



**Building Condition Assessment
(BCA)**

BCA Report for Cochenour Arena

10 William St.

Cochenour, Ontario



Report Date
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Prepared for:
Municipality of Red Lake

Prepared by:
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Project No.: 115422000

COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

10 William Street, Cochenour, ON P0V 1L0

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Revision	Description	Author	Quality Check	Independent Review
one	Peer review	Derek Ryall	yes	Myron Paryniuk



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Executive Summary

Stantec Consulting Ltd. and Stantec Architecture Ltd. (Stantec) were retained by the Municipality of Red Lake (the Client) to perform a Building Condition Assessment (BCA) of the Cochenour Arena located at 10 William Street, Cochenour.

This BCA was completed as part of a programming and planning exercise to upgrade the arena to regulation ice, 600 +/- spectator seats and associated support space, concession, washrooms, mechanical, electrical, etc. The building is a one storey structure with no basement or crawlspace. The building (main rink) was originally constructed in 1961. An ice plant and heated public space was added in the 1992. In 1962, an addition was built, and this addition consists of a community hall, commercial kitchen for banquets, washrooms, and hockey changerooms. This addition is not part of the BCA.

The site review was conducted on April 7th, 2022, by Derek Ryall (Architectural), Ahmed Moussa (Structural), Wilfredo Navarro (Mechanical) and Lawrence Chiu (Electrical). The client representative, Michel Labonte, the facility operations / maintenance manager, and the ice plant operator were on site for the review. The site review included a visual (non-destructive) assessment of architectural, structural, mechanical, and electrical systems.

The intent of this BCA is to establish the overall building condition and upgrades that would be required if the building were to be upgraded and renovated to meet minimum building code, operational upgrades and efficiency improvements. Total of these improvements, as further detailed in this report, total approximately \$12,292,000.

Existing reports and drawings were provided by the client for review by the Stantec team. These existing reports and drawings are provided in Appendix A. Site photos by Stantec are provided in Appendix B to E.

The general purpose and scope of our work and the limitations to our work are outlined in Section 1.0 Project Introduction of this report.



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1.0 PROJECT INTRODUCTION

1.1 PURPOSE, SCOPE, AND LIMITATIONS

1.1.1 Purpose

The BCA is focused on identifying the major operations, efficiency and code issues that affect the operation and maintenance of the facility and the future liabilities that could affect its operations and renovation for a new facility. This work was conducted by engineers / technologists for each discipline; architectural, structural, mechanical, and electrical. The purpose of the BCA is to establish conditions of existing building elements that may remain or need to be removed to accommodate a redeveloped facility that meets the clients program requirements.

1.1.2 BCA Scope of Work

The scope of work for the BCA included a general visual walk-through review of the site and building to determine the general condition of the facility's systems and envelope. The review was performed in accordance with the American Society for Testing and Materials (ASTM) Standard E2018-08, "Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process".

Methodology for the BCA was carried out to assess the major elements of the Cochenour complex and generally included:

- Review of existing documentation including drawings, specifications, and any previous reports.
- Visual (non-destructive) review of the condition of the following building systems for the property:
 - Structure;
 - Building Envelope;
 - Roofing;
 - Windows and Doors;
 - HVAC and plumbing;
 - Electrical;
 - Interior Finishes;
 - Fire and Life Safety; and
 - Site Features.
- A general overview of system type, age, and general condition. Stantec discussed any existing facility concerns with facility operation maintenance staff on site. Operation and maintenance staff were on site to provide access and discuss maintenance issues from their experience.
- Identify safety issues and to repair major defects in materials or systems that may significantly affect the continued operation of the facility.



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- Recommend further investigations, if required. Intrusive observations, destructive testing, and quantitative measurements were not carried out and are beyond the scope of this assessment, except when noted herein.
- Prepare a BCA report outlining findings and recommendations complete with photographs of salient observations and other pertinent information obtained during the review.

Note that this is a non-specialist review of the architectural, structural, mechanical, electrical, and fire & life safety systems at the property and includes discussions with the site representatives. A visual walk-through assessment of the structural, mechanical, electrical, and fire & life safety systems was conducted to determine the type of systems present, age, and aesthetic condition. It is assumed that the existing building and related structures were reviewed and approved by local authorities at the time of construction and at the time of any renovations and/or additions to the building.

1.1.3 Deviations from the Guide

The major deviations from ASTM Standard E2018-08 for this project were as follows:

- Entry of “confined spaces” or spaces deemed in Stantec’s or the site assessor’s opinion to be hazardous;
- Vaults that are owned by the utility providers;
- Entry of concealed or inaccessible areas of the Property that would require measures beyond that identified in the scope of work to assess;
- Verifying pressure, flow rates, sizes, actual numbers of units, etc.;
- A seismic evaluation of the facility;
- Testing, starting, or operating of equipment and systems;
- Work requiring specialty consultants, contractors, suppliers, manufacturers, etc.;
- Intrusive observations, destructive testing and quantitative measurements;
- As-built “take-off” or physical area measurements/calculations of the Site or confirmation of reported gross or net rentable areas of the Site; and

1.1.4 Methodology

1.1.4.1 Component Events

Events (recommended actions) are provided in this BCA report for components where they are found to contain “physical deficiencies” that are considered beyond normal operational maintenance, or where a component has realized or is expected to achieve its expected useful life (EUL) over the next twenty (20) years. The event types used for this BCA and their descriptions are described in the table below.



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BCA Event Types

Event Type	Description
Immediate Term	"Physical deficiencies" that require action within the next year to prevent further deterioration to the component, or to prevent possible injury due to an unsafe condition and/or possible Code violation.
Short Term	"Physical deficiencies" observed during the assessment that are not "immediate" in nature but are considered beyond normal routine maintenance.
Intermediate Term	Components or systems that have already exceeded or will exceed their EUL over the next five to ten years and may require replacement to maintain building performance.
Long Term	Components or systems that have already exceeded or will exceed their EUL over the next twenty years and may require replacement to maintain building performance.

Immediate Term and Short-Term items are recommended to be included in facility upgrade scope of work.

ASTM defines a "physical deficiency" as a conspicuous defect or significant deferred maintenance of a site's material systems, components, or equipment as observed during the site assessor's walk-through site visit. Included within this definition is material systems, components, or equipment that is approaching, has reached, or has exceeded its typical EUL or whose RSL should not be relied upon in view of actual or effective age, abuse, excessive wear and tear, exposure to the elements, lack of proper or routine maintenance, etc. This definition specifically excludes deficiencies that may be remedied with routine maintenance, miscellaneous minor repairs, normal operating maintenance, etc., and excludes conditions that generally do not constitute a material physical deficiency of the site.

The following is a list of the subjective terms used in the report to describe building elements.

Term	Description
Good Condition	The element is in original or near original condition with no visible sign of deterioration and still performs its intended function well.
Fair Condition	The element is in typical condition for its age and may have typical wear and tear, regular maintenance may be required.
Poor Condition	The element is nearing or has reached the end of its useful life and should be repaired / replaced.

Fair Condition and Poor Condition items are recommended to be included in facility renovation scope of work.



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Deficiencies have been categorized as;

- Code, a code update to meet current Ontario Building Code requirements would be required with an upgrade and renovation.
- Operations, inefficiency in building operation, flow of staff, players and spectators, access to amenities and overall functionable and appropriateness for the purpose.
- Efficiency, building envelope, windows, doors, foundation and mechanical heating and cooling equipment.

Some components have been assumed to have “indefinite” life expectancy as compared to the relative life of other components. From time to time, localized repairs may be required due to deterioration or vandalism, which are assumed to be handled as part of ongoing maintenance.

This report, its opinions, and recommendations, is intended to be used as a reference in the facility renovation and long-term ongoing maintenance and is not intended to substitute or supersede existing capital plans, funding contributions, scheduled repair events, etc. that may currently exist for the property. The report is also not intended to act as a mandate on the proper renewal of capital assets. Smaller or moveable building components and site improvements have generally been excluded from this assessment and will require consideration when deciding on the future direction for capital re-investment at the property.

1.1.5 Limiting Conditions

1.1.5.1 Exclusive Use

This report, including its information and opinions, has been prepared for the exclusive and sole use of the Municipality of Red Lake, (the "Client").

1.1.5.2 Physical Limitations to Scope

Stantec's work did not include intrusive testing/investigation, destructive testing, testing of life safety systems or quantitative testing for the building systems. As such, any recommendations as presented in this report, are based on walk-through non-invasive observations of the parts of the building(s) which were readily accessible during a visual review. Conditions may exist that are not as per the general condition of the system being observed and reported in this report.

Stantec did not access the roof of the arena as there was no safe means of access. The roof was observed from the grade around the building.

Should additional information become available with respect to the condition of the building and/or site elements, Stantec requests that this information be brought to our attention so that Stantec may reassess the conclusions presented herein.



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1.1.5.3 Assessments

No legal surveys, soil tests, geotechnical assessments, seismic assessments, detailed engineering calculations, or quantity surveying compilations have been made. No responsibility, therefore, is assumed concerning these matters. Stantec did not design or construct the building(s) or related structures and therefore will not be held responsible for the impact of any design or construction defects, whether or not described in this report. No guarantee or warranty expressed or implied, with respect to the property, building components, building systems, property systems, or any other physical aspect of the property is made.

