

Abbott Industries-Moodie LRT Extension and LMSF

Charles Wheeler

June 12, 2017

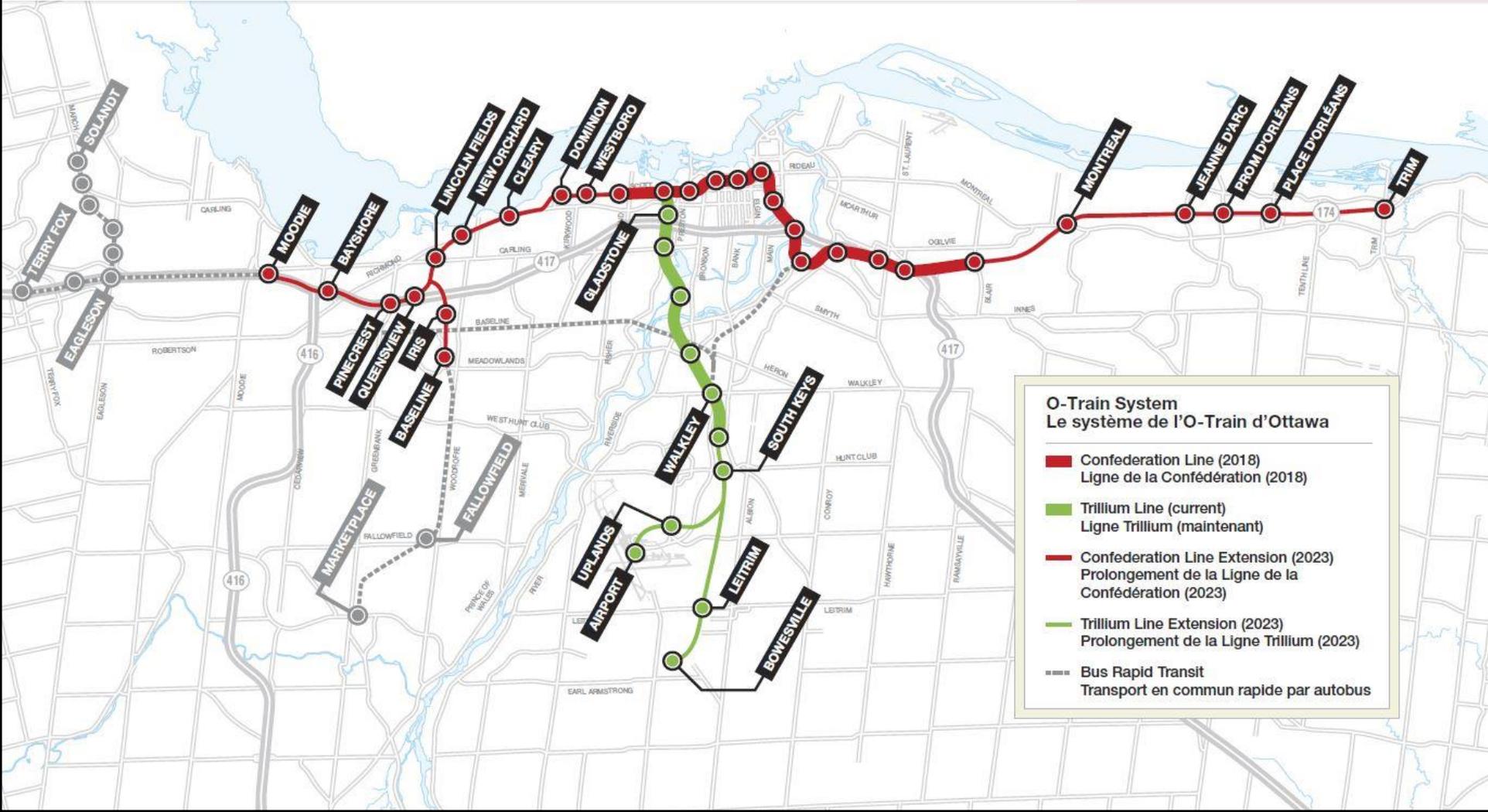


Background

- Stage 1 LRT to open in June 2018 (Tunney's Pasture to Blair)
- Stage 2 LRT is largest infrastructure project in City history (\$3.6B);
 - Confederation West to Moodie
 - Confederation East to Trim
 - Trillium Line to Bowesville/Airport
- Funded by all three levels of government
- June RFP release leading to contract award in late Spring 2018
- Confederation West to open by end of 2023

Stage 1 and 2 LRT Stations

- Consists of 38 kilometres of rail and 23 new stations
- 3 segments: Confederation Line West, Confederation Line East & Trillium Line



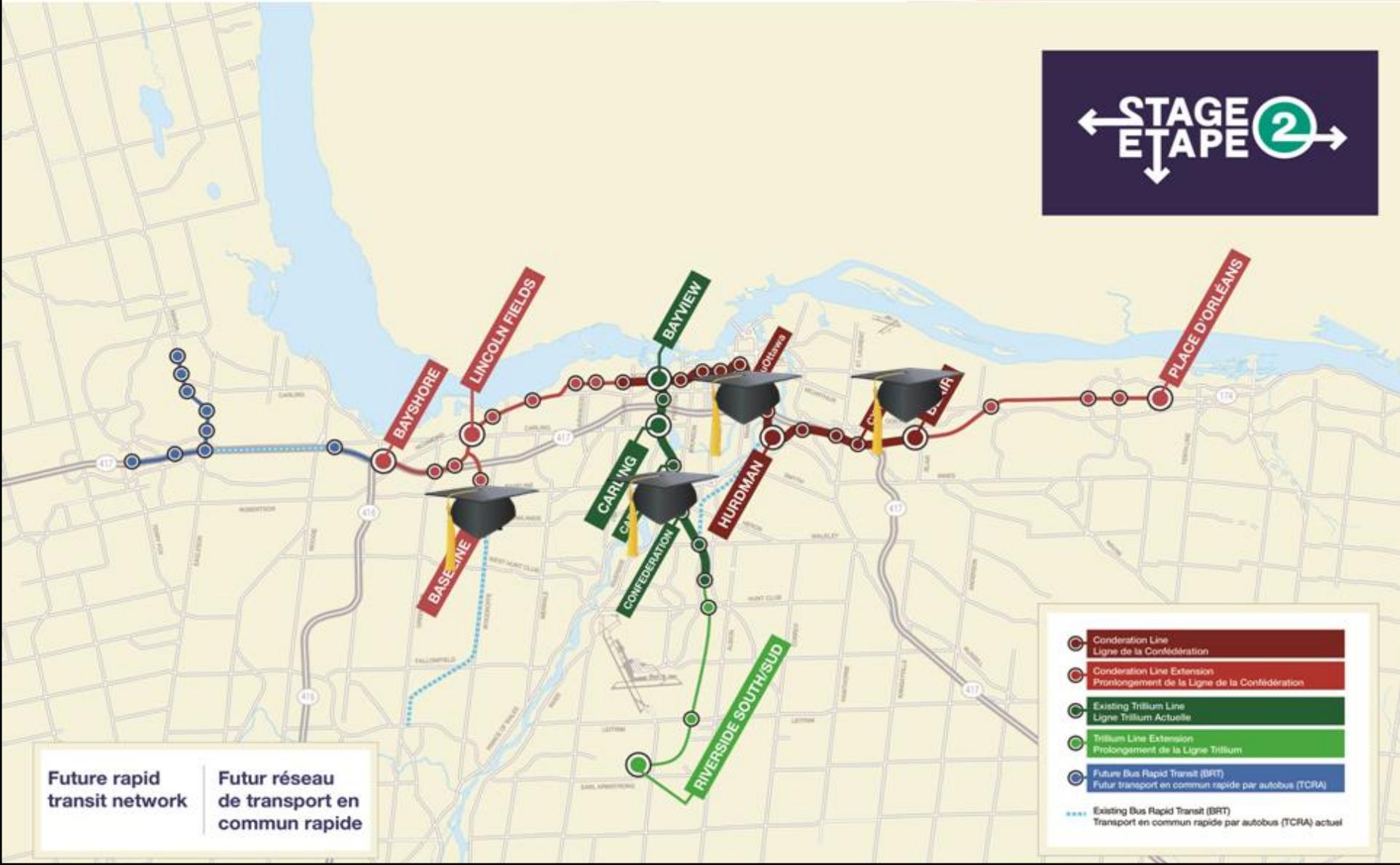
Purpose of Meeting

- Outline Confederation West Stage 2 project and new LRT investment
- Overview of City functional requirements for Moodie LRT extension which include:
 - Moodie LRT extension
 - Moodie LRT Station
 - Light Maintenance and Storage Facility (LMSF)
- Property and other implications for Abbott
- Benefits of LRT to Abbott/surrounding community
- Discuss next steps in the process for a Win-Win-Win for City/Abbott/NCC

