



**ERB STREET WEST
ENVIRONMENTAL STUDY REPORT**

REGION OF WATERLOO

MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT
ERB STREET IMPROVEMENTS FOR FISCHER-
HALLMAN ROAD TO WILMOT LINE, CITY OF
WATERLOO

Report Date March 22, 2019

REPORT (DOCUMENT 1 OF 3)

WALTERFEDY

REGION OF WATERLOO

ERB STREET WEST ENVIRONMENTAL STUDY REPORT

REPORT (DOCUMENT 1 OF 2)

Table of Contents

	Page
DOCUMENT 1 – REPORT	
EXECUTIVE SUMMARY.....	i
1.0 INTRODUCTION & BACKGROUND.....	1
1.1 Project Initiation	1
1.2 Class Environmental Assessment (EA).....	1
1.3 Study Organization	1
1.4 Description of the Study Area.....	2
2.0 OBJECTIVE OF THE STUDY AND PROBLEM STATEMENT	4
2.1 Objective.....	4
2.2 Problem Statement.....	4
3.0 EXISTING CONDITIONS	5
3.1 Municipal Infrastructure	5
3.1.1 Roads.....	5
3.1.2 Pedestrian and Cycling Facilities	6
3.1.3 Watermain.....	7
3.1.4 Sanitary Sewer.....	7
3.1.5 Storm Sewer	7
3.2 Social Environment.....	8
3.3 Physical and Natural Environment	9
3.4 Cultural Heritage & Archaeological Features	9
3.5 Existing Tree Inventory.....	10
3.6 Noise Levels (Existing and Projected).....	10
3.7 Geotechnical Investigation	12
3.8 Phase 1 Environmental Site Assessment.....	12

3.9	Air Quality	13
3.10	Utilities	13
3.10.1	Hydro One Networks Inc.	13
3.10.2	Waterloo North Hydro	13
3.10.3	Union Gas	13
3.10.4	Bell Canada.....	14
3.10.5	Rogers Cable	14
4.0	TRANSPORTATION NETWORK AND TRAFFIC FORECASTING	14
4.1	Transportation Background and Context.....	14
4.1.1	Background	14
4.1.2	Justification	14
4.1.3	Problem Statement	15
4.2	Roadway Operations Under Existing Traffic Demands and Existing Roadway Configuration	16
4.2.1	Road Conditions.....	16
4.2.2	Existing Traffic Volumes.....	16
4.2.3	Traffic Operation Assessment.....	20
4.3	Projected Roadway Operations Under Projected Traffic Demands with No Changes to Existing Roadway and Intersection Configurations.....	21
4.3.1	Projected Future Traffic.....	21
4.3.2	Future Traffic Assessment	22
4.3.3	Possible Improvements to Address Transportation Deficiencies in the Corridor.....	23
4.4	Considerations for Active Transportation	23
4.5	Recommended Transportation Improvements for Incorporation into Detailed Design Alternatives.....	23
5.0	ALTERNATIVE SOLUTIONS	24
6.0	EVALUATION OF ALTERNATIVE SOLUTIONS	29
6.1	Technical	29
6.2	Natural Environment.....	29
6.3	Social/Cultural	30
6.4	Economic/Financial	30
6.5	Methodology for Evaluating Alternatives	31
7.0	RECOMMENDED DESIGN ALTERNATIVE	31

7.1	Description of Proposed Works	31
7.2	Benefits of the Recommended Design Alternative	51
7.2.1	Technical	51
7.2.2	Natural Environment	51
7.2.3	Social/Cultural	51
7.2.4	Economic/Financial	52
7.3	Property Impacts and Requirements	52
7.4	Project Capital Cost Estimate	52
8.0	POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES	52
9.0	ADDITIONAL WORK AND REQUIRED APPROVALS	53
10.0	MONITORING	54
11.0	CONSTRUCTION STAGING	54
12.0	PUBLIC AND AGENCY CONSULTATION	54
12.1	Stakeholder Involvement	54
12.2	Notice of Study Commencement	55
12.3	Public Consultation Centres	55
12.3.1	Public Consultation Centre #1 (PCC #1)	55
12.3.2	Public Consultation Centre #2 (PCC #2)	58
12.4	Agency and Stakeholder Coordination and Correspondence	61
12.5	Regional Planning and Works Committee Meeting	61
12.6	Notice of Completion	62
13.0	PROJECT SCHEDULE	63

Figures

Exhibit E-1	Study Area
Exhibit E-2	Alternative 2C (Modified) – Fischer-Hallman Road to Beechwood Drive/Gateview Drive
Exhibit E-3	Alternative 2C (Modified) – Beechwood Drive/Gateview Drive to Erbsville Court
Exhibit E-4	Alternative 2C (Modified) – Erbsville Court to Traffic Signals at Westside Marketplace Entrance

Exhibit E-5	Alternative 2C (Modified) – Traffic Signals at Westside Marketplace Entrance to Roundabout at Gate 1 Region Waste Management Centre/West Waterloo Commercial Centre (Costco) Entrance
Exhibit 1-1	Study Area
Exhibit 4-1	Existing Traffic Volumes
Exhibit 4-2	Traffic Volumes
Exhibit 5-1	Alternative 1 – Urbanize the Existing Road with Widening to Four Lanes West of Ira Needles and Add Active Transportation Facilities (Fischer-Hallman Road to Beechwood Drive/Gateview Drive & Erbsville Court to Roundabout at Gate 1 Region Waste Management Centre/West Waterloo Commercial Centre (Costco) Entrance)
Exhibit 5-2	Alternative 1 – Continued (Beechwood Drive/Gateview Drive to Erbsville Court)
Exhibit 5-3	Alternative 2A – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks and On-Road Bike Lanes
Exhibit 5-4	Alternative 2B – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Multi-Use Trails
Exhibit 5-5	Alternative 2C – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks and Cycle Tracks
Exhibit 7-1	Recommended Design Alternative 2C (Modified) – Plan View
	Exhibit 7-2 Alternative 2C (Modified) – Fischer-Hallman Road to Beechwood Drive/Gateview Drive
Exhibit 7-3	Alternative 2C (Modified) – Beechwood Drive/Gateview Drive to Erbsville Court
Exhibit 7-4	Alternative 2C (Modified) – Erbsville Court to Traffic Signals at Westside Marketplace Entrance
Exhibit 7-5	Alternative 2C (Modified) – Traffic Signals at Westside Marketplace Entrance to Roundabout at Gate 1 Region Waste Management Centre/West Waterloo Commercial Centre (Costco) Entrance

Tables

Table 1-1	Project Team Members
Table 4-1	Existing Erb Street Average Annual Daily Traffic
Table 4-2	Existing Cyclist Traffic – 8-hour Totals
Table 4-3	Existing Pedestrian Traffic
Table 4-4	2024 Erb Street Average Annual Daily Traffic
Table 6-1	Evaluation Matrix
Table 12-1	PPC #1 Comment Summary
Table 12-2	PPC #2 Comment Summary
Table 13-1	Project Schedule

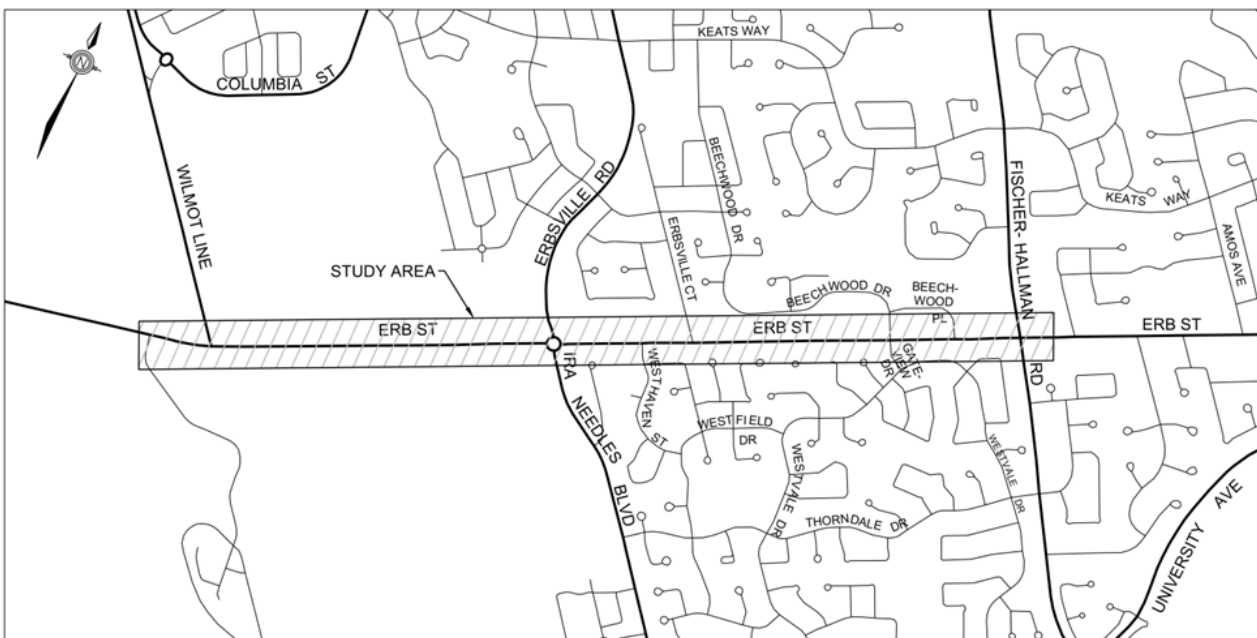
DOCUMENTS 2 and 3 – APPENDICES

Appendix A	Typical Cross-Sections of Design Alternatives
Appendix B	Notice of Study Commencement
Appendix C	Natural Environment Study Report
Appendix D	Cultural Heritage Resource Assessment
Appendix E	Stage 1 Archaeological Assessment
Appendix F	Tree Inventory Plan
Appendix G	Erb Street Class EA Transportation Report
Appendix H	Acoustical Impact Assessment
Appendix I	Geotechnical Investigation Report
Appendix J	Phase 1 Environmental Site Assessment
Appendix K	Air Quality Assessment
Appendix L	Evaluation Matrix
Appendix M	Recommended Design Alternative 2C (Modified)
Appendix N	Typical Cross-Sections and Preliminary Plans of Recommended Design Alternative
Appendix O	Preliminary Property Impact Plans
Appendix P	Public Consultation, Meetings and Approvals - Project Team Meetings - Public Consultation Centres - Stakeholder Correspondence - Planning and Works Committee Report - Regional Committee and Council Reports

EXECUTIVE SUMMARY

The Region of Waterloo has undertaken a Class Environmental Assessment (Class EA) Study to consider needed pavement reconstruction and road improvements for traffic growth, as well as transportation system improvements for transit, pedestrians, and cyclists on Erb Street from Fischer-Hallman Road to Wilmot Line in the City of Waterloo. A key plan of the study area is provided below.

Exhibit E-1: Study Area



Five alternative design concepts were developed by the Project Team and evaluated with respect to their ability to meet the traffic and transportation needs on Erb Street, as well as their potential for impact on the project environment in relation to: traffic capacity, operations, safety, natural environment, social environment, and costs. These alternatives were:

- Do Nothing;
- Alternative 1 - Urbanize the existing road and retain the current number of travelled lanes with the exception of widening to four lanes west of Ira Needles to the roundabout at the Waterloo Waste Management Centre/Costco entrance and adding active transportation facilities;
- Alternative 2A - Widen the road to four lanes, urbanize and add active transportation facilities for sidewalks and on-road bike lanes;
- Alternative 2B - Widen the road to four lanes, urbanize and add active transportation facilities for multi-use trails; and

- Alternative 2C - Widen the road to four lanes, urbanize and add active transportation facilities for sidewalks and cycle tracks.

Please refer to Appendix 'A' for typical cross-sections of the Design Alternatives.

The design alternatives and their preliminary evaluations were presented to the public along with identification of the Project Team's preferred design alternative, Alternative 2C (Modified), to Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks, Multi-Use Trail and On-Road Cycle Tracks. Comments received from the public are supportive of the need for traffic, pedestrian, and cyclist improvements along this section of Erb Street; however, concerns were expressed regarding the increase in traffic and associated noise. Typical cross-sections of Alternative 2C (Modified) are provided below.

Exhibit E-2: Alternative 2C (Modified) – Fischer-Hallman Road to Beechwood Drive/Gateview Drive

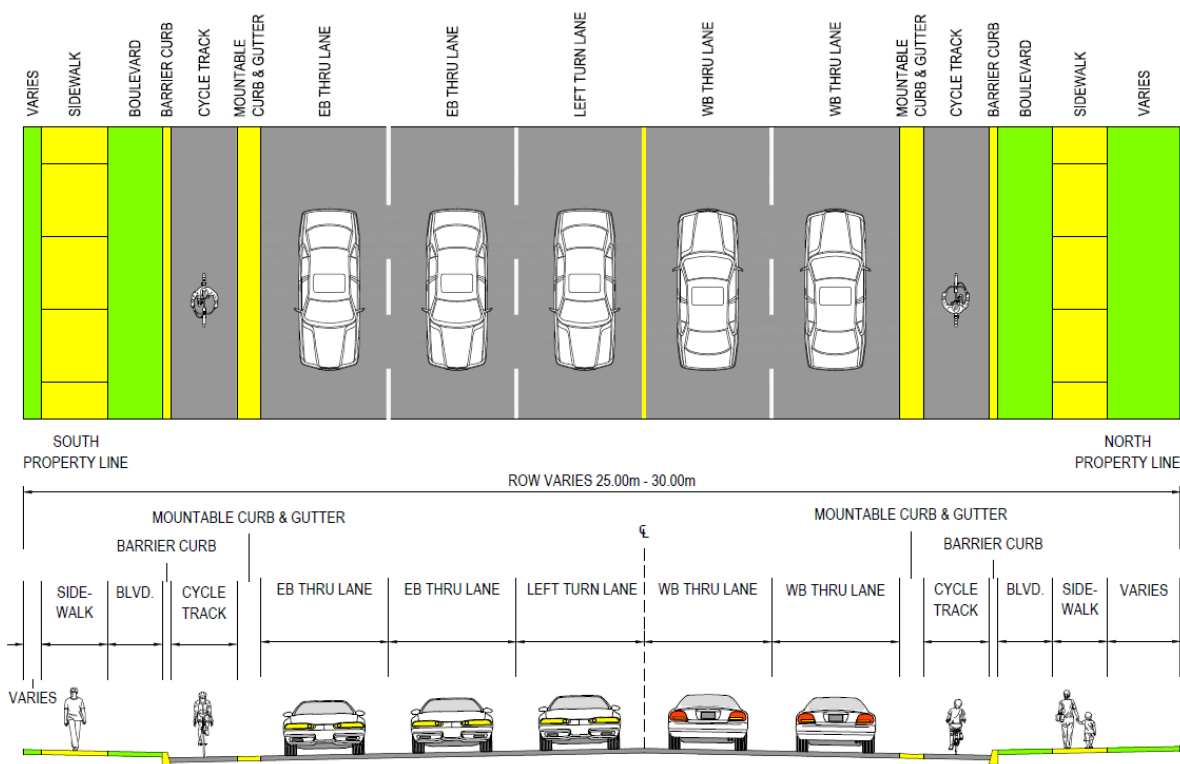


Exhibit E-3: Alternative 2C (Modified) – Beechwood Drive/Gateview Drive to Erbsville Court

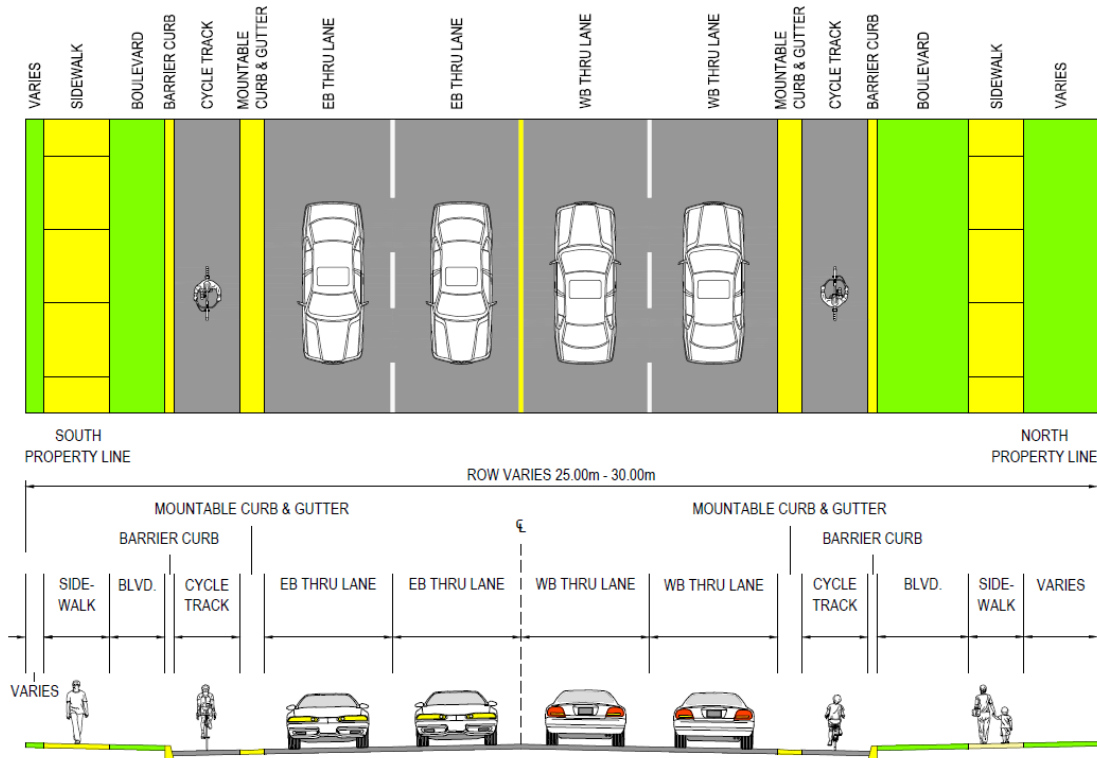


Exhibit E-4: Alternative 2C (Modified) – Erbsville Court to Traffic Signals at Westside Marketplace Entrance

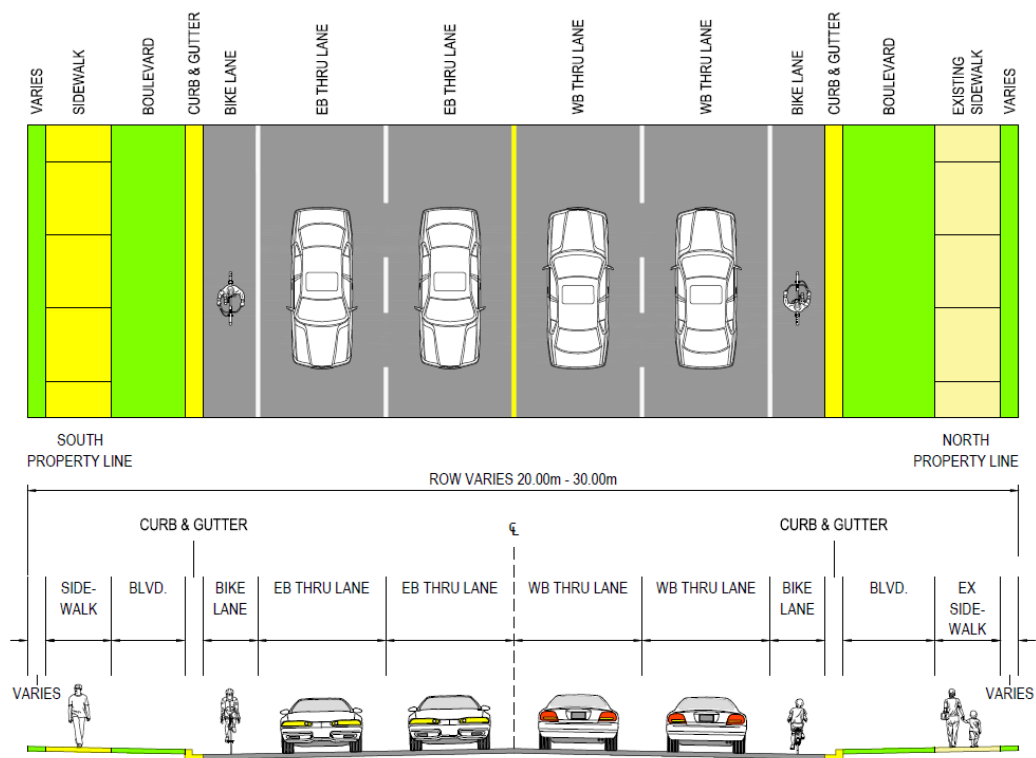
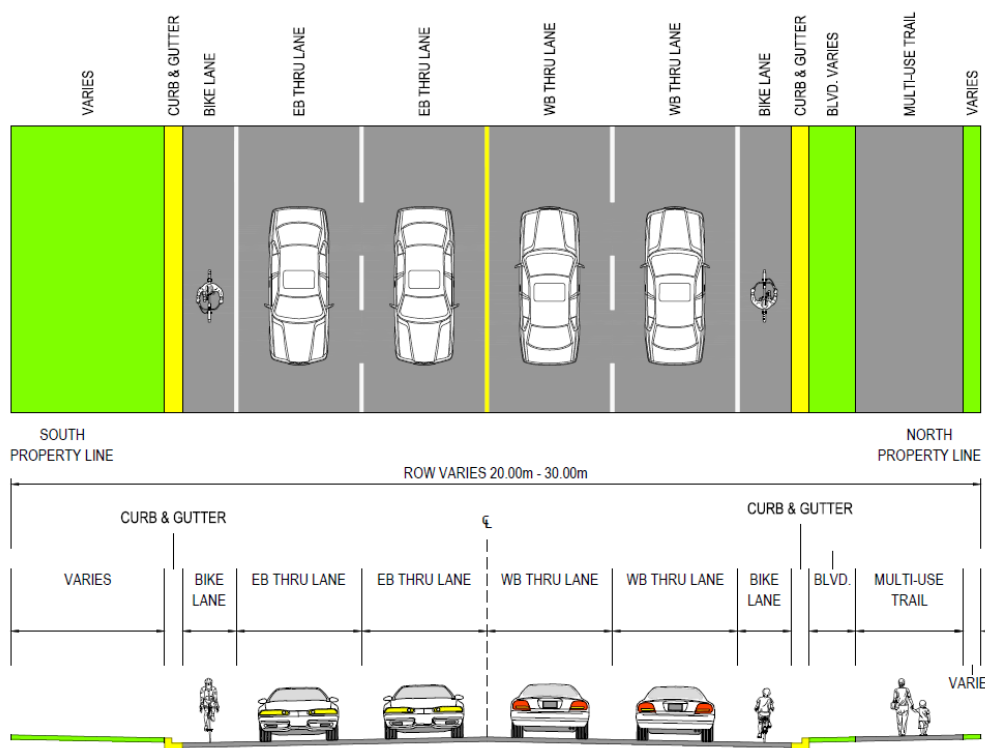


Exhibit E-5: Alternative 2C (Modified) – Traffic Signals at Westside Marketplace Entrance to Roundabout at Gate 1 Region Waste Management Centre/West Waterloo Commercial Centre (Costco) Entrance



In consideration of the technical information gathered for this project, as well as a review of all public and agency comments received, the Project Team recommended a modified version of Alternative 2C as the Preferred Alternative: Alternative 2C (Modified) - Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks, Multi-Use Trail and Cycle Tracks. This Preferred Alternative includes:

- Urbanizing and widening Erb Street to four lanes from Fischer-Hallman Road to the roundabout at Gate 2 of the Region's Waste Management Centre (east of Wilmot Line);
- Construction of an eastbound left-turn lane on Erb Street at Beechwood Place and extension of the existing turn lanes at intersections;
- Removing the right turn lane to the Bilingual School entrance at the northeastern corner of Erb Street and Erbsville Court;
- Roadway illumination on both sides of the road;

- Completing the sidewalk on the southern side of Erb Street between Gateview Drive and Erbsville Court, and on the southern side of Erb Street from the commercial plaza entrance west of Ira Needles Boulevard to the traffic signals at the Westside Marketplace entrance;
- Constructing a multi-use trail on the northern side of Erb Street from the Westside Marketplace entrance west of Ira Needles Boulevard to the roundabouts at the Region's Waste Management Centre/West Waterloo Commercial (Costco) site entrance and maintaining existing on-road bike lanes on both sides of Erb Street between Erbsville Court and Wilmot Line;
- Constructing cycle tracks on both sides of Erb Street from Fischer-Hallman Road to Erbsville Court; and
- Constructing noise walls abutting residential properties along the northern side of Erb Street from Beechwood Drive westerly for approximately 170 metres, and the southern side of Erb Street from Gateview Drive westerly for approximately 340 metres where noise walls do not currently exist.

