



TO: MAYOR J. LEHMAN AND MEMBERS OF COUNCIL

SUBJECT: DUNLOP STREET CORRIDOR IMPROVEMENTS – FERNDALE DRIVE TO ANNE STREET MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

WARD: 2 AND 5

PREPARED BY AND KEY CONTACT: BRETT GRATRIX, P.Eng.
TRANSPORTATION PLANNING LEAD, EXT. 5117

SUBMITTED BY: M. BANFIELD, RPP
DIRECTOR OF DEVELOPMENT SERVICES

GENERAL MANAGER APPROVAL: A. MILLER, RPP
GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

CHIEF ADMINISTRATIVE OFFICER APPROVAL: M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RECOMMENDED MOTION

1. That the preferred design solution for the Dunlop Street Corridor Improvements – Ferndale Drive to Anne Street Municipal Class Environmental Assessment be adopted as outlined in Staff Report DEV020-20.
2. That in accordance with the requirements of the Municipal Class Environmental Assessment process, the Development Services Department publish a Notice of Completion for the Dunlop Street Corridor Improvements – Ferndale Drive to Anne Street Municipal Class Environmental Assessment.
3. That subject to the successful conclusion of the Municipal Class Environmental Assessment and available budgets being approved through the capital planning process:
 - a) The Infrastructure Department proceed with the implementation of the preferred design solution as part of the Ministry of Transportation Dunlop Street interchange replacement project;
 - b) Staff complete the property acquisitions necessary for transportation improvements as identified in the Municipal Class Environmental Assessment and illustrated in Appendix “A” to Staff Report DEV020-20, figures P10 and P11;
 - c) The Director of Legal Services be authorized to commence negotiations and/or expropriation proceedings to acquire fee simple interests for the required properties to facilitate implementation of the preferred design solution;
 - d) The Corporation of the City of Barrie make an application to City Council, as approving authority, for approval to expropriate the required properties and the City Clerk be authorized to execute the necessary forms of application;

- e) The “Notice of Application for Approval to Expropriate” be served and published and that any requests for inquiries received, pursuant to the “Notice of Application for Approval to Expropriate” be forwarded to the Chief Inquiry Officer and the Chief Inquiry Officer be requested to report to Council with respect to any such request; and
 - f) The Director of Legal Services be delegated authority to settle the expropriations or any negotiated agreements relating to the required properties and the City Clerk be authorized to execute all associated and required documents in a form approved by the Director of Legal Services.
4. That Alternative Design Solution 3 reflective of transportation improvements required to accommodate planned growth to 2041 be adopted for planning purposes for corridor protection.

PURPOSE & BACKGROUND

5. The Ministry of Transportation (MTO) is planning to replace the Dunlop Street interchange and Highway 400 crossing. The MTO’s approved solution includes widening of Dunlop Street to 4-lanes (2 per direction) from west of Cedar Pointe Drive to Anne Street as recommended in the MTO’s approved Transportation Environmental Study Report.
6. MTO has not announced a construction date; however, staff anticipate construction will commence in 2024 or 2025 and continue for a duration of 2 years.
7. The City’s Transportation Master Plan identified the need to widen Dunlop Street West to 6-lanes (3 lanes per direction) from Ferndale Drive to Anne Street to accommodate planned growth.
8. In late 2018, the MTO indicated that they would be willing to construct the additional widening as part of the interchange replacement project, at the City’s cost, subject to completion of a Municipal Class Environmental Assessment (Class EA).
9. In consideration of the benefit of economies of scale and geometric constraints of the interchange impacting the feasibility of a future widening; staff undertook a Schedule ‘C’ Class EA in order to proceed with the additional widening as part of MTO’s planned interchange replacement project.
10. This project is included in the current capital plan and is development charges eligible.

ANALYSIS

11. The City retained McIntosh Perry Ltd. to complete the Schedule ‘C’ Class EA study. The Class EA study evaluated alternative design solutions for corridor widening in consideration of impacts to the social, natural, cultural, built heritage and economic environments.
12. An assessment of existing conditions was completed as part of this project. Key challenges on this corridor within the study area (Ferndale Drive to Anne Street) include the following:
 - a) Traffic Operations: Traffic operations between Cedar Pointe Drive and Anne Street are poor during peak hours; this negatively impacts highway off-ramp operations resulting in hazardous queuing on mainline Highway 400 for vehicles accessing both off-ramps.
 - b) Access Management Issues: This corridor has many private driveways and a number are located within functional areas of intersections and the Highway 400 ramp terminals. This negatively impacts traffic operations and roadway safety as it results in numerous vehicular conflict points and increased collision rates. When compared to a surrogate road (Bayfield

Street in proximity to Livingston Street) with improved access management (raised median and restricted number of driveways); collision rates on Dunlop Street are approximately 100% higher while having approximately 20-30% less traffic volume (6 collisions/per year vs 12 collisions/per year, based on 10 years of collision data for angled/turning movement collisions).

- c) Active Transportation: There are no sidewalks between the ramp terminals. There is also no bicycle infrastructure on the corridor.
- d) Pavement Condition: The road structure (asphalt and granulars) on Dunlop Street east of Highway 400 is at end-of-life and requires reconstruction.
- e) Highway 400 Crossing Structure: The structure is 65-70 years old and is approaching end-of-life based on a typical service life of 75 years for a bridge structure. This structure is owned and maintained by the MTO.
- f) Highway 400 Interchange Configuration / Future Corridor Widening: The City's Transportation Master Plan identifies the need to widen the Dunlop Street as follows:
 - i) By 2031 – 6 through lanes from the west Highway 400 ramp terminal (Cedar Pointe Drive) to Anne Street (includes highway crossing).
 - ii) By 2041 – 6 through lanes from Ferndale Drive to Anne Street (includes highway crossing).

As noted previously, it is recommended that widening to the 6-lane cross-section is completed jointly with the MTO project.

13. The study considered 3 alternative design solutions based on growth to 2031 and 2041 and are detailed as follows (note that the descriptions exclude auxiliary lanes associated with highway ramps and intersections):
- a) Alternative Design Solution 1 is reflective of the MTO's approved solution with additional widening to accommodate 6 through lanes between the Highway 400 ramp terminals. At implementation, the crossing structure will include 2 through lanes in the eastbound direction and 3 through lanes in the westbound direction. Improvements extend from Sarjeant Drive to Anne Street. This solution is reflective of improvements required for existing traffic volumes.
 - b) Alternative Design Solution 2 includes a 4 through lane cross-section extending from west of Ferndale Drive to the west Highway 400 ramp terminal and a 6 through lane cross-section from the west Highway 400 ramp terminal to Anne Street and includes extensive intersection improvements at Anne Street and Ferndale Drive. This solution is reflective of improvements required for forecasted 2031 traffic volumes.
 - c) Alternative Design Solution 3 includes a 6 through lane-cross section from Ferndale Drive to Anne Street and includes extensive intersection improvements at Anne Street and Ferndale Drive. This solution is reflective of improvements required for forecasted 2041 traffic volumes.

