JUNE 16, 2023

SENT BY E-MAIL:
C/O PATRICKP@GSAI.CA

Transportation and Works
201 City Centre Drive, 8th Floor
Mississauga, ON L5B 2T4

Attention: **Lorie Sterritt**
Development, Planner (North)

RE: **TRAFFIC OPERATIONS & SAFETY ASSESSMENT ADDENDUM**
PROPOSED RESIDENTIAL INFILL DEVELOPMENT
890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA, REGIONAL MUNICIPALITY OF PEEL

Dear Lorie,

C.F. Crozier & Associates Inc. (Crozier) was retained by United Lands to prepare a transportation assessment in support of the development application for the proposed residential infill development located at 890 Meadow Wood Road in the City of Mississauga, Regional Municipality of Peel.

A Traffic Operations & Safety Assessment was previously prepared and submitted on July 23rd, 2021. The update herein, addresses the first submission City of Mississauga comments received May 2022, included as **Attachment 1** of this letter.

1.0 DEVELOPMENT PROPOSAL

Per the updated Concept Plan prepared by Glen Schnarr & Associates Inc. (dated June 12, 2023), the development proposal remains unchanged and proposes the following:

- Five (5) single detached residential dwellings
- Each unit with garage and private driveway to a private condo road
- 16 vehicle parking spaces proposed;
    - 1 accessible visitor space (shared)
    - Five (5) visitor parking spaces (1.0 visitor space per unit)
    - 10 residential parking spaces (2.0 residential space per unit)

To facilitate the development, a private condo road is proposed to connect from the Subject Development to Sunningdale Bend. As part of the development, Sunningdale Bend is proposed to be extended into the Subject Lands and terminate in a new municipal cul-de-sac.

Accordingly, the development proposal remains unchanged when compared to the previous submission. The updated Concept Plan is attached at the end of this letter as **Attachment 2**.

2.0 EXISTING CONDITIONS

2.1 Subject Property

The Subject Property covers an area of approximately 1.26 acres and is located in a residential neighbourhood. The Subject Property is bound by existing residential dwellings in all directions. The Subject Property is currently zoned as R2-6 "Residential" per the City of Mississauga Zoning By-Law 0225-2007.

A key map has been included on the Development Concept Plan.

2.2 Boundary Road Network

The prevailing conditions on Sunningdale Bend is described in **Table 1**.

Table 1: Boundary Road Network

Feature	Sunningdale Bend
Direction	Two-way
Classification	Local
Jurisdiction	City of Mississauga
Surrounding Uses	Residential
Cross-Section	Rural
Connections	Clarkson Road South
Speed Limit	40 km/h (posted)
Number of travel lanes	Two
Median type	None
Pedestrian / Cycling Facilities	None

3.0 TRIP GENERATION

Trip generation for the proposed development was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The ITE Trip Generation Manual is a compendium of industry collected trip generation data across North America for a variety of land uses and is used industry wide as a source for trip generation forecasts.

Land Use Category (LUC) 210 "Single-Family Detached Housing" was applied to the proposed residential dwelling units. **Table 2** outlines the trip generation forecasts for the proposed development.

Table 2: Trip Generation – Proposed Development

ITE Land Use Category	Units	Peak Hour	Trips Generated		
			Inbound	Outbound	Total
LUC 210 "Single-Family Detached Housing"	5	A.M.	1	3	4
		P.M.	3	2	5

4.0 IMPACTS TO TRAFFIC OPERATIONS

The proposed development is expected to generate 4 and 5 total two-way trips during the weekday a.m. and p.m. peak hours, respectively. These trip generation forecasts are negligible from a traffic operations perspective and are typically not associated with traffic operational issues nor external roadway improvements.

5.0 SUNNINGDALE BEND EXTENSION & CONDO ROADWAY CONNECTION

As mentioned above, Sunningdale Bend is proposed to be extended from its current easterly terminus into the Subject Property and terminate in a cul-de-sac. The proposed private condo roadway will connect to the municipal cul-de-sac and essentially will be a continuation of the public roadway.

5.1 Region of Peel Comments (NEW)

Per the Region of Peel first submission comments, the proposed cul-de-sac must be provided in accordance with the specifications shown in Appendix 2 of the Waste Collection Design Standards Manual.

The Region of Peel Waste Collection Design Standards Manual specifies the following:

- 13.0 m radius cul-de-sac,
- 13.0 m radius transitions, and,
- 6.0 m pavement width.

The Region of Peel Waste Collection Design Standards Manual excerpts are attached at the end of this letter as **Attachment 3**.

As the Concept Plan proposes a skewed cul-de-sac with a radius of 9.0 m, the cul-de-sac is proposed to deviate from the applicable Region of Peel's Waste Collection Design Standards. Nevertheless, the proposed cul-de-sac is supportable due to the following factors:

- City staff's support and approval
- Improvements to the Existing Conditions
- Physical Constraints
- Vehicle Maneuverability Analysis
- Public Waste Collection of the Subject Lands
- Expected Traffic Operations

City's Support and Approval

The proposed cul-de-sac has been circulated and discussed with the City of Mississauga staff for review and approval. At the time of this letter, it is understood that the City has accepted and is in support of the proposed cul-de-sac and design geometries given the existing conditions and the constraints of the Subject Lands.

Improvements to the Existing Conditions

The existing Sunningdale Bend terminates at the limits of 1705 Sunningdale Bend and the Subject Property limits. A cul-de-sac or hammerhead is currently not provided. Thus, existing waste collection trucks, fire trucks and delivery trucks must reverse up to 40 metres, in order to turn around and exit the area.

Accordingly, the municipal cul-de-sac within the existing Subject Lands is an improvement to the existing conditions. Upon buildout of the cul-de-sac and the Subject Development, standard waste collection trucks, fire trucks and delivery trucks may utilize the new cul-de-sac to turn around and exit the area in a forward motion.

Physical Constraints to the northeast

The extension of the Sunningdale Bend, as well as the proposed cul-de-sac are limited due to physical constraints to the northeast. The proposed extension and cul-de-sac are abutting the existing NHS area and buffer, with grade differences of over 2.0 metres in some areas. As areas to the south are private property, the proposed Sunningdale Bend extension and cul-de-sac are limited, and a reduced cul-de-sac radius of 9.0 m is supportable.

Expected Traffic Operations

Due to the limited private properties in the area, traffic volumes along the Sunningdale Bend extension are expected to be minimal, and exclusively for the Subject Lands only.

As further mentioned above, the Subject Development is also small and is not expected to materially generate new traffic in the area. Accordingly, turnaround vehicles are not often expected and are not expected to cause undue delays along Sunningdale Bend. Thus, once again, the proposed cul-de-sac is supportable from a traffic operations perspective.

Vehicle Maneuverability Analysis

Based on the Vehicle Maneuverability Analysis in **Section 6** of this letter, snowplow trucks, standard fire truck, standard waste collection truck and delivery trucks can turn around within the proposed cul-

de-sac with a maximum of three-point-turn or less. Accordingly, the proposed cul-de-sac is also supportable from a traffic circulation perspective.

Once again, as the expected traffic volumes of the Sunningdale Bend extension are low, minimal delays are expected while trucks conduct a turnaround within the cul-de-sac.

Public Waste Collection of the Subject Lands

Finally, waste collection turnaround within the cul-de-sac is rarely expected as the Subject Development are also proposed to be public waste collection. Instead of a turnaround within the cul-de-sac, the waste collection vehicles from Sunningdale Bend are expected to continue and enter the private condo road. From there, waste collection trucks are expected to conduct waste pick-up and turnaround using the hammerhead provided within the private condo road.