The Recommended Design Alternative provides the required capacity for long-term traffic needs on this section of Erb Street, improves traffic operations, and provides enhanced active transportation facilities as recommended in the Region's Active Transportation Master Plan.

The estimated cost of the Recommended Design Alternative for the design and construction of the road improvements on Erb Street from Fischer-Hallman Road to Wilmot Line is between \$8.5 million and \$10.5 million, including estimated costs of between \$2.0 million and \$4.0 million for utility relocations such as Hydro One towers west of Ira Needles Boulevard that are required for all road widening alternatives. Funding for the improvements on Erb Street is currently provided in the Region's 2019 Ten Year Transportation Capital Program for construction in 2019 to 2021, pending approvals and completion of advanced utility relocations.

Regional Council, at its June 27, 2018, meeting approved the Recommended Design Alternative and directed staff to file a Notice of Study Completion for this Class Environmental Study with the Environmental Study Report to be placed on public record for a thirty (30) day review period.

1.0 INTRODUCTION & BACKGROUND

1.1 Project Initiation

In February 2014, the Regional Municipality of Waterloo (Region) initiated the Municipal Class Environmental Assessment (Class EA) Study to consider improvements on Erb Street from Fischer-Hallman Road to Wilmot Line in the City of Waterloo. WalterFedy was retained by the Region to help direct and complete the study as well as the engineering design and construction management of the project. The Notice of Study Commencement was issued in April 2015. A copy of the notice is included in Appendix 'B'.

1.2 Class Environmental Assessment (EA)

This project is being planned in accordance with the requirements of the Municipal Class Environmental Assessment. The Municipal Class EA is a planning and decision-making process approved under the Environmental Assessment Act that is used by municipalities to plan public infrastructure projects to ensure that potential environmental impacts are considered before a project is approved. It requires consultation with the public, involved stakeholders, and agencies in consideration of alternatives and their impacts on the project environment.

This project is being planned as a Schedule 'C' Class EA project which applies to larger, more complex projects with the potential for significant environmental impacts (natural, social, cultural, and economic) and requires multiple opportunities for public input.

1.3 Study Organization

A Project Team was established in order to provide direction and input to the planning and design of the project. Members of the Project Team are as follows:

Table 1-1: Project Team Members

Mr. William Gilbert, P.Eng.	Region of Waterloo – Senior Project Manager, Design & Construction
Mr. Mark Christensen, P.Eng.	WalterFedy – Project Manager
Mr. Marcos Kroker, P.Eng.	Head - Transportation Expansion, Region of Waterloo
Mr. Geoff Keyworth	Region of Waterloo – Senior Transportation Planning Engineer
Mr. Philip Hewitson	City of Waterloo – Manager, Active Transportation
Ms. Christine Koehler	City of Waterloo – Traffic Operations Program Manager

Ms. Linda Churchill	Region of Waterloo Waste Management – Senior Environmental Engineer
Ms. Jane Mitchell	Region of Waterloo Councillor
Mr. Bob Mavin	City of Waterloo Councillor

In addition to the Project Team members, input was also solicited from and provided by the following:

Utilities

- Hydro One Networks Inc.
- Waterloo North Hydro
- Union Gas
- Bell Canada
- Rogers Cable

Local Agencies

- Grand River Conservation Authority
- Township of Wilmot

Provincial Agencies

- Ministry of the Environment, Conservation and Parks
- Ministry of Transportation
- Ministry of Natural Resources

Landowners and Tenants

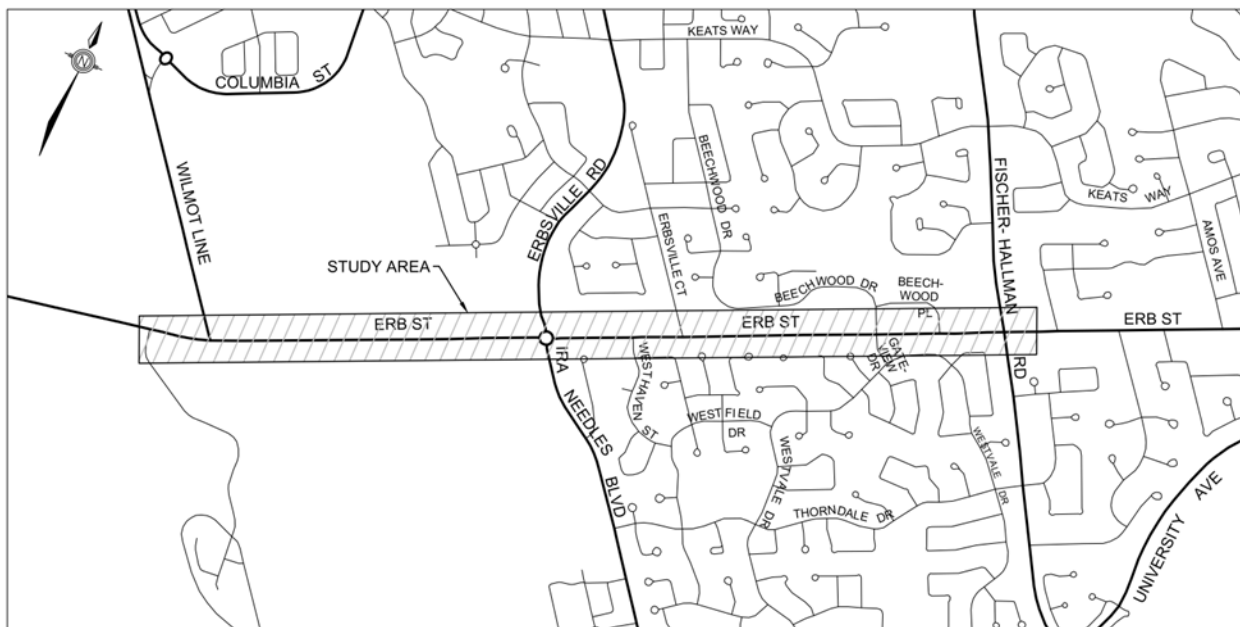
Landowners and tenants of properties abutting or in the vicinity of Erb Street West (Erb Street) were contacted at various times throughout the Class EA process. Region staff and other Project Team members responded to any requests for information or clarification.

1.4 Description of the Study Area

The study area as a whole consists of Erb Street (Regional Road 9) from Fischer-Hallman Road (Regional Road 58) to Wilmot Line in the City of Waterloo, Ontario, and comprises a total length of approximately 2.75 kilometres (see Exhibit 1-1, below). Erb Street provides an important east-west transportation link from the surrounding area to Uptown Waterloo through the predominantly residential areas east of Ira Needles Boulevard. The roadway is

classified as a Neighbourhood Connector – Avenue in the Region's Context Sensitive Regional Transportation Corridor Design Guidelines (CDG).

Exhibit 1-1: Study Area



The broader study area can be subdivided into three distinct zones of varying land use:

Erb Street from Fischer-Hallman to Erbsville Court, a length of roughly 1.1 kilometres, features primarily back-lotted residential properties to the south. Land uses are mixed on the northern side of the road; adjacent to the Fischer-Hallman intersection is a commercial plaza, while further west are several condominium developments and institutional properties.

The second portion of the roadway for which improvements are planned includes west of the Ira Needles Boulevard/Erbsville Road (Ira Needles Boulevard) roundabout to the West Waterloo Commercial Centre (Costco) entrance, a length of approximately 550 metres. Again, land uses are mixed; in the immediate vicinity of the roundabout are several commercial plazas. Additionally, a natural area is located to the south, opposite the signalized Westside Marketplace entrance. Lands west of the Westside Marketplace entrance feature a more typical rural cross section and cross a Hydro One transmission line corridor.

The last portion of the roadway for consideration of improvement needs is a 250-metre section of roadway from the roundabout located at Gate 2 of the Waterloo Waste Management Centre to Wilmot Line which is characterized by a typical rural cross section.

2.0 OBJECTIVE OF THE STUDY AND PROBLEM STATEMENT

2.1 Objective

The aforementioned limits of improvements were scheduled in the Region's Transportation Capital Program for reconstruction in 2019. The anticipated improvements to be considered included:

- Widening of the existing roadway to four lanes to meet increased traffic demands;
- Enhanced cycling and pedestrian facilities;
- Traffic operational improvements including the installation of an eastbound left-turn lane at Beechwood Place;
- Improvements to underground services including watermain valve and hydrant replacements; and
- Relocation of Hydro One towers as required for road widening.

The project was initiated to identify the most suitable alternative to address issues associated with the areas of Erb Street slated for improvements with an end goal of improving the overall function of the road with respect to the technical, natural, socio-cultural, and economic characteristics of the study area.

The Class EA study was undertaken to identify opportunities, challenges, and constraints with regard to the study area in order to guide the preparation of a functional design of a preferred alternative for improvements. The preferred alternative is developed in consideration of the traffic and transportation needs along with input from all key stakeholders including the general public, landowners within and adjacent to the limit of study, government agencies, utilities, the City of Waterloo, and the Project Team.

2.2 Problem Statement

The 2010 Regional Transportation Master Plan (RTMP) identified the need to widen Erb Street to four lanes between Gateview Drive/Beechwood Drive (Gateview Drive) and Erbsville Court, as well as between Ira Needles Boulevard and Wilmot Line in the five-to-ten year horizon (approximately 2015 to 2020) to meet traffic demands associated with development in the area. Increased traffic volumes associated with the completion of the Costco site development in 2016 have accelerated the need for road improvements along Erb Street. In addition, sections of the roadway west of Fischer-Hallman Road to Gateview Drive are exhibiting poor pavement condition and have been identified as being in need of repair.

The Region of Waterloo's Active Transportation Master Plan (ATMP) identified Erb Street as deficient in cycling facilities and sidewalks (southern side) along the corridor from Fischer-Hallman Road to Erbsville Court and recommended improvements for completion

of the pedestrian and cyclist connections. In addition, completion of the Costco site development west of Ira Needles Boulevard has resulted in a need for extension of the pedestrian facilities to service current and future development in the area.

As Erb Street is identified as a Neighbourhood Connector – Avenue, designing the roadway to support active transportation modes including walking and cycling is essential. Erb Street from Fischer-Hallman Road to Ira Needles Boulevard is also an iXpress transit route which supports the need for complete and continuous pedestrian facilities for accessing transit.

The above-noted studies and transportation demand modeling results have confirmed that the widening of Erb Street to four lanes is needed to alleviate forecasted east-west capacity issues. Along with the road widening, it is also necessary to accommodate alternative transportation including dedicated walking and cycling facilities as well as public transit.

3.0 EXISTING CONDITIONS

3.1 Municipal Infrastructure

3.1.1 Roads

The lane configuration of the existing asphalt roadway is summarized as follows:

- Fischer-Hallman Road to Gateview Drive – an urban four-lane road section with curb and gutter (two lanes each direction) and dedicated left-turn lanes at the existing Fischer-Hallman Road and Gateview Drive/Beechwood Drive signalized intersections;
- Gateview Drive to Erbsville Court – a mixed urban/ditched three-lane road section with curb and gutter on the northern side (two westbound lanes) and gravel shoulder and ditch on the southern side (one eastbound lane), widening to four lanes at the existing Gateview Drive and Erbsville Court signalized intersections with a dedicated left-turn lane at Gateview Drive;
- Erbsville Court to Ira Needles Boulevard roundabout – an urban four-lane road section with curb and gutter (two lanes each direction), dedicated left-turn lanes at Erbsville Court, Westhaven Street and at the Needlewood Glen House Co-operative entrance, and a four lane roundabout at the Ira Needles Boulevard intersection;
- Ira Needles Boulevard roundabout to Wilmot Line – a mix of urban/ditched two-to-four lane road sections with traffic signals at the Westside Marketplace entrance and roundabouts at the Region's Waste Management Centre Gate 1/West Waterloo Commercial Centre (Costco) site entrance, and the Region's Waste Management Centre Gate 2/Platinum Drive intersections, and a dedicated eastbound left-turn lane at the Westside Marketplace entrance.

From east-to-west, intersecting side streets and signalized intersections/roundabouts within the project limits include:

- Fischer-Hallman Road, signalized four-leg intersection – Region
- Beechwood Place, tee intersection – City
- Gateview Drive/Beechwood Drive, signalized four-leg intersection – City
- Erbsville Court, signalized tee intersection – City
- West Haven Street, tee intersection – City
- Ira Needles Boulevard/Erbsville Road, roundabout – Region
- Westside Marketplace, signalized site entrance - City
- Wilmot Line, tee intersection – Township/City

Two additional roundabouts have been constructed west of Ira Needles Boulevard since the initiation of the project. The easterly roundabout provides access to the Costco site as well as Gate 1 of the Region Waste Management Centre, while the second provides access to a future north-south City collector road (Platinum Drive) as well as Gate 2 of the Region Waste Management Centre.

In 2014, the Region's Infrastructure Inspection Summary for the roadway identified pavement conditions as poor and in need of reconstruction from Fischer-Hallman Road to Erbsville Court. No improvements were recommended for the roadway from Ira Needles Boulevard to Wilmot Line given that the road was resurfaced in 2012; however, it was noted that mitigation measures would need to be implemented during widening to prevent accelerated deterioration of the existing pavement structure.

3.1.2 Pedestrian and Cycling Facilities

Existing 1.5-metre-wide concrete sidewalks are present on both sides of Erb Street from Fischer-Hallman Road to Gateview Drive and from Erbsville Court to the Waterloo Commons entrance west of Ira Needles Boulevard. In addition, an existing 1.5-metre-wide sidewalk is present on the northern side only from Gateview Drive to Erbsville Court, as well as continuing westerly on the northern side of Erb Street, opposite the Waterloo Commons entrance, to the Westside Marketplace entrance. Beyond this, no sidewalk currently exists, save for that which is in the vicinity of the newly-constructed roundabouts at the Costco site west of Ira Needles Boulevard.

On-road bike lanes on both sides of the road are present from Erbsville Court to Wilmot Line. There are currently no cycling facilities between Fischer-Hallman Road and Erbsville Court.

3.1.3 Watermain

Watermains of varying size, material, age, and ownership are located within the study area. Region and City watermains operate concurrently for the majority of the length of the roadway. Regional watermain exists primarily on the southern side of the right-of-way relative to the City's infrastructure. Region-owned 450 mm asbestos concrete watermain is present from the Erb Street Reservoir and Pumping Station to approximately the midpoint of Wilmot Line and Ira Needles Boulevard. Beyond this, 600 mm concrete pressure pipe is in place to roughly 250 metres east of Erbsville Court; this watermain was installed in 1999 and the Region has specified that it is not in need of replacement. 450 mm asbestos concrete pipe continues from roughly 250 metres east of Erbsville Court to the project limit at Fischer-Hallman Road. This length of the watermain was installed in 1961 and has been identified by the Region as requiring replacement.

City-owned 400/450 mm asbestos concrete watermain is in place from Wilmot Line to just east of Ira Needles Boulevard. 400 mm ductile iron watermain continues from this point to approximately 250 metres east of Erbsville Court where it transitions to 250 mm PVC to Gateview Drive; based on its age and limited break history, this section has been identified as not in need of replacement. Further east, 450 mm PVC watermain originates adjacent to Beechwood Place and continues to the project limit at Fischer-Hallman Road. Additionally, there is a section of 300 mm ductile iron watermain adjacent to Erbsville Court on the southern side of the right-of-way.

3.1.4 Sanitary Sewer

Existing sanitary sewer within the study area is minimal. A 100 mm sanitary forcemain is present on the southern side of the right-of-way from Wilmot Line to Erbsville Court. East of this, there is no additional sanitary sewer along Erb Street.

3.1.5 Storm Sewer

Storm sewers and drainage structures of varying size, material, and age are located within the project limits. Outlets and drainage divides from the study area exist at Fischer-Hallman Road flowing north, east of Beechwood Drive flowing north, opposite Erbsville Court flowing south, along Ira Needles Boulevard flowing south, along Erbsville Road flowing north, at the Westside Marketplace entrance flowing north, and along Wilmot Line flowing west.

With respect to the condition of the existing infrastructure, much of the storm sewer from Fischer-Hallman Road to Gateview Drive has been identified as exhibiting structural deficiencies and is recommended for replacement. The majority of existing storm sewer west of this tends to be more recently installed, coinciding with the aforementioned roundabout-related works and is anticipated to not require replacement. It is noted, however, that the proposed widenings will necessitate the relocation of existing drainage structures to new curb lines and may require upsizing of storm sewers. In consideration of

proposed road improvements, the storm sewer network will be analyzed to ensure that capacity requirements are met.

3.2 Social Environment

Land uses along and adjacent to Erb Street are diverse, consisting of single detached and condominium style residential properties as well as some institutional, office, and commercial buildings with access provided primarily from adjacent local streets and Regional roads.

The southern side of Erb Street from Fischer-Hallman Road to Ira Needles Boulevard is predominantly back-lotted residential properties with three private residential driveway entrances fronting this section of Erb Street. The main vehicular accesses from Erb Street to the adjacent neighborhoods are via Gateview Drive or Westhaven Street; access to these neighborhoods is also possible from Fischer-Hallman Road and Ira Needles Boulevard. Additionally, several pedestrian pathways provide connectivity from Erb Street to the adjacent neighborhoods. An existing high-density residential development (Sifton Development) is located at the southeastern quadrant of Erb Street and Ira Needles Boulevard with access from Ira Needles Boulevard.

The northern side of Erb Street from Fischer-Hallman Road to Ira Needles Boulevard features a commercial plaza at the intersection of Fischer-Hallman Road with access from Erb Street, Beechwood Place, and Fischer-Hallman Road. At Beechwood Place, there is an institutional development which features a TD Canada Trust as well as the multi-office Beechwood Professional Centre; adjacent to this are the Liberty Gate Condominiums. Both sites are provided access via Beechwood Place. Several condominium developments as well as The Cedars Shared Worship and Community Centre are situated between Beechwood Drive and Erbsville Court, all of which are provided access via Beechwood Drive. The Kitchener-Waterloo Bilingual School is located at the northeastern quadrant of Erb Street and Erbsville Court with access from both Erb Street and Erbsville Court. West of Erbsville Court is the Kitchener-Waterloo Chinese Alliance Church which is provided access via Erbsville Court. Continuing westerly to Ira Needles Boulevard/Erbsville Road are several housing cooperatives with a joint access from Erb Street, as well as a commercial plaza located at the northeastern quadrant of Erb Street and Ira Needles Boulevard with access from both streets.

Immediately west of Ira Needles Boulevard/Erbsville Road are two commercial plazas; the Westside Marketplace is located on the northern side and the Waterloo Commons on the southern side. Both sites have access from both Erb Street and Ira Needles Boulevard/Erbsville Road with a signalized intersection at the westernmost entrance to the Westside Marketplace on the northern side of Erb Street and a left-in/right-in/right-out entrance on Erb Street to the Waterloo Commons site on the southern side. Further west on Erb Street is the Costco site to the north and the Waterloo Waste Management Centre to the south, both of which feature multiple accesses from Erb Street via roundabouts.

A pending development to the southern side of Erb Street, adjacent to the Hydro One corridor, is under review. If any intersection modifications for Erb Street are required as a result of this development, they may be completed in conjunction with the widening of Erb Street or at a later date, depending on the duration of the approval process for this development.

3.3 Physical and Natural Environment

The physical environment of the road along Erb Street from Fischer-Hallman Road to the commercial properties west of Ira Needles Boulevard is typical of a major urban thoroughfare with residential, institutional, and commercial properties abutting the roadway. The western area of Erb Street between Ira Needles Boulevard and Wilmot Line, beyond the roundabout intersection improvements adjacent to the Costco site and Waterloo Waste Management Centre, is characterized by a typical rural cross-section and a portion of roadway that crosses an existing Hydro One transmission line corridor.

Natural features within the study area have been identified as largely of anthropogenic origin. Vegetation is dominated by non-native disturbance-tolerant plant species often planted as ground cover and residential trees. Past and ongoing development has removed natural ground cover and hardened surfaces or buildings have fragmented and distributed vegetation communities throughout the site. It is noted that a meadow marsh wetland area is situated on the southern side of Erb Street, opposite the Westside Marketplace, and has been identified as a Regulated Area by the Grand River Conservation Authority (GRCA). The complete Natural Environment Study Report has been included in this report in Appendix 'C'.

3.4 Cultural Heritage & Archaeological Features

The Erb Street study area has a rural land use history dating back to the early nineteenth century. Through the process of a Cultural Heritage Resource Assessment, two built heritage resources and two cultural heritage landscapes were identified within or adjacent to the study area. The built heritage resources include the Rummelhardt School, a historic stone schoolhouse located at 600 Erb Street on the northeastern side of the Erb Street and Erbsville Court intersection, as well as the single-detached residence located at 429 Erb Street at the southwestern quadrant of Erb Street and Fischer-Hallman Road. The cultural heritage landscapes include a farm complex located on the northwestern side of the Erb Street and Wilmot Line intersection, as well as the Erb Street Church Cemetery located within the southeastern quadrant of the Erb Street and Fischer-Hallman Road intersection. It is noted that both cultural heritage landscapes are located adjacent to, but not directly within, the Erb Street study area. The Cultural Heritage Resource Assessment report is provided in Appendix 'D'.

With regard to archaeological features, a Stage 1 Archaeological Assessment was conducted and identified some areas within or adjacent to the study area that may possess archaeological significance and warranted further Stage 2 assessment through test pit

survey or pedestrian survey prior to construction. The Stage 2 archeological assessment on these lands will be completed as part of detailed design. The Stage 1 Archaeological Assessment is provided in Appendix 'E'.

3.5 Existing Tree Inventory

In July 2014, a detailed tree inventory of all existing trees within the study area which may be impacted by reconstruction of the roadway was conducted. The Tree Inventory Plan is included in Appendix 'F'.

The majority of existing trees are located within the residential portion of the corridor, east of Ira Needles Boulevard. Results of the inventory show a mix of native and non-native species throughout the study area. A number of roadside hedgerows are located adjacent to the back-lotted residential properties in the eastern portion of the corridor. West of Ira Needles Boulevard, there are a variety of nursery and transplanted species, as well as a cluster of native Sugar Maples in the vicinity of the wetland area.

During detailed design, mitigation measures will be assessed in order to minimize direct impact to existing trees which may include grading adjustments, the installation of retaining walls, or compensation and restoration plantings for disturbed or removed trees.

3.6 Noise Levels (Existing and Projected)

Several noise barriers exist within the study area at various locations. Approximate extents of these barriers are as follows:

- Erb Street (Northern Side)
 - 120 metres of wooden noise barrier fence from Beechwood Drive to 120 metres east;
 - 90 metres of noise wall from 170 metres west of Beechwood Drive to 260 metres west, and 130 metres of noise wall from 50 metres east of Erbsville Court to 180 metres east;
 - 80 metres of noise wall from 110 metres west of Erbsville Court to 190 metres west, and 90 metres of noise wall from 130 metres east of Erbsville Road to 220 metres east;
- Erb Street (Southern Side)
 - 60 metres of noise wall from the west property line of 585 Erb Street to 60 metres west, and 110 metres of noise wall from Erbsville Court to 110 metres east; and
 - 150 metres of noise attenuating earth berm from Erbsville Court to Westhaven Street.

The Region has established a policy for noise level criteria for road reconstructions entitled *Implementation Guideline for Noise Policies Part B: Existing Development Impacted by Proposed Regional Undertakings*, published in July 1999. This guideline states that noise attenuation measures are required if either of the following conditions are met:

- The future noise level, after the proposed road work is completed, exceeds 65 dBA; or
- The future noise level exceeds 60 dBA, and the difference between the current and future noise levels exceeds 5 dBA.

The Ministry of the Environment, Conservation and Parks (MECP) and Region require that daytime noise be assessed for the outdoor living area (OLA) and at the exterior living room wall. Existing and forecasted traffic information for the Noise Assessment Study was provided by the Region as identified in the Erb Street Class EA Transportation Report appended to this report as Appendix 'G'.

The MECP's noise modeling software Stamson 5.04 was utilized to predict noise levels for both the existing and forecasted scenarios based on the functional design of the preferred design alternative, Alternative 2C (Modified) - see below for description of alternative. Results of the study recommended noise attenuation barriers are installed at the following locations:

- Erb Street (northern side) – two-metre-high noise wall from Beechwood Drive westerly for approximately 170 metres for abutting residential properties only where noise walls do not currently exist; and
- Erb Street (southern side) – two-metre-high noise wall from Gateview Drive westerly for approximately 340 metres for abutting residential properties only where noise walls do not currently exist.

