

TRANSPORTATION CONSIDERATIONS MEMORANDUM

TO:

David Bannerman, Director, Development & Operations
Rose Acquisition Corporation

FROM:

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Principal

Kyle Cory Jong, P.Eng.
Transportation Engineer

PROJECT:

6931-03
420 South Service Road – former GE Lands

DATE:

February 28, 2024

RE: REVIEW OF THE TRANSPORTATION CONSIDERATIONS OF AN TEMPORARY OUTDOOR STORAGE USE AT 420 SOUTH SERVICE ROAD, MID-TOWN, TOWN OF OAKVILLE

1.0 INTRODUCTION

BA Group is retained by The Rose Acquisition Corporation (herein referred to as the “Applicant”) to review the transportation considerations of a proposed temporary land use condition on lands known as 420 South Service Road (the “Site”), located in the Mid-town area of the Town of Oakville. The lands are also known as the former “GE Lands”.

2.0 TEMPORARY USE AND SITE CONFIGURATION DESCRIPTION

The Applicant proposes to adopt a temporary land use condition that incorporates an outdoor storage use. A **Concept Plan** prepared by MHBC is illustrated in **Appendix A**. This outdoor storage would be segregated into three basic areas as highlighted in **Drawing SPR-01**, in **Appendix B**:

- An area dedicated to the deployment of **prefabricated metal shipping containers** (2.5 m wide by 6.1 m long) placed side-by-side and back-to-back to **form individual outdoor storage units**, forming double sided rows.
 - These shipping containers would be individually accessed from the front of the container.
 - Each “row” of containers would be accessed via a 9.0 m drive aisle.
 - This storage container area is situated within the central-northern area of the Site.
 - There would be 486 storage containers placed on the site and they would remain there for the duration of the temporary use.
- An area that would accommodate the outdoor storage of passenger-sized vehicles.

- These would be configured within parking spaces with dimensions of 2.6 m (W) x 5.2 m (L) with a drive aisle of 7.0 m (W).
- These dimensions meet the Town of Oakville’s parking module width requirement (i.e., 17.4 m) and reflect a slightly narrower parking stall width (2.6 m vs. the Zoning Bylaw requirement of 2.7 m in width).
- The slightly narrower stall width reflects the use of the parking space as a “storage” area as opposed to a typical parking space which would be regularly used on a daily basis. Vehicles would be parked in these spaces for extended periods of time. The proposed parking space dimensions still provide a very manageable dimension and are commonly found in parking spaces across the Greater Toronto Area (GTA).
- A total of 308 parking spaces are configured within this area of the Site.
- An area that would accommodate the outdoor storage of larger vehicles such as Recreational Vehicles (RV’s), single unit trucks, personal trailers such as boats trailers or general-purpose trailers.
 - These parking spots would be configured with dimensions of 3.7 m (W) x 12.2 m (L) with a drive aisle of 9.0 m (W).
 - The dimensions of these spaces slightly exceed the Town of Oakville’s loading space standard dimensions, principally to facilitate the entry and exiting manoeuvres associated with the anticipated vehicles when accessed via a 9.0 m drive aisle.
 - Vehicles stored in these parking spaces would typically be stored for an extended period (winter months for boat storage, for example).
 - A total of 312 parking spaces are configured within this area of the Site.

Access to the Site for the temporary uses would occur via three driveways:

- Two (2) driveways would be situated along South Service Road at existing driveway locations to the Site, generally located at the west and east sides of the planned temporary uses to occur on the Site.
 - The driveway spacing along South Service Road is approximately 210 metres.
 - Both driveways would provide for two-way flow into and out of the Site and would both accommodate all movements at T-intersections.
 - Both driveways would be “gated” with the gates situated approximately 15 m from the end of the curb return with South Service Road. This would conform to the Suggested Clear Throat Lengths for Major Driveways as set out in the Transportation Association of Canada (TAC) Manual Table 8.9.3 – for Light Industrial land uses where access occurs from a Collector Streets (notwithstanding that South Service Road is considered a Local Road now and into the future).
 - The “gates” would be controlled using a keypad arrangement to afford security within the temporary use condition.
- An Emergency Access driveway – that would be gated shut during everyday conditions – is also proposed at the east end of Davis Road, where Davis Road terminates at the western Site boundary limits. This would not change the circumstances along Davis Road.

There would also be a small passenger vehicle parking area (12 Customer Parking spaces that meet the Town of Oakville’s Zoning Bylaw dimensions) available upon entry via the western Site access driveway on South Service Road that a visitor

could enter within having to pass through the gated control area. This would provide an opportunity for someone to arrive and clear the driveway should there be a delay in opening the gates to the controlled area. A second set of gates at the east end of the “customer parking” area would permit entry into the controlled area without the need to reorient the customer’s vehicle on the driveway leading into the Site from South Service Road.

All areas used for the Temporary Uses that would accommodate the movement of vehicles would be appropriated “hardscaped” per the Town of Oakville Zoning Bylaw requirements. The general storage area is an existing hard surfaced area on the site with no specific operations assigned to it. Access to the Site would be provided 24 hours a day via the gate-controlled entry points.

3.0 FORECAST OPERATING CONDITIONS INTERNALLY AND EXTERNAL TRAFFIC VOLUME FORECAST

BA Group has considered the operating characteristics of the various “areas” proposed as part of the temporary uses.

From a practical perspective, the Storage Container Area will function in a manner that will have the customer who has rented an individual storage container unit drive up to the specific container unit, park adjacent to it, either load or unload materials/items from the container and when finished, will exit the Site.

Similarly, a customer arriving to store a vehicle in the outdoor parking spaces would arrive, park, or collect their vehicle in/from the outdoor space and depart the Site. These trips are generally short in duration and may involve a second vehicle associated with the trip to facilitate the pick-up or drop-off activity.