1.1.5.4 Standard of Care

The assessment outlined in this report generally captured conditions that existed at the time of the site visit. Stantec's opinions and recommendations presented in this report are rendered in accordance with generally accepted professional standards for like services under like circumstances for similar locales. The opinions and recommendations are not to be construed as a warranty or guarantee regarding existing or future physical conditions or regarding compliance of systems/components and procedures/operations with the various regulating codes, standards, regulations, ordinances, etc.



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1.1.6 Audit Team

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2.0 ARCHITECTURAL ASSESSMENT

The assessment of the building architectural systems was conducted by Derek Ryall, Senior Architectural Technologist at the Cochenour Arena, Ontario on April 7th, 2022. The assessment of the architectural building systems did not include the disassembly of architectural building components for internal inspection.

The main areas for review include the building envelope and cladding, doors, interior finishes and fire and life safety. Reference architectural drawings were provided by the Client for the site plan, floor plans, building elevations and wall sections that were developed at the time of the building construction in 1997. Reference drawings are attached in **Appendix A**.

2.0 GENERAL BUILDING OBSERVATIONS

The building is a one storey structure with no basement and is an assembly occupancy. There is a raised floor located on the east side of the building for concession, public washrooms and viewing area. The approximate building floor areas for each level are as follows:

- Arena and support spaces 2,774 sq. m. (29,859 sq. ft.)
- Community hall 591 sq. m. (3,745 sq. ft.)

The building is made up of three components. The original wood glulam arch arena building, the east and west additions for the ice plant, changerooms, concession, washroom and office and the Cochenour Community Hall on the north side.

The original wood glulam arch arena building was built in 1962 with the artificial ice pad poured in 1971 with ice plant rebuilt in 1991. The arena contains a 180' x 80' ice surface and seating for 375 spectators.

In 1992, the east and west additions were built and is a pre-engineered steel frame structure and blanket insulation with exterior metal cladding. The west addition contains the ice plant, workshop, and ice resurfacer storage and access to the exterior and the ice.

In 1986, the Cochenour Community Hall was built and is a pre-engineered steel frame structure and infill insulation with exterior metal cladding. The building contains the community hall, supporting commercial kitchen, storage, and washrooms. The Red Lake Miners, the local junior 'A' hockey team have their change room in this building.

Due to age and lack of digital infrastructure, the facility's complex operates independently from the Town's integrated services. The functional layout, limited flexibility of providing varied programming, non-compliant code issues and lack of digital infrastructure severely limit the ability of the Cochenour complex to provide suitable and growing services to the local community.

The building is not sprinklered and there is a local fire alarm system installed.



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2.1 PROJECT BACKGROUND

Stantec has been retained by the Municipality of Red Lake to complete programming and a concept plan with costing for the upgrade and renovation of the arena. As part of this scope Stantec is completing this Building Condition Assessment to fully evaluate the scope of work for the renovation.

Events listed below as Immediate Term and Short Term are recommended by Stantec to be included in the scope of renovation work.

2.2 BUILDING CODE

The building code classification when the building was built is unknown and there are no drawings available. The building today would be classified as group A, division 3, article 3.2.2.32 under the Ontario Building Code 2012. Stantec has not completed a building code analysis as part of this BCA.

2.3 BUILDING ENVELOPE

2.3.1 Building Envelope Observations

2.3.1.1 Roof

.1 Rink

- a. The renovated roof construction over the entire arena according to the drawings is comprised of a standing seam roof on rigid insulation, on sheathing on glulam structure and was renovated in 2016.
- b. There are no gutters or downspouts as part of the arena roof.
- c. There are no snow rakes, snow fences on the arena roof resulting in the potential for large sections of snow and ice to slide off the roof blocking exit doors.
- d. The standing seam is prefinished white and in good condition.

.2 Additions

- a. The roof at the west side is pre-finished metal cladding with blanket insulation over pre-engineered purlins. The roof at the west side has active leaks at the roof low point with damaged roof and wall insulation.
- b. The roof on the east side is a similar construction. A leak was identified between the arena and east addition in a storage room
- c. Roof gutters and rainwater leaders are not a part of the building.

2.3.1.2 Exterior Walls

.1 Arena



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- a. The exterior walls are wood frame infill between the glulam structure with outboard insulation and exterior vertical metal cladding.
- b. The interior finish of the exterior wall is exposed wood stud and wood sheathing painted.
- c. The exterior wall is in fair condition.

.2 Additions

- a. The exterior wall construction was not visible. Pre-engineered construction is typically horizontal girts on the pre-engineered frame or steel stud infill. Exterior wall would be insulated and has vertical metal cladding to match the arena.
- b. The exterior walls were in fair condition except for the entry vestibule which had the lower sections of cladding replaced due to rust and are started to rust through again.
- c. The east addition interior finish of the exterior wall is gypsum board painted in good condition.
- d. The west addition interior finish is galvanized metal cladding and has rust in several sections at the base due to leaks from the roof and is in poor condition.

.3 Exterior prefinished metal cladding at exterior ice-resurfacer snow dump is bent and damaged.

.4 The existing foundation grade beams are cast-in-place concrete with no insulation.

.5 There are several small canopies at exterior exit doors and the west addition overhead door, there are in poor to fair condition.

2.3.1.3 Windows & Doors

.1 Exterior doors are hollow metal with pressed steel frames and door hardware and are in generally poor to fair condition.

- a. The rink exit doors do not have exterior landing or clear access to safely exit the building. The rink doors also have a concrete curb that limit their use by those with accessibility limitations. The north side was currently blocked by snow and the exit signage covered. The client has reviewed this condition with the local fire chief. The south side exit doors do not have a clear path to the street to safely exit the building.

.2 South exit doors have exposed plywood on the exterior that is subject to accelerated deterioration.

.3 The exterior windows are only in the east addition and are PVC and in good condition.

.4 Exterior entry doors

- a. One door has a broken closer and is nonfunctional.
- b. The door frame is rusted at the base and has reduced structural capacity.



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- c. Base of doors have surface rust.

2.3.1.4 Site Elements

- .1 Parking lot for the building is comprised of approximately 1,500 sq. meters of asphalt topping that in fair to poor condition. Resurfacing of the parking lot will be required within ten (10) years. Under present standards, the existing parking lot could accommodate approximately 50-60 vehicles, being insufficient for events with attendance of 350 people or more.
- .2 Street parking provides up to 50% of required parking during major events, including along William Street which borders the arena complex. Due to the lack of snow retention measures (i.e., snow rakes) pedestrian and vehicle traffic along William Street remain at significant risk and subject to injury or fatality if struck by snow/ice slides. Weight of snow/ice slides from the west side of the roof could total up to 100,000 kg. Accordingly, parking is recommended to be restricted along the eastside of William Street, at least during shoulder seasons, which further impacts the already insufficient parking available for arena events. It is anticipated snow rakes cannot be installed onto the existing roof due to the likelihood the roof and structure not being able to support the snow load or comply with present National Building Code requirements.
- .3 No light standards exist on the property. Lighting for the parking lot is presently being provided by building-mounted flood lighting.
- .4 Land drainage of the site is accommodated by drainage to local ditches. No catch basins exist within the parking lot area, thereby causing unsafe conditions during freeze-thaw conditions during busy shoulder seasons.
- .5 The entrance stair and ramp are in poor condition with multiple locations of spalling concrete and exposed rebar. The ramp does not meet code requirements for width or guardrail requirements. There is no accessible access to the ramp from the parking lot as there is a curb to the sidewalk. The surface of the ramp is spalling and has sections of concrete missing.
- .6 Site grading around the perimeter of the building varies greatly from the north to south side.
 - a. The north side grade slopes towards the building resulting in rainwater and snow melt along accumulating at the grade beam and working its way under the building.
 - b. The south side has a steep grade from the exit doors down to the street which is not accessible.
 - c. The east and west side grades slope from a high point at the north side to a low point on the south side and generally slope away from the building.



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2.3.2 Assessment and Recommendations

2.3.2.1 Building Envelope Recommendations

2.3.2.2 Code

- a. Provide a safe means of egress away from the building at the exit doors.
- b. Replace the front entry stair and ramp with a concrete ramp that meets current accessibility requirements.

2.3.2.3 Operations

- c. Create a swale on the north side of building to direct rainwater and snowmelt away from building foundation.
- d. Repaint all exterior hollow metal doors and replace weatherstripping and thresholds.
- e. Add snow fence and snow rakes to arena roof, north and south sides.
- f. Replace damaged exterior cladding.

2.3.2.4 Efficiency

- g. Replace roof over entire west side addition.
- h. Replace / repair roof over east addition where leak was identified.
- i. Replace cladding and insulation at front entry.
- j. Open exterior wall types and review insulation condition.

2.4 INTERIORS

2.4.1 Interiors Finishes

2.4.1.1 Floors

.1 Rink

- a. Flooring is painted concrete with a raised wood deck on the east side. Flooring is in poor condition with cracks and deterioration, refer to structural section for more information.
- b. Floor levels are not consistent with supporting spaces, storage room, west and east additions. A ramp has been added to for accessible access between the arena and east addition. This ramp does not meet current code requirements.