As the hammerhead within the private condo road is designed per the Region of Peel Waste Collection Design Standards, the proposed cul-de-sac and hammerhead waste collection operations are supportable. Once again, the proposed operation is an improvement to the existing condition as a cul-de-sac nor hammerhead are not currently provided.

6.0 Vehicle Maneuverability Analysis (UPDATED)

Updated Vehicle Turning Diagrams are included as **Attachment 4**.

Vehicle turning analysis was conducted using AutoTurn for the following vehicle profiles:

- Standard passenger car;
- Region of Peel waste collection truck;
- Delivery Truck (Medium Single Unit Truck or MSU);
- Snowplows, and
- Pumper fire truck.

Swept paths and vehicle turning analysis indicates that there are no expected maneuverability constraints within the site.

The internal condo roadway meets the Ontario Building Code (OBC) fire access route design requirements of having a minimum roadway width of 6.0 metres (proposed road width is 7.0 metres), and minimum centerline radii of 12 metres (proposed centerline radii is 13 metres).

The internal condo roadway also meets the requirements of the Region of Peel's Waste Collection Design Standards Manual of a maximum reversing distance of 15 metres and centerline radii of 13 metres.

6.1 Proposed Cul-de-sac Circulation (UPDATED)

The Concept Plan illustrates a snowplow truck navigating the proposed municipal cul-de-sac on Sunningdale Bend. The City has commented that they do not foresee any issues with the snow removal within the cul-de-sac.

Per further requests from the City of Mississauga, additional vehicle turning diagrams are prepared and attached at the end of this letter. Based on the additional drawings, no operational issues are expected around the proposed cul-de-sac. Fire trucks, MSU, and Region of Peel Waste Collection trucks can turn around within the cul-de-sac using a three-point turn if needed. As mentioned above, the proposed development also uses public waste collection. Thus, Region of Peel Waste Collection trucks are not expected to use the cul-de-sac to turn around. Instead, the waste collection truck is expected to continue straight into the proposed development and turn around within the hammerhead.

The vehicle turning diagrams for each vehicle profile are attached at the end of this letter.

7.0 CONCLUSIONS

The analysis contained within this Traffic Operations and Safety Assessment concludes that no traffic operations nor safety issues are identifiable with the proposed development. Therefore, the proposed development can be supported from a traffic operations and safety perspective.

The analysis was conducted using the Development Concept Plan prepared by Glen Schnarr & Associates Inc dated June 2023. Any minor changes to the plan are not expected to materially affect the conclusions contained within this traffic assessment.

We trust that this Traffic Operations and Safety Assessment Update addresses the City's and Region's traffic and circulation concerns. Should you have any questions or require any further information, please feel free to give us a call.

Yours truly,

C.F. CROZIER & ASSOCIATES INC.

Martin Chan, P.Eng.
Project Engineer

Encl. (4)
Agency Comments
Development Concept Plan
Region of Peel Waste Collection Design Standards Manual
Vehicle Turning Diagrams

MC/dl/sk

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ATTACHMENTS

Checklist Comments Report

Project 890 Meadow Wood Road

Grouping	Milstone	Group Name	Reviewer Comment	1St Applicant Response	Consultant
	Recommendation Report	PLANNER - DEV DESIGN	DRAWINGS - Revised drawings should be submitted which reflect the accurate lot and compensation area boundaries.		**All**
	Recommendation Report	REGION OF PEEL	The Region of Peel will provide curbside collection of garbage, recyclable materials, household organics and yard waste subject to the following conditions being met and labelled on the Waste Management Plan prior to RZ approval:1.The Waste Collection Vehicle access route throughout the complex indicating turning radii and turning movements is to be clearly labelled on the drawing. The concept plan depicts vehicle turning at the entrance but not labelled if it is for waste collection vehicle. 2.The Turning Radius from the centre line must be a minimum of 13 metres on all turns. This includes the turning radii to the entrance and exit of the site. 3.Internal roadways must be constructed of a hard surface material, such as asphalt, concrete or lockstone, and designed to support a minimum of 35 tonnes, the weight of a fully loaded waste collection vehicle. 4.Road layouts shall be designed to permit a waste collection vehicle to drive forward without reversing for waste collection. Where the requirements for a road layout permitting forward movement of a waste collection vehicle cannot be met, a cul-de-sac or a T-turnaround shall be provided in accordance with the specifications shown in Appendices 2 and 3, respectively (Waste Collection Design Standards Manual). Please label the length of the Turnaround. 5.In a situation where a waste collection vehicle must reverse the maximum straight back-up distance is 15 metres. 6.The maximum grade permitted along the waste collection vehicle access route is 8 percent.7.Each dwelling unit within a development must have its own identifiable collection point (min. 3m X 1m). See Appendix 9 (Waste Collection Design Standards Manual) for an example of a collection point. The collection point must be located along the curb, adjacent to the driveway, and must be directly accessible to the waste collection vehicle and free of obstructions such as parked cars, and sidewalks. Sidewalk must be set back from the curb to allow space for collection point. Please indicate the set-out area for each unit in subsequent submissions.	Noted. A centerline radius reduction is required for the proposed cul-de-sac due to physical constraints. Further details and justification sare included in **Section 5.1** of the Transportation Operations and Safety Assessment. It is noted that the City has accepted the proposed cul-de-sac design, and associated reduced centerline radius. The proposed cul-de-sac is considered an improvement over the existing conditions where turcks are required to reverse from the existing dead end onto Sunningdale Bend. Updated Vehicle Turning Diagrams have been attached. 4. Noted. A cul-de-sac and T-turnaround is proposed within the site to allow waste collction vehicles to turnaround and exit the site in a forwards motion.	**Crozier**
Recommendation Report	TRAFFIC REVIEW	[SUNNINGDALE BEND TURNING CIRCLE] (a) Turning movement diagrams including dimension of the most constrained design vehicle will be required to demonstrate the feasibility of the proposed turning circle at the terminus of Sunningdale Bend.	Noted. The Vehicle Turning Diagrams have been updated and are included in **Attachment 4** of the Transportation Operations and Safety Assessment.	**Crozier**

Checklist Comments Report

Recommendation Report	TRAFFIC REVIEW	[INTERNAL SITE CIRCULATION] (a) Additional provisions to aid in the safety and operation of these features may be required. (b) A turn around facility will be required as a result of the above in addition to providing sufficient snow storage for the proposed development.	Noted. Boulevards are proposed, which can be utilized for snow storage to ensure vehicles can safely circulate around the cul-de-sac. Additional snow storage is available between Lots 3 and 4, if required.	**Crozier**