14. The following table details the road configuration details for each Alternative Design Solution:

	Project Limits	Ferndale Drive to Sarjeant Drive	Sarjeant Drive to West Ramp Terminal	West Ramp Terminal to East Ramp Terminal	East Ramp Terminal to Anne Street	Hart Drive Intersection Restrictions
Alternative Design Solution 1 (overpass constructed for future widening)	Sarjeant Drive to Anne Street	Existing conditions	4 lanes + median	6 lanes ¹ (3 WB and 2 EB interim) + median ²	4 lanes	Full Movement
Alternative Design Solution 2 (designed for 2031 traffic volumes)	Sarjeant Drive to east of Anne Street	4 lanes + two-way left turn lane	4 lanes + median	6 lanes + median ²	6 lanes + median	Full Median, Right-in, Right-out only
Alternative Design Solution 3 (designed 2041 traffic volumes)	West of Ferndale Drive to East of Anne Street	6 lanes + median	6 lanes + median	6 lanes + median ²	6 lanes + median	Full Median, Right-in, Right-out only

1 – The road platform and crossing structure between the highway ramp terminals (including the crossing structure) will be built to accommodate 6 through lanes (3-lanes per direction) plus auxiliary lanes. At implementation, there will be 2 eastbound through lanes and 3 westbound through lanes.

2 – The full median between the highway ramp terminals is a component of MTO's approved design.

15. The following table details property impacts and cost estimates for each Alternative Design Solution:

	Full Property Buyouts	Partial Property Purchases	Property Costs	Capital Costs ¹	MTO Contribution ^{2,3}	Total Costs ⁴
Alternative Design Solution 1 (overpass constructed for future widening)	None	4	\$0.5 million	\$3.5 million	\$25 million	\$29 Million
Alternative Design Solution 2 (designed for 2031 traffic volumes)	22	33	\$45 million	\$40 million	\$25 million	\$110 Million
Alternative Design Solution 3 (designed 2041 traffic volumes)	22	36	\$49 million	\$42 million	\$25 million	\$116 Million

1 – Capital costs represent City costs for road improvements beyond the MTO's project limits.

2 – MTO Contribution represents City costs for additional widening within the MTO's project limits including widening of the bridge structure and ancillary impacts associated with that widening.

3 – The estimate developed for MTO's contribution has been prepared based on information contained with the MTO's Preliminary Design Report and includes contingencies and cost contributions for project planning, design and construction management phases. The MTO will develop an updated cost estimate as part of their detailed design project; the City will be billed based on actual costs incurred by the MTO.

4 – Cost estimates includes contingencies, project planning, design and construction management phases.

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16. The significant increase in costs associated with Alternative Design Solution 2 and 3 are a result of improvements east of Highway 400 and intersection improvements at Anne Street and Ferndale Drive. These improvements include additional auxiliary lanes (right turn lanes, double left turn lanes) that significantly widen the road platform resulting in a corresponding significant increase in capital and property costs (which require numerous full acquisitions).
 17. Alternative Design Solution 2 and 3 includes turning movement restrictions at the Hart Drive and Dunlop Street intersection (recommended restriction to right-in and right-out movement only) to improve east-west traffic operations. This restriction is required to mitigate gridlock conditions that are a result of the extremely close spacing of the Hart Drive and Anne Street intersections.
 18. Alternative Design Solution 2 is technically recommended to provide adequate traffic operations for the 2031 horizon; however, this solution has negative social and economic impacts. Social impacts related to the displacement of numerous businesses/residents as well as economic impacts related to the need for numerous property acquisitions, loss of tax revenue/economic activity and additional capital costs associated with the wider road platform. Given the significant negative impacts, this alternative is not recommended.
 19. In consideration of the preceding noted impacts, Alternative Design Solution 1 is recommended as the preferred design solution. This solution helps to address the noted corridor challenges as follows:
 - a) Traffic Operations: This solution will provide a significant improvement over current traffic operations based on the current 2 through lane (1-lane per direction) Highway 400 crossing; however, traffic operations during peak periods will be marginal when implemented and continue to deteriorate as population and employment growth continue.
 - b) Access Management Issues: This solution includes a raised median from Sarjeant Drive to the west Highway 400 ramp terminal. This will address safety issues associated with the high number of private driveways and improve traffic operations. Median implementation will be phased.
 - c) Active Transportation: Sidewalks are included on both sides; however, cycling infrastructure is not recommended on Dunlop Street as indicated in the City's Transportation Master Plan and per Staff Report ENG012-19. The City's Transportation Master Plan recommends cycling infrastructure on Tiffin Street and Anne Street as both are considered safer alternatives as they do not have vehicle-cyclist conflict areas at highway interchange ramps.
 - d) Pavement Condition: The anticipated project timing aligns well with pavement renewal needs on this corridor.
 - e) Highway 400 Crossing Structure: Although not the responsibility of the City, the anticipated project timing aligns well with structure renewal needs.
 - f) Highway 400 Interchange Configuration / Future Corridor Widening: This solution will facilitate future corridor widening.
 20. Public consultation was undertaken through the completion of two public information centres (PIC). The first PIC was held on June 19, 2019 and presented a general project outline as well as recommendations from the Transportation Master Plan for the corridor. The second PIC was held on November 6, 2019 and presented the alternative design solutions and identified Alternative Design Solution 1 as the preliminary preferred design solution. The presented information included detailed information on property specific impacts as well as the inclusion of raised medians.