For all other road sections, the increase in noise level from existing to future conditions is less than 2 dBA, and all projected noise levels are below 65 dBA. As a result, no other noise mitigation is recommended as part of the road improvements. A copy of the Acoustical Impact Assessment completed for this project is in Appendix 'H'.

The existing noise walls within the Regional road allowance will be inspected during detailed design to identify necessary repairs or replacement.

3.7 Geotechnical Investigation

Golder Associates was retained to conduct a geotechnical investigation within the study area. The investigation was undertaken to evaluate the existing pavement structure, subsurface soil, and groundwater conditions throughout the Erb Street corridor.

Fieldwork for the investigation was completed in December 2014 and consisted of 32 boreholes. Results of the investigation are summarized in the appended Geotechnical Investigation Report, Appendix 'I'. The report provides a representation of the existing road and shoulder pavement structures, as well as subsurface soil conditions in the adjacent areas of proposed widening. Furthermore, recommendations are provided regarding open cut excavations and groundwater control, pipe bedding and cover for the installation of proposed services, foundation depths for proposed noise barrier walls, and a preliminary pavement structure for the roadway.

3.8 Phase 1 Environmental Site Assessment

A Phase 1 Environmental Site Assessment (ESA) was conducted for the study area and is provided in Appendix 'J'. The ESA involved the investigation of historical uses of the both the corridor and adjacent properties to identify known and potential sources of contamination. Site reconnaissance was undertaken in June 2014 with a second site visit in May 2017 to confirm site conditions given recent land developments. Supplemental to the site visits was a desktop review of on-site findings, as well as evaluation of readily-available information and reporting.

The assessment resulted in the identification of six areas of potential environmental concern (APECs). Of these, two properties were identified as posing a high risk for contamination. The identified APECs as well as their associated potential environmental risks to the study area are summarized as follows:

- Sketchley Cleaners (450 Erb Street West) – high risk;
- Canadian Tire Service Station (650 Erb Street West) – high risk;
- The Waterloo Landfill (925 Erb Street West) – low-to-medium risk;
- Costco Wholesale & Gas Station (930 Erb Street West) – low-to-medium risk;
- Agricultural lands adjacent to Erb Street and Wilmot Line – low-to-medium risk; and
- Canadian Tire (656 Erb Street West) – low risk.

Results of the Phase 1 ESA led to the recommendation that, pending finalization of proposed improvements, the need for subsurface investigation may be given consideration in order to obtain more information on soil and groundwater conditions within the project limits. This work will be considered as part of detailed design.

3.9 Air Quality

An air quality assessment was conducted for the study area and is provided in Appendix K. The evaluation involved a qualitative assessment of the air quality impacts resulting from the anticipated widening of Erb Street and discusses existing background air quality in the vicinity of Erb Street, the contribution of emissions from the existing road to background air quality, the potential impacts of the proposed road widening on local air quality, and the effects of any potential impacts that arise as a result of the proposed road widening. The assessment concluded that the project's impact on local air quality is expected to be negligible.

3.10 Utilities

Existing utility infrastructure within and adjacent to the study area as well as potential upgrades and required relocations are summarized in the following subsections.

3.10.1 Hydro One Networks Inc.

West of Ira Needles Boulevard, Erb Street crosses a Hydro One transmission line corridor for which widening of the road would require the relocation of one or more transmission towers. Alignment alternatives for road widening were reviewed with Hydro One. It was identified that the preferred option by Hydro One is to widen the road to the south, which would require the relocation of the 115 kV tower line (including Hydro One Tower #10) located along the southern side of Erb Street, immediately adjacent to the right-of-way and Region Waste Management Centre. Any relocation of Hydro One transmission lines and towers would require completion of a Transmission Line Modification Study (TLMS) by Hydro One, as well as an Environmental Assessment, followed by detailed design and construction of the tower lines relocation, all at a cost to the Region.

3.10.2 Waterloo North Hydro

Overhead hydro lines exist along the entire length of the corridor. The lines are located on the southern side of the right-of-way from Fischer-Hallman Road to Ira Needles Boulevard; west of this, they are present on the northern side of the roadway.

3.10.3 Union Gas

A recently-abandoned 100-mm-diameter high-pressure gas main exists within the majority of the project limits; it is located on the southern side of the right-of-way from Fischer-Hallman Road to just east of Erbsville Court, where it transitions to the northern side of the right-of-way until the limit of study at Wilmot Line. Additionally, a 200-mm-diameter main is located on the northern side of the right-of-way for the majority of the project limits. The 300 mm Owen Sound Pipeline exists on the southern side of the right-of-way from Westhaven

Street easterly to Fischer-Hallman Road, and there is a 400-mm-diameter gas main crossing in the vicinity of the Union Gas station just west of the Westside Marketplace signalized entrance.

3.10.4 Bell Canada

Existing Bell plant is located in the northern portion of the right-of-way from Fischer-Hallman Road to Ira Needles. Additionally, there is significant Bell infrastructure in the vicinity of the Erb Street Reservoir.

3.10.5 Rogers Cable

Existing Rogers infrastructure including aerial lines, underground lines, and fibre optic cables exists throughout the length of the study area.

4.0 TRANSPORTATION NETWORK AND TRAFFIC FORECASTING

4.1 Transportation Background and Context

4.1.1 Background

The study area does not include the intersection with Fischer-Hallman Road, although the intersection has been included in the transportation report in order to understand the needs of the corridor leading up to the intersection. The intersection at Ira Needles Boulevard/Erbsville Road was the subject of a detailed study in 2013 and construction was recently completed at the intersection and along Ira Needles Boulevard implementing the recommended changes in that study. The intersection has been included for reporting purposes, but further changes are not recommended.

The Class EA will consider transportation concerns and needs in the corridor to a planning horizon of 2024, assessing traffic operations, collisions, public transit, and infrastructure for walking and cycling. This Transportation Report provides the information needed to recommend the best transportation alternative for the corridor.

4.1.2 Justification

The Regional Official Plan designates Erb Street West as a Regional Road. The 2010 Regional Transportation Master Plan (RTMP) has identified this section of Erb Street West for a Schedule C Municipal Class EA to study widening of the road between Erbsville Court and Beechwood Drive to four lanes in the 5-10 year timeframe.

The Transportation Impact Study that was submitted in support of the West Waterloo Commercial Centre (WWCC or Costco) development identified the need to widen Erb Street to four lanes near the site between Ira Needles Boulevard and Wilmot Line. In addition, the Study recommended two new modern roundabout intersections at Gates 1 and 2 of the Waterloo Waste Management Centre to provide connections to a driveway for the WWCC opposite Gate 1 and to Platinum Drive opposite Gate 2.

Walk Cycle Waterloo Region, the Region's Active Transportation Master Plan (ATMP), identifies further improvements in the corridor including:

- Sidewalks on the south side of Erb Street West between Erbsville Court and Beechwood Drive in 2019
- Bicycle lanes between Erbsville Court and Fischer-Hallman Road in 2019
- Sidewalks on the north side of Erb Street West between Erbsville Road and Wilmot Line beyond ten years.

4.1.3 Problem Statement

Erb Street's current cross section does not provide sufficient capacity to serve future projected traffic volumes along the corridor. The Regional Transportation Master Plan identifies the widening of Erb Street from 3 to 4 lanes between Gateview Drive and Erbsville Court under the 5-10 year priority listing.

The road has been recently widened to four lanes near the Region's Waste Management Centre, but a short section remains two lanes creating a bottleneck for east-west traffic on Erb Street at the Hydro One corridor.

There are gaps in the active transportation infrastructure in the corridor including missing sidewalks on the south side of the road between Gateview Drive and Erbsville Court and bike lanes east of Erbsville Court. Completion of the active transportation infrastructure in this corridor is identified in the Ten Year Walking and Cycling Networks in the Region of Waterloo Active Transportation Master Plan along with future sidewalks on the north side of Erb Street west of the Hydro One corridor.

Concerns have been raised about the limited sight lines available for Wilmot Line traffic to see Erb Street traffic.

Operational Improvements should be considered at the following driveways and intersections within the study limits:

- Landfill driveways
- Waterloo Commons driveway
- Kitchener-Waterloo Bilingual School driveway
- Beechwood Place intersection
- Beechwood Centre driveway

Consideration should also be given to how the changes to Erb Street associated with the WWCC development will integrate with any improvements in the corridor.

4.2 Roadway Operations Under Existing Traffic Demands and Existing Roadway Configuration

4.2.1 Road Conditions

Erb Street is a Regional road that varies in use within the study area, currently carrying AADT volumes between 9,000 and 20,000. Generally, there are two travel lanes in each of the eastbound and westbound directions with a few exceptions:

- Between Beechwood Drive and Erbsville Court, the road narrows and although there are two westbound travel lanes, there is only one eastbound travel lane.
- A Hydro One corridor crosses Erb Street west of the Westside Marketplace with large towers on both the north and south sides of the road. The road narrows to one lane in each direction in order to pass between the hydro towers.
- West of Platinum Drive, the road narrows to one lane in each direction through the project limits at Wilmot Line.

Turning lanes are provided at many of the area intersections. The speed limit on Erb Street in the study area is 60 km/hr. West of the study area, the speed limit increases to 80 km/hr.

4.2.2 Existing Traffic Volumes

The traffic volumes in the study area are illustrated in Table 4-1 below for the Average Annual Daily Traffic and

Exhibit 4-1: Existing Traffic Volumes Exhibit 4-1 for the turning movement volumes at the corridor intersection in the weekday morning and afternoon peak hours.

Table 4-1: Existing Erb Street Average Annual Daily Traffic	
Section	AADT
West of Wilmot Line	8330
Wilmot Line to Waterloo Waste Management Site	9280
Waterloo Waste Management Site to Westside Marketplace	10230
Westside Marketplace to Ira Needles/Erbsville	10850
Ira Needles/Erbsville to Westhaven	12780
Westhaven to Erbsville Court	13200
Erbsville Court To Beechwood/Gateview	13860

Table 4-1: Existing Erb Street Average Annual Daily Traffic

Section	AADT
Beechwood/Gateview to Beechwood Place	19720
Beechwood Place to Beechwood Centre	19860
Beechwood Centre to Fischer-Hallman	20235
East of Fischer-Hallman	19325

Exhibit 4-1: Existing Traffic Volumes

Erb Street West	Wilmot Line	Future Collector Rd	Future WWC Driveway	Westside Marketplace	Erb Street West		
	30 (25) 0 (0) 5 (10) ← → 5 (5) 515 (290) 0 (0)	10 (45) 205 (580) 0 (0) ← → 0 (0) 0 (0) 0 (0)	0 (0) ← → 0 (0) 0 (0) 0 (0) 575 (335) 10 (5)	0 (0) 250 (640) 30 (15) ← → 20 (40) 0 (0) 5 (5)		35 (100) 0 (0) 25 (60) ← → 60 (50) 535 (325) 0 (0)	25 (50) 255 (595) 0 (0) ← → 0 (0) 0 (0) 0 (0)
	N/A	WWM Gate 2	WWM Gate 1	N/A			
Erb Street West	Erbville Rd	N/A	Erbville Court	Beechwood Drive	Erb Street West		
	260 (240) 615 (660) 55 (175) ← → 170 (135) 300 (130) 90 (115)	0 (0) 0 (0) 0 (0) ← → 0 (0) 625 (400) 15 (30)	140 (45) 0 (0) 90 (45) ← → 80 (55) 585 (360) 0 (0)	100 (45) 10 (10) 10 (15) ← → 10 (20) 700 (360) 15 (25)		30 (75) 275 (800) 80 (250) ← → 220 (95) 5 (5) 20 (20)	
	Ira Needles Boulevard	Westhaven Street	N/A	Gateview Drive			
Erb Street West	Beechwood Place	Beechwood Centre	Fisher-Hallman Rd		Erb Street West		
	40 (35) 0 (0) 20 (60) ← → 50 (40) 970 (460) 0 (0)	40 (85) 365 (1065) 0 (0) ← → 30 (60) 980 (435) 0 (0)	10 (75) 0 (0) 15 (100) ← → 30 (60) 0 (0)	190 (150) 450 (750) 105 (225) ← → 215 (130) 675 (280) 100 (100)		80 (145) 210 (840) 80 (170) ← → 120 (90) 660 (450) 105 (150)	
	N/A	N/A	Fisher-Hallman Rd				

Cycling and pedestrian volumes in the study area are included in Table 4-1 and Table 4-3 below.

Table 4-2: Existing Cyclist Traffic – 8-Hour Totals				
Intersection with Erb Street	East Leg	West Leg	North Leg	South Leg
	Average	Average	Average	Average
Wilmot Line	1	1	1	-
Landfill Gate 2	1	0	-	0
Landfill Gate 1	1	0	-	0
Westside Marketplace	0	0	0	-
Ira Needles Boulevard/ Erbsville Road (2011)	0	4	7	3
Westhaven Street	2	3	-	2
Erbsville Court	1	3	1	-
Beechwood/Gateview	2	0	0	2
Beechwood Place	0	2	0	-
Beechwood Centre	2	3	1	-
Fischer-Hallman Road	3	1	5	5

Table 4-3: Existing Pedestrian Traffic					
Intersection with Erb Street	Period	East Leg	West Leg	North Leg	South Leg
		Average	Average	Average	Average
Wilmot Line	AM Pk Hr	0	0	0	-
	PM Pk Hr	0	0	0	
	8-Hr Total	0	0	0	
Landfill Gate 2	AM Pk Hr	0	0	-	0
	PM Pk Hr	0	0		0
	8-Hr Total	0	0		0
Landfill Gate 1	AM Pk Hr	0	0	-	0
	PM Pk Hr	0	0		0
	8-Hr Total	0	1		2
Westside Marketplace	AM Pk Hr	0	0	0	-
	PM Pk Hr	0	0	0	
	8-Hr Total	0	0	4	
Ira Needles Boulevard/ Erbsville Road (2011)	AM Pk Hr	0	3	7	0
	PM Pk Hr	0	0	5	2
	8-Hr Total	2	15	50	11
Westhaven Street	AM Pk Hr	0	0	-	1
	PM Pk Hr	0	0		0
	8-Hr Total	0	0		8
Erbsville Court	AM Pk Hr	1	7	12	-
	PM Pk Hr	0	3	7	
	8-Hr Total	3	27	43	
Beechwood/Gateview	AM Pk Hr	13	0	3	1

Table 4-3: Existing Pedestrian Traffic					
Intersection with Erb Street	Period	East Leg	West Leg	North Leg	South Leg
		Average	Average	Average	Average
	PM Pk Hr	0	1	0	0
	8-Hr Total	33	13	25	3
Beechwood Place	AM Pk Hr	0	0	11	-
	PM Pk Hr	0	0	2	
	8-Hr Total	0	0	27	
Beechwood Centre	AM Pk Hr	0	0	5	-
	PM Pk Hr	1	0	3	
	8-Hr Total	6	0	38	
Fischer-Hallman Road	AM Pk Hr	19	8	34	19
	PM Pk Hr	23	19	54	12
	8-Hr Total	116	86	247	82

4.2.3 Traffic Operation Assessment

Capacity analysis was undertaken by Regional staff for each of the study area intersections in the weekday morning and afternoon peak hours in order to identify any concerns with existing intersection operations.

The analysis indicates that the intersections in the corridor are operating at acceptable levels with the individual movements at less than 90 percent of capacity during both the weekday morning and afternoon peak hours. The left turn lane at Beechwood/Gateway is experiencing 95th percentile queues that exceed the available storage by nine metres in the PM Peak Hour. Opportunities to extend the turn lane as part of this project should be considered.

4.3 Projected Roadway Operations Under Projected Traffic Demands with No Changes to Existing Roadway and Intersection Configurations

4.3.1 Projected Future Traffic

The projected future traffic volumes are included in Table 4-4 for the Average Annual Daily Traffic and Exhibit 4-2 for the intersection turning movements in the weekday morning and afternoon peak hours. The traffic projections account for planned development in the area and across the Region. The projections were developed based on the Region's travel demand model and a review of planned development in the area around the corridor. The projections are consistent with work completed by the City and the Region in reviewing the development applications for the West Waterloo Commercial Centre.

Table 4-4: 2024 Erb Street Average Annual Daily Traffic	
Section	AADT
West of Wilmot Line	13720
Wilmot Line to Waterloo Waste Management Site	14930
Waterloo Waste Management Site to Westside Marketplace	20560
Westside Marketplace to Ira Needles/Erbsville	21480
Ira Needles/Erbsville to Westhaven	20720
Westhaven to Erbsville Crt.	21980
Erbsville Crt. To Beechwood/Gateview	22970
Beechwood/Gateview to Beechwood Pl.	29140
Beechwood Pl. to Beechwood Centre	29335
Beechwood Centre to Fischer-Hallman	29610
East of Fischer-Hallman	26555

Exhibit 4-2: 2024 Traffic Volumes

Erb Street West	Wilmot Line		Future Collector Rd		Future WWCC Driveway		Westside Marketplace		Erb Street West
	40 (45)	← 20 (60)	140 (395)	← 186 (340)	85 (80)	← 85 (405)	50 (160)	← 35 (90)	
	0 (0)	← 450 (850)	5 (5)	← 325 (665)	5 (31)	← 545 (1005)	0 (0)	← 620 (1365)	
	10 (15)	→ 0 (0)	135 (230)	→ 50 (40)	→ 30 (20)	→ 0 (0)	40 (65)	→ 0 (0)	
Erb Street West	10 (10)	← 0 (0)	130 (260)	← 50 (35)	15 (20)	← 25 (40)	70 (55)	← 0 (0)	Erb Street West
	901 (460)	← 0 (0)	800 (230)	← 10 (15)	960 (630)	← 10 (10)	1000 (995)	← 0 (0)	
	0 (0)	→ 0 (0)	10 (15)	→ 0 (0)	15 (10)	→ 0 (0)	0 (0)	→ 0 (0)	
	N/A		WWM Gate 2		WWM Gate 1		N/A		
Erb Street West	Erbsville Rd		N/A		Erbsville Court		Beechwood Drive		Erb Street West
	332 (280)	← 135 (235)	0 (0)	← 0 (0)	150 (50)	← 45 (60)	105 (50)	← 35 (80)	
	694 (762)	← 385 (840)	0 (0)	← 600 (1210)	0 (0)	← 530 (1210)	10 (15)	← 540 (1225)	
	125 (285)	→ 130 (185)	0 (0)	→ 25 (50)	96 (50)	→ 0 (0)	10 (20)	→ 85 (270)	
Erb Street West	315 (295)	← 130 (190)	0 (0)	← 45 (20)	85 (60)	← 0 (0)	15 (25)	← 240 (100)	Erb Street West
	560 (410)	← 610 (810)	985 (820)	← 40 (35)	945 (780)	← 0 (0)	1060 (775)	← 10 (10)	
	190 (420)	→ 165 (360)	20 (35)	→ 0 (0)	0 (0)	→ 0 (0)	20 (30)	→ 25 (25)	
	Ira Needles Boulevard		Westhaven Street		N/A		Gateview Drive		
Erb Street West	Beechwood Place		Beechwood Centre		Fisher-Hallman Rd		Fisher-Hallman Rd		Erb Street West
	45 (40)	← 45 (90)	15 (80)	← 35 (175)	210 (165)	← 93 (170)	210 (165)	← 93 (170)	
	0 (0)	← 635 (1510)	0 (0)	← 660 (1495)	497 (880)	← 345 (1180)	497 (880)	← 345 (1180)	
	25 (65)	→ 0 (0)	20 (105)	→ 0 (0)	175 (250)	→ 93 (200)	175 (250)	→ 93 (200)	
Erb Street West	55 (45)	← 0 (0)	35 (70)	← 0 (0)	300 (230)	← 133 (100)	300 (230)	← 133 (100)	Erb Street West
	1350 (880)	← 0 (0)	1361 (850)	← 0 (0)	935 (510)	← 729 (500)	935 (510)	← 729 (500)	
	0 (0)	→ 0 (0)	0 (0)	→ 0 (0)	140 (190)	→ 175 (200)	140 (190)	→ 175 (200)	
	N/A		N/A		Fisher-Hallman Rd		Fisher-Hallman Rd		

4.3.2 Future Traffic Assessment

Capacity analysis was undertaken for each of the study area intersections in the weekday morning and afternoon peak hours for 2024 traffic levels in order to identify any additional concerns with future intersection operations in the corridor. The corridor infrastructure that was included in the future traffic assessment includes the existing intersection configurations along with planned road improvements that are already planned within the timeframe of this study. The improvements include:

- Widening of Ira Needles Boulevard and upgrades to the intersection at Erb (completed late 2016)
- Improvements to Erb Street across the frontage of West Waterloo Commercial Centre including two new roundabouts (completed fall 2016)
- Widening of Columbia Street (underway, planned completion 2018)

- Platinum Drive extension connecting Erb Street and Columbia Street (planned construction after lease with Golf Academy expires in 2017).

4.3.3 Possible Improvements to Address Transportation Deficiencies in the Corridor

The operations analysis identifies a number of forecast deficiencies in the corridor relating to the available storage in turn lanes and traffic operations for individual traffic movements. The improvements that were considered in the development of the preferred alternative for the corridor include:

- The potential to add a southbound right turn lane on Fischer-Hallman Road approaching Erb Street to be considered as part of a different Regional project looking at widening along Fischer-Hallman Road between Highway 7/8 and Columbia Street to accommodate higher level transit operations.
- A centre left turn lane between Fischer-Hallman Road and Beechwood Drive/Gateview Drive to accommodate both eastbound and westbound left turn movements in that section of the corridor.
- Widening of Erb Street to four through lanes in the section between Beechwood Drive and Erbsville Court.
- Widening of Erb Street to four through lanes at the Hydro One corridor crossing between the Westside Marketplace and the West Waterloo Commercial Centre.

4.4 Considerations for Active Transportation

This Class EA should implement the recommendations of the Region's Active Transportation Master Plan by providing new sidewalks on the south side of Erb Street between Beechwood Drive and Erbsville Court and along the north side of Erb Street from the Hydro One corridor across the frontage of the WWCC.

In addition, Regional staff are recommending that the preferred alternative consider the implementation of separated bike facilities where possible in the corridor based on the Region's initial screening.

4.5 Recommended Transportation Improvements for Incorporation into Detailed Design Alternatives

The following considerations should be included in the preferred alternative for the corridor.

- Extensions to the eastbound left turn lane at Fischer-Hallman Road and the westbound left turn lane at Beechwood/Gateview along with a new proposed eastbound left turn lane to Beechwood Place suggest that a centre left turn lane between Beechwood/Gateview and Fischer-Hallman Road would provide the needed storage and taper for each of the intersections in this section of the corridor.

- Erb Street should be widened to include four through lanes between Beechwood/Gateview and Erbsville Court along with the addition of a sidewalk on the south side of the road to complete the pedestrian network in this area.
- The driveway to the Kitchener-Waterloo Bilingual School located just east of Erbsville Court should be retained, but the right turn bypass lane should be reviewed in conjunction with other design elements of the corridor during the Class EA or during the detailed design, as appropriate.
- No further changes are being considered at the Ira Needles/Erbsville intersection.
- Erb Street should be widened to include four through lanes through the Hydro One corridor crossing between the Westside Marketplace and the WWCC.
- Regional Transportation staff have been working with Waste Management staff to eliminate queuing on to Erb Street at Gate 2 by monitoring the volumes of traffic and the queues and by testing several mitigation measures. There have not been any reported issues at Gate 2 since the two new roundabout intersections opened in late 2016.
- At the Gate 1 intersection with Erb Street there have been issues with traffic queuing from inside the Costco site into the Erb Street roundabout. Regional staff have been working with the landowner and recommended on-site traffic improvements that should mitigate the queuing onto Erb Street.
- No changes are recommended at this time at the Wilmot Line intersection. Analysis indicates that the intersection meets minimum Regional criteria for sight lines and that collisions are not a significant issue. Regional staff should monitor the left turn movement from Wilmot Line in case a peak period restriction is needed in the future to address capacity constraints.
- Pedestrian facilities should be added on the north side of Erb Street across the Hydro One corridor, connecting to the existing sidewalk near the Westside Marketplace with the newly constructed multiuse trail near the Costco.

Separated bike facilities should be considered where possible in the corridor based on the Region's initial screening.