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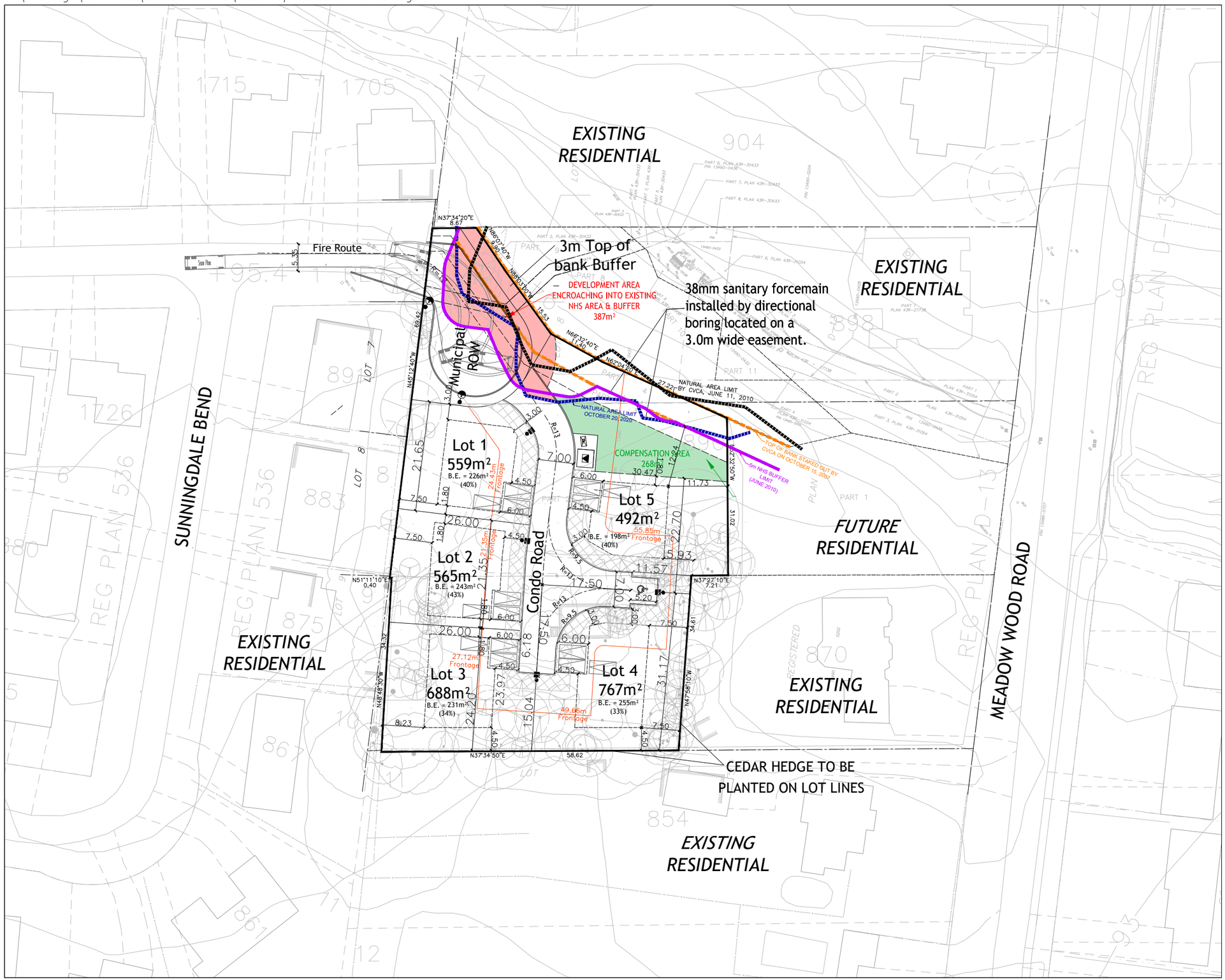
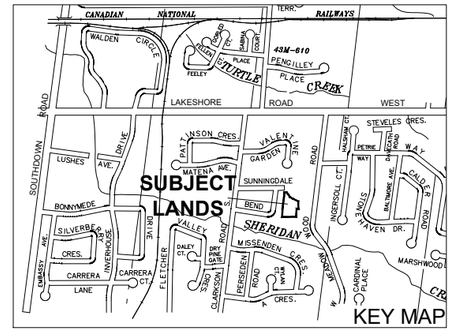




URBAN DESIGN CONCEPT PLAN OPTION 2

1667 SUNNINGDALE BEND
PART OF LOTS 8, 9, & 10
REGISTERED PLAN D-13
CITY OF MISSISSAUGA
REGION OF PEEL

DEVELOPMENT STATISTICS

SITE AREA:	0.51ha (1.26ac)
TOTAL UNITS:	5 UNITS

REQUIRED PARKING SPACES

RESIDENT (2/Unit):	10
VISITOR (0.25/Unit):	2
ACCESSIBLE:	1
TOTAL REQUIRED PARKING:	**13**

PROVIDED PARKING SPACES

RESIDENT (2/Unit)	10
(One space located internally and one driveway space)*	
VISITOR (1/UNIT)	5
(Located in driveway)	
ACCESSIBLE:	1
TOTAL PROVIDED PARKING:	**16**

Notes

*Internal driveway space is conceptual only
Typical Visitor Parking Space: 2.6m x 5.2m
*Lot 5 Area includes Potential NHS & Buffer Compensation Area

SCALE 1:750
JUNE 12, 2023

GSAI
Glen Schnarr & Associates Inc.

Region of Peel
working with you

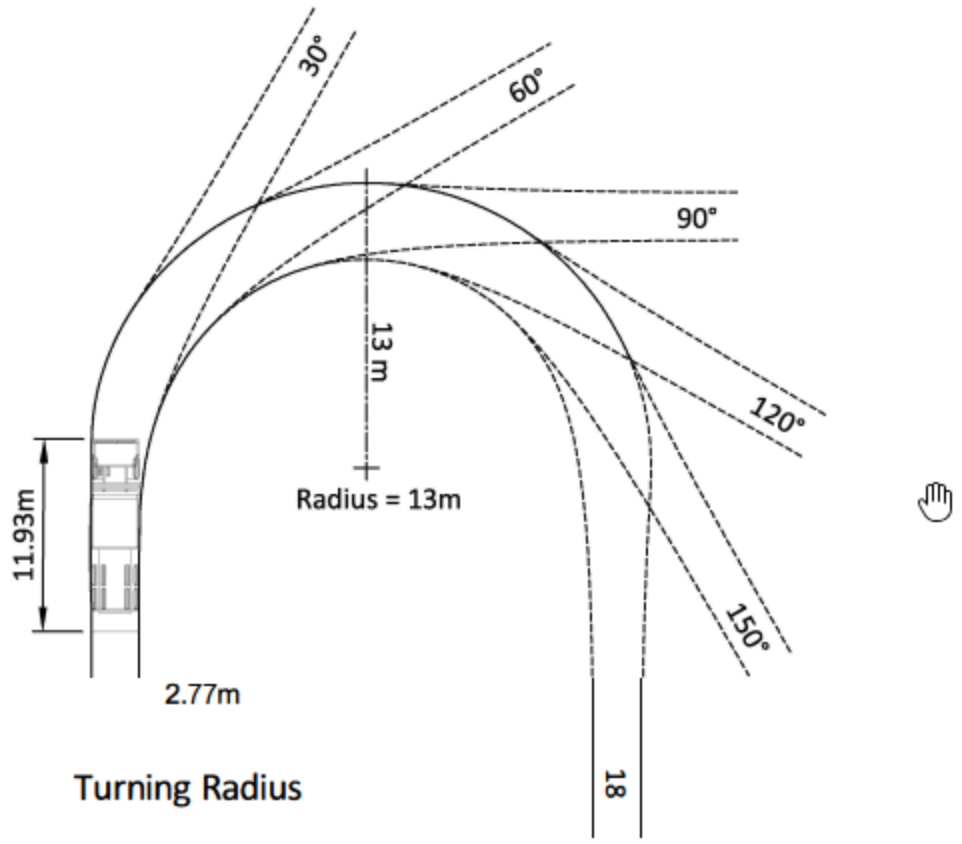
Waste Collection Design Standards Manual

