

# A Simplified Preliminary Economic and Technical Assessment of Prairie Sky Gondola Inc.

PREPARED BY: **PRAIRIE SKY GONDOLA INC.**  
IN COLLABORATION WITH **DIALOG AND SCJ ALLIANCE**



**PRAIRIE SKY**  
**GONDOLA**



November 12, 2019

Dear City of Edmonton,

I would like to thank you for the exceptional collaboration that ensured the outcome of this feasibility report was valid. We would not have been able to submit this if it were not for the engagement from you and your agencies. We hired the brightest minds to lead the development of this report but it was your participation that gave it credibility.

As easy as it is for the conversation we are having to be tangled up in just the 'gondola', I encourage you to stand back and look at what we have achieved. Together. Almost accidentally, we have changed the narrative on city building.

Cities are in search of new and innovative ways to engage the private sector in generating real public value. We are not in the gondola business. We are in the city building business.

This economic and technical assessment will speak for itself. It is a compelling 'GO'. When you are done reading this, pat yourself on the back. Not many cities would enable a company like Prairie Sky to achieve what it has.

When I first heard the gondola idea, I thought it was silly, too. Look how far we have come.

Sincerely,

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November 7<sup>th</sup>, 2019

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Dear Mr. Hansen-Carlsen,

**Re: Simplified Preliminary Economic and Technical Assessment Report  
Prairie Sky Gondola  
01777E0100**

This letter is to confirm that DIALOG was retained by Prairie Sky Gondola Inc. to provide services during the phase one simplified Preliminary Economic and Technical Assessment (PETA) of the Prairie Sky Gondola project. DIALOG was a participating member in the PETA working group and provided, as well as collected data to inform the technical assessment of the system. In addition, DIALOG provided project management services throughout the project.

In collaboration with Prairie Sky Gondola Inc. and SCJ Alliance, DIALOG has compiled and prepared the report entitled "A Simplified Preliminary Economic and Technical Assessment of Prairie Sky Gondola Inc."

Yours truly,

**DIALOG® Alberta Architecture Engineering Interior Design Planning Inc.**

Per:

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**October 31, 2019**

**Jeffrey Hansen-Carlson**  
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**Re: Draft Submission of PETA Support Materials**

Dear Jeffrey,

Please see attached the required analysis, preliminary engineering and other materials in support of Prairie Sky Gondola, Inc.'s Preliminary Economic & Technical Assessment (PETA) submission to Edmonton City Council.

The analysis, commentary and engineering drawings contained herein are based upon the decades of experience the SCJ Alliance team possesses in the cable car industry and, as such, represents our best thinking and recommendations.

Sincerely,



Steven Dale, Principal  
SCJ Alliance



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# 1 Introduction

## 1.1 About Prairie Sky

Prairie Sky Gondola Inc. (Prairie Sky) is a private company based in Edmonton, Alberta, seeking to develop a year-round, winter city friendly urban gondola. The system is designed to satisfy urban commuters, recreational users, and tourists.

## 1.2 Background and Purpose

The purpose of this report is to respond to a Council motion that allowed Prairie Sky to move forward with preliminary economic and technical feasibility (PETA) work. Prairie Sky Gondola Inc. has retained Dialog, SCJ Alliance, Williams Engineering, and EllisDon to contribute expertise to support an informed decision on feasibility and a strategy to move forward.

## 1.3 Report Outcome

The conclusion of this report is that Prairie Sky is both technically viable as infrastructure and financially sustainable as a private enterprise.

Prairie Sky will create 39 full-time jobs plus many other part time jobs once the system is operational and approximately 120 during the 18-month construction and commissioning period. Prairie Sky should anticipate 637,000 unique customers in its first year of operations. Some of these customers will ride the system more than once during the year. It is expected that Prairie Sky will provide a total of 3,062,000 trips in the first year. The system will not only provide a utility that complements the existing infrastructure of ETS, it will provide a significant positive economic impact within the core by unlocking recreational and tourism opportunities.

A preliminary opinion on the economic impact of the project has been provided jointly by Kent Stuart RPP, MCIP, CMC of Western Management Consultants and Dr. Atif Kubursi, Professor Emeritus of Economics at McMaster University, President of Econometric Research Ltd, and Executive Secretary of the United Nations Economic and Social Commission. They believe the positive economic impact within Edmonton cannot be understated and should be taken very seriously.

## 2 Partnership Strategy with the City of Edmonton

The culture of Prairie Sky has been evident over the past year. The team collaboratively worked through the transition from an ad hoc group of citizens inspired by a big idea to a private company with a strong capital structure, an influential board, and a management team with the capacity to execute.

Prairie Sky embraced a broad partnership philosophy which underwrote the success of the PETA working group. This group consisted of members from the City of Edmonton, Winter City Strategy team, Old Strathcona Business Association, Downtown Business Association, Tourism Edmonton, EIA, Edmonton Transit Services, Edmonton Economic Development Corp. (EEDC), River Valley Alliance, EPCOR, relevant technical experts from Dialog and SCJ Alliance and members of the Prairie Sky team.

The PETA working group worked together to gather facts, data, and actionable insight meant to inform the outcome of this report. During the process, alignment with numerous City of Edmonton strategic initiatives became apparent.

### 2.1 General Assumptions

For the purposes of the development of an urban gondola the alignment air rights and concurrent permitting are critical outcomes of ongoing discussions.

#### 2.1.1 Partnership Philosophy with the City of Edmonton

We are seeking a partnership with the City of Edmonton because it maximizes public benefit and economic impact and ensures alignment with current policy – but we are not asking for city money. It is important to us that our values continue to align with the City. The structure of this partnering philosophy will be further defined in the master agreement framework we propose to negotiate with Administration.

The nature of the partnership will exist for a defined term in which we are the sole provider of urban gondola development on alignments from downtown to West Rosedale, to Old Strathcona and the University district.

#### 2.1.2 Edmonton Transit Service (ETS)

ETS was part of the PETA working group since its inception and provided crucial data on the way people move. The household travel patterns survey was used to inform our projections. This effort demonstrated a real city building opportunity. The general opinion of ETS became that the Prairie Sky project will complement their existing infrastructure and enhance ridership on the public system.

Prairie Sky has committed to ETS to integrate ‘smart card’ technology for urban commuters and ensure a seamless transition to various other modes of transportation. Prairie Sky and ETS have also established the basic principles of the partnership. This partnership sees ETS selling a gondola add-on to conventional ETS pass buyers. This fare class is meant to provide a public benefit to ETS users. The nature of the partnership with ETS implies an ongoing working relationship but Prairie Sky is not looking for a financial investment from ETS.

#### 2.1.3 Tourism and Recreation

Tourism Edmonton, EEDC, and the River Valley Alliance were active participants in the PETA working group. These three agencies were critical in allowing Prairie Sky to understand the demand Edmontonians have to want to touch the river year-round; the opportunity for Edmonton to house a

tourism asset in the urban centre; and the positive economic impact commercial activation of the power plant and the West Rosssdale community would generate.

Prairie Sky represents an unbounded and winter city friendly tourism opportunity in a format that satisfies a backlog of demand for Edmontonians to experience the river valley in new and innovative ways.

It is the intent of Prairie Sky to generate an events and festival business in West Rosssdale. Prairie Sky has initiated conversations with EIA, Tourism Edmonton, downtown hotels, and local and international independent tour operators about packaging experiences that not only encourage people to stay in Edmonton longer, but create a platform to educate guests to Edmonton on the 8000-year story of West Rosssdale.

#### 2.1.4 Real Estate – Stations and Towers

Prairie Sky has selected an alignment for both stations and towers that utilize City owned real estate that is underutilized or very challenging to conventionally develop. By its nature, the real estate footprint of urban gondola infrastructure is minimal. The proposed alignment also does not restrict future development of privately-owned land.

Prairie Sky proposes to present an option to purchase required land for stations and towers at market value. This option, for which Prairie Sky pays nominal consideration now, is exercisable for as long as the partnership defined in the master agreement framework exists. The transaction market value of land on January 1, 2020 is proposed to be fixed and carried over to the option contract.

Upon exercise of the option to purchase land for fair market value and during final negotiation of the real estate transactions, Prairie Sky proposes that the mutually agreed to economic impact and quantified public benefit of the project will be considered as part of the fair market value exchange.

## 2.2 Capital Plan Summary

Prairie Sky intends to fund all project development with equity. The investors range from wealthy individuals, established companies, and venture capital funds. The investors to date are concentrated in Western Canada.

A select group of investors and advisors in the Prairie Sky project currently own gondola and other related assets in other markets. They understand the value creation potential of this project and the importance of alignment with the City. Prairie Sky has been fortunate to have their wisdom, experience, and capital guide project development to date.

Prairie Sky retained capital and legal advisors to develop a capital plan that ensured that equity fundraising and value creation milestones during project development were in sync. This approach to funding infrastructure was innovative and it has earned the attention of national infrastructure funds, private bankers, and additional venture capital firms. Prairie Sky has stringent non-disclosure agreements in place with prospective institutional partners. Currently, infrastructure advisory services are being shared between two national firms to keep all available options on the equity and debt stack moving forward on the table.

As of the date of this report, Prairie Sky has 18 investors and is currently working through commitments from an additional 19. The capital plan has two classes of shares: a common share and a convertible



preferred share. There is a minimum number of shares investors must purchase. At this time a significant majority of investors have taken more than the minimum. Currently on offer is the convertible preferred share, this fundraising round closes on Dec 6, 2019. No additional common shares are on offer at this time.

## 2.3 Community Engagement

The Prairie Sky team has presented the project to a range of stakeholders dozens of times so far and continues to do so. Many letters of support have been gathered and shared with the City.

At this point, it is important to highlight how closely Prairie Sky has worked with the River Crossing Vision and Touch the Water Promenade teams. Both groups would agree on the positive impact this project has on their respective projects. They would also echo the general position that the Prairie Sky project aligns with the City's current and forward-looking strategic initiatives.

The level of engagement the Prairie Sky team has had with the indigenous communities is unprecedented. The team has taken the time to understand the history, stories, and unique cultures of those that have a strong connection to the land. Prairie Sky has met with many indigenous individuals and groups to find a mutual understanding that allows us to move forward. The significance of the 8000-year history of West Rosedale cannot be understated; the entire experience of Prairie Sky will share and celebrate the people and the land. Prairie Sky has met with the following individuals who are in favour of the proposed project:

- Grand Chief Willy Littlechild, Grand Chief of Treaty No. 6
- Chief Calvin Brunaue, Chief of Papaschase First Nation
- Chief Billy Morin, Chief of Enoch Cree Nation

Our commitment to these individuals was to continue to engage and consult as the project evolves and to explore all available partnership opportunities.

## 2.4 Board and Governance

The board of directors of Prairie Sky will be publicly announced in January 2020. This group consists of strategic individuals with demonstrated ability to provide good governance to complex and rapidly growing organizations.

It is the intent of the board of directors to achieve a B-Corp certification where the social purpose of the company is balanced against conventional profit motives to generate a more holistic view of value – the triple bottom line.

### 2.4.1 Management Team

The executive management team in place that has led, and will continue to lead Prairie Sky is:

- Jeffrey Hansen-Carlson MBA – President and CEO
- Joe Huising CPA, CFA – Chief Financial Officer
- Georg Josi P.Eng., PhD – VP Project Development

## 3 Technical Assessment

A desktop study was undertaken to identify potential technical constraints and conditions that could impact the Prairie Sky project. The main objectives of the study were to determine the optimal alignment with regards to station and tower locations and to inform the selection of the electrical and mechanical gondola system and technology.

### 3.1 Route Alignment

Station locations and associated ropeline profiles were selected based upon the following parameters:

- Avoiding flying over privately-owned lands, whether developed or not.
- Integration with the power plant in West Rosedale.
- Avoiding EPCOR's critical infrastructure.
- Avoiding travelling over the baseball stadium.
- Integration with existing ETS infrastructure.
- Minimizing the number of towers as well as tower heights;

The conditions listed above necessitated increasing the number of stations for the project from an initial conception of three to five, including a station at the End of Steel Park to achieve an alignment that avoids traversing the buildings located directly west of Gateway Boulevard and south of Saskatchewan Drive. Furthermore, the towers in the vicinity of the Rosedale Station were sized to avoid potential privacy issues with residents of the nearby condominium towers.

The final route alignment and station locations for the Prairie Sky Gondola are shown in Figure 1. A blown-up plan alignment is also provided in Appendix A. The presented alignment provides excellent connectivity between Old Strathcona, West Rosedale and downtown. Each station has a unique value proposition in its immediate vicinity and also along the greater alignment.

The Downtown Station will be located immediately south of MacDonald Drive in proximity of TELUS House and ATB Tower. This station will rejuvenate the adjacent park area and activate the tunnel that goes under MacDonald Drive into the large commercial space within the podium of the towers. The property owner has written a letter of support for Prairie Sky. Also, the owner is currently undertaking a significant redevelopment and modernization of the commercial space and the Prairie Sky team has been engaged in this process. The Downtown Station provides direct connectivity to the pedway system, the LRT, the bus exchange, the bike network and the funicular. It will have limited commercial programming given much of those programming opportunities will exist within the commercial space in the podium of Telus House and the ATB Tower.

The North Rosedale Station is located to act as a catalyst for transit orientated development (TOD). This station will immediately serve the population that lives north of 97th Ave. With improvements to pedestrian infrastructure to the south of the station, it will also connect residents of the future River Crossing Vision development south of 97 Ave to the Prairie Sky system and its destinations in downtown and Strathcona.

The Power Plant Station is the experiential destination on the alignment. It will be commercially programmed with various dining, interpretive, and winter city friendly options and amenities. The intent of this station is to create an experience that brings tourists and recreational users to the power plant and river. Currently, Prairie Sky has no plans to activate the power plant itself. This station complements

and enhances the objectives of the River Crossing Vision and Touch the Water Promenade plans. It also is a bold commitment to winter city objectives.



Figure 1: Overall view of the Prairie Sky system alignment (Taken from Google Earth and modified)

The End of Steel Park Station, although being primarily required for alignment reasons as stated above, will be designed to enhance TOD opportunities at the intersection of Gateway Boulevard and

Saskatchewan Drive. This station will be minimally programmed. It will be located immediately west of the train and track stationed in the park.

The Whyte Ave Station will be located at the north-east corner of the intersection of Whyte Ave and Gateway Boulevard. This station will be primarily programmed as the start and end point for tourists and will include commercial programming, parking for tour buses, space for Tourism Edmonton, central ticketing for festivals and events, and public realm to accommodate the pedestrian traffic in the area.

### 3.1.1 Technology Selection

Multi-section aerial gondola systems can only be accomplished using “detachable” technologies, and therefore, three major technologies were considered:

- Monocable Detachable Gondolas
- Bicable Detachable Gondolas
- Tricable Detachable Gondolas

The latest generation of gondolas have generally not used Bicables, as their price premium compared to the Monocable system does not justify the marginal improved performance and capacity. Further, Bicables are only being offered by a single supplier, which limits supplier choice and hence, they were discounted from further consideration.

Tricable technology does provide advantages over Monocable technology in terms of speed, capacity, and stability. However, the cost of the electro-mechanical equipment of a Tricable system can be three times the price. Given the conditions and capacity required for Prairie Sky to safely operate 360 days a year, for 16 hours a day, a Monocable Detachable Gondola was selected.

Table 1 provides a summary of relevant Monocable system specifications for the project.

*Table 1: A summary of important technical parameters for the cable car system*

<b>Parameter</b>	<b>Technical Measure</b>
System Speed	5 metres / second
System Capacity	1,800 persons per hour per direction
Inclined Length	2,545 metres
Horizontal Length	2,544 metres
Number of Towers	20 (including 8 entry/exit towers)
Number of Cabins	78
Cabin Capacity	10
System Headways	20 seconds between vehicles
Cabin Spacing	102 metres
One-Way Travel Time (End-to-End)	Apx. 12 minutes



### 3.1.2 Ropeline Profile

Preliminary ropeline profiles for the full alignment are provided in Appendix A. The profile illustrates the station locations relative to one another, the number and height of towers and the provided clearance above the river valley. The ropeline profile was optimized by minimizing wear and tear on the electro-mechanical equipment, while maximizing rider comfort. Preliminary schematic station designs are also included. These drawings are programmatic only and are indicative of what is required at each station, including the space required for each room and the generalized relationships between them.

The Prairie Sky Gondola system will have 20 towers spaced approximately every 120 m with the tallest rising 76.2 m above ground. The tower spacing and locations were chosen to avoid existing ground obstacles such as roads, the river, utilities, etc. Privacy concerns along the north leg of the alignment required taller towers to ensure that the cabins will pass above the nearby residential tower buildings.

## 3.2 Sustainability

Urban gondola systems are energy efficient and have a very small environmental footprint. Compared to other forms of mass transit such as buses, streetcar and LRT, they have the lowest emissions per passenger kilometer. Additionally, their average power consumption is 0.1 KW per passenger per kilometer, which is one of the lowest energy uses in mass transit. Sustainability is extremely important to Prairie Sky and options such as using solar energy to power AC and Wifi within the cabins will be investigated.

## 3.3 Conditions along Route

### 3.3.1 Archeological Conditions

The West Rosssdale area is known to be archeologically sensitive and contains many important cultural resource sites. This area is called the Rosssdale Flats and represents the earliest settlements and trading posts in Edmonton. It was used by the Indigenous Peoples as a gathering place for trade, celebration, and ceremony. A portion of the site was also used as a burial ground.

Many developments have occurred in the Rosssdale Flats area, most notably the EPCOR campus comprised of the power plant, substation and water reservoirs. Additionally, the Walterdale Bridge was recently completed to the west of this site. As such, numerous archeological studies have been conducted in the disturbed region to preserve any artifacts and document areas of historical significance. Period artifacts including a well-preserved campsite have been discovered in the Rosssdale area.

The plan in Figure 2 shows the results of a recent archaeological desktop study of the area provided by EPCOR. The different colors in the figure represent differing levels of historical sensitivity and significance.

