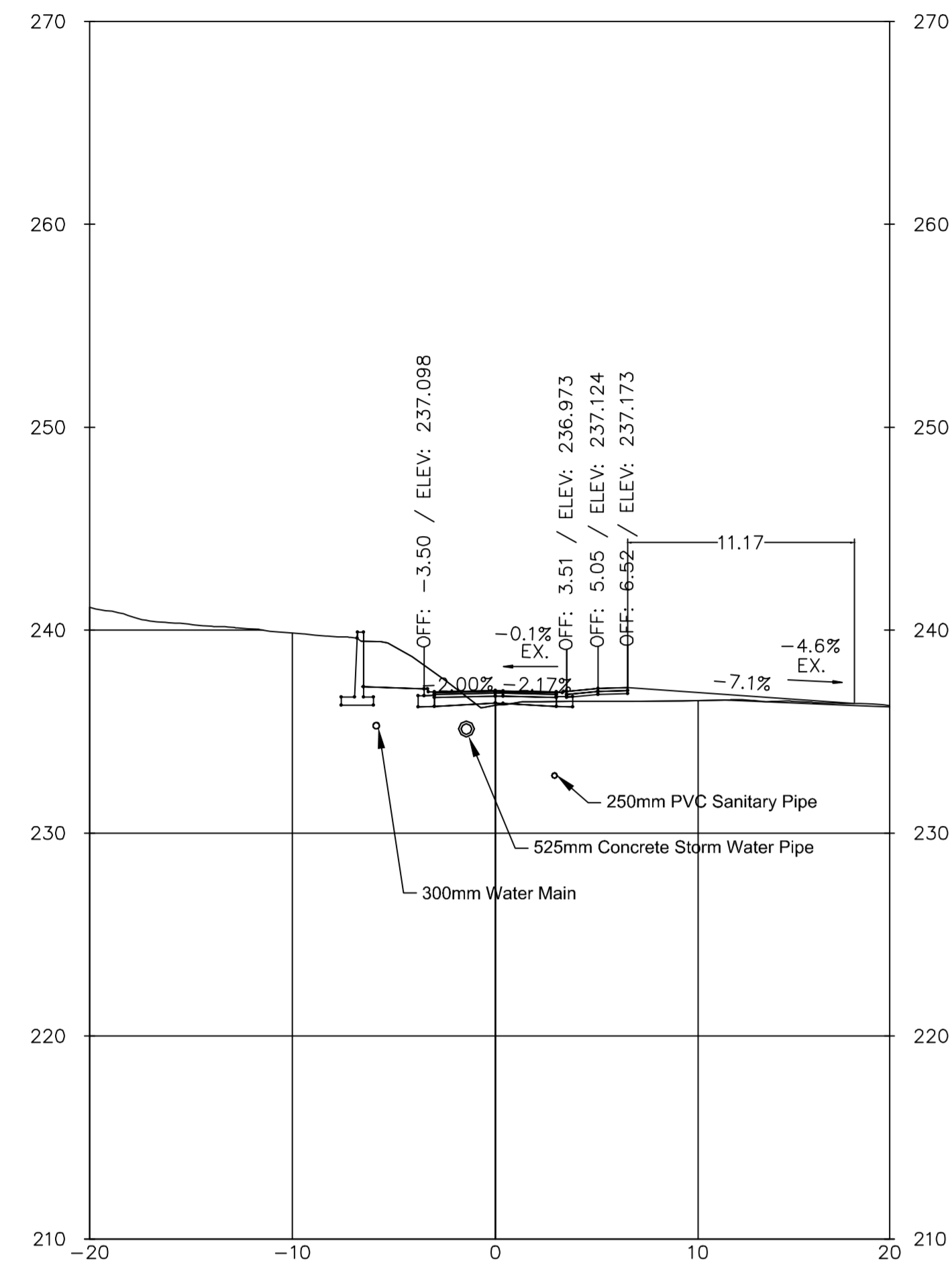


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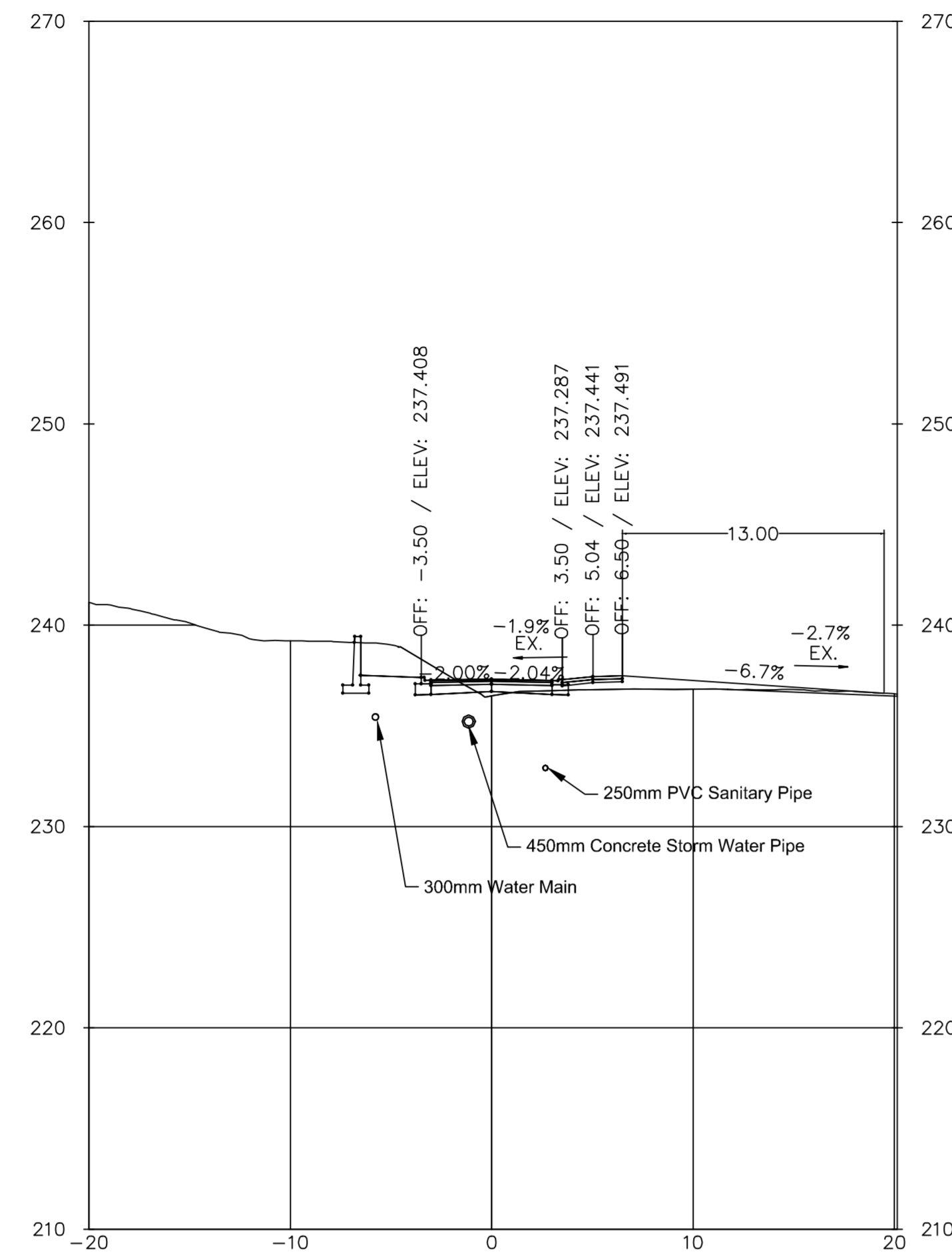
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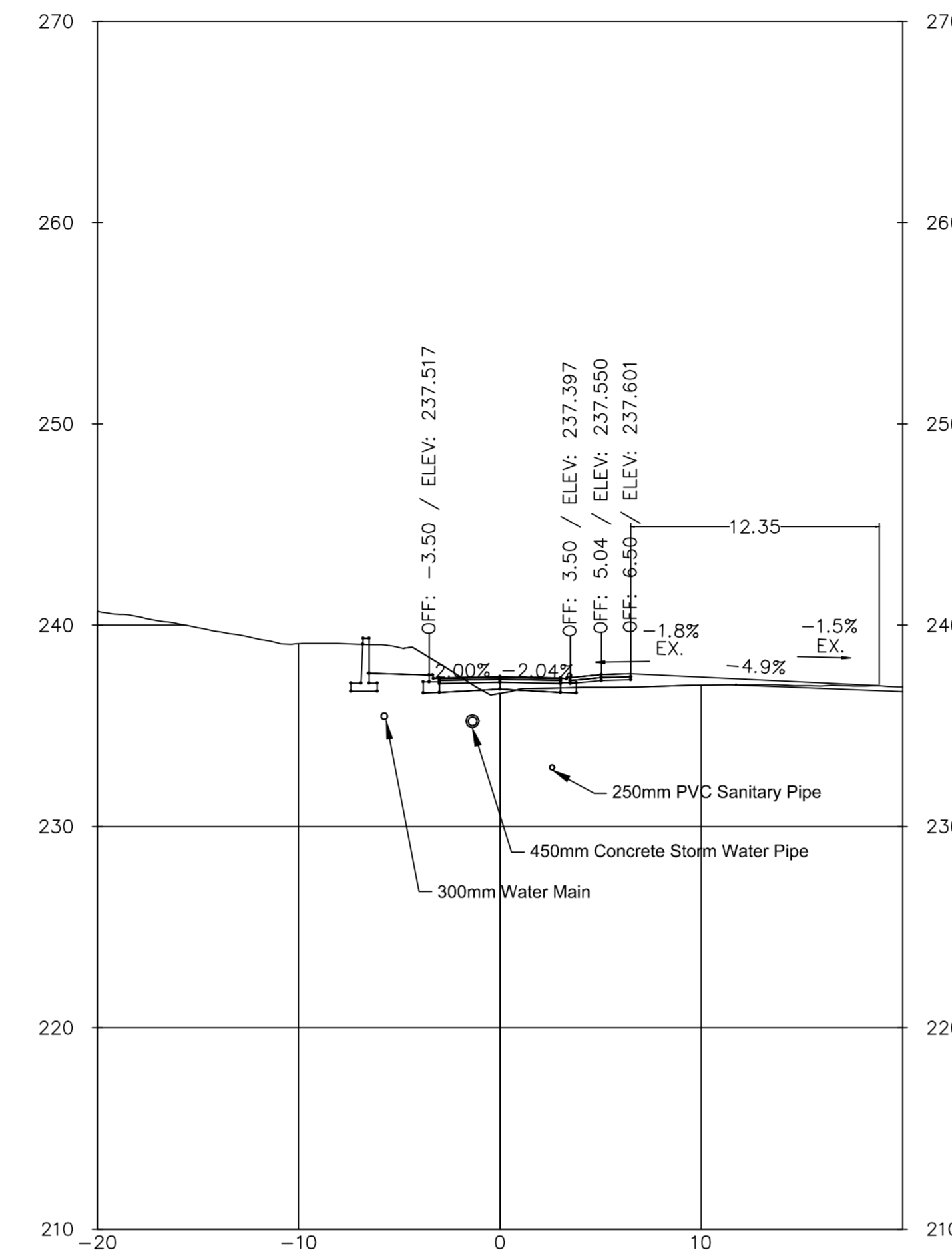
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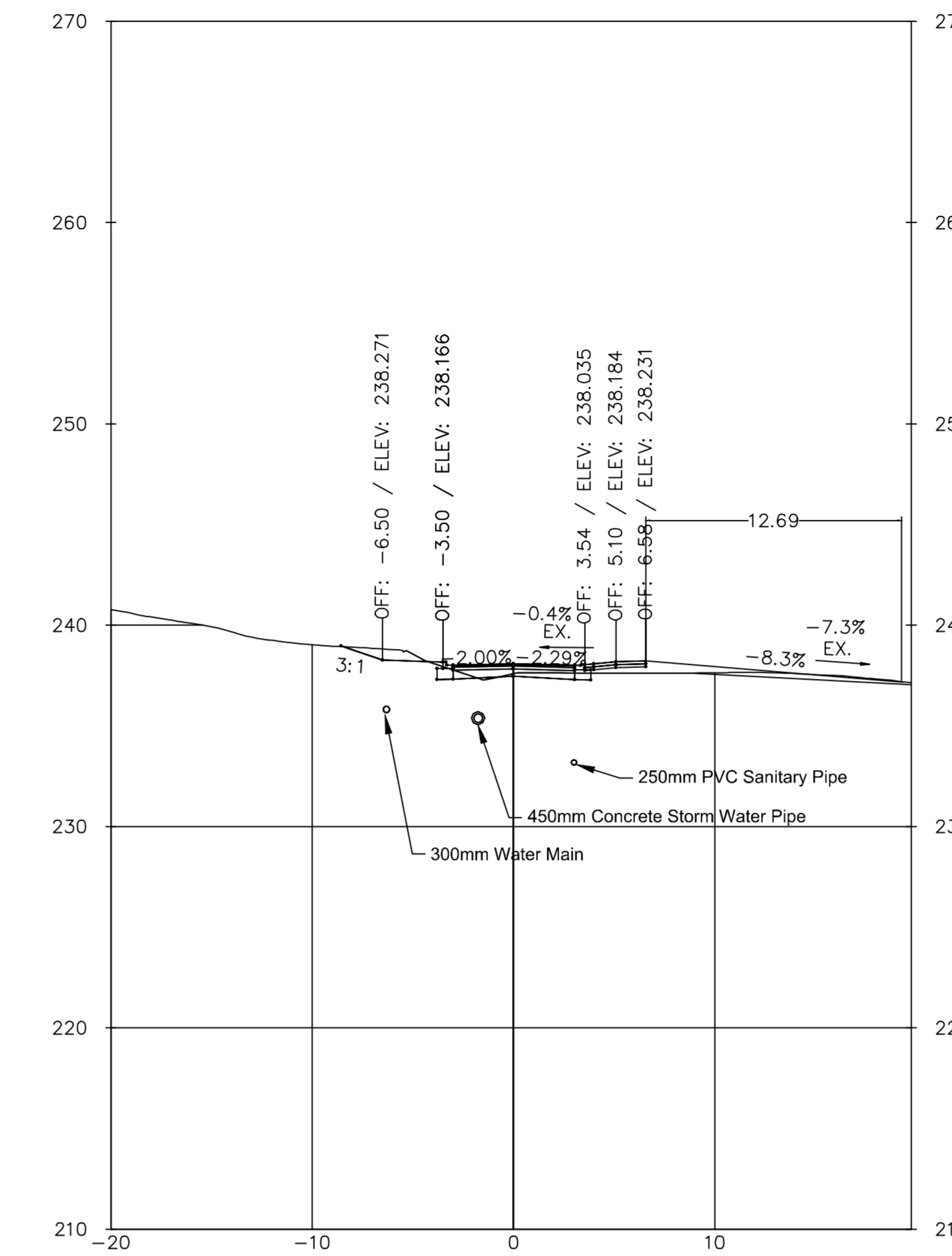
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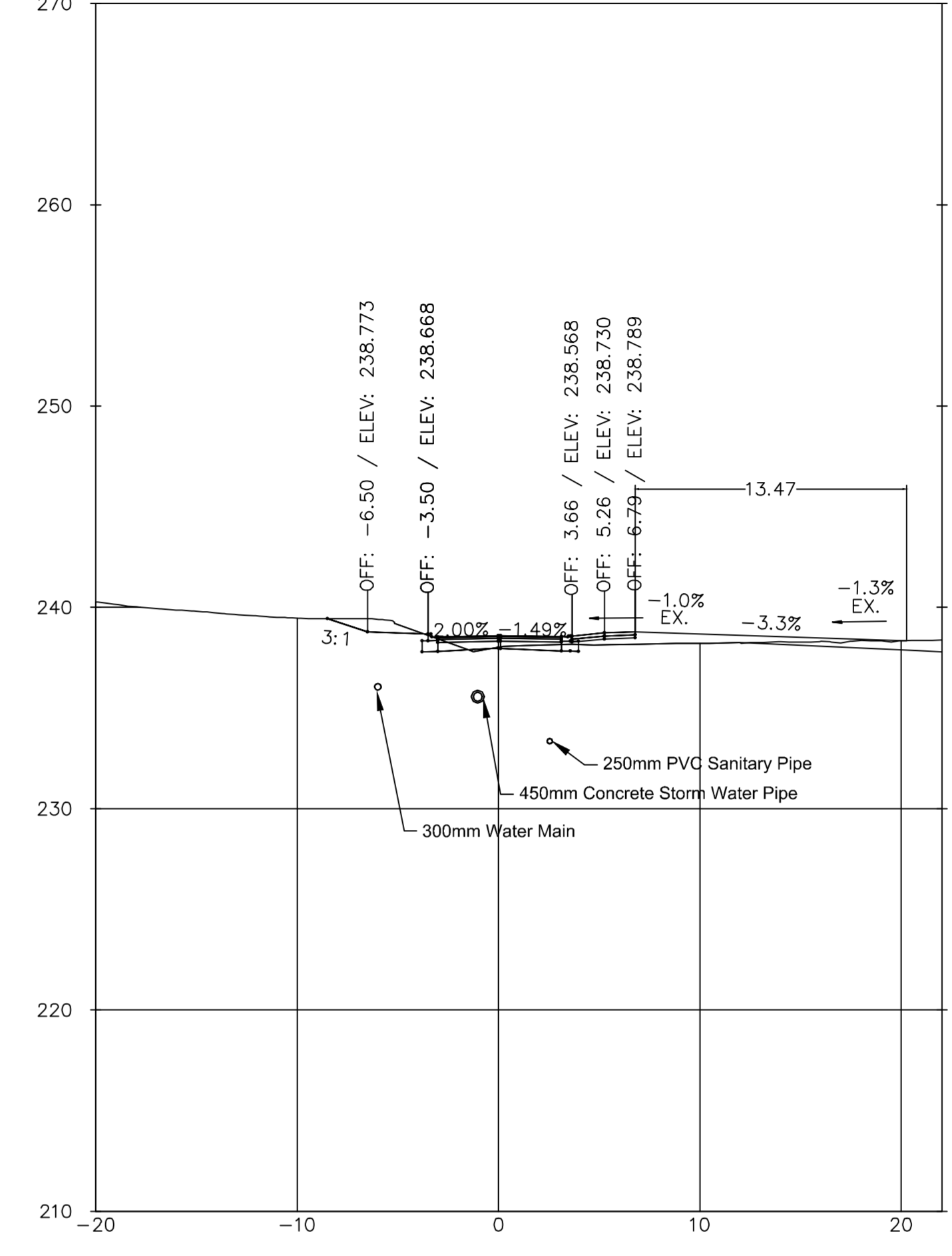
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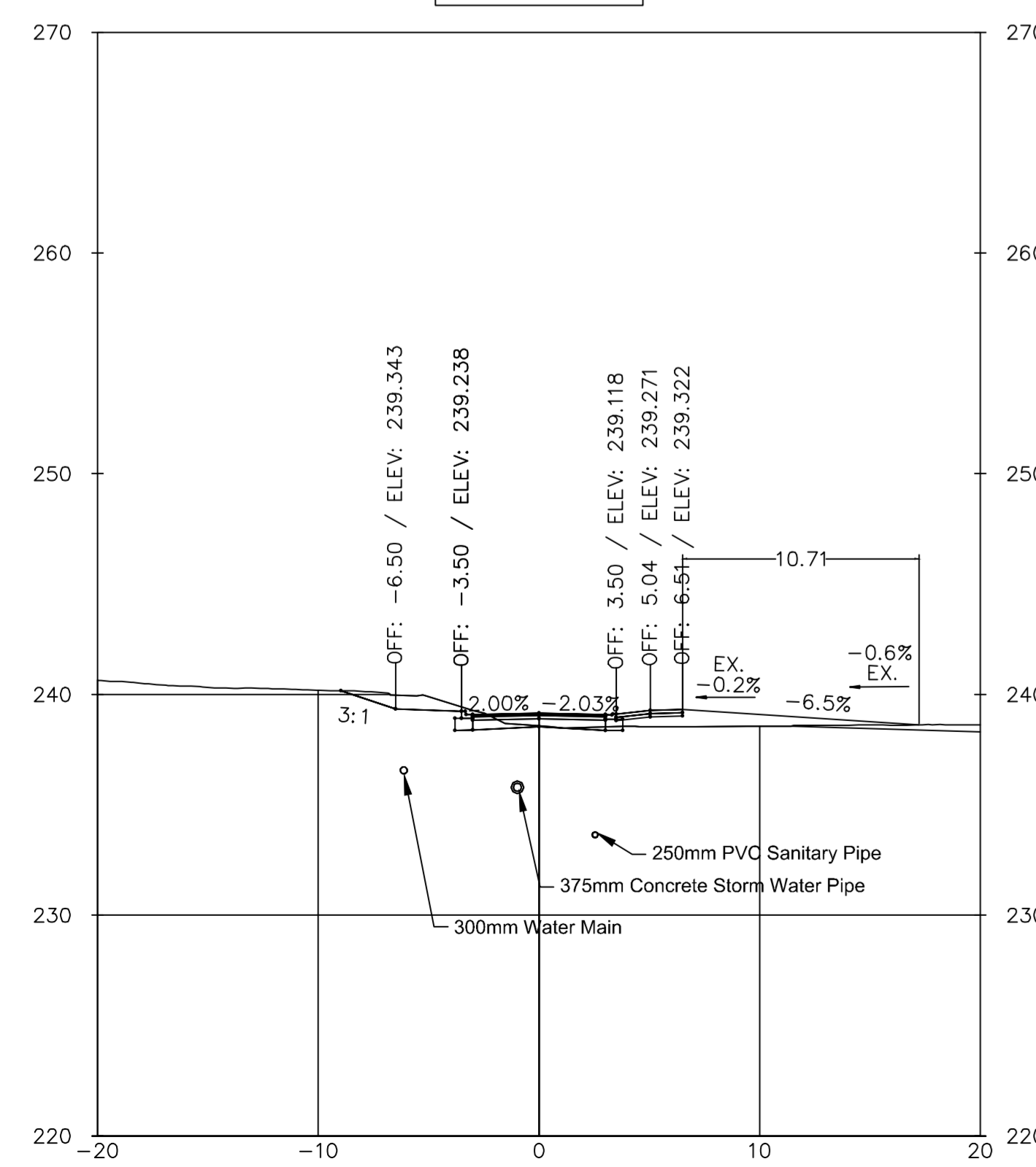
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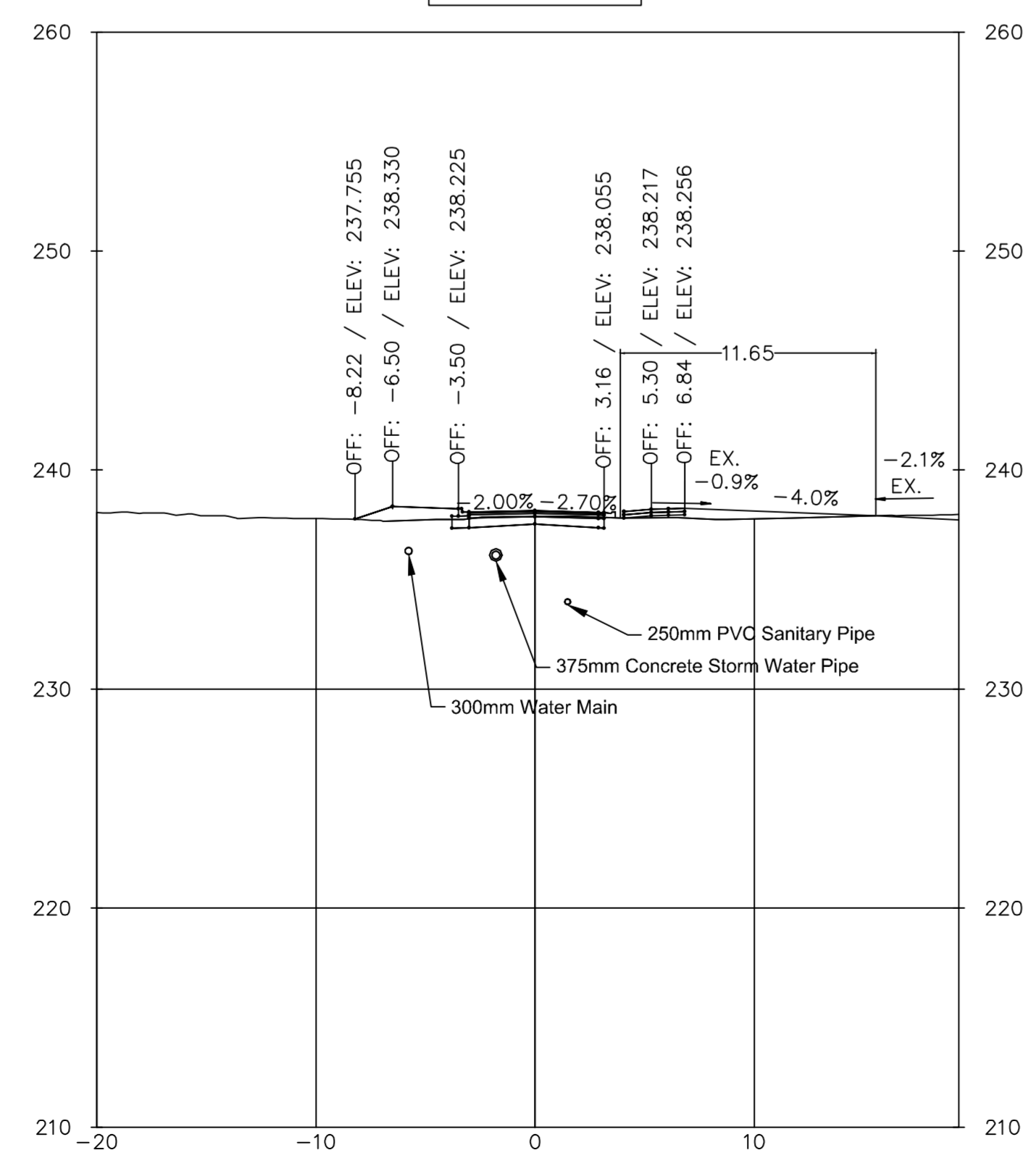
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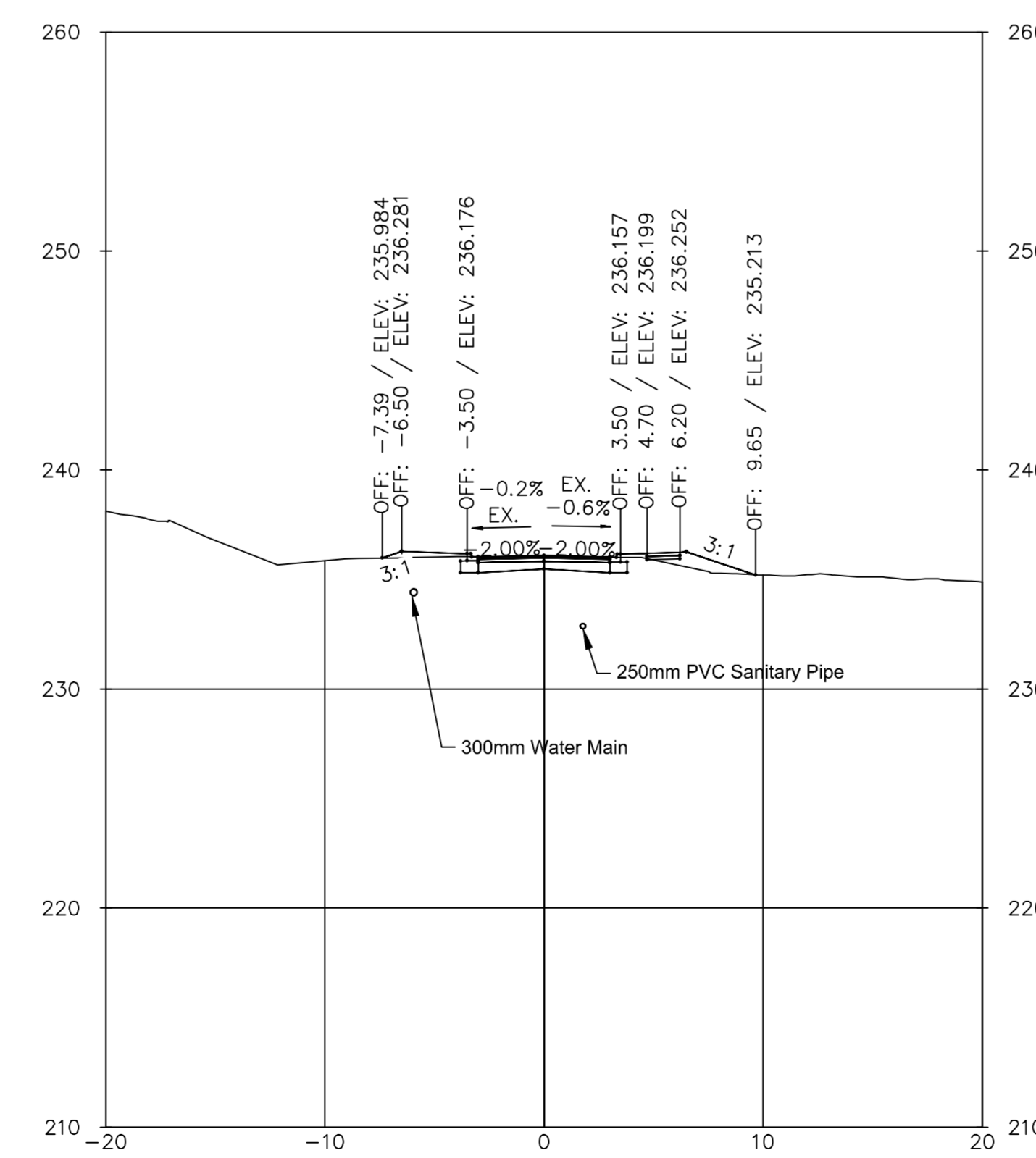
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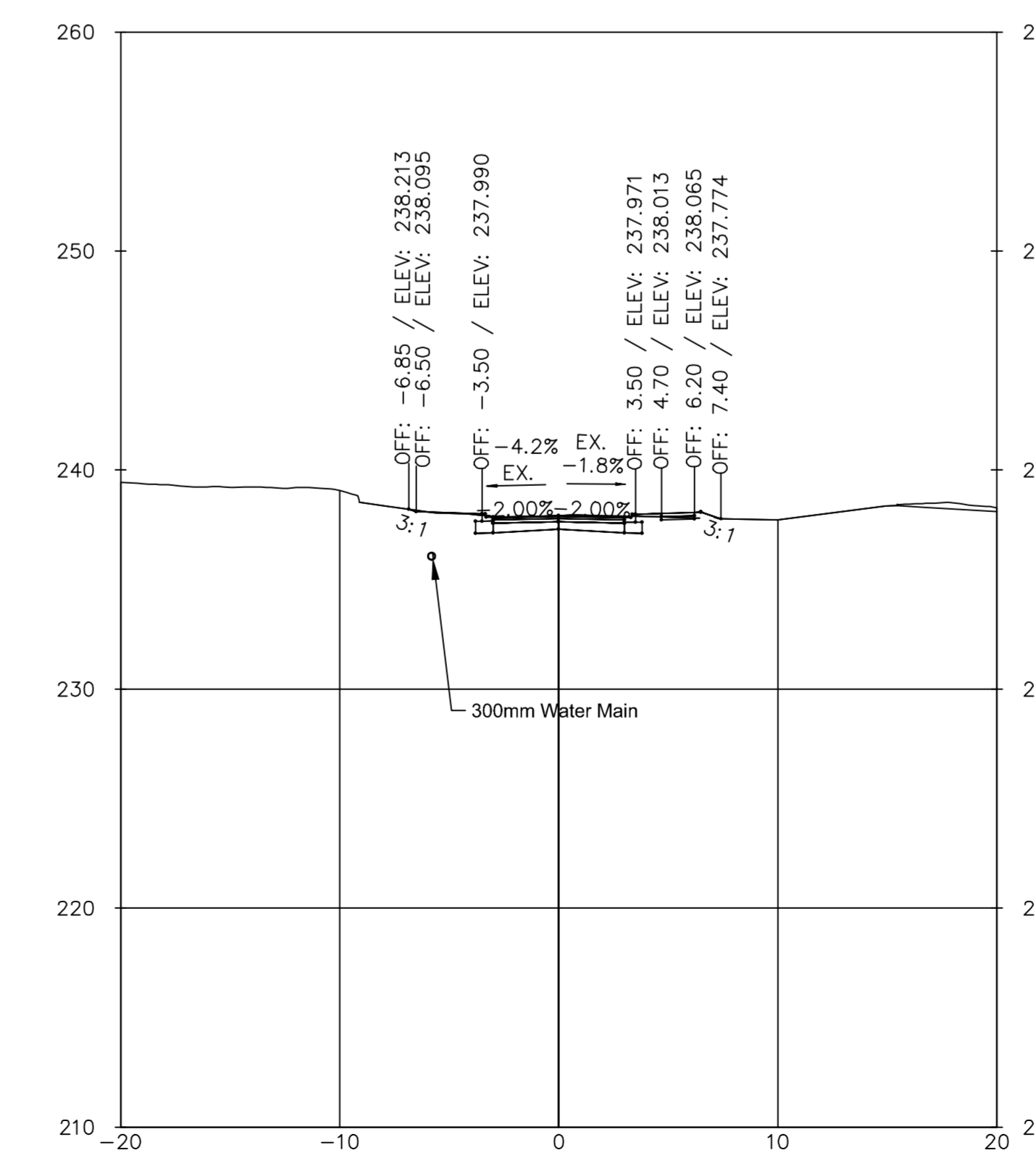
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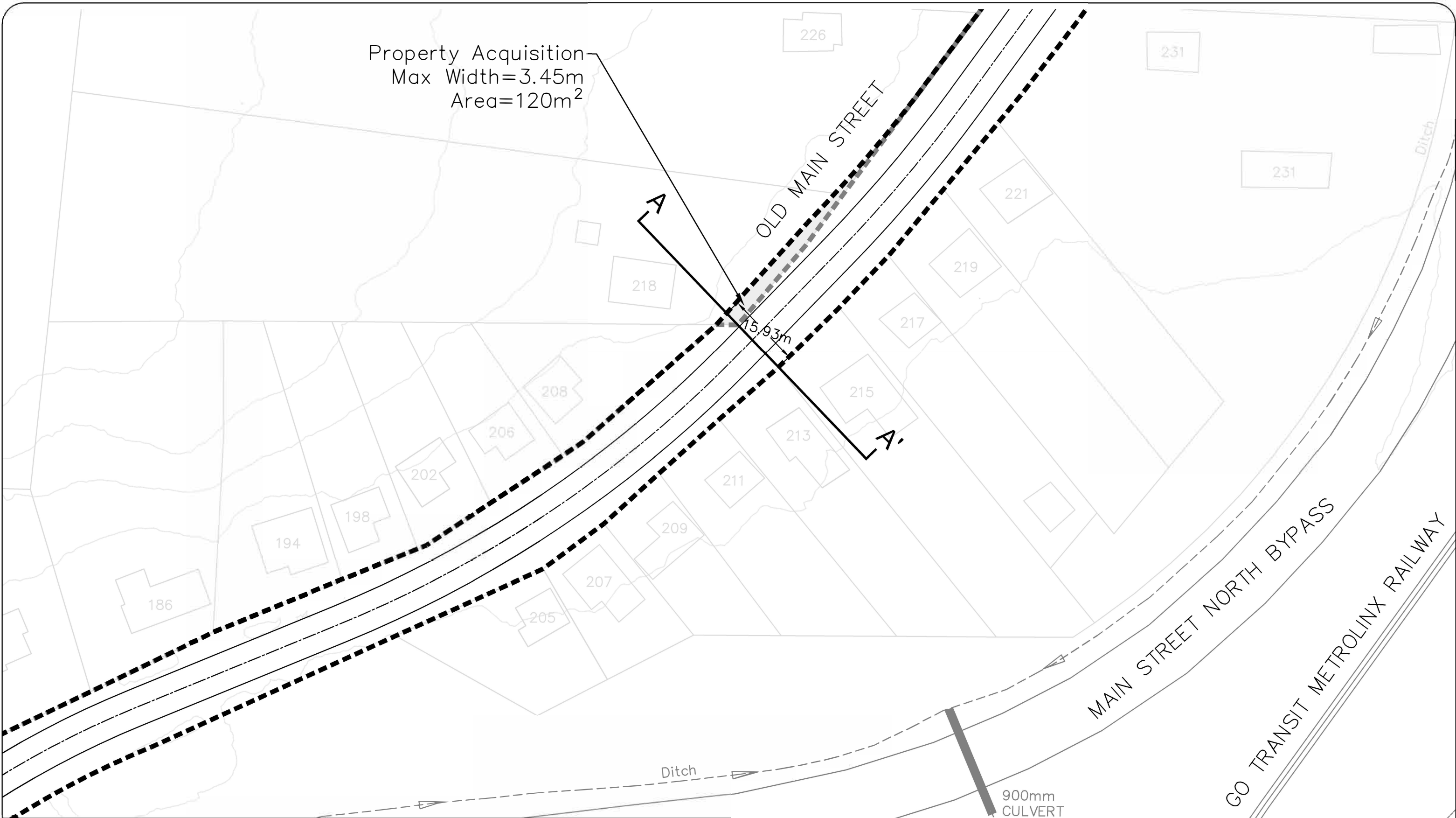
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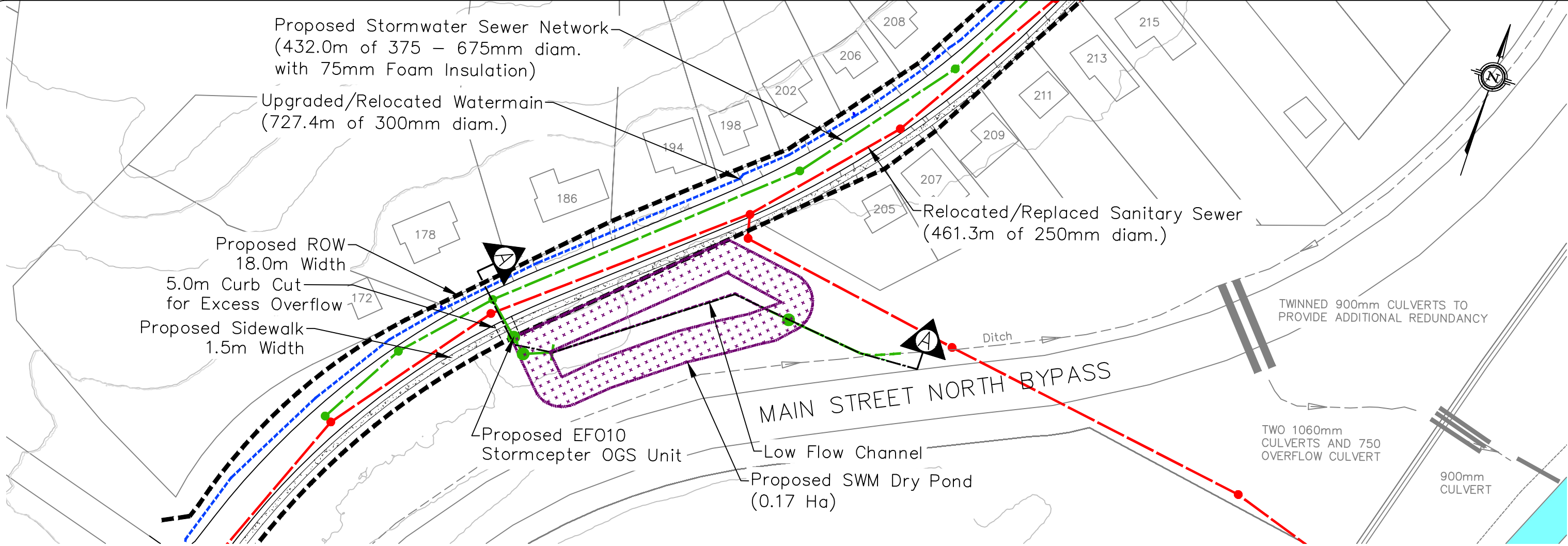
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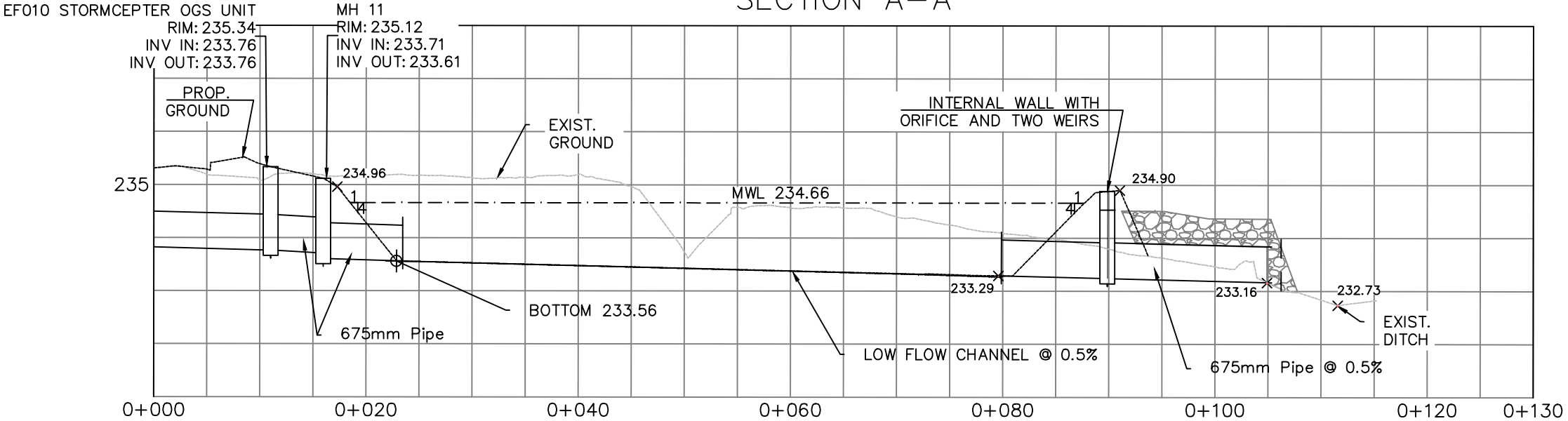
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LEGEND					
	PROPERTY BOUNDARY		PROPOSED ROW		PROPERTY ACQUISITION
	EXISTING ROW		PROPOSED ROAD		

PROPERTY ACQUISITION			
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT			
OLD MAIN STREET			
TOWN OF NEWMARKET			
DATE:	JULY 2022	PROJECT No.:	2020-0276
SCALE:	1:750	FIGURE No.:	D.1



SECTION A-A



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- PROPERTY BOUNDARY
- EXISTING ROAD
- EXISTING CULVERT
- BY-PASS DITCH
- PROPOSED ROW
- PROPOSED ROAD
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED SWM POND

POND CROSS-SECTION			
MASTER PLAN CLASS ENVIRONMENTAL ASSESSMENT OLD MAIN STREET TOWN OF NEWMARKET			
DATE:	MARCH 2022	PROJECT No.:	2020-0276
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Appendix C

Summary of Relevant Design Standards and Criteria

APPENDIX C

Summary of Relevant Design Standards and Criteria

Appendix C contains information on relevant design guidelines and technical criteria that were used to assess the performance of the existing system and to develop and evaluate alternative solutions. The following sections provide a description of the criteria for stormwater management, sanitary systems, water systems and for transportation.