2020

APPENDIX 1: WASTE COLLECTION VEHICLE DIMENSIONS

Table A-1: Overall Collection Dimension Minimums

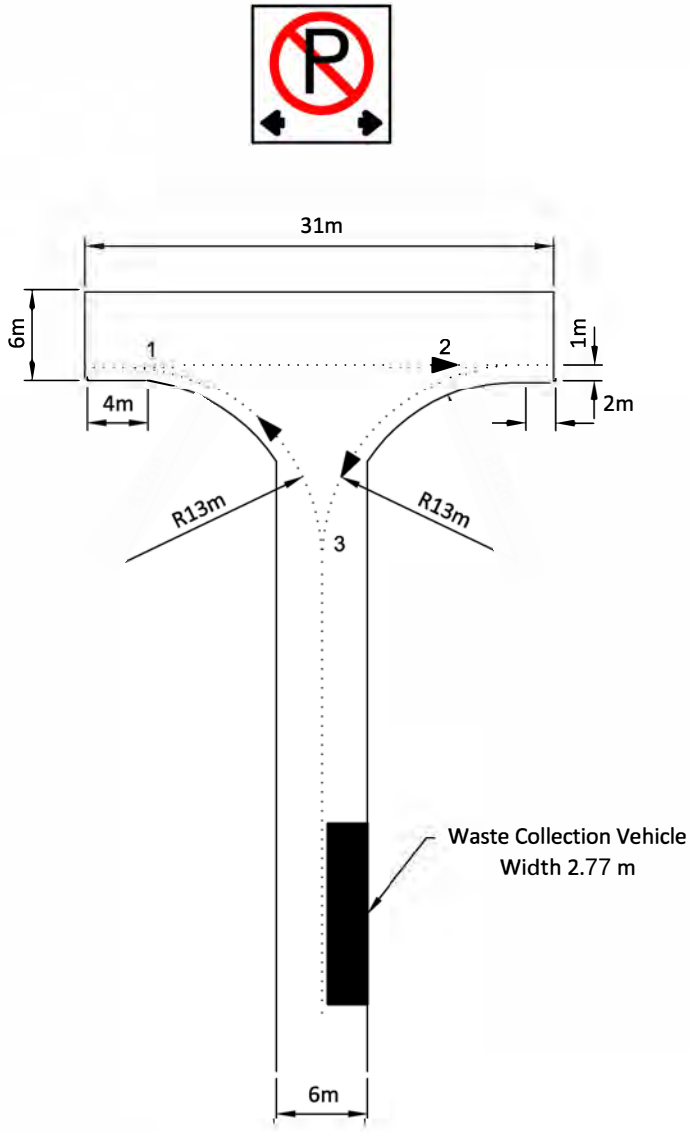
Overhead space along the access route	4.4 m
Road width along access route	6 m
Overhead space at the collection point	7.5 m



Note:
Drawings are not to scale. Vehicle dimensions are approximate. Actual dimensions may vary depending on the make and model of vehicles used by Region of Peel's Waste Collection Contractors, which vary from time to time.

APPENDIX 3: "T" - TURNAROUND SPECIFICATIONS

Minimum Requirement for Region's Waste Collection Vehicles



Note:
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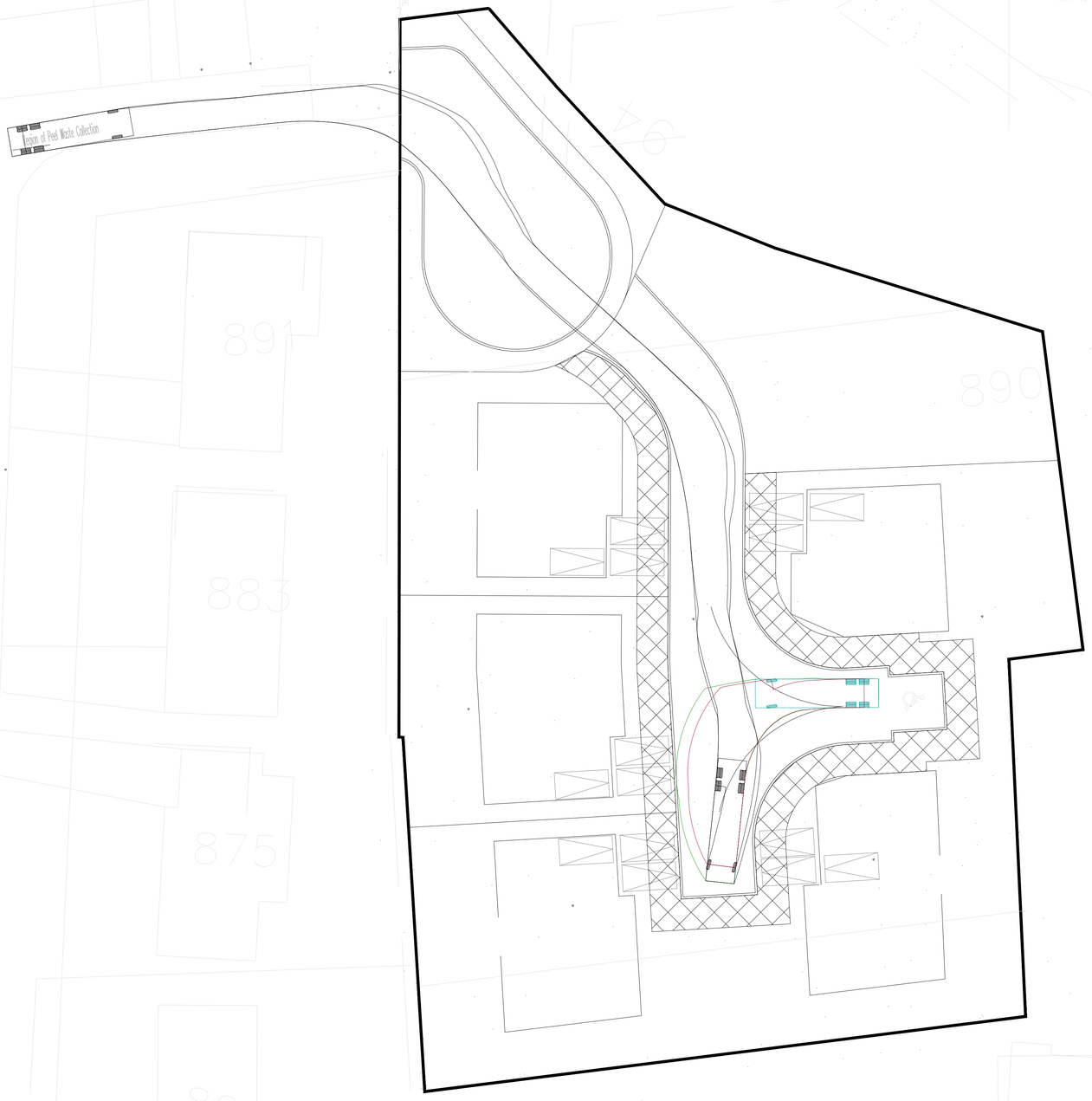