- Red: The Fort Edmonton Burial Ground with the highest level of archeological sensitivity.
- Orange: Overall, highly disturbed with pockets of undisturbed areas shown to contain historic material.
- Yellow: Highly disturbed. Any undisturbed areas are not anticipated to be important archeologically.
- Green: No further archeological investigation required.



Figure 2: Archeological Sensitivity in Rossdale Area (Provided by EPCOR)

Due to the high sensitivity of the burial grounds, the route alignment was chosen to not pass over or near this area to respect its cultural significance to the Indigenous Peoples. The chosen alignment is superimposed on the archeological sensitivity map and shows that the Power Plant Station and subsequent towers fall within the orange zone. This zone is classified as highly disturbed due to previous developments in the area, with the possibility of undisturbed regions containing important historical material. As such, Prairie Sky is dedicated to commissioning an archeological investigation if deemed necessary, and at minimum monitoring the area during development.

No other locations along the gondola alignment were identified to have substantial archeological significance.

### 3.3.2 Geotechnical Conditions

The scope of this study does not include a detailed analysis of the geotechnical features of the project. However, the stations and ropeway alignments have been located in areas that limit the system's exposure to controversial geological features.

Site investigations and a review of previous studies of the geology reveal that the areas the cable car will travel through in the vicinity of the Power Plant and North Rossdale Stations are characterized by alluvial deposits of gravel, sand and silt, which are not ideal for the construction of foundations. On both top of banks at the locations of the Downtown and End of Steel Park Stations, some slope instabilities and soil erosion have been observed. These features will require more investigations in the next phases of the project, but by no means invalidate the cable car from a technical standpoint. For example, from a geological standpoint it would be more desirable to locate the Downtown Station with a set-back from the valley ridge, however, this would conflict with the existing built form, resulting in a more complex and costly solution. Similarly, in West Rossdale, the selected alignment gave preference to navigate the



numerous buildings, EPCOR's infrastructure, privately-owned lands in Rosssdale and archaeologically sensitive areas to the north-west of the power plant and is considered the most viable.

It is important to note that no geotechnical consultant was retained for the simplified PETA and that the consultants having prepared this report are not qualified geologists.

### 3.3.3 Utilities

An investigation was carried out by members of the PETA working group to gather information related to utilities along the alignment. Locations of underground sanitary, storm and water lines were determined. In general, underground services are located within road right-of-way and are not anticipated to pose any significant concern to the project. Prairie Sky is anticipating that minor relocations may be required once final tower locations are laid out and station pre-design is complete.

The EPCOR site in West Rosssdale, and specifically the presence of the substation and water reservoir, were major constraints in determining the final alignment of the gondola. Multiple discussions were had with EPCOR to determine what locations, if any, were restricted and where towers and stations could be placed on this land. The main challenge was the substation, which is located directly north of the power plant, as this area was identified as critical infrastructure with a strict no-fly zone, including a buffer from the edge of the substation to the dynamic envelope of the gondola. Airspace over the water reservoir is not restricted, but towers may not be constructed in this area.

Great care was taken to ensure that these rules were respected while determining the alignment. Figure 3 shows the alignment through the EPCOR lands and how it was threaded between the substation and water reservoir to avoid both structures.



Figure 3: Prairie Sky Alignment through the EPCOR lands (Taken from EPCOR and modified)

A visual inspection of all above grade utility infrastructure was completed on August 4, 2019 by members of the PETA working group. The full alignment was walked, and nothing was observed to be in conflict.

Overall, the locations of underground and aerial utilities do not pose any noteworthy risks to the Prairie Sky project. Tower locations will be finalized and adjusted to minimize disturbance to existing utilities. Utility requirements for the stations will be determined in the next stage of the project.

#### 3.3.4 Wind Speeds

A scan of publicly available wind data shows that Edmonton experiences a consistent pattern of breezes of 10-15 km/h throughout the year, with wind gusts regularly reaching 40-60 km/h. Monocable gondola technology (the technology selected for this system) has a generally accepted upper limit of operations of 60 km/h.

All cable car systems are designed with automated wind measuring equipment that sound warnings and, in some cases, automatically adjust system speeds to compensate for high winds. These visible and audible warnings will result in the increased attention of the operators and observation of the line.

Wind gusts exceeding the limits of a Monocable system have been observed in the data and could result in short, infrequent shut-downs of the system. This is not uncommon within the cable car industry and is dealt with routinely.

As the wind data is from observations gathered by various Environment Canada datasets rather than an analysis of wind conditions specific to the system's location, there remain some uncertainties regarding the effect of wind on the operation of the gondola. The topography of the river valley will likely have an impact on wind direction, which is as much a consideration in system planning as wind speed itself.

It is common for cable car systems at this stage of analysis to have uncertainties pertaining to the effects of wind. Optimization of the system and proper dimensioning of the equipment can minimize these impacts. At the next stage of project development, project-specific wind load tests (at the specific sites) from a competent institution familiar with regional wind characteristics will be required. These certified tests will provide maximum dynamic pressure data that will be the basis for optimizing and dimensioning all cable car components.

#### 3.3.5 Environmental Permits

As the Prairie Sky gondola project is within Edmonton's river valley, environmental permits will be required. At this stage, a list of potential permits and legislation has been compiled to inform the project as it progresses. The Prairie Sky team has met with the provincial ministries of transportation and infrastructure. The Minister of Infrastructure has identified his chief of staff as the project's primary liaison for the Legislature and the provincial government.

Provincial Approvals:

- **Water Act:** This act requires approval for any "company planning an activity that may affect the land or vegetation under or around a water body, or may affect the location, flor or quality of the water or aquatic environment" (Government of Alberta, 2019). The gondola alignment requires towers to be constructed on the north and south riverbanks of the North

Saskatchewan River. Measures will be taken to minimize negative impacts to the river, however a permit will need to be obtained prior to construction work.

- Public Lands Act: “A Public Lands disposition is required by law before entering onto or initiating any activity or work on public lands” (Government of Alberta, 2019). Any activity impacting the bed and shore of water bodies is included in this act. Again, this permit will apply to the towers being constructed on the riverbanks.
- Environmental Assessment: This examines “the effects of a project on the surrounding environment and determines whether the project is in the public interest” (Government of Alberta, 2019). As this is a discretionary project, the Director will determine if a full Environmental Impact Assessment is required.

#### Federal Approvals:

- Navigable Waters Act: This act protects “any body of water that is used by vessels as a means of travel or transport for commercial or recreational purposes or as a means of travel or transport by Indigenous peoples to exercise their right” (Transport Canada, 2019). The North Saskatchewan River is classified as a navigable body of water and hence this act applies. The cables crossing the river are currently approximately 30 m above water level, which will prevent the cabins from creating any obstruction to the navigability of the river. However, once final elevations are determined, this act will be reviewed for compliance.
- Fisheries Act: This purpose of this act is to provide a framework for the conservation and protection of fish and their habitat. No towers will be placed within the river; however, work will be completed near the riverbanks, which could impact fish and their habitat. Prairie Sky will continue to investigate if permits related to this act are required for the project.

This might not be a comprehensive list of permits that would be required for the Prairie Sky gondola project. In the next phase of the project, more investigation will be done into required permits and governing acts.

### 3.4 Indicative Station Typologies

Four station typologies are common for cable car systems. They are summarized in Table 2. It should be noted that station typologies are not mutually exclusive. Elements of a cantilevered station, for example, could easily be blended with elements of a straddle station.

Table 2: Indicative Station Typologies

Station Type	Pros	Cons
<p>Cantilevered</p> <p>Appropriate for: Downtown &amp; Whyte Avenue Stations</p>	<ul style="list-style-type: none"> <li>• Small footprint</li> <li>• Minimal structure</li> <li>• Lower cost than fully-enclosed stations</li> <li>• Easily gains clearance above road or other obstructions</li> </ul>	<ul style="list-style-type: none"> <li>• Requires adjacent building and/or vertical circulation</li> <li>• Mechanical vertical circulation adds cost and maintenance.</li> <li>• Visual exposure of the electro-mechanical equipment may be bothersome to some.</li> </ul>
<p>Pavilion and/or Simple At-Grade</p> <p>Appropriate for: End-of-Steel Station</p>	<ul style="list-style-type: none"> <li>• Low cost</li> <li>• Does not require vertical circulation</li> </ul>	<ul style="list-style-type: none"> <li>• Requires significant setback from roads due to clearances</li> <li>• Weather can impact operations</li> <li>• Grading may need to be adjusted to suit the station</li> <li>• Minimal opportunity for architectural expression</li> </ul>
<p>Straddle</p> <p>Appropriate for: North Rosedale Station</p>	<ul style="list-style-type: none"> <li>• Can operate over roadways</li> <li>• Straddle design allows for circulation of passengers to multiple areas in surrounding urban fabric</li> <li>• Can take advantage of spaces incapable to being used for other built forms</li> </ul>	<ul style="list-style-type: none"> <li>• Stations can be large and thus expensive</li> <li>• If not well designed, they can be an eyesore</li> <li>• Multiple points of access and vertical circulation add cost</li> </ul>
<p>Custom:</p> <p>Appropriate for Power Plant Station</p>	<ul style="list-style-type: none"> <li>• Best reserved for stations co-located with storage and maintenance facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Most expensive compared to all other stations.</li> </ul>

### 3.4.1 Cantilevered Stations

A cantilevered station is characterized by the required electrical and mechanical equipment resting on one or more columns in front of the station house. This style of station is often tied into an adjacent building and is minimized in size to accommodate ticketing, queuing and vertical circulation. By cantilevering the equipment over adjacent roadways, system designers can make efficient use of public space. Passengers can access the cabin boarding area through an adjacent building or by vertical circulation elements. Indicative photos from around the world are shown in Figure 4 to Figure 6.



Figure 4: Mi Teleferico Cantilevered Station in La Paz, Bolivia. (Image by Doppelmayr)



Figure 5: Montjuic Cable Car in Barcelona, Spain. (Image by Steven Dale)





Figure 6: Mi Teleferico Cantilevered Station. (Image from Google Earth)

### 3.4.2 Pavilion and Simple At-Grade Stations

A simple at-grade station is defined solely by the electro-mechanical equipment, fencing to control access and an operator's booth. Typical at-grade or slightly elevated, this is the most minimalistic type of station and therefore has the lowest cost. Pavilion style stations are essentially simple at-grade stations with a "wrap" or enclosure that helps protect waiting passengers (and staff) from the elements. Photos are shown in Figure 7 to Figure 10.



Figure 7: Cabarceno Cable Car in Spain is a Simple At-Grade station with little to no architectural considerations. (Image by Leitner Ropeways)





*Figure 8: Koblenz Rheinseilbahn uses Simple At-Grade stations but wraps the electro-mechanical equipment in an architecturally designed membrane. (Image by Steven Dale)*



*Figure 9: Mount Avila Cable Car within a Pavilion Style station. (Image by Steven Dale)*



Figure 10: The Ordu Teleferik is a typical Pavilion Style station. (Image from Google Earth)

### 3.4.3 Straddle Stations

A straddle station is characterized by its existence partially or completely within an existing public right-of-way. The system can straddle the roadway in parallel, perpendicularly or at a skew.

This style of station is particularly good for making use of underutilized parcels of land that are not large enough to be used for any other built form. Such parcels of land include traffic medians, traffic islands and the areas of land located within the middle of traffic circles and roundabouts. Straddle stations tend to place vertical circulation elements adjacent to sidewalks and use elevated walkways that straddle the road to keep riders and private automobiles separated. This station type is illustrated in Figure 11 to Figure 13.



Figure 11: The Yenimahalle Teleferik in Ankara, Turkey makes extensive use of Straddle Stations. (Image by Steven Dale)





Figure 12: Mi Teleferico's White Line in La Paz, Bolivia uses a "double" Straddle station alignment with two areas of vertical circulation and a mezzanine level below platform level. It's worth noting the cantilevered design which reduces the overall bulk of the station. (Image from Google Earth)

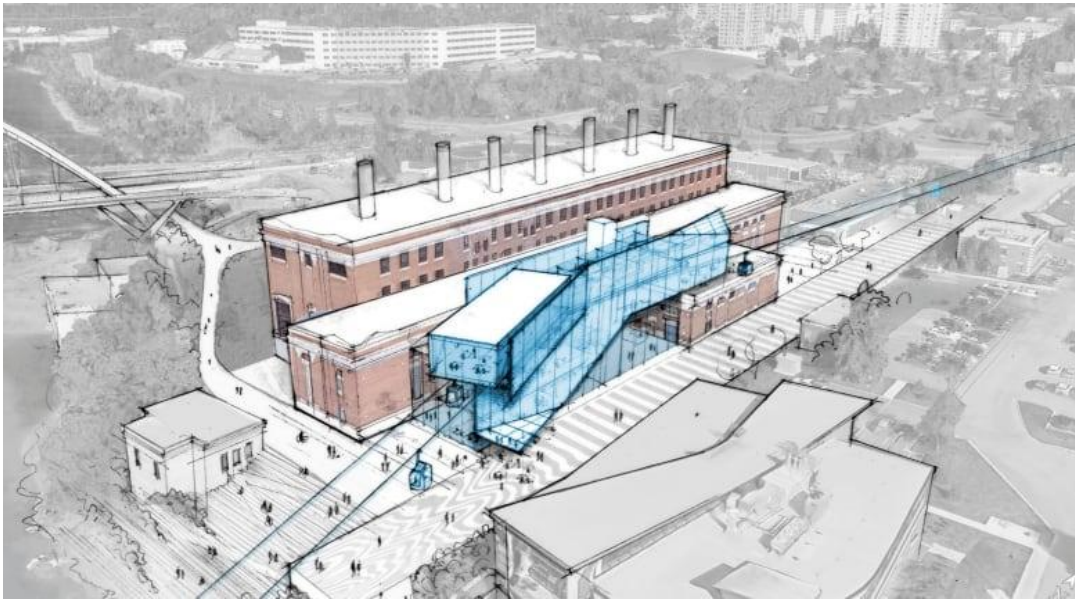


Figure 13: The Yenimahalle Teleferik in Ankara, Turkey has the only known cable car whose station is located in the middle of a roundabout. Note the pedestrian bridge leading across traffic to the vertical circulation elements. (Image by Steven Dale)

### 3.4.4 Custom Stations

There is no standard way to define a custom station, as the one planned for the Power Plant Station. Custom stations generally accommodate varying uses in addition to the gondola specific facilities and are architecturally enhanced. The Power Plant Station will be designed to create a destination in West

Rossdale, draw visitors to the area, and catalyze the overall redevelopment of the EPCOR site and the surrounding land uses. In addition to its experiential functions, this station will house the maintenance bay and parking facility for the cabins. A preliminary sketch is shown in Figure 14.



*Figure 14: An artist's rendering of a Custom cable car station integrated into the EPCOR facility. Gondola parking and maintenance facilities are envisioned at a level lower than platform height. (Image by DIALOG)*

### 3.5 Alternative Mode Assessment

The major benefit a cable car has over other medium capacity transit technologies such as buses, streetcars and light rail is two-fold. Firstly, the system is not affected by at-grade traffic (vehicular, pedestrian or otherwise) or signalized intersections. Secondly, a cable car system does not operate on scheduled service where large vehicles arrive at headways generally exceeding several minutes and sometimes being up to an hour throughout the business day; instead systems operate with vehicles on very short headways with many small vehicles circulating continuously through the system. This translates into a very reliable mode of transportation whereby journey times are predictable, schedule-free and consistent.

Surveys conducted by the Toronto Transit Commission (TTC) in 2017 revealed that across all user groups the most important issues for TTC riders, who use middle capacity systems such as buses and streetcars, largely centered on a desire for shorter wait times between vehicles and their arrival on time as scheduled. While this survey was specific to Toronto, it is reasonable to treat it as a proxy for transit riders in Edmonton and any other comparable city. The basic message of this survey was simple: more than anything else, transit riders desire short, reliable wait times. The Prairie Sky system will provide this.

Prairie Sky will provide travel time savings over the private automobile or existing bus service, and it will excel in providing a scenario with virtually no wait times for users (except during high traffic events) and schedule-free service. When conducting a comparison of travel times including wait times, referred to as "Total Travel Time", the Prairie Sky system will provide significant travel time savings over existing transit services. The travel time comparison provided in Table 3 assumes a single end-to-end journey

from the Whyte Ave Station to the Downtown Station. Travel time savings into the Rosedale neighbourhood would be significantly higher due to the direct nature of the gondola’s alignment.

Table 3: Total Travel Time Comparison

Mode of Transportation	Total Time	From nearest bus stop in proximity to Old Strathcona Farmers Market.
Walking	42-45 min	Via various routes, not including variation by age, health and topography (via Google Traffic)
Cycling	19-24 min	Via various routes, not including variation by age, health and topography (via Google Traffic)
Driving	6-12 min	Via Scona Road as at 8:30am on a typical weekday (via Google Traffic)
Transit (No Wait Time)	14 min	Via Number 7 Downtown Bus as at 8:30am on a typical weekday (via Google Traffic)
Transit (5 Minute Wait Time)	19 min	Scheduled headways of apx. 15 min.
Transit (10 Minute Wait Time)	24 min	Scheduled headways of apx. 15 min.
Transit (15 Minute Wait Time)	29 min	Scheduled headways of apx. 15 min.
Prairie Sky Gondola	12 min	Given headways on the Downtown 7 bus, no significant delays due to queuing would be expected except in the most extreme situations.

### 3.6 Technical Assessment Summary

The current technical assessment is based on the data that was gathered during the phase one PETA study by the working group. The alignment was chosen to avoid any areas of technical complexity in relation to archeological sensitivity, utilities and privacy concerns. Based on the current technical assessment, there are no concerns as to the technical viability of the Prairie Sky project. As the project progresses, Prairie Sky will continue to gather data and update the technical assessment as required.

## 4 Economic Assessment

### 4.1 Market Assessment

In reviewing the relevant tourist-oriented attractions within the Alberta market, it quickly becomes clear that within the province, as a whole, there exists no signature tourism product other than National Parks. With the possible exception of the West Edmonton Mall, SJC Alliance could not find a single tourist attraction that is, for lack of a better term, “postcard worthy.” This represents a significant opportunity for Prairie Sky and should not be underestimated – with the caveat that to become the signature tourism product for Edmonton, sound planning, good thinking and proper design are not nice-to-haves they are necessities.