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.2 West addition

- a. The workshop, ice place and ice resurfacer storage flooring has exposed concrete in fair condition. There is some wear from the ice resurfacer wheels that may allow moisture into the concrete and impact the integrity for the rebar by causing them to rust.

.3 East addition

- a. The public area flooring is a resilient sheet floor and is in poor condition.
- b. The changerooms are a skate flooring and is in fair condition. Skate flooring has obvious wear, does not impact its performance, and has a reduced lifespan.

2.4.1.2 Interior Walls

.1 Rink

- a. Interior walls within arena are clad in pre-finished metal cladding or exposed wood stud framing, painted.

.2 West addition

- a. Walls are clad with vertical galvanized steel cladding and are in fair condition.

.3 East addition

- a. Walls in public area are clad with a combination of fiberglass reinforced panel (frp) at the lower level and painted gypsum board above. Walls have been maintained and are in good condition.
- b. Walls in change rooms are full height frp and in fair condition.

2.4.1.3 Ceilings

.1 Rink

- a. Arena is an exposed ceiling. Exposed ceiling is wood painted. Ceiling is in poor condition with paint flaking off with much of the wood exposed.
- b. Leak in ceiling of Rams Hockey storage room within arena.

.2 West Addition

- a. Exposed blanket insulation for pre-engineered structure is damaged from leaks and is in poor condition.

.3 East addition

- a. Public areas are acoustical ceiling tile and are in fair condition.



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- b. Changeroom ceilings are frp panels and in fair condition.
- c. Service spaces are exposed structure or gypsum board and are in fair condition.

2.4.2 Assessment and Recommendations

2.4.2.1 Code:

- .1 Clean and prepare all existing wood structure within arena for new intumescent paint finish.
- .2 Install transition strips for all locations from sheet flooring to hockey skate flooring.

2.4.2.2 Operations:

- .1 Replace all flooring in east addition.
- .2 Patch repair and paint walls as required.
- .3 Replace west wall of First Aid Room that has water damage.

2.4.2.3 Efficiency:

- .1 No action items

2.4.3 Interiors Spaces and Amenities

2.4.3.1 Interior Stairs and ramp

- .1 Stairs and ramp in the rink are wood with no finish. Stairs are located within the rink from the east addition and provide access between the two different floor levels.
 - a. Interior circulation stairs do not have accent nosing strips. The ramp does not meet code for threshold requirements.

2.4.3.2 Doors, Hardware and Windows

- .1 Interior doors are hollow metal doors in pressed steel frames and are in generally good to fair condition. Door closers for the fire rated doors were functional. Doors are painted and in fair condition.
 - a. Door hardware is round knob vs. lever knob, revise door hardware for all public areas to lever type hardware.
 - b. Door hardware for washroom doors within change rooms were missing hardware.
- .2 Overhead door from arena to west addition is damaged by hockey pucks and is in fair condition.



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2.4.3.3 Millwork

- .1 Wood and glass display cases in lobby are in good condition.
- .2 Office millwork consists of upper cabinets are in good condition.
- .3 Concession
 - a. The millwork for the arena concession is a mix of solid wood and plastic laminate countertop and is in poor condition.
 - b. Transaction countertop is not at an elevation to meet accessibility requirements.
- .4 Spectator seating is built up dimensional wood framing, painted wood threads and risers with plastic bench seating and is in good condition. Risers do have handrails and do not meet current code requirements. Handrails are in good condition.
- .5 Change Rooms
 - a. Player benches in primary four change rooms are dimensional lumber framing and in fair condition.
 - b. Hooks are welding in place, recommend replacing with anti-ligature (break-away) hooks.
- .6 Free-standing spectator seating in Viewing Area is in good condition.
- .7 Transaction countertop for ticket sales is not at an elevation to meet accessibility requirements.

2.4.3.4 Washrooms

- .1 The east addition has a male and female washroom with 5 fixtures per washroom, 5 water closets for the female and 3 urinals and 2 water closets for the male. Each washroom has 3 hand basins.
 - a. Washrooms are in poor condition with general wear and tear.
 - b. Replacement and upgrades are required to meet current accessibility code requirements.
- .2 Refer to Mechanical for plumbing fixture assessment

2.4.3.5 Fire Exits and Fire Separations

- .1 Fire exits are provided at the perimeter of the floor areas.
 - a. Southeast exit door and southwest exit door for arena are not accessible due to concrete curb below exit door.
 - b. South exit door for arena is not accessible due to access corridor width. Exit light is not visible due to spectator seating framing.



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- c. Exit door from Ice Plant Room is not accessible due to storage of equipment and does not have correct hardware.
 - d. Refer to item 2.3.1.3(1)(a)
- .2 Fire separation between rooms does not appear to be maintained, some areas of damaged gypsum board and new service penetrations have damaged the integrity of the fire separations.
 - a. A basic code review to be completed to establish required fire separations and to be incorporated in the renovation upgrade plan.

2.4.3.6 Accessibility

- .1 No universal access washroom in facility.
- .2 Male and female washrooms do not have auto door operators.
- .3 Accessible showers are not provided in the change rooms.
- .4 There is no dedicated and identified accessible space for spectators using a wheelchair.
- .5 No accessibility to commentators' box.
- .6 Different floor levels throughout rink and additions.
 - a. Door into Rams Hockey storage room within rink has step and reduced accessibility.
 - b. Access to west addition from arena has narrow, uneven walkway and concrete curb at door.

2.4.3.7 Arena Equipment

- .1 Dasher boards are aluminum framing with HDPE liner panels. HPDE kickplate is in fair condition.
 - a. Section of aluminum baseplate for dasher boards (southeast corner) has section corroded. Source of corrosion not known by facility staff.
- .2 Player benches are finished with HPDE and are in fair condition.
- .3 Penalty boxes and commentators' box are in fair condition.
- .4 Safety netting around ice is in fair condition.
- .5 Refer to Mechanical section for Ice Plant condition assessment.
- .6 There is no ice melt pit. Ice is dumped outside the arena adjacent to the street and is not contained, this may result in safety or hygienic reasons for local children playing on the snow removed from the ice surface.



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2.4.3.8 Accessories

- .1 There are few accessible / braille signs for wayfinding or change room identification.

2.4.4 Assessment and Recommendations

2.4.4.1 Code:

- .1 Upgrade washrooms to meet accessibility requirements, upgrade all fixtures and finishes.
- .2 Add universal access washroom with adult change table.
- .3 Add accessible showers for all change rooms including referee change room.

2.4.4.2 Operations:

- .1 Replace section of damaged dasher board framing. Review and replace any damaged, warped, chipped dasher boards.
- .2 Provide accessible access to west addition for maintenance staff.
- .3 Replace Concession entirely and install retail and accessible concession kitchen with correct cooking equipment, exhaust, ventilation, and plumbing requirements

2.4.4.3 Efficiency:

- .4 Add ice melt pit for disposing of ice resurfacers ice.



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3.0 STRUCTURAL ASSESSMENT

As part of the Building Condition Assessment, a site visit by Mr. Ahmed Moussa, EIT., of Stantec was conducted for the building on April 7th, 2022.

The site visit consisted of a walk-through investigation only and no invasive or destructive investigation or testing methods were employed. During the walk-through investigation notes and digital photographs were taken. Structural as built drawings of the buildings were not made available at the time of the site visit or the writing of this report, however the reference drawings (not sealed and signed) were available.

3.0.1 Description

The building under consideration in this report is the Cochenour Arena and Community Hall, which is in the Township of Red Lake, Ontario. It was conveyed to us that the Cochenour Arena was built in 1961. Then, a new addition was added to the existing arena in 1992 which included reception area, and dressing rooms to the east of the existing arena, Ice-resurfacers room to the west of the arena, and a community hall to the north of the existing arena building. The original arena building consisted of arched wood framing supported by pilasters and grade beams and the 1992 addition consists of structural steel framing, however, we could not identify the type of foundation for the addition. The maintenance manager of the building conveyed to us on site that the original 1961 arena building is supported by grade beams rested on mine wastes, which we could not identify on site, and further geotechnical investigation may be required to identify the particulars of soil and foundation.

At the time of the site visit, architectural finishes such as drywall prevented the assessment of most of the structural framing, however the overall structural condition of the 1961 building appeared to be in fair condition which will require strengthening for some of the existing structural members. Conversely, the 1992 addition appeared to be in good condition from what could be observed.

Rink was covered with ice at the time of site visit; therefore, we could not monitor the soundness of the concrete under the ice.

3.0.2 Observations

Observations of the exterior of the building are as follows:

A. Rink

1. The main frame of the building consists of arched glulam beams which appeared to be in fair condition with some beams showing signs of delamination of the glulam beams. The wall girts and roof purlins were in good condition.
2. Cracked stud in west wall.
3. Roof purlins appeared to be in fair condition with minimum to medium cracking.