Key Transfer Nodes

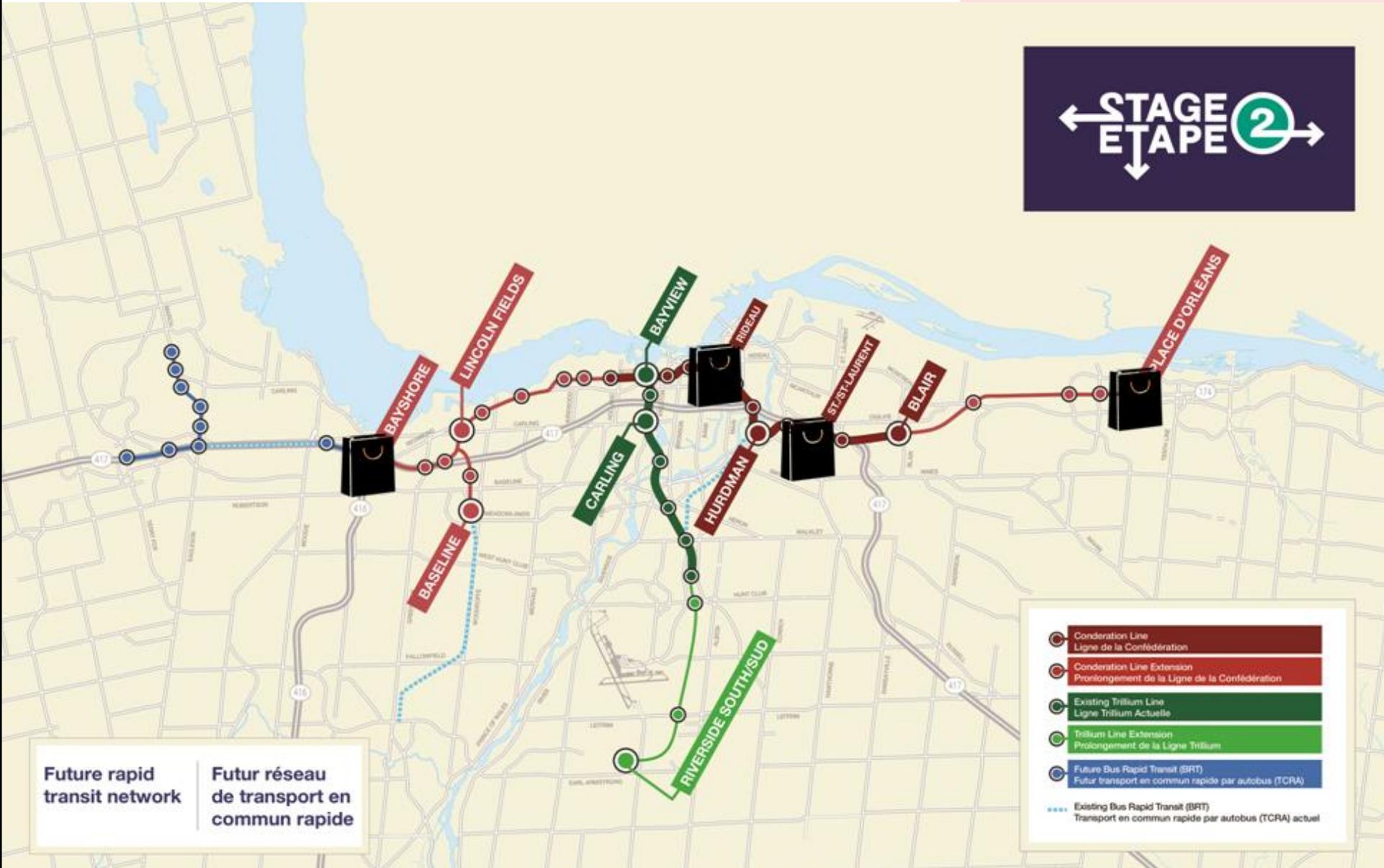


Educational Institutions



Future rapid transit network
Futur réseau de transport en commun rapide

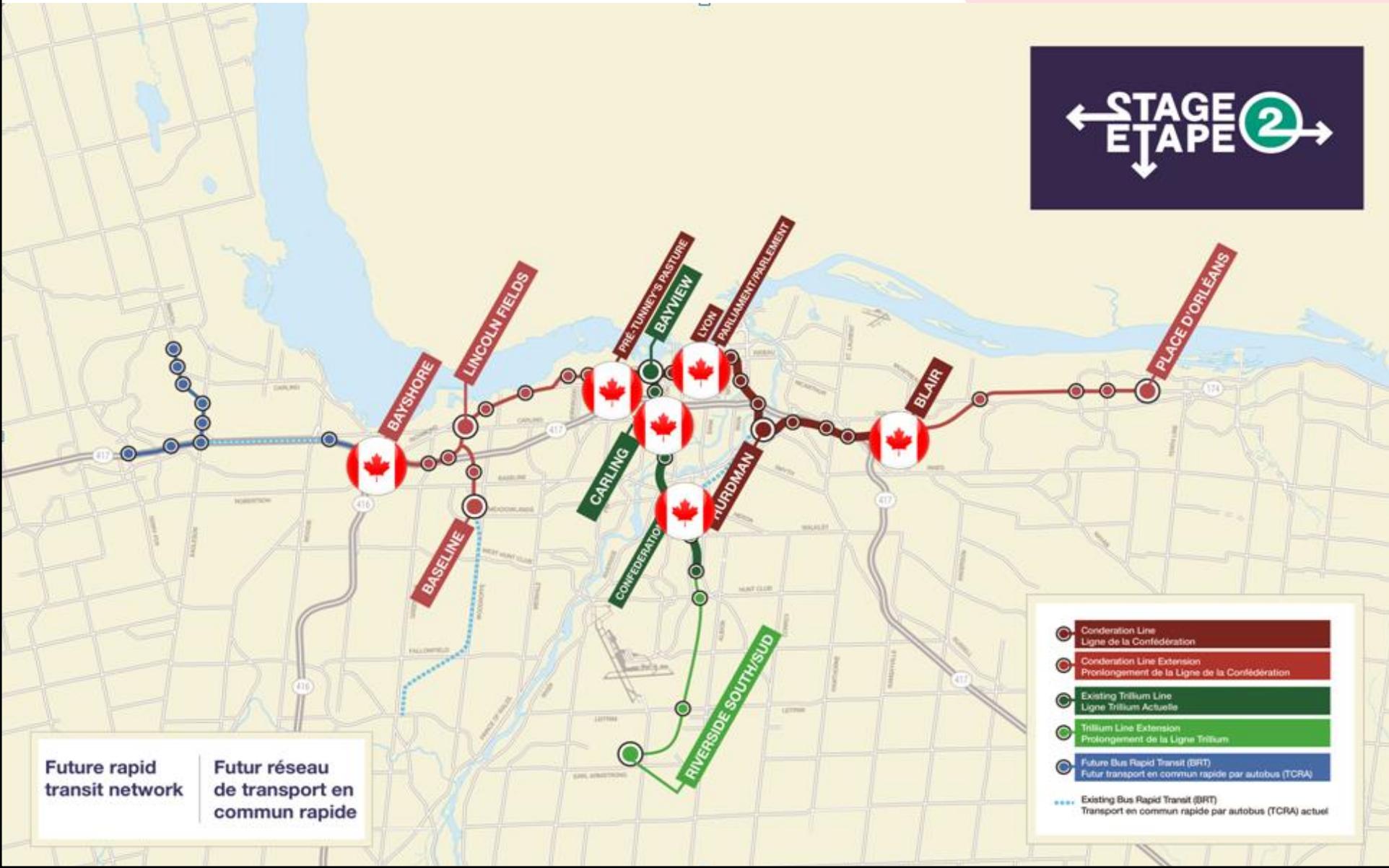
- Confederation Line
Ligne de la Confédération
- Confederation Line Extension
Prolongement de la Ligne de la Confédération
- Existing Trillium Line
Ligne Trillium Actuelle
- Trillium Line Extension
Prolongement de la Ligne Trillium
- Future Bus Rapid Transit (BRT)
Futur transport en commun rapide par autobus (TCRA)
- Existing Bus Rapid Transit (BRT)
Transport en commun rapide par autobus (TCRA) actuel



Future rapid transit network
Futur réseau de transport en commun rapide

- Confederation Line
Ligne de la Confédération
- Confederation Line Extension
Prolongement de la Ligne de la Confédération
- Existing Trillium Line
Ligne Trillium Actuelle
- Trillium Line Extension
Prolongement de la Ligne Trillium
- Future Bus Rapid Transit (BRT)
Futur transport en commun rapide par autobus (TCRA)
- Existing Bus Rapid Transit (BRT)
Transport en commun rapide par autobus (TCRA) actuel

Federal Employment Nodes



Future rapid transit network
Futur réseau de transport en commun rapide

- Confederation Line
Ligne de la Confédération
- Confederation Line Extension
Prolongement de la Ligne de la Confédération
- Existing Trillium Line
Ligne Trillium Actuelle
- Trillium Line Extension
Prolongement de la Ligne Trillium
- Future Bus Rapid Transit (BRT)
Futur transport en commun rapide par autobus (TCRA)
- Existing Bus Rapid Transit (BRT)
Transport en commun rapide par autobus (TCRA) actuel

Moodie LRT and LMSF are a Package

- Moodie LRT extension is now affordable within project budget along with initial LMSF facility
- BRT under construction now will open in November 2017 for 3 years
- Will then be converted to LRT as part of Stage 2 project
- LMSF needed on opening day for Stage 2....Belfast Yord in east not big enough to store entire fleet
- City intends to build both the LRT extension and LMSF at the same time
- Both are base scope in upcoming Stage 2 RFP

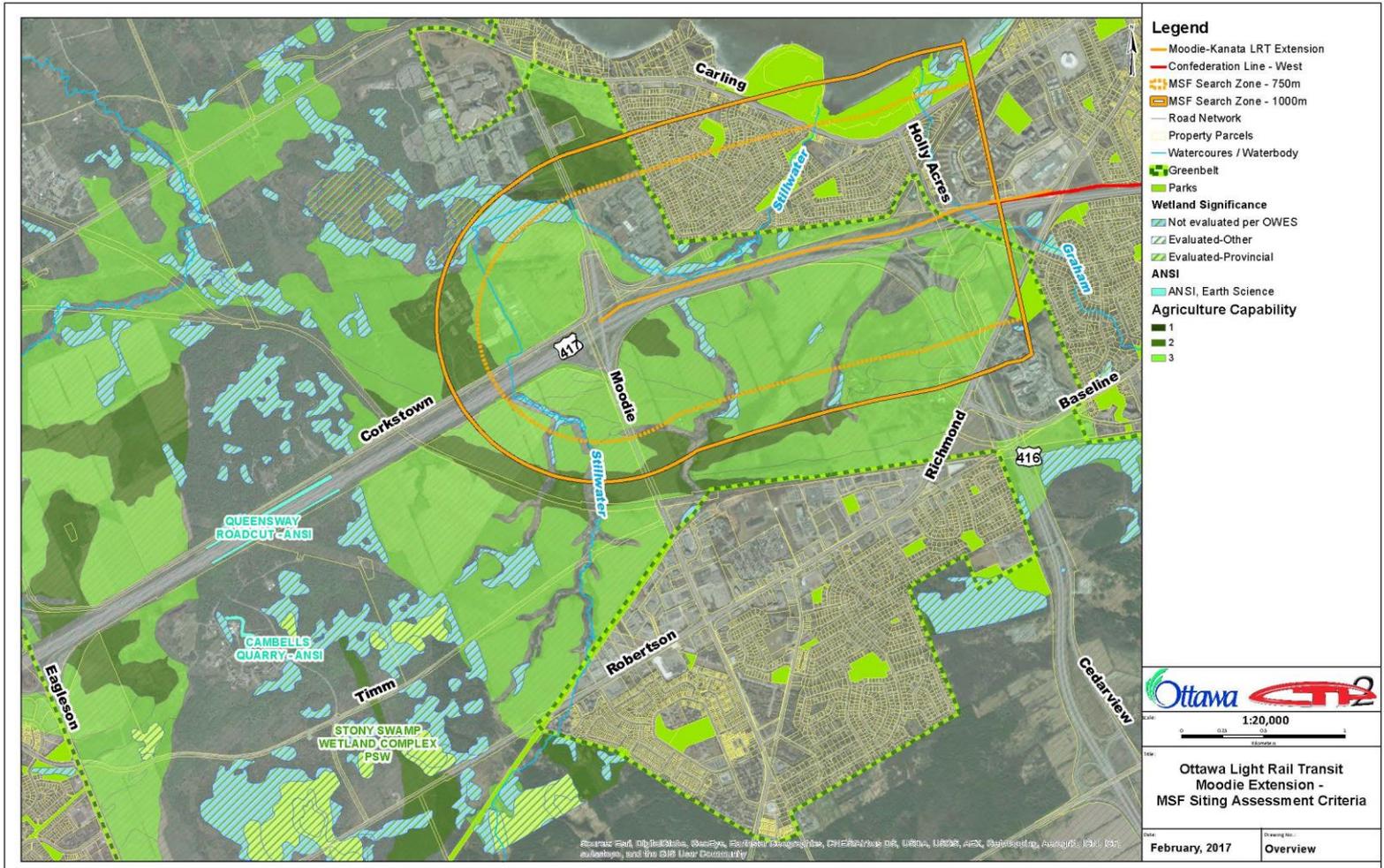
LRT Maintenance and Storage Facilities (MSF)