One of the basic principles of good cable car planning is to connect where people are to where people want to go. From this perspective, Prairie Sky is operating from a strong fundamental position. Downtown Edmonton has the city’s largest concentration of jobs with an increasing number of residents as well as recreational amenities. The Downtown Station location also benefits from direct connectivity to the LRT, bus, pedway, bike grid, and funicular.

Old Strathcona (End of Steel Park and Whyte Ave Stations), meanwhile benefits from the hundreds of thousands of annual visitors to the local farmers market, the approximately 1.2 million annual visitors to festivals, and the areas shopping and dining destinations. Its proximity to the city’s second largest job cluster at the University of Alberta is also attractive.

The Power Plant Station is intended to be a significant destination to draw visitors to the area and create a unique experience. Current plans include a fine dining restaurant with unobstructed views of the North Saskatchewan river and a brewpub in the Switch House building. The development of the power plant proper is not required for the viability of this project. However, the transit connection provided by Prairie Sky is intended to become the catalyst for the redevelopment of it.

It’s illustrative that Banff National Park receives several million visitors every year. West Edmonton Mall, meanwhile, receives over 30 million visitors per year. Apart from the Calgary Zoo (1.3 million visitors), no other non-event-based attraction in the entire province of Alberta receives more than half-a-million visitors per year as illustrated in Table 4.

This indicates a significant opportunity in the market that should be capitalized upon. Most tourist attractions in Alberta tend towards culture and education. The above-noted visitation numbers show that the attractions under-perform given the size of the Alberta population and tourism market.



Table 4: Total annual visitors to Alberta attractions.

Alberta Attractions	Total Visitors
Muttart Conservatory	100,000
Art Gallery of Alberta	150,000
Glenbow Museum	167,770
Fort Edmonton Park	200,000
Calgary Tower	300,000
Royal Alberta Museum	350,000
Telus World of Science	430,000
Telus Spark	431,262
Calgary Zoo	1,300,000
Average of Above	381,004
West Edmonton Mall	33,000,000
Banff National Park	4,200,000

The number of visitors to other regional cable car systems was also investigated to provide context for Prairie Sky. This data is summarized in Table 5. On average, cable cars draw 452,500 visitors per year. However, the majority of these systems are only open during certain seasons, which greatly impacts annual ridership levels.

Table 5: Annual visitors to regional cable cars

Regional Cable Cars	Visitation
Grouse Mountain Cable Car	1,200,000
Jasper Sky Tram	100,000
Sea-to-Sky Gondola	350,000
Peak-2-Peak Gondola	350,000
Sulphur Mountain Cable Car	515,000
Mount Roberts Tramway	200,000
Average of above	452,500

## 4.2 Ridership Model

The core of a reference class forecasting methodology is to take what's known as the "outside view." Taking the outside view essentially means to compare the Project to other known ventures that have been completed that exhibit similarities to the project in question.

For Prairie Sky, the following reference classes were relied upon to benchmark ridership and fares:

- Other attractions in Alberta
- Paid attractions at the West Edmonton Mall
- Regional cable car attractions

The potential annual market of a city is the local population in a city plus the number of tourists. While not a perfect measure, it is a useful and tested method that displays consistent and predictable patterns. The potential annual market capture rates of other urban cable car systems located in cities throughout the world range from 6.8% to 25%. The average of the 19 comparable systems is 8.9%.

Three analyses were conducted to establish a ridership projection:

- Total Visits to Edmonton to calculate the Potential Annual Market
- Overnight Visits to Edmonton to calculate the Potential Annual Market
- Split the difference between the two and calculated the Potential Annual Market using 50% of the delta between Total Visits and Overnight Visits.

Capture rates of 5%, 7% and 9% were then applied. For the purposes of the Prairie Sky ridership analysis, a capture rate of 7% of the "50% of Delta" Potential Annual Market was used. From this analysis, Prairie Sky should anticipate 637,000 unique customers in its first year. Some of these customers will ride the system more than once during the year. It is expected that in its first year of operations, Prairie Sky will provide a total of 3,062,000 trips.

In order to develop the ridership model, various market segments were identified. These represent different types of gondola users and will inform the number of trips and fare price for the system. In the next phase of this study, further investigation into specific ridership values for each market segment will be conducted. The market segments for the Prairie Sky customers are defined as follows:

- Typical Rider: A typical cable car rider is presumed to be a tourist (whether that be local, international, overnight or other) who uses the cable car purely for recreational purposes. Typical riders can be sub-segmented into infant, child, adult and senior.
- VIP Annual Pass Holder: Designed for a high-income clientele and corporations, who are committed to the project and the city. These customers could be seen as 'benefactors' of the cable car. In order to justify the high price point, these customers will require specialized programming, access to VIP cabins, queue jumps and any other manner of exclusivity. This customer market should be viewed in much the same way as those who purchase box seats at the opera, corporate suites at an Oilers game or patrons of an art gallery.
- Annual Pass Holder – Recreational: Annual passes for cable cars are typically 5-10 times the cost of a single round-trip adult ticket price and typically represent a fraction of overall ridership. These riders are presumed to be more recreational than commuter.
- Annual Pass Holder – Commuter and Induced: More than 28,000 vehicles pass from or through downtown Edmonton from Old Strathcona on any given day for commuting purposes. For a

certain percentage of these people, the cable car will represent a considerable upgrade in their commuting experience.

- Annual Pass Holder – Park and Ride: Surrounding the Whyte Ave and End of Steel Park Stations are approximately 650 parking spots within a reasonable walking distance. These parking lots offer rates significantly cheaper than those in downtown Edmonton. For those who work in close proximity to the Downtown Station, the ability to park outside of downtown and take a short cable car ride to work could provide significant annual cost savings.
- Typical VIP: Most cable car systems nowadays offer VIP experiences such as custom cabins, glass floors, in-cabin dining options, queue jumps and other amenities.
- Power Plant Programming: Riders whose sole purpose is to arrive at the destinations in the Power Plant Station. Prairie Sky should anticipate their commercial programming of the Power Plant Station to generate a loyal following of repeat visitors throughout the year from both downtown and Old Strathcona.
- EPCOR Staff: A sizeable number of staff will work at the EPCOR site; some will purchase annual passes for their commuting purposes.

### 4.3 Fare Analysis

Three separate collections of data were gathered to benchmark possible gondola fares:

- Local Alberta Attractions
- Fee-Based Attractions at the West Edmonton Mall
- Regional Cable Car Attractions

Prairie Sky has identified an effective ticket price and this figure is reflected in the projections within the financial model. The chosen price is low in comparison to other successful cable car attractions in the region, is slightly higher in price than other Alberta attractions but well below what the high-priced attractions at West Edmonton Mall fetch. There will be significant segmentation of riders above and below the effective ticket price. For example, urban commuters will pay much less than this price and tourists from outside of North America will pay more. On average though, the blend of all ticket prices should be the identified effective ticket price. A considerable amount of research on both comparables and local supply elasticity of demand informed the decision to use this effective ticket price within the financial model.

### 4.4 Financial Analysis

Prairie Sky developed a robust financial model that includes financial statements and flow-through projections for 10 years. A peer review of the financial model has been completed to ensure there are no critical errors or flawed assumption within it.

#### 4.4.1 Capital Costs

With the input of SCJ Alliance, Prairie Sky has developed a preliminary cost estimate for the project including the five stations, electrical and mechanical equipment, and construction costs. Station costs were estimated by EllisDon based on the schematic station drawings. Prairie Sky is aware that this cost could increase based on the flexibility and level of architectural detail incorporated at each station.

The costs presented to Prairie Sky were within predetermined expectations and support the project progressing as a private initiative.

#### 4.4.2 Operating Costs

Prairie Sky intends to operate service 360 days per year for 16 hours per day. This service level requires additional operating costs but was deemed important to satisfy urban commuters and generate a winter city experience that touches the river valley year-round.

Using existing urban gondola data, SCJ Alliance has provided an estimate of the operating costs based on the current layout. This estimate includes all costs to operate and manage the gondola including insurance and reserve funds for ongoing capital items.

#### 4.4.3 Staffing Plan

Fixed labour positions will be required for Prairie Sky including a general manager, technical director, office manager, sales and marketing employees, IT personnel, and a system superintendent. These positions would work out of an office located at one of the stations. Additionally, there will be variable labour positions at the stations themselves. This includes:

- Operations Supervisor & Chief Mechanic (1 position): Always present. Can act as mechanic, operator and attendant when necessary.
- Mechanics (5 positions): Provides ongoing preventative maintenance during the work day. Can fill in as operator and attendant when necessary.
- System Operator (5 positions): Will be located in each station's control booth.
- Platform Attendant (8 positions): Each individual platform (1 at termini, 2 at intermediary).
- Cashier (5 positions): Theoretically could be fully automated.
- Overnight Mechanic (2 positions): Required in the event of 360-day operations.

The salary for the employees listed above has been accounted for in the operating cost provided by SCJ Alliance and has been included in the financial model.

#### 4.5 Financial Indicators

Prairie Sky is in a unique position. Although high capital expenditure is required to develop the project through to commissioning, operating costs once it is open are low. The financial viability is demonstrated in the financial model in the first year of operations. Some of the key points demonstrated in the financial model are:

- Unlevered internal rate of return (IRR) which exceeds investors hurdle rates.
- Strong cash flow once operating due to low operating costs.
- Relatively short construction time frame.

##### 4.5.1 Sensitivity Analysis on Financial Model

Sensitivities have been tested on the financial model. If assuming lower ridership, lower fares, and higher construction costs the project remains economically feasible for private industry.

#### 4.6 Financial Conclusions and Commentary

The current financial assessment is very preliminary and is based on the best information available. As Prairie Sky proceeds with project development, all information will continue to be updated with the best available details. Based on the current assessment, Prairie Sky would have access to the capital to build, operate, maintain, and support the projected growth curve of ridership.

## 5 Project Assessment

### 5.1 SWOT Analysis

A SWOT Analysis was completed by SCJ Alliance for Prairie Sky. The findings are presented below.

#### 5.1.1 Strengths

- Prairie Sky will be highly visible and central to any Edmonton tourist experience.
- There is no comparable attraction within day-tripping distance of Edmonton.
- Except for the West Edmonton Mall, the city of Edmonton lacks a signature tourist attraction.
- The system has been designed such that residential privacy concerns have been kept to a minimum.
- The current built form around the cable car is generally open and or underdeveloped. This is preferred for cable car system planners as existing built form can oftentimes inhibit strong system design.
- The system as designed should encourage a degree of multi-modal transit usage.
- There are a variety of user groups that would be interested in experiencing Prairie Sky at different times of day and at different price points.
- Edmonton is considered a very stable economic region due to its critical mass of government and regional institutions.
- The Prairie Sky team is made up of a wide assortment of established professionals, investors and members of the community that are known entities in the city with a track record of success.
- Edmonton is in close proximity to the core Rocky Mountain North American business segment of the major cable car manufacturers.

#### 5.1.2 Weaknesses

- For a city of its size, Edmonton lacks a large volume of tourists from outside the immediate region. As Prairie Sky will be dependent on a capture rate of tourists, it will be essential for the team to sell the experience nationally and internationally to tour operators.
- The Edmonton tourism makeup is dominated by the Visiting Friends and Relatives (VFR) market more so than other comparable cities. VFRs generally spend less time and money in a given city and are typically frequent visitors. Prairie Sky will need to sell the experience of the Power Plant Station to this segment of the market to earn multiple visitors per year.

#### 5.1.3 Opportunities

- Edmonton is consistently one of the fastest-growing cities in Canada. This increased population growth will bring with it more economic opportunity and increased visitation.
- New developments in Rosedale, particularly at a revitalized power plant site will allow the cable car and said new developments to feed off one another and help catalyze each other's success.
- The entirety of West Rosedale present a truly awe-inspiring volume of opportunities for programming. The programmatic opportunities should drive a significant volume of locals and tourists alike to use the cable car when the right programming mix is co-located in proximity to the Power Plant Station.
- Given the significant benefits that could accrue to the City of Edmonton and Edmonton Transit Service, there exists an opportunity for a unique partnership model.



- Given the number of parking spaces in direct proximity to the stations, Prairie Sky should explore partnerships opportunities with these lot owners to establish a healthy and lucrative park-and-ride business.
- Significant opportunity exists to design each station in such a way as to allow space for commercial, retail and entertainment providers to co-locate in stations.
- Given the proximity of the Downtown Station to the Edmonton Convention Centre and a great many downtown hotels, Prairie Sky is encouraged to strike package tickets deals with the Edmonton Convention Centre and the hoteliers.

#### 5.1.4 Threats

- A highly visible attraction such as this will be controversial to a certain percentage of citizens, bureaucrats and politicians. The complexity and difficulty of obtaining approvals for the project should not be underestimated.
- While Edmonton is a prosperous, stable city on the rise, its economy is tied greatly to the resource sector and its position as the “gateway of the north.” City fortunes, as well as the fortunes of its citizens and tourists, is therefore tied to some extent to factors outside the control of Prairie Sky.
- Ridership forecasts are notoriously fickle. With so little known about the local VFR market and the relatively small number of non-Alberta tourists, ridership on Prairie Sky is hard to forecast.

## 6 Conclusions and Next Steps

The conclusion of this report is that Prairie Sky is both technically viable as infrastructure and financially sustainable as a private enterprise. The next step is to put forward the request of Mayor and Council to allow Prairie Sky to begin formal negotiations of an agreement framework with City of Edmonton Administration.

### 6.1 Future Milestones

Should Mayor and Council support the request to allow Prairie Sky Gondola Inc. to begin negotiating an agreement framework with Administration, Prairie Sky will hire a fulltime president and CEO to lead project development.

The milestone tasks and preliminary proposed timelines are as follows:

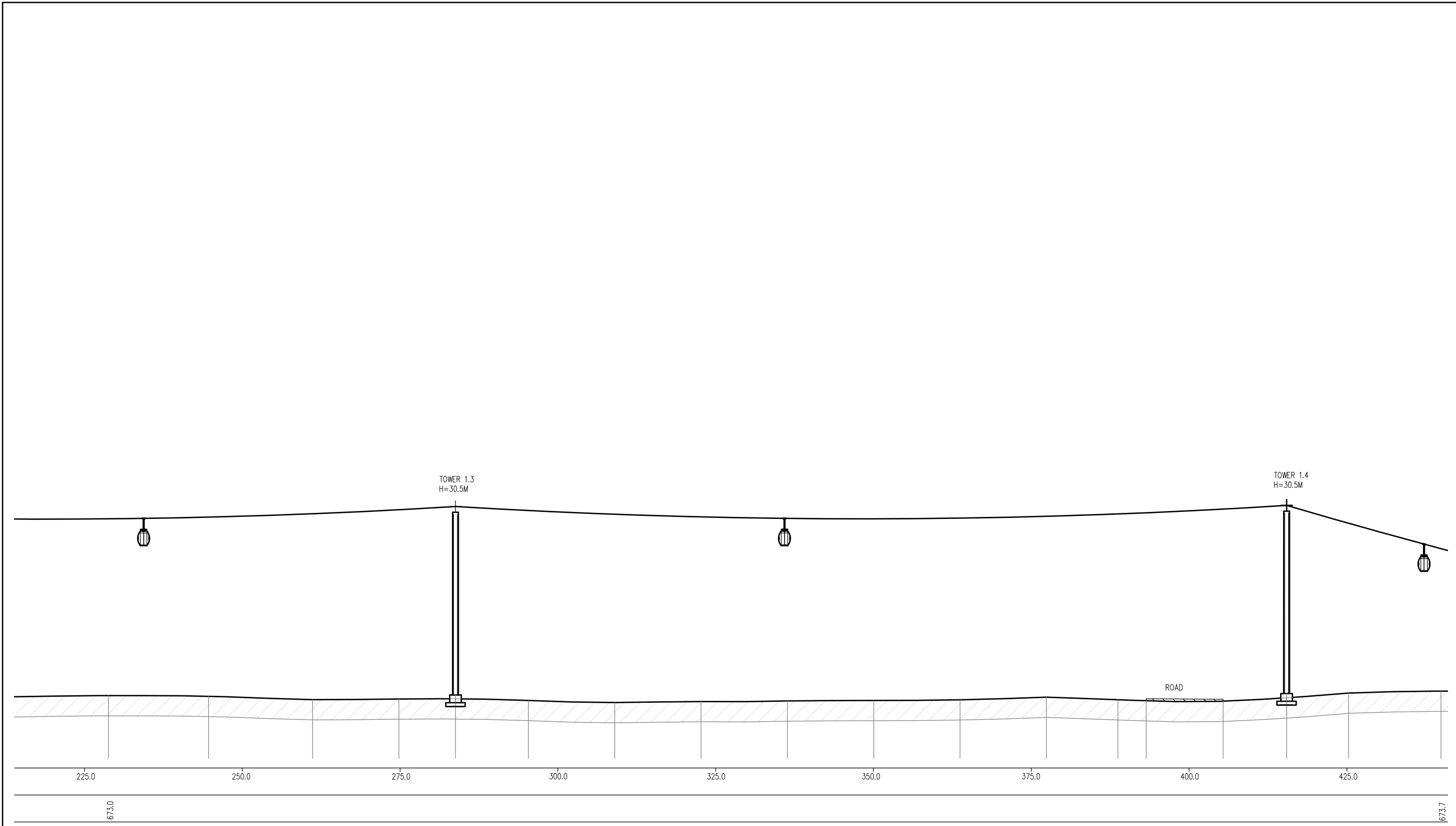
Successful negotiation of agreement framework	June 2020
Completion of phase two feasibility	June 2020
Update to Mayor and Council	June 2020
Presentation of final business plan	September 2020
Completion of schematic design	December 2020
Completion of detailed design and engineering	December 2021
Earliest possible construction start	May 2022
Commissioning complete	December 2023
Grand opening	January 2024