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21. The PICs were advertised in the Barrie Advance, the City's social media accounts and via direct mailouts to all property owners and tenants for both PICs.
 22. Written comments received throughout the Class EA were collected and documented in the Environmental Study Report (available for review at <https://www.barrie.ca/City%20Hall/environmental-assessment-studies/Pages/Dunlop-Street-West-Transportation-Improvements.aspx>). In the context of all alternatives, areas of major concern were generally related to MTO's approved design, as the City's preferred design solution does not differ significantly:
 - a) Property Impacts (associated with MTO's approved design requiring full acquisition of 303 Dunlop Street West and partial acquisition of 4 Cedar Pointe Drive)
 - b) Lack of information from the MTO pertaining to their project timing, property acquisition process and information for impacted tenants.
 23. Additional consultation was undertaken with large businesses directly impacted by the proposed raised median on Dunlop Street between Sarjeant Drive and the west highway ramp terminal. Business owners noted concerns related to reduced customer access and potential loss of revenue. To mitigate these impacts, the preferred design solution will include an interim phase with a significantly shortened median that will extend 80m west from the west highway ramp terminal.
 24. Implementation of the preferred solution will occur as follows:
 - a) Preferred Design Solution – Interim Phase (shortened median): This is intended to be implemented as part of the MTO's planned interchange replacement project. As noted, construction is anticipated to commence in 2024 or 2025. The proposed improvements are illustrated in Appendix "A" (conceptual drawing excerpts showing proposed transportation improvements and property requirements; MTO in green, City in blue).
 - b) Preferred Design Solution – Final Implementation: The ultimate configuration of Alternative Design Concept 1 includes the full median from Sarjeant Drive to Anne Street. Staff will monitor traffic operations/collision rates and if required, a staff report will be presented to Council seeking approval to complete this work.
 25. The MTO has been involved throughout the study and provided input in the development of the design alternatives. Subject to completion of the Class EA study; the MTO intends to proceed with the detailed design for the interchange replacement project based on the Preferred Design Solution – Interim Phase conceptual design.
 26. Staff are recommending that the preferred design solution be adopted by Council, so a Notice of Completion can be filed as required as part of the Class EA process. The Notice of Completion is the final point in the public process where the public can express their concerns if they feel issues raised through the Class EA process have not been sufficiently addressed. If there are no Part II requests received, the Class EA process can be considered complete and the City can proceed with the implementation of the preferred design solution.
 27. Property acquisition is required for implementation of the preferred design solution (illustrated in Appendix "A" figures P10 and P11). Negotiated Agreements of Purchase and Sale are the preferred method of property acquisition. In certain circumstances, that is not always possible and as such expropriation proceedings may become necessary to acquire the required properties. Should expropriation become necessary, Staff will continue in their efforts to negotiate Agreements

of Purchase and Sale concurrently with expropriation proceedings until such time as the expropriations have been completed and it is no longer feasible to do so.

28. In consideration of the need to continue to protect the corridor for future widening in consideration of forecasted growth to 2041; staff recommend that Alternative Design Concept 3 be adopted for planning purposes (<https://www.barrie.ca/City%20Hall/environmental-assessment-studies/Documents/Dunlop-Street-Corridor/Alternative%20Design%20Concept%203.pdf>). This will allow staff to protect the corridor and facilitate future implementation of Alternative Design Concept 3 through conveyance of property to the City as a condition of future development applications along this corridor.
29. The study identified the need for improved access management on the Dunlop Street corridor; staff in Transportation Planning will be requiring implementation of access management best practices as a condition of future development applications along this corridor; this will generally require right-in and right-out turning movement restrictions and encourage consolidation of driveways through cross-access easements.
30. MTO Corridor Management has also identified the need for improved access management; Transportation Planning and the MTO will be working collaboratively to advance this shared objective.

ENVIRONMENTAL AND CLIMATE CHANGE IMPACT MATTERS

31. This project has followed the guidelines of the Municipal Class EA. Physical, natural, social, cultural/heritage and economic environmental matters have been considered in the development of the recommendations.
32. The preferred design solution includes consideration for climate change mitigation including upgraded stormwater management infrastructure reflective of current rainfall intensity-duration-frequency curves that account for climate change.
33. The preferred design solution is an individual component of a City-wide transportation strategy for all modes (cycling, walking, transit and auto) that has been developed as part of the City's Transportation Master Plan. Improving traffic operations on a corridor generally intended for the movement of goods and services will reduce instances of traffic detouring to alternative routes that are more conducive to active transportation.

ALTERNATIVES

34. The following alternatives are available for consideration by General Committee:

Alternative #1 General Committee could alter the proposed recommendation or select Alternative Design Solution 2 or 3.

This alternative is not recommended as the preferred design solution is the least impactful to the public, businesses and is the lowest cost alternative.

FINANCIAL

35. Funding for the design and construction phases of this project have been approved in the 2019 Business Plan.

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36. This project is development charges eligible at a recoverable rate of 65%.

LINKAGE TO 2018-2022 STRATEGIC PLAN

37. The recommendations included in this Staff Report support the following goal identified in the 2018-2022 Strategic Plan:
- Improving the ability to get around
38. Implementation of the preferred design solution in conjunction with the MTO's planned work is a critical improvement in the City's transportation network to support planned growth.

APPENDIX "A"