- Stage 1 already has an MSF at Belfast in east
- All heavy maintenance/inspection of LRT fleet will be at Belfast
- City needs a western “Light” MSF to balance Belfast facility in the east
- “Light” refers to indoor storage of vehicles, interior cleaning, seat repairs, minor vehicle repairs only
- Desired LMSF sites are east of Bayshore Station on Moodie LRT line based on search criteria
- 34 vehicles initially in 2023, growing to 94 vehicles in 2048 WITH Kanata LRT

Moodie LRT/LMSF EA Process

- Three major components:
 - BRT to LRT conversion (Bayshore to Moodie)
 - Preferred station location/facilities for Moodie LRT station
 - Identification, evaluation and selection of a preferred LMSF site and mitigation strategies
- LMSF search for suitable sites initiated

LMSF Search Zone West of Bayshore



Candidate LMSF Sites

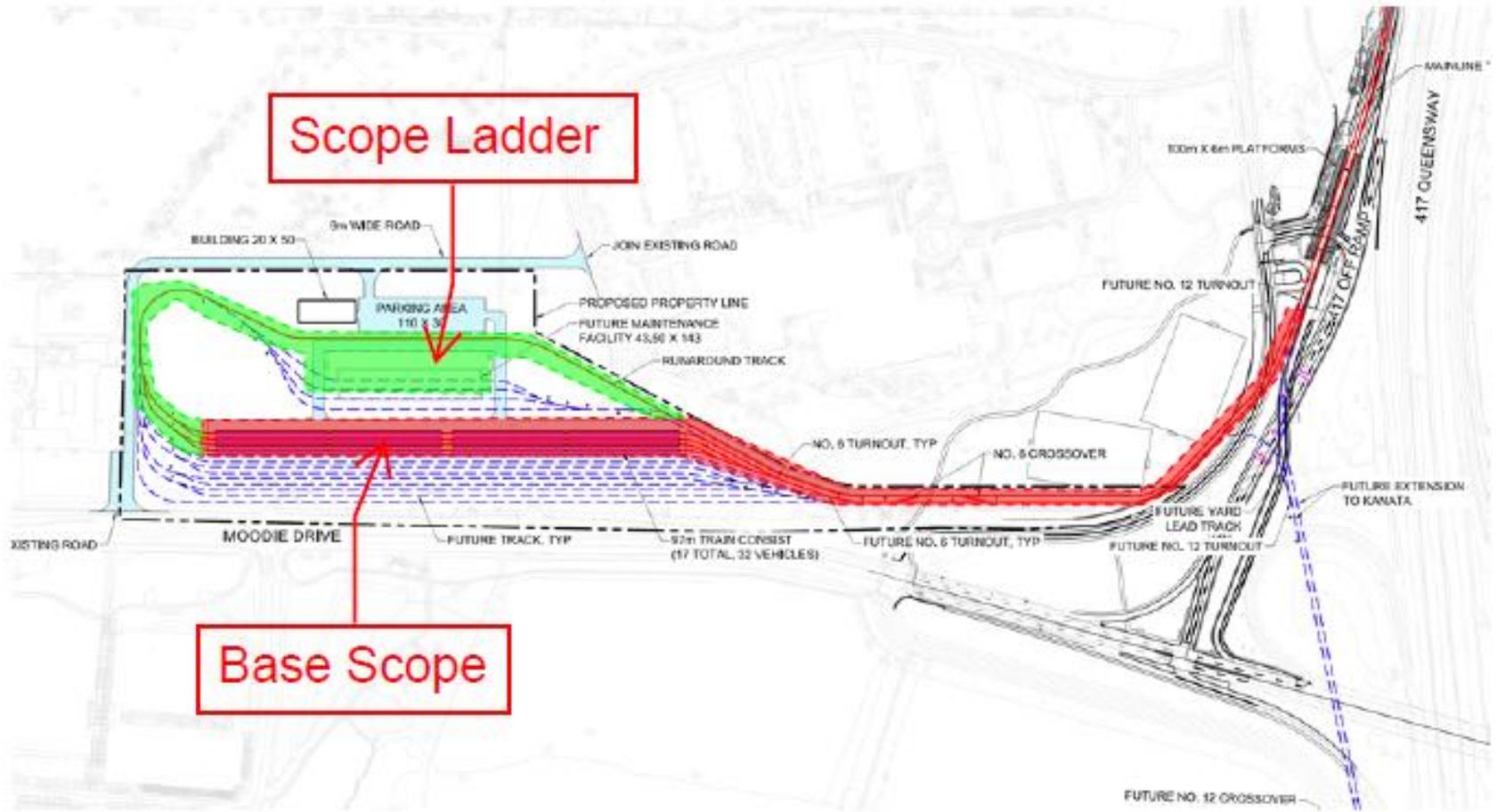


Screening of Shortlisted LMSF sites

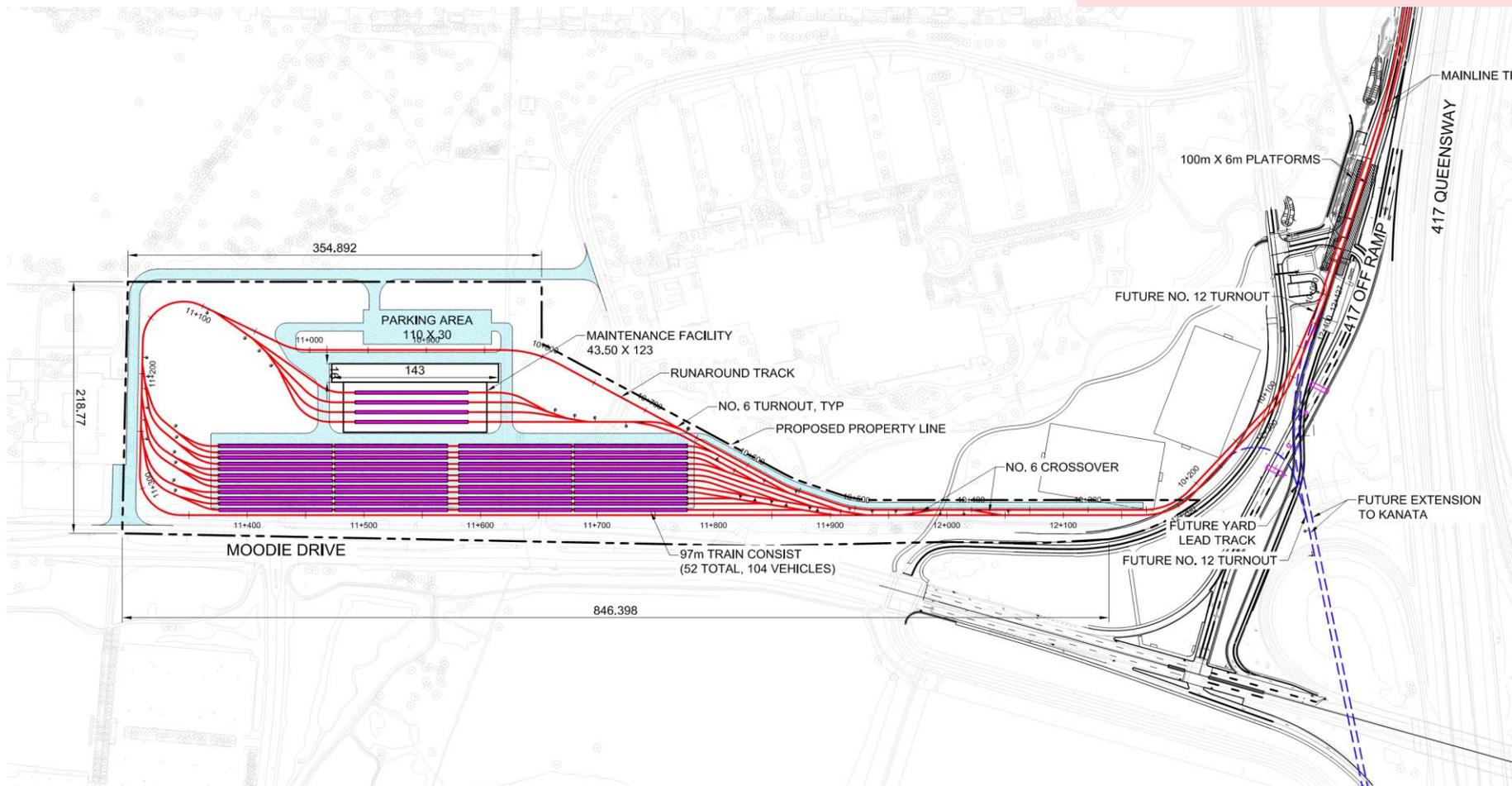
- Evaluation of all sites completed as per EA process
- Initial public meeting held in March 2017
- Sites 2, 3 and 4 were carried forward for further design refinement, evaluation and mitigation
- Site 2, adjacent to Abbott, now the preferred LMSF site