## APPENDIX A






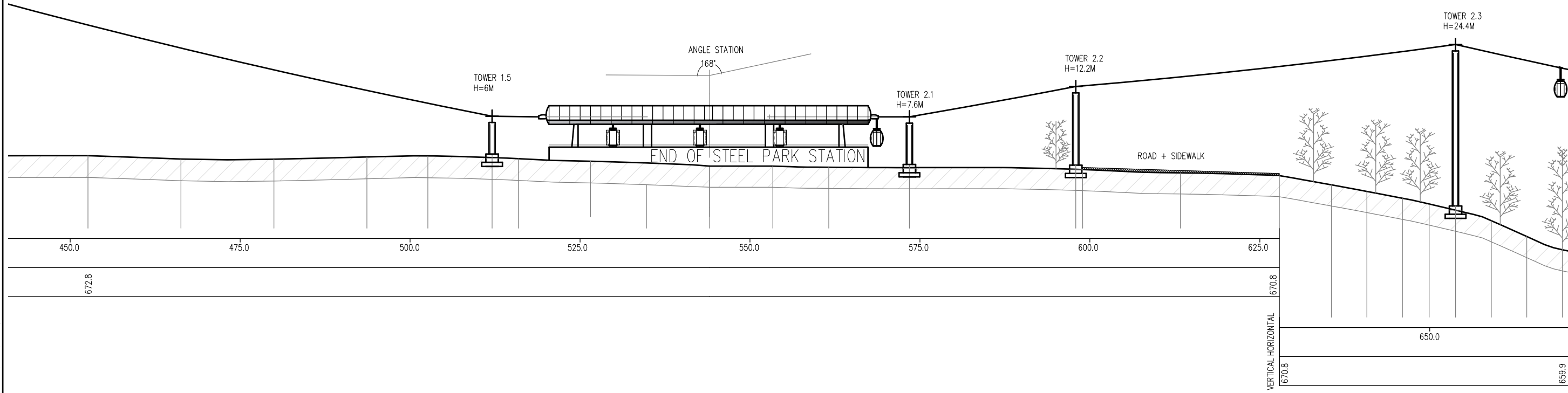
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<b>EDMONTON CABLE CAR ROPELINE PROFILE</b>			<b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA		
DESIGNER: TMM			PROJECT NAME:		
DRAWN BY: TMM			EDMONTON CABLE CAR ROPELINE PROFILE		
APPROVED BY: SWD			PROJECT NAME:		
DATE: OCTOBER, 2019			EDMONTON GONDOLA		
JOB NO: 3308.01			EDMONTON, ALBERTA, CANADA		
DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI			PROJECT NAME:		
DRAWING NO: [NOT RELEASED]			EDMONTON CABLE CAR ROPELINE PROFILE		
SHEET NO: 2 OF 12			PROJECT NAME:		

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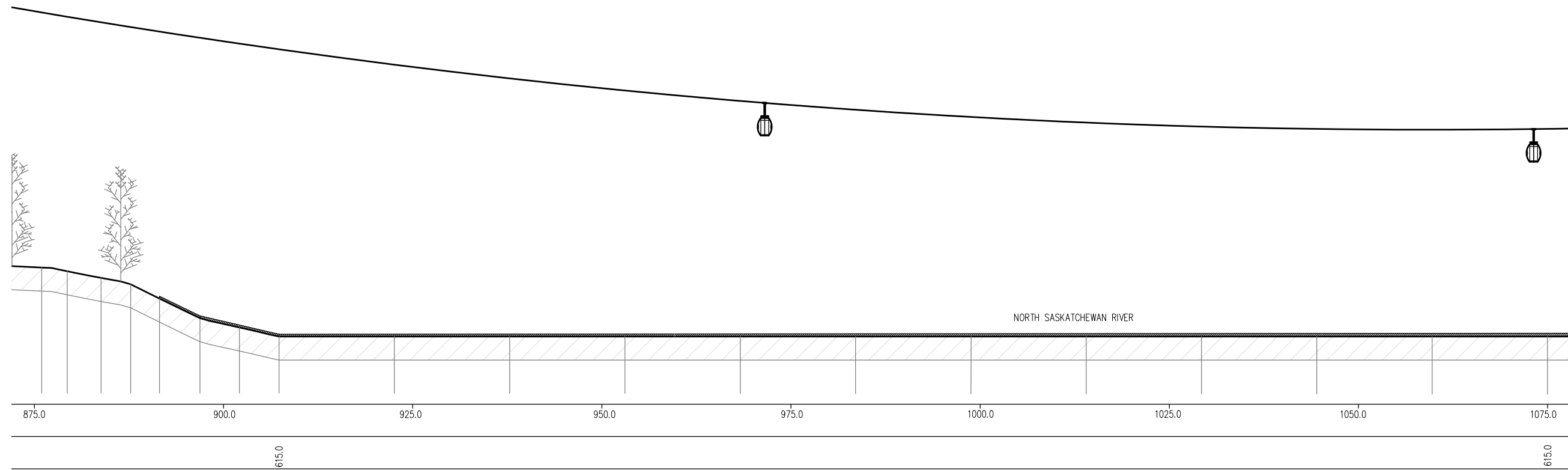


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<b>EDMONTON CABLE CAR ROPELINE PROFILE</b>			<b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA		
SHEET TITLE:			PROJECT NAME:		
DESIGNER: TMM			APPROVED BY: SWD		
DRAWN BY: TMM			DATE: OCTOBER, 2019		
JOB NO: 3308.01			DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI		
DRAWING NO: [NOT RELEASED]			SHEET NO: 3 OF 12		



Nov 01, 2019 11:56:01pm - User: riskimarin@scj.com  
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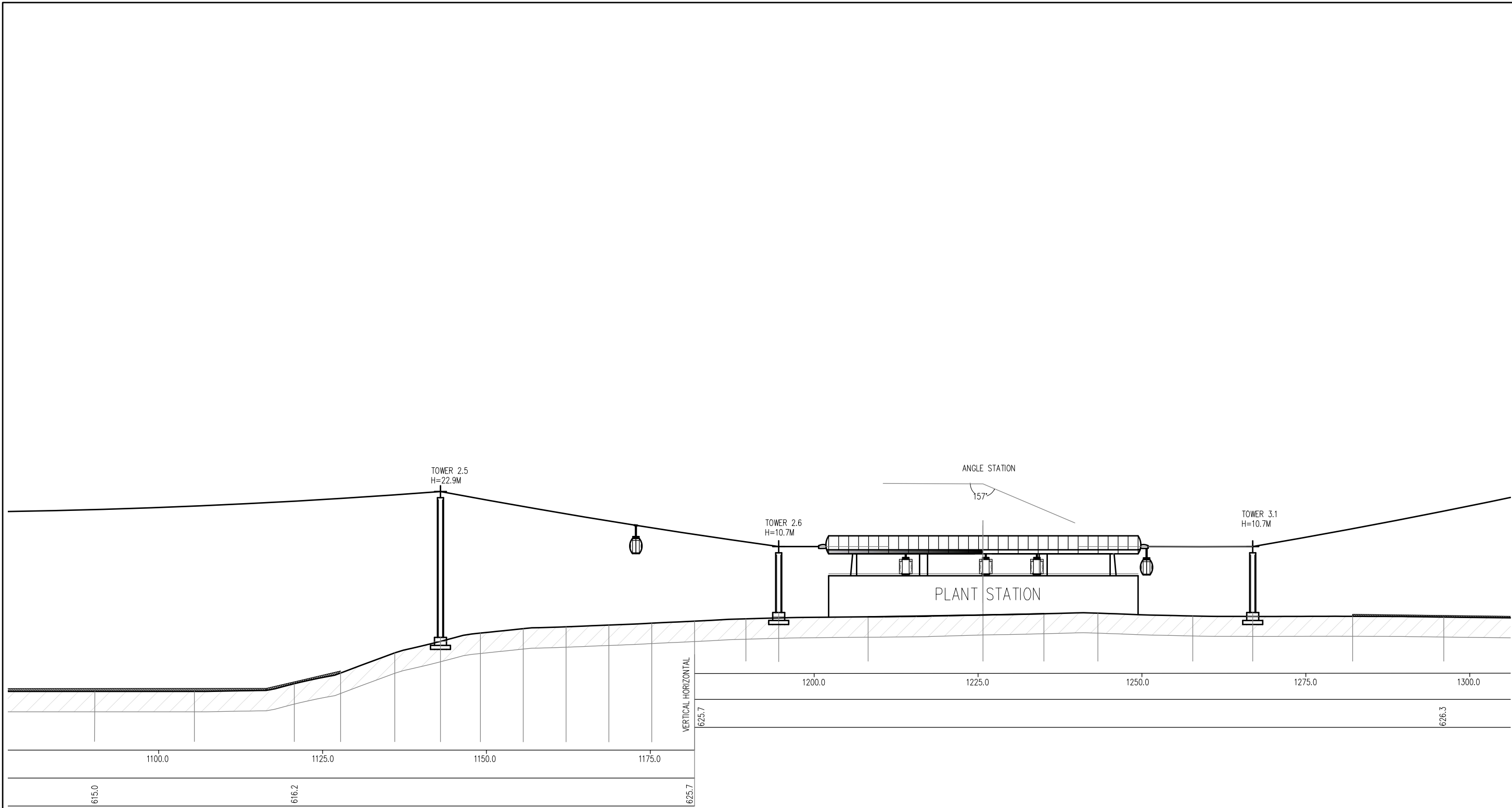


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 <b>SCJ ALLIANCE</b> CONSULTING SERVICES 8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516 P: 360.352.1465 F: 360.352.1509 SCJALLIANCE.COM					
SHEET TITLE <b>EDMONTON CABLE CAR ROPELINE PROFILE</b>			PROJECT NAME <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA		
DESIGNER: TMM					
DRAWN BY: TMM					
APPROVED BY: SWD					
DATE: OCTOBER, 2019					
JOB NO: 3308.01					
DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI					
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SHEET NO: 5 OF 12					



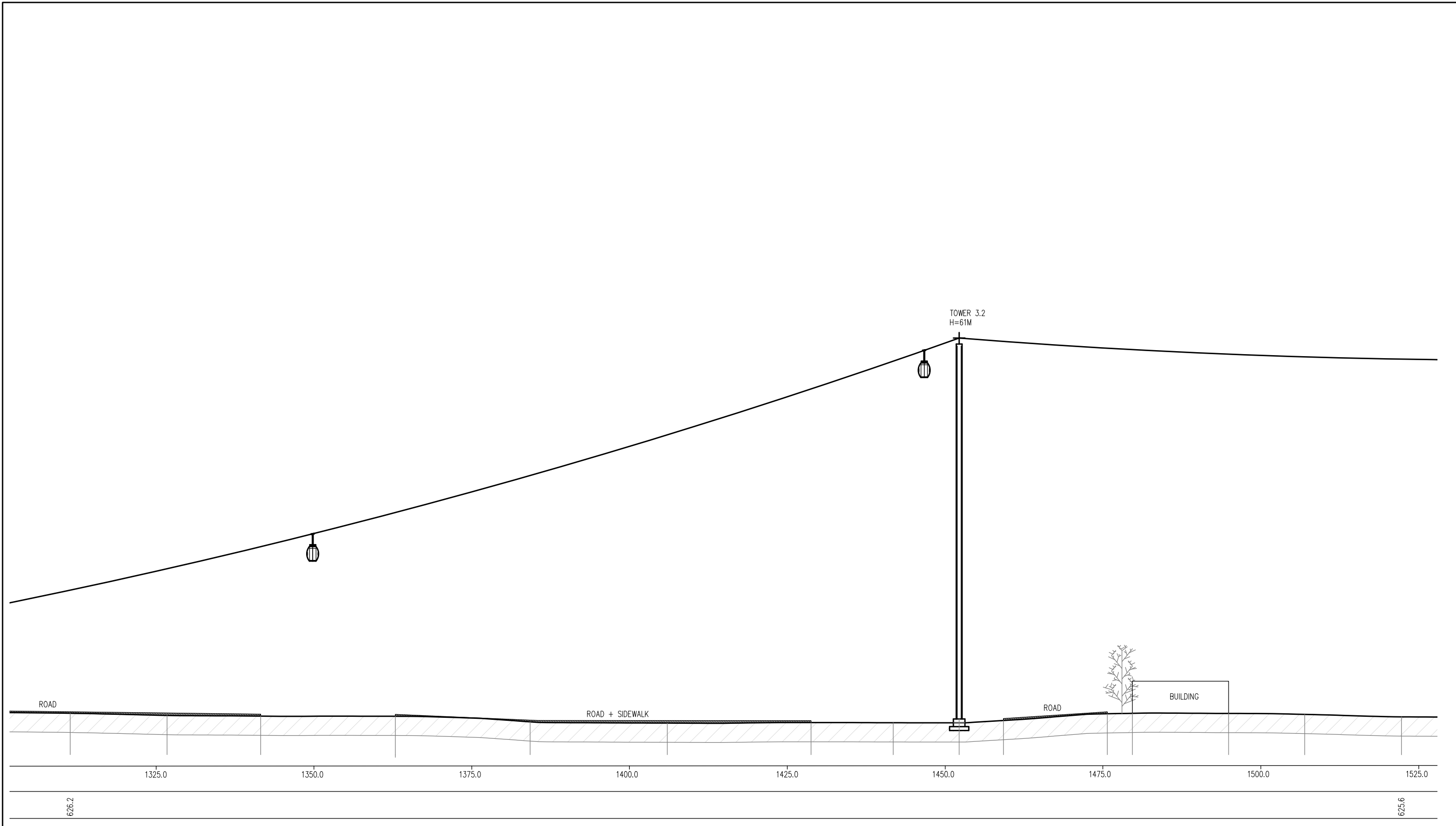
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<b>EDMONTON CABLE CAR ROPELINE PROFILE</b>			<b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA
SHEET TITLE:			
DESIGNER: TMM			PROJECT NAME:
DRAWN BY: TMM			
APPROVED BY: SWD			DATE: OCTOBER, 2019
JOB NO: 3308.01			
DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI			DRAWING NO: [NOT RELEASED]
SHEET NO: 6 OF 12			

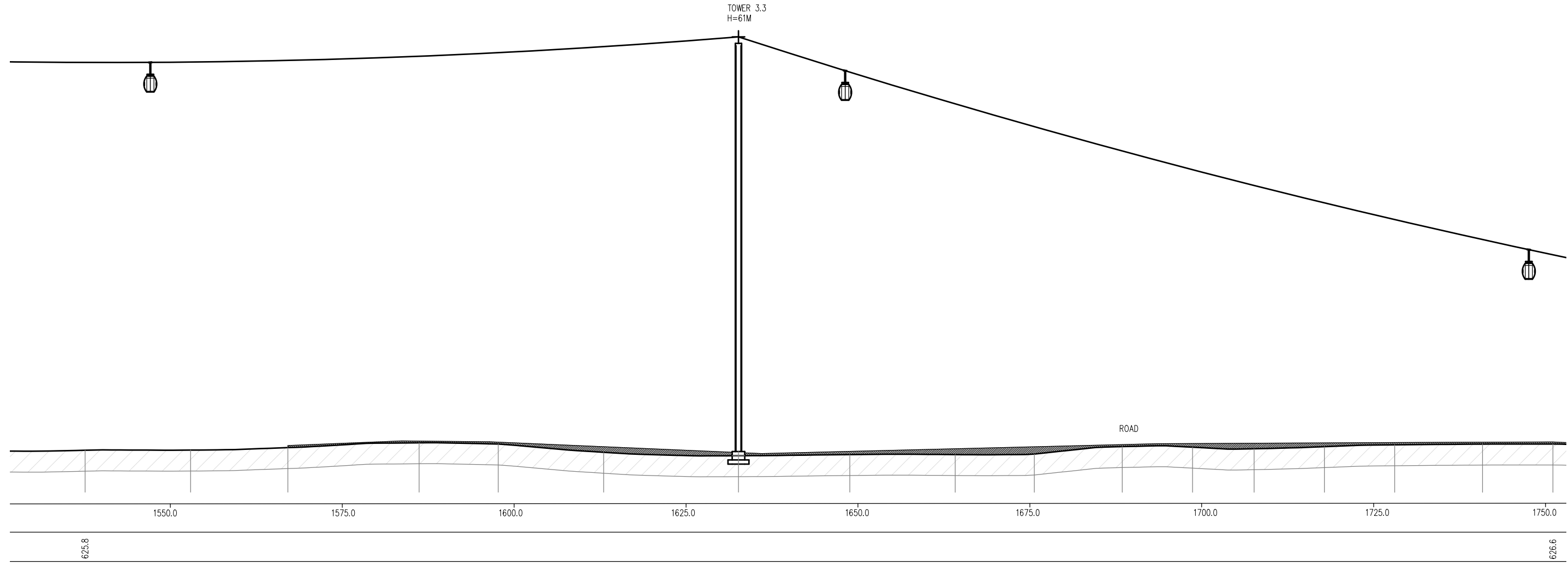
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SHEET TITLE <b>EDMONTON CABLE CAR ROPELINE PROFILE</b>			PROJECT NAME <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA		
DESIGNER: TMM					
DRAWN BY: TMM					
APPROVED BY: SWD					
DATE: OCTOBER, 2019					
JOB NO: 3308.01					
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SHEET NO: 7 OF 12					