C.1 Stormwater Management Design Criteria

Stormwater management planning within the Study Area will conform to the Town of Newmarket Engineering Design Standards and Criteria (Town's Standards) and LSRCA Technical Guidelines for Stormwater Management Submissions (LSRCA Guidelines) as well as other relevant guidelines from York Region, Ministry of the Environment, Conservation and Parks (MECP) and Ministry of Transportation of Ontario (MTO).

C.1.1 Minor System

As per the Town's Standards (*Table C-1 Levels of Service in Section C1.04, page C-4*) the storm sewer system or minor system should convey runoff up to the 5-year design storm. A Hydraulic Grade Line (HGL) analysis should confirm that storm sewers are maintained in an un-surcharged state under the 5-year design storm (*Section C3.01 General Stormwater Conveyance, page C-10*).

As per the Town's Standards (*Section C3.01 General Stormwater Conveyance, page C-10*), the storm drainage system should also provide continuous overland drainage of roads during the 100-year storm without causing unreasonable operating conditions. The maximum HGL in the storm sewer system is required to be no closer than 0.5m below basement elevations during the 100-year design storm.

C.1.2 Major System

As per the Town's Standards (*Section C3.01 General Stormwater Conveyance, page C-10*), the major system should convey runoff from storm events greater than the 5-year storm up to the 100-year storm event. Runoff up to the 100-year design storm event should be conveyed within the boundaries of the right-of-way.

The maximum water surface depth within the right-of-way is calculated as follows:

$$\begin{aligned} \text{Max. water depth in R.O.W.} &= \text{Curb Height} + \text{Road Margin} \times \text{Grade} \\ &= 150\text{mm} + 5.0\text{m} \times 2\% \\ &= 150\text{mm} + 100\text{mm} \\ &= 250\text{mm} \end{aligned}$$

The calculation assumes an 18.0m wide right-of-way and 8.0m wide road, leaving 5.0m of road margin at 2% grade on both sides.

C.1.3 Water Quantity

As per Town Standards' (*Section C2.00 Stormwater Management, page C-6*) and LSRCA Guidelines (*Section 2.2.1 - Peak Flow Control, page 7*), post development peak flow rates should not exceed the corresponding predevelopment peak flow rates for the 2-year to 100-year design storm events.

LSRCA Guidelines (*Section 2.2.2 – Volume Control, pages 7-10*) require that, redeveloped areas should include stormwater management measures to capture and retain / treat runoff from a 25mm rainfall event from the reconstructed impervious surfaces on-site.

C.1.4 Water Quality

LSRCA Guidelines (*Section 2.3.1 – Suspended Solids, page 11*) require suspended solids removal treatment as per MECP Enhanced Protection Level (Level 1) with a long-term average removal rate of 80% of suspended solids (*MOE SWM Design Manual, 2003, Table 3.2*). With regards to phosphorus, the Lake Simcoe Phosphorus Offsetting Policy (2017) requires new developments to provide 100% phosphorus control.

C.1.5 Water Balance/ Groundwater Discharge

LSRCA Guidelines (*Section 2.5 – Water Balance/ Groundwater Recharge*) require redevelopment to maintain predevelopment infiltration rates or zero net reduction in predevelopment infiltration. Post development infiltration volumes and recharge quality must also match predevelopment levels on an annual basis.

C.2 Water Distribution System Design Criteria

Water distribution system planning within the Study Area will conform to the Town of Newmarket Standards and MECP's Water Design Guidelines (2008).

As per the Town's Standards (*Section D1.05, page D-2*), water demands are to be calculated based on a per capita water demand of 300 L/cap/d and peaking factors of 2 for maximum day and 3 for peak hour or as per MECP requirements.

As per the Town's Standards (*Section D1.03 System Pressure, page D-1*), the system pressure are to be above 350kPa under normal conditions of peak hour demand and above 140kPa for fire flow and maximum day conditions. If the pressure is greater than 550kPa, a pressure reducing valve (PRV) is required to be installed on each service downstream of the water meter within the area.

C.3 Sanitary Sewer System Design Criteria

Sanitary sewer system planning within the Study Area will conform to the Town of Newmarket's Standards and MECP's Sewage Design Guidelines (2009).

As per the Town's Standards (*Section E1.03, page E-1*), sanitary sewer peak flows are to be calculated based on average per capita flow of 360 L/cap/d, the Harmon peaking factor and an infiltration allowance of 0.3 L/s/ha.

As per Town Standards (*Section E2.02 and E2.03, page E-4*), sanitary sewers are to have a minimum diameter of 250mm, are to have a minimum slope of 0.5% (250mm to 450mm) and 0.3% (525mm and greater), have a minimum velocity of 0.6 m/s and a maximum velocity of 3.0m/s, and be sized to provide a full flow capacity that exceeds the peak flow calculated using the Town's Standards.

In addition to the above, system performance criteria included in the Town's 2017 Water and Wastewater Master Plan were also considered. These criteria include:

- Under peak dry weather flow conditions, the depth of flow in the sewer should be no greater than 85% of the sewer diameter.
- For a 5-year design storm event, surcharge conditions should not occur.

- For a 25-year design storm event, surcharge conditions are considered acceptable only for trunk sewers located in valleylands.
- For a 100-year design storm event, surcharge conditions are acceptable as long as the maximum hydraulic grade line is more than 1.8m below the ground surface.

C.4 Transportation and Lot Grading Design Criteria

Transportation system planning within the Study Area will conform to the Town's Standards.

As per Town Standards (Section B3.0, Page B-3), the Town's geometric design guidelines for local roads are to be followed for Main Street North. Section B4.05 (Page B-4), daylighting requirements for local to local roads will need to be met at intersection of Bexhill Crescent and Main Street North and Old Main Street and Main Street North. Section B4.08 (Page B-5) provides requirements for the placement of utilities within a local road allowance. Other standards include traffic controls (Section B5.0, Page B-7), pavement markings (Section B5.04, Page B-8), pavement design (Section B6.0, Page B-10), sidewalk locations and specifications (Section B9.0, Section B-14) and driveway grades on private property (Section B10.01, Page B-15).

Town Standards also provide requirements for lot grading. Criteria applicable to the Study Area include a minimum driveway slope of 2% and a maximum driveway slope of 8% (Section F2.03, page F-4), drainage swales are to have a minimum depth of 150mm and a maximum depth of 450mm, a minimum grade of 2% and side slopes of 3:1 (Section F2.04, page F-4). Town Standards also provide requirements for retaining walls and note that lot grading should be completed to minimize the need for retaining walls (Section F3.0, page F-6).

Appendix D

Stage 1 Archaeological Assessment

Stage 1 Archaeological Assessment Old Main Street (Lots 97-98, Concession 1 East of Yonge Street, Geographical Township of East Gwillimbury, County of York) Town of Newmarket, Regional Municipality of York

Original Report

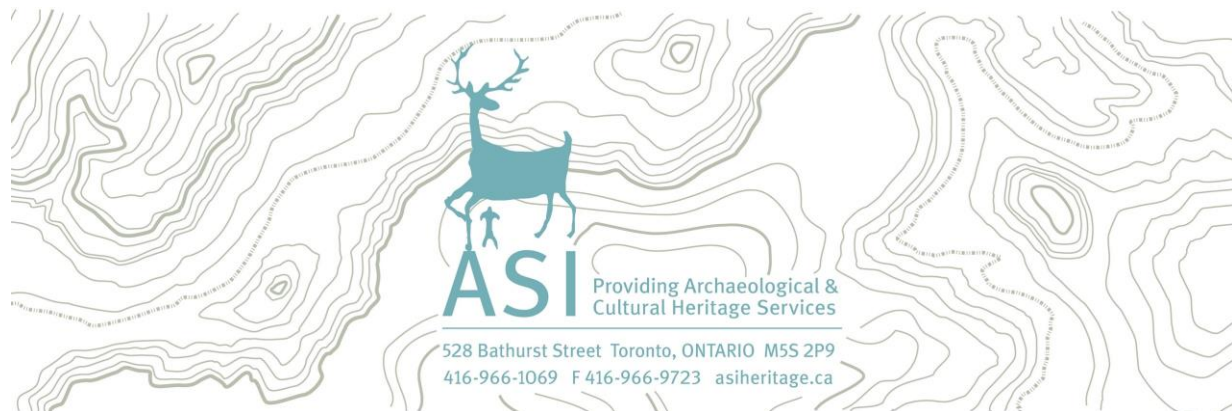
Prepared for:

IBI Group

8133 Warden Avenue, Unit 300
Markham, Ontario, L6G 1B3

Archaeological Licence: P380 (Cooper)
PIF P380-0092-2022
Archaeological Services Inc. File: 22EA-086

2 August 2022



Executive Summary

Archaeological Services Inc. contracted by IBI Group to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Old Main Street Master Plan in Newmarket. This project involves improving water, sanitary, storm drainage, and transportation services for existing and future land use. Stage 1 scope involves Old Main Street North between Bexhill Road to the south and Deviation Road to the north, bounded by St. John Cemetery to the west, and the Main Street North By-Pass to the east.

Background research indicated that St. John's Cemetery is immediately adjacent to the Study Area and Newmarket Cemetery is 20 metres from the Study Area. The Property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 survey.

The following recommendations are made:

- 1) Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, where appropriate. Stage 2 is required prior to any proposed construction activities on these lands;
- 2) St. John's Cemetery is immediately adjacent to the Study Area and must be avoided by any proposed construction impacts. There is low potential for burials outside for the documented legal cemetery property limits. Stage 3 cemetery investigation is not recommended within the Study Area.
- 3) Newmarket Cemetery is 20 metres south of the Study Area and must be avoided by all proposed construction impacts;
- 4) The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, or slopes in excess of 20 degrees. These lands do not require further archaeological assessment; and,



- 5) Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.



Project Personnel

- **Senior Project Manager:** Lisa Merritt, MSc. (P094) Partner, Director, Environmental Assessment Division
- **Division Coordinator:** Katrina Thach, BA Hons. (R1225), Associate Archaeologist, Division Coordinator, Environmental Assessment Division
- **Project Administrator:** Catherine Kitchen, BA, Archaeologist, Project Administrator, Environmental Assessment Division
- **Project Director:** Martin S. Cooper, MA (P380), Senior Archaeologist, Senior Manager Northern Ontario Projects
- **Project Manager:** Eliza Brandy, MA (R1109), Associate Archaeologist, Project Manager, Environmental Assessment Division
- **Field Director:** Eliza Brandy
- **Report Preparation:** Danielle Bella, BA Hons., Archaeologist, Technical Writer, Environmental Assessment Division
- **Graphics:** Jonas Fernandez, MSc (R281), Lead Archaeologist, Manager - Geomatics, Operations Division; Peter Bikoulis, PhD, Archaeologist, GIS Technician, Operation Division
- **Report Review:** Eliza Brandy; Lisa Merritt



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1.0 Project Context

Archaeological Services Inc. (ASI) was contracted by IBI Group to conduct a Stage 1 Archaeological Assessment (Background Research and Property Inspection) as part of the Old Main Street Master Plan in Newmarket. This project involves improving water, sanitary, storm drainage, and transportation services for existing and future land use.

Stage 1 scope involves Old Main Street North between Bexhill Road to the south and Deviation Road to the north, bounded by St. John Cemetery to the west, and the Main Street North By-Pass to the east (Figure 1).

All activities carried out during this assessment were completed in accordance with the *Ontario Heritage Act* (Ontario Heritage Act, R.S.O. c. O.18, 1990, as amended in 2019) and the 2011 *Standards and Guidelines for Consultant Archaeologists (S & G)*, administered by the Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI 2011).

1.1 Development Context

All work has been undertaken as required by the *Environmental Assessment Act, RSO* (Environmental Assessment Act, R.S.O., 1990 as amended 2020) and regulations made under the Act, and are therefore subject to all associated legislation. This project is being conducted in accordance with the Municipal Engineers' Association document *Municipal Class Environmental Assessment* (Municipal Class Environmental Assessment, 2000, as amended 2015).

The *Archaeological Management Plan for the Regional Municipality of York* was also consulted (Archaeological Services Inc., 2012a).

Authorization to carry out the activities necessary for the completion of the Stage 1 archaeological assessment and property inspection was granted by IBI Group on May 24, 2022.



1.1.1 Treaties

The Study Area is within the Johnson-Butler Purchases and in the traditional territory of the Michi Saagiig and Chippewa Nations, collectively known as the Williams Treaties First Nations, including the Mississaugas of Alderville First Nation, Curve Lake First Nation, Hiawatha First Nation, Scugog Island First Nation and the Chippewas of Beausoleil First Nation, Georgina Island First Nation and the Rama First Nation (Williams Treaties First Nations, 2017).

The purpose of the Johnson-Butler Purchases of 1787/1788 was to acquire from the Mississaugas the Carrying Place Trail and lands along the north shore of Lake Ontario from the Trent River to Etobicoke Creek.

As part of the Johnson-Butler Purchases, the British signed a treaty, sometimes referred to as the “Gunshot Treaty” with the Mississaugas in 1787 covering the north shore of Lake Ontario, beginning at the eastern boundary of the Toronto Purchase and continuing east to the Bay of Quinte, where it meets the Crawford Purchase. It was referred to as the “Gunshot Treaty” because it covered the land as far back from the lake as a person could hear a gunshot. Compensation for the land apparently included “approximately £2,000 and goods such as muskets, ammunition, tobacco, laced hats and enough red cloth for 12 coats” (Surtees, 1984, pp. 37–45). First discussions about acquiring this land are said to have come about while the land ceded in the Toronto Purchase of 1787 was being surveyed and paid for (Surtees 1984:37–45). During this meeting with the Mississaugas, Sir John Johnson and Colonel John Butler proposed the purchase of lands east of the Toronto Purchase (Fullerton & Mississaugas of the Credit First Nation, 2015). However, descriptions of the treaty differ between the British and Mississaugas, including the depth of the boundaries: “Rice Lake and Lake Simcoe, located about 13 miles and 48 miles north of Lake Ontario, respectively, were not mentioned as landmarks in the First Nations’ description of the lands to be ceded. Additionally, original descriptions provided by the Chiefs of Rice Lake indicate a maximum depth of ten miles, versus an average of 15-16 miles in Colonel Butler's description” (Fullerton & Mississaugas of the Credit First Nation, 2015).



However, records of the acquisition were not clear regarding the extent of lands agreed upon (Surtees 1984:37–45). To clarify this, in October and November of 1923, the governments of Canada and Ontario, chaired by A.S. Williams, signed treaties with the Chippewa and Michi Saagiig for three large tracts of land in central Ontario and the northern shore of Lake Ontario, the last substantial portion of land in southern Ontario that had not yet been ceded to the government (Crown-Indigenous Relations and Northern Affairs, 2013).

In 2018 the Government of Canada reached a settlement with the Williams Treaties First Nations reaffirming the recognized Treaty harvesting rights in the Williams Treaties territories of each of the seven nations.

1.2 Historical Context

1.2.1 Indigenous Land Use and Settlement

Southern Ontario has been occupied by human populations since the retreat of the Laurentide glacier approximately 13,000 years before present (B.P.) (Ferris, 2013). Populations at this time would have been highly mobile, inhabiting a boreal-parkland similar to the modern sub-arctic. By approximately 10,000 B.P., the environment had progressively warmed (Edwards & Fritz, 1988) and populations now occupied less extensive territories (Ellis & Deller, 1990).

Between approximately 10,000-5,500 B.P., the Great Lakes basins experienced low-water levels, and many sites which would have been located on those former shorelines are now submerged. This period produces the earliest evidence of heavy wood working tools, an indication of greater investment of labour in felling trees for fuel, to build shelter, and watercraft production. These activities suggest prolonged seasonal residency at occupation sites. Polished stone and native copper implements were being produced by approximately 8,000 B.P.; the latter was acquired from the north shore of Lake Superior, evidence of extensive exchange networks throughout the Great Lakes region. The earliest evidence for cemeteries dates to approximately 4,500-3,000 B.P. and is indicative of increased social organization, investment of labour into social infrastructure, and the establishment of socially prescribed territories (Brown, 1995, p. 13; Ellis et al., 1990, 2009).



Between 3,000-2,500 B.P., populations continued to practice residential mobility and to harvest seasonally available resources, including spawning fish. The Woodland period begins around 2,500 B.P. and exchange and interaction networks broaden at this time (Spence et al., 1990, pp. 136, 138) and by approximately 2,000 B.P., evidence exists for small community camps, focusing on the seasonal harvesting of resources (Spence et al., 1990, pp. 155, 164). By 1,500 B.P. there is macro botanical evidence for maize in southern Ontario, and it is thought that maize only supplemented people's diet. There is earlier phytolithic evidence for maize in central New York State by 2,300 B.P. – it is likely that once similar analyses are conducted on Ontario ceramic vessels of the same period, the same evidence will be found (Birch & Williamson, 2013, pp. 13–15). As is evident in detailed Anishinaabek ethnographies, winter was a period during which some families would depart from the larger group as it was easier to sustain smaller populations (Rogers, 1962). It is generally understood that these populations were Algonquian-speakers during these millennia of settlement and land use.

From the beginning of the Late Woodland period at approximately 1,000 B.P., lifeways became more similar to that described in early historical documents. Between approximately 1000-1300 Common Era (C.E.), the communal site is replaced by the village focused on horticulture. Seasonal disintegration of the community for the exploitation of a wider territory and more varied resource base was still practised (Williamson, 1990, p. 317). By 1300-1450 C.E., this episodic community disintegration was no longer practised and populations now communally occupied sites throughout the year (Dodd et al., 1990, p. 343). By the mid-sixteenth century these small villages had coalesced into larger communities (Birch et al., 2021). Through this process, the socio-political organization of the First Nations, as described historically by the French and English explorers who first visited southern Ontario, was developed.