3.1 Forecast Site Traffic Volumes

Given the traffic generation characteristics of storage facilities in general, whether enclosed facilities or outdoor facilities, the rate of use is extremely low. This is evidenced by the nature of vehicular trip generation observations documented by both industry standard rates and by those that BA Group has collected itself.

BA Group has conducted surveys of various storage facilities within the GTA (e.g., four such studies in the City of Toronto at similarly configured facilities) and compared these to trip generation rates that have been published in the ITE Trip Generation Manual (11th Ed.). The trip rates per 100 square metres of “GFA” compare very well. In addition, for one of the proxy locations that BA Group surveyed (the 1 Laird Drive facility), the trip rates were converted into trips rates per storage unit (since that location had some outdoor storage containers and outdoor parking spaces on the property as well as the internal storage area which was configured as a drive through operation).

These trip rates are summarized in **TABLE 1**. The “selected rates” reflect those observed at the 1 Laird Drive facility. This is to be able to apply the trip rates separately to a “GFA” associated with the Storage Container area within the Site and to the Storage Parking positions area within the Site. This way the trips forecast reflect a unit of measure similar to the areas proposed within the Temporary Land Use application.

Application of the selected trip rates per 100 square metres of GFA to the “cumulative floor area” represented within the 487 Storage Container units (each storage container has approximately 15.25 m² of internal floor area) proposed on the Site has yielded an estimated 8 two-way vehicle trips during the weekday morning peak hour, 11 two-way vehicle trips during the weekday afternoon peak hour, and 12 two-way vehicle trips during the Saturday mid-day peak hour.

Similarly, application of the selected trip rates per storage parking position to the “cumulative number of parking positions throughout the Site” (i.e., 278 passenger vehicle parking positions and 312 larger vehicle parking positions for a total of 590 parking positions overall) has yielded an estimated 7 two-way vehicle trips during the weekday morning peak hour, 9 two-way vehicle trips during the weekday afternoon peak hour, and 10 two-way vehicle trips during the Saturday mid-day peak hour.

TABLE 1 SITE TRAFFIC GENERATION

Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Mid-day Peak Hour		
	In	Out	2-Way	In	Out	2-Way			
	ITE Trip Generation Manual (11th Ed)								
Land Use Code (LUC) 151 Mini-Warehouse Trips / 100 m ² GFA ^{1,2}	0.05	0.04	0.09	0.07	0.08	0.15			
	BA Group Trip Generation Studies								
Spaces Self-Storage, 356 Eastern Avenue (12,263 m ² GFA) Trips / 100 m ² GFA	-	-	-	0.07	0.06	0.13			
StorageMart, 144 Norseman Street (8,076 m ² GFA) Trips / 100 m ² GFA	-	-	-	0.14	0.05	0.19			
Apple Self Storage, 530 Adelaide Street (12,688 m ² GFA) Trips / 100 m ² GFA	-	-	-	0.06	0.03	0.09			
XYZ Storage, 1 Laird Drive (13,815 m ² GFA indoors, plus outdoor storage containers & pkg spaces) 1466 storage units incl. indoor, outdoor & pkg spaces									
Trips / 100 m ² GFA	0.07	0.04	0.11	0.09	0.07	0.16	0.09	0.09	0.18
Trips / Storage position	0.007	0.004	0.011	0.009	0.007	0.016	0.009	0.009	0.018
Average Rate Based on Observed Data (/ 100 m ²)	0.06	0.04	0.10	0.09	0.06	0.15	0.09	0.09	0.18
	Site Traffic Generation Forecast								
Selected Rates ² Trips / 100 m ² GFA	0.07	0.04	0.11	0.09	0.07	0.16	0.09	0.09	0.18
Trips / Storage position	0.007	0.004	0.011	0.009	0.007	0.016	0.009	0.009	0.018
Total Site Traffic 487 Storage Container Area	5	3	8	6	5	11	6	6	12
590 Storage Pkg positions	4	3	7	5	4	9	5	5	10
Total Site Veh. Trips	9	6	15	11	9	20	11	11	22

Notes:

1. Trip rates from the ITE *Trip Generation Manual* have been converted from trips per 1,000 sf to trips per 100 sm.
2. Trip rates from the ITE *Trip Generation Manual* are based on site surveys conducted in the 1980's, 1990's, 2000's and 2010's in the US. The older facilities contained in these surveys likely represent less urban, older style of low-rise self-storage warehouses with drive-up units that can generate higher traffic volumes than the more urban type of facility being proposed on the site.

The total forecast vehicle trips to and from the Site during the typical peak hours of the weekday and Saturday design conditions amounts to an estimated 15 two-way vehicle trips during the weekday morning peak hour, 20 two-way vehicle trips during the weekday afternoon peak hour, and 22 two-way vehicle trips during the Saturday mid-day peak hour.

Once distributed across the various directions of approach and departure available to customers of the Site, this would amount to traffic impacts of 5 vehicles or less on the various individual turning movements at area intersections.

This impact is less than the typical daily variation in traffic on the respective turning movements and would represent a negligible impact across the public street network.

3.2 Forecast Parking Conditions

As noted above, the nature of the Site's internal operations will reflect the arrival of customer's vehicles at the entry gate, the entry of the customer's vehicle and its travel to either the rented Storage Container or to the rented Storage Parking position. Customers are highly likely to park their vehicle adjacent to their rented facility and leave it there whilst they undertake the deposit / retrieval activity associated with the Storage Container or the Storage Parking position. Once completed, the Customer would exit the Site via one of the two Site driveways on South Service Road.

The duration of stay of the customer will vary depending on their own personal circumstances. However, given the nature of traffic generation associated with these types of facilities (as evidenced by the documented vehicular trip generation rates) the likelihood of there being a cluster of customers congregating around one specific area within the Site is very low. In other words, there is a very low risk of there being several vehicles parked within one particular area within the Site coincidentally.