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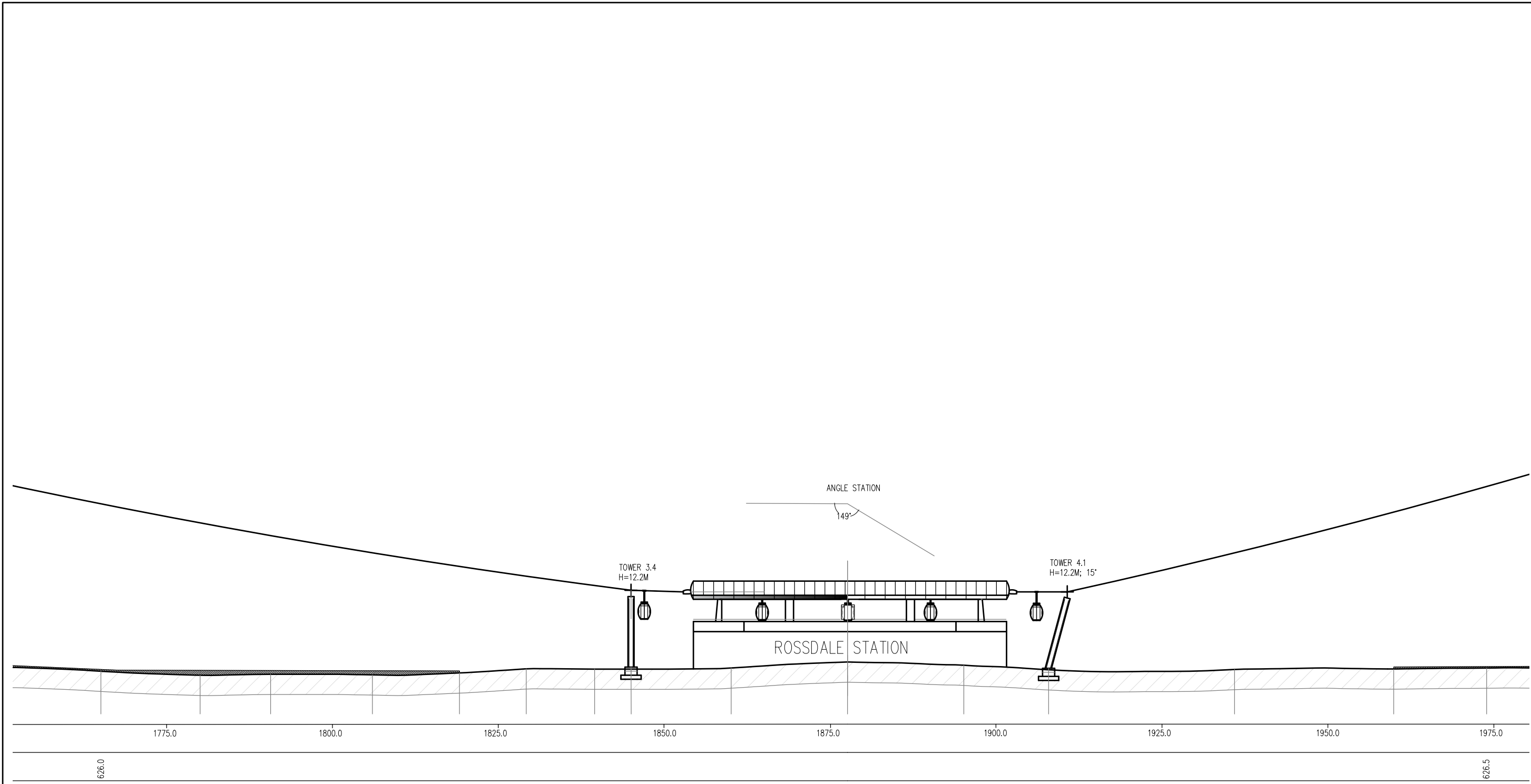
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P: 360.352.1465 F: 360.352.1509  
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SHEET TITLE: EDMONTON CABLE CAR ROPELINE PROFILE


PROJECT NAME: EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	TMM
APPROVED BY:	SWD
DATE:	OCTOBER, 2019
JOB NO:	3308.01
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SHEET NO:	8 OF 12

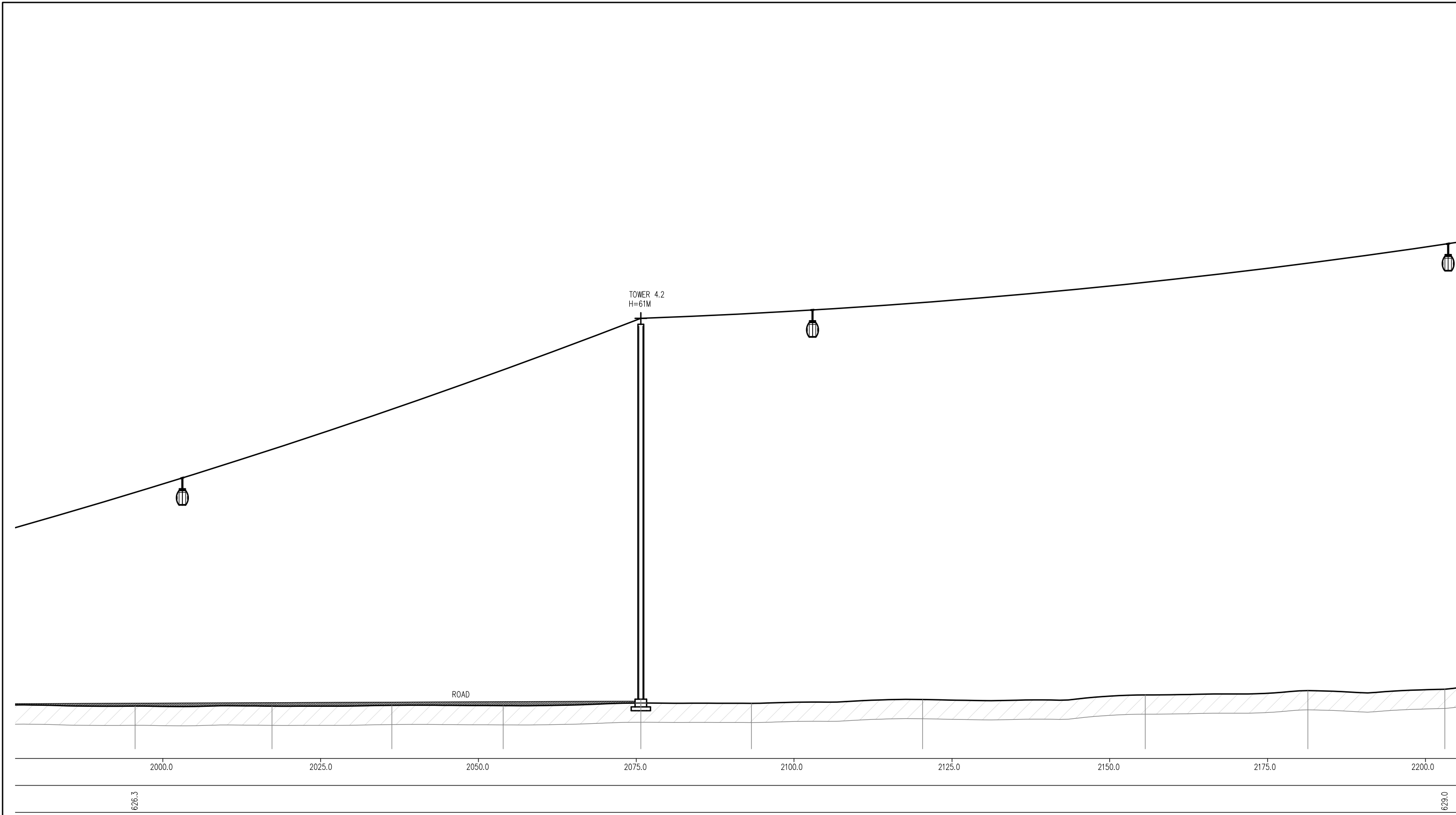
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<b>EDMONTON CABLE CAR ROPELINE PROFILE</b>				<b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA			
DESIGNER: TMM DRAWN BY: TMM APPROVED BY: SWD DATE: OCTOBER, 2019 JOB NO: 3308.01 DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI DRAWING NO: [NOT RELEASED] SHEET NO: 9 OF 12							

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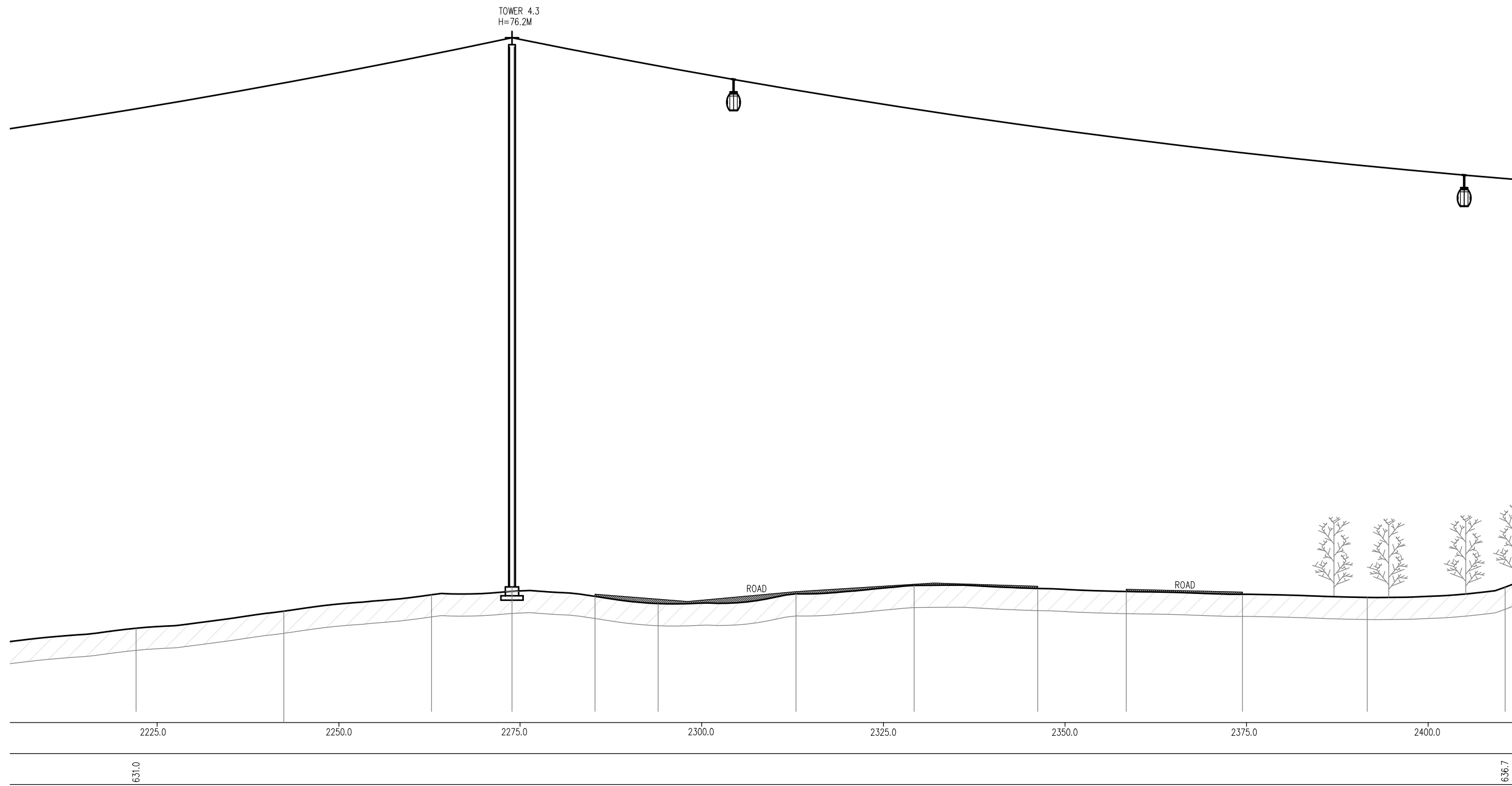
  

<p style="font-weight: bold; margin: 0;">SCJ ALLIANCE CONSULTING SERVICES</p> <p style="font-size: 8px; margin: 0;">8730 TALLON LANE NE, SUITE 200, LACEY, WA 98516 P: 360.352.1465 F: 360.352.1509 SCJALLIANCE.COM</p>
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SHEET TITLE: <b>EDMONTON CABLE CAR ROPELINE PROFILE</b>	PROJECT NAME: <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA
DESIGNER: TMM	DRAWN BY: TMM
APPROVED BY: SWD	DATE: OCTOBER, 2019
JOB NO: 3308.01	DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI
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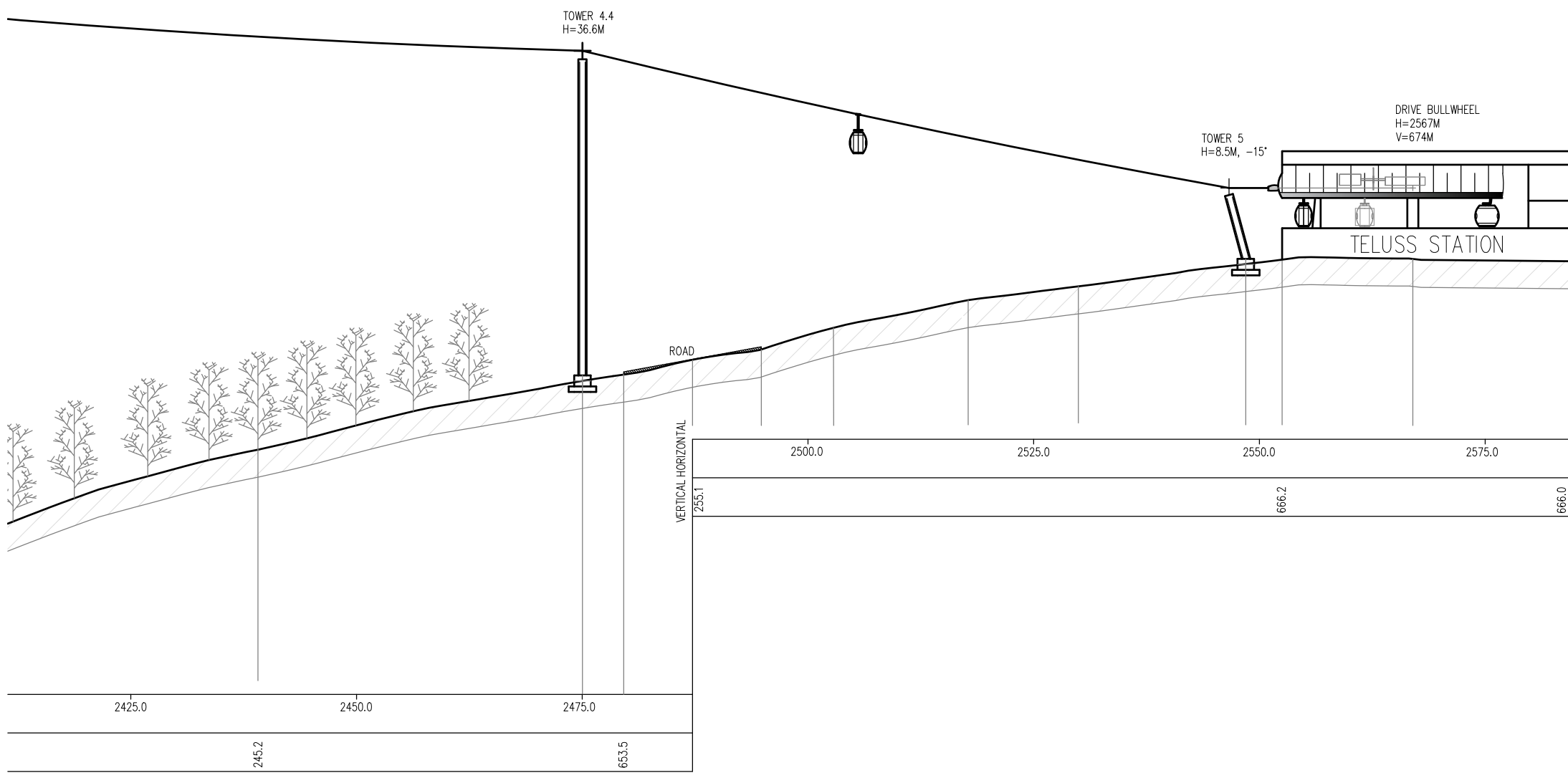


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SHEET TITLE <b>EDMONTON CABLE CAR ROPELINE PROFILE</b>				PROJECT NAME <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA			
DESIGNER: TMM							
DRAWN BY: TMM							
APPROVED BY: SWD							
DATE: OCTOBER, 2019							
JOB NO: 3308.01							
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Nov 01, 2019 11:56:37pm - User: riki.martinez  
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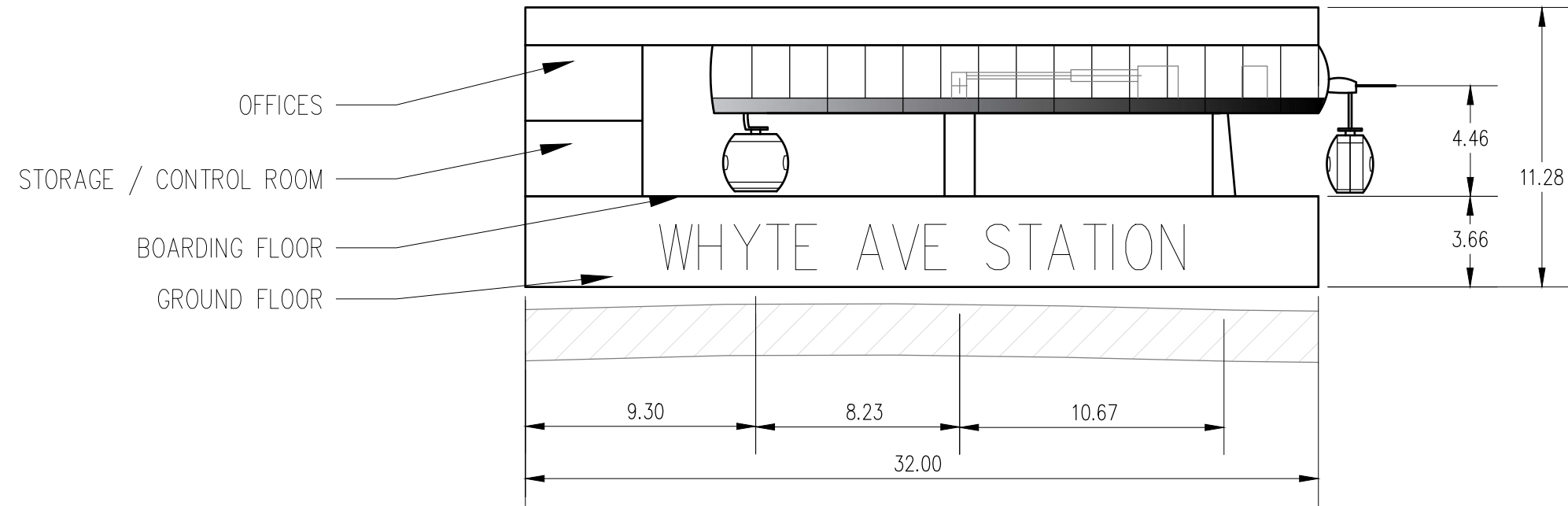
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SHEET TITLE: <b>EDMONTON CABLE CAR ROPELINE PROFILE</b>	PROJECT NAME: <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA
DESIGNER: TMM	DRAWN BY: TMM
APPROVED BY: SWD	DATE: OCTOBER, 2019
JOB NO: 3308.01	DRAWING FILE NO: EDMONTON ROPELINE PROFILE SI
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ELEVATION VIEW