By 1600 C.E., the communities within Simcoe County had formed the Confederation of Nations encountered by the first European explorers and missionaries. In the 1640s, the traditional enmity between the Haudenosaunee and the Huron-Wendat (and their Algonquian allies such as the Nipissing and Odawa) led to the dispersal of the Huron-Wendat. Shortly afterwards, the



Haudenosaunee established a series of settlements at strategic locations along the trade routes inland from the north shore of Lake Ontario. By the 1690s however, the Anishinaabeg were the only communities with a permanent presence in southern Ontario. From the beginning of the eighteenth century to the assertion of British sovereignty in 1763, there was no interruption to Anishinaabeg control and use of southern Ontario.

Oral Histories

Curve Lake First Nation

This detailed Michi Saagiig oral history by Gitiga Migizi from 2017, a respected Elder and Knowledge Keeper of the Michi Saagiig Nation, was provided to ASI by Dr. Julie Kapyrka on behalf of Curve Lake First Nation for inclusion in this report:

“The traditional homelands of the Michi Saagiig (Mississauga Anishinaabeg) encompass a vast area of what is now known as southern Ontario. The Michi Saagiig are known as “the people of the big river mouths” and were also known as the “Salmon People” who occupied and fished the north shore of Lake Ontario where the various tributaries emptied into the lake. Their territories extended north into and beyond the Kawarthas as winter hunting grounds on which they would break off into smaller social groups for the season, hunting and trapping on these lands, then returning to the lakeshore in spring for the summer months.

The Michi Saagiig were a highly mobile people, travelling vast distances to procure subsistence for their people. They were also known as the “Peacekeepers” among Indigenous nations. The Michi Saagiig homelands were located directly between two very powerful Confederacies: The Three Fires Confederacy to the north and the Haudenosaunee Confederacy to the south. The Michi Saagiig were the negotiators, the messengers, the diplomats, and they successfully mediated peace throughout this area of Ontario for countless generations.

Michi Saagiig oral histories speak to their people being in this area of Ontario for thousands of years. These stories recount the “Old Ones” who spoke an ancient Algonquian dialect. The histories explain that the current



Ojibwa phonology is the 5th transformation of this language, demonstrating a linguistic connection that spans back into deep time. The Michi Saagiig of today are the descendants of the ancient peoples who lived in Ontario during the Archaic and Paleo-Indian periods. They are the original inhabitants of southern Ontario, and they are still here today.

The traditional territories of the Michi Saagiig span from Gananoque in the east, all along the north shore of Lake Ontario, west to the north shore of Lake Erie at Long Point. The territory spreads as far north as the tributaries that flow into these lakes, from Bancroft and north of the Haliburton highlands. This also includes all the tributaries that flow from the height of land north of Toronto like the Oak Ridges Moraine, and all of the rivers that flow into Lake Ontario (the Rideau, the Salmon, the Ganaraska, the Moira, the Trent, the Don, the Rouge, the Etobicoke, the Humber, and the Credit, as well as Wilmot and 16 Mile Creeks) through Burlington Bay and the Niagara region including the Welland and Niagara Rivers, and beyond. The western side of the Michi Saagiig Nation was located around the Grand River which was used as a portage route as the Niagara portage was too dangerous. The Michi Saagiig would portage from present-day Burlington to the Grand River and travel south to the open water on Lake Erie.

Michi Saagiig oral histories also speak to the occurrence of people coming into their territories sometime between 500-1000 A.D. seeking to establish villages and a corn growing economy – these newcomers included peoples that would later be known as the Huron-Wendat, Neutral, Petun/Tobacco Nations. The Michi Saagiig made Treaties with these newcomers and granted them permission to stay with the understanding that they were visitors in these lands. Wampum was made to record these contracts, ceremonies would have bound each nation to their respective responsibilities within the political relationship, and these contracts would have been renewed annually (see Migizi and Kapyrka 2015). These visitors were extremely successful as their corn economy grew as well as their populations. However, it was understood by all



nations involved that this area of Ontario were the homeland territories of the Michi Saagiig

The Odawa Nation worked with the Michi Saagiig to meet with the Huron-Wendat, the Petun, and Neutral Nations to continue the amicable political and economic relationship that existed – a symbiotic relationship that was mainly policed and enforced by the Odawa people.

Problems arose for the Michi Saagiig in the 1600s when the European way of life was introduced into southern Ontario. Also, around the same time, the Haudenosaunee were given firearms by the colonial governments in New York and Albany which ultimately made an expansion possible for them into Michi Saagiig territories. There began skirmishes with the various nations living in Ontario at the time. The Haudenosaunee engaged in fighting with the Huron-Wendat and between that and the onslaught of European diseases, the Iroquoian speaking peoples in Ontario were decimated.

The onset of colonial settlement and missionary involvement severely disrupted the original relationships between these Indigenous nations. Disease and warfare had a devastating impact upon the Indigenous peoples of Ontario, especially the large sedentary villages, which mostly included Iroquoian speaking peoples. The Michi Saagiig were largely able to avoid the devastation caused by these processes by retreating to their wintering grounds to the north, essentially waiting for the smoke to clear. Michi Saagiig Elder Gitiga Migizi (2017) recounts:

“We weren’t affected as much as the larger villages because we learned to paddle away for several years until everything settled down. And we came back and tried to bury the bones of the Huron but it was overwhelming, it was all over, there were bones all over – that is our story.

There is a misnomer here, that this area of Ontario is not our traditional territory and that we came in here after the Huron-Wendat left or were defeated, but that is not true. That is a big



misconception of our history that needs to be corrected. We are the traditional people, we are the ones that signed treaties with the Crown. We are recognized as the ones who signed these treaties and we are the ones to be dealt with officially in any matters concerning territory in southern Ontario.

We had peacemakers go to the Haudenosaunee and live amongst them in order to change their ways. We had also diplomatically dealt with some of the strong chiefs to the north and tried to make peace as much as possible. So we are very important in terms of keeping the balance of relationships in harmony.

Some of the old leaders recognized that it became increasingly difficult to keep the peace after the Europeans introduced guns. But we still continued to meet, and we still continued to have some wampum, which doesn't mean we negated our territory or gave up our territory – we did not do that. We still consider ourselves a sovereign nation despite legal challenges against that. We still view ourselves as a nation and the government must negotiate from that basis.”

Often times, southern Ontario is described as being “vacant” after the dispersal of the Huron-Wendat peoples in 1649 (who fled east to Quebec and south to the United States). This is misleading as these territories remained the homelands of the Michi Saagiig Nation.

The Michi Saagiig participated in eighteen treaties from 1781 to 1923 to allow the growing number of European settlers to establish in Ontario. Pressures from increased settlement forced the Michi Saagiig to slowly move into small family groups around the present-day communities: Curve Lake First Nation, Hiawatha First Nation, Alderville First Nation, Scugog Island First Nation, New Credit First Nation, and Mississauga First Nation.

The Michi Saagiig have been in Ontario for thousands of years, and they remain here to this day.”



Huron Wendat Nation

The following oral history has been provided to ASI by the Huron-Wendat Nation:

“As an ancient people, traditionally, the Huron-Wendat, a great Iroquoian civilization of farmers and fishermen-hunter-gatherers representing between 30,000 and 40,000 individuals, traveled widely across a territory stretching from the Gaspé Peninsula in the Gulf of Saint Lawrence and up along the Saint Lawrence Valley on both sides of the Saint Lawrence River all the way to the Great Lakes.

According to our own traditions and customs, the Huron-Wendat are intimately linked to the Saint Lawrence River and its estuary, which is the main route of its activities and way of life. The Huron-Wendat formed alliances and traded goods with other First Nations among the networks that stretched across the continent.

Today, the population of the Huron-Wendat Nation is composed of 1497 on-reserve members and 2390 off-reserve members for a total of 3900 members of the Huron-Wendat Nation.

The Huron-Wendat Nation band council (CNHW) is headquartered in Wendake, the oldest First Nations community in Canada, located on the outskirts of Quebec City (20 km north of the city) on the banks of the Saint Charles River. There is only one Huron-Wendat community, whose ancestral territory is called the Nionwentsio, which translates to "our beautiful land" in the Wendat language.

The Huron-Wendat Nation is also the only authority that have the authority and rights to protect and take care of her ancestral sites in Wendake South.”

1.2.2 Post-Contact Settlement

Historically, the Study Area is located in the Geographical East Gwillimbury Township, County of York in Lots 97-98 & Concession 1 East of Yonge Street.



The S & G stipulates that areas of early Euro-Canadian settlement (pioneer homesteads, isolated cabins, farmstead complexes), early wharf or dock complexes, pioneer churches, and early cemeteries are considered to have archaeological potential. Early historical transportation routes (trails, passes, roads, railways, portage routes), properties listed on a municipal register or designated under the Ontario Heritage Act or a federal, provincial, or municipal historic landmark or site are also considered to have archaeological potential.

For the Euro-Canadian period, the majority of early nineteenth century farmsteads (i.e., those that are arguably the most potentially significant resources and whose locations are rarely recorded on nineteenth century maps) are likely to be located in proximity to water. The development of the network of concession roads and railroads through the course of the nineteenth century frequently influenced the siting of farmsteads and businesses. Accordingly, undisturbed lands within 100 metres of an early settlement road are also considered to have potential for the presence of Euro-Canadian archaeological sites.

The first Europeans to arrive in the area were transient merchants and traders from France and England, who followed Indigenous pathways and set up trading posts at strategic locations along the well-traveled river routes. All of these occupations occurred at sites that afforded both natural landfalls and convenient access, by means of the various waterways and overland trails, into the hinterlands. Early transportation routes followed existing Indigenous trails, both along the lakeshore and adjacent to various creeks and rivers (ASI 2006).

East Gwillimbury Township

The Township of East Gwillimbury was named by Lieutenant Governor John Graves Simcoe in honour of his wife, whose maiden name was Gwillim. In an attempt to uncover the best route from York to the British naval posts on Georgian Bay, Governor Simcoe commissioned the first survey of the township. East Gwillimbury was first surveyed in 1800 by Stegman, and was followed by a number of other surveyors over the next century: Hambly in 1803, Wilmot in 1811, Lount in 1819, Chewitt in 1824, Lindsay in 1859, Haller in 1864 and Gossage in 1865 (Caniff 1878:XVII). Many of the early settlers in East



Gwillimbury were United Empire Loyalists, many of them Quakers, who were lured to the area with the promise of land grants and also the ability to practice their faith in peace. A number of hamlets were established early on in the township, including Holland Landing, River Drive Park, Sharon, Queensville, and Mount Albert (Archaeological Services Inc., 2012b).

Town of Newmarket

Newmarket is situated in the former Township of Whitchurch, close to the northern boundary and a short distance east of Yonge Street, about 28 miles north of Toronto. The Newmarket area was first settled between 1801 and 1803 when a group of Quakers from Pennsylvania secured extensive land grants for the area (Mika & Mika, 1983). The Quaker community built a log meeting house and a board-and-batten church, which was the first house of worship erected north of Toronto. Throughout the mid-nineteenth century a number of other places of worship were constructed including Methodist, Christian, Presbyterian, Episcopalian, Roman Catholic and Congregational churches. A number of schools were also constructed during this period. The settlement soon became an important trade centre and served as commercial hub for people who had to previously travel to Toronto to do business (Mika & Mika, 1983). By the 1850s the population of Newmarket was 500 and the community had three doctors, two breweries, one distillery, a cloth factory, five stores, three taverns, a druggist, a gunsmith, three blacksmiths, a tinsmith, three wagon makers, and a number of excellent farms (Mika and Mika 1983). Fire destroyed a large part of Newmarket in 1862 but the village recovered and was eventually incorporated as a town in 1880.

In 1970 the Town of Newmarket became part of the Regional Municipality of York and in the following year it annexed part of the Townships of Whitchurch and East Gwillimbury.

Northern Railway

The Toronto, Simcoe, and Lake Huron Union Rail Road Company was incorporated in 1844 and in 1850 was renamed the Ontario, Simcoe, and Huron Union Rail Road Company. The rail line opened on May 16, 1853, and connected



Toronto to Aurora (formerly Matchell's Corners) via a 48 kilometre track (Andreae, 1997). The line was expanded with service to Bradford beginning June 13, 1853, and further expanded to Barrie on October 11, 1853 (forming the path for the present Barrie rail corridor). The inaugural trip on May 16, 1853 from Toronto to Aurora is commemorated by a plaque at Toronto's Union Station, as it was the first steam locomotive operated in Ontario (Mika & Mika, 1977).

In 1858, the company underwent a third name change becoming the Northern Railway Company of Canada. Subsequently, the Ontario, Simcoe & Huron Railway became known simply as the Northern Railway, until 1888 when the ownership amalgamated with the Grand Trunk Railway Company of Canada, at which point the Northern Railway became part of the Grand Trunk Railway. Rail tracks were quickly laid across Ontario, as well as other parts of the country linking settlements and provinces. The population of Canada doubled between 1851 and 1901 but the miles of rail laid increased exponentially from 159 to 18,294 miles (Andreae, 1997). The Northern Railway was a major draw factor for businesses in the Counties of York and Simcoe and caused many communities with a station to thrive and those without to dissipate (Town of Newmarket, 2018). In 1923, the railway company was again amalgamated, this time with the government-owned Canadian National Railway.

Commuter service began on the line in 1972, operated by Canadian National as part of the Canadian National Newmarket Subdivision. This commuter service was taken over by VIA Rail in 1978, and then by GO Transit in 1982. GO Transit continues to operate this commuter service to this day.

Newmarket Cemetery

Newmarket Cemetery is an active cemetery located at 112 Main Street North in Newmarket. The cemetery was established in 1867 (Figure 17). A house located at the northeast corner of the property which pre-dates the cemetery was used as a temporary residence for the cemetery caretaker until the present-day office was built (Figure 18). Bexhill Road was constructed between 1970 and 2002. Part of the unused northeast corner of Newmarket Cemetery was exchanged for a piece of land to the west for Bexhill Road to be constructed (Figure 20). An exit road for St. John Cemetery had connected to Main Street North, to the north of



Newmarket Cemetery, and was reconfigured to connect with Bexhill Road at time of the later road's construction (Figure 18). Burials are located 35.94 metres south of the Newmarket Cemetery parcel boundary at Bexhill Road, the area between which is steeply sloped (Figure 19, Figure 21).

St. John's Catholic Cemetery

St. John's Cemetery (or Saint John Cemetery) is an active cemetery located at 250 Old Main Street North in Newmarket. The property is four acres in size. The cemetery can be accessed from Main Street North or Bexhill Road. St. John's Roman Catholic Cemetery Board, the licensed operator, is led by volunteers consisting of 12 members and an elected chairperson (see *Supplementary Documentation* for the record of communications with the cemetery operator). The cemetery includes regular and cremation burial plots (Archdiocese of Toronto, 2020).

The cemetery opened in 1830 and expanded northward by 1970. The oldest sections are Sections A-F, closest to the entrance off Bexhill Road. Section A is adjacent to 178 and 186 Main Street North. Section B is adjacent 218 and 226 Main Street North. Burial plots are still available in the new sections in the northern portion of the cemetery, as well as a new section west of the entrance off Bexhill Road.

1.2.3 Map Review

The 1860 *County Atlas of York* (Tremaine, 1860) and the 1878 *Illustrated Historical Atlas of York* (Miles & Co., 1878), 1929 topographic map Newmarket sheet (Department of National Defence, 1929) and the 1986 topographic map Alliston sheet (Energy, Mines and Resources Canada, 1986) and 1988 topographic map Newmarket sheet (Department of Energy, Mines and Resources, 1988) were examined to determine the presence of historic features within the Study Area during the nineteenth and twentieth centuries (Figures 2-4).



The 1860 map (Figure 2) shows Old Main Street North was a historically surveyed road to the north of Newmarket. The Northern Railway and Holland River East Branch are to its south and east.

The 1878 map (Figure 3) shows Newmarket expanding north. The property east of Old Main Street North is divided into smaller lots adjacent the roadway. A catholic cemetery (St. John's Cemetery) is indicated by a cross adjacent to the western Study Area boundary along its northern portion within the back portions of Cleland and Bogart's lot. A second cemetery (Newmarket Cemetery) is shown adjacent to the Study Area in the next lot south.

The 1929 map (Figure 4) shows a road leading west from Old Main Street North to the cemetery. St. John's Cemetery to the north, immediately adjacent to the Study Area, is shown to be rectangular with its length running north-south along the western boundary of the Study Area. The Newmarket Cemetery to the south is shown to be larger in size than St. John's Cemetery. There are eight structures depicted adjacent Old Main Street North within the Study Area. This map names the railway as Canadian National Railways Toronto Transportation Commission.

1.2.4 Aerial and Orthoimagery Review

Historical aerial imagery from 1954 (Hunting Survey Corporation Limited, 1954), 1970, 2002 and 2007 (Town of Newmarket et al., n.d.) were examined to determine the extent and nature of development and land uses within the Study Area (Figures 4-7).

Imagery from 1954 (Figure 5) indicates the lands adjacent Old Main Street North are open fields with some trees. Earth moving activities are visible in places northwest and southeast of Old Main Street North, in places houses are shown to have been built in the 1970 imagery (Figure 6). The imagery from the Town of Newmarket's digitized imagery includes modern road overlays which could not be removed, but do not indicate historical features. A fence line separates the ends of the residential properties along Old Main Street North and the St. John's Cemetery. The 2002 imagery (Figure 7) shows the Main Street aquatic centre southeast of Old Main Street North and earth moving activities for the construction of houses to the northwest. The Main Street North By-Pass has



been constructed and a residential neighbourhood has been developed north of the Study Area.

A review of available Google satellite imagery shows the Study Area has remained relatively unchanged since 2005. By 2005, there are four houses in the place where the earth moving activities are visible in the 2002 imagery.

1.3 Archaeological Context

This section provides background research pertaining to previous archaeological fieldwork conducted within and in the vicinity of the Study Area, its environmental characteristics (including drainage, soils or surficial geology and topography, etc.), and current land use and field conditions. Three sources of information were consulted to provide information about previous archaeological research: the site record forms for registered sites available online from the MHSTCI through “Ontario’s Past Portal”; published and unpublished documentary sources; and the files of ASI.

1.3.1 Geography

In addition to the known archaeological sites, the state of the natural environment is a helpful indicator of archaeological potential. Accordingly, a description of the physiography and soils are briefly discussed for the Study Area.

The S & G stipulates that primary water sources (lakes, rivers, streams, creeks, etc.), secondary water sources (intermittent streams and creeks, springs, marshes, swamps, etc.), ancient water sources (glacial lake shorelines indicated by the presence of raised sand or gravel beach ridges, relic river or stream channels indicated by clear dip or swale in the topography, shorelines of drained lakes or marshes, cobble beaches, etc.), as well as accessible or inaccessible shorelines (high bluffs, swamp or marsh fields by the edge of a lake, sandbars stretching into marsh, etc.) are characteristics that indicate archaeological potential.



Water has been identified as the major determinant of site selection and the presence of potable water is the single most important resource necessary for any extended human occupation or settlement. Since water sources have remained relatively stable in Ontario since 5,000 B.P. (Karrow & Warner, 1990, fig. 2.16), proximity to water can be regarded as a useful index for the evaluation of archaeological site potential. Indeed, distance from water has been one of the most commonly used variables for predictive modeling of site location.

Other geographic characteristics that can indicate archaeological potential include elevated topography (eskera, drumlins, large knolls, and plateaux), pockets of well-drained sandy soil, especially near areas of heavy soil or rocky ground, distinctive land formations that might have been special or spiritual places, such as waterfalls, rock outcrops, caverns, mounds, and promontories and their bases. There may be physical indicators of their use, such as burials, structures, offerings, rock paintings or carvings. Resource areas, including; food or medicinal plants (migratory routes, spawning areas) are also considered characteristics that indicate archaeological potential (S & G, Section 1.3.1).

The Study Area is located within the clay plains of the Schomberg Clay Plains physiographic region of southern Ontario (Chapman & Putnam, 1984). Schomberg deposits are typically varved and highly calcareous. The clay has a large calcium and magnesium carbonate content (50%) and has a 40% silt composition compared to 50% clay composition. Nevertheless, Schomberg deposits behave more like silt than clay and are likely composed of ground rock flour rather than weathered clay minerals (Chapman & Putnam, 1984).

Figure 8 depicts surficial geology for the Study Area. The surficial geology mapping demonstrates that the Study Area is underlain by fine-textured glaciolacustrine deposits of silt and clay, minor sand and gravel, massive to well laminated, and modern alluvial deposits of clay, silt, sand, gravel (Ontario Geological Survey, 2010). Soils in the Study Area consist of Schomberg clay loam, a dark grey gleysolic with good drainage (Figure 9).