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4. Steel angles fastened to glulam beams require further fastening at various locations along the south wall of the arena.
5. Grade beam and slab cracking in the north-west corner of the area.
6. Concrete slab spalling to the north-west corner of the rink.
7. Concrete cracking around pilaster at the north-west corner of the rink.
8. Crack in grade beam at the north-west corner of the rink.
9. Several cracks were spotted at various locations along the grade beam under the north wall of the rink.
10. Regular shrinkage cracking in the concrete slab north of the rink.
11. Concrete slab under bleachers is 5" lower than concrete in the rink and walk path around the rink as shown in Figure 12. Maintenance manager conveyed to us that 5" of plain concrete topping was added to the original 1961 concrete slab during the renovation of the arena.
12. The wall between hockey arena and Reception area is not insulated appropriately allowing thermal bridging moisture condensation on the wall. The top part of the wall above ceiling is found to be insulated, while the remainder of the wall to the floor was not insulated.
- 13.

B. West Addition

1. Cracking and spalling of concrete slab in ice-resurfacer room
2. Steel pipe bollards or heavy-duty steel angle to be used to protect interior wall from equipment and ice-resurfacer.

C. East Addition

1. Structural steel members and connections appeared to be in good condition in the reception area.
2. All Structural members in the dressing rooms were enclosed and could not be reached.
3. Concrete slab in the mechanical room in the room dressing area appeared to be in good condition.

D. Exterior

1. Concrete Stairs at the entrance of the reception area have severe concrete deterioration and the reinforcement is rusted severely.



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2. Concrete ramp at the entrance of the reception area experience severe concrete deterioration and handrails anchorages.
3. Concrete pad near the dressing room experience settlement, spalling, and insufficient dowelling to the main floor of the building creating a tripping hazard.
4. Inappropriate surface drainage was observed to the north and the west of the arena where ground is slopping towards the building allowing snow build up and water seepage under foundation
5. Building up of snow drift between arena and community hall due to difference in elevation between the two buildings blocking the emergency exit from the community hall which is a major safety concern during winter and spring seasons

3.0.3 Assessment and Recommendations

The conclusions related to the structural observations are as follows:

Code:

- .1 Entry concrete stairs and ramps in front of reception area and community hall must be replaced as they are in poor condition due to the severe deterioration in concrete and reinforcing steel.
- .2 Signs of delamination in glulam beams were observed during the site visits. Therefore, strengthening of glulam beam is required.
- .3 Wood purlins in the arena are in fair condition with varies in cracks severity due to moisture, and they must be replaced.

Operations:

- .1 Cracks in the concrete slab at the north of the arena appears to be shrinkage cracks. Cracks in the north-west corner of the rink could be resulting from differential settlement of foundation.
 - a. The cracks in the rink slab should be repaired in short term. Need to monitor the cracks in the slab.
- .2 Spalling of concrete slab in Zamboni room should be fixed.
- .3 Exterior concrete pads around building are deteriorated and settling creating trip hazard and must be replaced with new pads doweled to the main floor of the building.

Efficiency:

- .1 No action items.



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4.0 MECHANICAL ASSESSMENT

The assessment of the installed building mechanical systems was conducted by Willie Navarro, Mechanical Designer, for the Cochenour Arena and Community Hall located at 10 William Street, Cochenour, ON April 7, 2022. The review of the mechanical systems did not include the disassembly of mechanical components for internal inspection or functional equipment testing. The site review of the building is based on visual observations only. Note: Mechanical as-built drawings of the building were not available for review.

4.1 PLUMBING SYSTEMS

4.1.1 Domestic Water

4.1.1.1 Observations

1. Domestic water enters the facility at three locations.
 - a. What appears to be a 32mm (1-1/4") domestic cold water service main enters the building through the floor in the southeast corner of the Community Hall mechanical room. Domestic cold-water service is metered and c/w main isolation (shut off) valves and there is no backflow preventer installed. Domestic cold water supply main is partially insulated. It supplies two GSW 60 imp. gallon electric water heaters serving the Community Hall's janitor room (mop sink), minor league dressing room (washer/sink/shower), men's & women's washroom (lavatories/water closets) and kitchen (sinks).
 - b. A 50mm (2") domestic cold water service main enters through the floor in the southeast corner of first aid room in the Arena Hall (reception/indoor gallery/concession). Domestic cold-water service is metered and c/w isolation (shut off) valves and there is no backflow preventer installed. Domestic cold-water main is partially insulated and supplies a fire hose cabinet located in the northwest corner of Arena Hall, a Giant 61.4 imp. gallon x 4.5kw electric water heater is serving the janitor room (mop sink), men's & women's washroom (lavatories/water closets) and concession room (sink). Also, two A. O. Smith 119 US gallon x 15kw electric water heater c/w hot water recirculating pump serves the Arena's dressing rooms (lavatories/water closets/urinals/showers).
 - c. A 50mm (2") domestic cold water service main enters through the floor in the northeast of Arena's Ice Resurfacer room. Domestic cold-water service is metered c/w isolation (shut off) valves and there is no backflow preventer installed. Domestic cold-water main is partially insulated and supplies a fire hose cabinet located above the water meter and three A.O. Smith 119 US gallon water heater. Two water heaters are electric, and one is gas-fired all serving the Ice Resurfacer and ice rink.
2. Domestic water distribution piping is copper throughout the facility.

4.1.2 Assessment and Recommendations

4.1.2.1 Domestic water recommendations

4.1.2.2 Code

- a. Modify domestic water service mains entering the building by providing backflow preventer.
- b. Separate domestic water service required from fire protection water supply.



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4.1.2.3 Operations

- a. Complete domestic water piping insulation.
- b. Provide a contingency in the event the water service has a failure and needs to be replaced in the future.
- c. Provide separate metering for the Arena and Community Hall.
- d. Water service valves require servicing to confirm they are working. Repair or replace damaged valves.
- e. Drain the domestic water tanks and rinse out mineral sediment and anode rods in the tanks should be removed for inspection and replace as required.
- f. Prepare as-built drawings of the existing domestic water piping.

4.1.2.4 Efficiency

- a. No action items.

4.1.3 Sanitary Drainage

4.1.3.1 Observations

1. Sanitary drainage for the building is by gravity to below grade piping connected to the municipal sewage system. The sanitary service exits the building below the slab in the north end of the building.

4.1.4 Assessment and Recommendations

4.1.4.1 Code

- a. Replace existing shower room floor drain with a trench drain.
- b. Provide a new floor drain located near the backflow preventers

4.1.4.2 Operations

- a. Prepare as-built drawings of the existing sanitary drainage system.

4.1.5 Plumbing Fixtures

4.1.5.1 Observations

1. Plumbing fixtures for this facility are original and include flush tank water closets, wall-hung manual flush valve urinals, countertop, and wall-hung lavatories with manual single lever and two handle faucets, stainless-steel kitchen sinks with manual single lever and two handle faucets, floor drains, mop sinks c/w hot and cold service faucet, built in showers (dressing rooms) and shower stall (referee room).



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4.1.6 Assessment and Recommendations

4.1.6.1 Code

- a. Provide barrier-free plumbing fixtures as replacement for existing fixtures.

4.1.6.2 Operations

- a. Replace all shower room fixtures.

4.1.6.3 Efficiency

- a. Replace all washroom and dressing room fixtures with water-saving fixtures.

4.1.7 Other Plumbing Services

4.1.7.1 Observations

1. Propane gas is supplied from five propane tanks located on the northwest exterior wall of the Arena's Workshop. Propane is distributed to supply the radiant tube heaters c/w stainless steel sheet baffles in the seating/bleacher section of the Arena/Ice Rink.
2. Natural gas is supplied from Enbridge Gas. Gas regulator and meter is located on the northwest exterior wall of the Ice Resurfacer room. Natural gas is distributed to supply the gas-fired water heater located in the northeast side of the Ice Resurfacer room.

4.1.8 Assessment and Recommendations

4.1.8.1 Code

- a. No action items.

4.1.8.2 Operations

- a. De-commission existing propane gas system and replace with natural gas.

4.1.8.3 Efficiency

- a. No action items.

4.2 FIRE PROTECTION SYSTEMS

4.2.1 Standpipe and Hose System

4.2.1.1 Observations

1. This building has a standpipe and hose system. Refer to - Domestic Water section.



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4.2.2 Assessment and Recommendations

4.2.2.1 Code

- a. Provide a separate water supply to building standpipe and hose system.
- b. Provide a backflow preventer serving the existing standpipe and hose system.

4.2.2.2 Operations

- a. Inspect and test standpipe and hose system.

4.2.2.3 Efficiency

- a. No action items.

4.2.3 Sprinkler System

4.2.3.1 Observations

- 1. This facility does not have a sprinkler fire protection system.

4.2.4 Assessment and Recommendations

4.2.4.1 Code

- a. Provide a dry-pipe sprinkler suppression system in the ice rink area.
- b. Provide a wet pipe system in the Arena Hall and Facilities and Community Hall.
- c. Provide a sprinkler system to serve the space below the wooden seating/bleachers.
- d. Provide a sprinkler tree to serve the different zones in the Arena Facility and Community Hall.
- e. Provide a Storz fire department connection.
- f. Provide a fire alarm and detection system.

4.2.4.2 Operations

- a. Periodically inspect and test dry-pipe and wet-pipe sprinkler system.

4.2.4.3 Efficiency

- a. No action items.