Option 2-2023 LMSF Site Layout



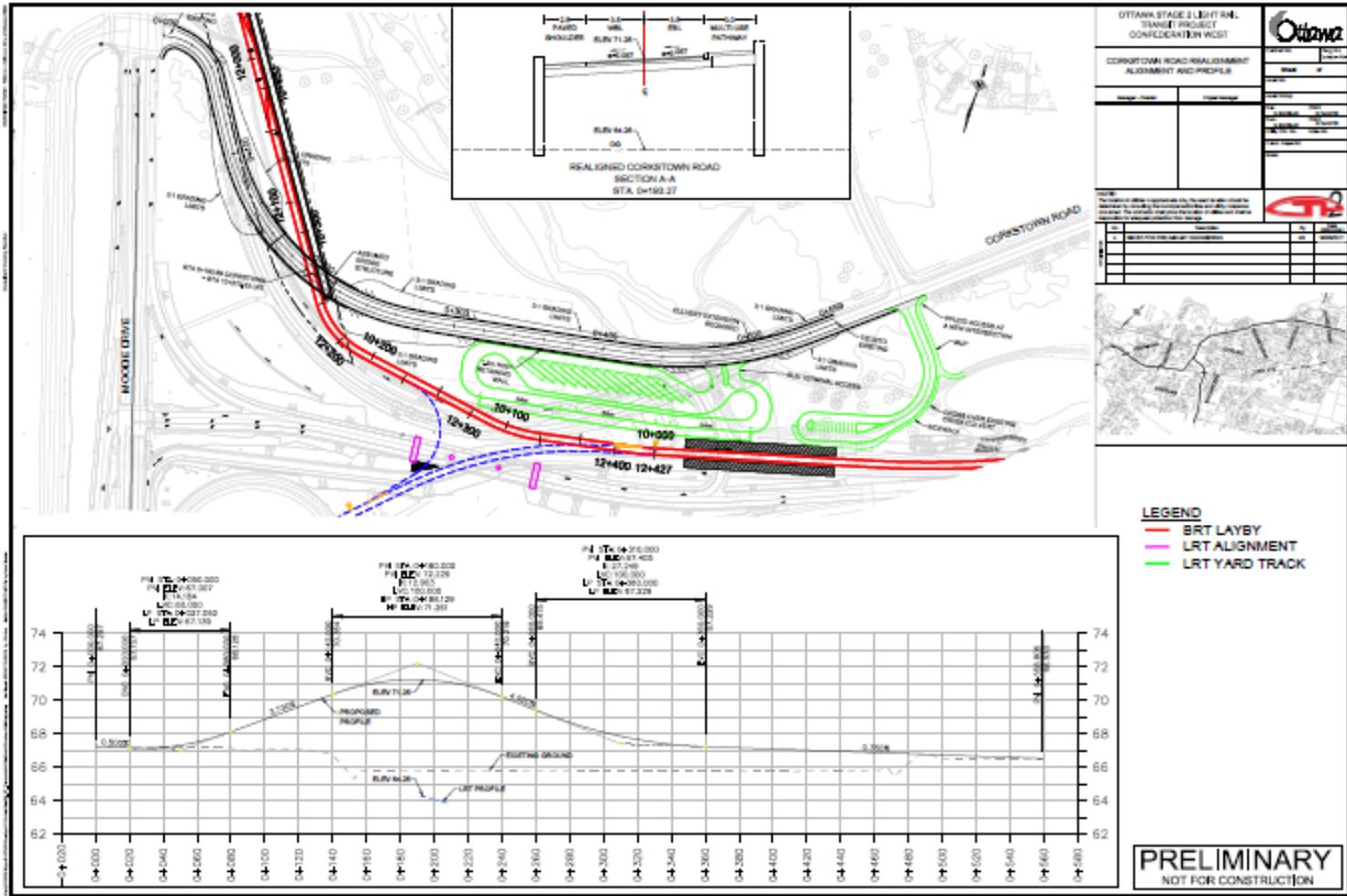
Option 2-Ultimate LMSF Site Layout



Corkstown Road Realignment

CORKSTOWN ROAD REALIGNMENT

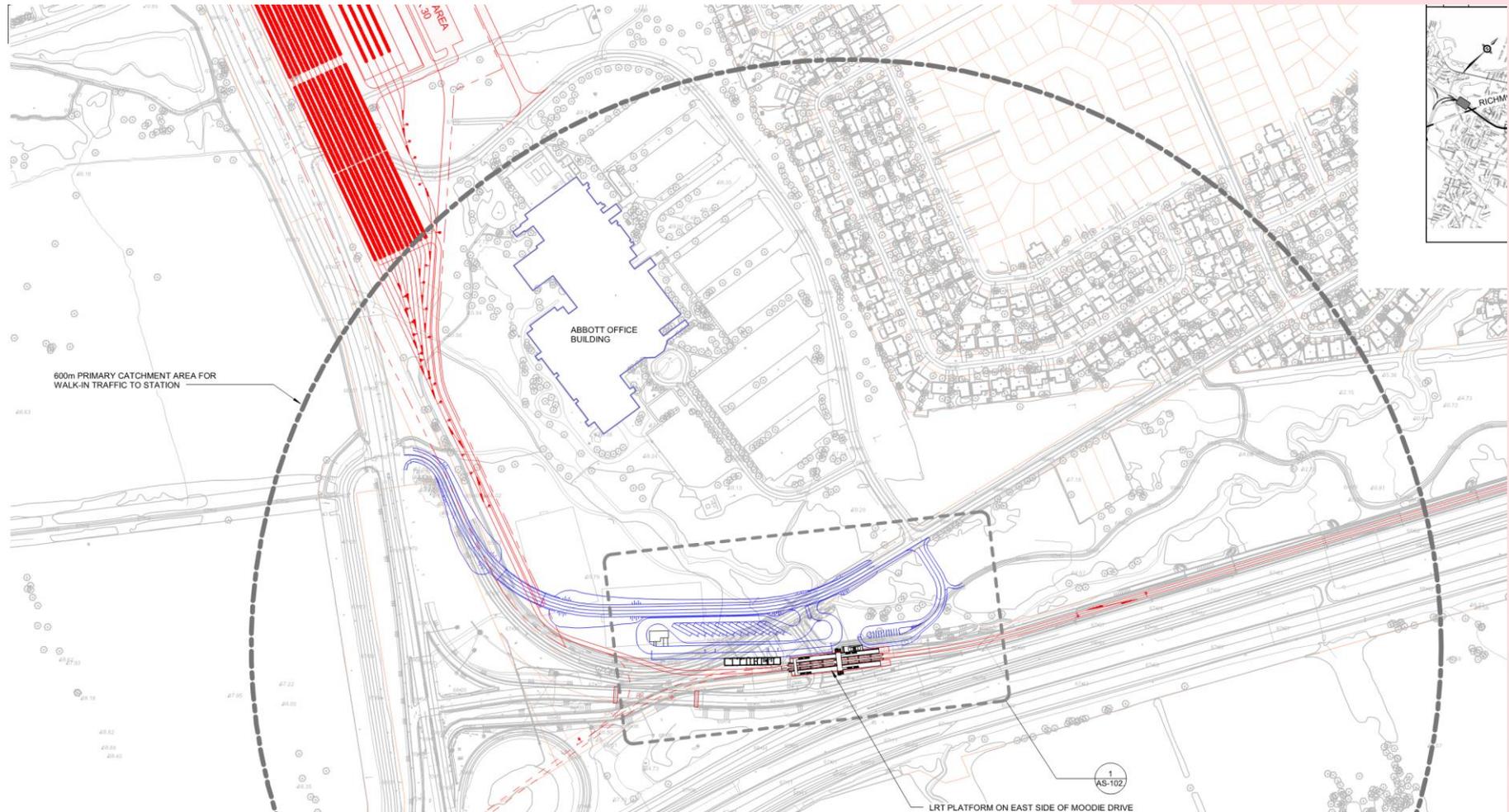
Appendix 3-2-1



Preferred Moodie LRT Station

- Station located could be east or west of Moodie Drive
- East station located preferred due in large part to improved accessibility/connectivity to Abbott/surrounding residential community
- Entire Abbott site is within the prime catchment area of the station i.e. within 600 metre radius of station platform
- Vast majority of transit users will walk to rapid transit if within 600 metres of an entrance

Station Catchment



Moodie Station Bus Routes

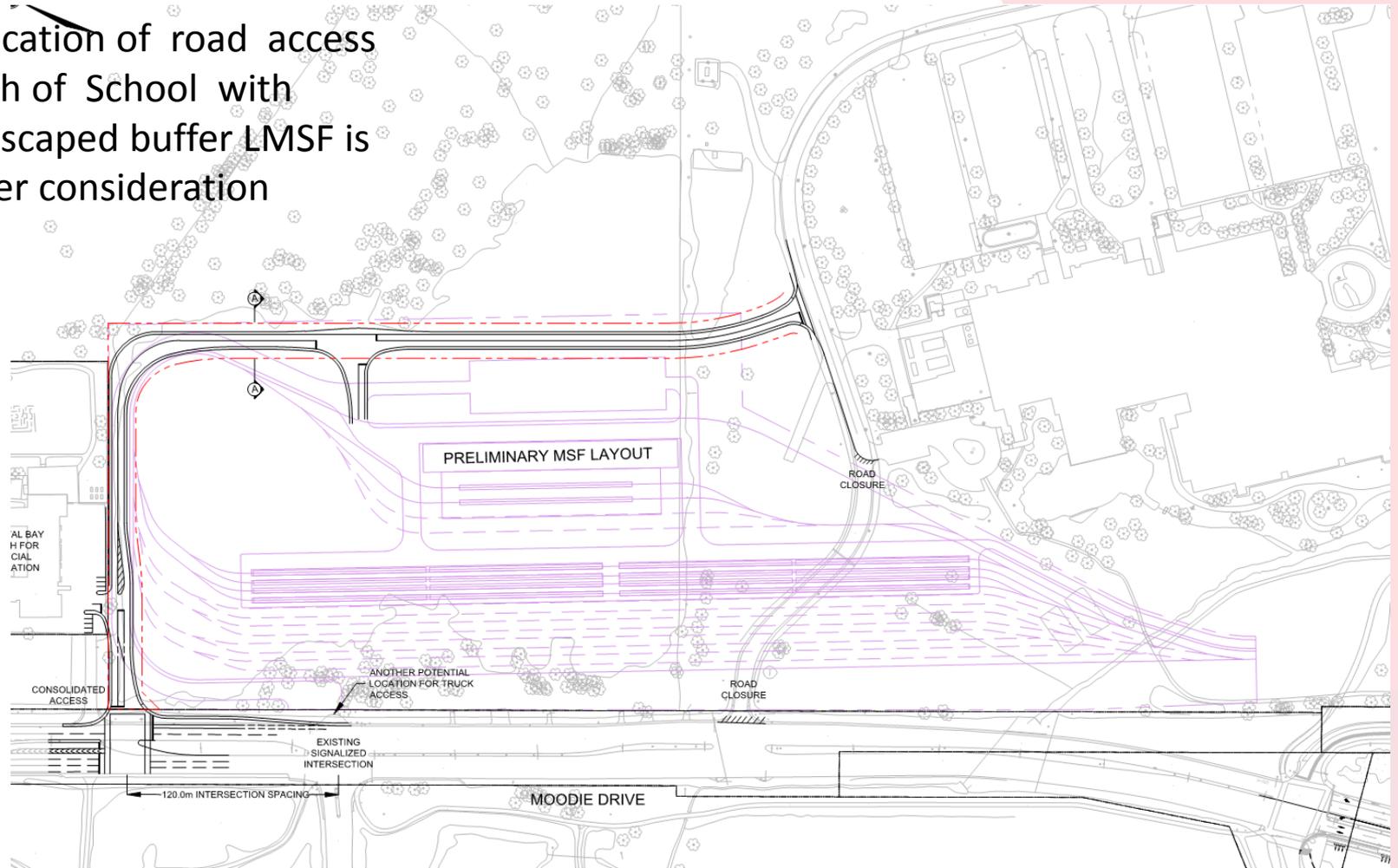


Implications of Moodie LRT Station/LMSF for Abbott

- Station requires realignment of Corkstown Road
- Corkstown Road must be grade separated over tracks off of mainline to access LMSF
- Abbott road access to Moodie Drive to be relocated to the north due to LMSF
- Improved pedestrian connections from Abbott/community to LRT station
- Property required to implement LMSF to be acquired from Abbott/NCC
- City to address noise, vibration and EMI issues
- Will address each of these issues in more detail in subsequent slides

Abbott Access to Moodie Drive to be Relocated

Relocation of road access north of School with landscaped buffer LMSF is under consideration



Ottawa Abbott Access to Moodie Drive City Commitments

- Capital and property costs to implement new road connection at no cost to Abbott
- Equal to or improved traffic accessibility to Moodie for Abbott lands based on traffic analysis by City
- Traffic analysis can be independently peer reviewed if necessary
- Will report back on feasibility of relocation of Moodie road access to north of School asap