5.0 ALTERNATIVE SOLUTIONS

Based on the identified objectives and deficiencies for Erb Street, including the recommendations in the Transportation Report, RTMP, ATMP, and CDG, a set of design alternatives were developed for consideration of improvements along the corridor. The design alternatives, which were presented to the public, are summarized as follows:

- **Do Nothing**

Aside from general maintenance (asphalt repair/overlay, etc.), this alternative would retain the road in its current number of traveled lanes without widening or the addition of curbs and a drainage system, sidewalks, or cycling facilities;

- **Alternative 1 – Urbanize the Existing Road with Widening to Four Lanes West of Ira Needles and Add Active Transportation Facilities**

This alternative would widen the road to four lanes west of Ira Needles to the roundabout at the Costco entrance and retain the current number of travelled lanes elsewhere, in addition to adding the following facilities:

- Curb and gutter and a storm drainage system;
- Cycling facilities (either on-road, on-road cycle tracks, or multi-use trails); and
- Pedestrian sidewalks (or multi-use trails).

- **Alternative 2A – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks and On-Road Bike Lanes**

This alternative would include all improvements under Alternative 1, as well as widening of Erb Street to four lanes between Gateview Drive and Erbsville Court, and include sidewalks and on-road bike lanes throughout the project limits.

- **Alternative 2B – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Multi-Use Trails**

This alternative would include all improvements under Alternative 2A, with multi-use trails in lieu of sidewalks and on-road bike lanes.

- **Alternative 2C – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks and Cycle Tracks**

This alternative would include all improvements under Alternative 2A, with on-road cycle tracks in lieu of on-road bike lanes.

Common to all alternatives was the consideration of intersection design alternatives such as turn lanes, roundabouts, and traffic signals, as well as turn lanes at driveway entrances and the provision of transit stop pads and shelters as necessary. Roadway illumination will be provided on both sides of the road as per the Region's Illumination Policy for four lane roads with transit and cycling facilities.

Typical cross-sections for alternative solutions have been included in this report on the following pages, as well as in Appendix 'A'.

Exhibit 5-1: Alternative 1 – Urbanize the Existing Road with Widening to Four Lanes West of Ira Needles and Add Active Transportation Facilities (Fischer-Hallman Road to Beechwood Drive/Gateview Drive & Erbsville Court to Roundabout at Gate 1 Region Waste Management Centre/West Waterloo Commercial Centre (Costco) Entrance)

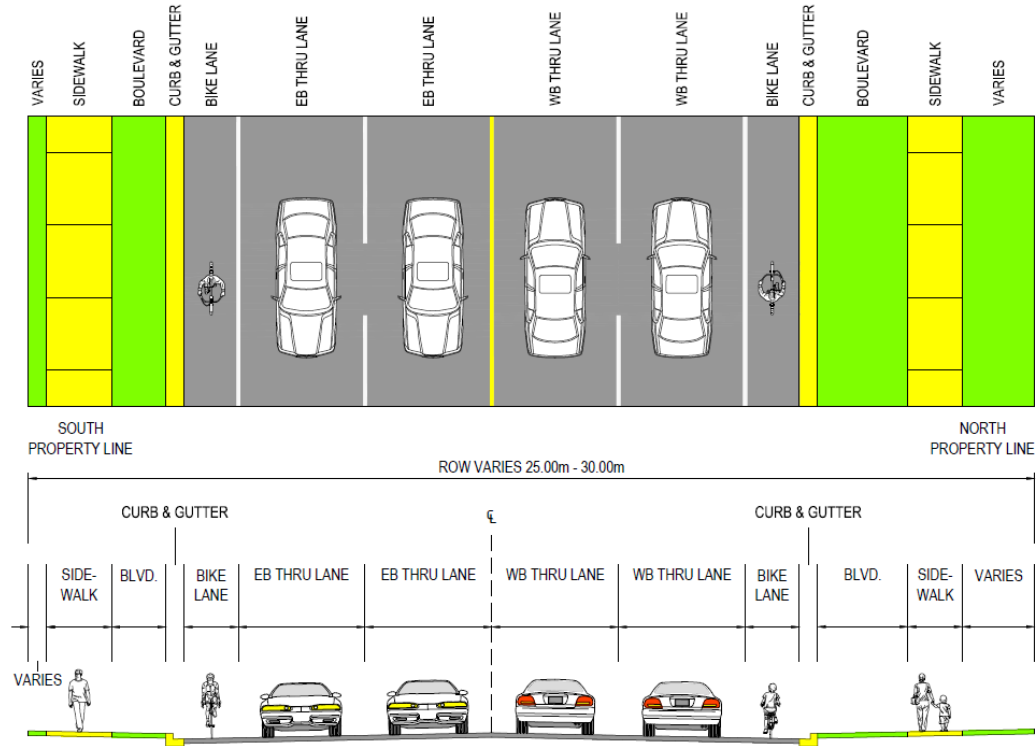


Exhibit 5-2: Alternative 1 – Continued (Beechwood Drive/Gateview Drive to Erbsville Court)

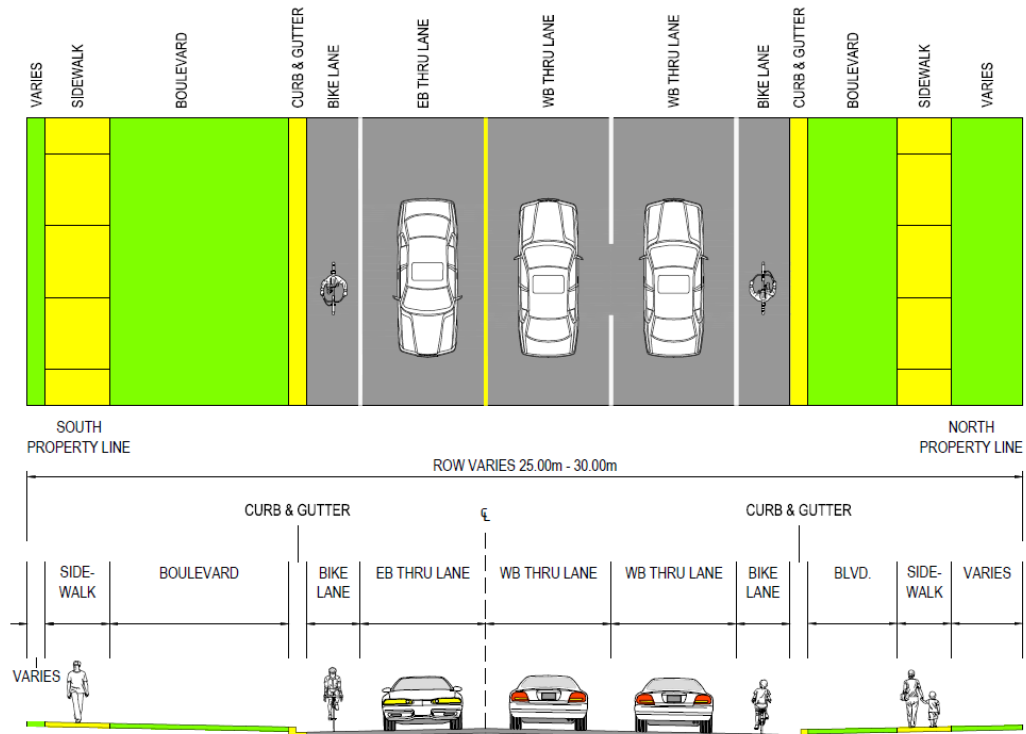
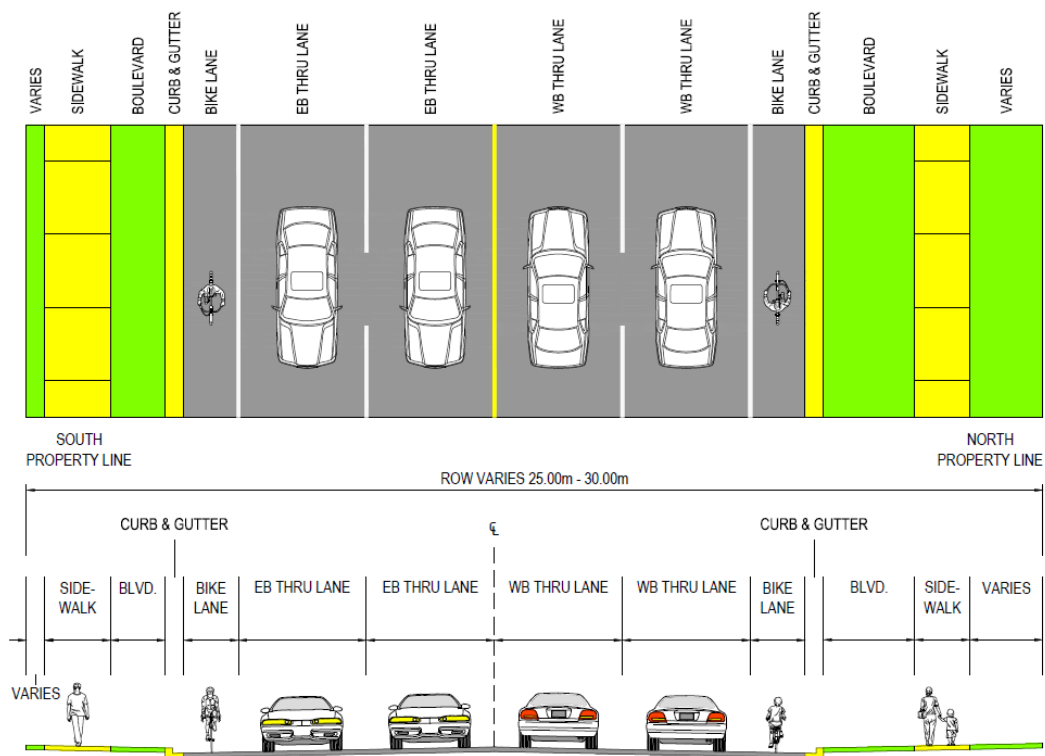


Exhibit 5-3: Alternative 2A – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks and On-Road Bike Lanes



10



6.0 EVALUATION OF ALTERNATIVE SOLUTIONS

The improvement alternatives have been assessed against a set of evaluation criteria specified by the Project Team to determine which alternative is preferred and is considered to best address the needs and opportunities for improvement on Erb Street. The following subsections summarize the evaluation criteria applied to each alternative.

6.1 Technical

A key factor to consider is the technical merit of each alternative that may present challenges during construction and/or long-term operation of the proposed works. Significant risks and costs can be associated with various construction approaches and methodologies. The evaluation of alternative solutions will be a comparative qualitative assessment of the various components for each alternative solution and will identify potential impacts based on the following criteria:

- **Traffic Performance** – Does the alternative meet and/or exceed capacity requirements for existing and future projected traffic?
- **Road Network Continuity** – Does the alternative address the requirements of related master plans, official plans, studies, and long-term corridor and community planning?
- **Transit Service Impacts** – Does the alternative improve transit operations and level of service?
- **Cycling/Walking Impacts** – Does the alternative improve user interaction as well as active transportation and trail connectivity?

6.2 Natural Environment

The natural environment includes all items related to existing watercourses, wetlands, vegetated areas, wildlife habitats, and also considers soil and groundwater systems. The evaluation of design alternatives provided a comparative qualitative assessment of the various components for each alternative solution and the evaluation of alternatives shall consider impacts based on the following criteria:

- **Natural Area Impact** – Does the alternative encroach on or otherwise negatively impact environmentally sensitive areas? Does the alternative impact existing vegetation communities? Does the alternative impact interior habitat or impact wildlife movement corridors or corridors between critical habitat features?
- **Air Quality Impact** – Does the alternative adversely affect air quality?
- **Stormwater Impact** – How does the proposed design impact the conveyance and collection of stormwater?

6.3 Social/Cultural

The social/cultural environment is comprised of the features that define the physical interaction of the alternatives with the surrounding community. Considerations include the culture, ownership, function, and history of a particular area.

The evaluation of design alternatives will be a comparative qualitative assessment of the various components for each alternative solution and the evaluation of alternatives shall consider impacts based on the following criteria:

- **Heritage/Cultural Landscape Impacts** – How does the alternative impact built cultural heritage landscapes? How does the alternative impact potential/registered archaeological heritage sites?
- **Noise Impacts** – How does the alternative impact sound quality levels over pre-existing conditions?

6.4 Economic/Financial

For the purposes of this study, various assumptions have been made to develop preliminary cost estimates for the alternative solutions. These estimates are to be considered as opinions of probable costs and should not be relied upon for detailed budgeting and/or funding purposes. These values have been derived for comparative and evaluative purposes only.

Capital construction and related costs for underground infrastructure, property acquisition, utility relocations, engineering, and inspection are expected to be lowest for Alternative 1 and relatively equivalent for the remaining design alternatives (excluding the “Do Nothing” option). Similarly, long-term operational and maintenance costs are expected to be lowest for Alternative 1 and relatively equivalent for the remaining design alternatives. Accordingly, costing used in the evaluation process only reflect the capital construction costs for implementing the transportation-related infrastructure related to the study objective.

For the purposes of evaluating the different road cross-sections, capital costs of roadway for each alternative were prepared and summarized as follows:

- **Alternative 1 – Urbanize the Existing Road with Widening to Four Lanes West of Ira Needles and Adding Active Transportation Facilities**
 - Represents the least amount of work on Erb Street and, subsequently, the lowest cost.
- **Alternative 2A – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Sidewalks and On-Road Bike Lanes**
 - Estimated at approximately \$6.3 million.

- **Alternative 2B – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Multi-Use Trails**
 - Estimated at approximately \$6.3 million.
- **Alternative 2C – Widen the Road to Four Lanes, Urbanize and Add Active Transportation Facilities for Multi-Use Trails**
 - Highest cost, estimated at \$6.5 million.
 - Only moderately higher than Alternatives 2A and 2B as a result of minimal increase in the overall pavement width and additional curbs required to provide the segregated bike facilities.

Additional costs for the utility relocations such as the aforementioned Hydro One towers west of Ira Needles Boulevard are required for all road widening alternatives and are estimated to be in the range of \$2.0 million to \$4.0 million.

6.5 Methodology for Evaluating Alternatives

To identify the preferred alternative, each of the design alternatives were scored under the various evaluation criteria listed in the previous subsection. With the exception of the economic/financial criteria, analysis was conducted in a primarily qualitative manner. Each design alternative was ranked based on its fulfillment of the evaluation criteria from most preferred to least preferred. These scores were then compiled in an evaluation matrix in order to determine the design alternative which most closely aligns with the overall objectives of the project. A copy of the evaluation matrix, Table 6-1, has been included in this report on the following page, as well as in Appendix 'L'.

7.0 RECOMMENDED DESIGN ALTERNATIVE

7.1 Description of Proposed Works

In consideration of the varying sections and needs of Erb Street throughout the project limits, technical information gathered for this project, as well as a review of all public comments received, a modified version of Alternative 2C (Alternative 2C (Modified) - Widen the Road to Four Lanes and Add Active Transportation Facilities for Sidewalks, Multi-Use Trail and Cycle Tracks) was identified as the Recommended Design Alternative for Erb Street Improvements, from Fischer-Hallman Road to Wilmot Line. The Recommended Design Alternative includes:

- Urbanizing and widening Erb Street to four lanes from Fischer-Hallman Road to the roundabout at Gate 2 of the Region's Waste Management Centre (east of Wilmot Line);
- Construction of an eastbound left-turn lane on Erb Street at Beechwood Place and extension of existing turn lanes at intersections;

Table 6.1: Evaluation Marix

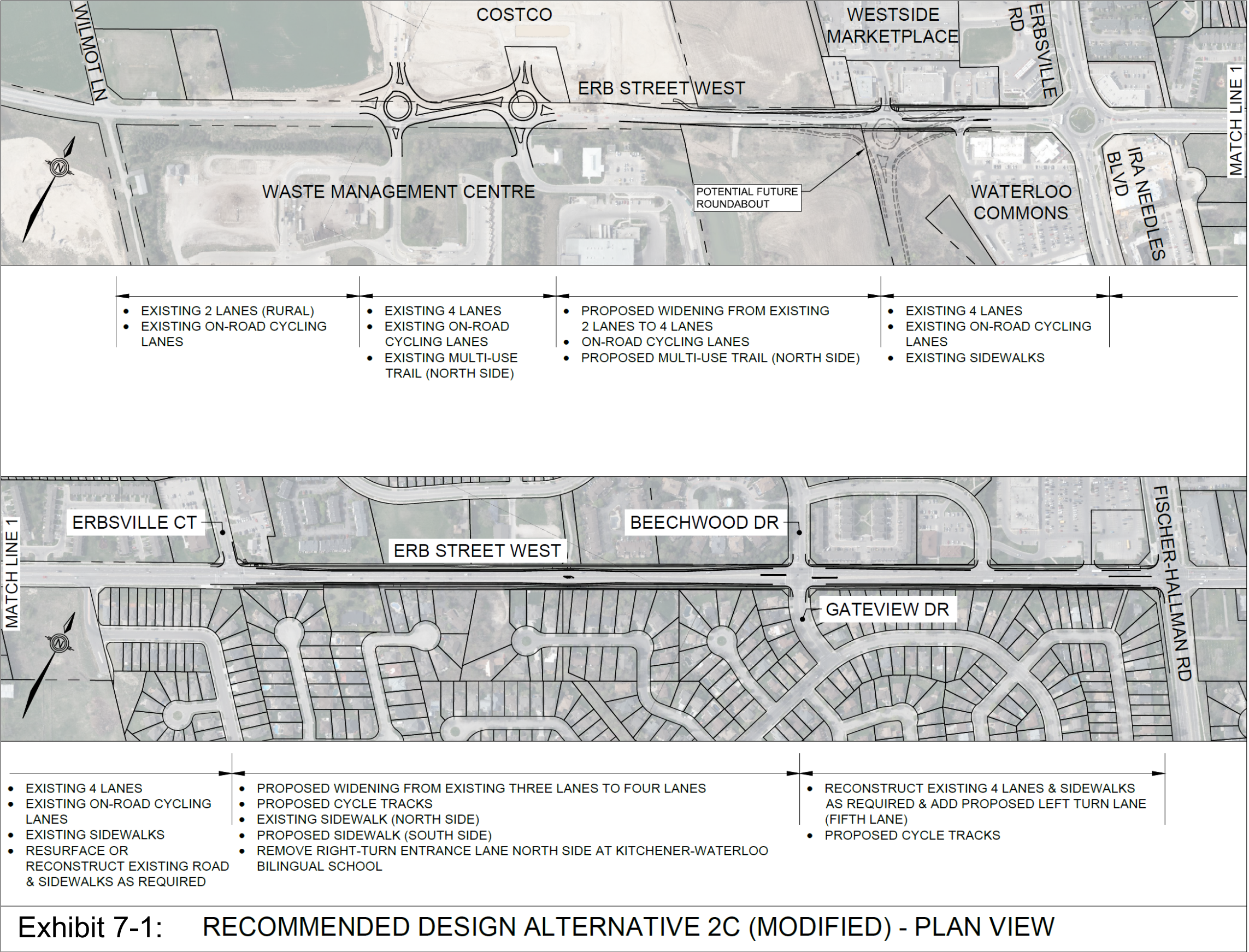
		Erb Street Reconsruction Wilmot Line to Fischer-Hallman Road Evaluation Matrix				
Evaluation Criteria		Do Nothing	Widen to 4 lanes west of Ira Needles, maintain existing lane configuration elsewhere, urbanize, and add active transportation facilities	Widen to four travel lanes, urbanize, and add active transportation facilities	Widen to four travel lanes, urbanize, and add active transportation facilities, including multi-use trail	Widen to four travel lanes, urbanize, and add active transportation facilities, including segregated bike lanes
		Baseline	Alternative 1	Alternative 2A	Alternative 2B	Alternative 2C
Technical	Traffic Performance	Sufficient capacity east of Ira Needles. Lacking capacity for future development west of Ira Needles.	Sufficient capacity for existing and future projected traffic.	Exceeds capacity required for existing and future projected traffic.	Exceeds capacity required for existing and future projected traffic.	Exceeds capacity required for existing and future projected traffic.
	Road network continuity	No continuity between existing & future 4-lane sections of Erb.	The 3-lane section of Erb Street requires merging of traffic between sections of 4-lane roadway.	Maintains 4 lanes throughout	Maintains 4 lanes throughout	Maintains 4 lanes throughout
	Transit Service Impacts	Erb Street remains servicable	Erb Street remains servicable	Added lane minimizes traffic impacts at bus stops.	Added lane minimizes traffic impacts at bus stops.	Added lane minimizes traffic impacts at bus stops.
	Cycling/Walking Impacts	Lack of continuity for cycling and pedestrian facilities.	Provides continuity for cycling and walking infrastructure, but no separation for cyclists	Provides continuity for cycling and walking infrastructure, but no separation for cyclists	Provides continuity for cycling and walking infrastructure	Provides continuity for cycling and walking infrastructure
	Summary					
Natural Environment	Natural Area Impact	No change to impacts	Minimal impacts to natural environment	Minimal impacts to natural environment	Minimal impacts to natural environment	Minimal impacts to natural environment
	Air Quality Impact	No change to impacts	Minimal impacts to air quality	Minimal impacts to air quality	Minimal impacts to air quality	Minimal impacts to air quality
	Stormwater Impact	No change to impacts	Improvements to be made to stormwater collection	Improvements to be made to stormwater collection	Improvements to be made to stormwater collection	Improvements to be made to stormwater collection
	Summary					
Social/ Cultural	Heritage/Cultural Landscape Impacts	No anticipated impacts	No anticipated impacts	No anticipated impacts	No anticipated impacts	No anticipated impacts
	Noise Impacts	No change in noise levels	No change in noise levels	No change in noise levels	No change in noise levels	No change in noise levels
	Summary					
Economic/Financial	Capital Cost	Minimal capital cost	Lowest capital cost	Some additional capital cost	Some additional capital cost	Some additional capital cost
	Operating & Maintenance Cost	Ongoing maintenance required	Maintenance improvements	Maintenance improvements	Maintenance improvements	Maintenance improvements
	Property Acquisition	None required	Some widening at Hydro One lands	Some widening at Hydro One lands, other minor widenings required	Some widening at Hydro One lands, other minor widenings required	Some widening at Hydro One lands, other minor widenings required
	Summary					
Overall Evaluation						

Legend:

Most Preferred ● → ◐ → ○ Least Preferred

- Removing the right-turn lane to the Bilingual School entrance on the northern side of Erb Street east of Erbsville Court;
- Roadway illumination on both sides of the road;
- Completing the sidewalk on the southern side of Erb Street between Gateview Drive and Erbsville Court, and on the southern side of Erb Street from the commercial plaza entrance west of Ira Needles Boulevard to the traffic signals at the Westside Marketplace entrance;
- Constructing a multi-use trail on the northern side of Erb Street from the Westside Marketplace entrance to the roundabouts at the Costco site entrance;
- Maintaining existing on-road bike lanes between Erbsville Court and Wilmot Line;
- Constructing cycle tracks on both sides of Erb Street from Fischer-Hallman Road to Erbsville Court; and
- Constructing noise walls abutting residential properties along the northern side of Erb Street from Beechwood Drive westerly for approximately 170 metres, and southern side of Erb Street from Gateview Drive westerly for approximately 340 metres where noise walls do not currently exist.

An overall figure illustrating the preliminary Recommended Design Alternative 2C (Modified) has been included in this report on the following page as well as in Appendix 'M'. As a result of public comments received regarding future development on the southern side of Erb Street west of Ira Needles Boulevard, and as identified by Region Council in approving the Erb Street EA recommendations, a potential future intersection improvement at the existing Westside Marketplace signalized intersection has been shown on this plan.



Typical cross-sections and preliminary plans for the Recommended Design Alternative 2C (Modified) have been included in this report on the following pages, as well as in Appendix 'N'.