PRELIMINARY  
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REVISIONS	DATE	BY

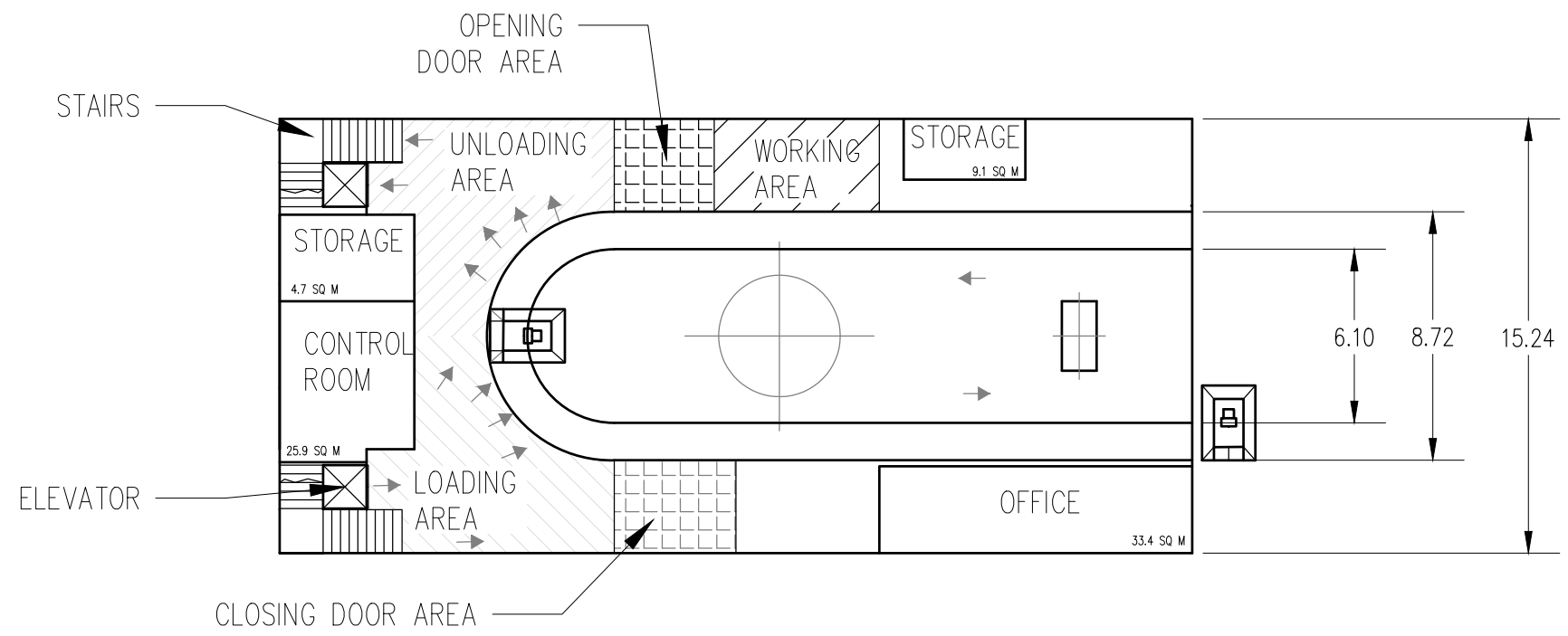
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P: 360.352.1465 F: 360.352.1509  
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SHEET TITLE: **WHYTE AVE STATION (TENSIONING STATION)**

PROJECT NAME: **EDMONTON GONDOLA**  
EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	TMM
APPROVED BY:	SWD
DATE:	OCTOBER, 2019
JOB NO:	3308.01
DRAWING FILE NO:	EDM_STATION_1_WHYTE AVE
DRAWING NO:	[NOT RELEASED]
SHEET NO:	1 OF 3



BOARDING LEVEL FLOOR PLAN

PRELIMINARY  
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REVISIONS	DATE	BY

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P: 360.352.1465 F: 360.352.1509  
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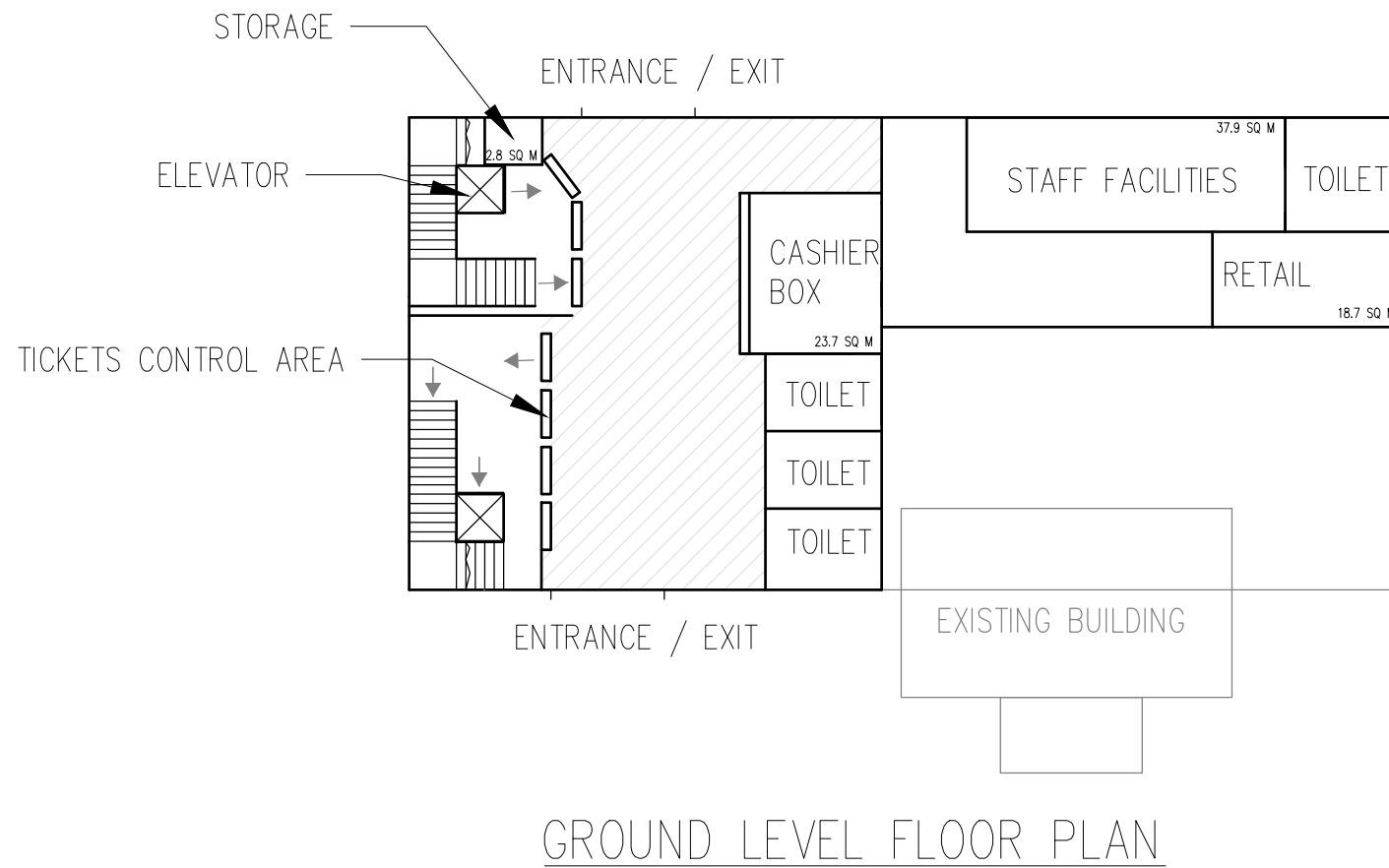
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PROJECT NAME: **EDMONTON GONDOLA**  
EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	TMM
APPROVED BY:	SWD
DATE:	OCTOBER, 2019
JOB NO:	3308.01
DRAWING FILE NO:	EDM_STATION_1_WHYTE AVE
DRAWING NO:	[NOT RELEASED]
SHEET NO:	2 OF 3

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GROUND LEVEL FLOOR PLAN

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 P: 360.352.1465 F: 360.352.1509  
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SHEET TITLE: WHYTE AVE STATION (TENSIONING STATION)

PROJECT NAME:  
EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

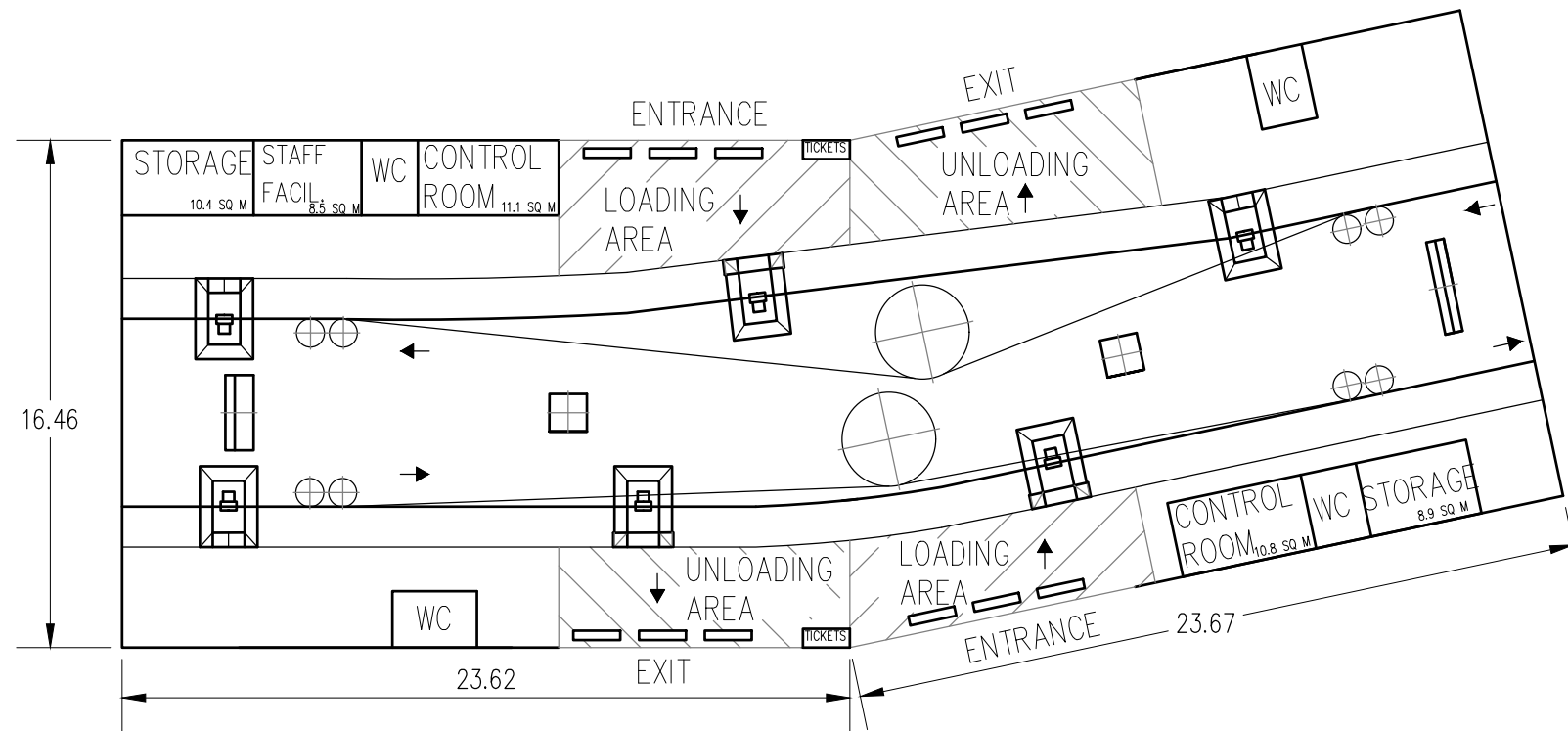
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DRAWING NO:	[NOT RELEASED]
SHEET NO:	3 OF 3

REVISIONS

DATE

BY

Nov 01, 2019 11:56:58am - User: riki.martinez  
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# BOARDING/GROUND LEVEL FLOOR PLAN

PRELIMINARY  
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SHEET TITLE: END OF STEEL PARK (ANGLE STAION)

PROJECT NAME: EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

DESIGNER: TMM

DRAWN BY: TMM

APPROVED BY: SWD

DATE: OCTOBER, 2019

JOB NO: 3308.01

DRAWING FILE NO: EDM\_STATION\_2\_EOSP

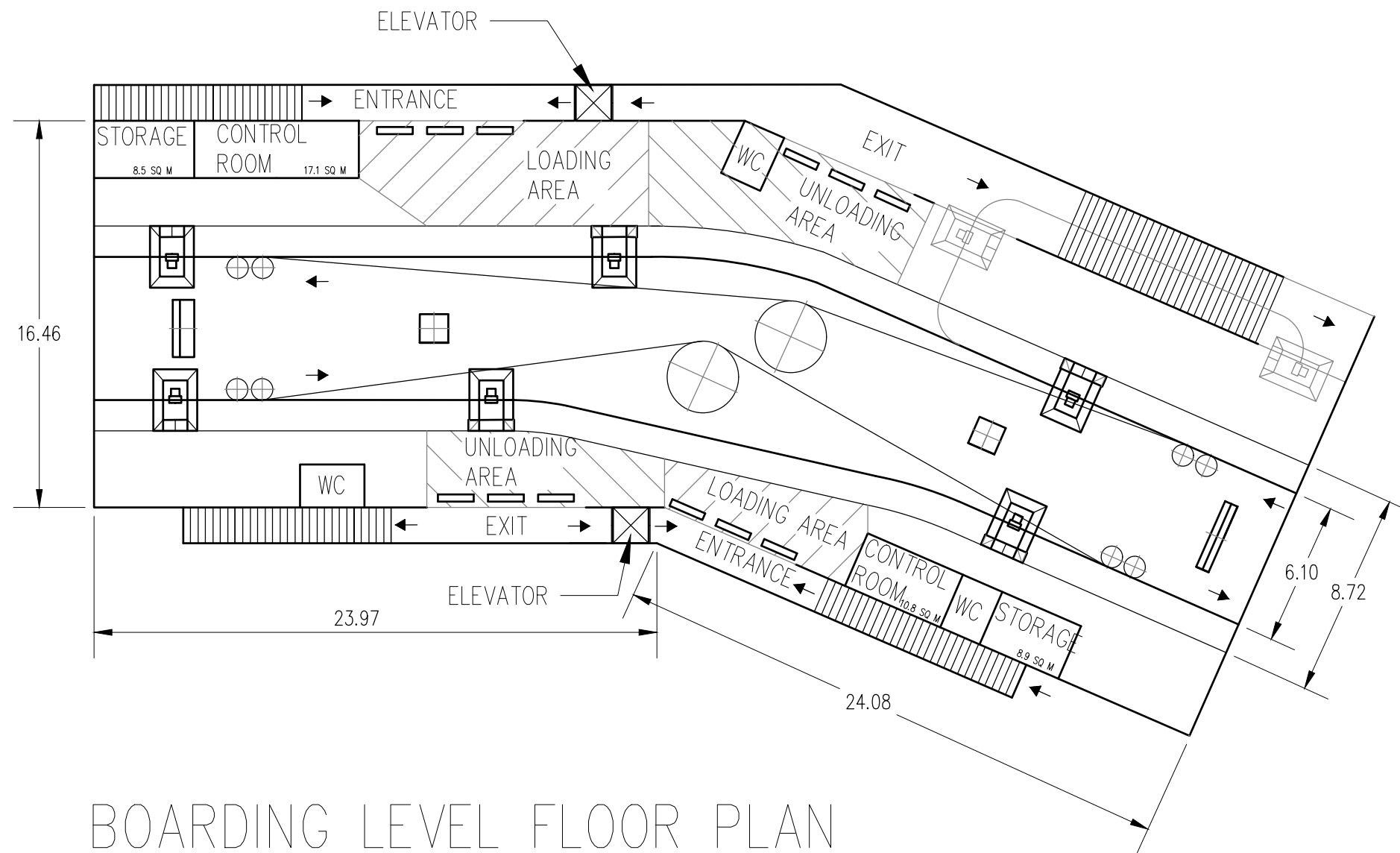
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SHEET NO: 1 OF 1