As such, the generous drive aisles associated with both the Storage Container area and the Storage Parking area for larger vehicle (i.e., 9.0 m drive aisles) and the standard parking module width (17.4 m accommodating a parking space, drive aisle and a parking space) in the Storage Parking area for passenger vehicles, there will be more than sufficient informal "parking" opportunities within these areas to accommodate the day-to-day activities of customer's needs without providing additional "parking areas" over and above the informal parking opportunities within the drive aisles throughout the Site.

Furthermore, the Town of Oakville's Zoning Bylaw for such uses (Commercial Self-Storage facilities) would require a minimum of 8 parking spaces, based upon the application of Zoning Bylaw 2014-014 (Table 5.2.1) to the subject site. The Temporary Use Site Plan provides 12 "Customer Parking" spaces in the northwest area of the Site, which are accessible without going into the "secure" area and meet both the zoning bylaw dimensional requirements and satisfies the minimum quantity of parking required for the proposed uses per the zoning bylaw requirements.

Vehicular parking will be more than adequately accommodated across the Site under all conditions.

With respect to the "parking space dimensions" within the passenger vehicle Storage Parking positions, these dimensions meet the Town of Oakville's parking module width requirement (i.e., 17.4 m...accommodating a parking space, drive aisle and a parking space) and reflect a slightly narrower parking stall width (2.6 m vs. the Zoning Bylaw requirement of 2.7 m in width).

The slightly narrower stall width reflects the use of the parking space as a "storage" area (which is used infrequently) as opposed to a typical parking space which would be regularly used on a daily basis. Vehicles would be parked in these spaces for extended periods of time. The proposed parking space dimensions still provide a very manageable dimension and are commonly found in parking spaces across the Greater Toronto Area (GTA). This dimension is slightly more efficient in terms of optimizing the provision of parking storage positions within the facility.

3.3 Internal Vehicular Circulation

BA Group has also reviewed the internal vehicular circulation to ensure that the Temporary Use Site Plan is capable of appropriate vehicle manoeuvring conditions and can accommodate appropriate Emergency Vehicle access and circulation.

Several “design vehicles” have been tested to ensure that vehicular circulation is appropriate in all areas of the Temporary Use Site Plan. These include:

- Ontario Building Code (OBC) Fire Route dimensions throughout the area of the Site;
- TAC HSU Heavy Single Unit vehicle
- TAC SU Single Unit Truck
- F-150 SuperCrew with 39’ Boat Trailer

These design vehicles represent a range of vehicles that are anticipated to utilize the Site in various ways. Together they represent or reflect large single unit trucks, medium sized single unit trucks, large and small Recreational vehicles configured as a single unit vehicle, large and small Recreational vehicles configured as either 5th Wheel units or standard trailer hitch units, and personal trailers for such things as boat or car trailers and personal storage trailers.

These design vehicles were assessed in various locations across the Site and in various combinations (different design vehicles parked adjacent to each other) to ensure that each type of design vehicle could enter and exit the storage parking positions appropriately and navigate the entire Site.

A series of **Vehicle Manoeuvring Diagrams** (VMD’s) are contained in **Appendix C** to demonstrate that these design vehicles can appropriately enter, exit, and manoeuvre within the proposed Temporary Use Site Plan. **Drawings VMD-01 through VMD-06** illustrate the vehicle manoeuvring characteristics of the noted design vehicles.

In addition, **Drawing FR-01**, in **Appendix D**, illustrates the Fire Route options provided across the Temporary Use Site Plan. These options permit a Fire Vehicle to traverse the site and place themselves adjacent to any Storage Container unit to ensure proximity as well as circulate within and around the parking areas. Entry and exit conditions associated with each of the three (3) driveways (2 daily use driveways and 1 Emergency Access driveway) will ensure appropriate options are available to enter and circulate and exit the Site in a forward motion.

Both Site driveways on South Service Road would be “gated” with the gates situated approximately 15 m from the end of the curb return with South Service Road. This would conform to the Suggested Clear Throat Lengths for Major Driveways as set out in the Transportation Association of Canada (TAC) Manual Table 8.9.3 – for Light Industrial land uses where access occurs from a Collector Street (notwithstanding that South Service Road is considered a Local Road now and into the future).

The “gates” would be controlled using a keypad arrangement to afford security within the temporary use condition.

An Emergency Access driveway – that would be gated shut during everyday conditions – is also proposed at the east end of Davis Road, where Davis Road terminates at the western Site boundary limits. This will not change the circumstances on Davis Road.

4.0 SUMMARY

BA Group has reviewed the Temporary Use Site Plan and associated land uses to best understand how the proposed conditions will function from a mobility and transportation perspective.

Based upon a review of the component elements of the outdoor storage temporary uses, including an area for the **outdoor Storage Containers being used as storage units**, an area that would accommodate the **outdoor storage of passenger-sized vehicles**, and an area that would accommodate the **outdoor storage of larger vehicles such as Recreational Vehicles (RV's), single unit trucks, personal trailers such as boats trailers or general-purpose trailers**, we conclude the following:

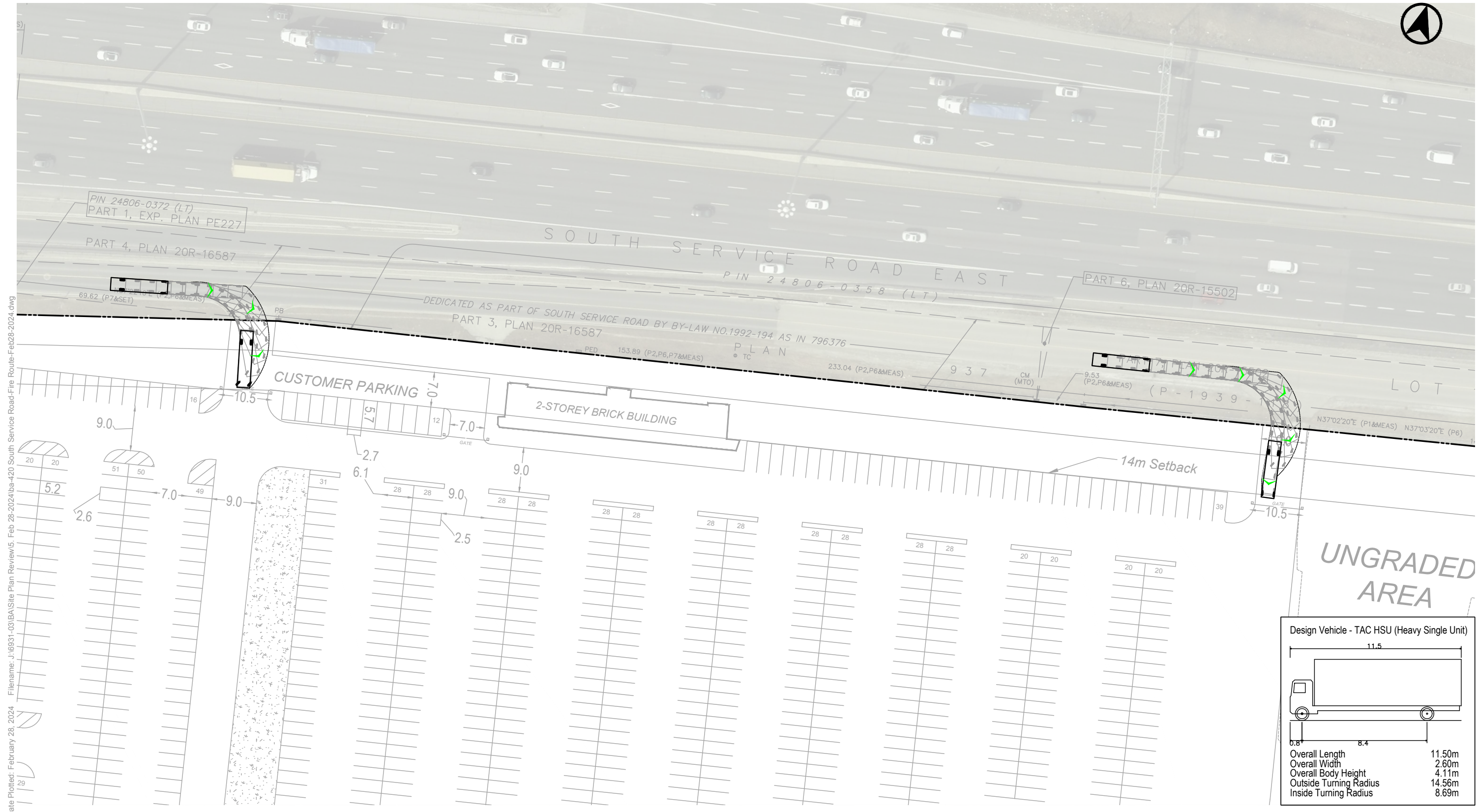
- The forecast vehicular traffic associated with the temporary land uses will generate a negligible amount of vehicular traffic during the key peak periods of the weekday and weekend conditions;
- This will result in a negligible impact on the area public street network;
- The Temporary Use Site Plan will provide more than sufficient parking for anticipated demand of customer activity and will provide the parking in a manner that will appropriately accommodate the comings and goings of customer activity;
- The access and circulation associated with the Temporary Use Site Plan is configured in a manner that will afford all anticipated design vehicles appropriate access and egress manoeuvring conditions when using the area that has the outdoor Storage Units (within the individual Containers), the area that would accommodate the outdoor storage of passenger-sized vehicles, and the area that would accommodate the outdoor storage of larger vehicles such as Recreational Vehicles (RV's), single unit trucks, personal trailers such as boats trailers or general-purpose trailers; and,
- Emergency vehicle access to and throughout the Site has also been incorporated into the Temporary Use Site Plan.

In summary, the proposed Temporary Use Site Plan and associated land uses can be appropriately accommodated by the existing public street system. The proposed access driveways – which reuse existing access driveways associated with the Site – will appropriately accommodate the entry and exit of forecast Site related traffic. Finally, the internal vehicular parking and circulation conditions will appropriately accommodate the planned design vehicles and Emergency Vehicle access and egress.

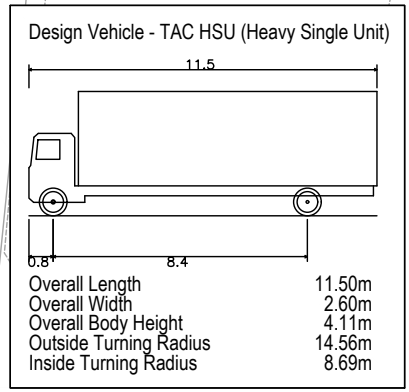
Appendix A:
Temporary Use Concept Plan, MHBC, February 27, 2024

Appendix B:
Drawing SPR-01 – Temporary Use Site Plan – Land Use Areas, BA
Group, February 28, 2024

Appendix C:
Drawings VMD-01 through VMD-06, - Vehicle Manoeuvring Diagrams -
BA Group, February 28, 2024



Date Plotted: February 28, 2024 File Name: J:\6931-03\BA\Site Plan Review\5. Feb 28-2024\ba-420 South Service Road-Fire Route-Feb28-2024.dwg