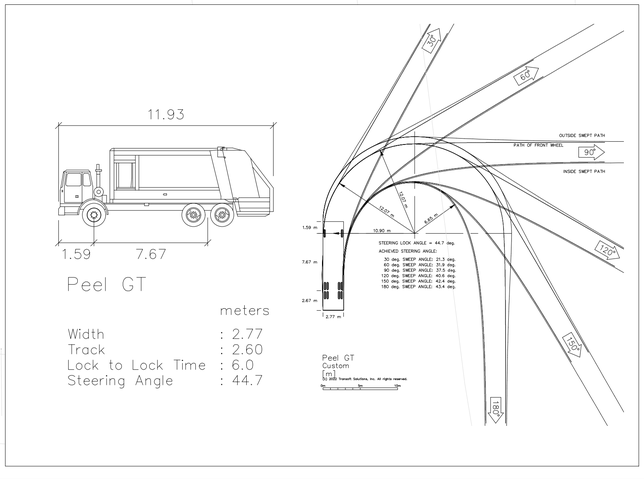

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Project

890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing

VEHICLE TURNING DIAGRAMS
REGION OF PEEL GARBAGE TRUCK

CROZIER CONSULTING ENGINEERS
2800 High Point Drive
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Milton, ON L9T 6P4
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905-875-4915 F
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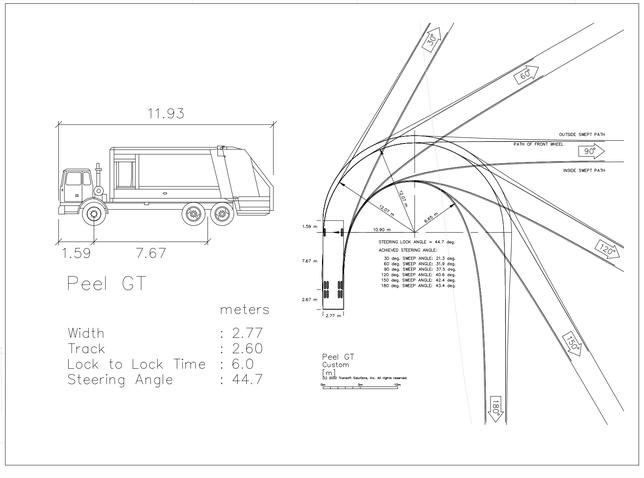
Check By M.Y.	Check By M.C.	Scale 1:250	Drawing T301



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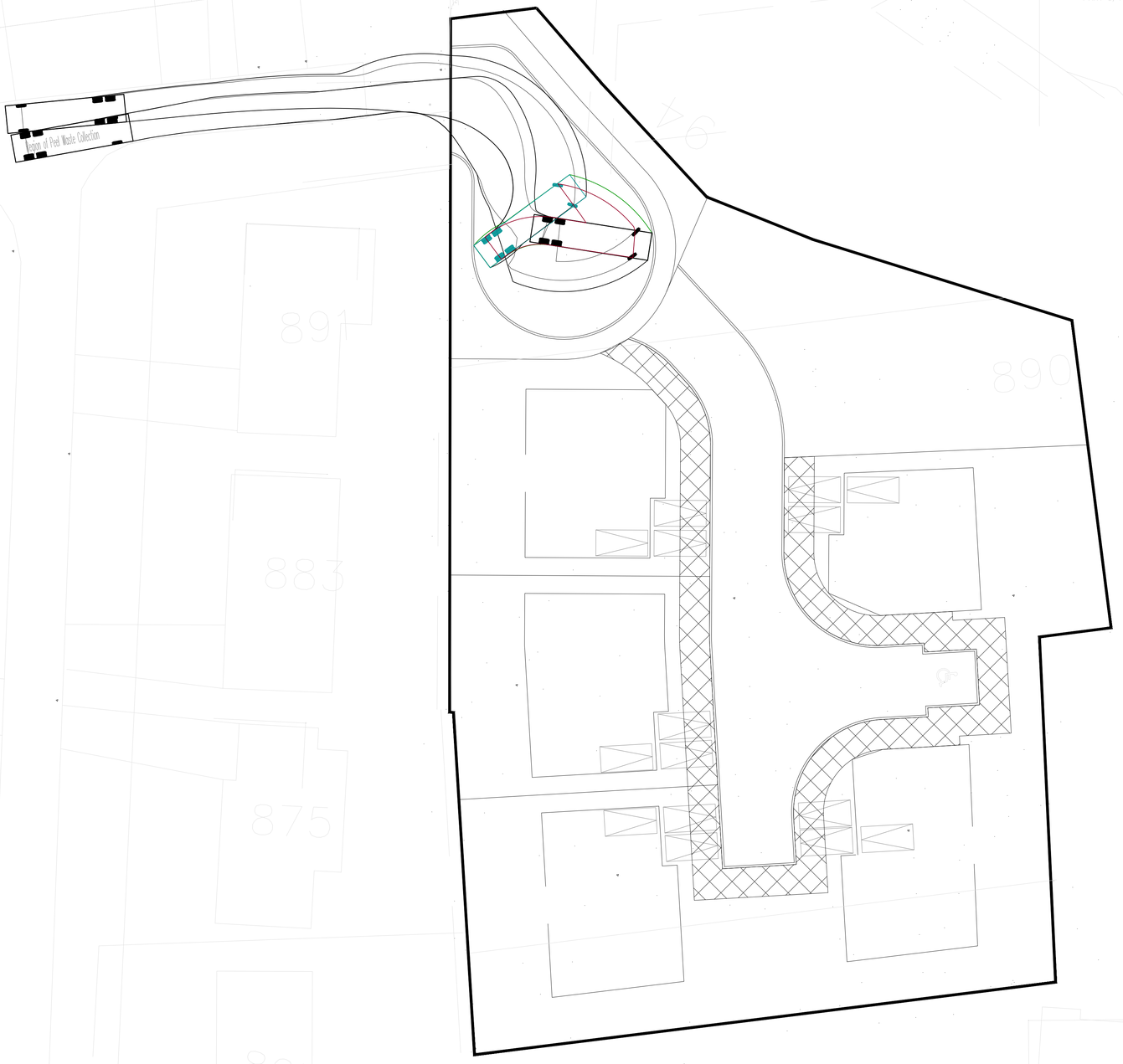