Exhibit 7-2: Alternative 2C (Modified) – Fischer-Hallman Road to Beechwood Drive/Gateview Drive

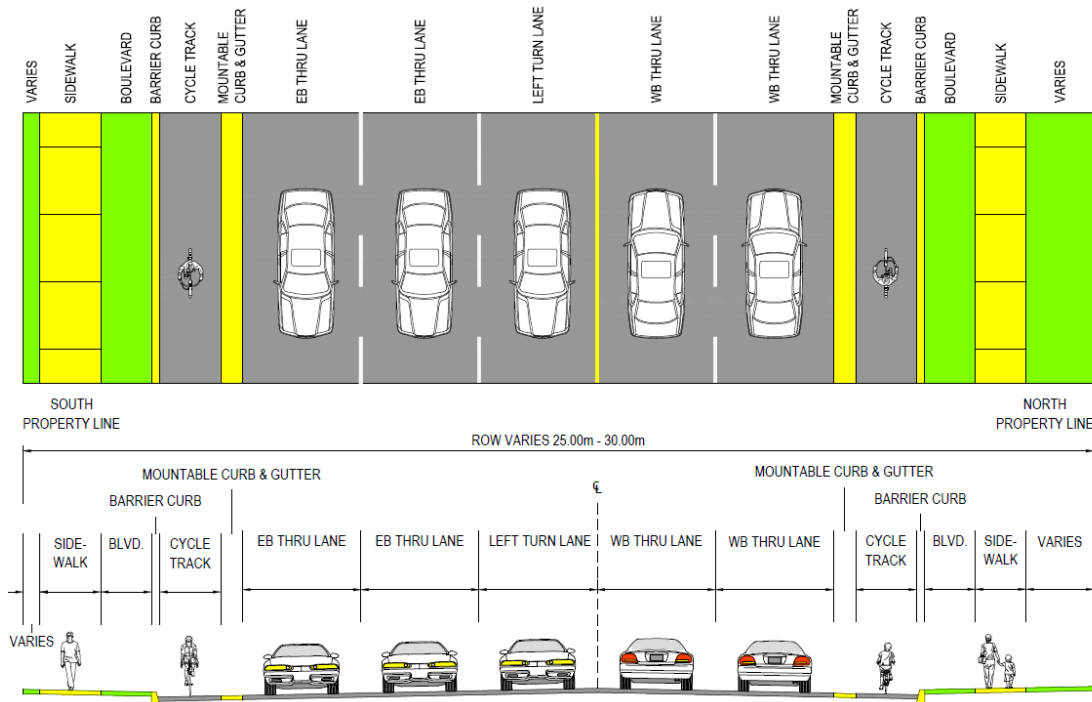


Exhibit 7-3: Alternative 2C (Modified) – Beechwood Drive/Gateview Drive to Erbsville Court

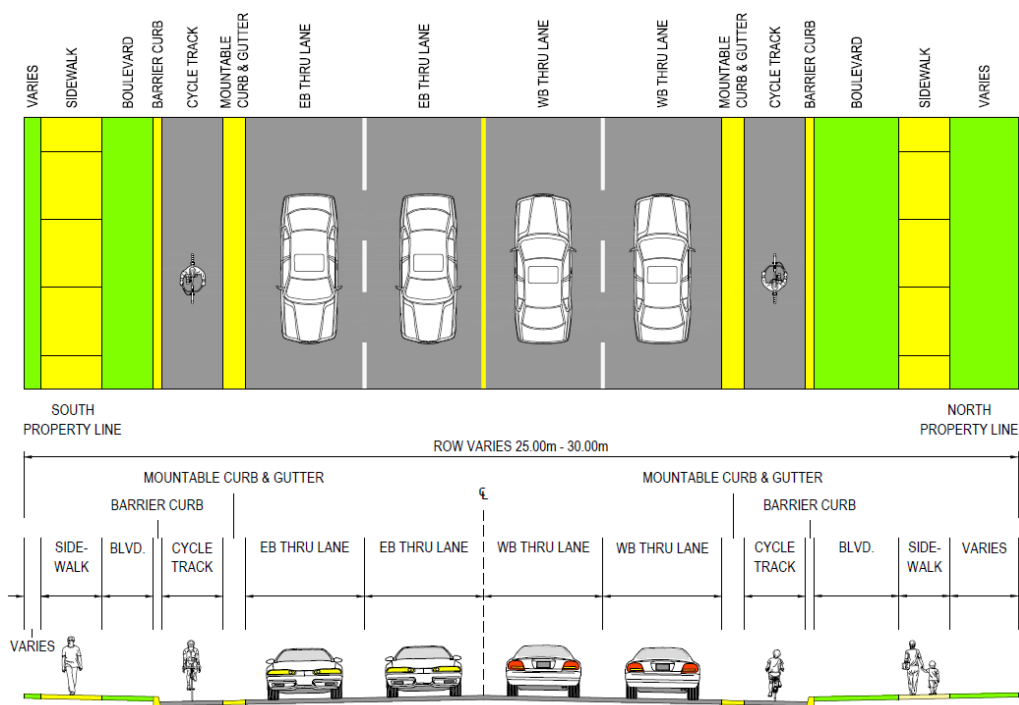


Exhibit 7-4: Alternative 2C (Modified) – Erbsville Court to Traffic Signals at Westside Marketplace Entrance

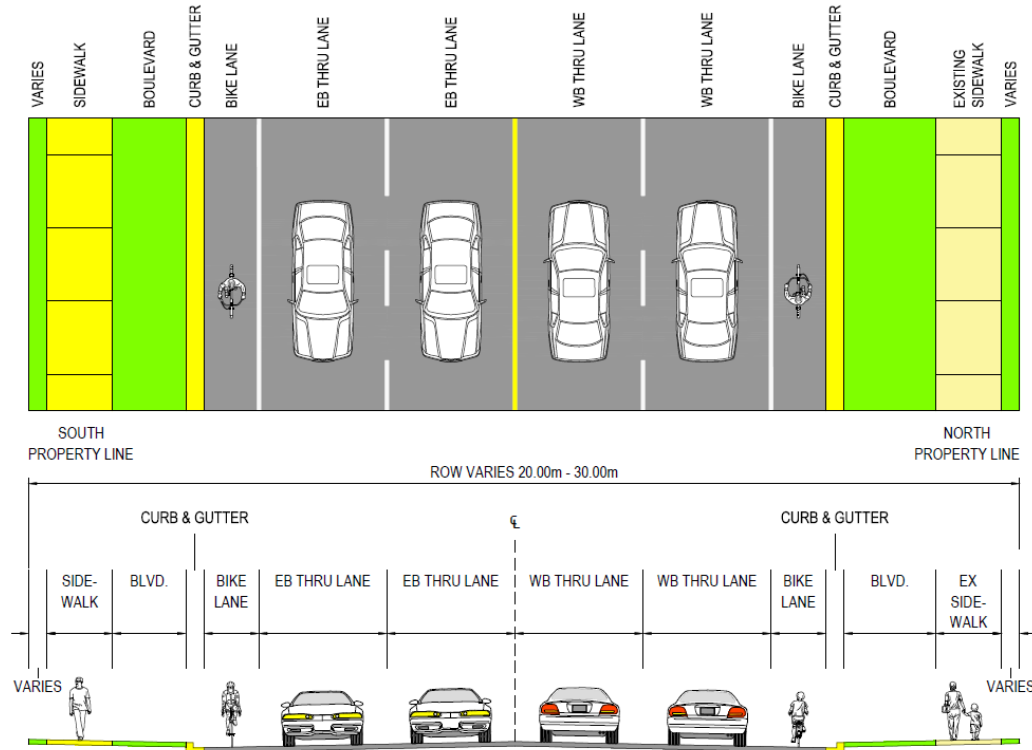
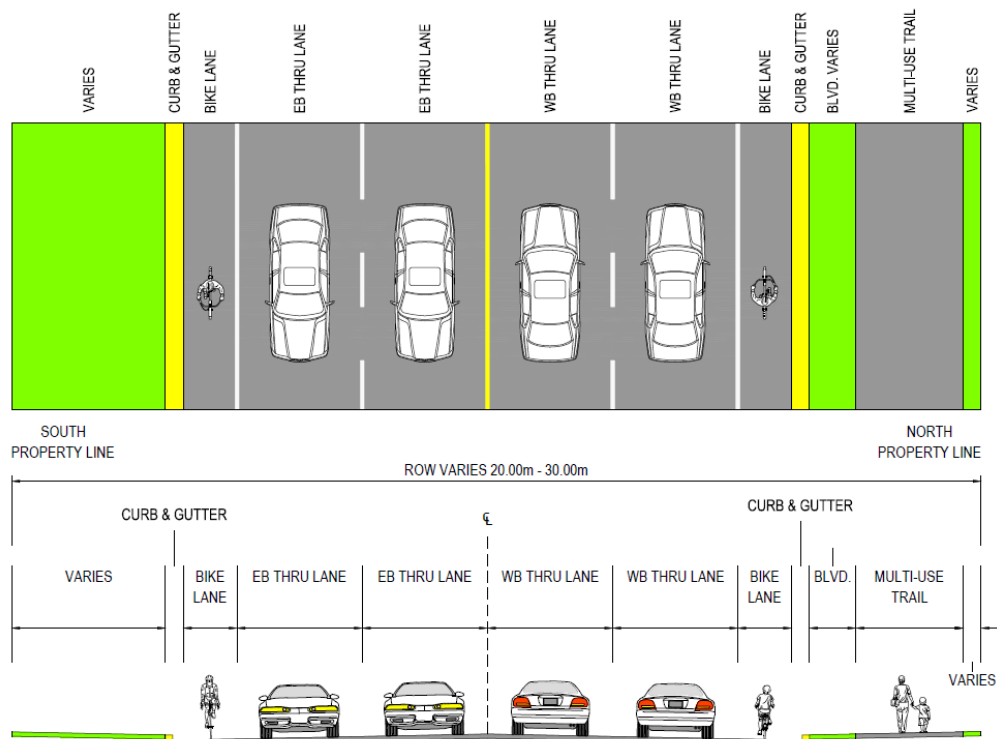
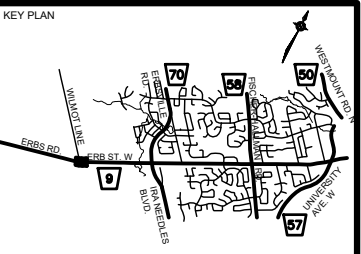
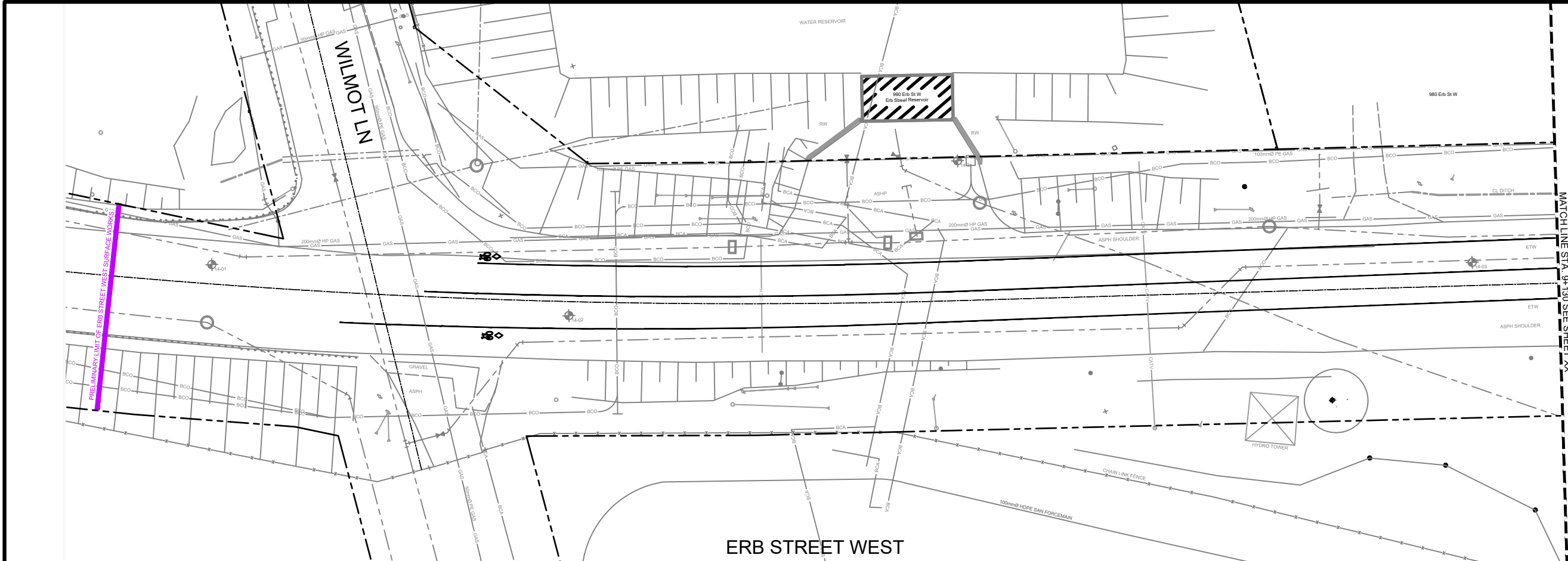


Exhibit 7-5: Alternative 2C (Modified) – Traffic Signals at Westside Marketplace Entrance to Roundabout at Gate 1 Region Waste Management Centre/West Waterloo Commercial Centre (Costco) Entrance