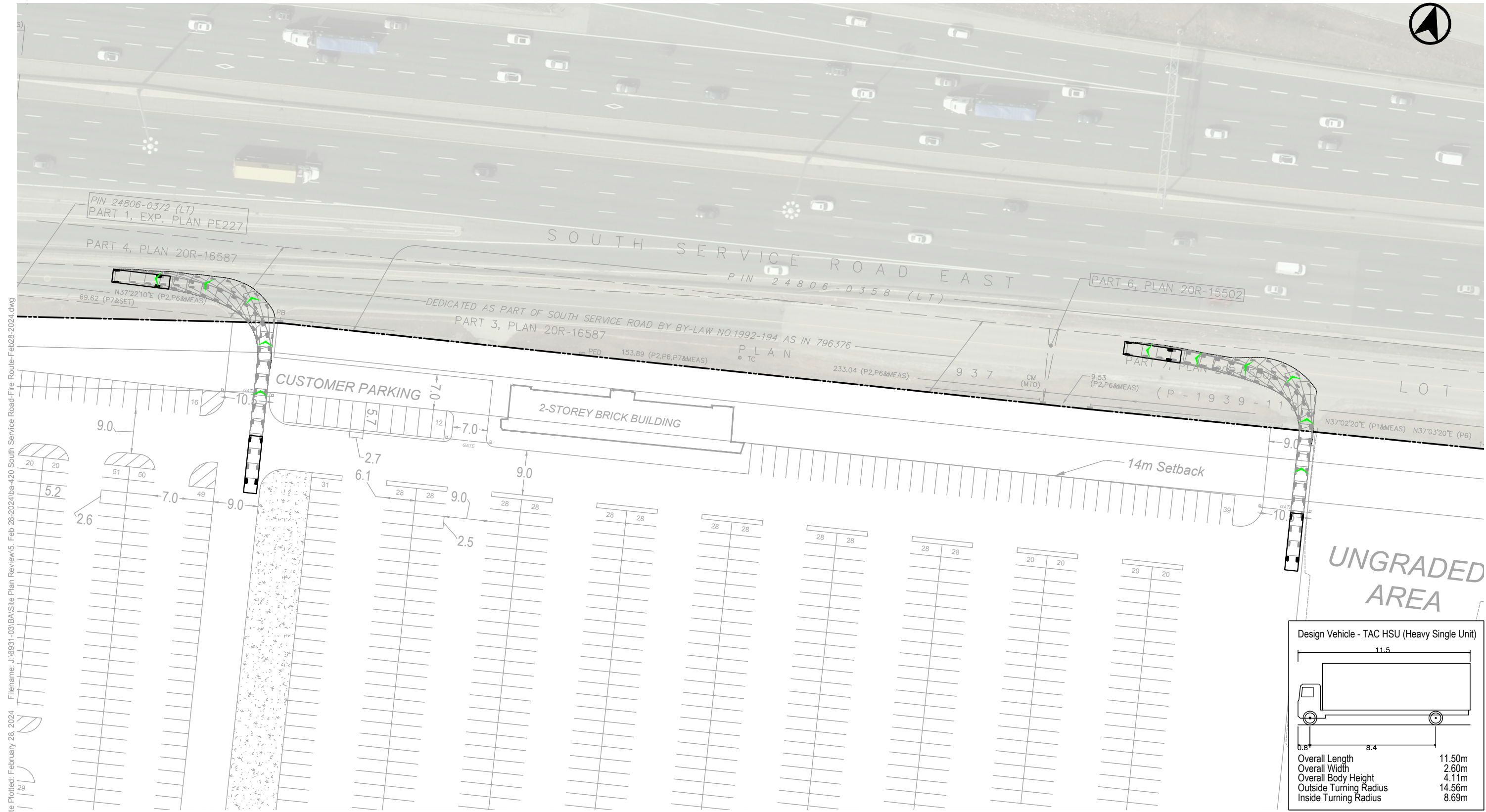


**420 SOUTH SERVICE ROAD
VEHICLE MANOEUVRING DIAGRAMS
HEAVY SINGLE UNIT TRUCK (LARGEST ANTICIPATED VEHICLE)
INBOUND**

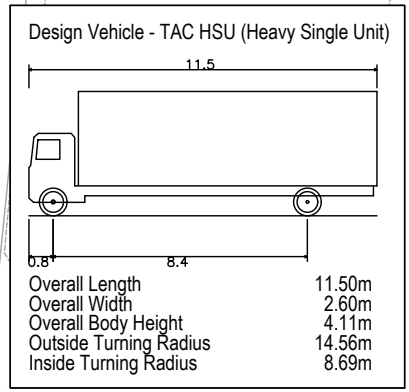
Project: 420 South Service Road
Project No. 6931-03
Date: February 28, 2024
Revised: --



Drawing No. **VMD-01**



Date Plotted: February 28, 2024 File Name: J:\6931-03\BA\Site Plan Review\5. Feb 28-2024\ba-420 South Service Road-Fire Route-Feb28-2024.dwg



420 SOUTH SERVICE ROAD
VEHICLE MANOEUVRING DIAGRAMS
HEAVY SINGLE UNIT TRUCK (LARGEST ANTICIPATED VEHICLE)
OUTBOUND

Project: 420 South Service Road
 Project No. 6931-03
 Date: February 28, 2024
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Drawing No. **VMD-02**



806-0372 (LT)
1, EXP. PLAN PE227

4, PLAN 20R-16587

SOUTH SERVICE ROAD EAST
PIN 24806-0358 (LT)

PART 6, PLAN 20R-15502

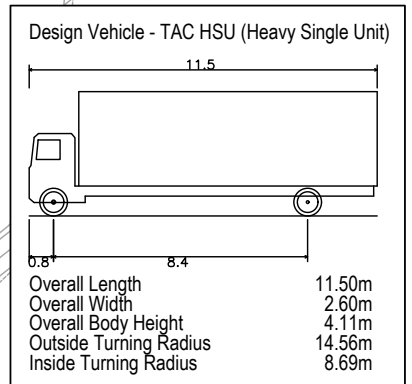
DEDICATED AS PART OF SOUTH SERVICE ROAD BY BY-LAW NO.1992-194 AS IN 796376
PART 3, PLAN 20R-16587

PART 7, PLAN 20R-15502
(P-1939-1)



Date Plotted: February 28, 2024
Filename: J:\6931-03\BA\Site Plan Reviews\5_Feb 28-2024\ba-420 South Service Road-Fire Route-Feb28-2024.dwg