Noise, Vibration and EMI

- Due to separation between LRT/LMSF and Abbott offices, ground borne noise and vibration not expected to be an issue, no mitigation required
- Compliance with FTA standards for ground borne noise and vibration (we can provide FTA standards)
- Ambient noise impacts of LMSF require mitigation to meet FTA requirements
- Based on preliminary analysis, further analysis underway and will be shared when available
- Standard mitigation techniques for EMI/stray current

Predicted Noise Levels with Mitigation

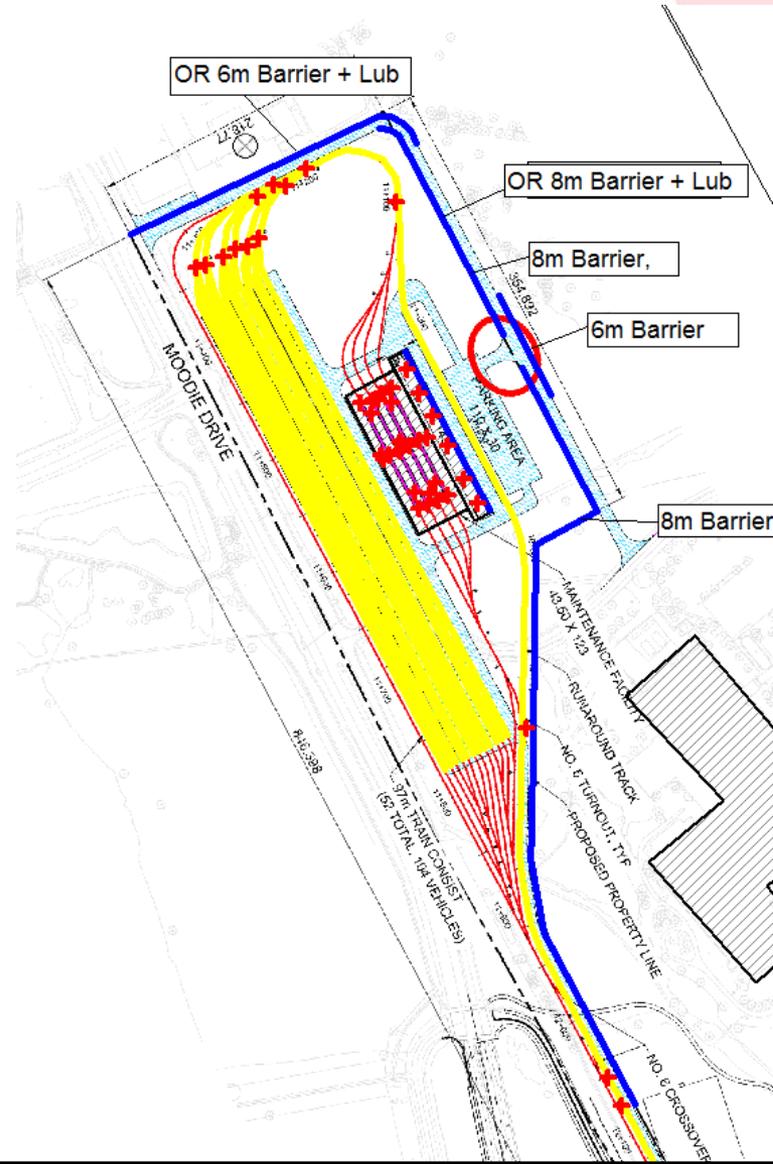
With Mitigation

Location	Overall Noise Level, 1hr Leq (dBA)		Facility Only Noise, 1hr Leq (dBA)	Projected Noise Impact	Noise Violation Exist – City of Ottawa	Exceedance of Noise Impact - MOECC	Additional Mitigation Investigation Required
	No Project (Ambient)	With Project (Nighttime)	Yard Noise	Change (dB)	Change > 5 dB	Yard Noise > Ambient	
R01	45	48	44.9	3	No	No	No
R02	45	48	45.4	3	No	No	No
R03	46	49	45.6	3	No	No	No
R04	42	43	34.9	1	No	No	No
R05	42	42	31.5	0	No	No	No
R06 (Daytime only)	56	57	48.1	1	No	No	No

Mitigation:

6m barrier (north side), 8m barriers (east side) and one rail lubrication system for runaround track

Mitigation of LMSF Ambient Noise with Noise Barriers





579 Wentworth St N

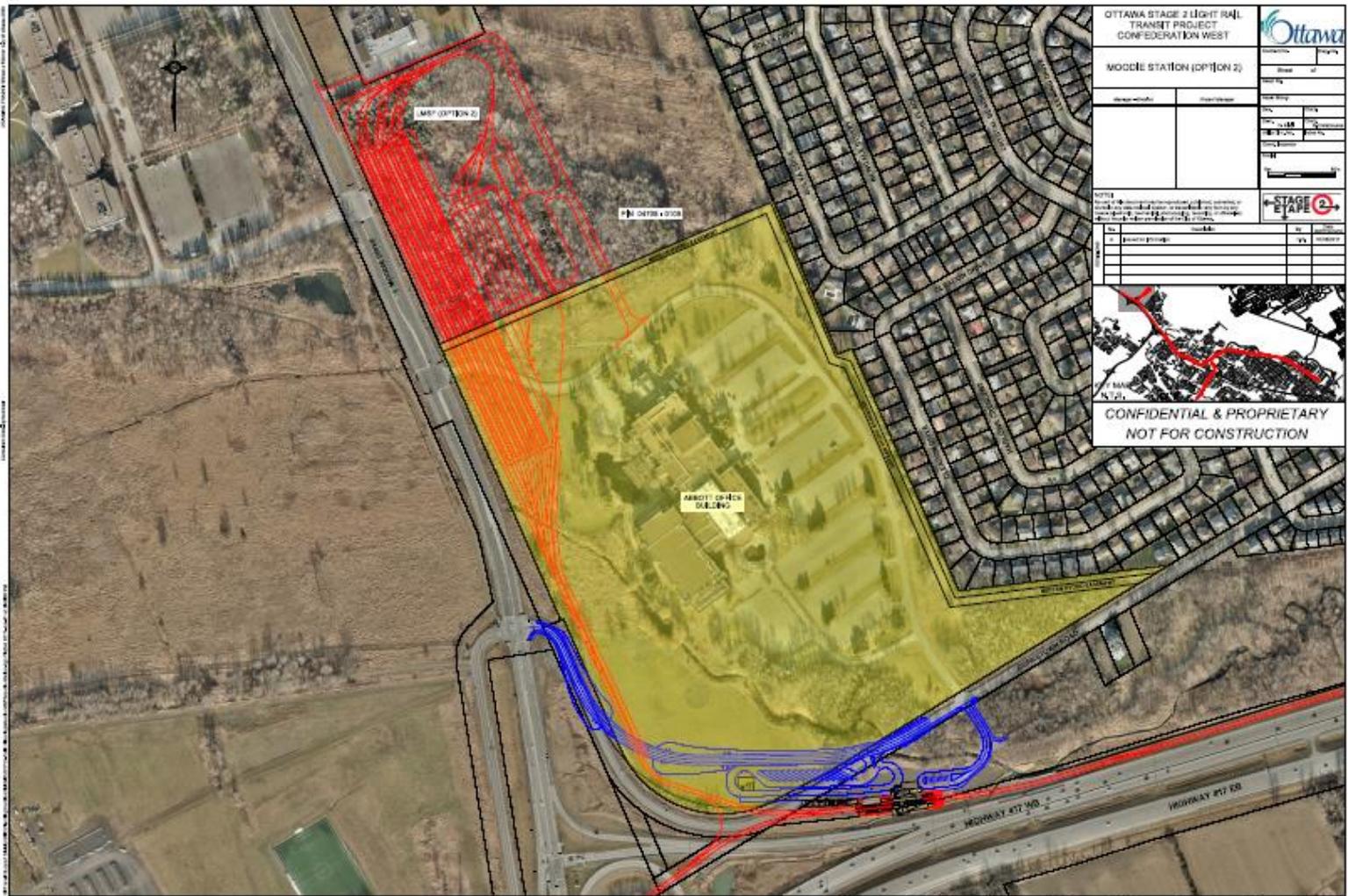


Exit Street View

EMI/Stray Current

- EMI/stray current condition survey will be undertaken to establish pre-existing conditions
- Baseline monitoring of EMI and stray current levels compared to pre-existing background levels
- Based on revenue service EMI and stray current levels
- Stage 1 predicted and actual will be available as well
- Evaluations based on industry standards for EMI/stray current comparison to baseline conditions
- Mitigation and monitoring of both EMI/stray current levels as required by industry standards

Moodie Station



CADD Renderings of Station/LMSF

- To be prepared by City, high quality images
- Views at grade and birds eye view
- Various images from Abbott office building to be prepared showing;
 - LMSF/new road access to Moodie
 - Corkstown grade separation
 - Moodie LRT station/Highway 417
- Will be available in mid to late July

Overall Benefits of Moodie LRT/LMSF to Abbott Industries

- Improved connectivity of Abbott site to LRT station
- Improved connectivity between LRT station and surrounding community
- BRT access from the west/future Kanata LRT
- LRT access from the east/high quality rail service instead of buses
- Existing buses replaced by quieter LRT vehicles on Transitway

Overall Benefits to Abbott (continued)

- Entire Abbott office building is within prime catchment area of LRT station:
 - Straight line walking distance from station to front door is 320 metres with improved pedestrian connections
 - Improved employee accessibility to site by transit
 - Improved employee retention/improved attractiveness for new hires
 - Improved ability to sub lease surplus space
 - Reduced demand for employee parking

Potential Financial Benefits to Abbott

- City sub lease of Abbott leased lands that overlap with LMSF would reduce annual Abbott lease costs
- City would be interested in discussing:
 - Removal of surplus Abbott employee parking and returning this area to greenspace with resulting lease savings to Abbott OR
 - Leasing vacant employee spaces for commuter parking again reducing Abbott lease costs
 - Objective – a WIN-WIN-WIN property transaction for the City-NCC-Abbott based on negotiations and mutual benefits

Next Steps in the Process

1. Meet on a regular cycle (2 weeks?) to advance our mutual interests
2. Abbott to attend June 13 EA public meeting
3. Negotiate a mutually beneficial Memorandum of Understanding(MOU) in the next 3 months
4. Detailed property agreement by end of March 2018 to implement MOU
5. Preliminary engineering of LMSF site to proceed in parallel with property negotiations to ensure that Abbott issues/concerns can be addressed in MOU/final property agreement