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4.2.5 Fire Extinguishers

4.2.5.1 Observations

1. Fire extinguishers are located throughout the facility and appear to be in accordance with NFPA 10 requirements. These extinguishers seem to be inspected regularly and appear in good condition.

4.2.6 Assessment and Recommendations

4.2.6.1 Code

- a. No action items.

4.2.6.2 Operations

- a. Periodically inspect and test fire extinguishers.

4.2.6.3 Efficiency

- a. No action items.

4.3 ICE RINK MECHANICAL SYSTEM

4.3.1 Refrigeration

4.3.1.1 Observations

1. The Arena ice rink refrigeration is using an ammonia (R717) refrigeration system and is composed of one 25hp and one 50hp refrigeration compressors, a shell and tube heat exchanger/evaporator, brine pump and system, cooling tower, plate heat exchanger and glycol system.
2. The shell and tube heat exchanger/evaporator assembly are newer which was built in 2021.
3. The two compressors appear to be original to the initial 1992 construction. The exact age of the compressors was not determined but appeared to be in good condition.
4. Existing brine pump impeller casing is frosted, and condensate is trickling to a corroded drain pan that is directly draining to the floor. Northeast and southeast lower wall of the refrigeration room is corroded due to condensate.
5. Refrigeration room has a leak detection system that is interlocked to a wall-mounted centrifugal exhaust fan. When there is ammonia leak, the exhaust fan is activated. This fan is also activated by a room thermostat when a room temperature setting is reached. A strobe light, part of the leak detection system, is located on the entrance to the refrigeration room.
6. Existing cooling tower is getting more expensive to operate and maintain per Cochenour Arena building representative.
7. Existing emergency eyewash, located near the entrance to the refrigeration room, appears to be in good condition.



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8. No maintenance records were made available at the time of the observations. A typical life expectancy for a well-maintained ammonia ice rink chiller plant is about 40 years. Per industry standards, the Owner can expect to replace the ice plant within the next ten years assuming it has been regularly serviced and has not experienced excessive tube failure.

4.3.2 Assessment and Recommendations

4.3.2.1 Code

- a. Provide a roof-mounted strobic or high plume exhaust fan.

4.3.2.2 Operations

- a. Insulate the brine pump impeller casing and replace corroded drain pan with stainless steel and pipe drain to the nearest floor drain.
- b. Implement mold removal or mold remediation in refrigeration room and pipe trench.
- c. Set up a reserve fund for replacing the chiller plant compressors within the next ten (10) years. Note that catastrophic failure of an ammonia chiller plant is high risk and can result in fatality. It is strongly recommended to replace the chiller plant before catastrophic failure. This should be based on maintenance records and number of tubes replaced or sealed.
- d. Periodically inspect and test ammonia leak detection system.
- e. Periodically check/inspect emergency eyewash.

4.3.2.3 Efficiency

- a. Provide a new Cimco Guntner Adiabatic Condenser that reduces water demand and has very specific controls for optimal energy savings.
- b. The ice plant should be replaced within the next ten years assuming it has been regularly serviced and has not experienced excessive tube failure.

4.4 HVAC SYSTEMS

4.4.1 Heating & Airconditioning

4.4.1.1 Observations

1. Heating is provided in the Arena Hall by an inline fan located in the Arena Hall mechanical room. Supply/outdoor air is conditioned/heated by a duct-mounted electric duct heater coupled with duct distribution system. The unit is controlled by a standalone thermostat located in the Arena Hall. Also In the Arena Hall, a force flow heater and four baseboard heaters are provided. Link to Community Hall is heated by two baseboard heaters. Men's and women's washrooms are provided with baseboard heaters and concession room with force flow heater. Dressing rooms are also provided with baseboard heaters.



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2. Community Hall is conditioned by a 3-ton Carrier model 40AQ036 packaged air handling unit connected to an outdoor condensing unit using R22 refrigerant. Electric duct heater is installed in the main supply duct to maintain space temperature during winter. The unit is controlled by a standalone thermostat located in multipurpose room.
3. Reference to Section 4.1.7.1.1 of this report, the seating/bleacher section is heated by propane gas powered radiant tube heaters c/w stainless steel sheet baffles. Issues were relayed to Stantec like people seated on the seating area complaining that it is too hot in the seating/bleacher section. Also, ice surface is somewhat melting on the edge of ice rink because radiant heater baffles are not effective enough in directing heat to the seating/bleacher section.
4. Scorer's section is heated by two surface-mounted electric infrared radiant heaters on the wall. Existing semi-flush wall-mounted force flow heaters were abandoned or de-commissioned. Infrared heaters are controlled by a standalone thermostat located in the space.
5. Workshop and Ice Resurfacer room are heated by electric unit heaters.

4.4.2 Assessment and Recommendations

4.4.2.1 Code

- a. Provide a new packaged air handler using ozone friendly refrigerant to serve the Arena Hall.
- b. Provide a new packaged air handler using ozone friendly refrigerant to serve the Community Hall.

4.4.2.2 Operations

- a. Provide new unit heaters in the Workshop and Ice Resurfacer room.

4.4.2.3 Efficiency

- a. Provide a ventilation system with electric heating c/w duct distribution in the seating/bleacher section.
- b. Replace the heating system in the Scorer's section.

4.4.3 Ventilation System

4.4.3.1 Observations

1. Local ceiling-mounted exhaust fans are provided in the Arena and Community Hall men's and women's washroom. Exhaust fans are ducted to a wall-mounted vent cap. Control to exhaust fans seems to be by light switch.
2. Two Lifebreath HRV (heat recovery ventilator) units provide the Arena dressing and shower rooms with ventilation coupled with duct distribution system. The HRV units appear to be in fair condition. The HRV's seems to be manually controlled/activated by a circuit breaker. Ventilation in minor league



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dressing rooms (Red Lake Rams and Red Lake Miners) is insufficient. It was noticed that the odor of the player's outfit is unpleasant. This inadequacy of ventilation can also cause health problems.

3. Janitor room, both in Arena Hall and Community Hall, were not provided with exhaust system.
4. Community Hall's kitchen is provided with a make-up air unit coupled with a duct-mounted electric heater and duct distribution system. A commercial grease hood c/w local fire suppression system and roof-mounted exhaust fan is provided. The grease hood is apparently not used based on the information gathered from the Cochenour Arena building representative.
5. There is no exhaust in Referee dressing room's shower stall.
6. The existing Arena dehumidifier seems to be undersized. Cochenour Arena building representative informed Stantec, that condensate is trickling from the ice rink's lighting fixtures. This issue usually happens in September. It should also be noted the dehumidification unit is intended to be installed at or take the air from the highest level of the arena where the warmest and most humid air is located. At the installed height, the dehumidifier is not as effective.
7. Refrigeration room ventilation is provided via a wall-mounted centrifugal exhaust fan that is controlled by a reverse acting room thermostat to remove heat.
8. Ice rink mechanical ventilation system is provided with wall-mounted propeller exhaust fans located at high level on both ends of the ice rink.

4.4.4 Assessment and Recommendations

4.4.4.1 Code

- a. Provide local exhaust in the Arena and Community Hall's Janitor room.
- b. Provide a new ventilation system to serve the ice rink per indoor air quality requirements and to address the existing inadequacies (air distribution method, temperature of air, relative humidity).
- c. Provide an exhaust system in Referee room's shower stall.

4.4.4.2 Operations

- a. Periodically inspect drain pan and replace air filters.

4.4.4.3 Efficiency

- a. Relocate the existing Arena dehumidifier near the peak or duct the inlet up high to improve dehumidification. Add another unit, to be done in phases, if elevating the existing unit will not improve the dehumidification.
- b. Replace the two HRV units with bigger capacity to serve all the Arena dressing and shower rooms including the referee dressing/shower room.



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5.0 ELECTRICAL ASSESSMENT

The assessment of the building electrical systems was conducted by Lawrence Chiu, Electrical Engineer at the Cochenour Arena, Ontario on April 7th, 2022. The following electrical assessment was conducted based on a visual review of the arena building which includes the ice surface, electrical and mechanical rooms, concession area, reception, Ice Resurfacer garage, workshop, dressing rooms and Cochenour Community Hall. Reference photos are attached in **Appendix E**.

5.1 POWER DISTRIBUTION

The building is serviced from an Ontario Hydro pad-mounted transformer located east of the building behind the ice resurfacer garage. From the transformer, service conductors are routed underground to the northeast corner of the building to a utility meter on the exterior of building. Next to the utility meter is a plug-in for a portable generator hook-up to provide power to parts of the building in case of emergency. The service conductors feed to a main service disconnect switch, which is connected to the meter cabinet and feeds an 800A, 347/600V 3phase 4 wire Main Distribution Panel located in the mechanical room. The mechanical room houses the main power distribution equipment and the Ice Plant machine.

The 800A Main Distribution Panel has four 600V, 3-pole breakers installed. There are no current ratings labelled on three of the four breakers; the breakers are feeding the Motor Control Center (MCC) located in Cochenour Community Hall, 400A splitter located in the front mechanical room by the dressing room area and a CDP-B located in the same mechanical room. The labelled 150A-3P breaker is feeding the Ice Plant machine. CDP-B feeds a 25kVA step-down transformer which is connected to a 120/208V sub-panel located in the same room. The main distribution panel, CDP-B and 120V/208V panel located in the mechanical room were manufactured by Commander. The equipment is old but in fair condition.