The Holland River is 150 metres east of the Study Area. The Study Area is within the Holland River East Branch subwatershed. The East Holland River occupies



247 square kilometres from the Oak Ridges Moraine where it has its headwaters, to the confluence of the West Holland River and the mouth at Lake Simcoe Cook’s Bay. The subwatershed lies within York Region, with a portion in the southeast of Durham Region. Land distribution within the subwatershed is 17 percent urban, 33 percent natural heritage, 31 percent agricultural, 3.8 percent roads, 3.5 percent rural development, 2.8 percent industrial, 2.7 percent golf course, 0.2 percent active aggregate, and 6.4 percent other uses (Lake Simcoe Region Conservation Authority, 2010).

1.3.2 Previously Registered Archaeological Sites

In Ontario, information concerning archaeological sites is stored in the Ontario Archaeological Sites Database maintained by the MHSTCI. This database contains archaeological sites registered within the Borden system. Under the Borden system, Canada has been divided into grid blocks based on latitude and longitude. A Borden block is approximately 13 kilometres east to west, and approximately 18.5 kilometres north to south. Each Borden block is referenced by a four-letter designator, and sites within a block are numbered sequentially as they are found. The Study Area under review is located in Borden block *BaGu*.

According to the Ontario Archaeological Sites Database, one previously registered archaeological site is located within one kilometre of the Study Area, which is not located within 50 metres of the Study Area (MHTSCI 2022). A summary of the site is provided below in Table 1.

Table 1: Registered Sites within One Kilometre of the Study Area

Borden number	Site Name	Temporal/ Cultural Affiliation	Site type	Researcher
BaGu-191	Not Applicable	Euro-Canadian	Sawmill	Earthworks Archaeological Services 2016; ASI 2017



1.3.3 Previous Archaeological Assessments

ASI reviewed previous archaeological assessments that detail fieldwork within 50 metres of the Study Area. Only those specific archaeological assessments of direct relevance to the present undertaking other will be included here:

(The Archaeologists Inc., 2016) Stage 1 & 2 Archaeological Assessment for 172 & 178 Main Street North, Part of Lot 97, Concession 1E, Geographic Township of East Gwillimbury, County of York, Town of Newmarket. P052-0737-2016.

This project area at 172 and 178 Main Street North is within 50 metres of the current Study Area. Test pit survey was conducted at five metre intervals. No archaeological resources were identified, and no further archaeological assessment was recommended.

2.0 Property Inspection

2.1 Field Methods

A Stage 1 property inspection must adhere to the S & G, Section 1.2, Standards 1-6, which are discussed below. The entire property and its periphery must be inspected. The inspection may be either systematic or random. Coverage must be sufficient to identify the presence or absence of any features of archaeological potential. The inspection must be conducted when weather conditions permit good visibility of land features. Natural landforms and watercourses are to be confirmed if previously identified. Additional features such as elevated topography, relic water channels, glacial shorelines, well-drained soils within heavy soils and slightly elevated areas within low and wet areas should be identified and documented, if present. Features affecting assessment strategies should be identified and documented such as woodlots, bogs or other permanently wet areas, areas of steeper grade than indicated on topographic mapping, areas of overgrown vegetation, areas of heavy soil, and recent land disturbance such as grading, fill deposits and vegetation clearing. The inspection should also identify and document structures and built features that will affect assessment strategies, such as heritage structures or landscapes, cairns, monuments or plaques, and cemeteries.



The Stage 1 archaeological assessment property inspection was conducted under the field direction of Eliza Brandy (R1109) of ASI, on July 4, 2022, in order to gain first-hand knowledge of the geography, topography, and current conditions and to evaluate and map archaeological potential of the Study Area. It was a systematic visual inspection from publicly accessible lands/public right-of-ways only and did not include excavation or collection of archaeological resources. Fieldwork was conducted when weather conditions were deemed clear with good visibility (overcast with seasonal temperatures), per S & G Section 1.2., Standard 2. Field photography is presented in Section 7.0 (Image 1 to Image 10), and field observations are overlaid onto the existing conditions of the study Area in Section 8.0 (Figure 12).

2.2 Current Land Use and Field Conditions

The Study Area is bounded by Bexhill Road to the south, Deviation Road to the north, St. John Cemetery to the west, and the Main Street North By-Pass to the east. Old Main Street North has residential housing, a print shop and aquatic centre, all dating to the late twentieth and early twenty-first century. The northwest side of Old Main Street North is steeply sloped, from the boundary of the St. John Cemetery down to the road. Old Main Street North is a two-way road. Small portions of Old Main Street North include sidewalks: the north side to the west of Deviation Road, and the south side east of Bexhill Road.

In parts, the right-of-ways on both sides include drainage ditches and culverts through driveways. Watermain and sanitary sewer lines are within the right-of ways (See Appendix A: Figure 13). A branch of sanitary sewer diverts between Old Main Street North and Main Street North Bypass to the west of 205 Old Main Street North. Parallel the branch of sanitary sewer to the west is a vegetated road swale between Old Main Street North and Main Street North Bypass, which has trees and shrubbery.

3.0 Analysis of Archaeological Potential

The S & G, Section 1.3.1, lists criteria that are indicative of archaeological potential. The Study Area meets the following criteria indicative of archaeological potential:



- Previously identified archaeological sites (See Table 1);
- Water sources: primary, secondary, or past water source (Holland River East Branch);
- Well-drained soils (Schomberg clay loam);
- Proximity to early settlements (Newmarket, St. John’s Cemetery); and
- Early historic transportation routes (Old Main Street, Northern Railway)

According to the S & G, Section 1.4 Standard 1e, no areas within a property containing locations listed or designated by a municipality can be recommended for exemption from further assessment unless the area can be documented as disturbed. The Municipal Heritage Register was consulted and no property within the Study Area is Listed or Designated under the *Ontario Heritage Act*.

The *Archaeological Management Plan for the Regional Municipality of York* (Archaeological Services Inc., 2012a) was reviewed for background information and to help inform any indicators of archaeological potential not captured in other research. ASI’s review of the above archaeological management plan indicates that parts of the Study Area have archaeological potential (Figure 10). Bexhill Drive and recent housing development on the west side of Old Main Street are not shown as having archaeological potential. Generally speaking, archaeological management plans are high-level analyses of archaeological potential for non-specialists but cannot be considered a replacement for Stage 1 archaeological assessments.

The property inspection determined that parts of the Study Area northwest and southeast of Old Main Street North right-of-ways exhibit archaeological potential. These areas will require Stage 2 archaeological assessment prior to any construction activities or other proposed impacts. According to the S & G Section 2.1.2, test pit survey is required on terrain where ploughing is not viable, such as wooded areas, properties where existing landscaping or infrastructure would be damaged, overgrown farmland with heavy brush or rocky pasture, and narrow linear corridors up to 10 metres wide (Image 5, Image 7, Image 9 to Image 10; Figure 12: areas highlighted in green).

A combination of property inspection and assessment of topographic mapping (ESRI 2022) determined that some of lands within the Study Area are sloped in



excess of 20 degrees, and according to the S & G Section 2.1 do not retain potential (Image 1, Image 6; Figure 12: areas highlighted in pink). These areas do not require further survey.

Part of the Study Area has been subjected to deep soil disturbance events due to the installation of existing sanitary sewer and watermain, the construction of late twentieth- and early twenty-first century buildings, the road right-of-ways, culverts, and existing road swale. According to the S & G Section 1.3.2 these areas do not retain archaeological potential (Image 4 to Image 10; Figure 12: areas highlighted in yellow) and do not require further survey.

3.1 St. John's Cemetery Analysis

St. John's Cemetery is an active cemetery located at 250 Old Main Street North in Newmarket. Survey mapping from 1970 was provided by St. John Cemetery (Figure 14 to Figure 16). This mapping shows the legal survey of the property line abuts the Study Area. The property is four acres in size. St. John's Cemetery is immediately adjacent to the Study Area's western limits (Image 2 to Image 3; Figure 12: area outlined in purple). The boundary between the cemetery and backyards for properties which front onto Old Main Street North is fenced along Section B, with a steep slope descending towards Old Main Street North. Cemetery limits are well defined as delineated by mapping provided by the cemetery operator and a review of orthoimagery and topographic mapping. Given the legal boundaries and the nature of the topography there is low potential for unmarked burials to be present beyond the cemetery's legal limits. All project impacts must avoid the legal cemetery boundaries, which are well defined (Image 2 to Image 3; Figure 11 to Figure 12: area dashed in purple). There is low potential for unmarked graves within the Study Area.

3.2 Newmarket Cemetery Analysis

Newmarket Cemetery is an active cemetery established in in 1867, located at 112 Main Street North in Newmarket. Mapping and aerial photography was provided by Newmarket Cemetery (Figure 17 to Figure 21). The cemetery property is south of Bexhill Road, 20 metres from the Study Area. According to Newmarket Cemetery, the northeast corner of the cemetery which borders



Bexhill Road does not contain burials (Figure 17, Figure 19, Figure 21). A house used as a temporary residence for the caretaker existed on this corner prior to the opening of the cemetery (Figure 18), and the area is steeply sloped (Figure 19). When Bexhill Road was created between 1970 and 2002, a portion of the cemetery within this northeast corner was traded (Figure 20: Part A exchanged for Part B). The burials are 35.94 metres south of the boundary at Bexhill Road. Prior to the construction of Bexhill Road, the area contained a cemetery exit road (Figure 18).

The distance between the Study Area and the closest burial is 55.94 metres. All project impacts must avoid the legal cemetery boundaries which are well defined (Figure 11: area dashed in purple). There is low potential for unmarked graves within the Study Area.

3.3 Conclusions

Background research indicated that one previously registered archaeological site is located within one kilometre of the Study Area, which is not located within 50 metres of the Study Area. St. John's Cemetery is immediately adjacent to the Study Area and Newmarket Cemetery is 20 metres from the Study Area. The Property inspection determined that parts of the Study Area exhibit archaeological potential and will require Stage 2 survey.



4.0 Recommendations

The following recommendations are made:

- 1) Parts of the Study Area exhibit archaeological potential. These lands require Stage 2 archaeological assessment by test pit survey at five metre intervals, where appropriate (Figure 12: areas highlighted in green). Stage 2 is required prior to any proposed construction activities on these lands;
- 2) St. John's Cemetery is immediately adjacent to the Study Area and must be avoided by any proposed construction impacts. There is low potential for burials outside for the documented legal cemetery property limits. Stage 3 cemetery investigation is not recommended within the Study Area.
 - a) Once specific project impacts are understood, and if the determination is made that the legal boundaries of the cemeteries may be impacted, a Cemetery Investigation Authorization will be required from the Bereavement Authority of Ontario (BAO)¹. Prior to any Stage 2 and 3 Archaeological Assessments, consultation with the BAO is required.
- 3) Newmarket Cemetery is 20 metres south of the Study Area and must be avoided by all proposed construction impacts;
- 4) The remainder of the Study Area does not retain archaeological potential on account of deep and extensive land disturbance, or slopes in excess of 20 degrees. These lands do not require further archaeological assessment; and,
- 5) Should the proposed work extend beyond the current Study Area, further archaeological assessment should be conducted to determine the archaeological potential of the surrounding lands.

¹ An Investigation Authorization is required whenever archaeological investigations are contemplated to verify and/or determine the boundaries of a cemetery or any similar situation where the records, maps and plans of the cemetery cannot confirm the existence and exact locations of burials within that cemetery.



NOTWITHSTANDING the results and recommendations presented in this study, ASI notes that no archaeological assessment, no matter how thorough or carefully completed, can necessarily predict, account for, or identify every form of isolated or deeply buried archaeological deposit. In the event that archaeological remains are found during subsequent construction activities, the consultant archaeologist, approval authority, and the Archaeology Programs Unit of the Ministry of Heritage, Sport, Tourism and Culture Industries should be immediately notified.

The above recommendations are subject to Ministry approval, and it is an offence to alter any archaeological site without Ministry of Heritage, Sport, Tourism and Culture Industries concurrence. No grading or other activities that may result in the destruction or disturbance of any archaeological sites are permitted until notice of MHSTCI approval has been received.

5.0 Legislation Compliance Advice

ASI advises compliance with the following legislation:

- This report is submitted to the Ministry of Heritage, Sport, Tourism and Culture Industries as a condition of licensing in accordance with Part VI of the *Ontario Heritage Act*, RSO 2005, c 0.18. The report is reviewed to ensure that it complies with the standards and guidelines that are issued by the Minister, and that the archaeological field work and report recommendations ensure the conservation, preservation, and protection of the cultural heritage of Ontario. When all matters relating to archaeological sites within the project area of a development proposal have been addressed to the satisfaction of the Ministry of Heritage, Sport, Tourism and Culture Industries, a letter will be issued by the Ministry stating that there are no further concerns with regards to alterations to archaeological sites by the proposed development.
- It is an offence under Sections 48 and 69 of the *Ontario Heritage Act* for any party other than a licensed archaeologist to make any alteration to a known archaeological site or to remove any artifact or other physical evidence of past human use or activity from the site, until such time as a licensed archaeologist has completed archaeological field work on the



site, submitted a report to the Minister stating that the site has no further cultural heritage value or interest, and the report has been filed in the Ontario Public Register of Archaeology Reports referred to in Section 65.1 of the *Ontario Heritage Act*.

- Should previously undocumented archaeological resources be discovered, they may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. The proponent or person discovering the archaeological resources must cease alteration of the site immediately and engage a licensed consultant archaeologist to carry out archaeological fieldwork, in compliance with sec. 48 (1) of the *Ontario Heritage Act*.
- The *Funeral, Burial and Cremation Services Act, 2002, S.O. 2002, c.33*, requires that any person discovering or having knowledge of a burial site shall immediately notify the police or coroner. It is recommended that the Registrar of Cemeteries at the Ministry of Consumer Services is also immediately notified.
- Archaeological sites recommended for further archaeological field work or protection remain subject to Section 48(1) of the *Ontario Heritage Act* and may not be altered, nor may artifacts be removed from them, except by a person holding an archaeological license.

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7.0 Images

7.1 Field Photography



Image 1: Treed slope down to Old Main Street North, no potential



Image 2: St. John's Cemetery property adjacent to the Study Area requires avoidance



Image 3 St. John's Cemetery property adjacent to the Study Area requires avoidance



Image 4 Area is disturbed, no potential



Image 5 Lawns beyond disturbed right-of-way require Stage 2 survey



Image 6 Lawns northwest of disturbed right-of-way are sloped, no potential



Image 7 Lawns southeast of disturbed right-of-way requires Stage 2 survey



Image 8 Area is disturbed, no potential



Image 9 Lawn beyond disturbed right-of-way, between forested road swale and sanitary sewer adjacent 205 Old Main Street North requires Stage 2 survey



Image 10 Lawns southeast of disturbed right-of-way requires Stage 2 survey

8.0 Maps

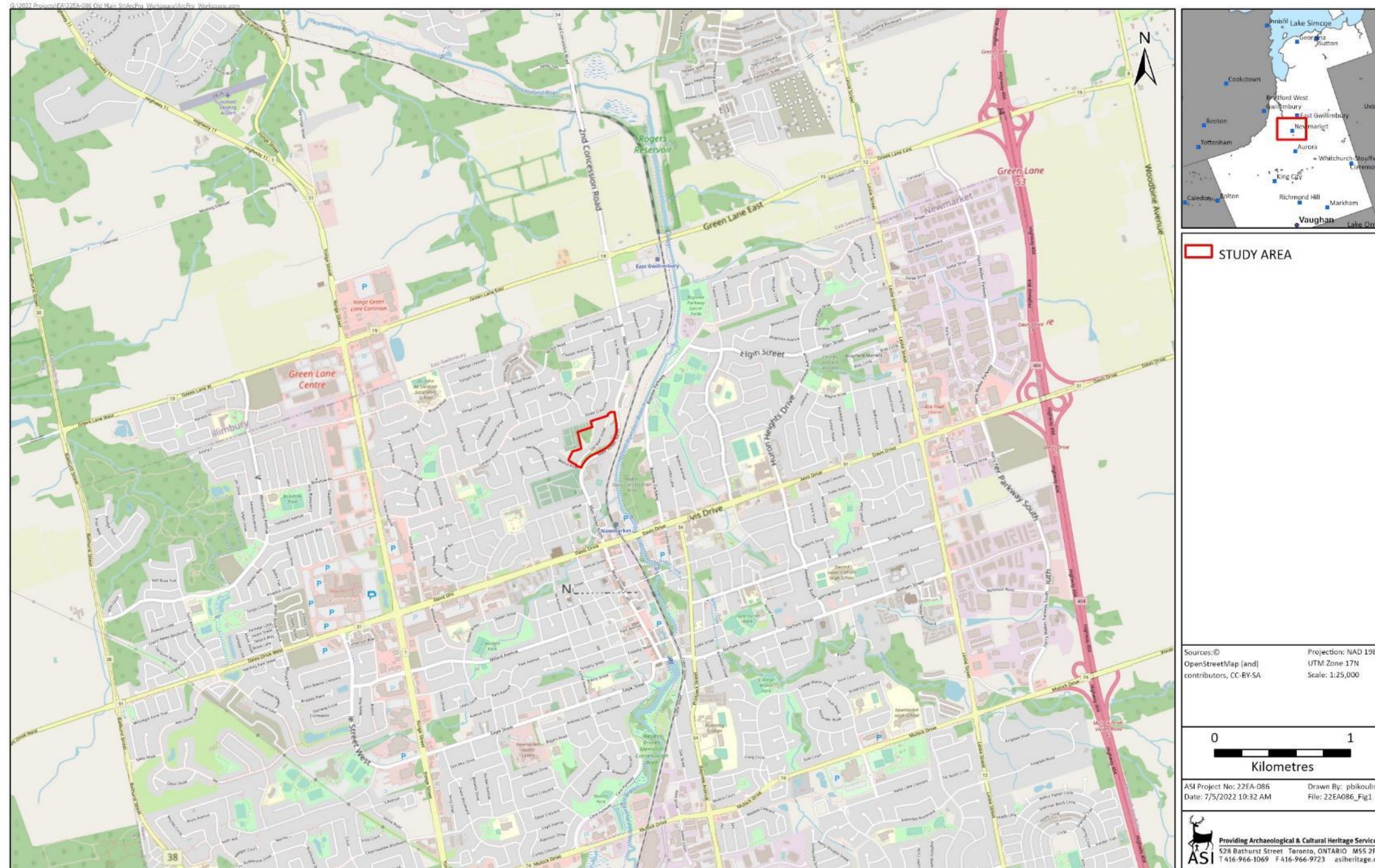


Figure 1 Old Main Street Study Area

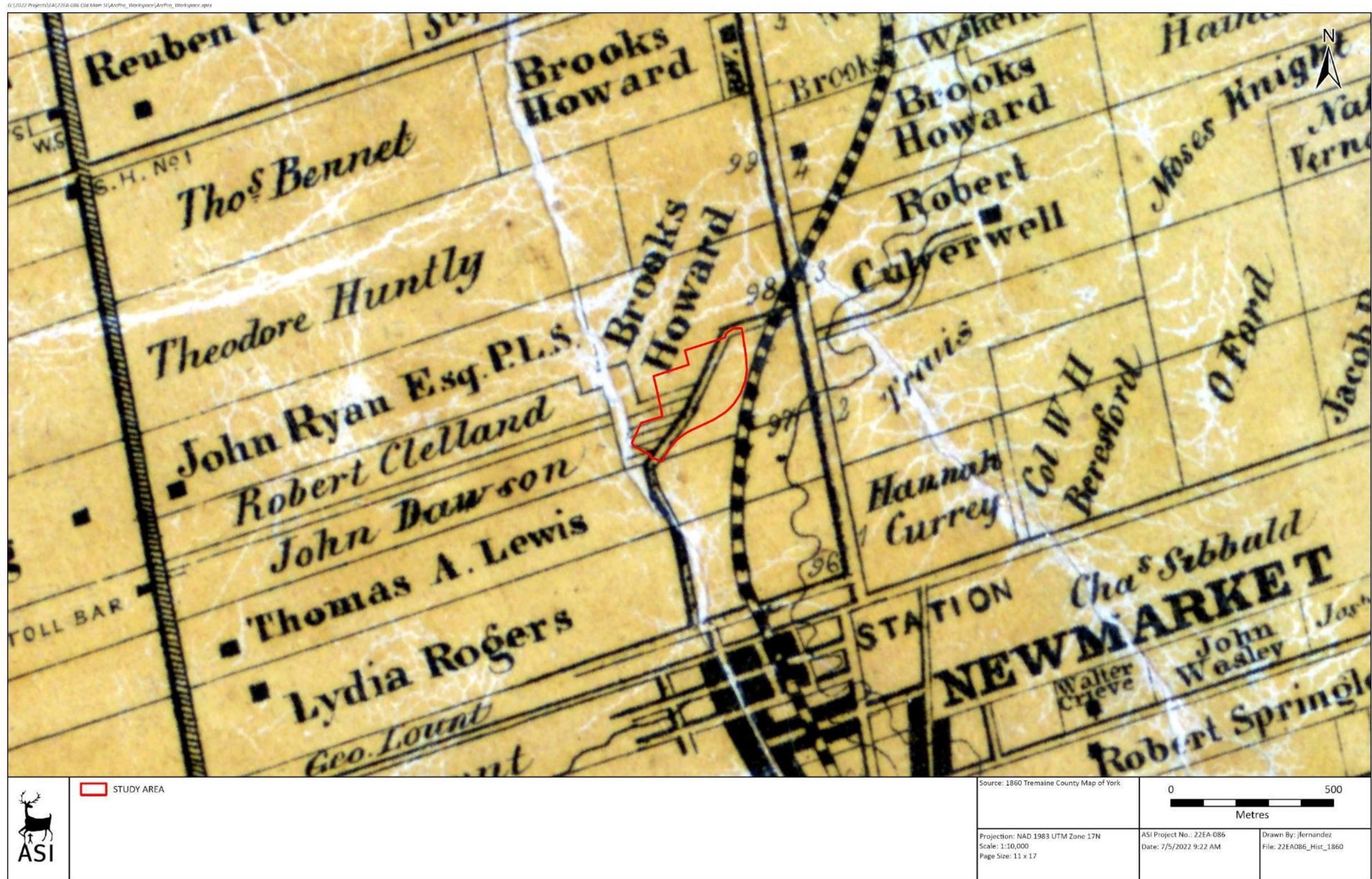


Figure 2 Study Area (Approximate Location) Overlaid in the 1860 County Atlas of York