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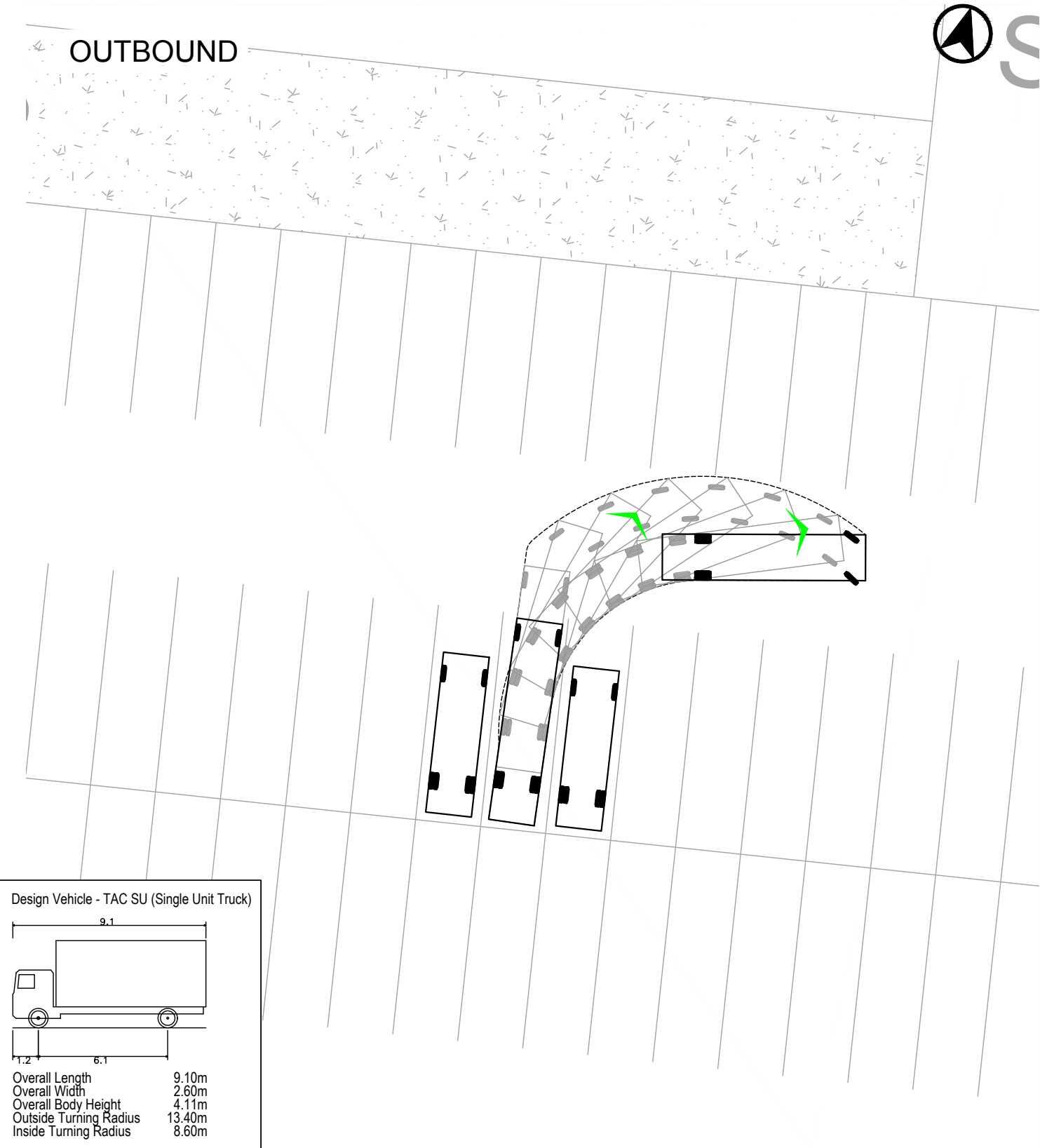
**420 SOUTH SERVICE
VEHICLE MANOEUVRING DIAGRAM
HEAVY SINGLE UNIT TRUCK
CIRCULATION**

Project: 420 South Service Road
Project No. 6931-03
Date: February 28, 2024
Revised: --

Scale: 1:1,000

Drawing No. **VMD-03**

Date Plotted: February 28, 2024 File Name: J:\6931-03\BA\Site Plan Review\5. Feb 28-2024\ba-420 South Service Road-Fire Route-Feb28-2024.dwg

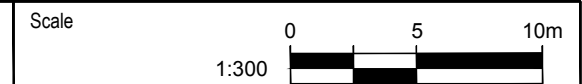


Design Vehicle - TAC HSU (Heavy Single Unit)		Design Vehicle - TAC SU (Single Unit Truck)	
Overall Length	11.50m	Overall Length	9.10m
Overall Width	2.60m	Overall Width	2.60m
Overall Body Height	4.11m	Overall Body Height	4.11m
Outside Turning Radius	14.56m	Outside Turning Radius	13.40m
Inside Turning Radius	8.69m	Inside Turning Radius	8.60m



420 SOUTH SERVICE ROAD
VEHICLE MANOEUVRING DIAGRAMS - RV AND TRAILER PARKING AREA
HEAVY SINGLE UNIT TRUCK (LARGEST ANTICIPATED VEHICLE)
ADJACENT TO SINGLE UNIT TRUCKS