LIST OF DRAWINGS

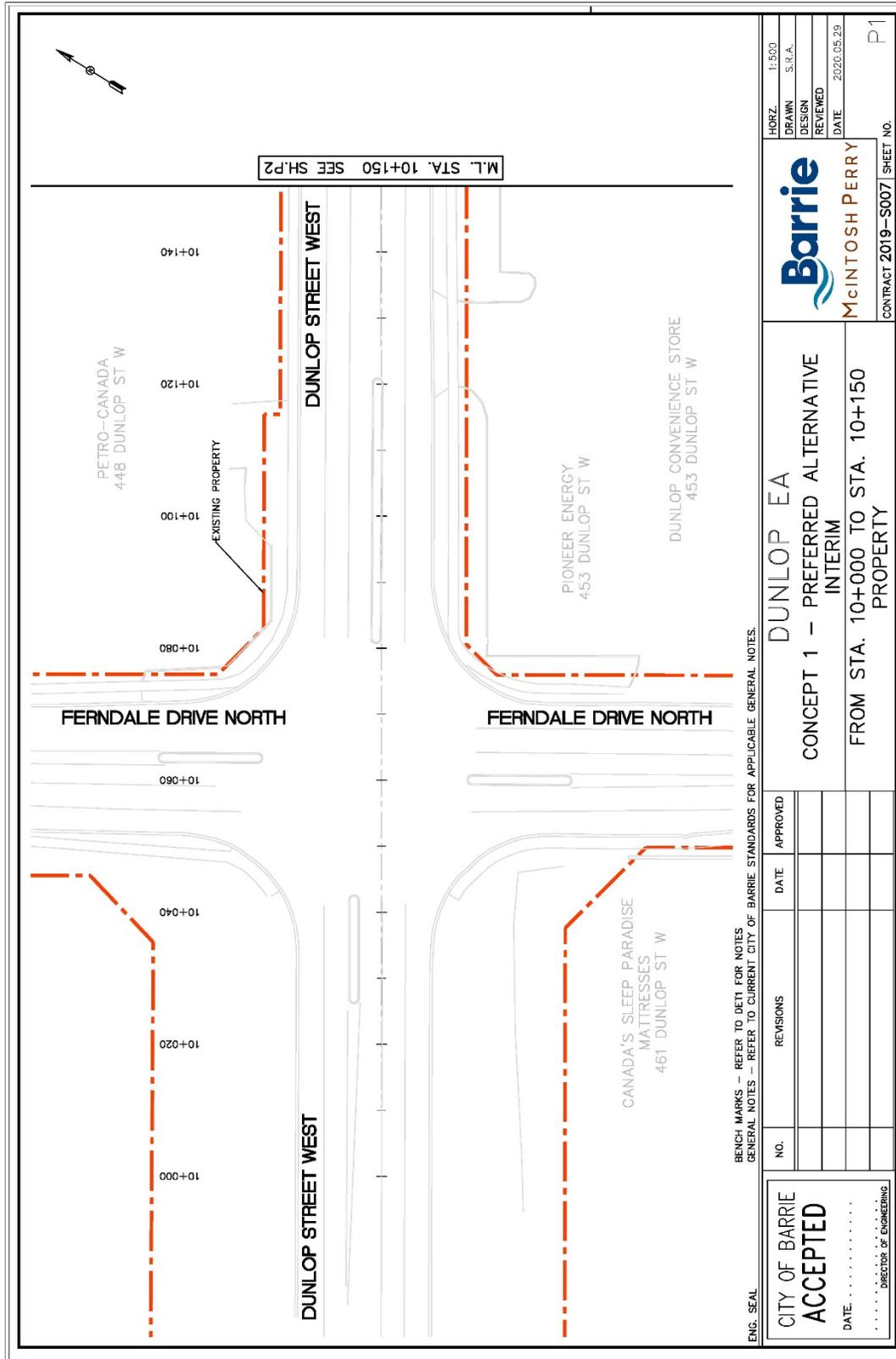
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02	GEOMETRY AND GENERAL LAYOUT - STA. 10+150 TO STA. 10+300
03	GEOMETRY AND GENERAL LAYOUT - STA. 10+300 TO STA. 10+450
04	GEOMETRY AND GENERAL LAYOUT - STA. 10+450 TO STA. 10+600
05	GEOMETRY AND GENERAL LAYOUT - STA. 10+600 TO STA. 10+750
06	GEOMETRY AND GENERAL LAYOUT - STA. 10+750 TO STA. 10+900
07	GEOMETRY AND GENERAL LAYOUT - STA. 10+900 TO STA. 11+050
08	GEOMETRY AND GENERAL LAYOUT - STA. 11+050 TO STA. 11+200
09	GEOMETRY AND GENERAL LAYOUT - STA. 11+200 TO STA. 11+350
10	GEOMETRY AND GENERAL LAYOUT - STA. 11+350 TO STA. 11+500
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U2	UTILITIES - STA. 10+150 TO STA. 10+300
U3	UTILITIES - STA. 10+300 TO STA. 10+450
U4	UTILITIES - STA. 10+450 TO STA. 10+600
U5	UTILITIES - STA. 10+600 TO STA. 10+750
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U7	UTILITIES - STA. 10+900 TO STA. 11+050
U8	UTILITIES - STA. 11+050 TO STA. 11+200
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U10	UTILITIES - STA. 11+350 TO STA. 11+500
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P2	PROPERTY - STA. 11+350 TO STA. 11+500
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P5	PROPERTY - STA. 10+600 TO STA. 10+750
P6	PROPERTY - STA. 10+750 TO STA. 10+900
P7	PROPERTY - STA. 10+900 TO STA. 11+050
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P10	PROPERTY - STA. 11+350 TO STA. 11+500