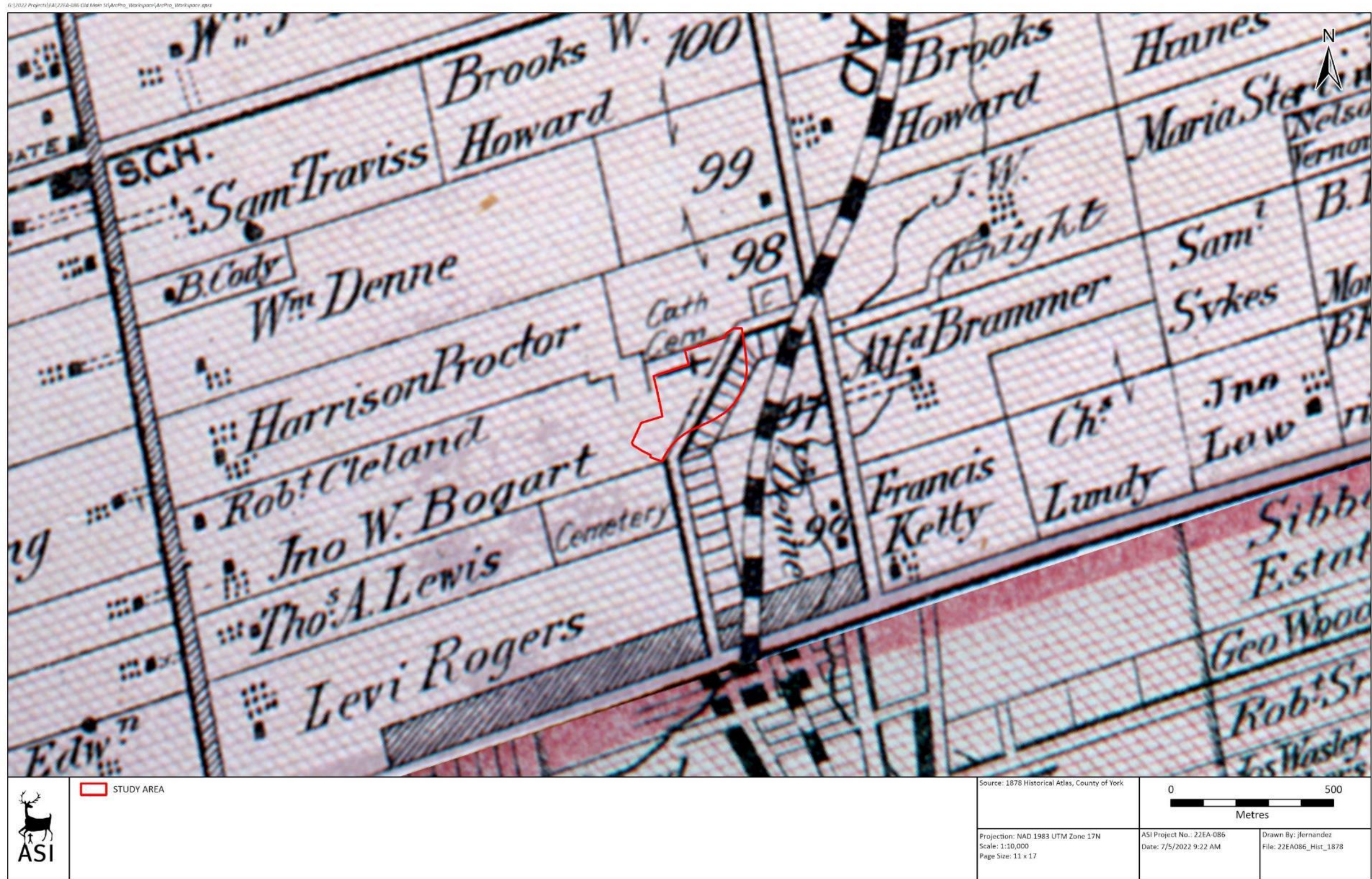


Figure 3 Study Area (Approximate Location) Overlaid in the 1878 Illustrated Historical Atlas of York



Figure 4 Study Area (Approximate Location) Overlaid in the 1929 topographic map Newmarket sheet



Figure 5 Study Area (Approximate Location) Overlaid in the 1954 Aerial Photography



Figure 6 Study Area (Approximate Location) Overlaid in the 1970 Aerial Photography

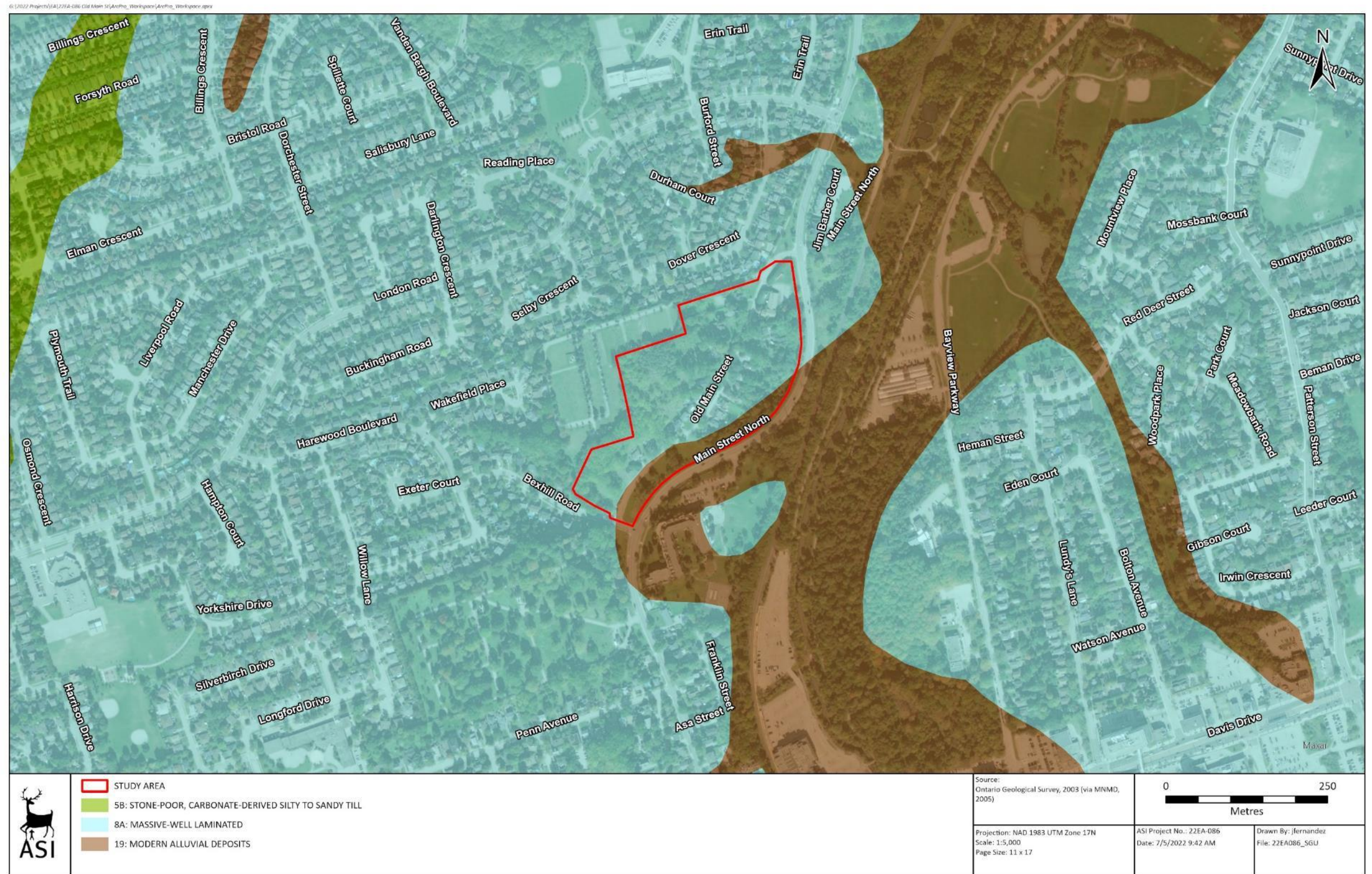


Figure 8 Study Area – Surficial Geology



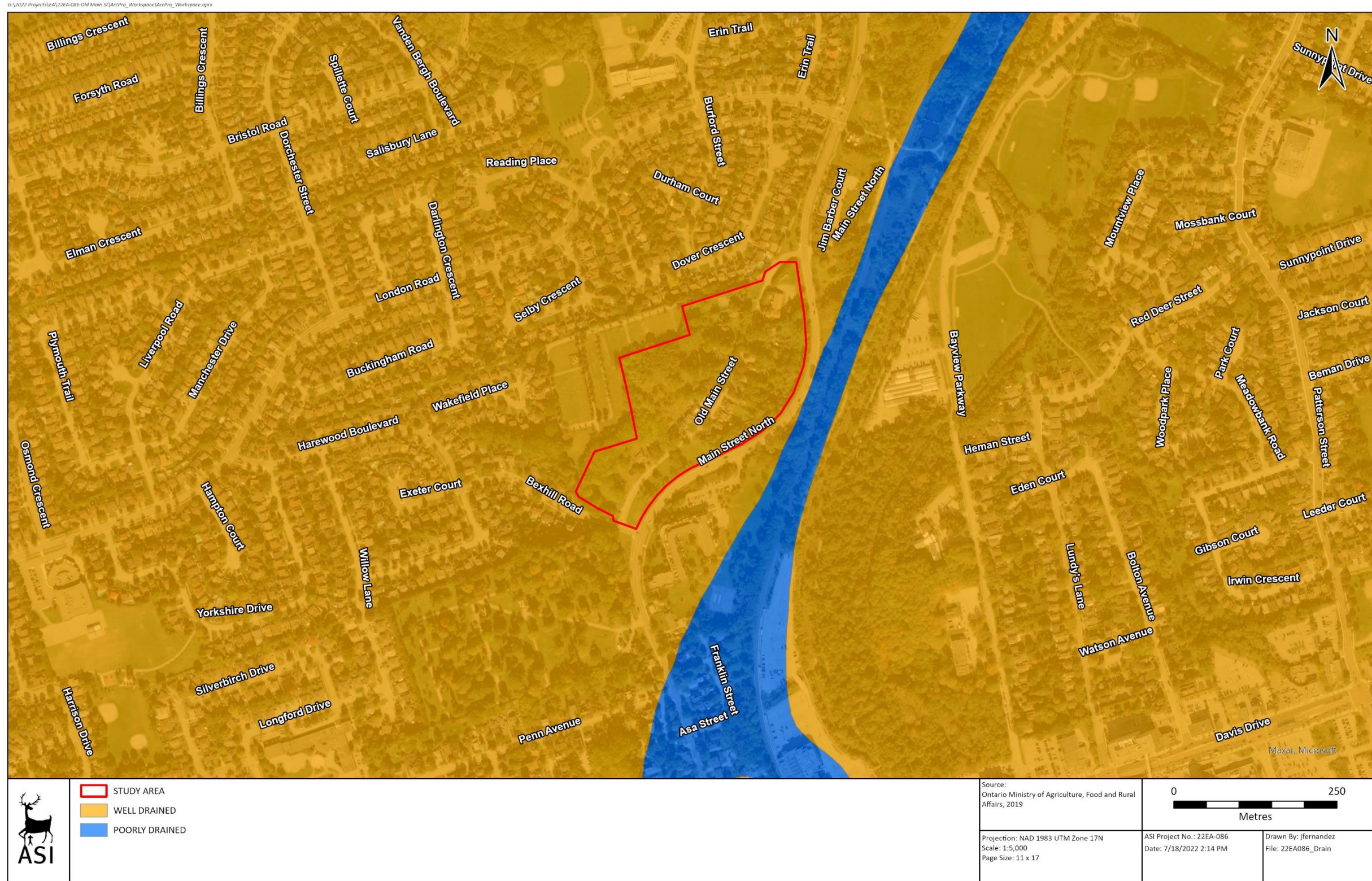


Figure 9 Study Area – Soil Drainage



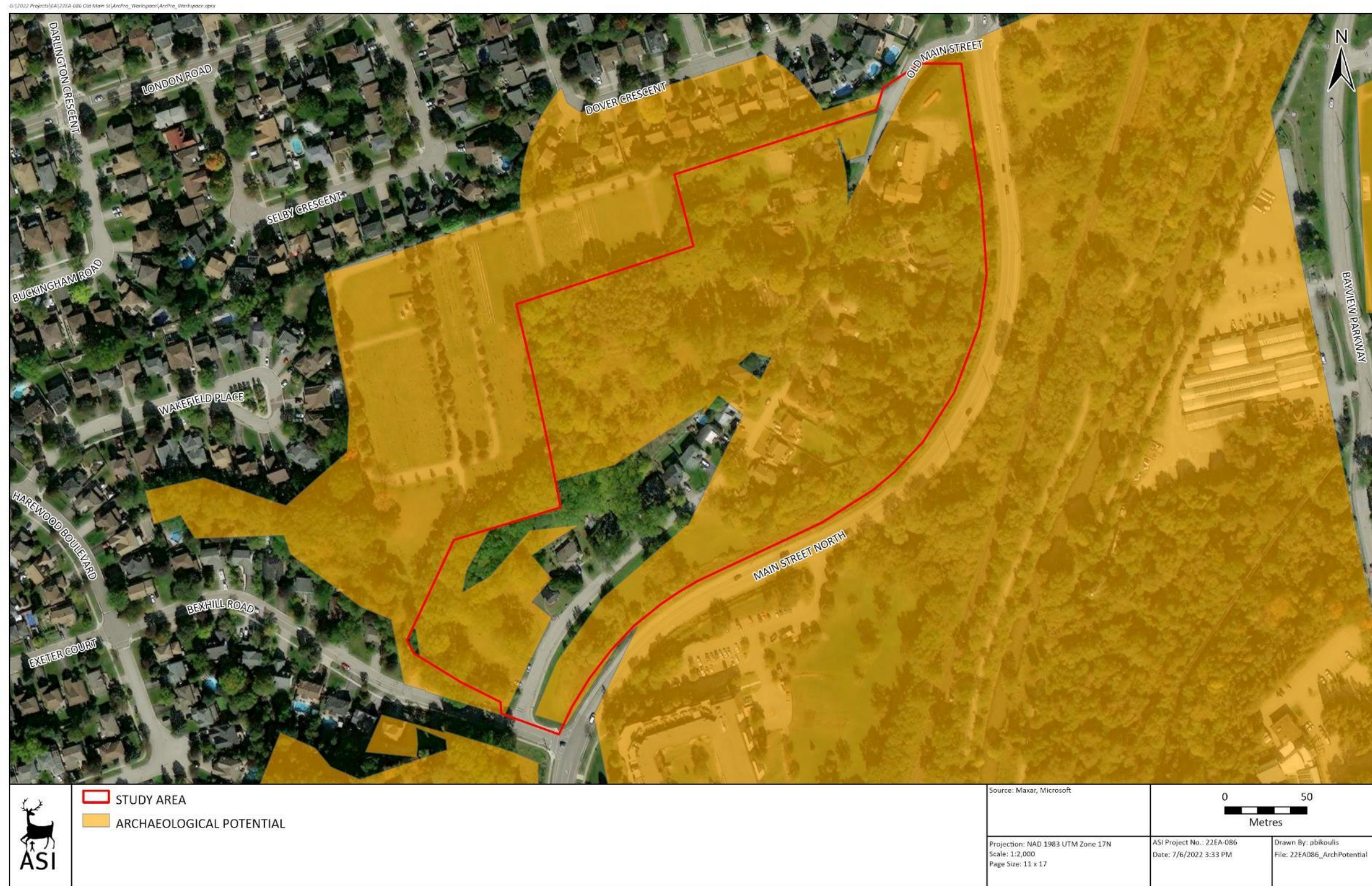


Figure 10 Study Area – Archaeological Potential Layer from the County of York Archaeological Management Plan





Figure 11 Study Area – Locations of Cemeteries



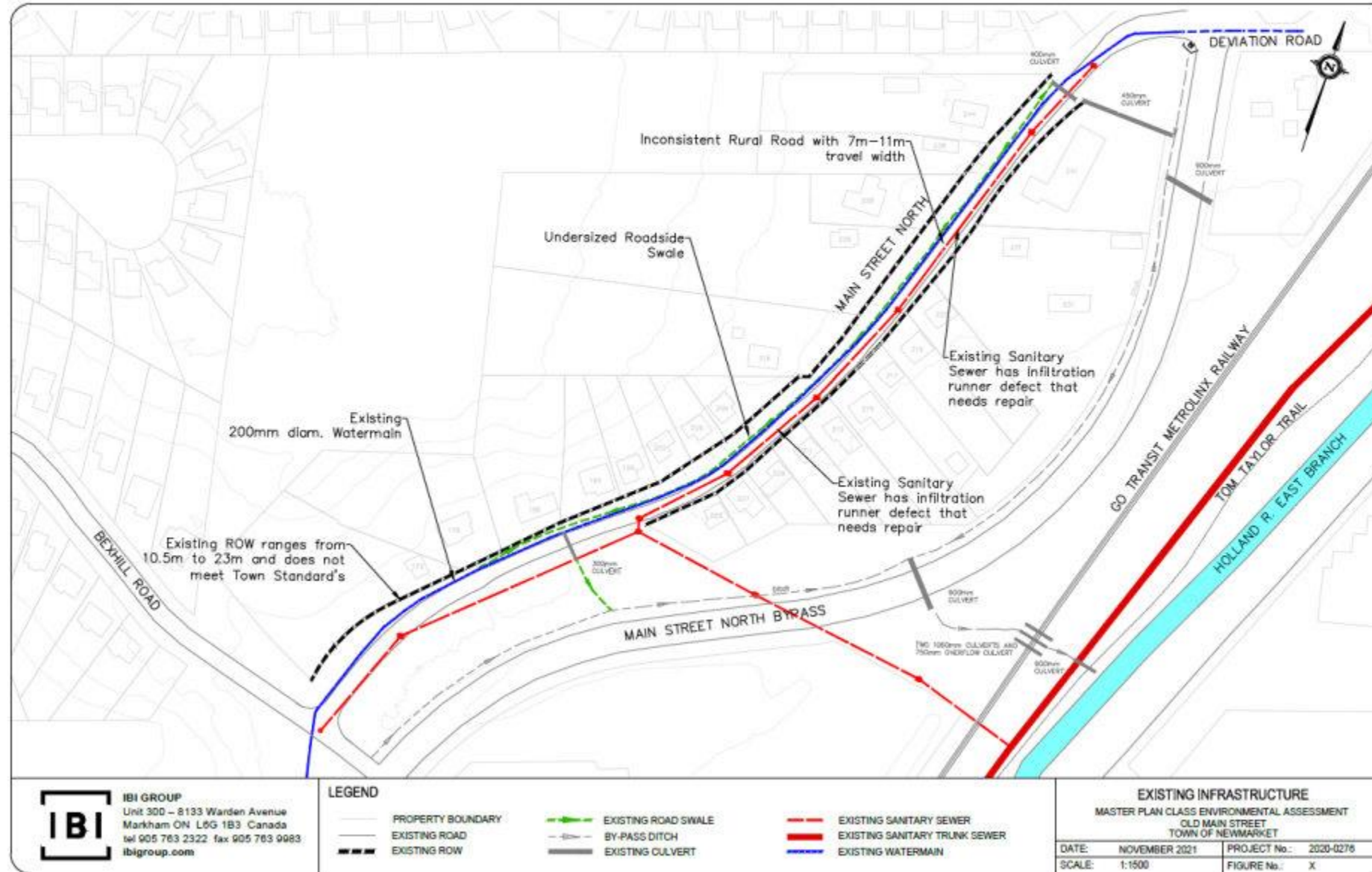


Figure 12 Old Main Street – Results of Stage 1



Appendix A: Existing Infrastructure

Overview of Study Area – Existing Infrastructure



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Figure 13 Existing Infrastructure within the Study Area