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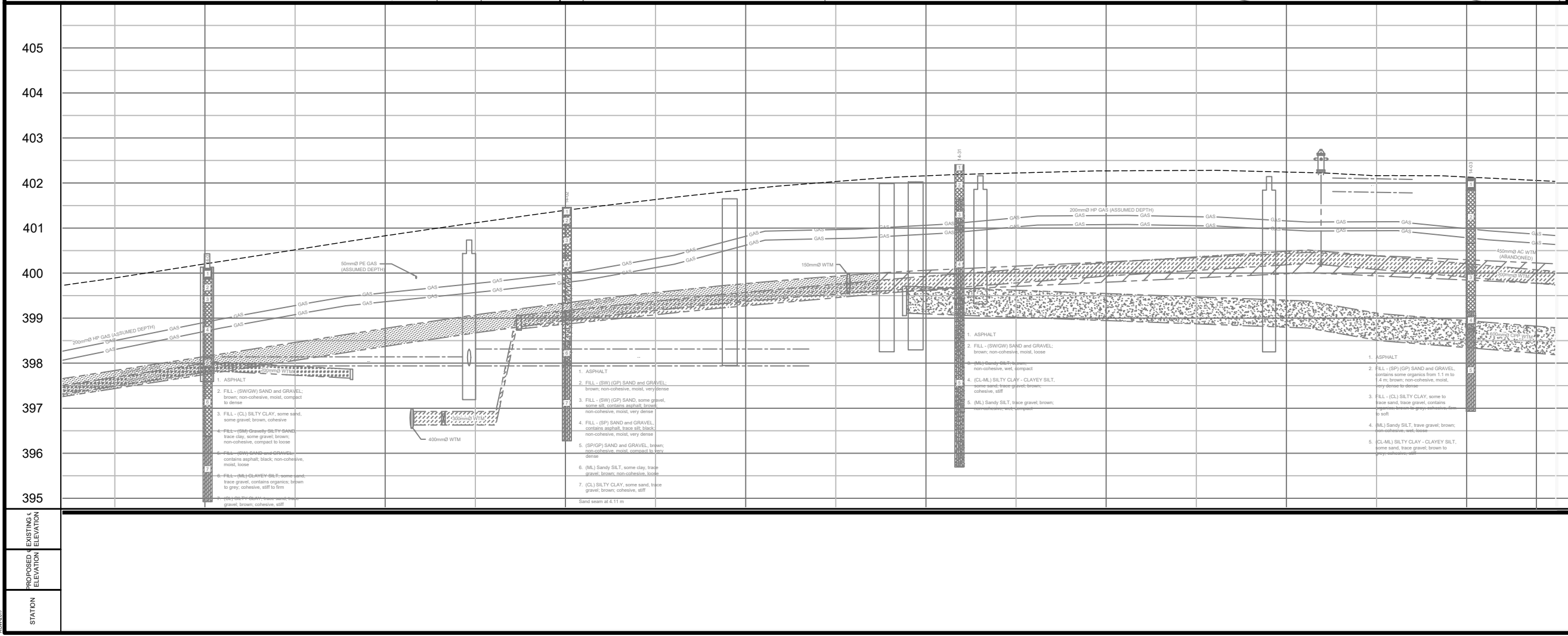
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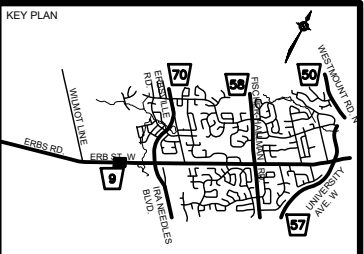
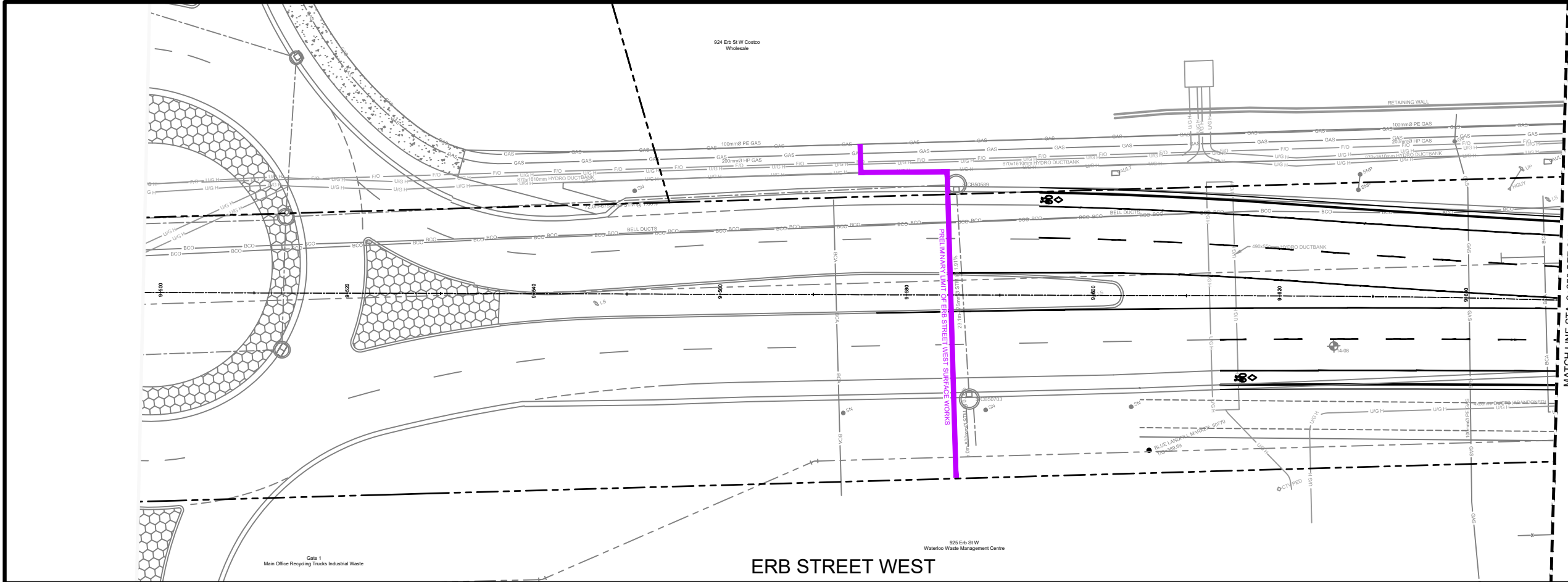
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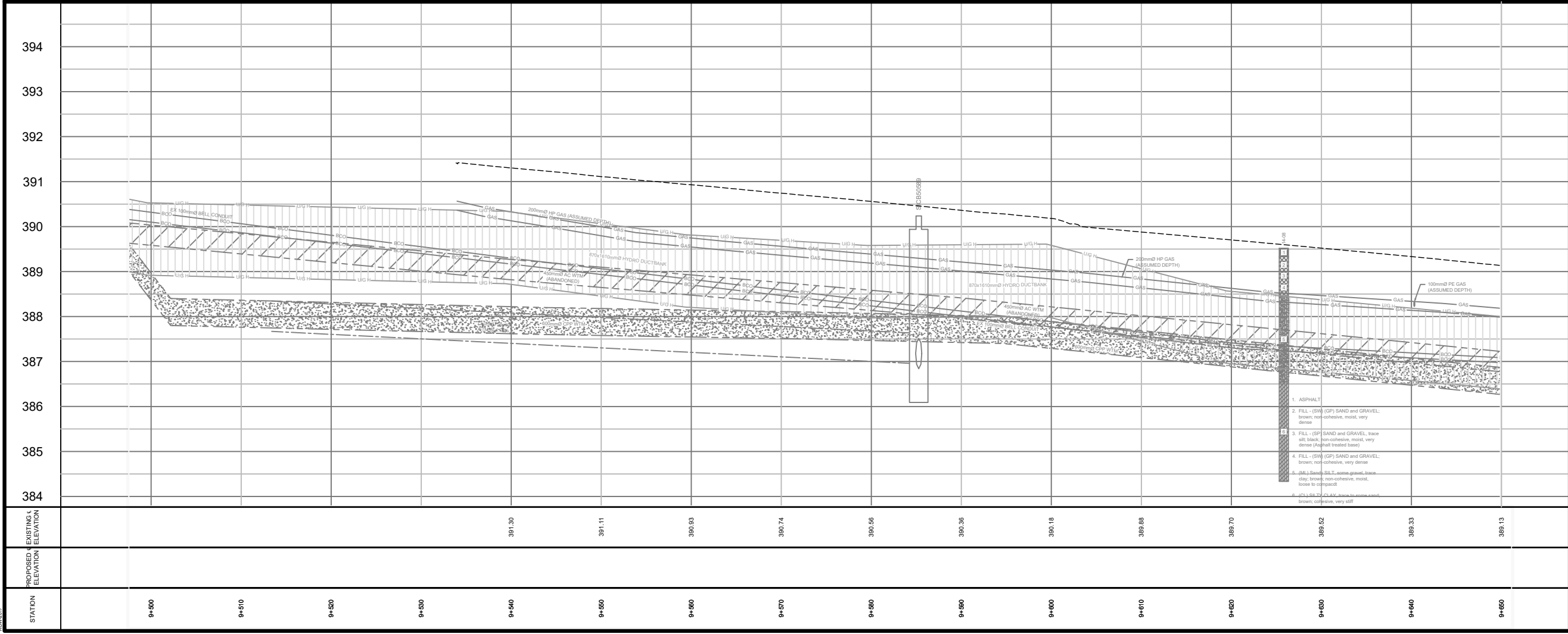
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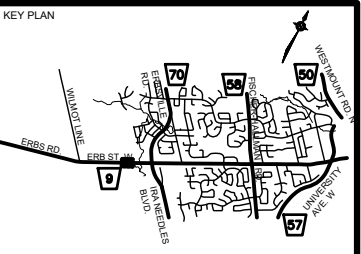
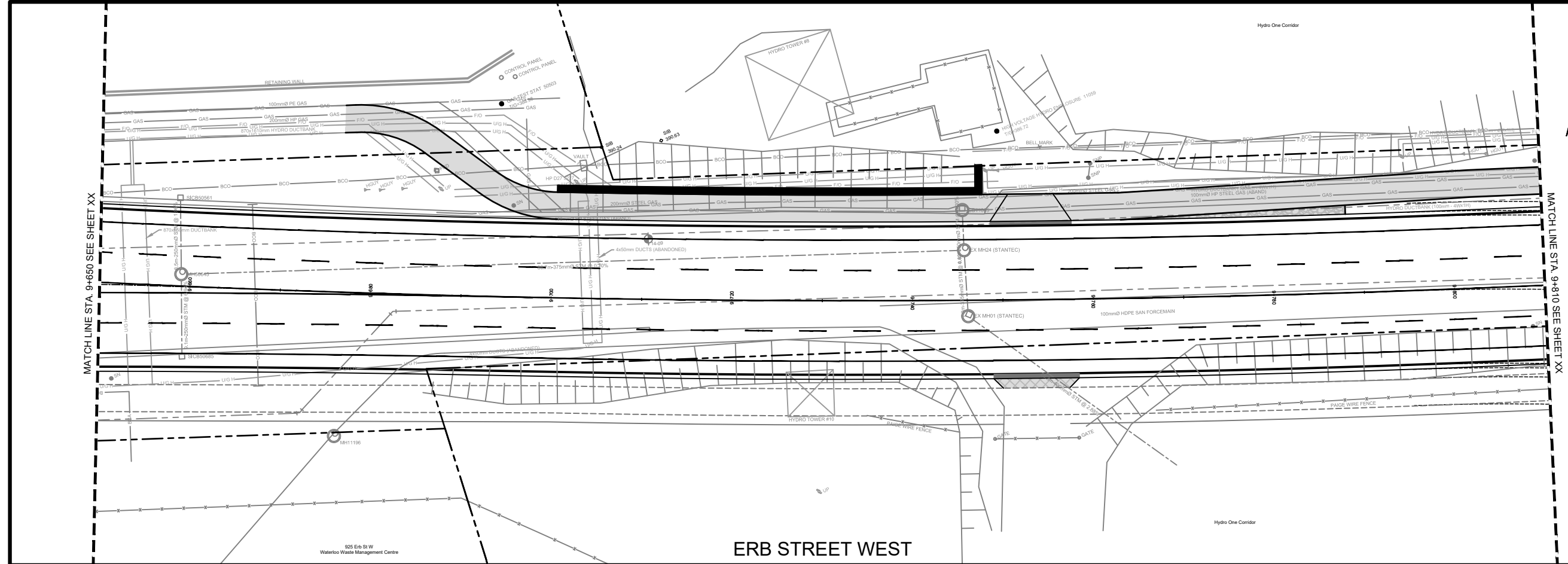
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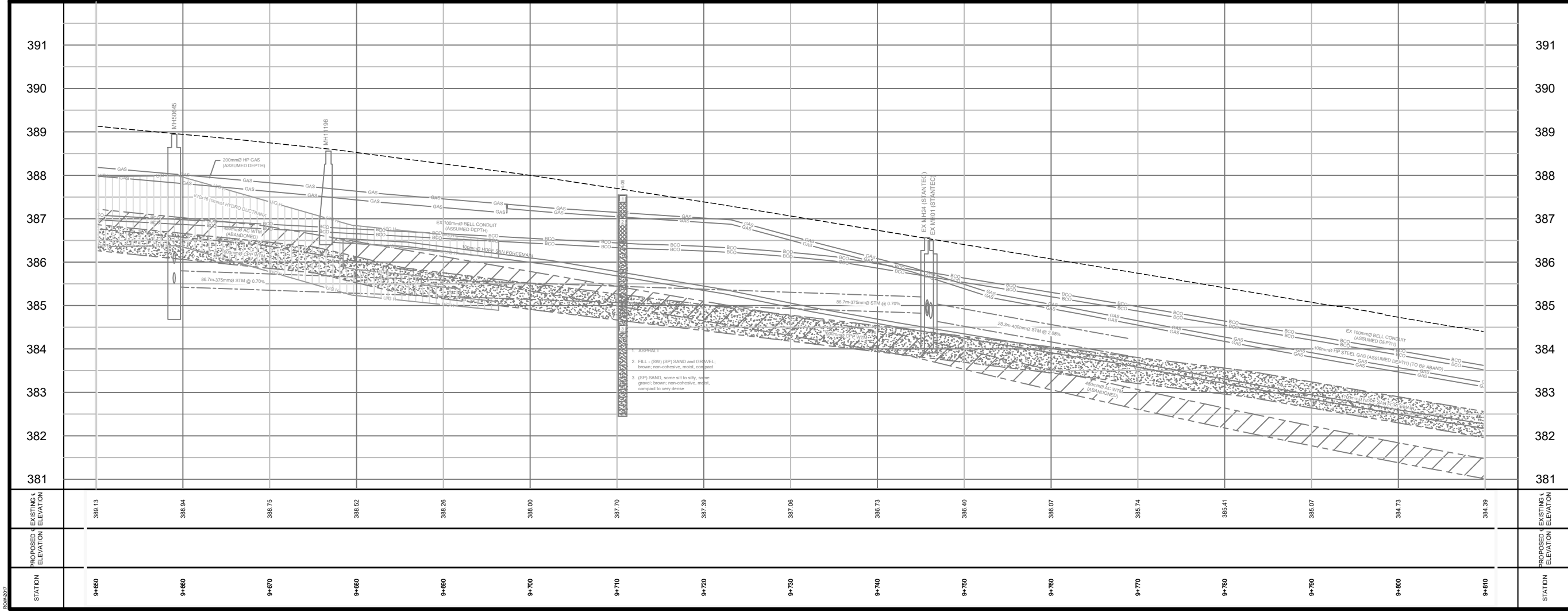
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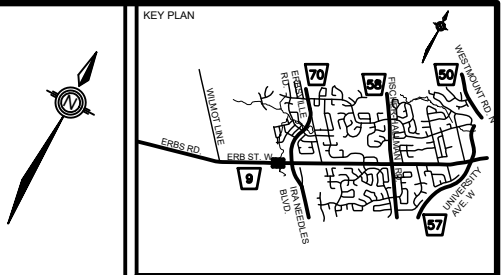
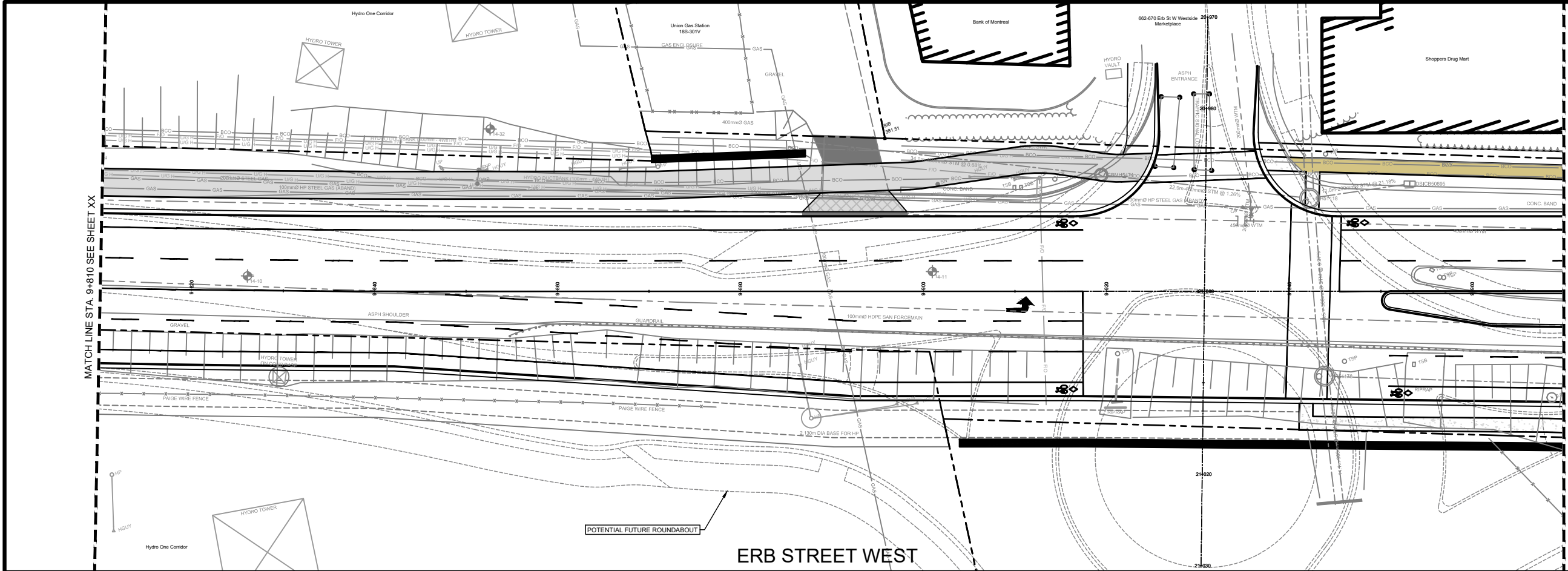
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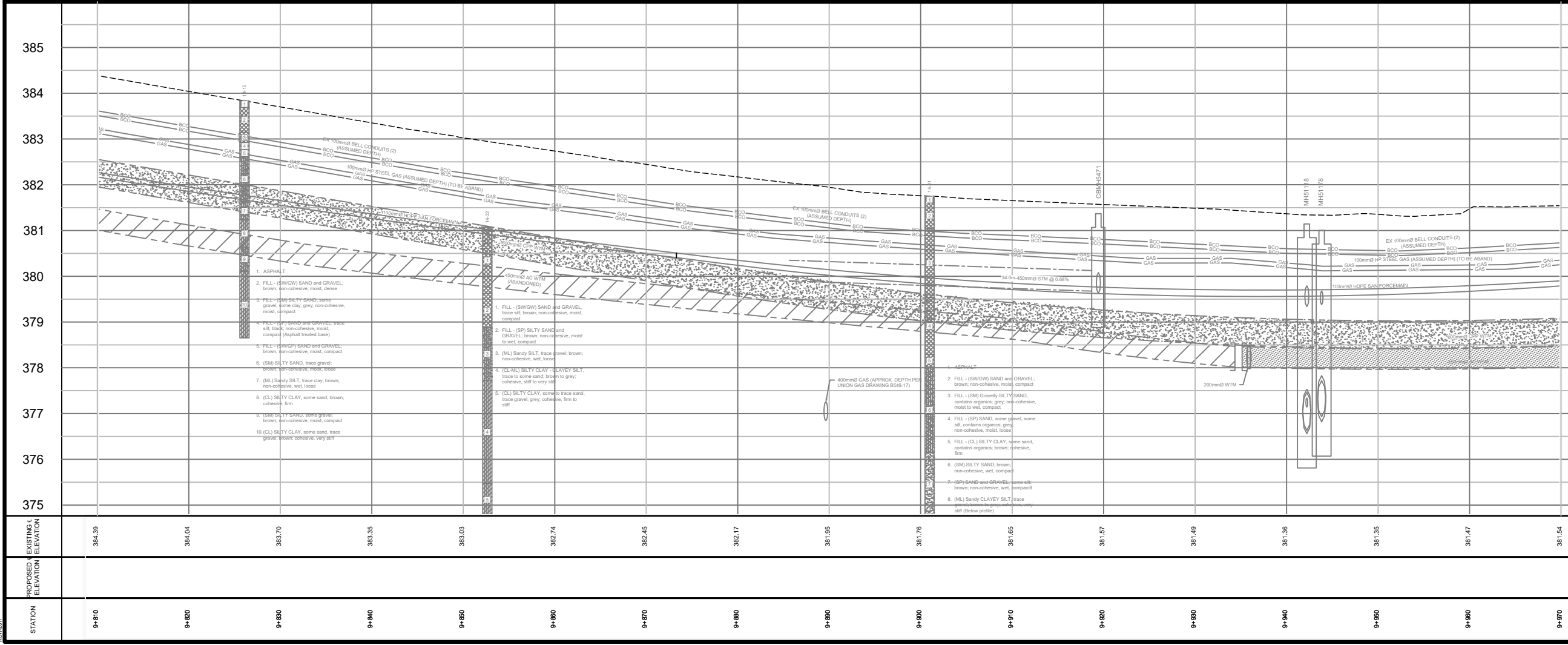
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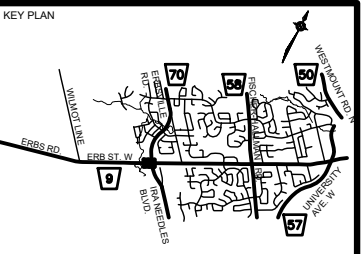
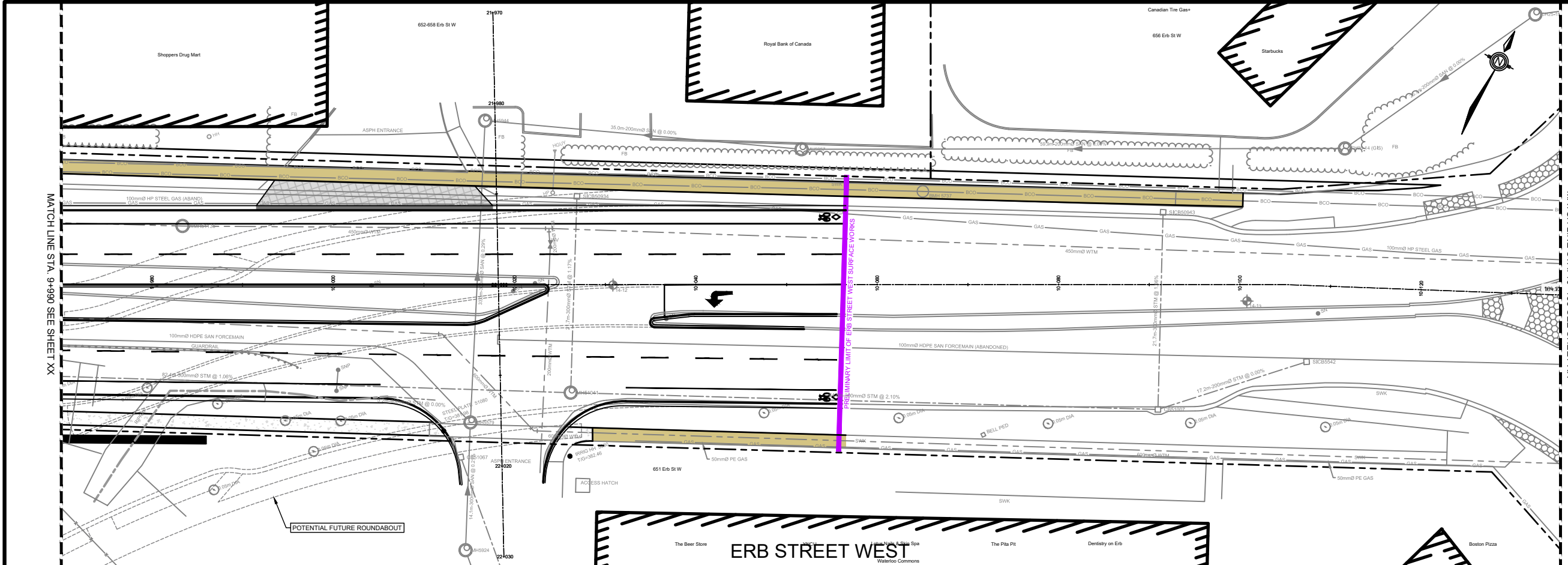
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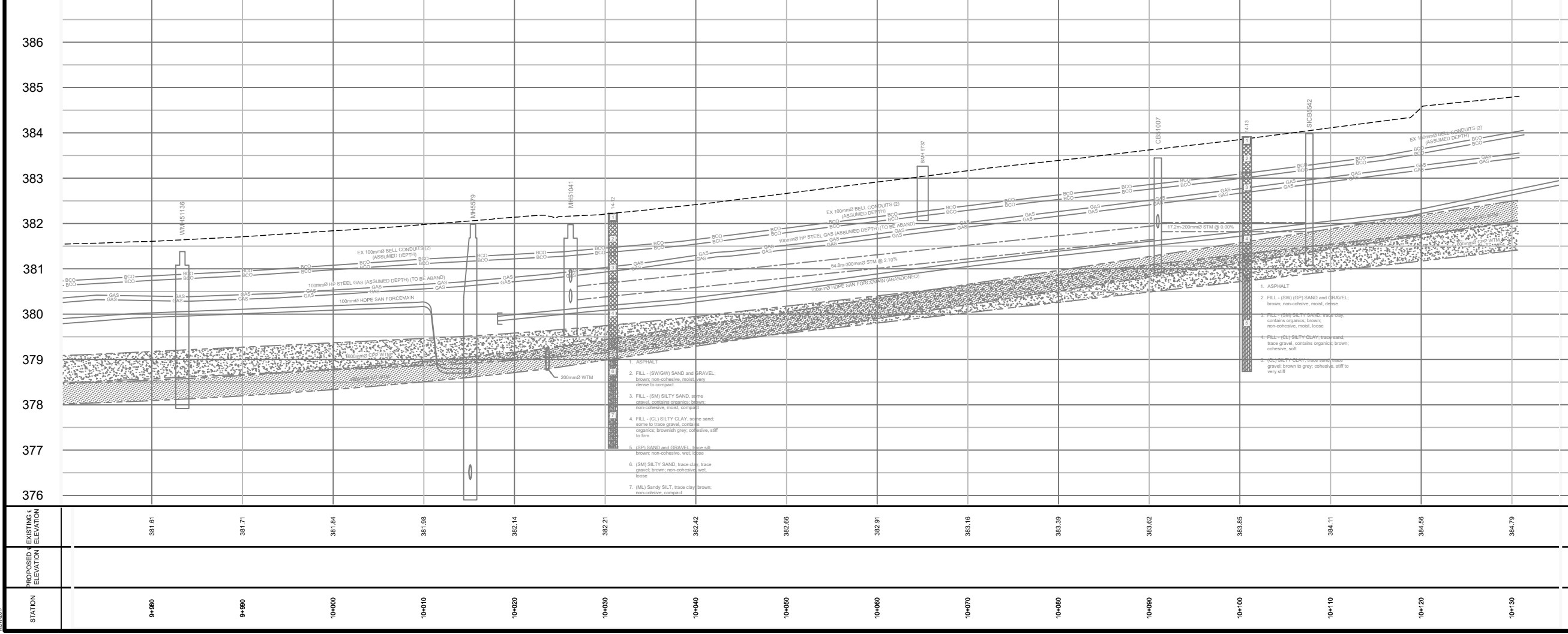
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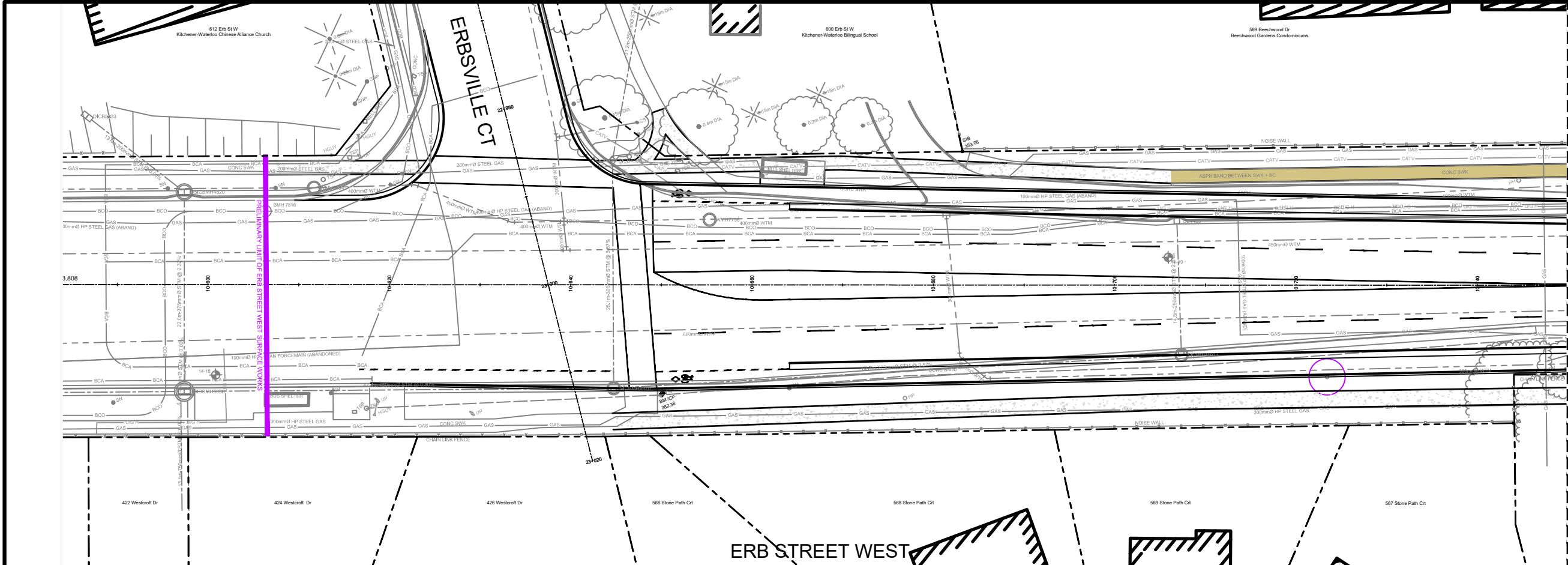