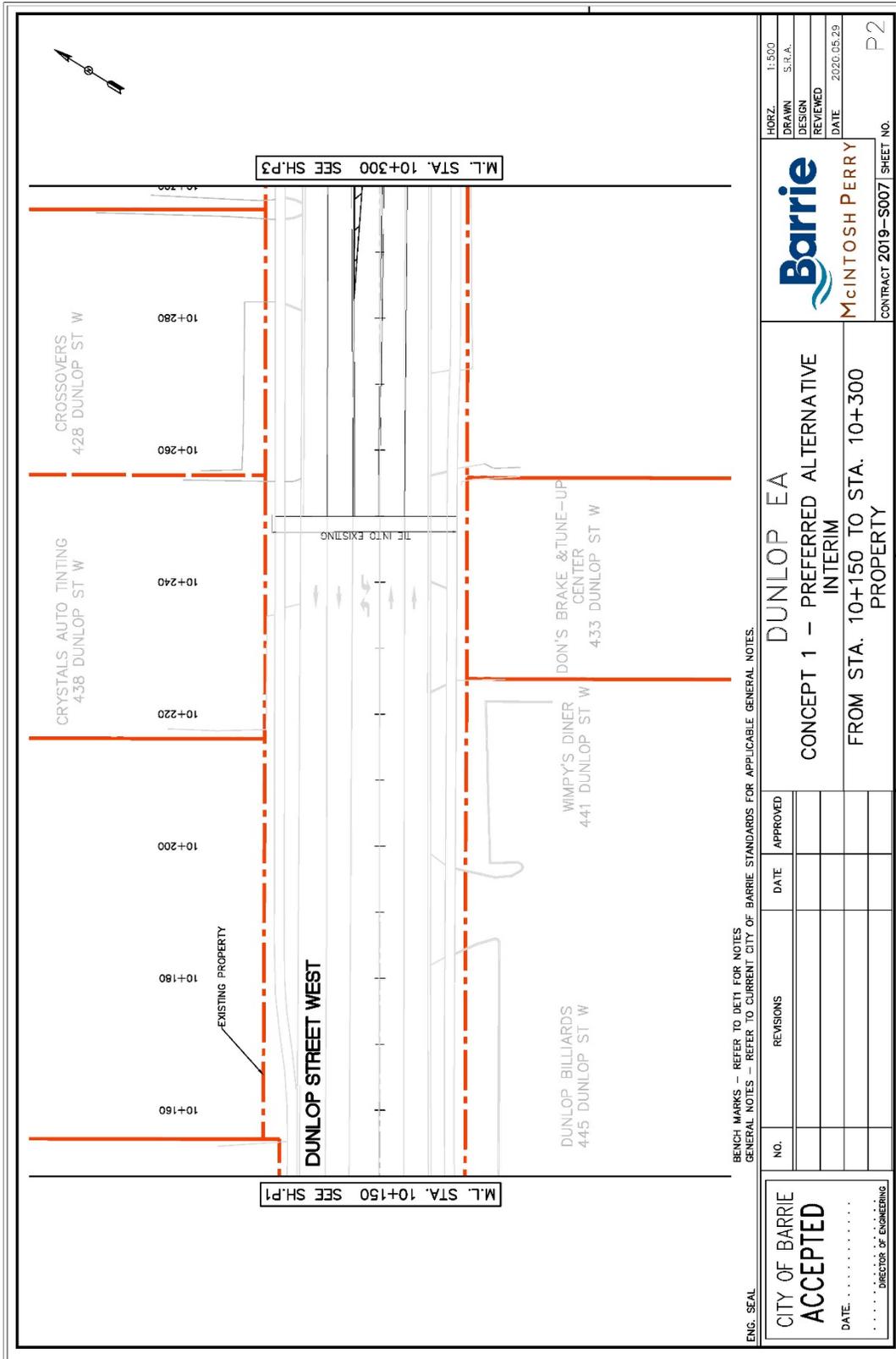
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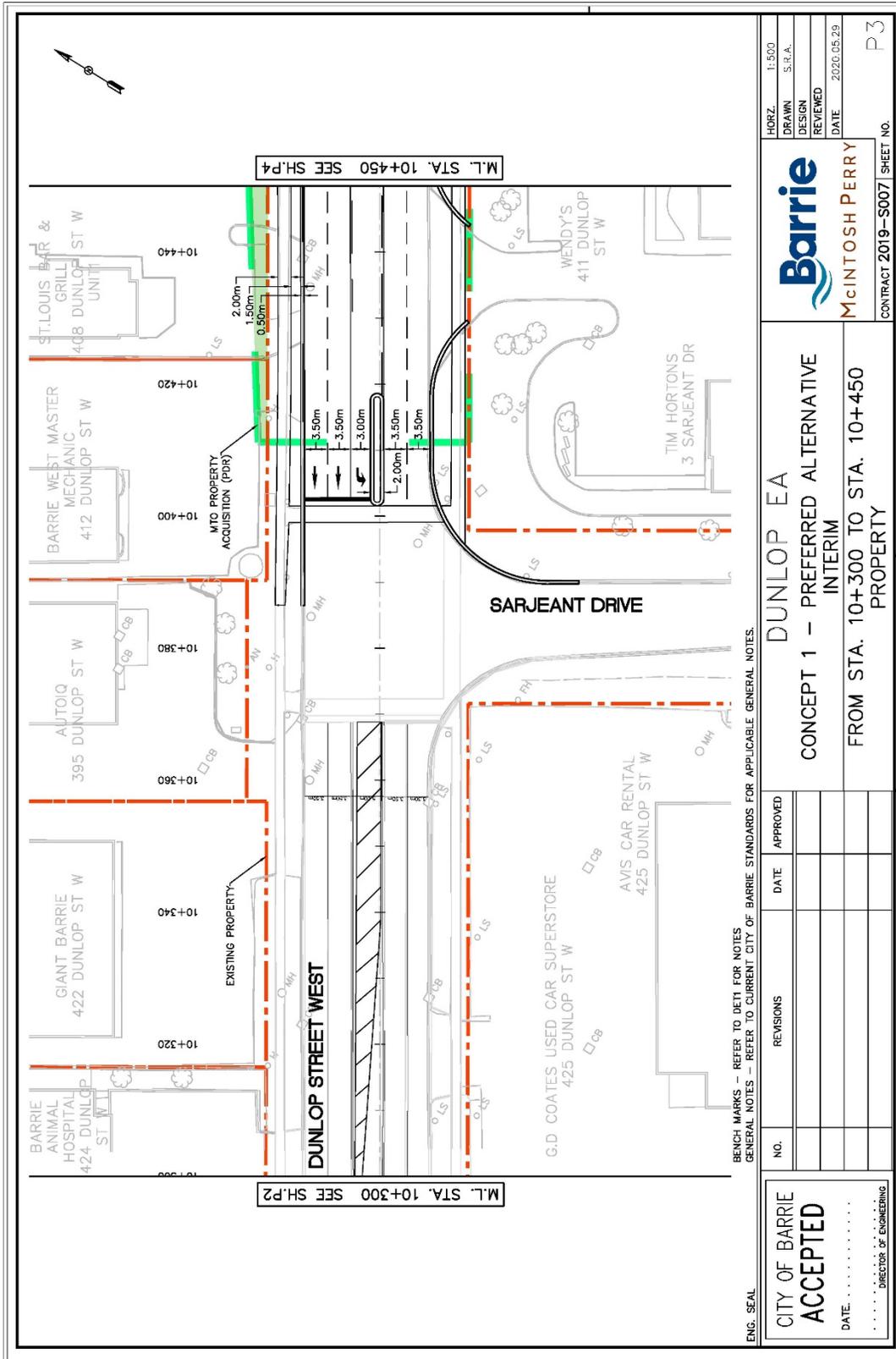
KEY PLAN
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<p>PROPERTY LEGEND</p> <ul style="list-style-type: none"> ROGERS Existing Property MTO EXISTING RIGHT OF WAY MTO PROPERTY ACQUISITION (PDR) DUNLOP EA PROPERTY ACQUISITION 	<p>UTILITY LEGEND</p> <p>INTERSECTION ELECTRICAL</p> <ul