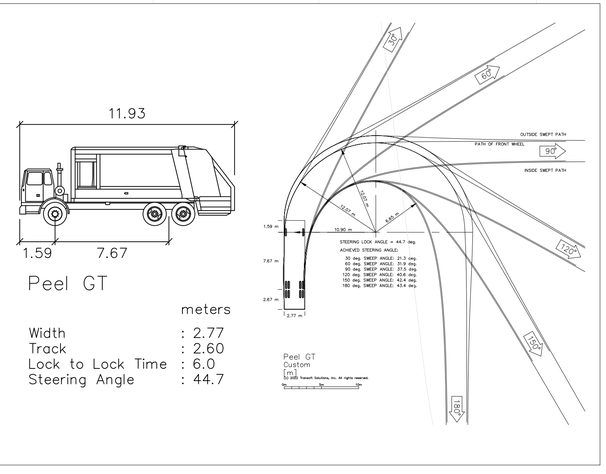

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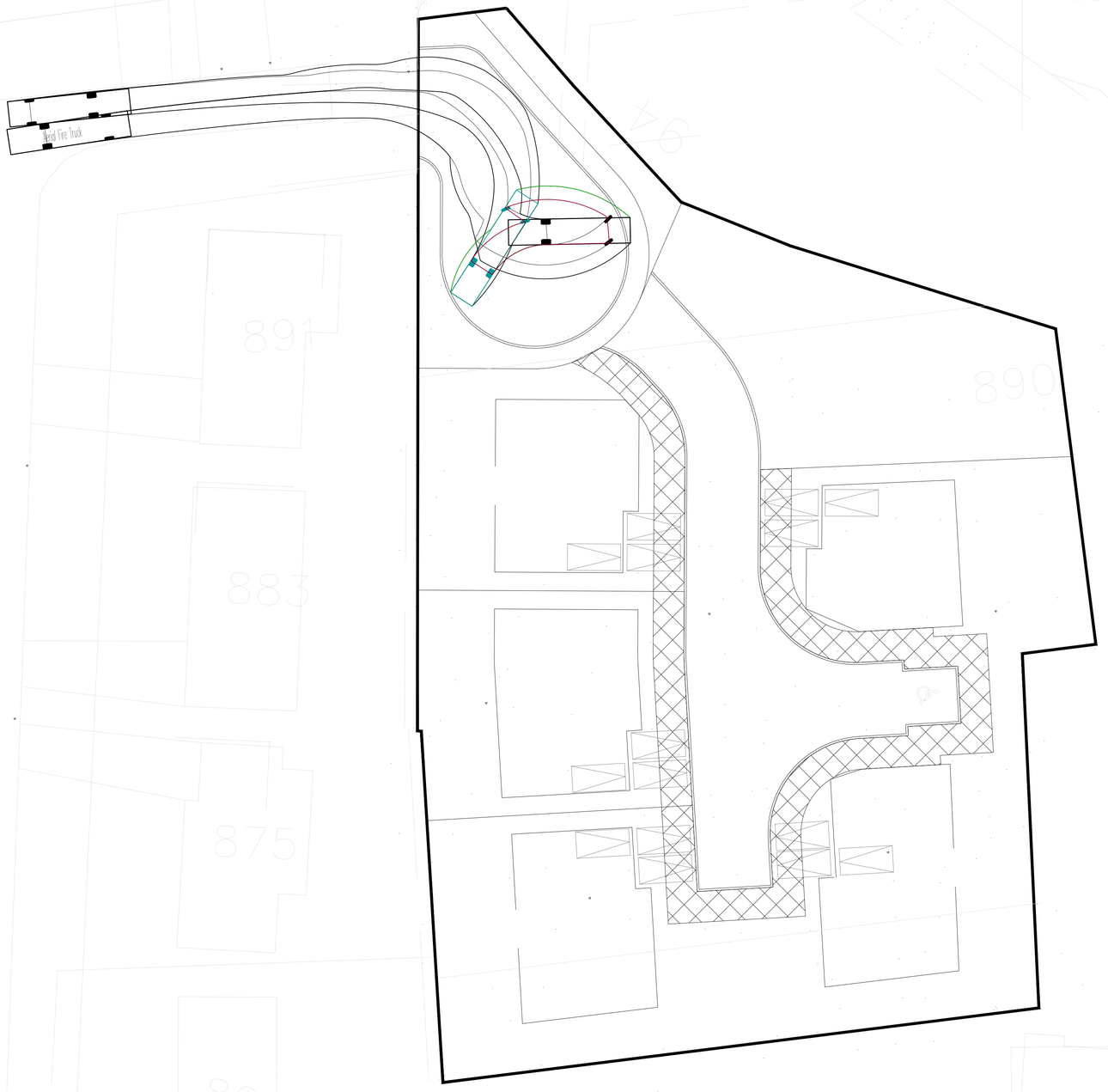

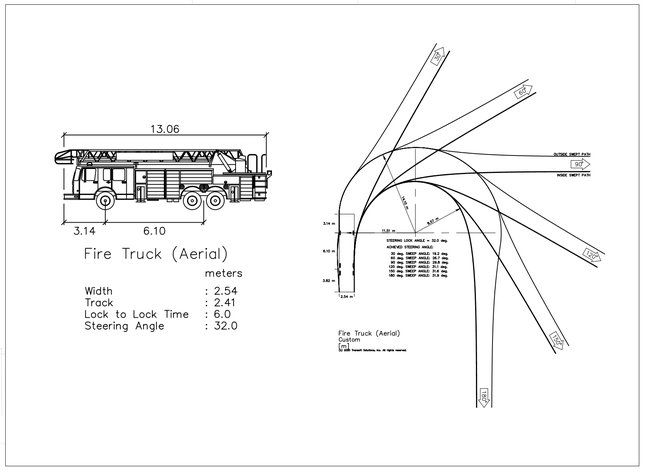

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CITY OF MISSISSAUGA

Drawing
FIRE TRUCK
VEHICLE TURNING DIAGRAMS

CROZIER CONSULTING ENGINEERS
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SUITE 100
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905-875-0026 T
905-875-4915 F
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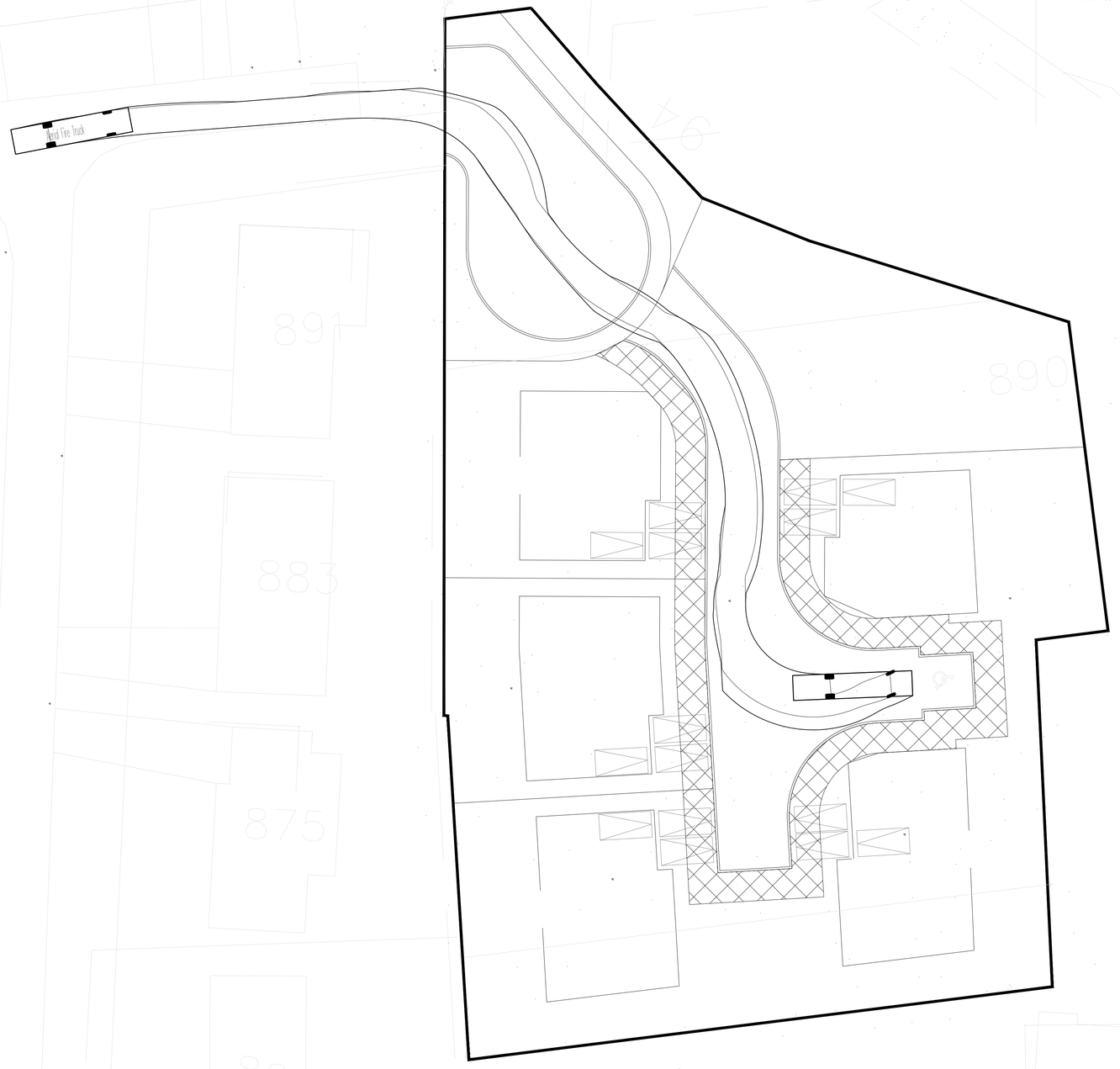