The MCC located in Cochenour Community Hall was manufactured by Klockner-Moeller (acquired by Eaton). The MCC is feeding air handlers, heaters and other mechanical equipment serving the Community Hall. The MCC feeds a step-down transformer serving the 120/208V sub-panel located by the stage area and feeds another transformer that is wired to the sub-panel located in the kitchen. The panels and transformers were manufactured by Federal Pioneer. The equipment is old but in fair condition.

The 400A splitter located in the front mechanical room is connected to five disconnect switches. Two disconnect switches are wired to step-down transformers serving CDP-C and sub-panel E, one disconnect switch is serving the arena dehumidifier and the remaining two disconnect switches serve hot water tanks. CDP-C serves three sub-panels: A, B and C. Sub-panels A and B are in the mechanical room. Sub-panel C is in the concession area. Sub-panel E is located next to sub-panel A. The panels were manufactured by Commander. One of the transformers was manufactured by Federal Pioneer and the other was manufactured by Polygon. The splitter was manufactured by Pursley Limited and installed in 1985. The equipment is old but in fair condition.



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Field wiring appears to be a mix of wire in conduit and BX cable throughout the building. The cabling in some areas is installed poorly; not properly supported and exposed in portions of the building.

5.1.1 Assessment and Recommendations

5.1.1.1 Code:

- a. Repair or upgrade all wiring installations to meet current code.

5.1.1.2 Operations:

- b. Look to replace and consolidate older panels in the mechanical rooms.
- c. Properly support cables in areas where the cabling is exposed and hanging.

5.1.1.3 Efficiency:

- d. No action items.

5.2 LIGHTING

Lighting in the public space, change rooms and mechanical room is a mix of T8 and T12 fluorescent lighting. Original base building fixtures use T12 lamps and ballasts but are upgraded to T8 when they burn out. There are some LED fixtures used in the reception area.

Metal Halide and High-Pressure Sodium fixtures are installed in the rink. The light fixtures installed above the ice surface and the stands are different color temperatures. The distribution of light over the ice rink is poor with shadows and dark spots. Rink lights are controlled by a light switch panel located in the mechanical room.

There are exterior wall pack light fixtures on the east wall by the entrance and on the north wall near the parking lot. There are exterior downlights at the entrance of the Cochenour Community Hall. There is one pole light with four heads serving the parking lot. The exterior lighting is controlled via daylight sensors.

5.2.1 Assessment and Recommendations

5.2.1.1 Code:

- a. No action items.

5.2.1.2 Operations:

- b. Replace the existing lighting serving the ice rink and stands with new LED fixtures to improve quality and uniformity of light.

5.2.1.3 Efficiency:

- a. Replace existing light fixtures with new LED lights.



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- b. Provide new addressable lighting control system to provide the desired amount of light where and when it is needed. There are areas with light fixtures that are always on during the day and remain on at night when maintenance forgets to turn them off. A new lighting system would increase energy savings.

5.2.2 Voice/Data Communication System

Telephone service comes into the main mechanical room from the utility pole located northwest of the building. The service provider is Tbaytel. There are BIX blocks located in both mechanical rooms. The internet router is in the reception office. There is no dedicated IT rack serving the building. Wireless access points are installed throughout the public spaces and wired back to the router in the reception office.

5.2.3 Public Address System and Arena Controls

There is a public address system serving the arena. There are a mix of ceiling mounted and wall mounted P.A. speakers in the seating areas, but the ceiling mounted speaker do not work. During events, the maintenance staff would bring in portable speakers to accommodate the lack of functional speakers. The microphone plug-in to play over the P.A. system is in the broadcast booth. The console system is located at the broadcast booth and in poor condition with microphone cables exposed and hanging.

Scoreboard is controlled at the broadcast booth. The scoreboard stops functioning when the temperature in the arena gets too cold during the winters. The scoreboard is not rated for hockey arena use.

The head-end control for the hockey goal siren is in the broadcast booth. Siren is functional.

5.2.4 Assessment and Recommendations

5.2.4.1 Code:

- a. No action items

5.2.4.2 Operations:

- b. New IT rack to be installed if the arena is being expanded to have all communications systems at one location instead of having them scattered throughout the building.
- c. Replace the existing Public Address System.
- d. Replace scoreboard with a system suitably rated for environmental conditions of a hockey arena.

5.2.4.3 Efficiency:

- e. No action items



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

10 William Street, Cochenour, ON P0V 1L0

5.3 LIFE SAFETY SYSTEMS

5.3.1 Fire Alarm System

The building is equipped with a Notifier System 500 fire alarm control panel. It is a single stage, conventional system with 8 zones currently in use. The panel is located by the main entrance of the building. The panel provides a local alarm and is not hooked up to an auto dialer. In the case of emergency, the fire department needs to be contacted manually by maintenance. There are heat and smoke detectors located throughout the building, as the building is not sprinklered. Bells are located throughout the building. Manual stations are placed at exit locations.

5.3.2 Exit Signage and Emergency Lighting

The signs are of the older incandescent non-pictorial (red) style no longer accepted for new installation. The exit signs are old and in poor condition with at least five that are no longer functional.

There are battery banks and remote heads throughout the building. They are old but working.

Generally, the quantity and location of both exit signs and emergency lights appear adequate.

5.3.3 Assessment and Recommendations

5.3.3.1 Code:

- a. Existing system appears to be obsolete and no longer supported. It might be difficult to find a compatible auto dialer. Replace the existing fire alarm panel with a system that has an auto dialer.
- b. Replace exit signs throughout the building.

5.3.3.2 Operations:

- c. Replace existing battery banks and remote heads serving the building.

5.3.3.3 Efficiency:

- d. No action items

5.4 SECURITY SYSTEMS

5.4.1 Intrusion Alarm System

There is no intrusion detection system installed.

5.4.2 Access Control System

There is no electronic access control system.



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

10 William Street, Cochenour, ON P0V 1L0

5.4.3 Video Surveillance System

There is no surveillance system installed.

5.4.4 Assessment and Recommendations

5.4.4.1 Code:

- a. No action items

5.4.4.2 Operations:

- b. Install new security systems (Intrusion, Access Control and Video Surveillance).

5.4.4.3 Efficiency:

- c. No action items

5.5 HEATING

Electric heat in the reception and dressing room areas. Rest of the building is heated using a mixture of propane and gas. Electric heat is in the form of heating coils and baseboard heaters. The baseboard heaters are in poor condition and many of them are no longer working.

5.5.1 Assessment and Recommendations

5.5.1.1 Code:

- a. No action items

5.5.1.2 Operations:

- b. Replace the baseboard heaters with new ones.

5.5.1.3 Efficiency:

- c. No action items



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

10 William Street, Cochenour, ON P0V 1L0

6.0 NEW CONCEPT PLAN

To maximize the effectiveness and performance of the existing Cochenour complex property, a major redevelopment can be undertaken to expand and reconfigure the entire facility. This major redevelopment would represent the limit of what the existing property could provide as a service to the local community. Further to the BCA findings, the major redevelopment could include the following items:

1. Reconfiguration of existing rink and spectator/public seating to meet code/performance requirements.

The existing rink ice surface is to be reconfigured and resized to regulation ice size of 200' length x 85' width. The spectator seating is to be increased from 375 to 600. The change of ice size results in the reorientation of spectator seating to the ends of the ice surface from the side. The existing spectator seating is to be demolished. The interior of the rink is to have structural repairs and have the interior finishes and lighting redone. The area of the rink for the reconfigured ice and spectator seating is 27,650 sq. ft.

2. Expansion of public gathering, concession and entrance areas

The front entry has been expanded and redeveloped to accommodate current accessibility and health code requirements. These include a new concession, washrooms, vestibule and foyer to allow circulation of spectators, visitors and players. The foyer will be a open area with a double volume space to suit the scale of the space. The space will have durable interior finishes. The area provided for these spaces is 8,838 sq. ft.

3. Development of administration and support areas

Part of the building expansion is the addition of an Administration / Security / Help Desk. This addition serves to support the users and staff of the facility. The Administration / Security / Help Desk is located centrally with views to the Foyer, exterior and entry. Additional support space includes an Office and Multi-Purpose Room for arena / community meetings and training. The area provided for these spaces is 1,120 sq. ft.

4. New dressing and team sports areas to meet code compliance

New dressing rooms replace the outdated and undersized dressing rooms. Four full size dressing rooms and one half size dressing room have been provided, allowing for two teams on the ice and two teams off the ice with a half room for coed teams. This allowed efficiency of operation and ice time rental. Two new referee rooms have been added to replace the single undersized referee room. A club dressing room has been provided for the SJHL hockey team, the Red Lake Miners, this replaces the undersized room in the adjacent community hall.

Dressing rooms are concrete block construction with durable interior finishes and fully accessible washrooms and showers for each dressing room. A new figure skating office is included that replaces the undersized figure skating storage room in the existing arena. The area provided for these spaces is 11,438 sq. ft.