Appendix B: Cemetery Mapping

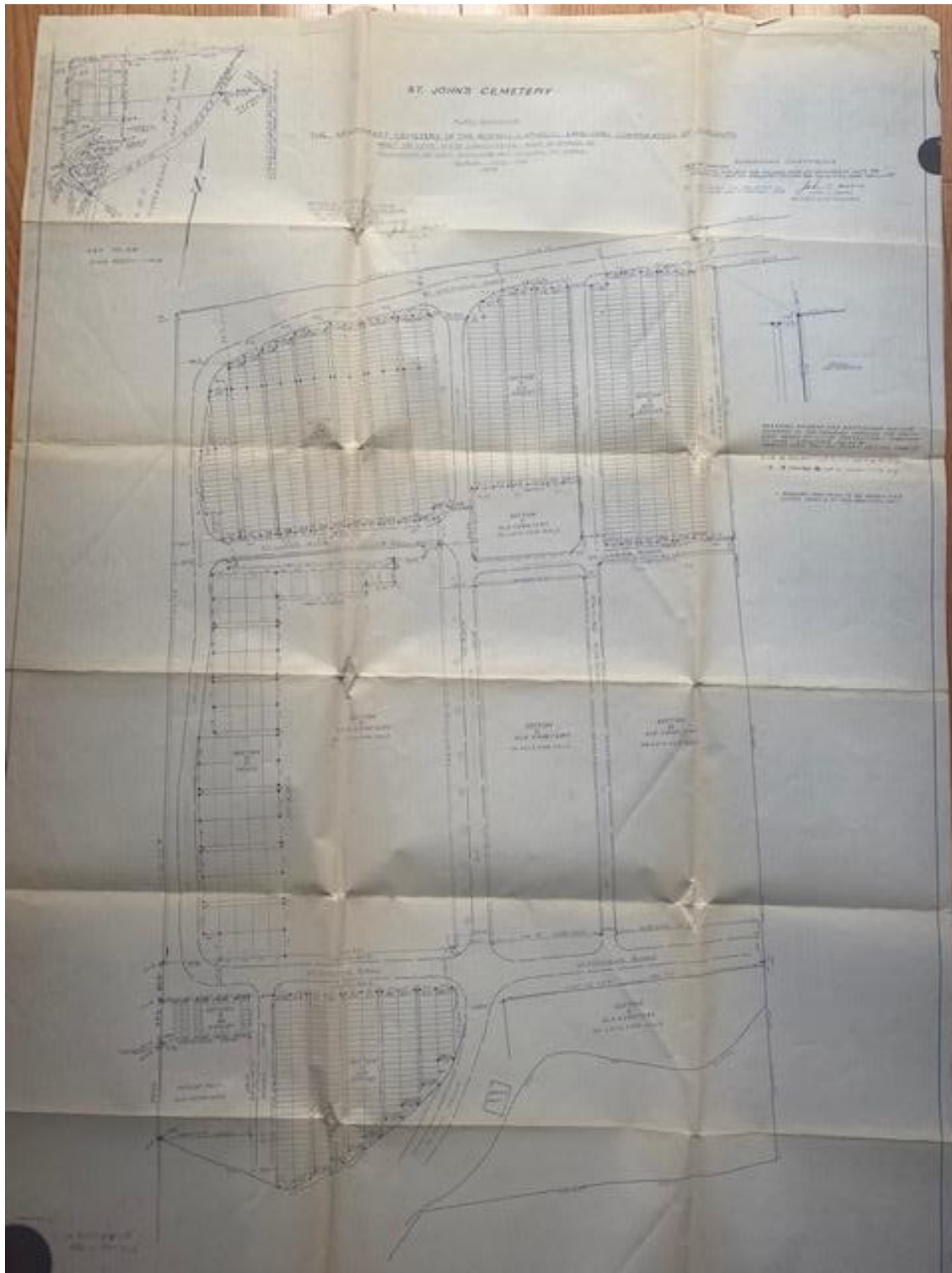


Figure 14 The 1970 Plan Map of St. John's Cemetery



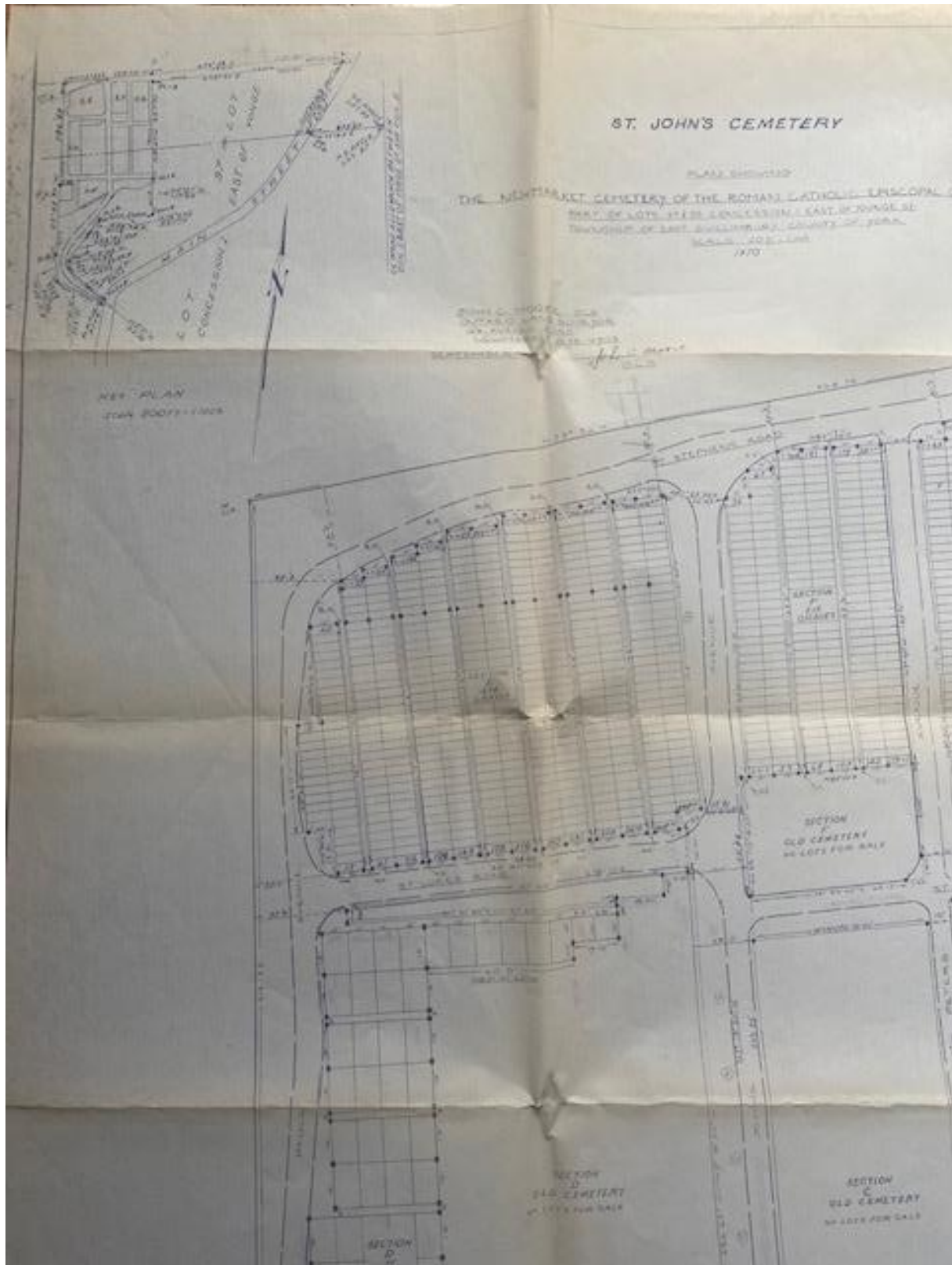


Figure 15 Close up of the St. John's Cemetery 1970 Plan Map (West)



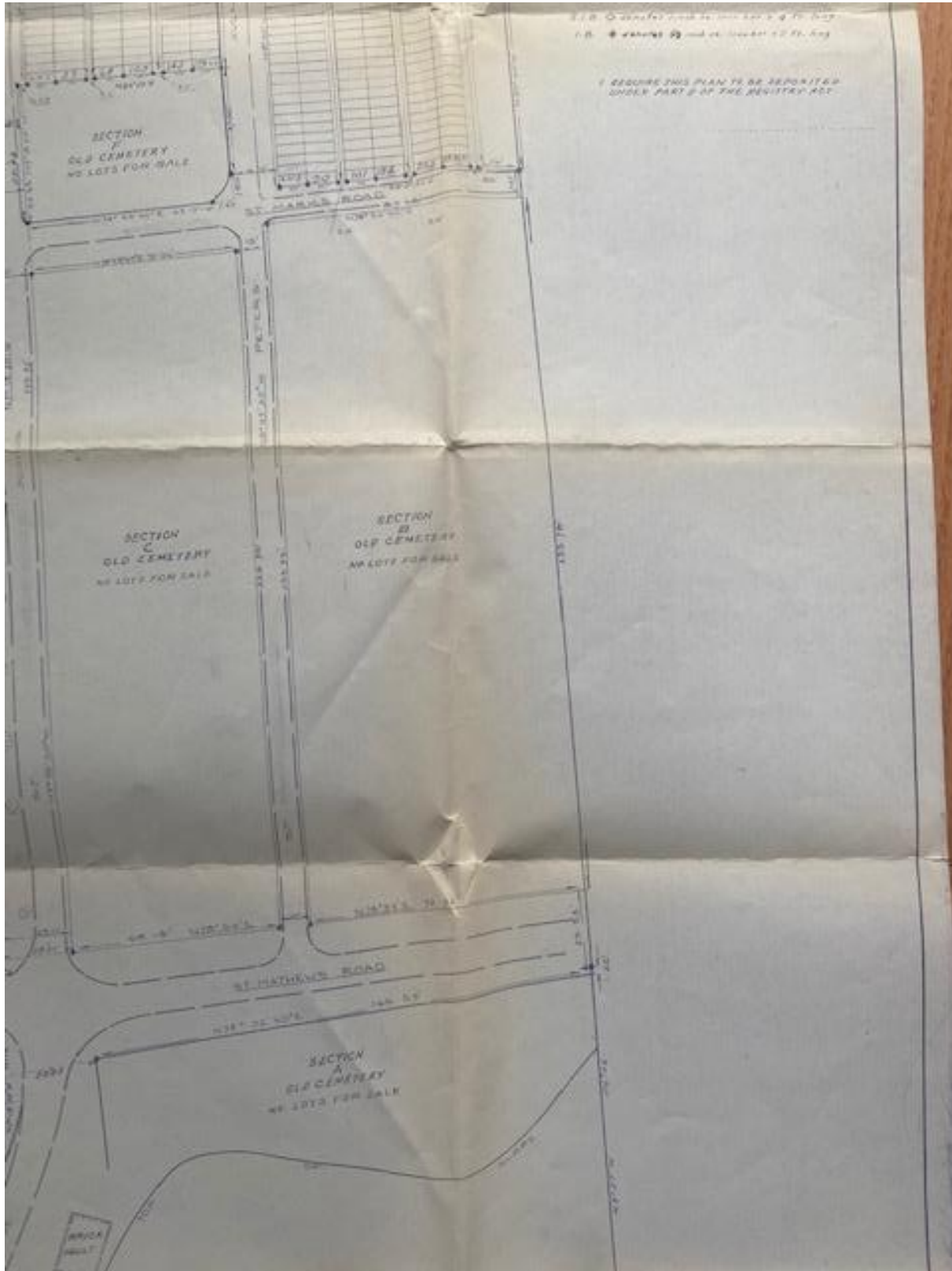


Figure 16 Close up of the St. John's Cemetery 1970 Plan Map (East)