style="list-style-type: none"> WATER BELL SANITARY POW STORM HYDRO GAS ROGERS Existing Buried Fiber Cable ROGERS Existing Aerial Fiber Cable 	<p>UTILITY LEGEND</p> <ul style="list-style-type: none"> ROGERS Existing Spare Buried Coaxial Cable ROGERS Existing Buried Coaxial Cable ROGERS Existing Aerial Coaxial Cable Existing Manhole Existing Rogers Ground Level Box Existing Rogers Bldg Attachment Existing Rogers Pedestal Existing Joint Use Pole Existing Hydro Pole 																				
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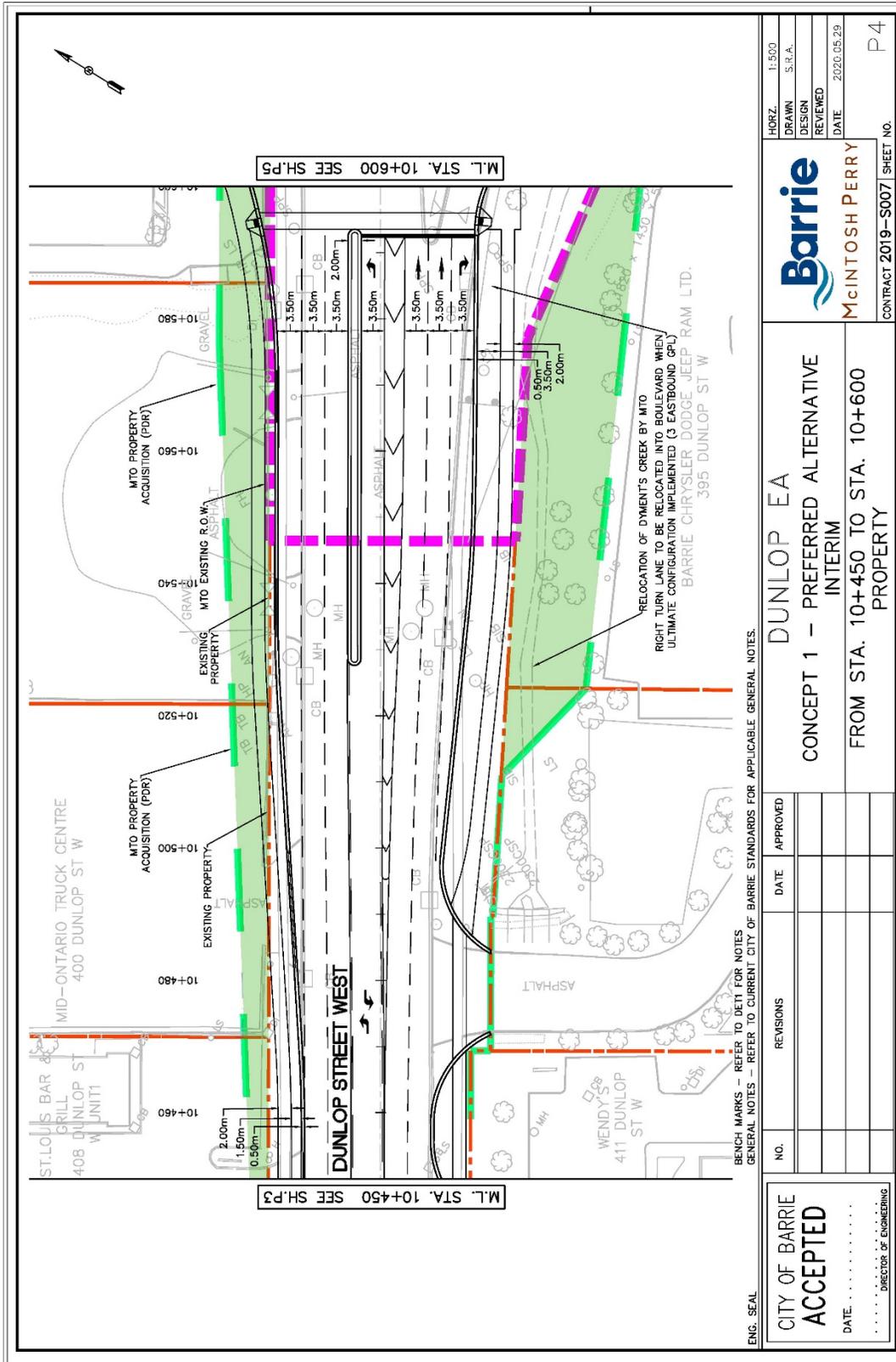
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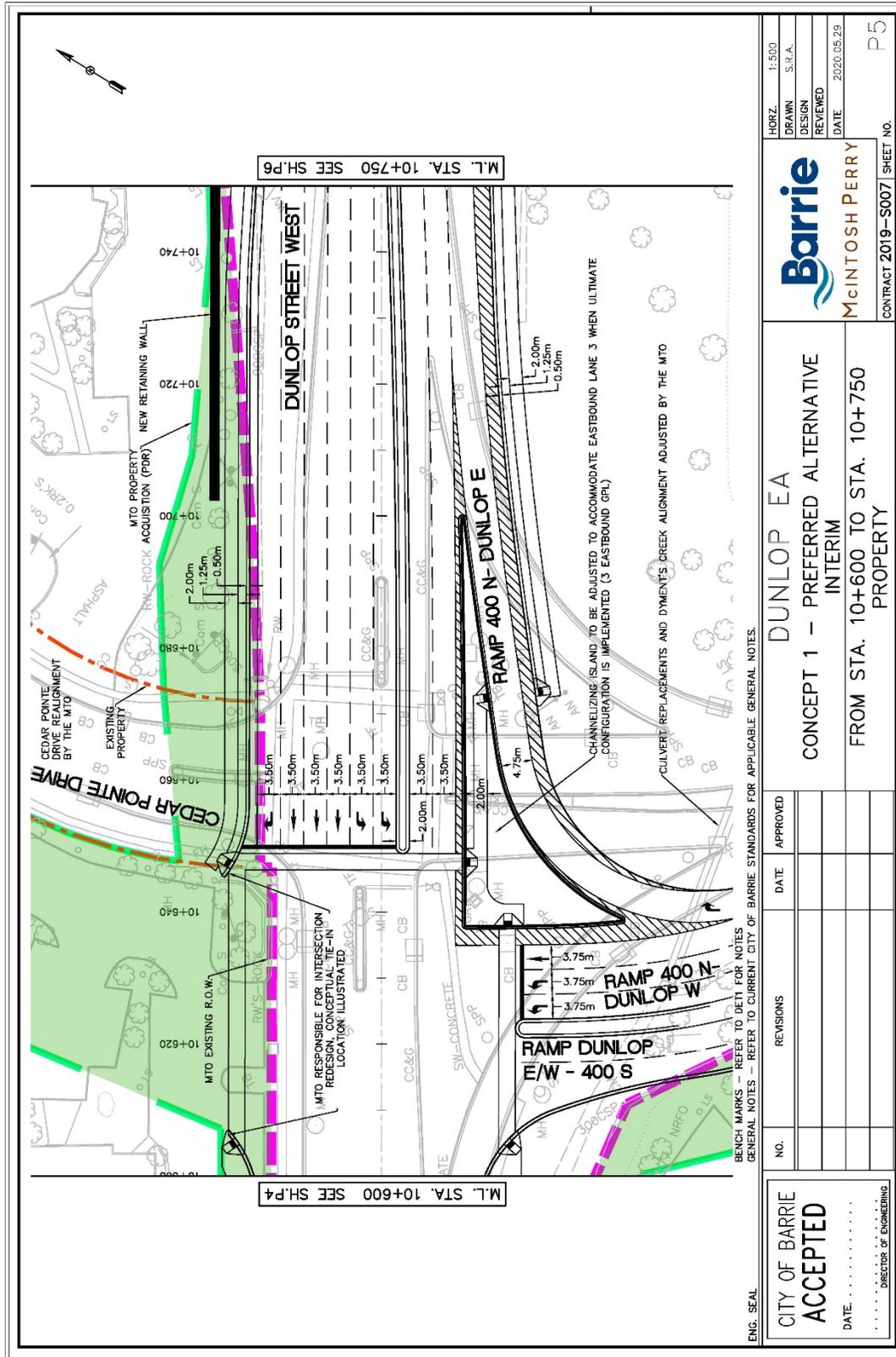
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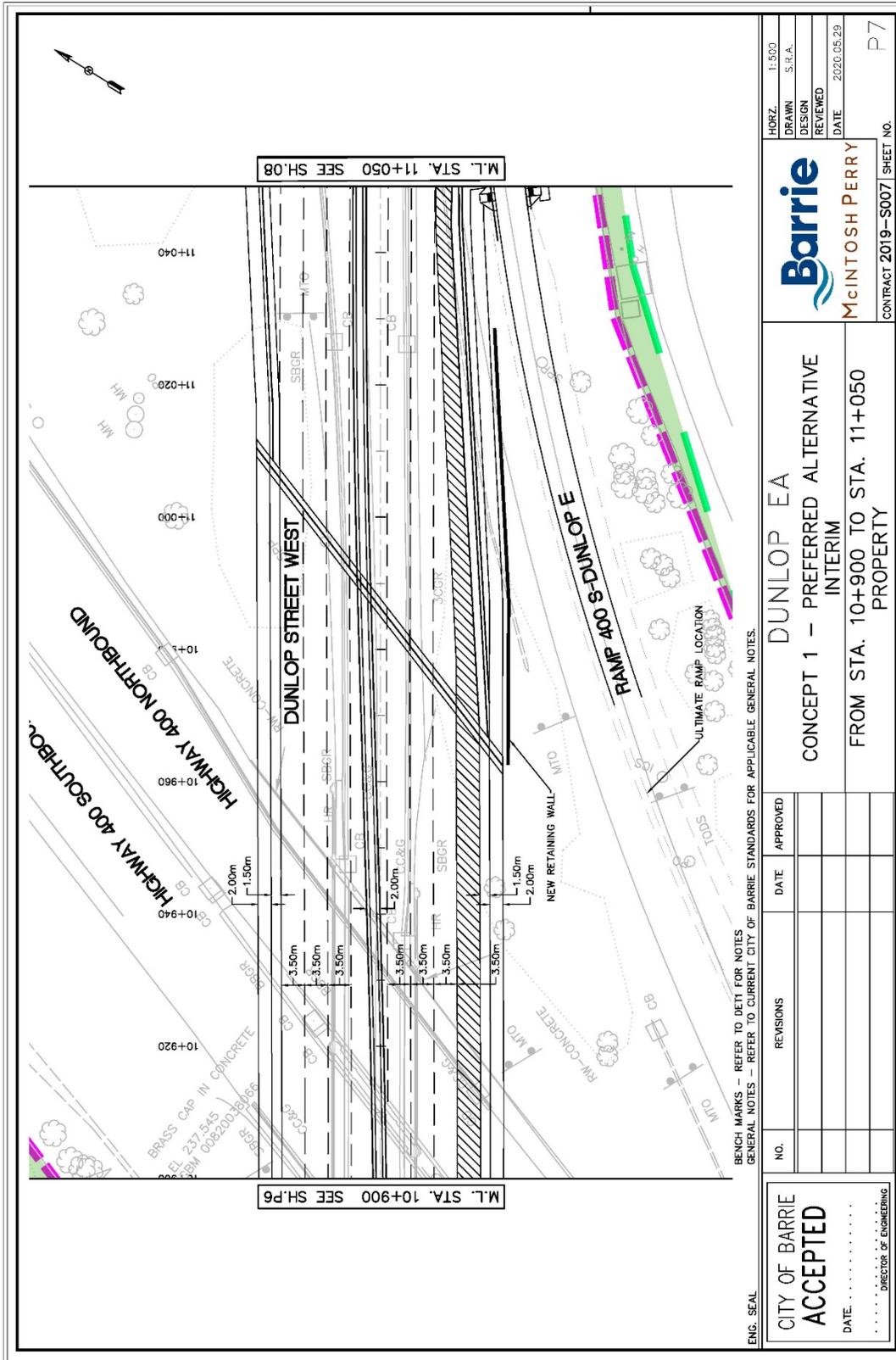
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M.L. STA. 11+050 SEE SH.08