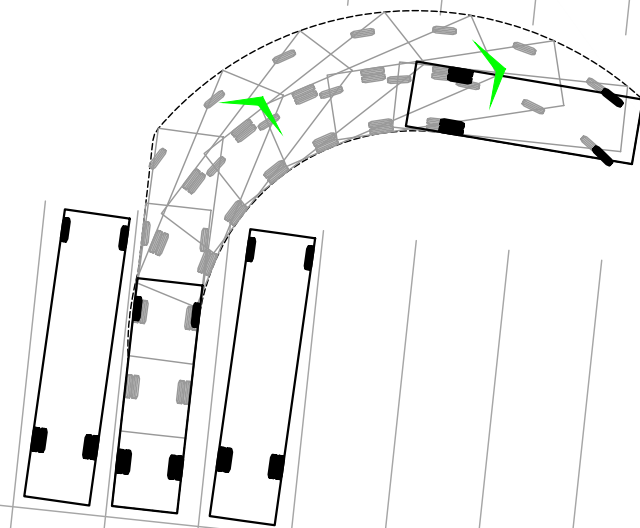
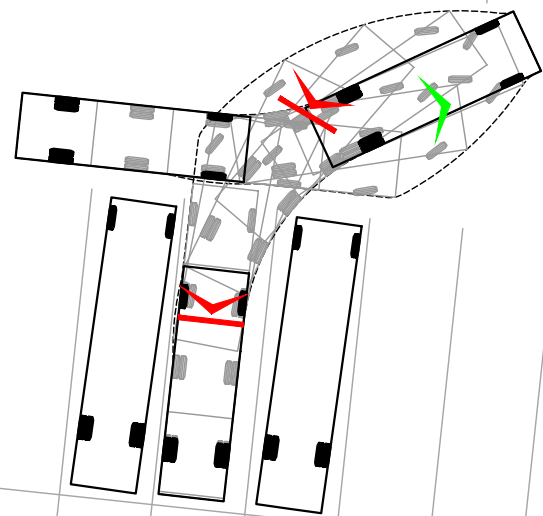
Project: 420 South Service Road
 Project No. 6931-03
 Date: February 28, 2024
 Revised: --



Drawing No. **VMD-04**

INBOUND
Stone Slope

OUTBOUND
Stone Slope



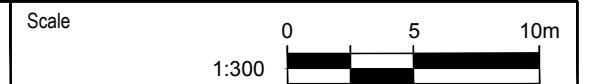
Design Vehicle - TAC HSU (Heavy Single Unit)		Design Vehicle - TAC SU (Single Unit Truck)	
Overall Length	11.50m	Overall Length	9.10m
Overall Width	2.60m	Overall Width	2.60m
Overall Body Height	4.11m	Overall Body Height	4.11m
Outside Turning Radius	14.56m	Outside Turning Radius	13.40m
Inside Turning Radius	8.69m	Inside Turning Radius	8.60m

Date Plotted: February 28, 2024 File Name: J:\6931-03\BA\Site Plan Review\5. Feb 28-2024\ba-420 South Service Road-Fire Route-Feb28-2024.dwg