REVISIONS

DATE

BY



BOARDING LEVEL FLOOR PLAN

PRELIMINARY  
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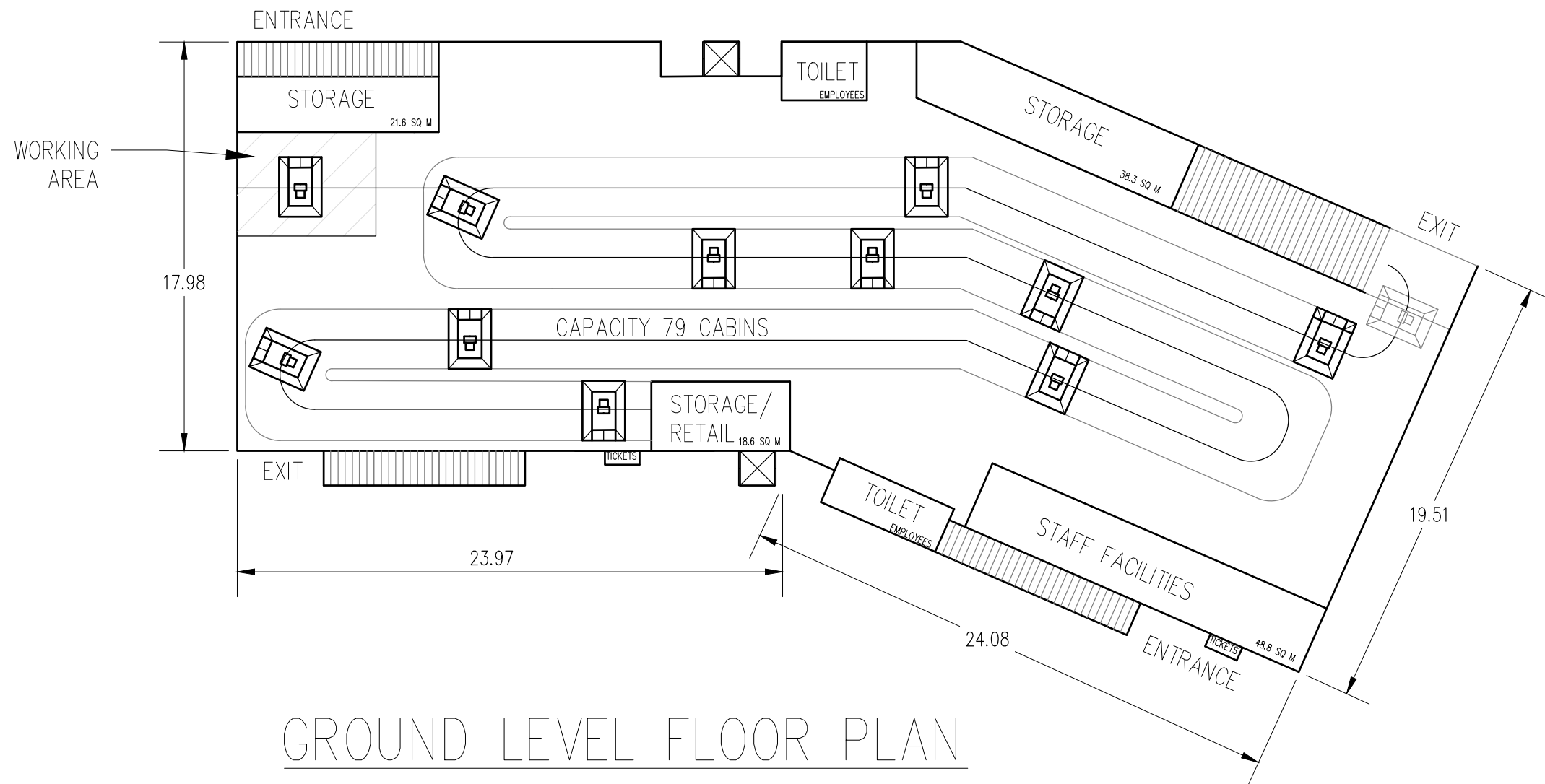
REVISIONS	DATE	BY

  
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 8730 TALON LANE NE, SUITE 200, LACEY, WA 98516  
 P: 360.352.1465 F: 360.352.1509  
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SHEET TITLE		PLANT - ANGLE STATION
PROJECT NAME		EDMONTON GONDOLA EDMONTON, ALBERTA, CANADA
DESIGNER:	TMM	
DRAWN BY:	TMM	
APPROVED BY:	SWD	
DATE:	OCTOBER, 2019	
JOB NO:	3308.01	
DRAWING FILE NO:	EDM_STATION_3_PLANT	
DRAWING NO:	[NOT RELEASED]	
SHEET NO:	1 OF 2	



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GROUND LEVEL FLOOR PLAN

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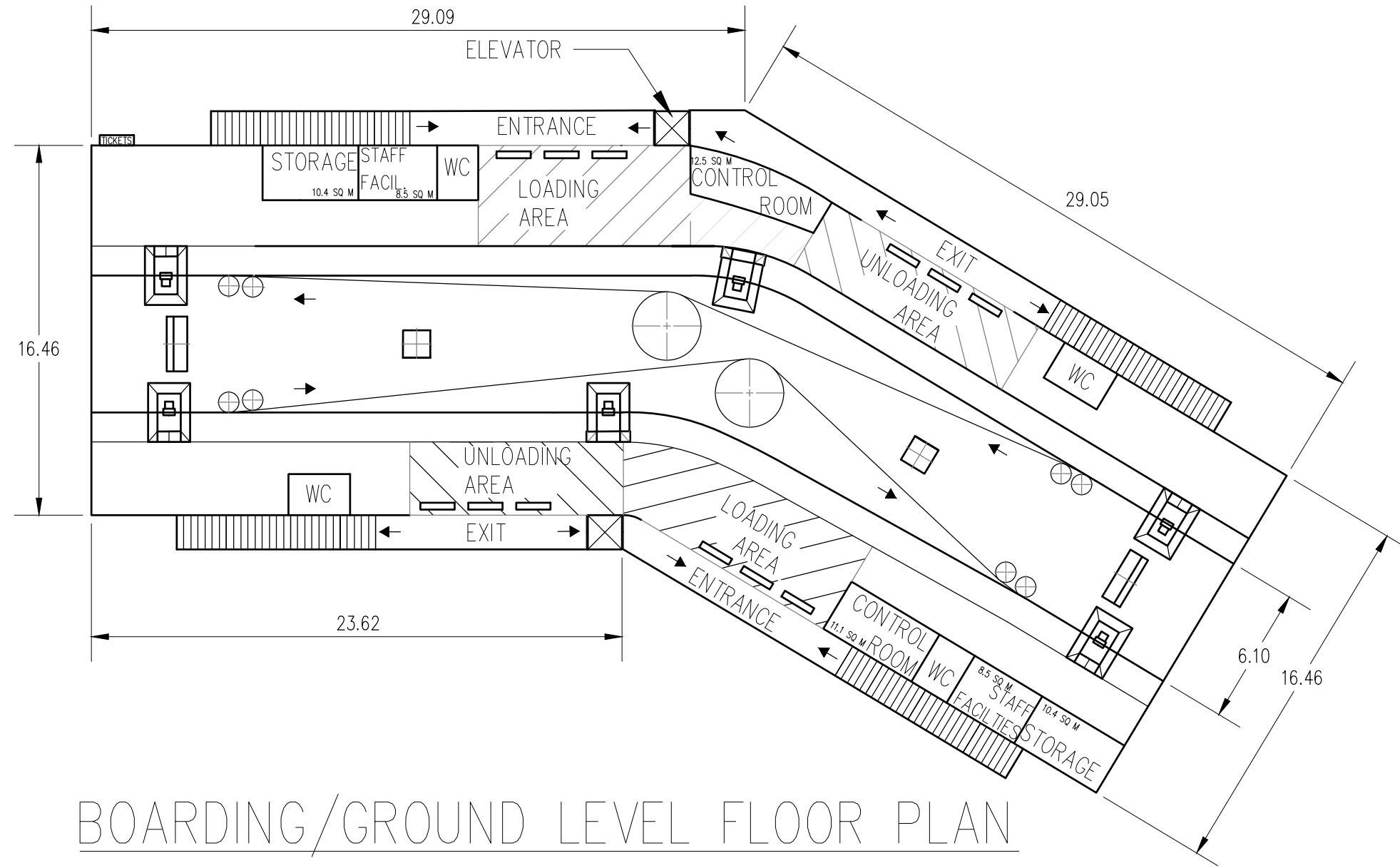
8730 TALON LANE NE, SUITE 200, LACEY, WA 98516  
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SHEET TITLE: PLANT - ANGLE STATION

PROJECT NAME: EDMONTON GONDOLA  
 EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	TMM
APPROVED BY:	SWD
DATE:	OCTOBER, 2019
JOB NO:	3308.01
DRAWING FILE NO:	EDM_STATION_3_PLANT
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Nov 01, 2019 11:57:13am - User: rikimarin@scj.com  
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# BOARDING/GROUND LEVEL FLOOR PLAN

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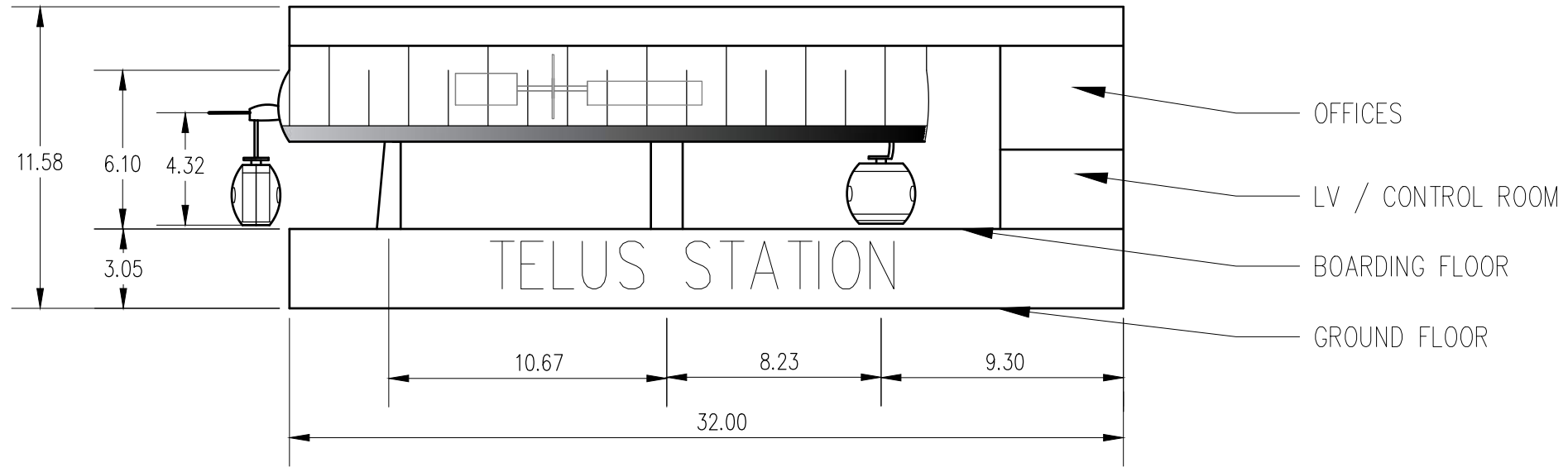
8730 TALON LANE NE, SUITE 200, LACEY, WA 98516  
P: 360.352.1465 F: 360.352.1509  
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**ROSSDALE - ANGLE STATION**

**EDMONTON GONDOLA**  
EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	TMM
APPROVED BY:	SWD
DATE:	OCTOBER, 2019
JOB NO:	3308.01
DRAWING FILE NO:	EDM_STATION_4_ROSSDALE
DRAWING NO:	[NOT RELEASED]
SHEET NO:	1 OF 1

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ELEVATION VIEW

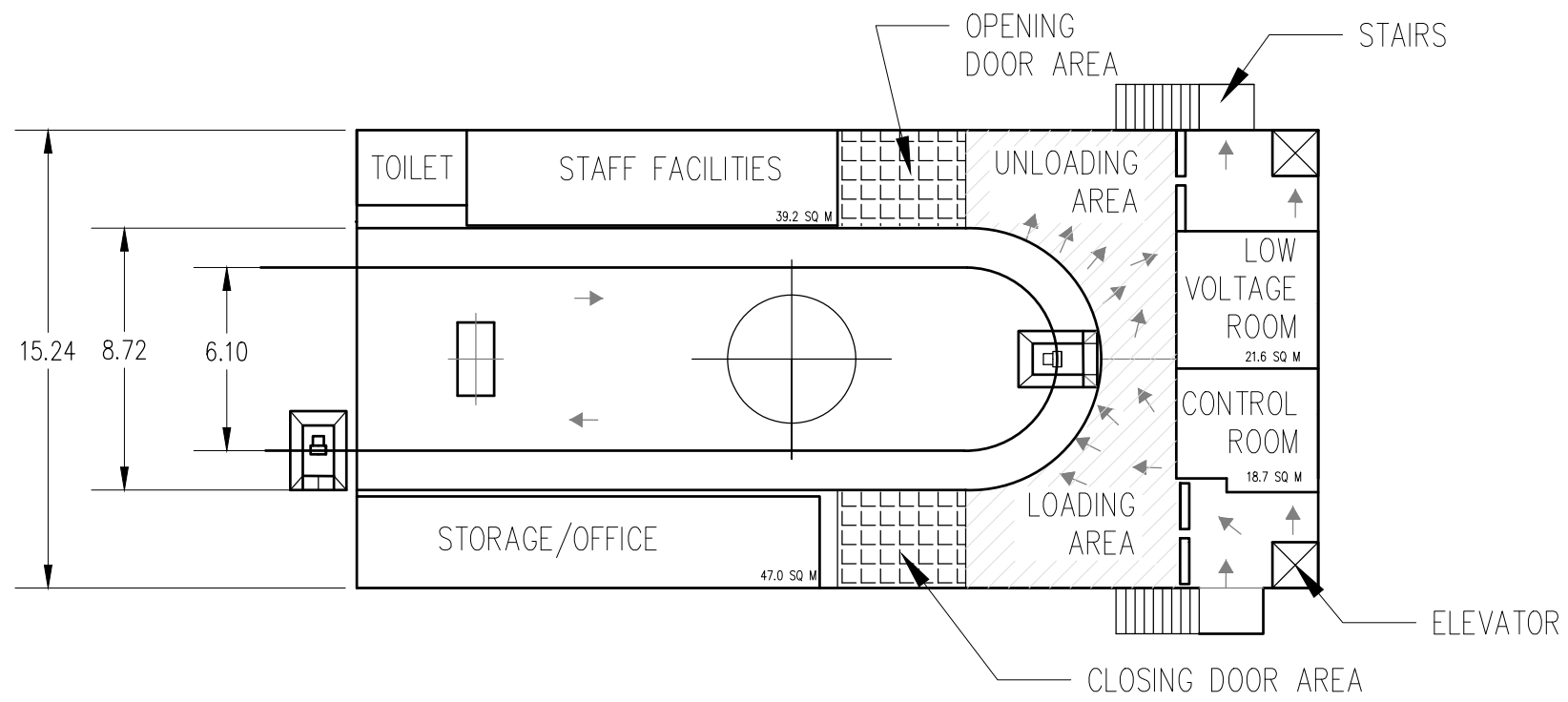
PRELIMINARY  
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REVISIONS	DATE	BY

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SHEET TITLE: <b>TELUS - DRIVE STATION</b>	PROJECT NAME: <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA
DESIGNER: TMM	
DRAWN BY: TMM	
APPROVED BY: SWD	
DATE: OCTOBER, 2019	
JOB NO: 3308.01	
DRAWING FILE NO: EDM_STATION_5_TELUS	
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SHEET NO: 1 OF 3	

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## BOARDING LEVEL FLOOR PLAN

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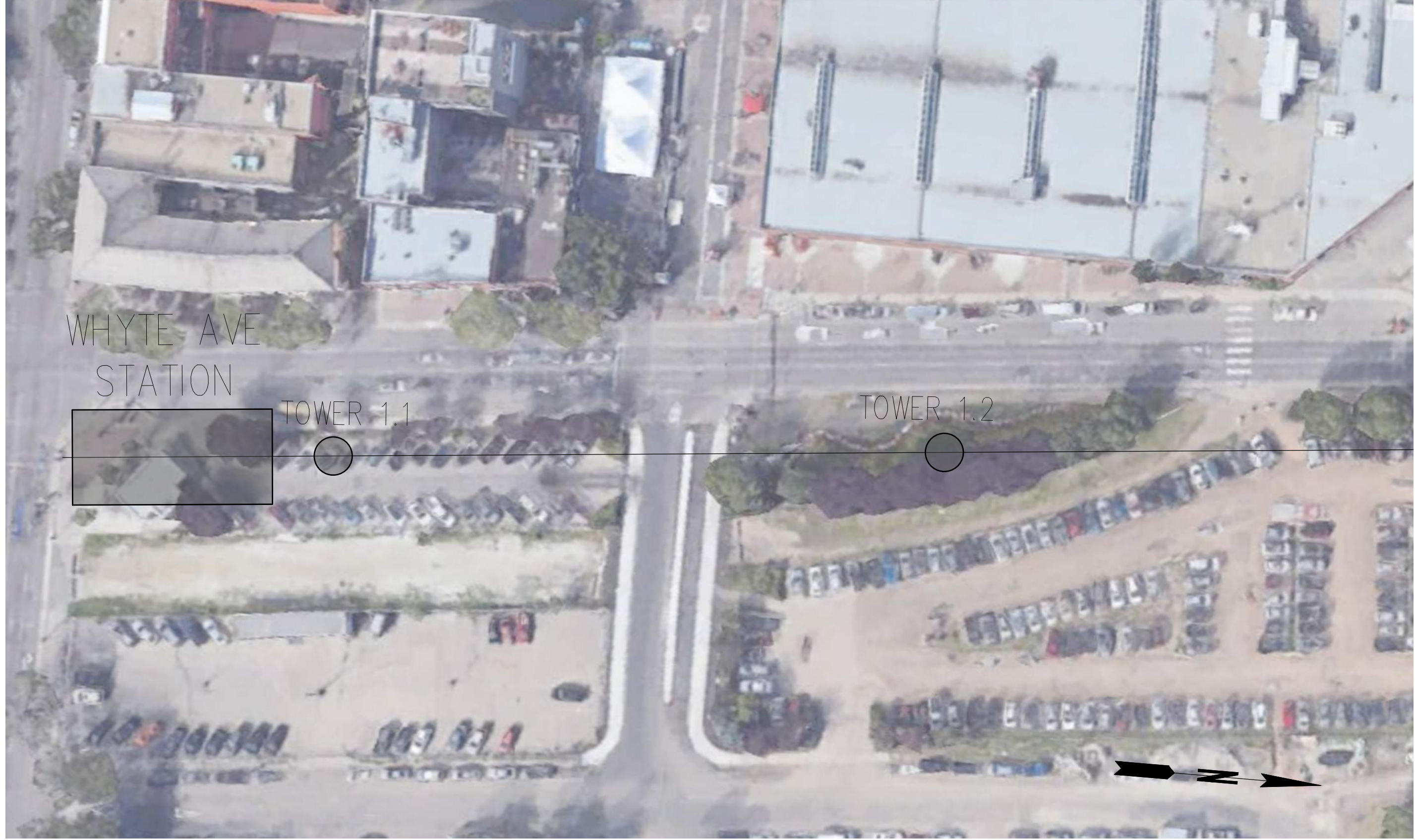
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 P: 360.352.1465 F: 360.352.1509  
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<p>SHEET TITLE: <b>TELUS - DRIVE STATION</b></p>	<p>PROJECT NAME: <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA</p>
<p>DESIGNER: TMM</p>	
<p>DRAWN BY: TMM</p>	
<p>APPROVED BY: SWD</p>	
<p>DATE: OCTOBER, 2019</p>	
<p>JOB NO: 3308.01</p>	
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<p>SHEET NO: 2 OF 3</p>	