5. New Mechanical/Electrical rooms

The expanded building footprint requires an expanded mechanical and electrical systems, space have been allowed for in the new design to accommodate this mechanical and electrical equipment. The area provided for these spaces is 1,692 sq. ft.



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

10 William Street, Cochenour, ON P0V 1L0

6. New Ice Plant

The new ice plant would be reviewed for size and type with the community should the design proceed past concept development. For the purpose of this costing an Ammonia plant of 50 tons capacity has been allowed for, including a new resized chilled concrete slab. Supporting this space is the ice resurfacer room, ice melt-pit and workshop for upkeep and facility maintenance. The area provided for these spaces is 2,200 sq. ft.

7. Demolition of Adjacent Community Hall

The existing Cochenour Community Hall is to be demolished for the expansion of the arena. The hall is an existing pre-engineered steel structure with a metal roof and exterior cladding. The hall has a large auditorium with stage used for functions and local performances. The auditorium has support spaces including kitchen, storage, washrooms, services spaces and club dressing room for the Red Lake Miners. The overall area of the existing Cochenour Community Hall is 3,745 sq. ft.

The concept plan for the above developments are provided in Appendix F.

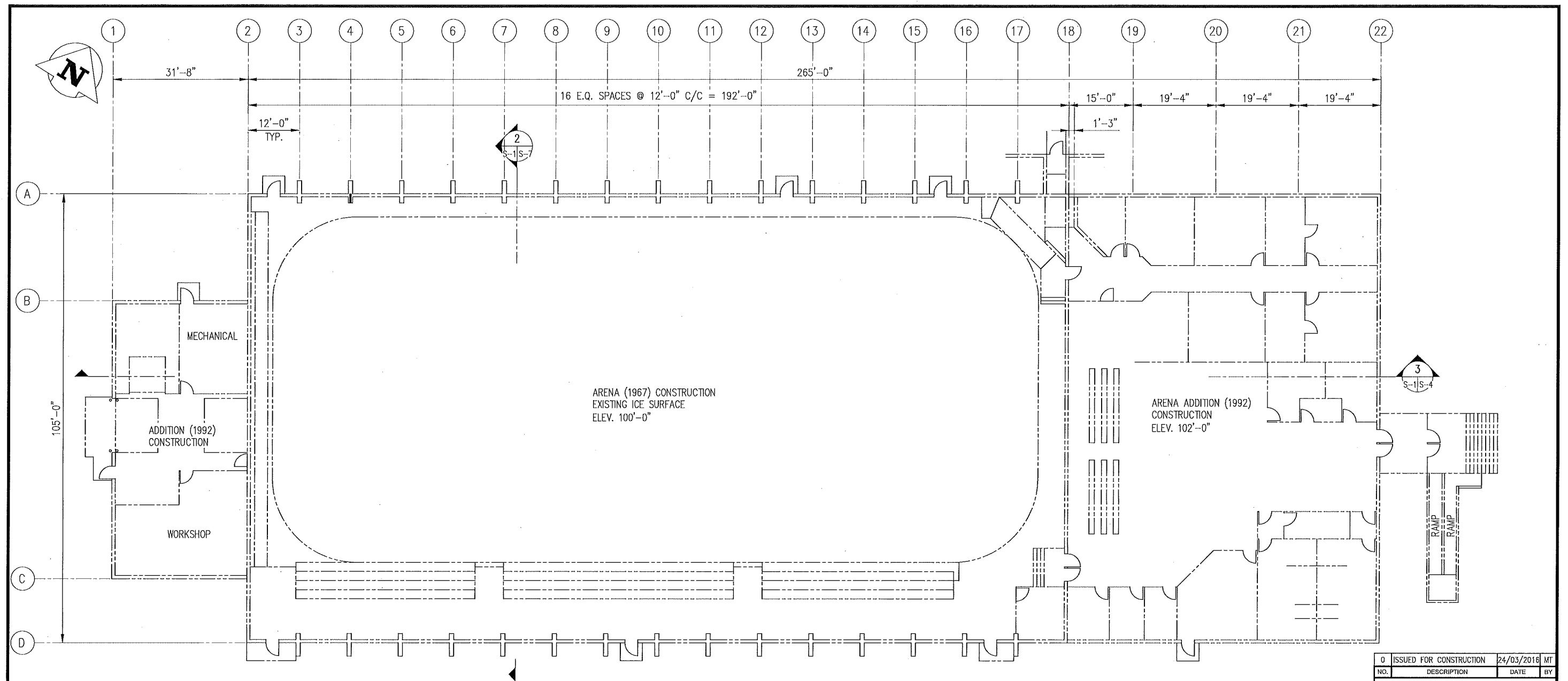
It is anticipated the capital costs for the new development concept would be in excess of \$22,000,000.



Appendix A Existing Drawings



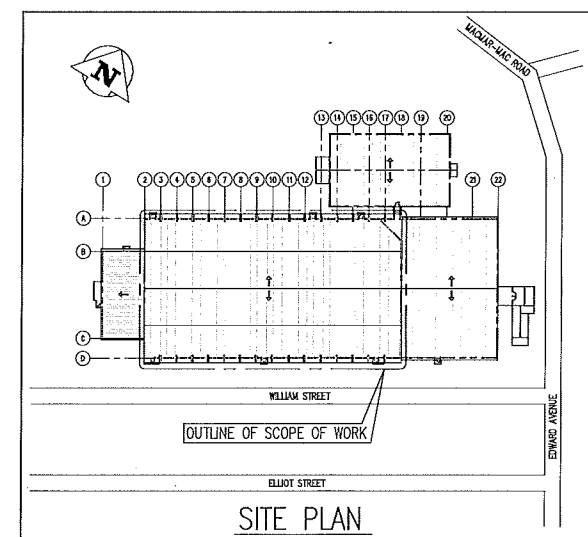




A FLOOR PLAN (EXISTING)
SCALE: 3/32"=1'-0"

SCOPE OF WORK

- ① SELECTIVE DEMOLITION:
REMOVE EXISTING METAL ROOFING SYSTEM INCLUDING, PLYWOOD SHEATING, FASTENERS, INSULATION,
AND VAPOR BARRIER.
- ② REPAIR/REPLACE EXISTING 2"x6" WOOD PURLINS (30 PCS) (FIELD VERIFY).
SEE DWG 16-004-S-8.
- ③ INSTALL NEW INSULATED METAL ROOF ASSEMBLY
SEE DWG 16-004-S-8.



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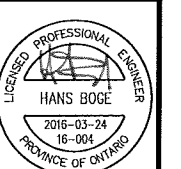
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BOGE BOGE