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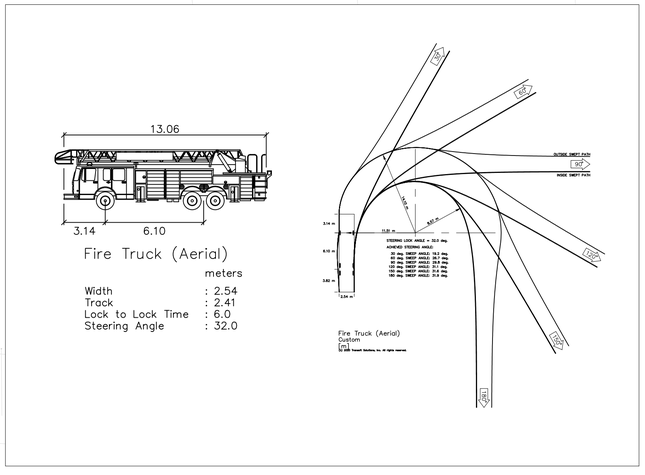

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TEMPORARY BENCHMARKS

TBM#1–
TBM#2–
TBM#3–

Town

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0	ISSUED FOR REVIEW	07/23/2021
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2	ISSUED FOR REVIEW	01/27/2022
3	ISSUED FOR REVIEW	16/06/2023

Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

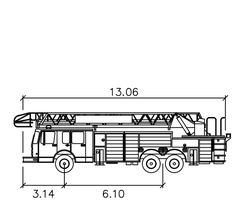
Engineer

Project
890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing
FIRE TRUCK
VEHICLE TURNING DIAGRAMS

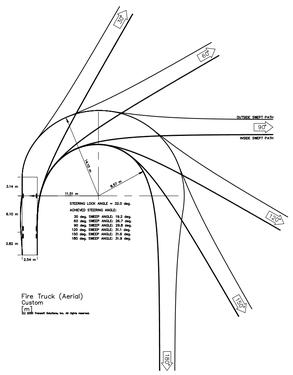
CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn By	Design By	Project	154–5674
M.C.			
Check By	Check By	Scale	Drawing
M.Y.	M.C.	1:250	T305



Fire Truck (Aerial)

	meters
Width	: 2.54
Track	: 2.41
Lock to Lock Time	: 6.0
Steering Angle	: 32.0



5 0m 5 10 15 20
SCALE: 1:250

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Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

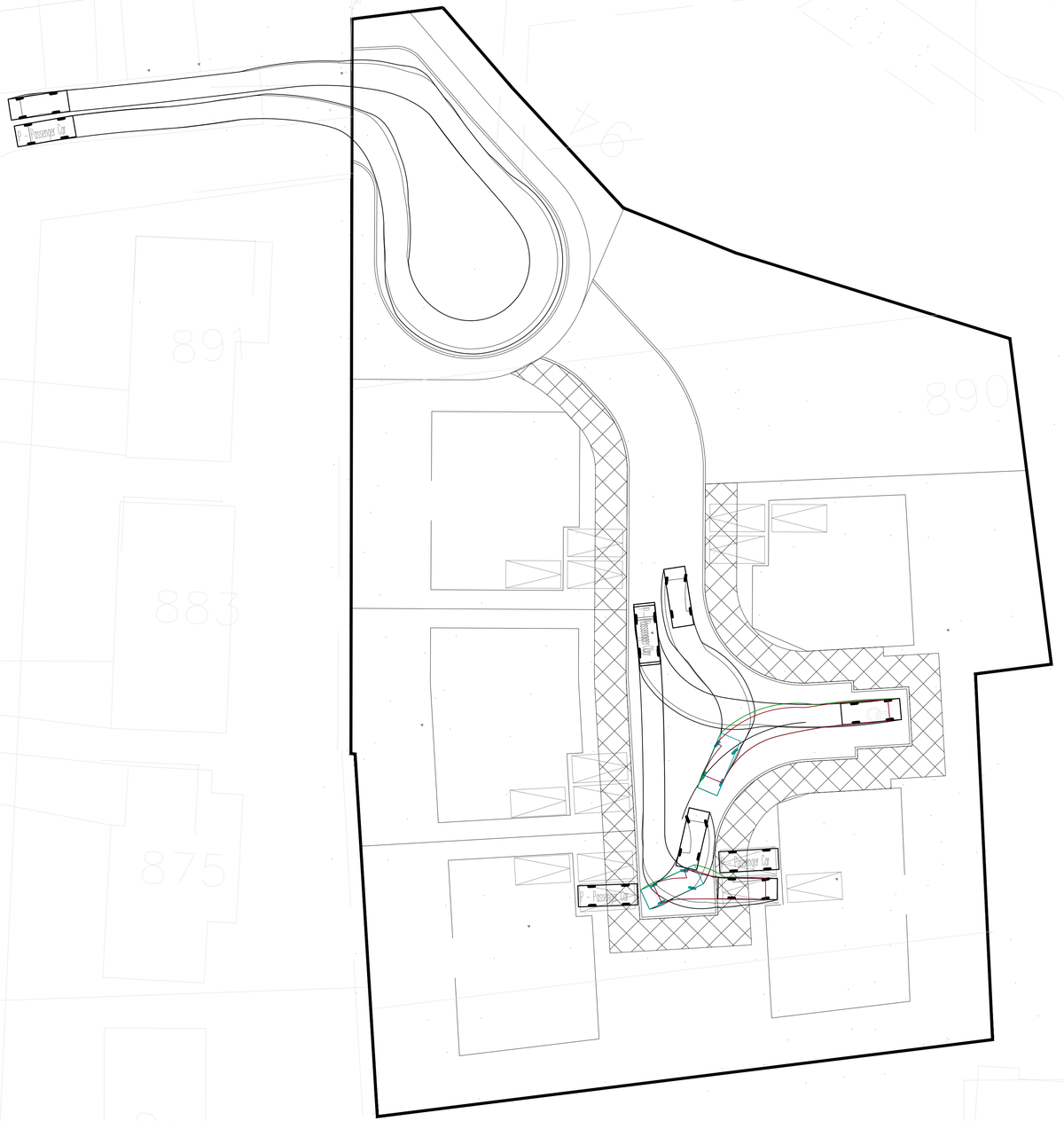
Engineer

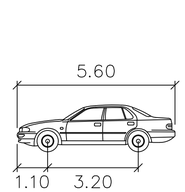
Project
890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing
FIRE TRUCK
VEHICLE TURNING DIAGRAMS

CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

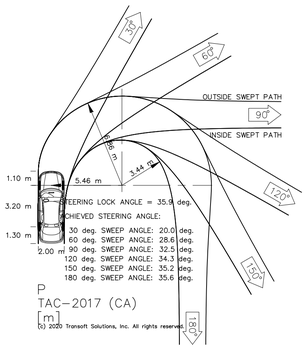
Drawn By	Design By	Project	
M.C.			154–5674
Check By	Check By	Scale	Drawing
M.Y.	M.C.	1:250	T306





P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9



5 0m 5 10 15 20
SCALE: 1:250

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Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Engineer