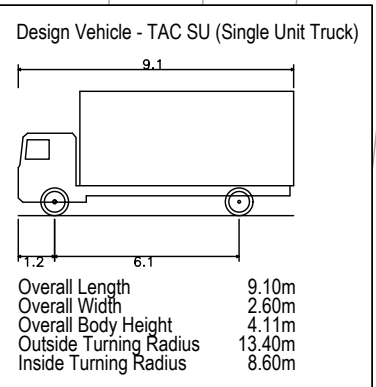
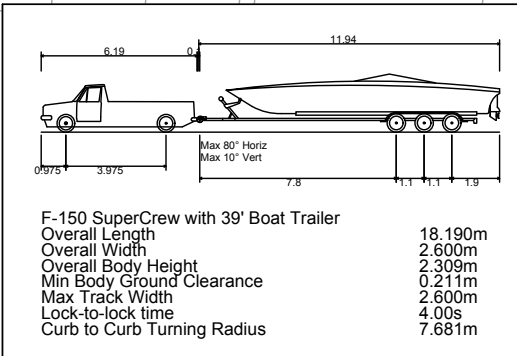
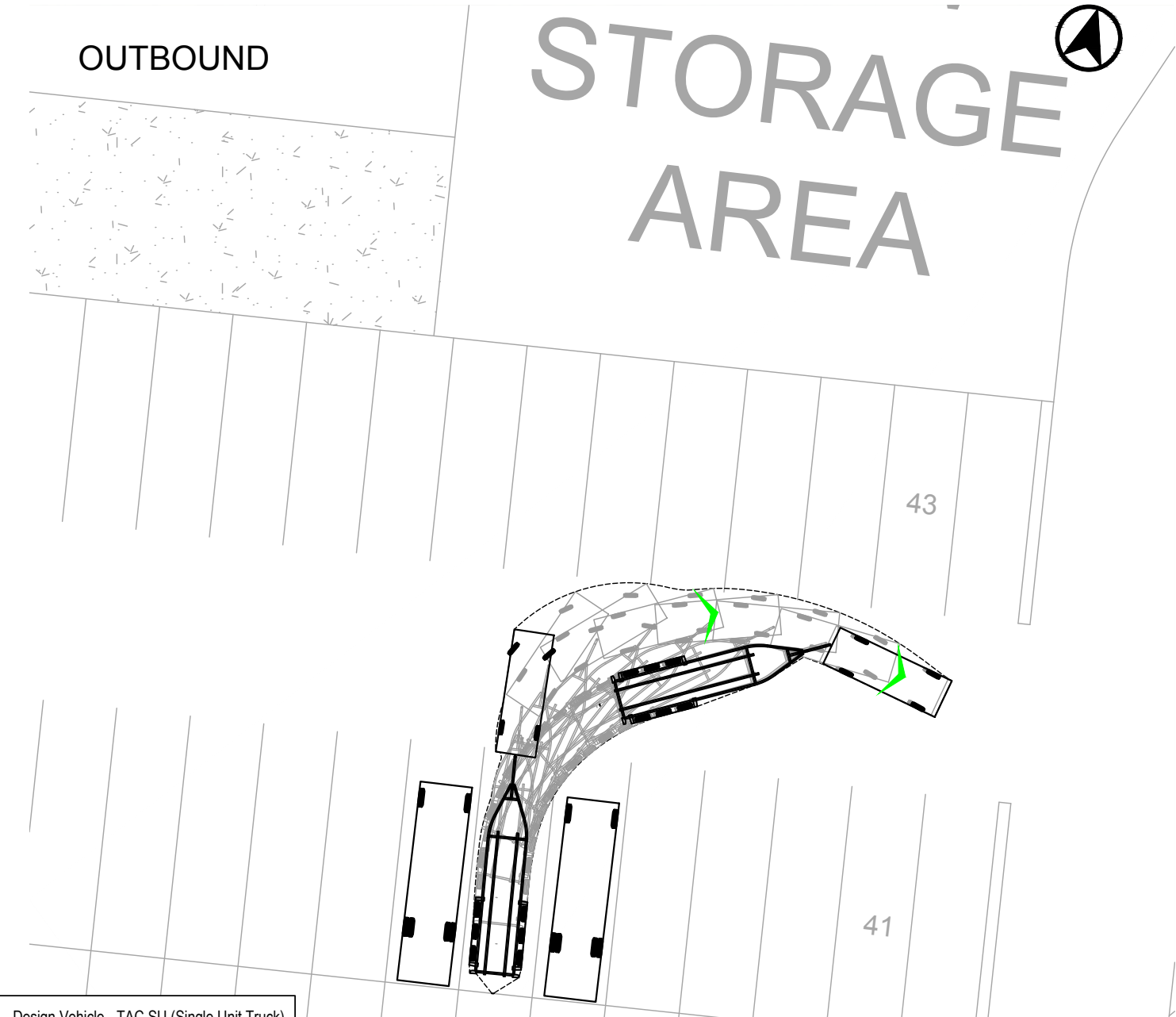
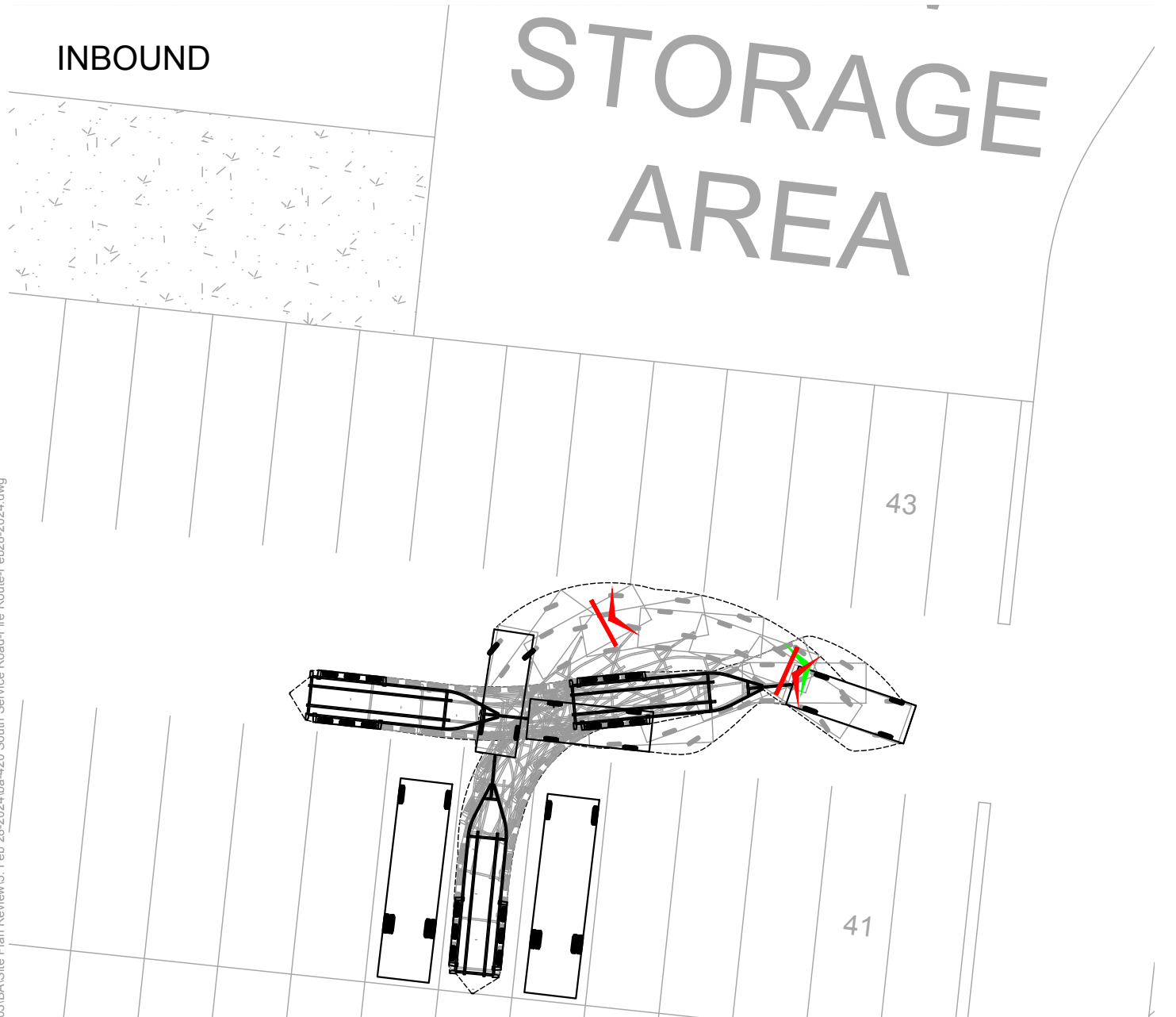
420 SOUTH SERVICE ROAD
 VEHICLE MANOEUVRING DIAGRAMS - RV AND TRAILER PARKING AREA
 SINGLE UNIT TRUCK
 ADJACENT TO HEAVY SINGLE UNIT TRUCKS

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Drawing No. **VMD-05**

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420 SOUTH SERVICE ROAD
VEHICLE MANOEUVRING DIAGRAMS - RV AND TRAILER PARKING AREA
F-150 TRUCK WITH TRAILER
ADJACENT TO SINGLE UNIT TRUCKS

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 Revised: --

Scale 1:300

Drawing No. **VMD-06**

Appendix D:
Drawing FR-01 - Fire Route, BA Group, February 28, 2024