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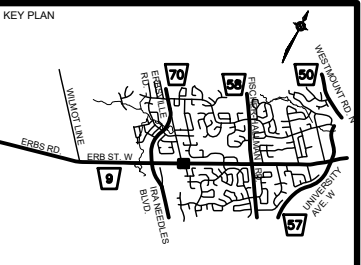
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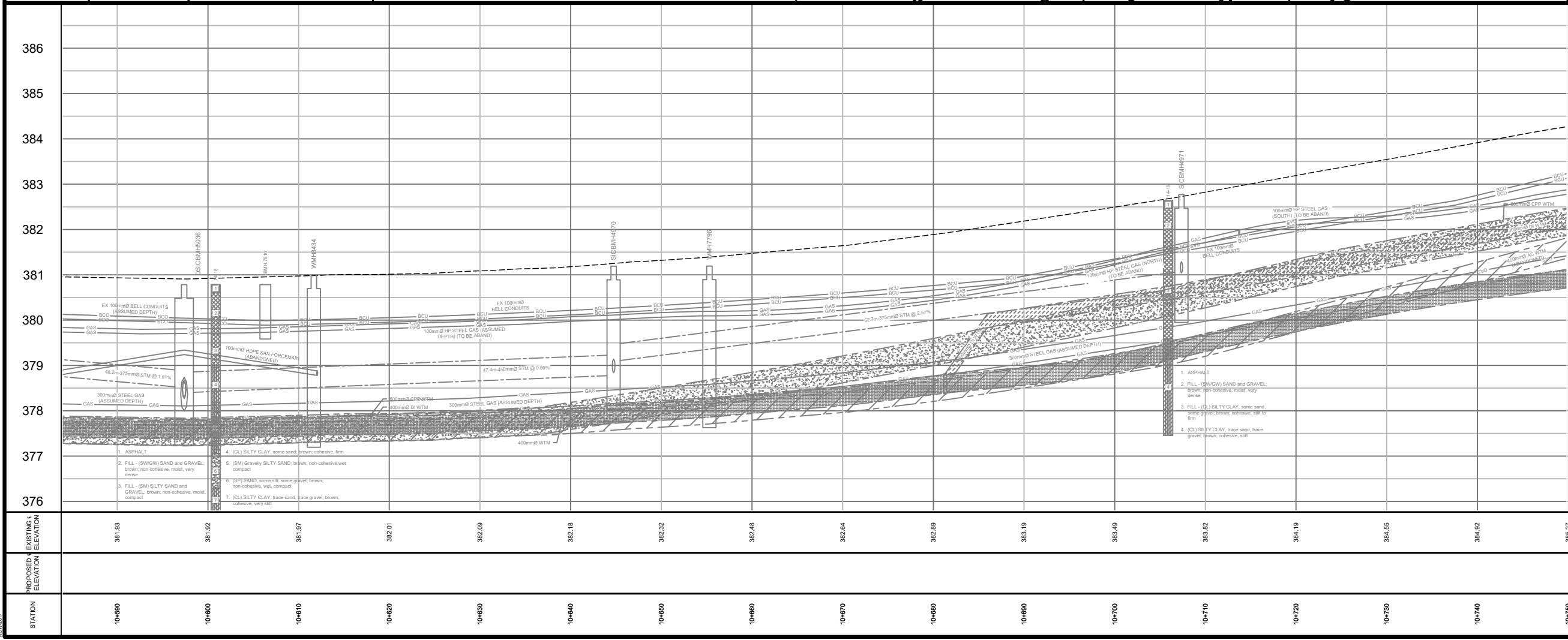
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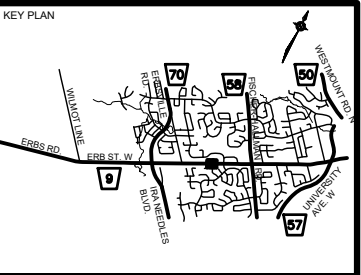
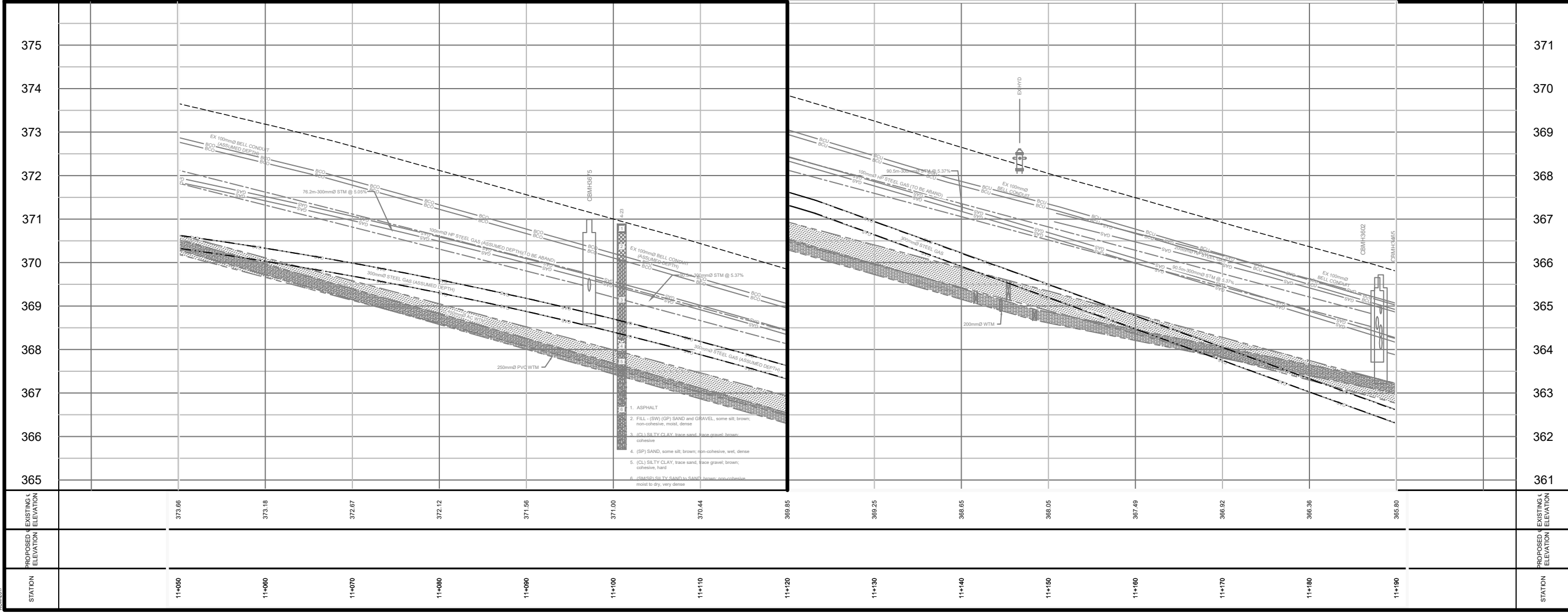
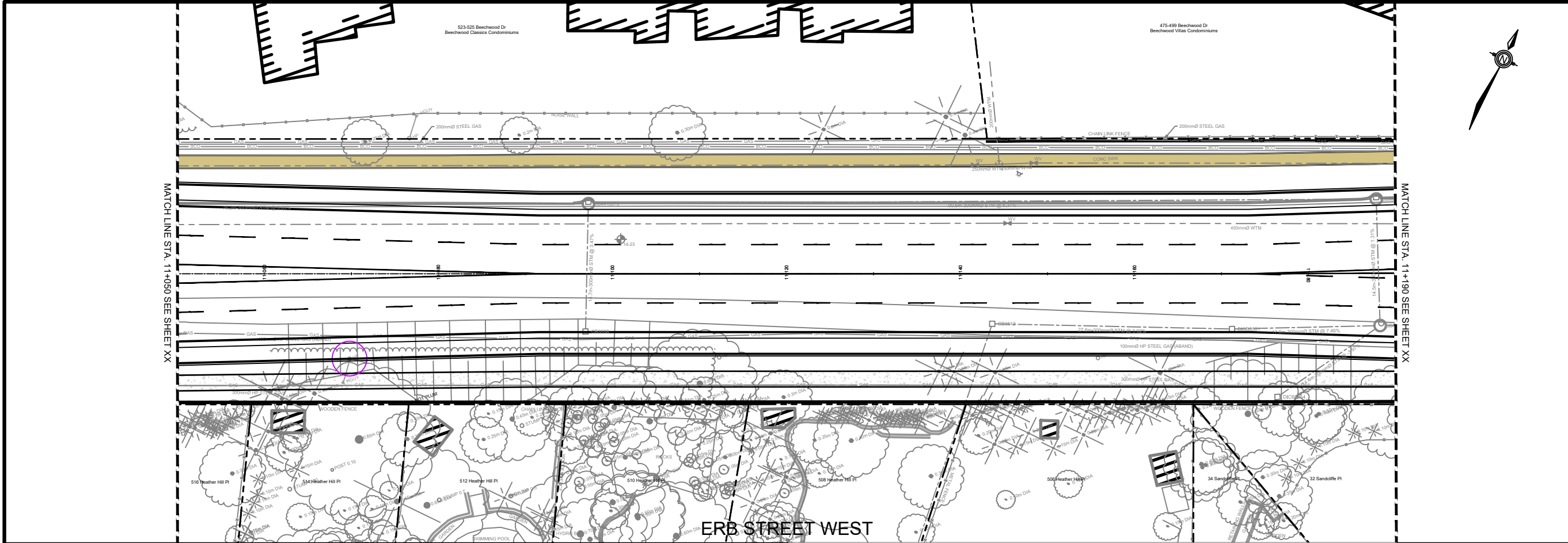
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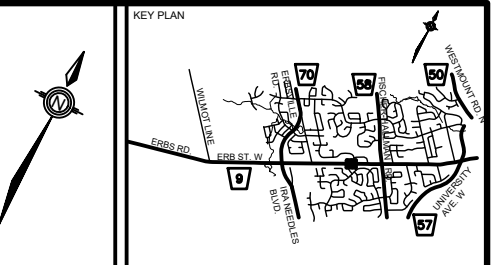
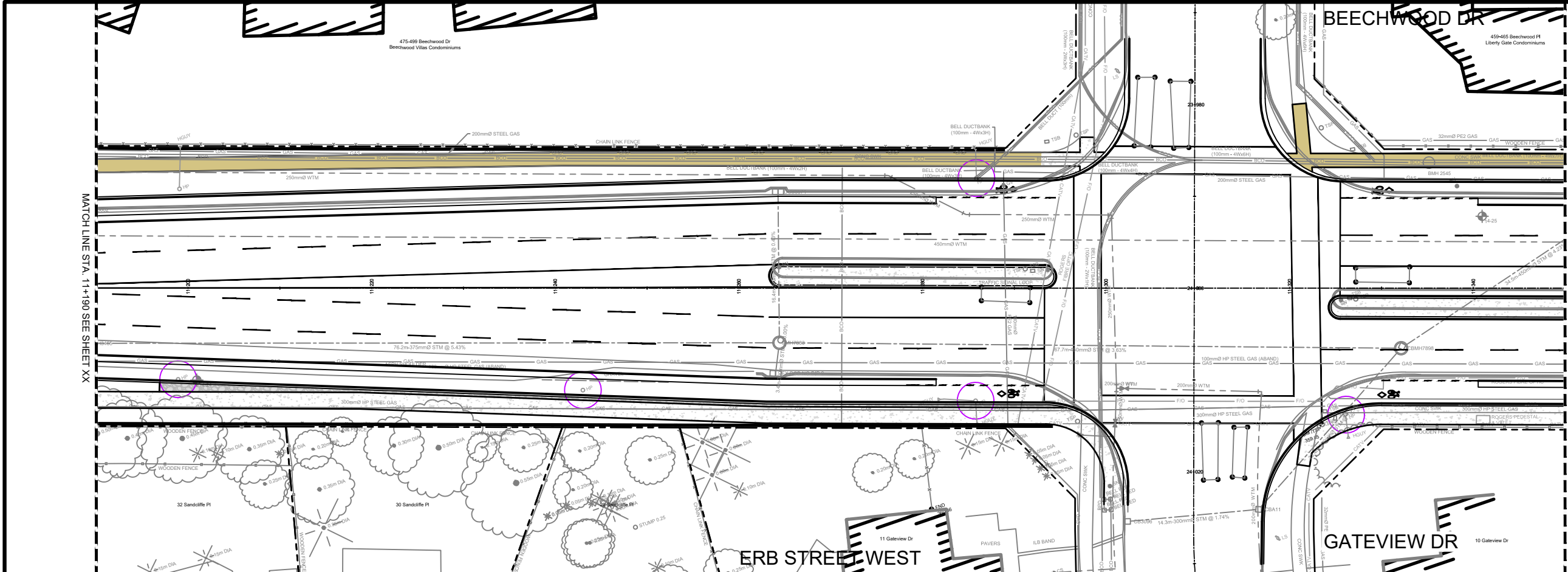


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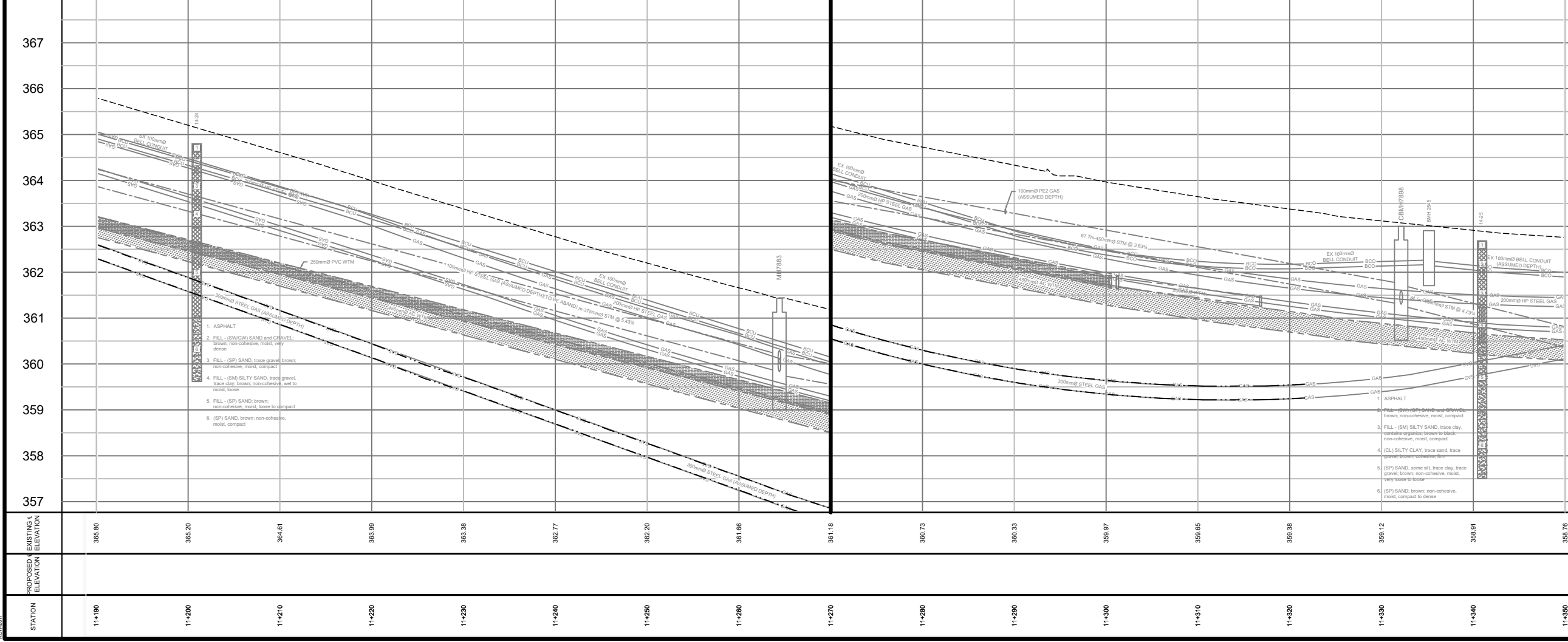
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WIDENING & CORRIDOR STUDY
FISCHER-HALLMAN ROAD TO
WILMOT LINE

ERB STREET WEST
RECONSTRUCTION
STA. 11+050 TO STA. 11+190

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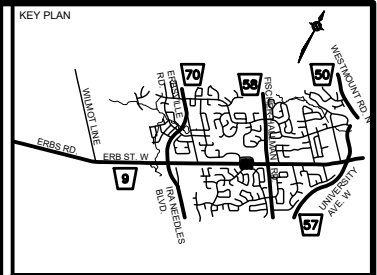
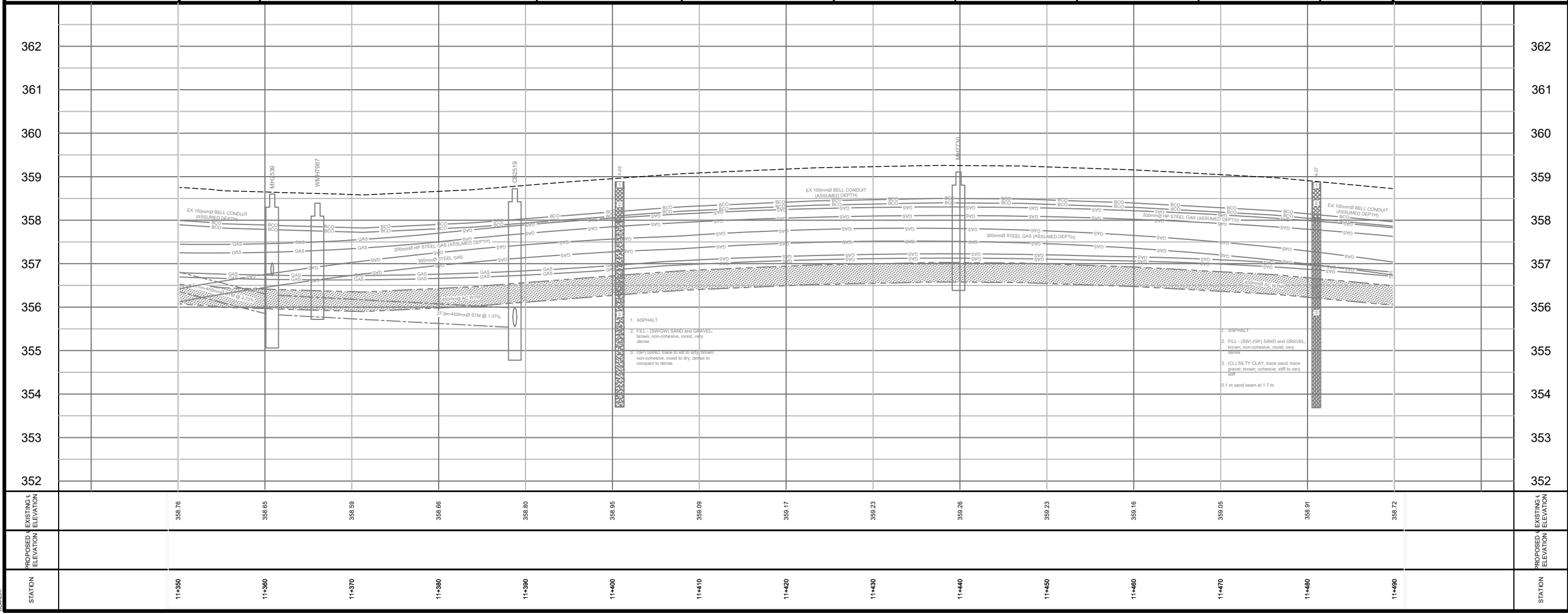
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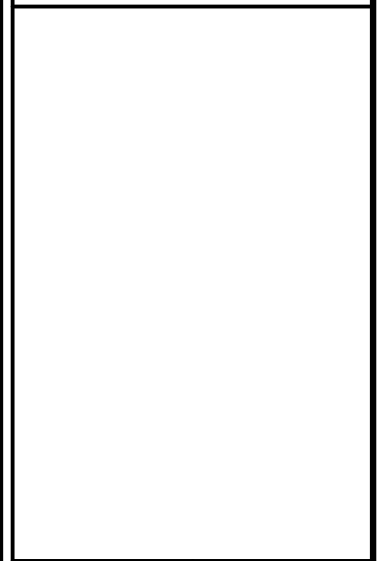
**ERB STREET
WIDENING & CORRIDOR STUDY
FISCHER-HALLMAN ROAD TO
WILMOT LINE**

**ERB STREET WEST
RECONSTRUCTION
STA. 11+190 TO STA. 11+350**

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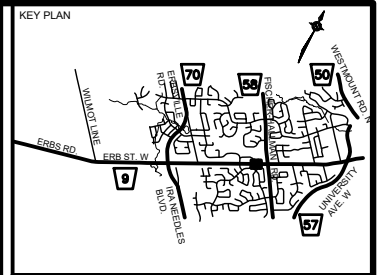
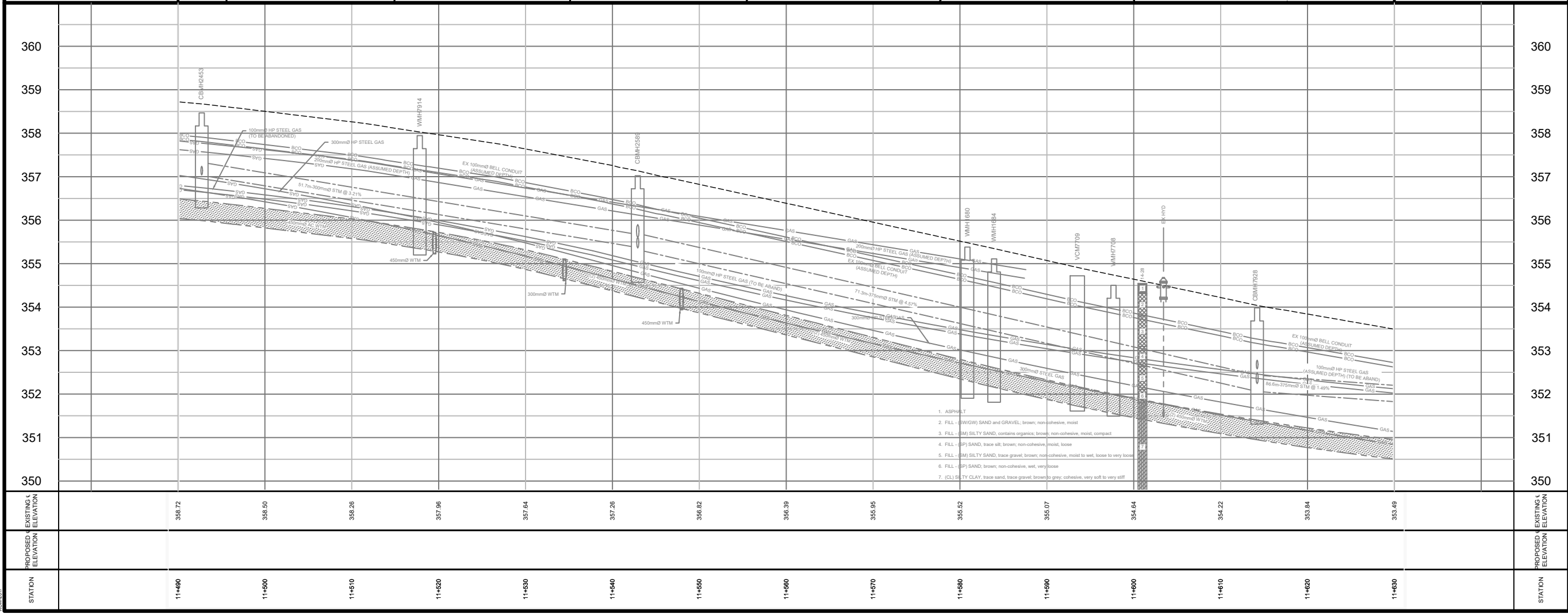
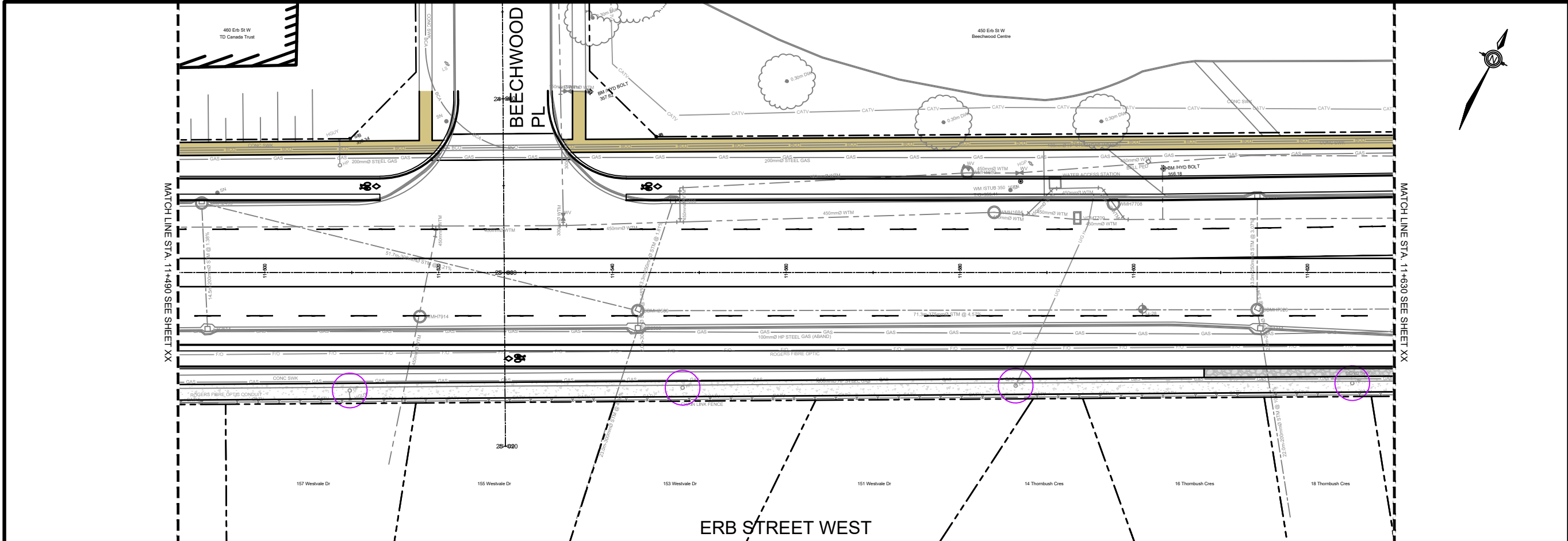
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ERB STREET
WIDENING & CORRIDOR STUDY
FISCHER-HALLMAN ROAD TO
WILMOT LINE

ERB STREET WEST
RECONSTRUCTION
STA. 11+350 TO STA. 11+490

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ERB STREET
WIDENING & CORRIDOR STUDY
FISCHER-HALLMAN ROAD TO
WILMOT LINE

ERB STREET WEST
RECONSTRUCTION
STA. 11+490 TO STA. 11+630

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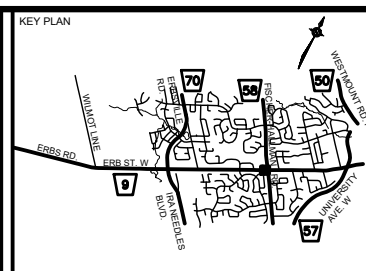
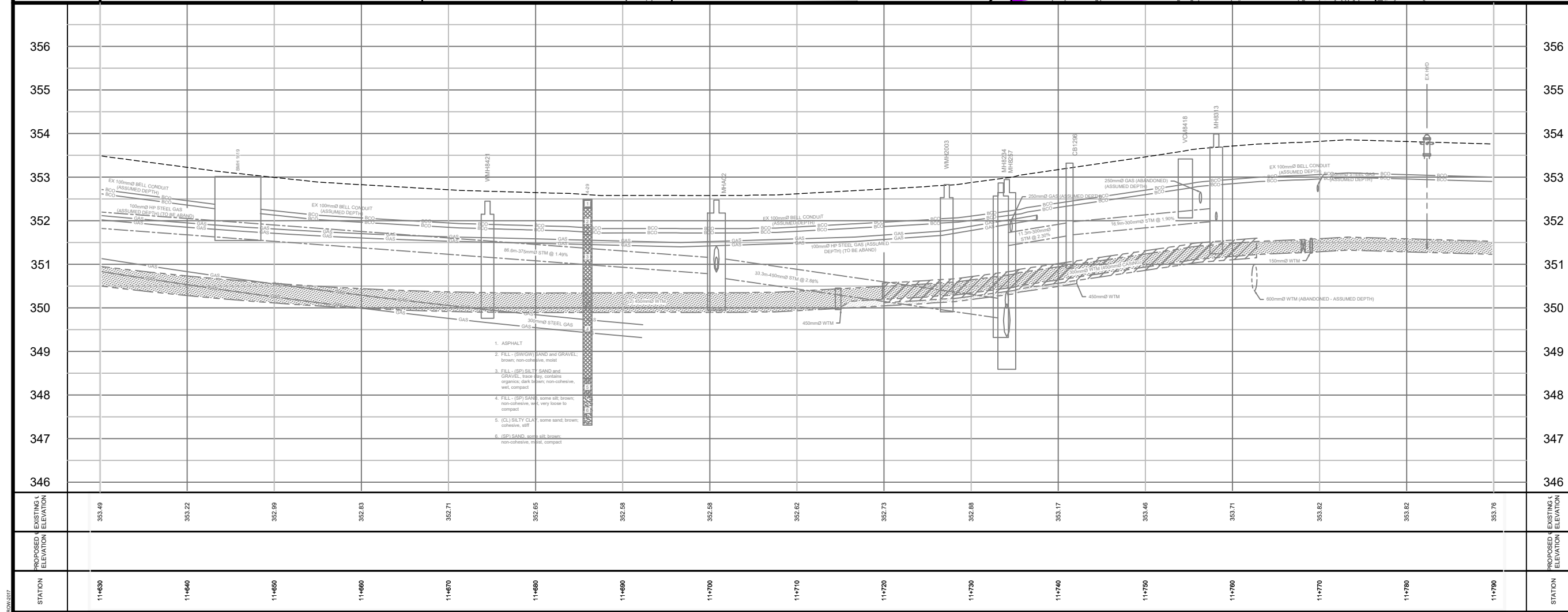
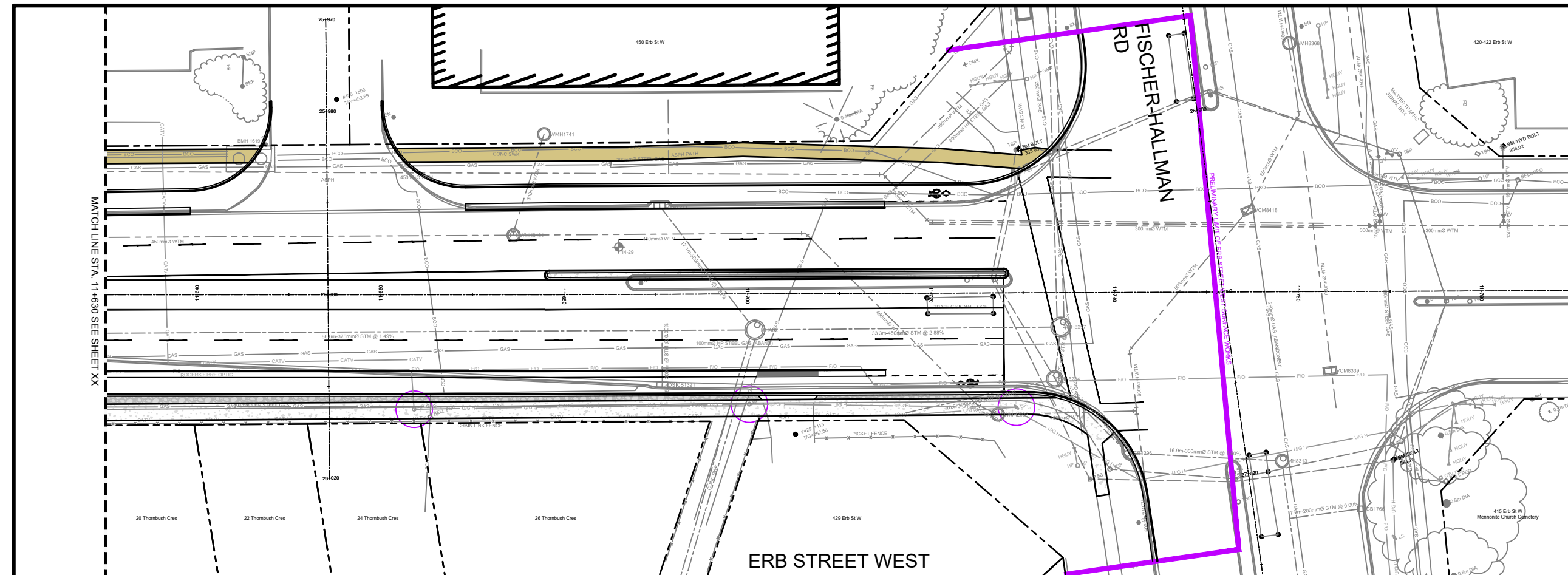
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ERB STREET
WIDENING & CORRIDOR STUDY
FISCHER-HALLMAN ROAD TO
WILMOT LINE

ERB STREET WEST
RECONSTRUCTION
STA. 11+630 TO STA. 11+790

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7.2 Benefits of the Recommended Design Alternative

A summary of the evaluation that resulted in the Project Team identifying Alternative 2C (Modified) as the preferred alternative is as follows:

7.2.1 Technical

Alternative 2C (Modified) would provide for additional traffic capacity with the widening of the road to four lanes. Erb Street is a major roadway in Waterloo and the proposed widening would increase the capacity available for the Region's east-west road network. The increased capacity of the road will also reduce the potential for delays to motorists and iXpress transit operations.