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WHYTE AVE  
STATION

TOWER 1.1

TOWER 1.2



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EDMONTON CABLE CAR PLAN VIEW

EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

SHEET TITLE

DESIGNER:  
TMM

DRAWN BY:  
RM

APPROVED BY:  
SWD

DATE:  
OCTOBER, 2019

JOB NO:  
3308.01

DRAWING FILE NO:  
EDMONTON PLAN VIEW

DRAWING NO:  
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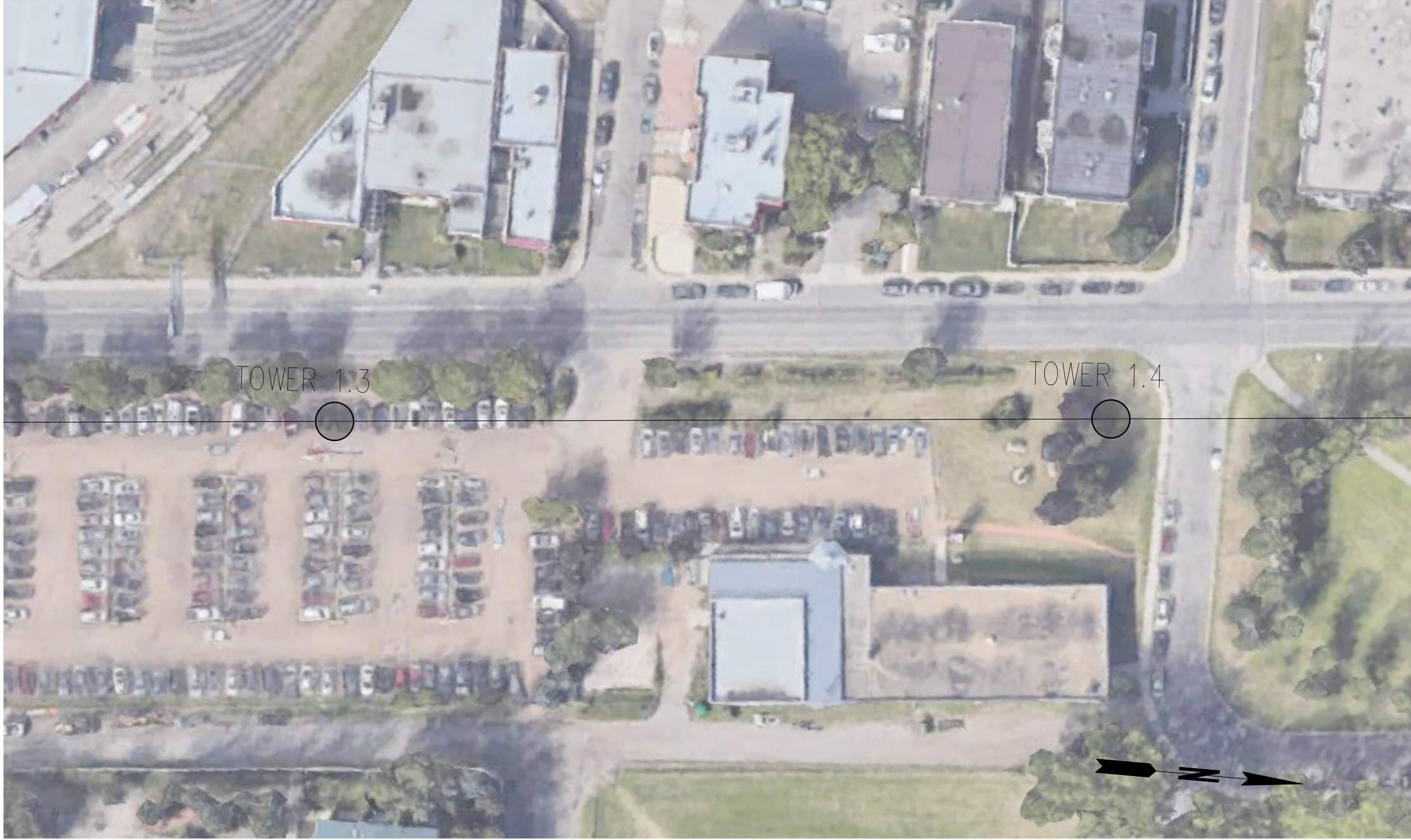
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1 OF 12

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**EDMONTON CABLE CAR PLAN VIEW**

PROJECT NAME:  
**EDMONTON GONDOLA**  
 EDMONTON, ALBERTA, CANADA

DESIGNER: TMM
DRAWN BY: RM
APPROVED BY: SWD
DATE: OCTOBER, 2019
JOB NO: 3308.01
DRAWING FILE NO: EDMONTON PLAN VIEW
DRAWING NO: [NOT RELEASED]
SHEET NO: 2 OF 12





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**EDMONTON CABLE CAR PLAN VIEW**

PROJECT NAME:  
**EDMONTON GONDOLA**  
EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	RM
APPROVED BY:	SWD
DATE:	OCTOBER, 2019
JOB NO:	3308.01
DRAWING FILE NO:	EDMONTON PLAN VIEW
DRAWING NO:	[NOT RELEASED]
SHEET NO:	3 OF 12





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SHEET TITLE: EDMONTON CABLE CAR PLAN VIEW

PROJECT NAME:  
EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

DESIGNER: TMM
DRAWN BY: RM
APPROVED BY: SWD
DATE: OCTOBER, 2019
JOB NO: 3308.01
DRAWING FILE NO: EDMONTON PLAN VIEW
DRAWING NO: [NOT RELEASED]
SHEET NO: 4 OF 12





NORTH SASKATCHEWAN RIVER



SHEET TITLE: <b>EDMONTON CABLE CAR PLAN VIEW</b>		REVISIONS △	DATE	BY
PROJECT NAME: <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA				
DESIGNER: TMM				
DRAWN BY: RM				
APPROVED BY: SWD				
DATE: OCTOBER, 2019				
JOB NO: 3308.01				
DRAWING FILE NO: EDMONTON PLAN VIEW				
DRAWING NO: [NOT RELEASED]				
SHEET NO: 5 OF 12				



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SHEET TITLE		EDMONTON CABLE CAR PLAN VIEW
PROJECT NAME		EDMONTON GONDOLA EDMONTON, ALBERTA, CANADA
DESIGNER:	TMM	
DRAWN BY:	RM	
APPROVED BY:	SWD	
DATE:	OCTOBER, 2019	
JOB NO:	3308.01	
DRAWING FILE NO:	EDMONTON PLAN VIEW	
DRAWING NO:	[NOT RELEASED]	
SHEET NO:	6 OF 12	





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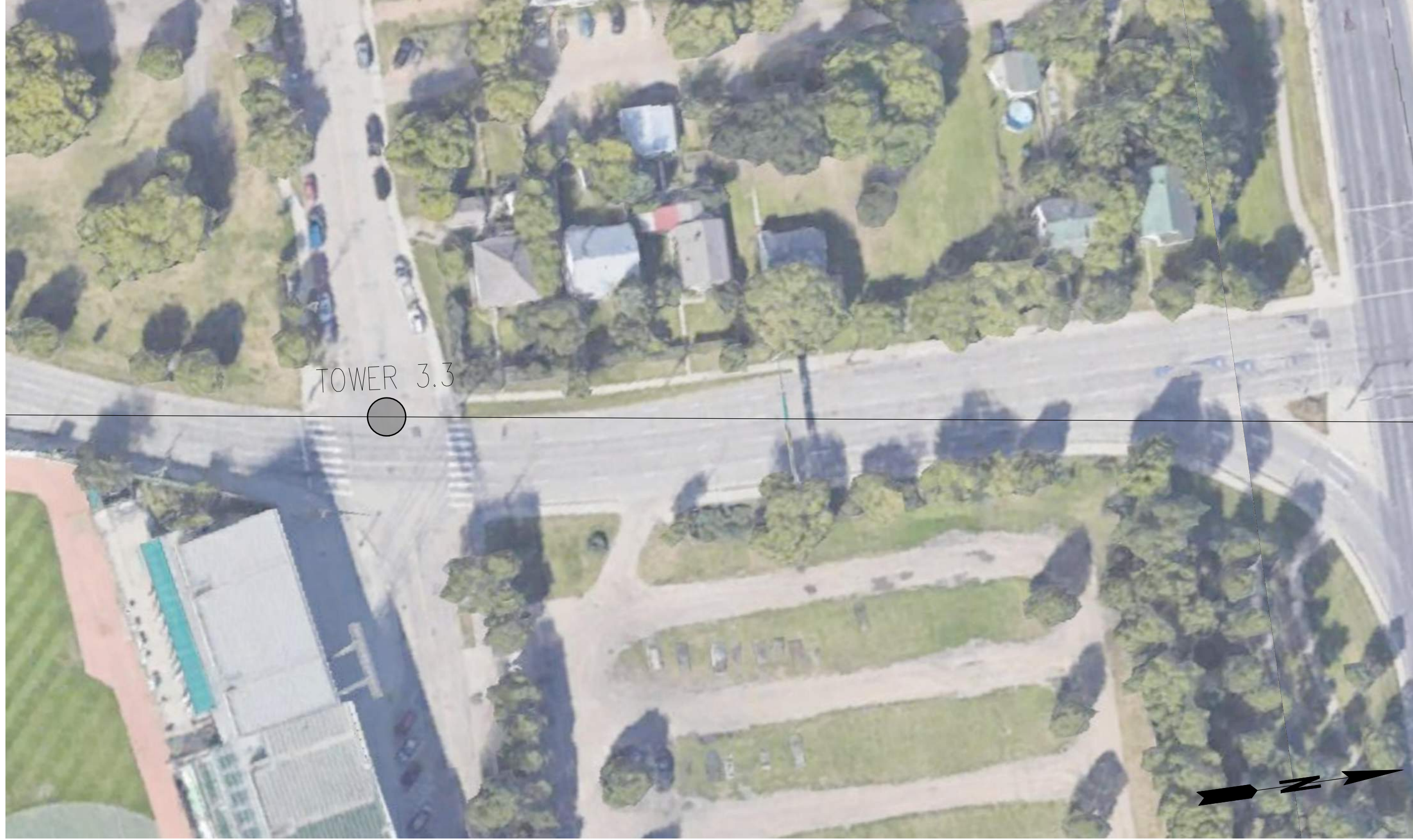
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PROJECT NAME: <b>EDMONTON GONDOLA</b> EDMONTON, ALBERTA, CANADA

DESIGNER: TMM
DRAWN BY: RM
APPROVED BY: SWD
DATE: OCTOBER, 2019
JOB NO: 3308.01
DRAWING FILE NO: EDMONTON PLAN VIEW
DRAWING NO: [NOT RELEASED]
SHEET NO: 7 OF 12



Nov 01, 2019 11:56:14am - User rikimarin@scj  
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SHEET TITLE  
EDMONTON CABLE CAR PLAN VIEW

PROJECT NAME  
EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

DESIGNER:  
TMM

DRAWN BY:  
RM

APPROVED BY:  
SWD

DATE:  
OCTOBER, 2019

JOB NO:  
3308.01

DRAWING FILE NO:  
EDMONTON PLAN VIEW

DRAWING NO:  
[NOT RELEASED]

SHEET NO:  
8 OF 12





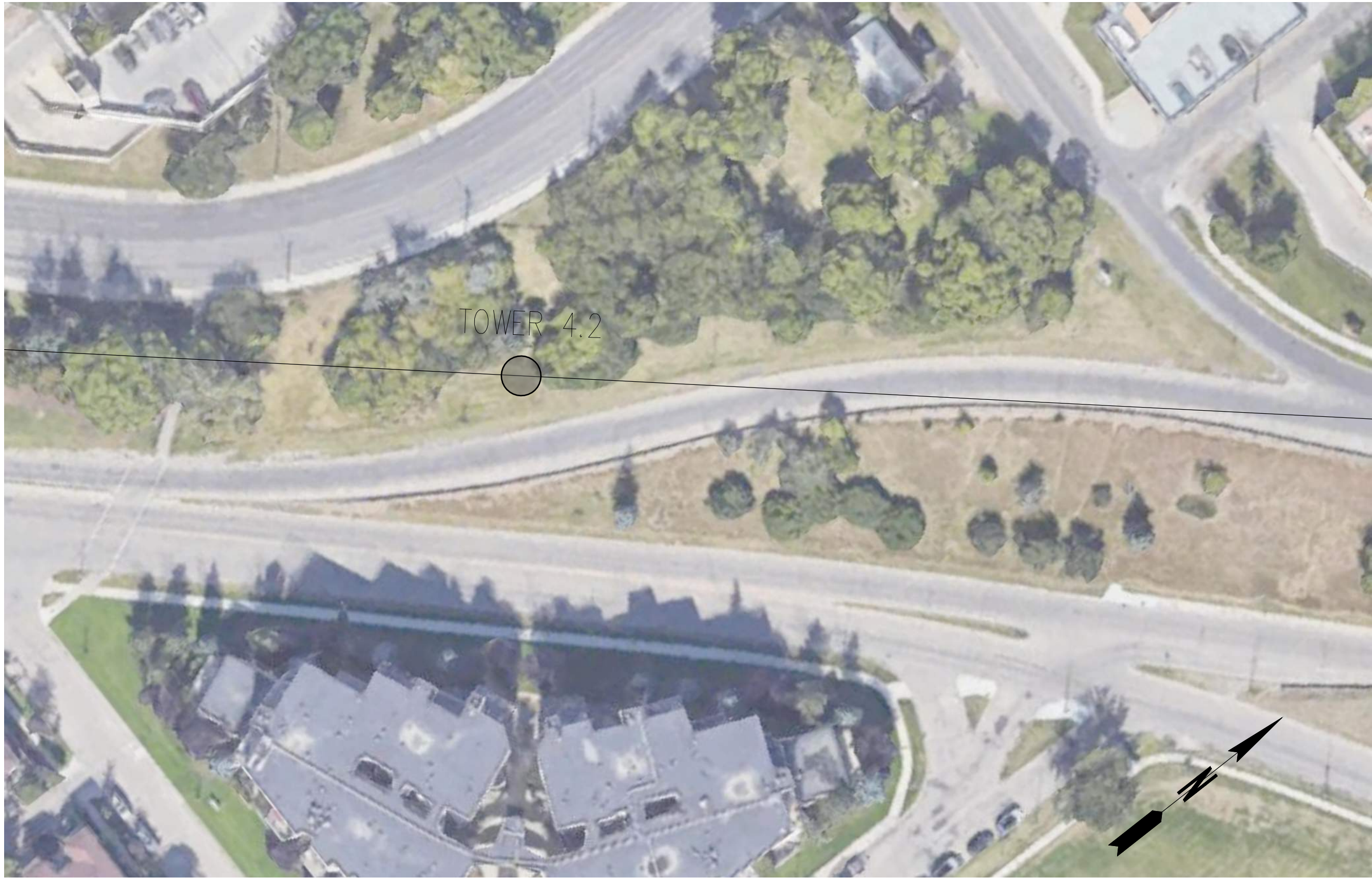
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DRAWN BY: RM				
APPROVED BY: SWD				
DATE: OCTOBER, 2019				
JOB NO: 3308.01				
DRAWING FILE NO: EDMONTON PLAN VIEW				
DRAWING NO: [NOT RELEASED]				
SHEET NO: 9 OF 12				

SHEET TITLE: EDMONTON CABLE CAR PLAN VIEW

PROJECT NAME:  
EDMONTON GONDOLA  
EDMONTON, ALBERTA, CANADA

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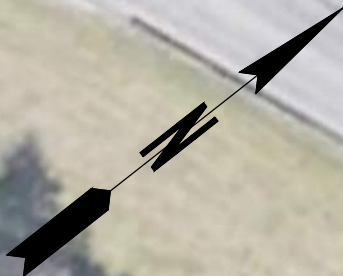
SHEET TITLE: EDMONTON CABLE CAR PLAN VIEW  
 PROJECT NAME: EDMONTON GONDOLA  
 EDMONTON, ALBERTA, CANADA

DESIGNER:	TMM
DRAWN BY:	RM
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DATE:	OCTOBER, 2019
JOB NO:	3308.01
DRAWING FILE NO:	EDMONTON PLAN VIEW
DRAWING NO:	[NOT RELEASED]
SHEET NO:	10 OF 12





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SHEET TITLE: EDMONTON CABLE CAR PLAN VIEW		REVISIONS		DATE	BY
PROJECT NAME: EDMONTON GONDOLA EDMONTON, ALBERTA, CANADA					
DESIGNER:	TMM				
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DATE:	OCTOBER, 2019				
JOB NO:	3308.01				
DRAWING FILE NO:	EDMONTON PLAN VIEW				
DRAWING NO:	[NOT RELEASED]				
SHEET NO:	11 OF 12				


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