DRAWING FRAME: 760mm x 534mm City of Ottawa

12345678

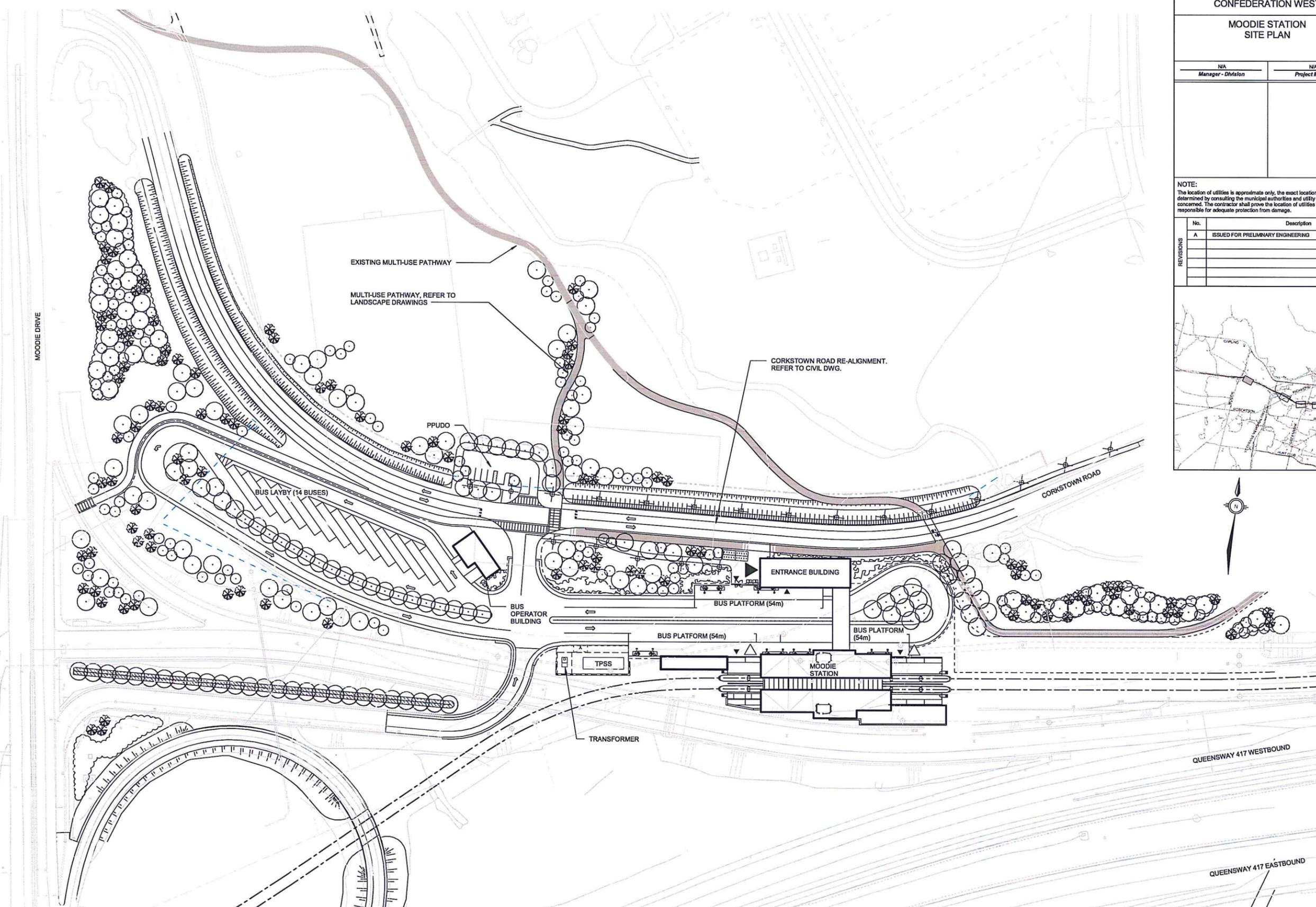
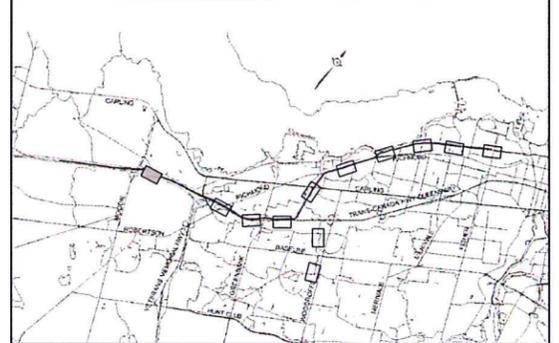
Last Plotted: 10/26/2017 12:00:26 PM
 Filename: C:\env\Local\044198_OURT_STA-MT-AS-102_101.dwg

OTTAWA STAGE 2 LIGHT RAIL TRANSIT PROJECT CONFEDERATION WEST	
MOODIE STATION SITE PLAN	Contract No. N/A Dwg No. STA-MT-AS-102 Sheet 1 of 3 Asset No. N/A Asset Group N/A Des. K. LAM Chkd P. VINCENT Dwn. K. LAM Chkd P. VINCENT Utility Circ. No. N/A Index No. N/A Const. Inspector N/A Scale: 0 12000 24000 SCALE: 1:600

NOTE:
 The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.



No.	Description	By	Date (dd/mm/yy)
A	ISSUED FOR PRELIMINARY ENGINEERING	PV	24/10/17



- ENTRANCE LEGEND:**
- ▲ STATION ENTRANCE
 - ▽ EMERGENCY EXIT
 - ▼ SECONDARY ENTRANCE CONNECTION TO BUSES

PROPOSED PROPERTY LINE

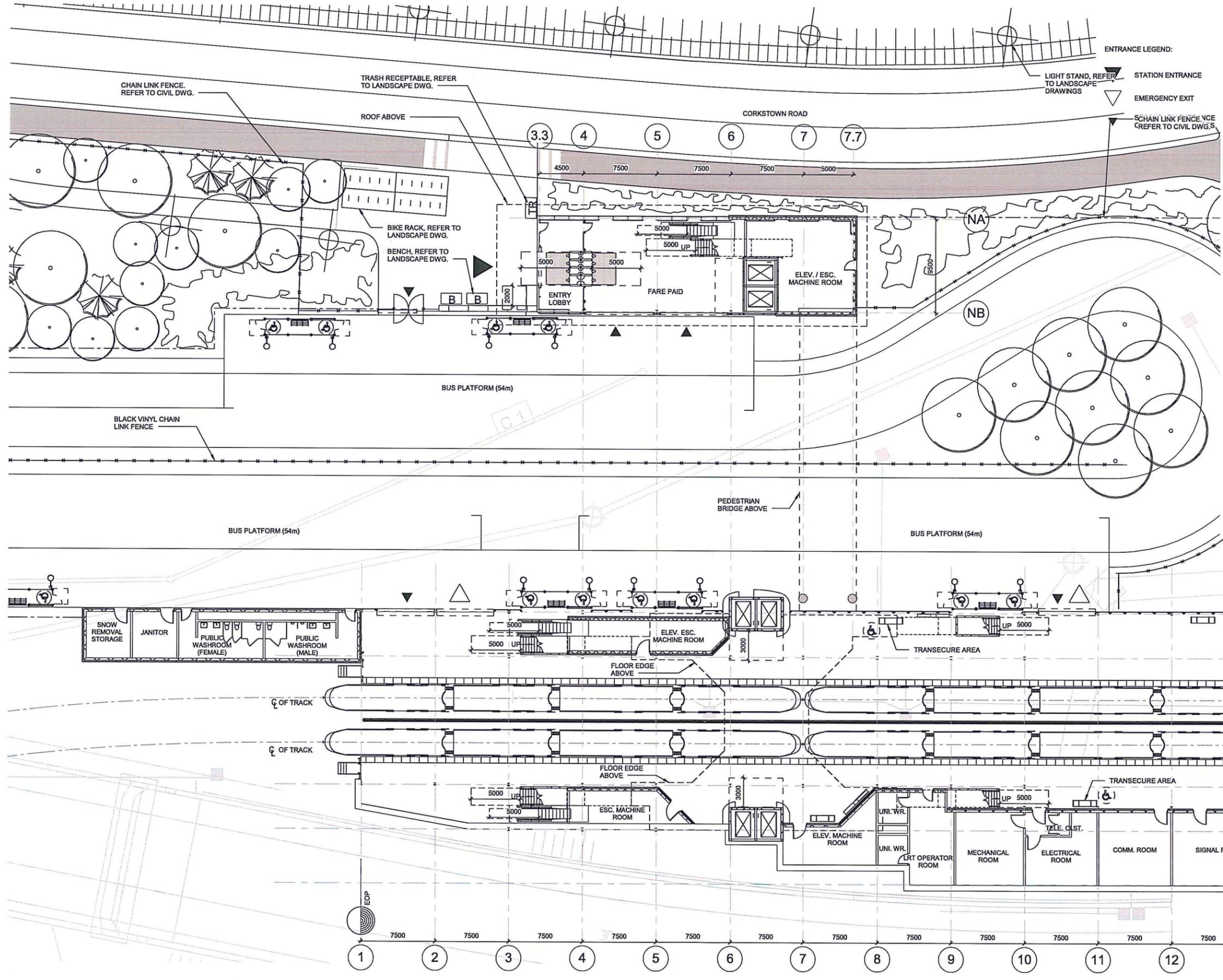
SITE PLAN 1
 1:600 AS-102

PRELIMINARY
 NOT FOR CONSTRUCTION

DRAWING FRAME: 780mm x 1040mm City of Ottawa

12345678

Last Printed: 10/26/2017 12:00:12 PM
Filename: C:\E\1\Local\0444189_CURT_STA-MD-OPT1_101_101.dwg



OVERALL PLATFORM LEVEL PLAN 1
1:200 A-101

TRANSIT PROJECT CONFEDERATION WEST

MOODIE STATION OVERALL PLATFORM LEVEL PLAN

Ottawa

Contract No. N/A Dwg No. STA-MT-A-101
Sheet 2 of 3
Asset No. N/A
Asset Group N/A
Manager - Division N/A Project Manager N/A
Des. K. LAM Chkd P. VINCENT
Dwn. K. LAM Chkd P. VINCENT
Utility Ctr. No. N/A Index No. N/A
Const. Inspector N/A
Scale: 0 4000 8000 mm
SCALE: 1:200

NOTE:
The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
A	ISSUED FOR PRELIMINARY ENGINEERING	PV	24/10/17



SA
SB
SC
SD
SE

1
2
3
4
5
6
7
8
9
10
11
12
13
14

FUTURE PLATFORM

PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING FRAME: 190mm x 54mm City of Ottawa