Along with the road widening, the infilling of sidewalk, and inclusion of multi-use trails and on-road cycle tracks will provide separated facilities for pedestrians and cyclists away from the road, encouraging greater use and providing increased safety for users. Separation from the roadway also keeps the road pavement widths to a minimum which may encourage lower operating speeds along the corridor.

7.2.2 Natural Environment

Natural environment studies completed for this EA reviewed existing vegetation, trees, wetlands, wildlife, aquatic habitat, and surface drainage in and adjacent to the study area. No significant environmental constraints or features were identified from these studies with the exception of the need to secure necessary permits and approvals from the Grand River Conservation Authority for any work required in the vicinity of the natural area located on the southern side of Erb Street immediately west of the Waterloo Commons, opposite the Westside Marketplace entrance. All alternatives have some potential to have minor impacts to this natural area; however, the potential for significant impacts is minimal. Improvements to the surface drainage are proposed with the construction of curb and gutter and storm sewers as included in all alternatives.

7.2.3 Social/Cultural

No significant constraints were identified from the archaeological study completed for this EA. Although all alternatives will require additional Stage 2 archaeological investigations prior to construction, the majority of the Erb Street corridor has been disturbed in the past and potential impacts from the proposed improvements are expected to be minimal.

As discussed, some areas of cultural heritage significance were identified from the cultural heritage study completed for this EA; however, none of these features are expected to be impacted by any of the alternatives.

As previously summarized, noise impacts have been assessed and would be mitigated as described in subsection 3.7.

7.2.4 Economic/Financial

As summarized above, while the cost for Alternative 2C (Modified) is the highest of all evaluated alternatives, the difference is marginal and primarily due to increased materials required for the wider pavement surface and additional curbs for on-road cycle tracks.

7.3 Property Impacts and Requirements

Implementation of the preferred alternative will require the widening of the road allowance in order to accommodate additional travel lanes and active transportation facilities. Given the width of the existing right-of-way, property impacts are expected to be minimal; however, it is noted that property will be required at the following locations:

- 605 Erb Street West – northern property line extends further north than is typical for this portion of the corridor, property line will need to move south in line with adjacent properties in order to accommodate sidewalk;
- Southern side of right-of-way, west of Ira Needles Boulevard, in vicinity of Hydro One corridor and Waterloo Commons commercial site – property acquisition required for widening of roadway as well as future active transportation facilities.

It is noted that additional property acquisitions may be identified during the detailed design process. Furthermore, temporary working easements on adjacent properties may be necessary in order to match grades as well as to restore landscaping and other disturbed areas as a result of construction.

Preliminary property acquisition plans have been prepared identifying the approximate property needs for each existing affected property along the corridor. These preliminary plans are included in this report as Appendix 'O'.

7.4 Project Capital Cost Estimate

The estimated construction and engineering costs for the implementation of Alternative 2C (Modified) for the reconstruction of Erb Street is approximately \$6.5 million. Additional costs for utility relocations such as the aforementioned Hydro One towers west of Ira Needles Boulevard are estimated to be in the range of \$2.0 million to \$4.0 million.

8.0 POTENTIAL IMPACTS AND PROPOSED MITIGATION MEASURES

Impacts for which mitigation measures will be implemented during construction include but are not limited to the following:

- An erosion and sediment control plan will be designed and implemented. All erosion and sediment control measures will be installed prior to commencement of construction and the effectiveness of the control measures will be monitored and evaluated throughout construction. This is especially critical in the vicinity of the GRCA regulated wetland area west of Ira Needles Boulevard;

- Contract documents will be prepared which obligate the Contractor to control and minimize airborne dust;
- Work will be carried out in accordance with municipal noise requirements and appropriate work hours will be specified;
- Pre-construction condition assessment of adjacent buildings will be offered to landowners and completed prior to construction;
- A traffic control plan will be prepared to mitigate potential disturbances to traffic and access to private properties;
- Project signs will be placed and pre-construction letters issued prior to construction in order to notify motorists, adjacent residents, businesses, and institutions of forthcoming construction activities and potential impacts to their day-to-day activities and operations.

Mitigation measures will be monitored during construction to verify their effectiveness and, if necessary, adjusted as required.

9.0 ADDITIONAL WORK AND REQUIRED APPROVALS

Additional tasks to be completed during the detailed design phase of the project, prior to construction, include but are not limited to the following:

- Finalize corridor grading to provide proper drainage and minimize impacts to adjacent properties;
- Finalize the detailed design for all underground works;
- Detailed utility relocations and approval from the utility agencies for the proposed construction and utility relocations including Hydro One relocations and Transmission Line Modification Study;
- Conduct a Stage 2 Archaeological Investigation based on the Stage 1 report;
- Develop a traffic management plan to maintain vehicular access on existing roads during construction;
- Consult and obtain fill permit approval as necessary from the Grand River Conservation Authority for any work in or near the regulated wetland area west of Ira Needles Boulevard;
- Coordinate location and design of iXpress bus stops within the study limit along with Grand River Transit and incorporate into detailed design;
- Acquisition of property as required; and

- Coordinate with the pending development to the southern side of Erb Street, adjacent to the Hydro One corridor. If any intersection modifications for Erb Street are required as a result of this development, they may be completed in conjunction with the widening of Erb Street or at a later date, depending on the duration of the approval process for this development.

10.0 MONITORING

During construction, the Contract Administrator will ensure that full-time monitoring/inspection of the project works is undertaken to ensure that all environmental commitments identified in the Environmental Study Report are adhered to by the Contract team.

11.0 CONSTRUCTION STAGING

Construction on Erb Street is tentatively scheduled to commence in 2020. During construction, it is expected that as is feasible, Erb Street will remain open to at least one lane of traffic in each direction and, therefore, no formal detours will be required. Pedestrian access will be maintained on one side of the roadway for the duration of construction. Where the sidewalk is close to deep excavations, separation from the work area will be provided through use of temporary fencing. Signage will be posted in order to direct pedestrians through the project limits. Access to private properties will be maintained during construction. If short-term access restrictions are required, the Region and the Contractor will work with the property owners to mitigate and minimize disruption.

Waterloo Fire Rescue, Waterloo Regional Police, and Ambulance Services will all be advised of the traffic restrictions during the construction period. Grand River Transit service, which includes routes 5, 92, and iXpress route 202, will be maintained during construction through the implementation of temporary bus stop locations as required. As is customary during Regional road reconstruction projects, motorists will be advised of the construction timing and traffic restrictions through advance signage and through information on the Region's website.

12.0 PUBLIC AND AGENCY CONSULTATION

12.1 Stakeholder Involvement

Throughout the project, many meetings and discussion/correspondence have occurred to ensure consultation with and involvement of key stakeholders. A list of the various project stakeholders and interested parties is provided in Section 1.3. A brief summary of project meetings conducted to date, their timing, agendas, and minutes are also listed in Appendix 'P'.

12.2 Notice of Study Commencement

A formal Notice of Study Commencement for this Schedule 'C' Class EA was issued in April 2015. The notice was mailed directly to all adjacent property owners and known interested agencies and stakeholders. The notice was also published on the Region's website and advertised in local newspapers. The document described the project, outlined the Municipal Class EA process, requested public involvement through forthcoming PCCs, and identified project contact persons. A copy of the Notice of Study Commencement is provided in Appendix 'B'.

12.3 Public Consultation Centres

12.3.1 Public Consultation Centre #1 (PCC #1)

Notification for the first of two PCCs for this project was advertised in the Kitchener Record and Waterloo Chronicle on April 21 and 24, 2015. Notices explaining the intent of the project and an invitation to the PCC were also mailed and/or hand-delivered to property owners, tenants, and businesses within the study area, as well as local authorities, agencies and special interest groups.

PCC #1 was held at the Kitchener-Waterloo Bilingual School located at 600 Erb Street West on Thursday May 28, 2015, from 4:30 pm until 8:00 pm. The intent of the PCC was to present to the public the preliminary design alternatives and various improvement components of the project that were being considered by the Project Team.

Boards detailing the proposed improvements were displayed and an information package explaining the various alternatives was provided to all participants. Members of the Project Team were present at the PCC to answer questions and receive feedback from the public. As part of the information package, a comment sheet and questionnaire were distributed to the attendees of the PCC to solicit input and to provide opportunity for comments on the project. The PCC was well-attended and in total eleven comment sheets were received along with five email responses. Comments received at PCC #1 generally supported the need for traffic, pedestrian, and cyclist improvements along Erb Street; however, concerns were expressed regarding the increase in traffic and associated noise. A summary of public comments is provided on the following pages. Comments received from PCC #1 were incorporated into the needs and opportunities of the project for the development of alternatives and evaluation of impacts.

All materials from PCC #1 including public comments received and Project Team responses are provided in Appendix 'P'.

Table 12-1: PPC #1 Comment Summary	
Respondent	Comment
#1	- Noise has been an issue for 10-15 years and continuously increasing because of new development and traffic slowing down the hill. - Trees are old growth. Please consider regrading and moving the centreline of the road to minimize impact on trees and dwellings.
#2	- Concern that the new Costco will result in an overabundance of traffic in suburban neighbourhood (Beechwood Drive). - Concern that size and impact of Costco is being underestimated as was done on Ira Needles.
#3	- Concern that the new Costco will result in an overabundance of traffic in suburban neighbourhood (Beechwood Drive). - Suggestions for traffic on Beechwood Drive: Revise draft plan for development of 3.43 acres to have different access, install traffic calming on Beechwood Drive
#4	- Four lanes all the way through, otherwise they'll need to be widened five years later. - Larger pedestrian signs at roundabouts should. - Should be considered sooner than later.
#5	- Need four lanes by Westside Marketplace in 2016, not 2018. - Need to protect ESL and not overwhelm Wilmot Line. - Need sidewalks to Costco for opening day.
#6	- Noise study done in 2000 recommending noise barrier. Please put up a noise barrier from Fischer-Hallman to Ira Needles.
#7	- Already a sound issue along Erb Street. - Concerned for the trees. - Concerned about expropriation and small business access.
#8	- Concern about noise levels backing onto Erb from Beechwood Villas.

Table 12-1: PPC #1 Comment Summary

Respondent	Comment
#9	- Need to widen Erb Street, but Ira Needles was supposed to bypass and is too busy on weekends. - Consider: Large trucks traffic on giveaway days and spring/fall cleanup alternatives for bikes and pedestrian traffic. - Little room for widening of Ira Needles roundabout. Developers were allowed to build too close to the roadway. - Nothing should be built by water Station. - Erb Street was just repaved twice between Ira Needles and Wilmot, waste of money. - Hydro replaced poles as well.
#10	- Request sound and visual barriers. - Concern about pedestrians walking too close to backyards, cutting through by jumping fences. - Concern for existing greenery, consider moving sidewalk to protect tree space.
#11	- Need sound barrier extended from Erbsville to Westhaven. - Widening to four lanes is a good idea. - Existing drainage issue at Erb and Erbsville. - Move crosswalks away from roundabouts.
#12	- Support Alternative 4 and need to widen the road. - Concern about traffic at proposed Costco roundabout. What if a second scale does not address landfill queues? - Suggest dedicated turn to Costco. - Traffic at Erb and Ira Needles is backed up; roads should be widened as soon as possible.
#13	- Several near accidents with pedestrians crossing at Erb Street and Gateview. Suggest traffic calming. - Overhead crosswalk sign. - "Prepare to Stop" warning lights. - Lower speed limit for trucks - Police enforcement required.
#14	- Request noise abatement. - Should widen to four lanes, as it is the only section of Erb left as three, only four lane option makes sense. - Lack of sidewalk on Gateview side needs rectification. - Slope seems too steep for cyclists.

Table 12-1: PPC #1 Comment Summary	
Respondent	Comment
#15	- Why not extend four lanes past Wilmot? - Bike lanes between Costco roundabouts (so close together) is risky. - Consider attached sketch for alternative roundabout orientation. - No one wants to see what happened on Ira Needles happen again (rebuild the road after four years). - Ira Needles intersection needs dedicated right at southwest corner. Otherwise people will bypass through the Beer Store. - Consider individual driver impacts on traffic analysis. - Improper use of roundabouts causes chaos.
#16	- Request for additional information.

12.3.2 Public Consultation Centre #2 (PCC #2)

Notification for PCC #2 for this project was advertised in the Kitchener Record on April 21 and 28, 2017, and in the Waterloo Chronicle on April 27 and May 4, 2017. Notices explaining the intent of the project and an invitation to the PCC were also mailed and/or hand-delivered to property owners, tenants, and businesses within the study area, as well as local authorities, agencies and special interest groups.

PCC #2 was held at the Kitchener-Waterloo Bilingual School located at 600 Erb Street West on Thursday May 4, 2017, from 4:30 pm until 8:00 pm. The intent of the PCC was to present to the public the revised design alternatives including the preferred alternative and to obtain input on the preferred alternative including the criteria used for its evaluation.

Drawings and boards detailing the proposed improvements were displayed and an information package explaining the various alternatives was provided to all participations. Members of the Project Team were present at the PCC to answer questions and receive feedback from the public. As part of the information package, a comment sheet and questionnaire were distributed to the attendees of the PCC to solicit input and to determine preferences for improvements along the road corridor. PCC #2 was well-attended with sixty one members of the public signing in and eight comment sheets received along with seven email/voice message responses. Comments received generally support the need for traffic improvements as well as sidewalks and cycling facilities along the corridor. Concerns were expressed regarding the increase in traffic and difficulties in accessing properties along the corridor in addition to increased traffic noise to adjacent residential properties. A summary of public comments is provided on the following pages. Comments received from PCC #2 were reviewed by the Project Team and included in the Project Team's development and execution of alternatives.

As part of the Project Team's preferred design alternative, a combination of sidewalks, multi-use trails, and on-road cycle tracks have been incorporated to provide for pedestrian and cycling access and connections along Erb Street.

All materials from PCC #2 including public comments received and Project Team responses are provided in Appendix 'P'.

The Project Team's preliminary preferred design alternative was also presented to the Region's Active Transportation Advisory Committee (ATAC) on January 17, 2017. ATAC expressed general support of sidewalks, multi-use trails, and cycle tracks along Erb Street and requested staff consider cyclist safety when designing the road crossings within the project area. Region staff has confirmed that cyclist safety will be an important consideration during design.

Table 12-2: PPC #2 Comment Summary	
Respondent	Comment
#1	- Residents should have favourable road access to communities during construction (no total lane shutdowns). - Add roundabout at Ira Needles and Royal Beech. - Consider extending Thorndale to reduce traffic at Westside Marketplace. - Fully agree with this proposal.
#2	- Noise barrier is a must. - Noise barriers are great, road noise is too loud.
#3	- Okay with preferred solution. - Noise barriers are great, road noise is too loud.
#4	- Primary concern is loss of mature trees and greenspace, increase in noise. - Also concern about reduction in livability and increase in noise at own property because of tree removal. - Keep the road narrow between Fischer-Hallman and Ira Needles. - Regrading to reduce the hill. - Higher wall to block noise. - Move centreline of road to preserve trees. - Reduce boulevard to preserve trees, sidewalk only on one side.

Table 12-2: PPC #2 Comment Summary

Respondent	Comment
#5	- 634 Needlewood Glen Co-Operative is home to over 100 households, do not feel they were taken into consideration when designing the new roadway—they will only have one exit/entrance to the complex. - Park behind the Co-Op could be used to connect roadways. Park is hardly used. - Make roadway to parking lot of Chinese Church have an alternative exist/entrance to Erbsville. - Four lanes means more volume of high-velocity traffic which is already a problem. - Unhappy that she did not have input in the plans.
#6	- Suggests adding pedestrian refuge island. - Noise barriers are great, road noise is too loud.
#7	- Only streetlights on the south side and the sidewalk is on the north side. - Strongly suggests having dual-purpose sidewalk/bicycle path like Ira Needles (east side) and like Holland. The roadway bikes are too dangerous. - Disagrees with segregated bike lanes.
#8	- Concern about losing trees at back of property—cut down on noise, add visual appeal, and were a factor in property purchase. - Have less green space between the sidewalks and the bike lanes. - Noise barriers are good. - Consider keeping the road narrow like the west of Ira Needles.
#9	- In favour of the “Do Nothing” option. - Concern for environmentally sensitive Wilmot Line. - Prefers protected separated bike lanes.
#10	- Concerned regarding storm water drainage in vicinity of Wilmot Line, requested additional information.
#11	- Suggestion to reduce travel lane width in order to make up for minor cost difference between Alternative 2B and 2C. - In favour of segregated bike lanes.
#12	- Concerned that proposed noise wall height of two metres is insufficient due to hill west of Gateview. - Concern regarding loss of mature trees at rear of property.
#13	- Request for additional information regarding construction schedule.
#14	- Concern regarding property expropriation and loss of trees. - Request for additional information regarding noise walls.

Table 12-2: PPC #2 Comment Summary

Respondent	Comment
Grand River Conservation Authority	- Expressed interest regarding unevaluated wetland regulated by GRCA. Request for additional information related to the study, and circulation on future submissions.

12.4 Agency and Stakeholder Coordination and Correspondence

Consultation with the public, external agencies, and related stakeholders was conducted in accordance with the requirements of the Schedule 'C' Class EA process. Refer to Section 1.3 for the listing of applicable agencies and stakeholders consulted throughout this process.

When appropriate, external agencies and interest groups were contacted directly for their input. During the course of this EA study, meetings were held with the following agencies/stakeholders:

- Region of Waterloo Waste Management
- Hydro One Networks Inc.
- Kitchener-Waterloo Bilingual School (at Erbville Court and Erb Street)

Copies of relevant correspondence and/or meeting minutes with agencies/stakeholders are provided in Appendix 'P'.

12.5 Regional Planning and Works Committee Meeting

The Erb Street Class EA study and recommended improvements was presented for approval at the June 19, 2018, Regional Planning and Works Committee meeting and was subsequently approved by Regional Council on June 27, 2019, as follows:

That the Summary of Recommendations of the Planning and Works Committee, dated June 19, 2018, Item 4, be adopted as follows:

4. That the Regional Municipality of Waterloo take the following actions with respect to the Class Environmental Assessment for Erb Street Improvements, from Fischer-Hallman Road to Wilmot Line, in the City of Waterloo:
 - a) Approve the Recommended Design Alternative for the proposed construction and widening of Erb Street from Fischer-Hallman Road to Wilmot Line as described in Report TES-DCS-18-12 dated June 19, 2018.

- b) Direct staff to file a Notice of Completion as required by the Municipal Class Environmental Assessment and place the Environmental Study Report on the public record for review for a period of 30 days.
- c) Amend Traffic and Parking By-law 16-023, as amended, upon completion of construction to add to Schedule 22, Reserved Cycling Lanes on the north side of Erb Street (Regional Road 9) from Fischer-Hallman Road to Ira Needles Boulevard in the City of Waterloo.
- d) Amend Traffic and Parking By-law 16-023, as amended, upon completion of construction to add to Schedule 22, Reserved Cycling Lanes on the south side of Erb Street (Regional Road 9) from Fischer-Hallman Road to Ira Needles Boulevard in the City of Waterloo
- e) That staff give consideration to a potential roundabout on Erb Street West.

Carried.

A copy of the Planning and Works Committee Report and minuted resolution is provided in Appendix 'P'.

12.6 Notice of Completion

In accordance with Region Council approval and the requirements of the the Municipal Class EA, a formal Notice of Study Completion is being filed for completion of the Erb Street Improvements Class EA Study. The Notice of Study Completion will be filed by means of mail-outs and advertised notices. This Environmental Study Report, which includes all relevant documentation regarding the planning and decision-making process, will be placed on the public record for a minimum mandatory period of thirty days. During this thirty day filing period, if concerns regarding this project can not be resolved in discussion with the Region of Waterloo, a person or party may request that the Minister of Environment, Conservation and Parks make an order for the project to comply with Part II of the Environmental Assessment Act (referred to as a Part II Order). Part II Order requests must be made using a Part II Order Request Form, available online at <http://www.forms.ssb.gov.on.ca> and search for "Part II Order Request". Requests for a Part II Order must be received by the Minister of Environment, Conservation and Parks, 77 Wellesley Street West, 11th Floor, Ferguson Block, Toronto, Ontario, M7A 2T5, email Minister.mecp@ontario.ca, and the Director of the Environmental Assessment and Permissions Branch, Ministry of the Environment, Conservation and Parks, 135 St. Clair Avenue West, 1st Floor, Toronto, Ontario, M4V 1P5, email MOECCpermissions@ontario.ca, by the end of the thirty day filing period, with a copy of the request also being sent to the Region of Waterloo. When the thirty day public filing has expired, and if no requests are received, the recommended design alternative will be considered approved for implementation.

13.0 PROJECT SCHEDULE

The following table outlines the key milestone dates of the project to date and projected to completion.

Table 13-1: Project Schedule

Initiate Class EA Study	March 2014
Notice of Study Commencement	April 2015
Public Consultation Centre #1	May 2015
Public Consultation Centre #2	May 2017
Region Council Approval of EA	June 2018
Filing of Environmental Study Report & Notice of Completion	March 2019
EA Approval (30 Days)	April 2019
Detailed Design	2019/2020
Property Acquisition	2019/2020
Utility Relocations / Upgrades	2019
Construction Start	2020/2021
Construction End	2021

All of which is respectfully submitted,

WALTERFEDY



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