Project
890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing
PASSENGER CAR
VEHICLE TURNING DIAGRAMS

CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
WWW.CFCROZIER.CA

Drawn By	Design By	Project	
M.C.			154–5674
Check By	Check By	Scale	Drawing
M.Y.	M.C.	1:250	T307

5 0m 5 10 15 20

SCALE: 1:250

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Engineer

FOR REVIEW
NOT TO BE USED FOR CONSTRUCTION

Engineer

Project

890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing

SNOW PLOW TRUCK
VEHICLE TURNING DIAGRAMS

CROZIER CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
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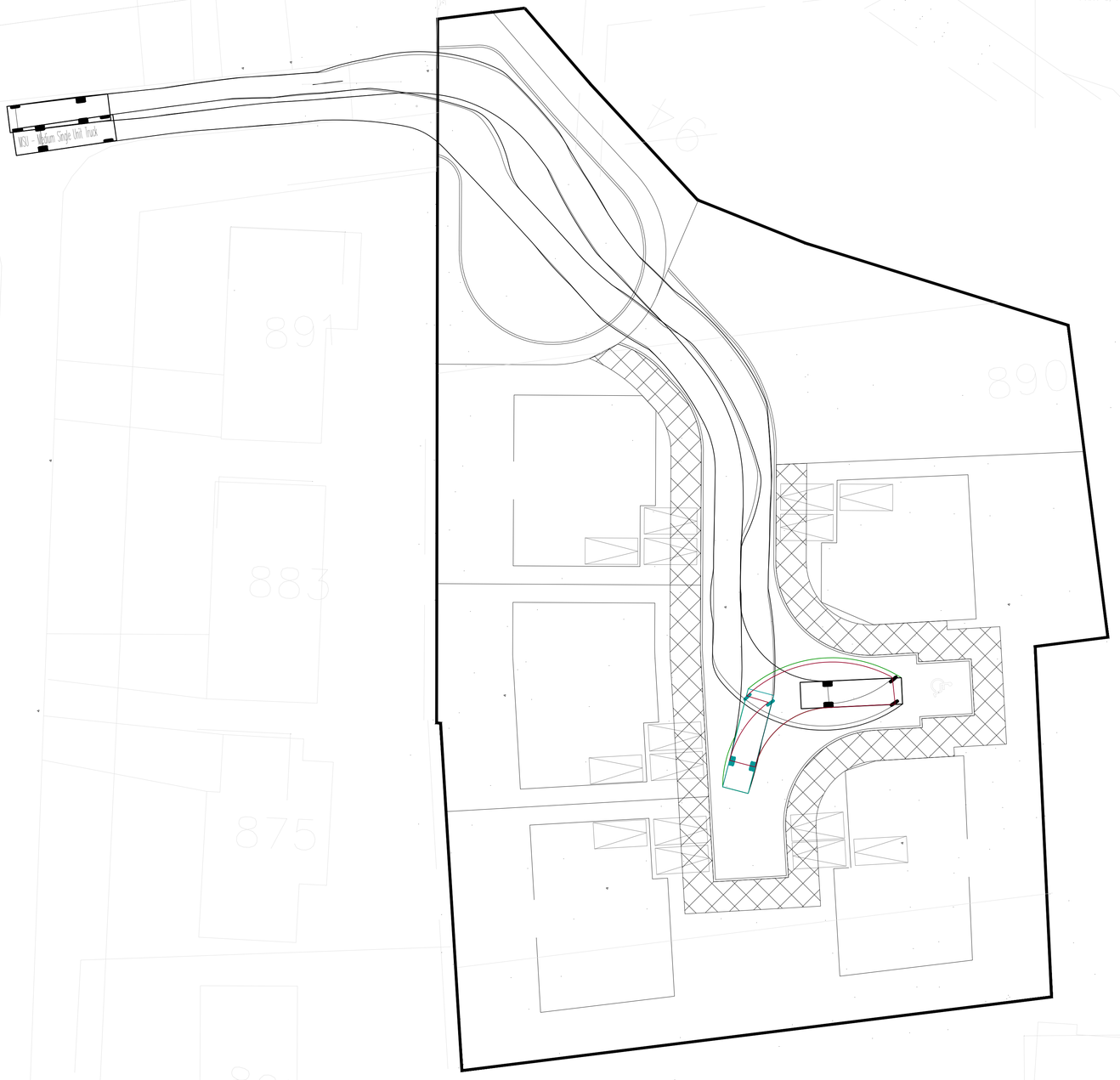
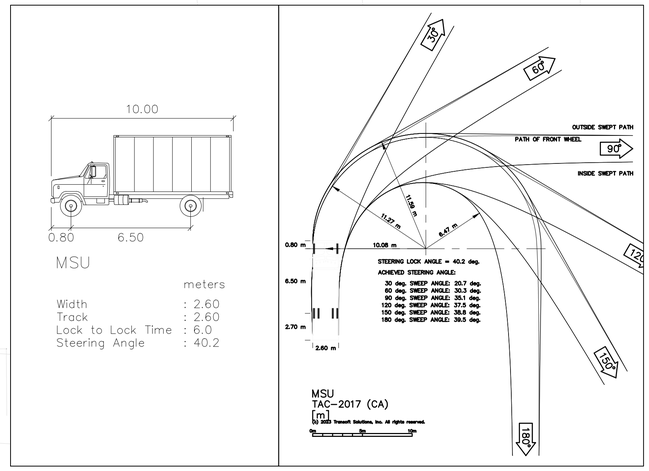
Drawn By	Design By	Project
I.A.		154-5674
Check By	**Check By**	**Scale** / **Drawing**
M.Y.	M.C.	1:250 / T308





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Engineer

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Project

890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing

MEDIUM SINGLE UNIT
VEHICLE TURNING DIAGRAMS

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
905-875-4915 F
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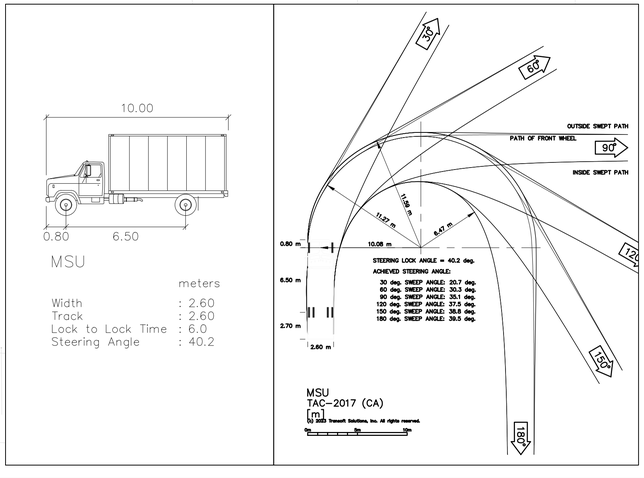
Drawn By	Design By	Project
M.C.		154-5674
Check By	Check By	Scale / Drawing
M.Y.	M.C.	1:250 / T309



5 0m 5 10 15 20
SCALE: 1:250

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Project
890 MEADOW WOOD ROAD
CITY OF MISSISSAUGA

Drawing
MEDIUM SINGLE UNIT
VEHICLE TURNING DIAGRAMS

CROZIER
CONSULTING ENGINEERS
2800 HIGH POINT DRIVE
SUITE 100
MILTON, ON L9T 6P4
905-875-0026 T
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Drawn By	Design By	Project	154–5674
M.C.			
Check By	Check By	Scale	Drawing
M.Y.	M.C.	1:250	T310