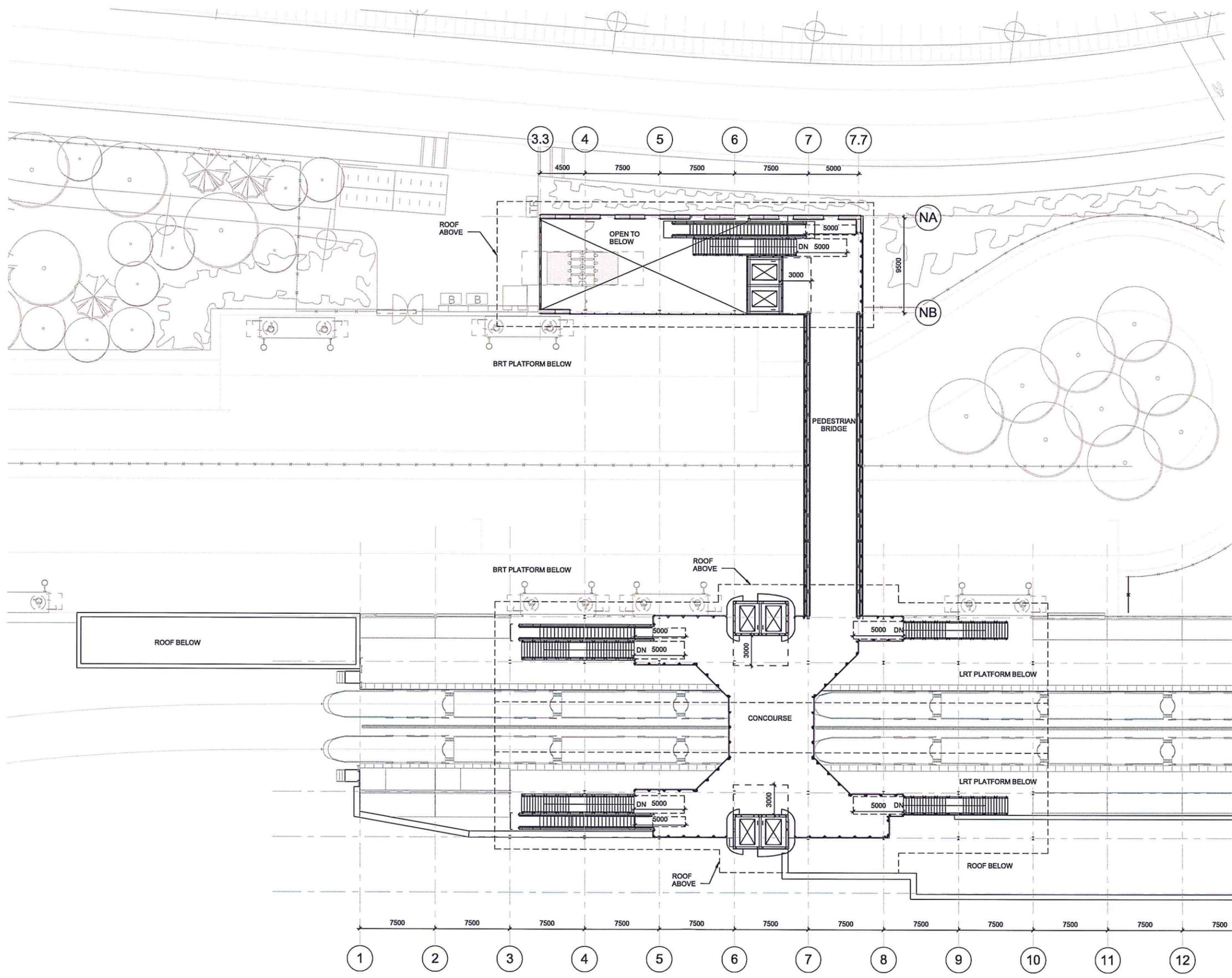
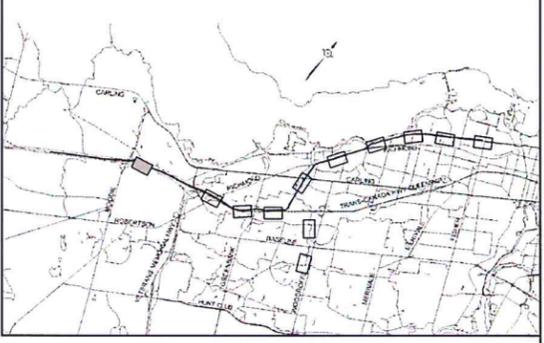
12345678

Last Printed: 10/26/2017 12:00:23 PM
 Filename: C:\Rail\Locals\044198_DURT_STA-MO-OPT1_00_1mm.rvt

OTTAWA STAGE 2 LIGHT RAIL TRANSIT PROJECT CONFEDERATION WEST	
MOODIE STATION OVERALL CONCOURSE LEVEL PLAN	 Contract No. N/A Dwg No. STA-MT-A-102 Sheet 3 of 3 Asset No. N/A Asset Group N/A Des. K. LAM Chkd P. VINCENT Dwn. K. LAM Chkd P. VINCENT Utility Ctr. No. N/A Index No. N/A Const. Inspector N/A Scale: 0 4000 8000 mm SCALE: 1:200

NOTE:
 The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

No.	Description	By	Date (dd/mm/yy)
A	ISSUED FOR PRELIMINARY ENGINEERING	PV	24/10/17



OVERALL CONCOURSE LEVEL PLAN
 1:200
 1
 A-102

PRELIMINARY
 NOT FOR CONSTRUCTION

DRAWING FRAME: 790mm x 634mm City of Ottawa
 CONSULTANT DRAWING NUMBER
 PROJECT: STAGE TWO DESIGN OF CONFEDERATION WEST MOODIE STATION M.O.L.01.dwg
 LAST REVISED: 10/25/2017 3:44 PM BY: JAR/JAR
 PLOTTED: 10/25/2017 3:24 PM BY: JAR/JAR

TRANSIT PROJECT CONFEDERATION WEST		Ottawa	
MOODIE STATION OVERALL SITEPLAN		Contract No. N/A	Dwg. No. STA-MD-L-01
STA. 47 + 380 TO 48 + 040		Sheet	of
N/A Manager - Division	N/A Project Manager	Asset No.	N/A
		Asset Group	N/A
		Des.	CHK'd. M.LUSH
		Dwn.	CHK'd. J.CORUSH
		Utility Circ. No.	Index No. N/A
		Const. Inspector	N/A
		Scale:	0 20 40 m
		SCALE: 1:1000	

NOTE:
 The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

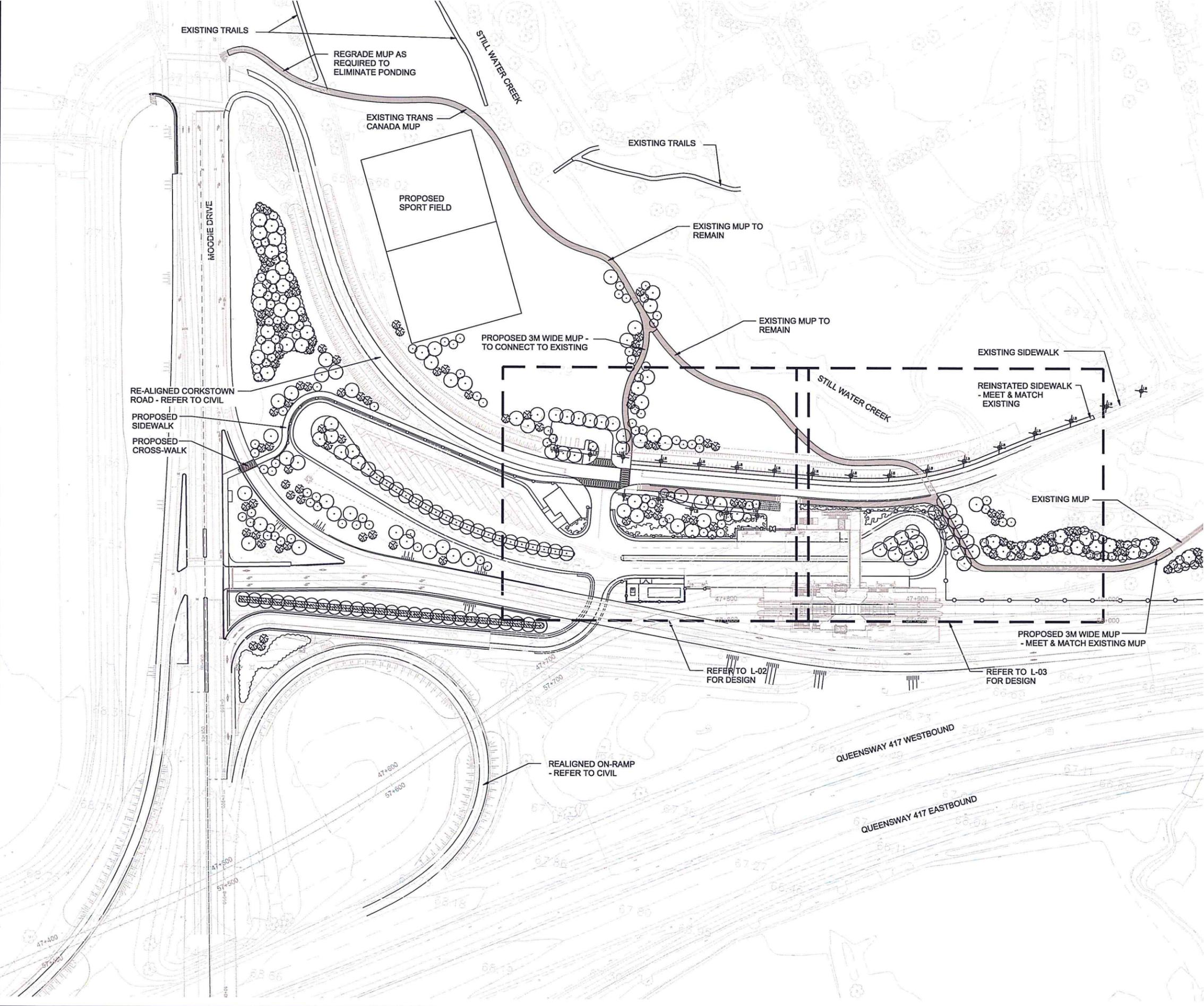
No.	Description	By	Date (dd/mm/yy)
A	ISSUED FOR PRELIMINARY ENGINEERING	ML	11/10/17



LEGEND:

- LRT 1.8M HT. CHAINLINK FENCE
- PROPOSED MUP LIGHT
- PROPOSED TREES
- PROPOSED SHRUB PLANTING
- 3M WIDE ASPHALT MUP
- 2M WIDE CONCRETE SIDEWALK
- CROSS WALK / CROSS RIDE

NOTES:
 1. INCLUDE TWSI PAVERS AT ALL CROSSINGS AS PER CITY OF OTTAWA STANDARD DETAIL (TYPICAL)



PRELIMINARY
NOT FOR CONSTRUCTION

DRAWING FRAME: 790mm x 534mm City of Ottawa

Consultant Drawing Number

PROJECT: STAGE 2 LIGHT RAIL TRANSIT PROJECT CONFEDERATION WEST
 FILE: MOODIE STATION LANDSCAPE PLAN L-02
 DATE: 11/10/17
 DRAWN BY: JARIN
 CHECKED BY: M.LUSH
 PROJECT MANAGER: N/A