M.L. STA. 10+900 SEE SH.P6

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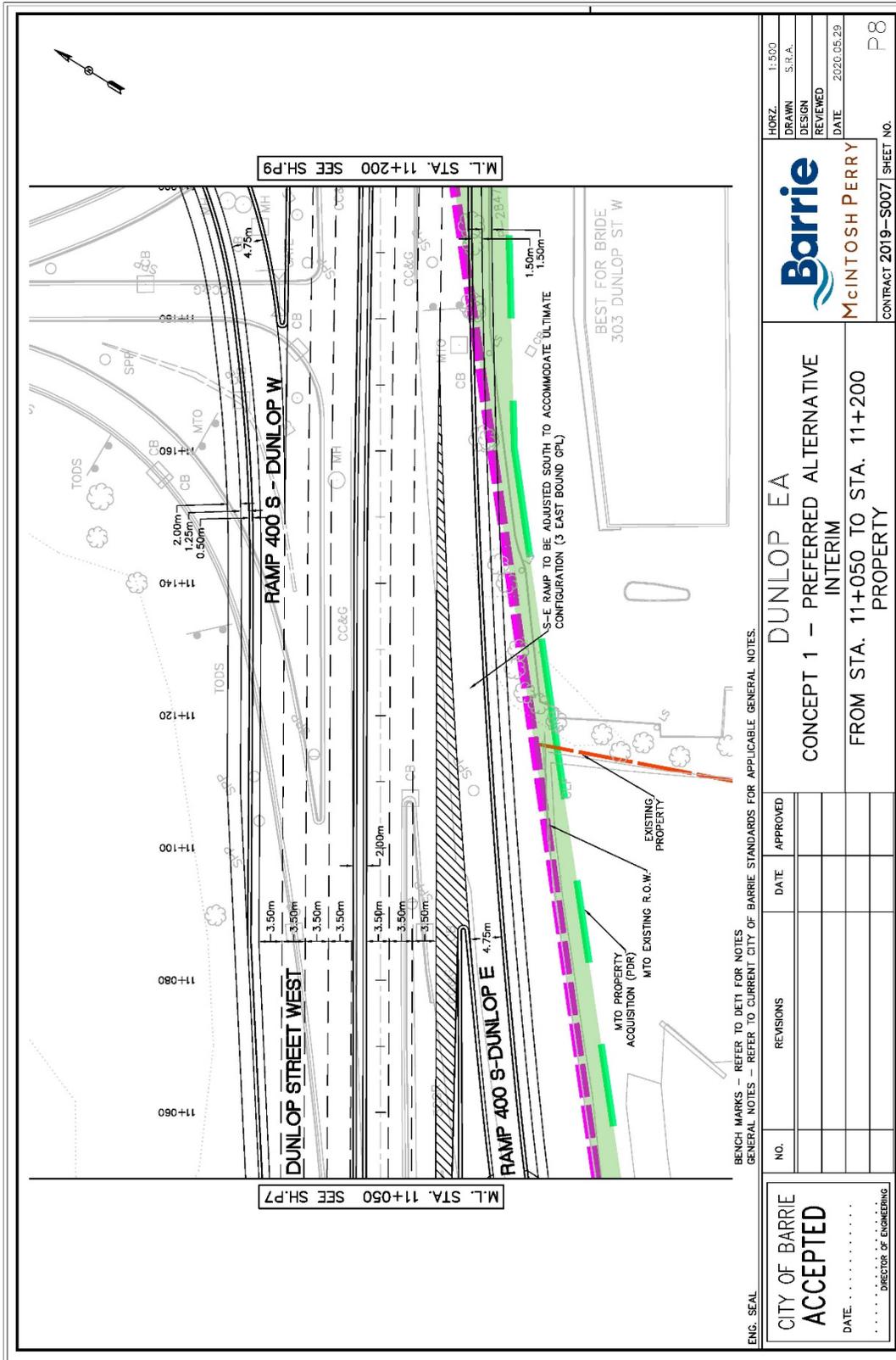
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PROPERTY

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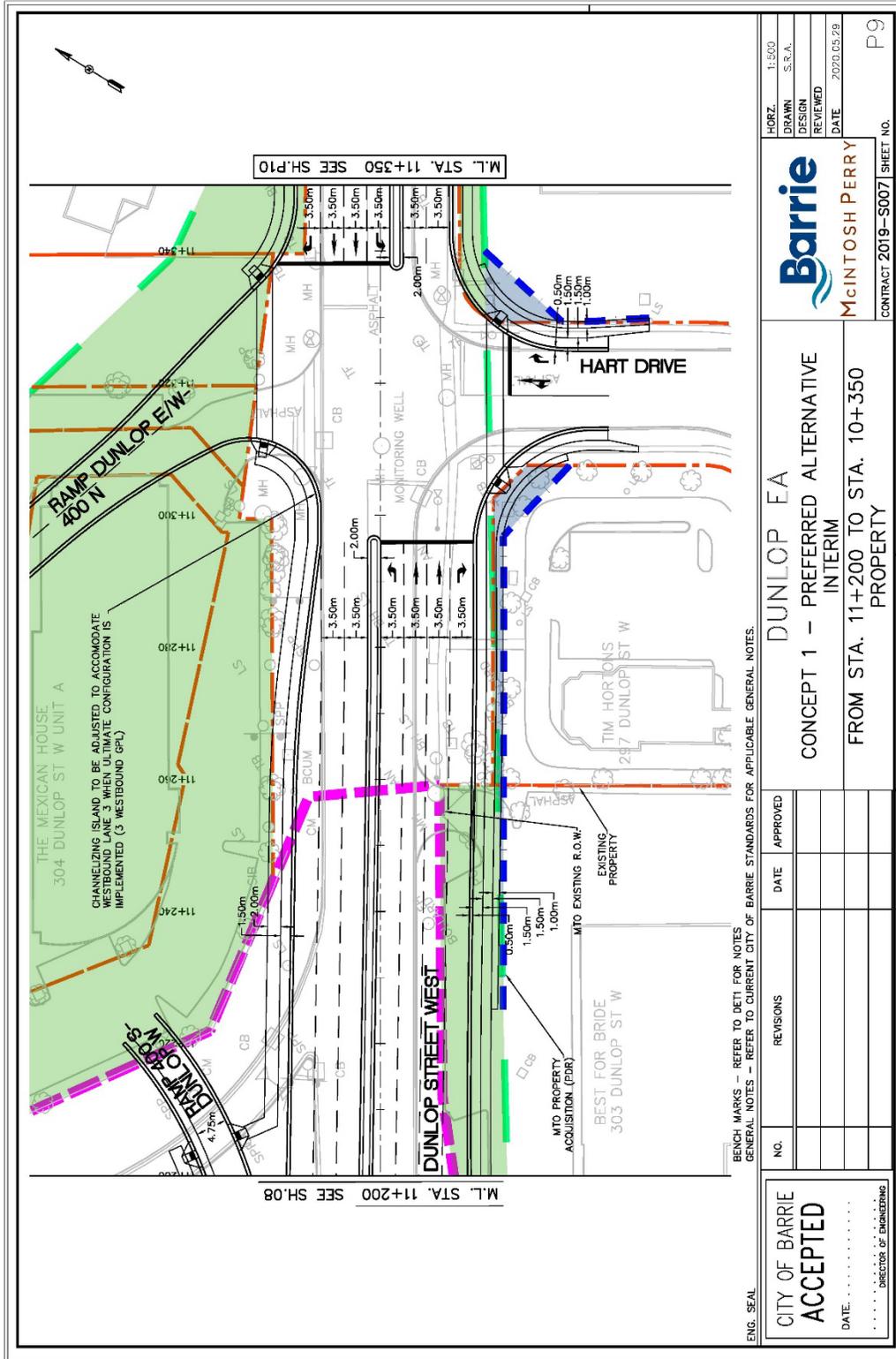
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- blue hatching represents City required property
- green hatching indicates property acquired by the MTO