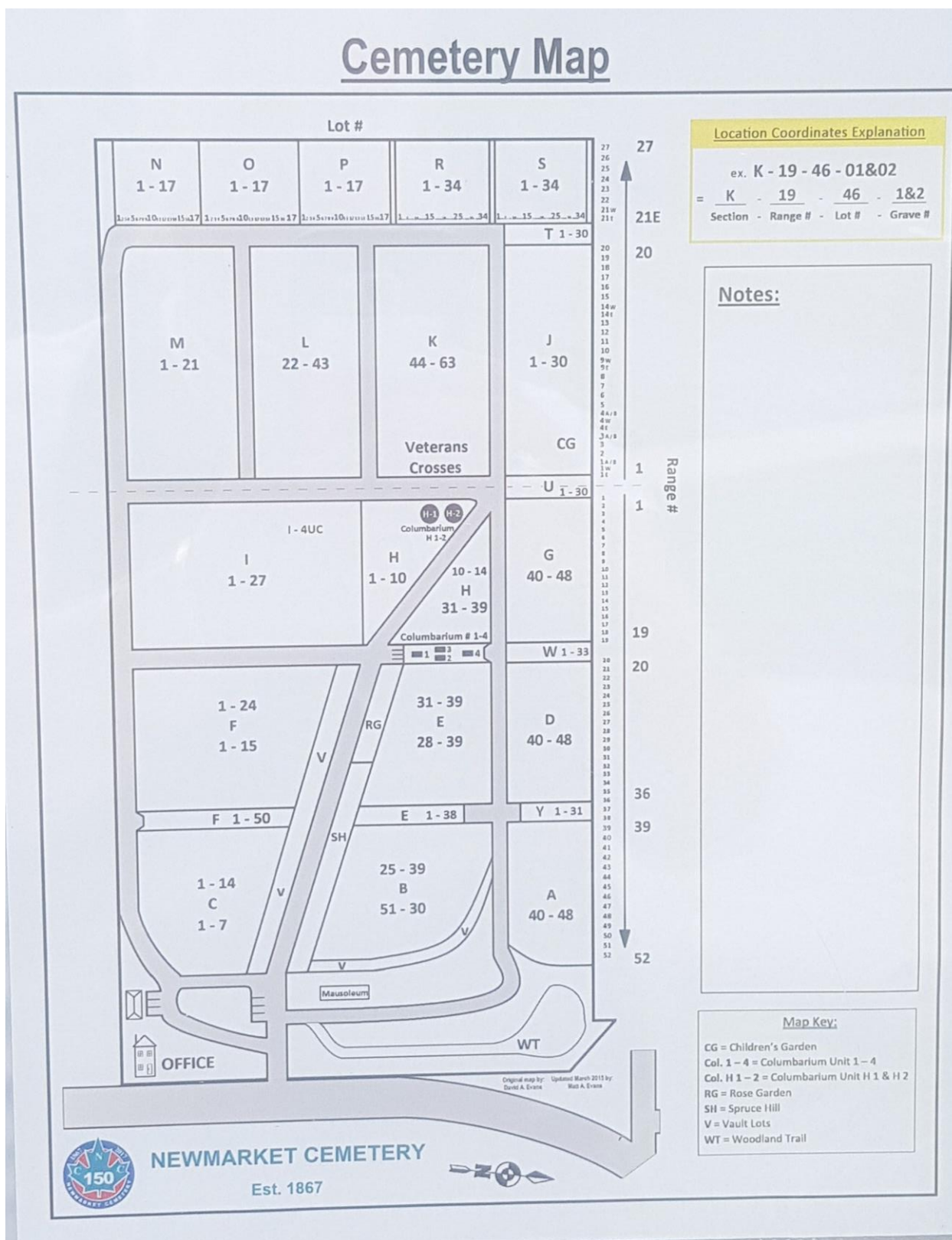


Figure 17 1867 Map of Newmarket Cemetery



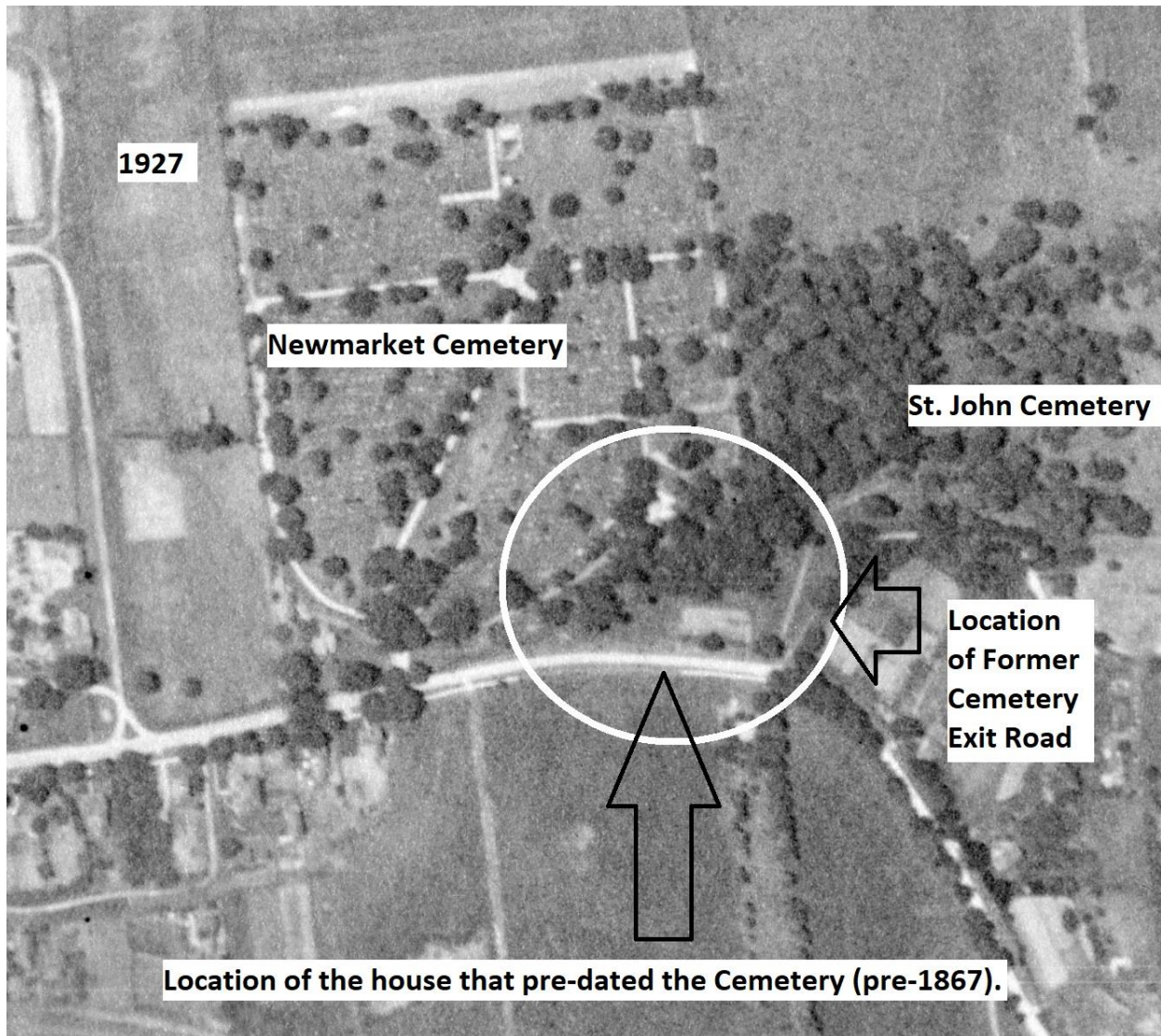


Figure 18 Aerial imagery from 1927 with notes from Newmarket Cemetery

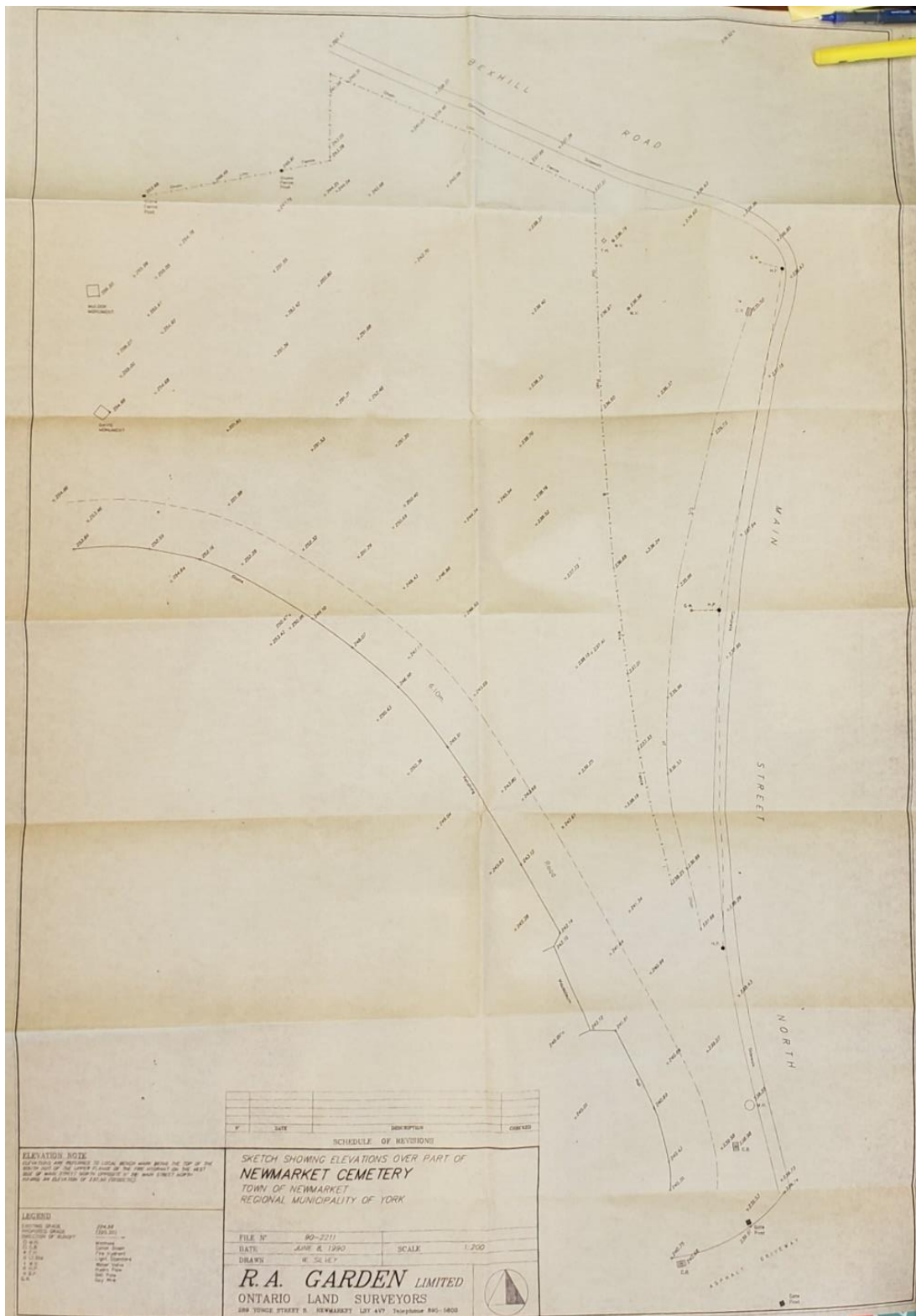


Figure 19 1990 Map of Newmarket Cemetery elevations at the southwest corner of Bexhill Road and Main Street North



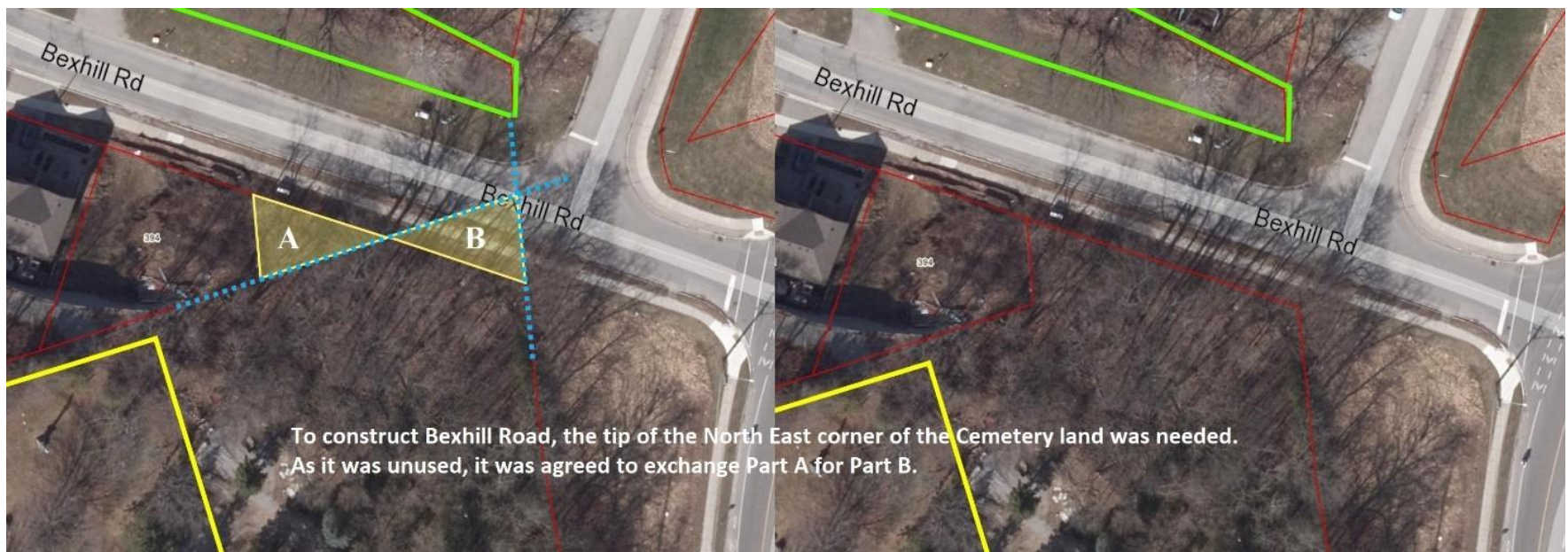


Figure 20 Land Exchange with Newmarket Cemetery for Construction of Bexhill Road

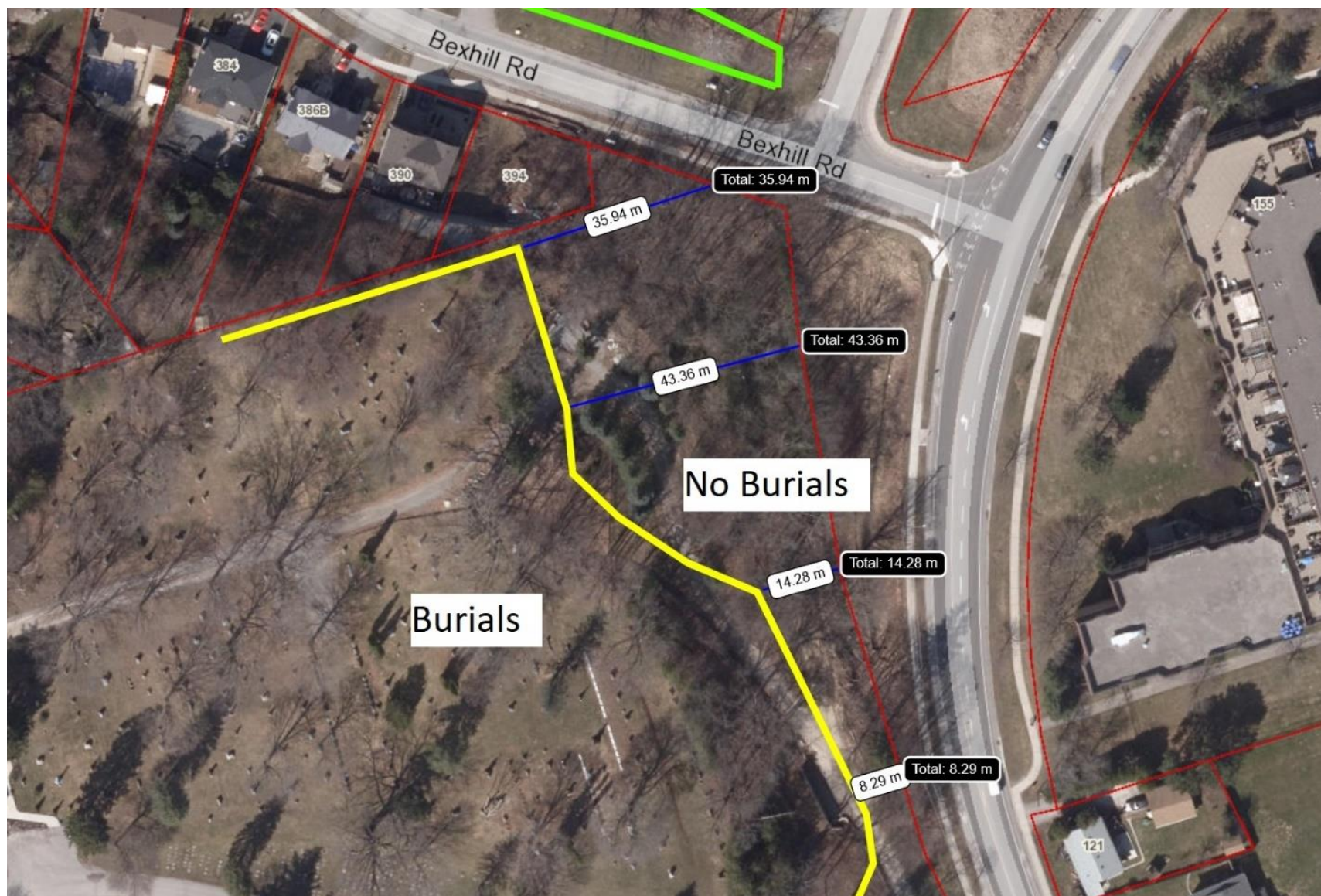


Figure 21 Map showing boundaries of burials within the Newmarket Cemetery Parcel

Stage 1 Archaeological Assessment Old Main Street (Lots 97-98, Concession 1 East of Yonge Street, Geographical Township of East Gwillimbury, County of York) Town of Newmarket, Regional Municipality of York

Supplementary Documentation

Prepared for:

IBI Group

8133 Warden Avenue, Unit 300
Markham, Ontario, L6G 1B3

Archaeological Licence: P380 (Cooper)
PIF P380-0092-2022
Archaeological Services Inc. File: 22EA-086

2 August 2022

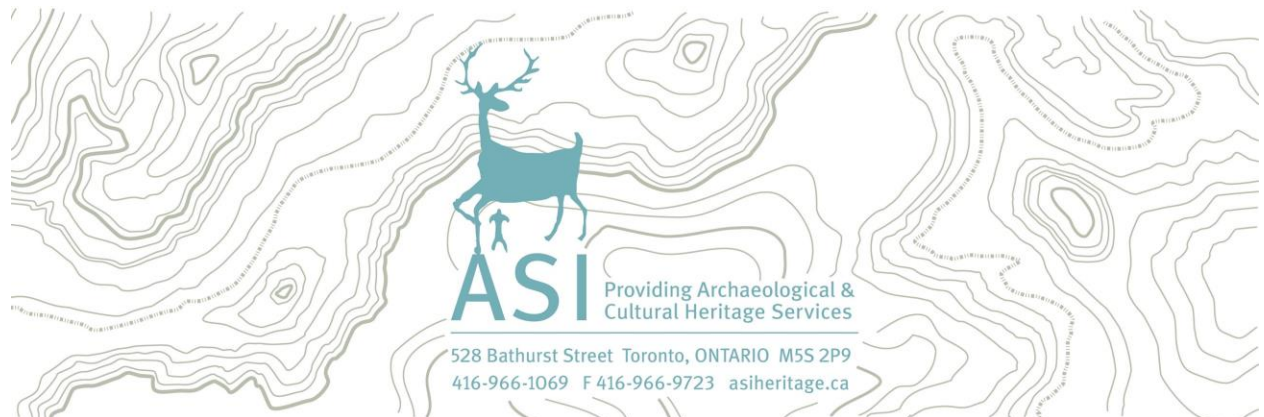


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1.0	Appendix A – Cemetery Email Communications	3
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1.0 Appendix A – Cemetery Email Communications



Danielle Bella

From: StJohn Cemetery <stjc.cemetery@gmail.com>
Sent: Thursday, July 7, 2022 11:34 AM
To: Danielle Bella
Subject: Fw: Survey mapping
Attachments: IMG_3654.jpg; IMG_3651.jpg; IMG_3648.jpg

Good morning Danielle,

Please find attached pictures of the survey of our cemetery. Image 3654 is the one that shows section B, which is the one that borders on the fence by the treed area.

Let me know if you require anything else or if you have any questions.

Regards,
Christine Allen
St. John Cemetery

From: Danielle Bella <dbella@asiheritage.ca>
Sent: Wednesday, July 6, 2022 11:03 AM
To: cemetery@stjohnsnewmarket.ca
Subject: Survey Mapping

Hello Christine,

We spoke on the phone earlier today. I thought I'd send along an email to make sure you have my correct email address.

Regards,

Danielle Bella, BA (Hon) (She/Her)
Archaeologist | Technical Writer • Environmental Assessment Division

ASI • Providing Archaeological & Cultural Heritage Services
DBella@asiheritage.ca • 416 966 1069 • Fax: 416 966 9723
528 Bathurst Street, Toronto, Ontario, M5S 2P9 • asiheritage.ca

Danielle Bella

From: Danielle Bella
Sent: Wednesday, June 8, 2022 4:24 PM
To: cemetery@stjohnsnewmarket.ca
Subject: Survey Mapping of Saint John Cemetery, Newmarket

Good afternoon,

I am an archaeologist conducting a research assignment for the Old Main Street in Newmarket. Saint John Cemetery is in proximity to the northwest limits of our Study Area. Part of my research involves documenting the cemetery boundaries to demonstrate no work will impact sensitive areas. The Ministry of Heritage, Sport, Tourism and Culture Industries requires that we include any available survey mapping or plan drawings of the cemetery property and burial plots in our research. The Bereavement Authority of Ontario indicates the St. John's Roman Catholic Cemetery Board is the licensed operator of the cemetery. Please let me know if these records are available for this cemetery, if there is someone I could speak to about these records, or whether I should submit a search request form for specific documents. Any assistance is greatly appreciated at your earliest convenience.

Regards,

Danielle Bella, BA (Hon) (She/Her)
Archaeologist | Technical Writer • Environmental Assessment Division



ASI • Providing Archaeological & Cultural Heritage Services
DBella@asiheritage.ca • 416 966 1069 • Fax: 416 966 9723
528 Bathurst Street, Toronto, Ontario, M5S 2P9 • asiheritage.ca

Danielle Bella

From: Newmarket Cemetery Info <info@newmarketcemetery.com>
Sent: Tuesday, July 5, 2022 2:14 PM
To: Danielle Bella
Subject: RE: Newmarket Cemetery Information Needed [V]
Attachments: Area in 1927.jpg; Bexhill Prop Line Bump Out.jpg; Map of Bexhill & Main part of Cemetery.jpg; Map of Bexhill & Main Zoom 1.jpg; Map of Bexhill & Main Zoom 2.jpg; Map of Bexhill & Main Zoom 3.jpg; Map of Bexhill & Main Zoom 4.jpg; Map of Bexhill & Main Zoom 5.jpg; NCC Front End.jpg; NCC N-E Cnr.jpg; Pre 1867 House & SJC Exit Rd.jpg

Project Code: 22EA-086

Good afternoon,

Attached to this email, I have information that should help with your work. I have listed them below and included a brief description.

If you have any questions, feel free to give me a call.

Documents attached include:

- **NCC Front End (from York Maps Data):**
I have marked up the area of the Cemetery that has burials and the area that does not have any burials.
- **NCC N-E Cnr (from York Maps Data):**
Zoomed in on the North East corner and includes the approximate distance between burials and the property line (using York Maps GIS Data).
- **Map of Bexhill & Main St N. area of Cemetery:**
It is from 1990 and shows the property line, elevation and landmarks.
- **Map of Bexhill & Main Zoom 1-5:**
Zoomed in copies of the map of Bexhill & Main St N. area of Cemetery
- **Bexhill Prop Line Bump Out:**
To construct Bexhill Road, the tip of the North East corner of the Cemetery land was needed. As the Cemetery land was unused, it was agreed to exchange the land needed for the road (Part B) for an equally sized area (Part A) to the West of the land for the road (See map).
- **Aerial Photo of area from 1927:**
- **Aerial Photo of area from 1927 with location of pre-1867 House & St. John Cemetery Exit Road:**
 - According to records I have, when the Cemetery first opened, there was a house located at the North East corner of the property. This house that pre-dated the Cemetery (pre-1867), was used as a temporary residence for the caretaker, until the current house (now office) was built a few years later. I have no other information about the house, other than of its existence.

- St. John Chrysostom Cemetery (AKA St. John Cemetery) had an old exit road that let out on to Main St. N. When Bexhill Rd was installed, St. John Cemetery reconfigured its exit to make a connection to the new road.

All the best,

Matt Evans
Newmarket Cemetery
905-836-5133

From: Danielle Bella <dbella@asiheritage.ca>
Sent: Tuesday, June 14, 2022 4:31 PM
To: Newmarket Cemetery Info <info@newmarketcemetery.com>
Subject: RE: Newmarket Cemetery Information Needed

Hi Adam,

Q: What work is being done?

A: We are doing a Stage 1 archaeological assessment of Old Main Street between Bexhill Road and Main Street North. This includes background research, and a property inspection which will involve visual assessment and photo documentation. This will determine if Stage 2 survey is needed (test pit survey at five metre intervals where archaeological potential is determined). Stage 2 survey would be a separate project, no impacts to the earth will occur at this stage in the process.

Q: Who are you working on behalf of/who is doing the work?

A: We are working on behalf of IBI Group for the Town of Newmarket. This is being done under the Municipal Class Environmental Assessment process. The work will include improving water, sanitary, storm drainage, and transportation services for existing and future land use.

Q: What side of the cemetery will the work be performed?

A: Our Study Area includes a small portion of land south of Bexhill Road directly under Old Main Street, north of the cemetery. The cemetery will not be impacted. If the cemetery was within the Study Area, we would recommend avoidance. If there was potential for unmarked burials outside the cemetery limits within our Study Area, we would recommend cemetery investigation within 10-20 metres of the cemetery.

Q: What specific information do you need indicated?

A: Any available survey mapping or plan drawings of the cemetery and burial plots. The goal is to establish the cemetery limits, determine potential for unmarked burials outside the known cemetery limits, and to avoid any known burials. This is required by the Ontario Ministry of Heritage, Sport, Tourism and Culture Industries for our report to be accepted into the Ontario Public Register of Archaeological Reports.

Thank you, and please let me know if you have any more questions or need further clarification.

Cheers,

Danielle Bella, BA (Hon) (She/Her)
Archaeologist | Technical Writer • Environmental Assessment Division



ASI • Providing Archaeological & Cultural Heritage Services

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From: Newmarket Cemetery Info <info@newmarketcemetery.com>

Sent: Tuesday, June 14, 2022 3:45 PM

To: Danielle Bella <dbella@asiheritage.ca>

Subject: Newmarket Cemetery Information Needed

Hi Danielle,

One of our directors has asked for further information to provide what you need:

- What side of the cemetery will the work be performed?
- What specific information do you need indicated?
- Who are you working on behalf of/who is doing the work?
- What work is being done?

Kind regards,

Adam Penrose

Office Administrator

Newmarket Cemetery Corporation

112 Main Street North

Newmarket, ON L3Y 4A1

905-836-5133