OTTAWA STAGE 2 LIGHT RAIL TRANSIT PROJECT CONFEDERATION WEST

MOODIE STATION LANDSCAPE PLAN L-02

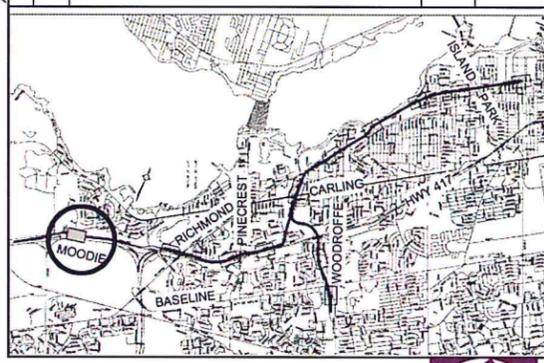
Contract No. N/A Dwg. No. STA-MD-L-03
 Sheet of
 Asset No. N/A
 Asset Group N/A
 Des. M.LUSH Chkd. M.LUSH
 Dwn. J.A.RIN Chkd. J.CORUSH
 Utility Circ. No. N/A Index No. N/A
 Const. Inspector N/A

Scale: 0 5 10 m
 SCALE: 1:250

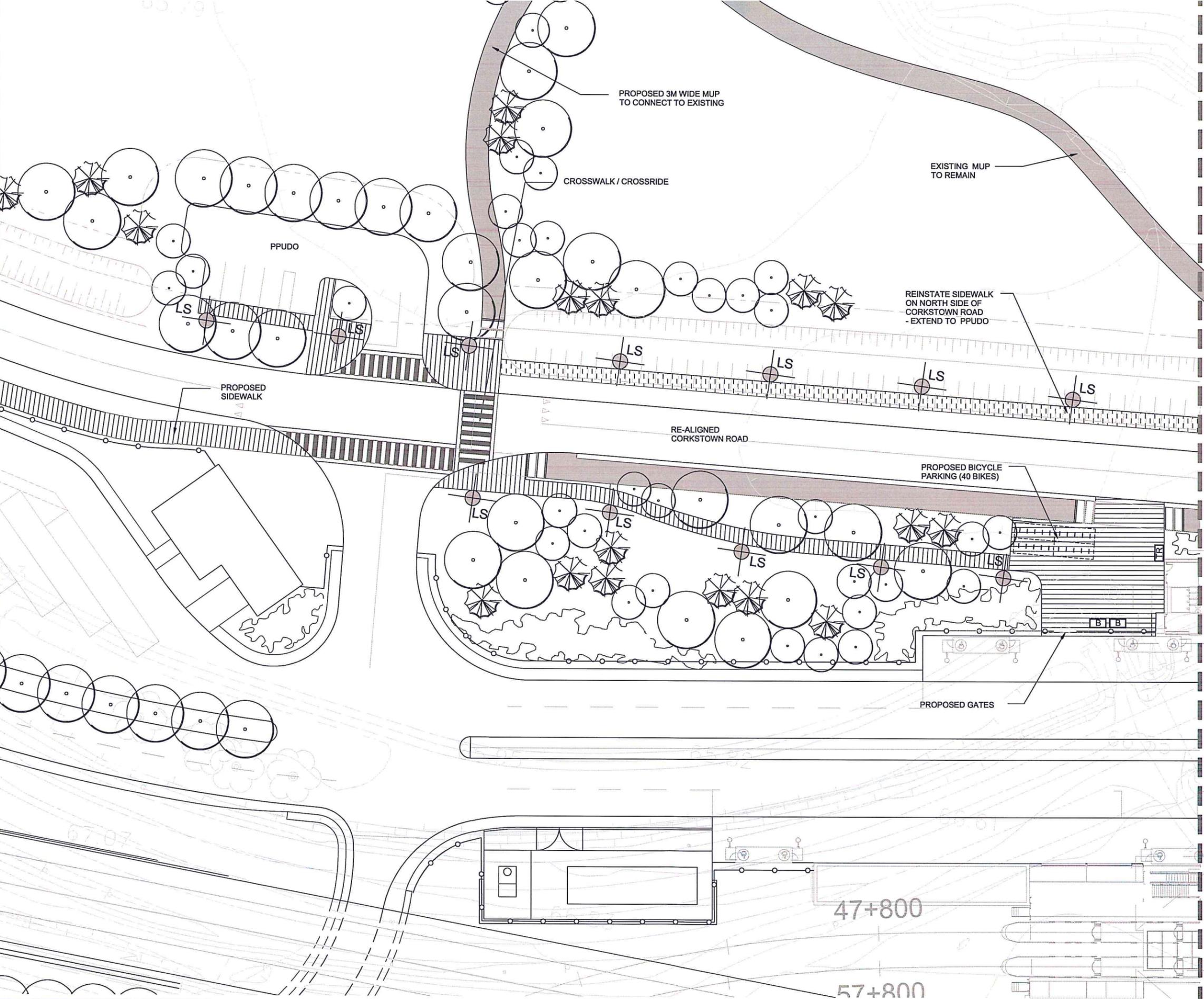
NOTE:
 The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.



No.	Description	By	Date (dd/mm/yy)
A	ISSUED FOR PRELIMINARY ENGINEERING	ML	11/10/17



- LEGEND:**
- LRT 1.8M HT. CHAINLINK FENCE
 - PROPOSED MUP LIGHT
 - PROPOSED TREES
 - PROPOSED SHRUB PLANTING
 - PROPOSED ASPHALT PAVING
 - PROPOSED CONCRETE PAVING
 - TYPICAL TRANSITION BETWEEN CONCRETE & ASPHALT PAVING
 - TYPICAL BENCH
 - TYPICAL TRASH RECEPTACLE



PRELIMINARY
 NOT FOR CONSTRUCTION

DRAWING FRAME: 790mm x 534mm City of Ottawa

Consultant Drawing Number

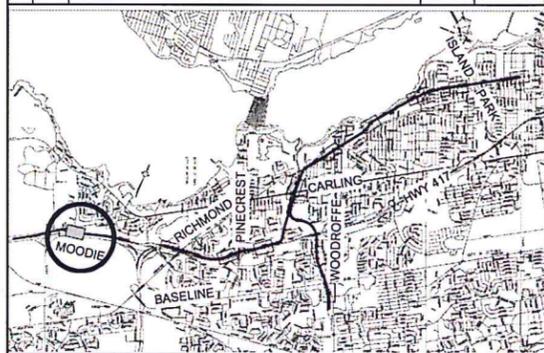
CONDUCTED BY: JACQUES G. PERRON, CHIEF ENGINEER, CONFEDERATION WEST TRANSIT PROJECT, 10/25/2017 2:41 PM, by: jgp, Project: 10/25/2017 3:18 PM, by: jgp, jgp

TRANSIT PROJECT CONFEDERATION WEST		Ottawa	
MOODIE STATION LANDSCAPE PLAN L-03		Contract No. N/A	Dwg. No. STA-MD-L-03
Sheet of		Asset No. N/A	Asset Group N/A
N/A Manager - Division	N/A Project Manager	Des. M.LLUSH	Chk'd. M.LLUSH
		Dwn. J.JARIN	Chk'd. J.CORUSH
		Utility Circ. No. N/A	Index No. N/A
		Const. Inspector N/A	
Scale: 0 5 10 SCALE: 1:250		m	

NOTE:
The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

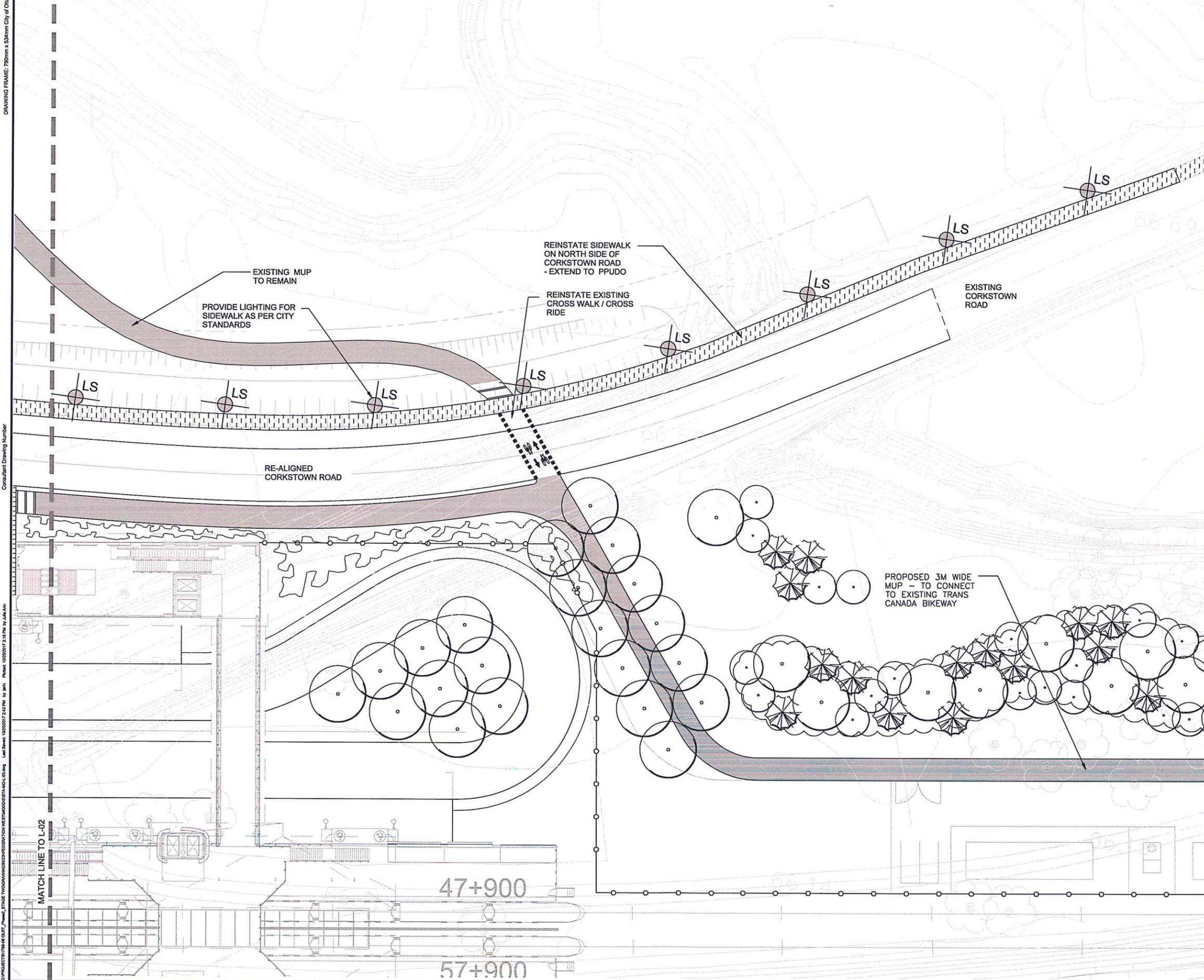


No.	Description	By	Date (dd/mm/yy)
A	ISSUED FOR PRELIMINARY ENGINEERING	ML	11/10/17



LEGEND:

- LRT 1.8M HT. CHAINLINK FENCE
- PROPOSED MUP LIGHT
- PROPOSED TREES
- PROPOSED SHRUB PLANTING
- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE PAVING
- TYPICAL TRANSITION BETWEEN CONCRETE & ASPHALT PAVING
- TYPICAL BENCH
- TYPICAL TRASH RECEPTACLE



PRELIMINARY
NOT FOR CONSTRUCTION