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CANADA, R3A 1A7
(204)472-1770 FAX 472-7228
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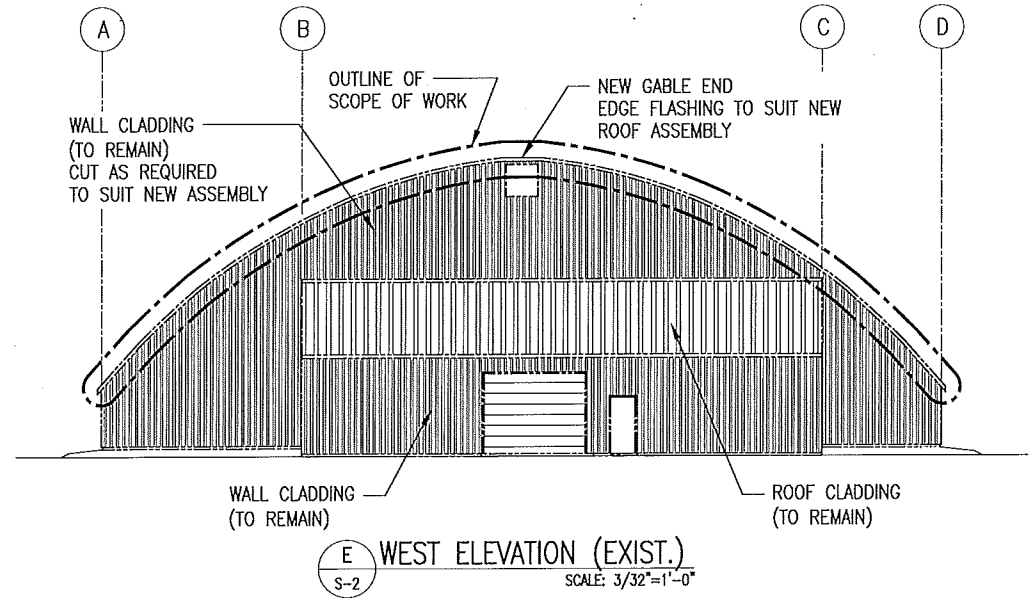
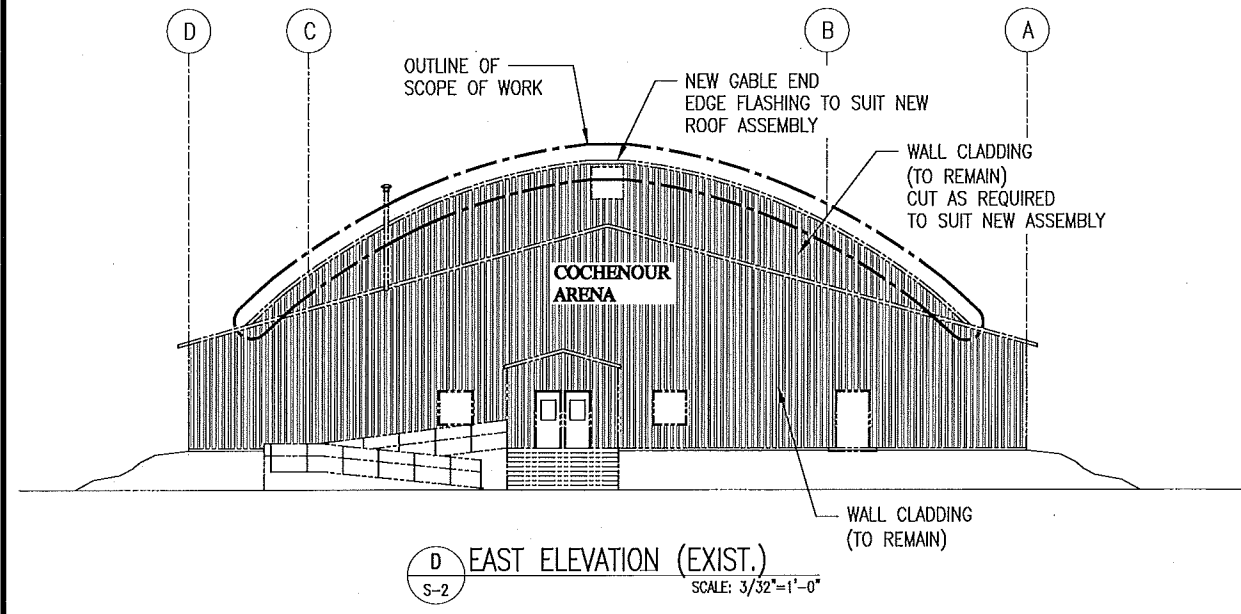
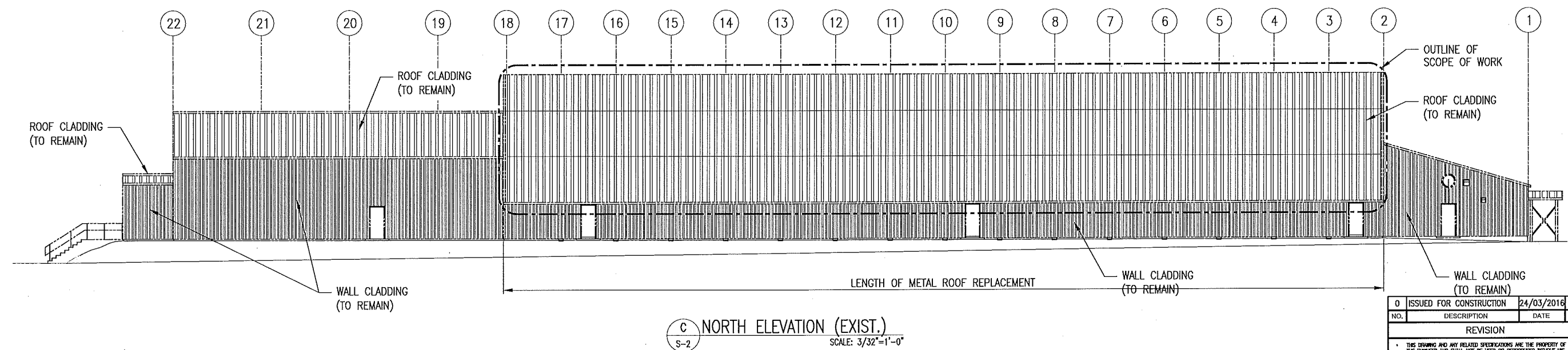
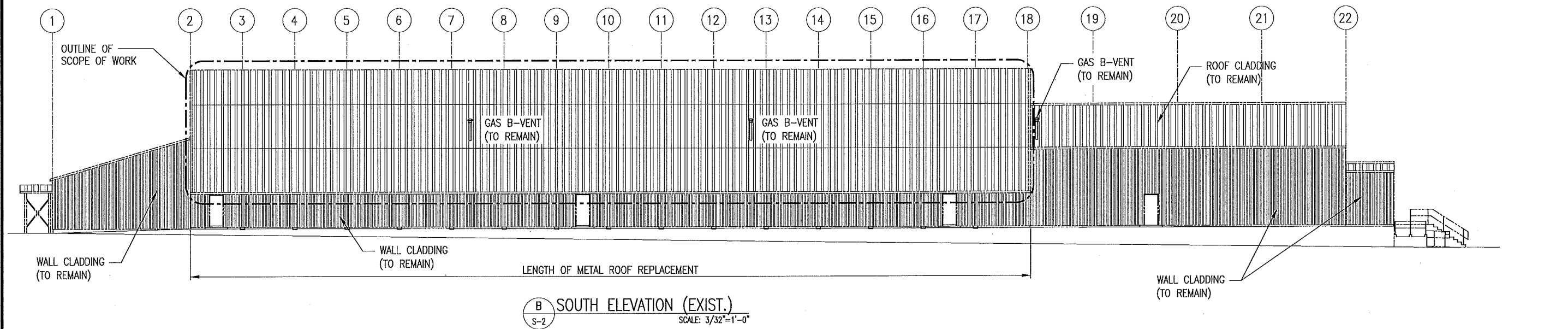
PROJECT:
**COCHENOUR ARENA
LIFE EXTENSION**

COCHENOUR, RED LAKE ONTARIO

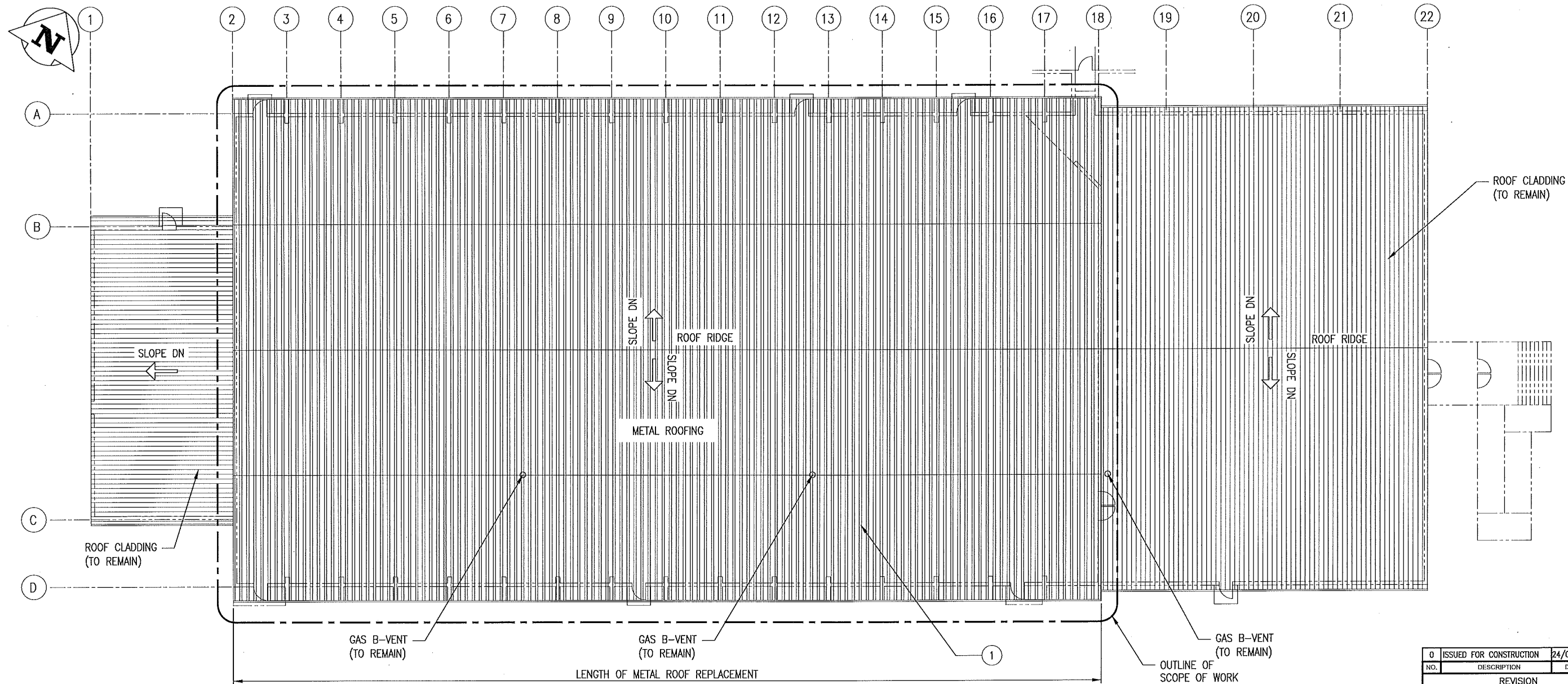
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EXISTING FLOOR PLAN

DRAWN BY:	CHECKED BY:	DATE:	FILE NO.:
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DRAWING NO.: **16-004-S-1**

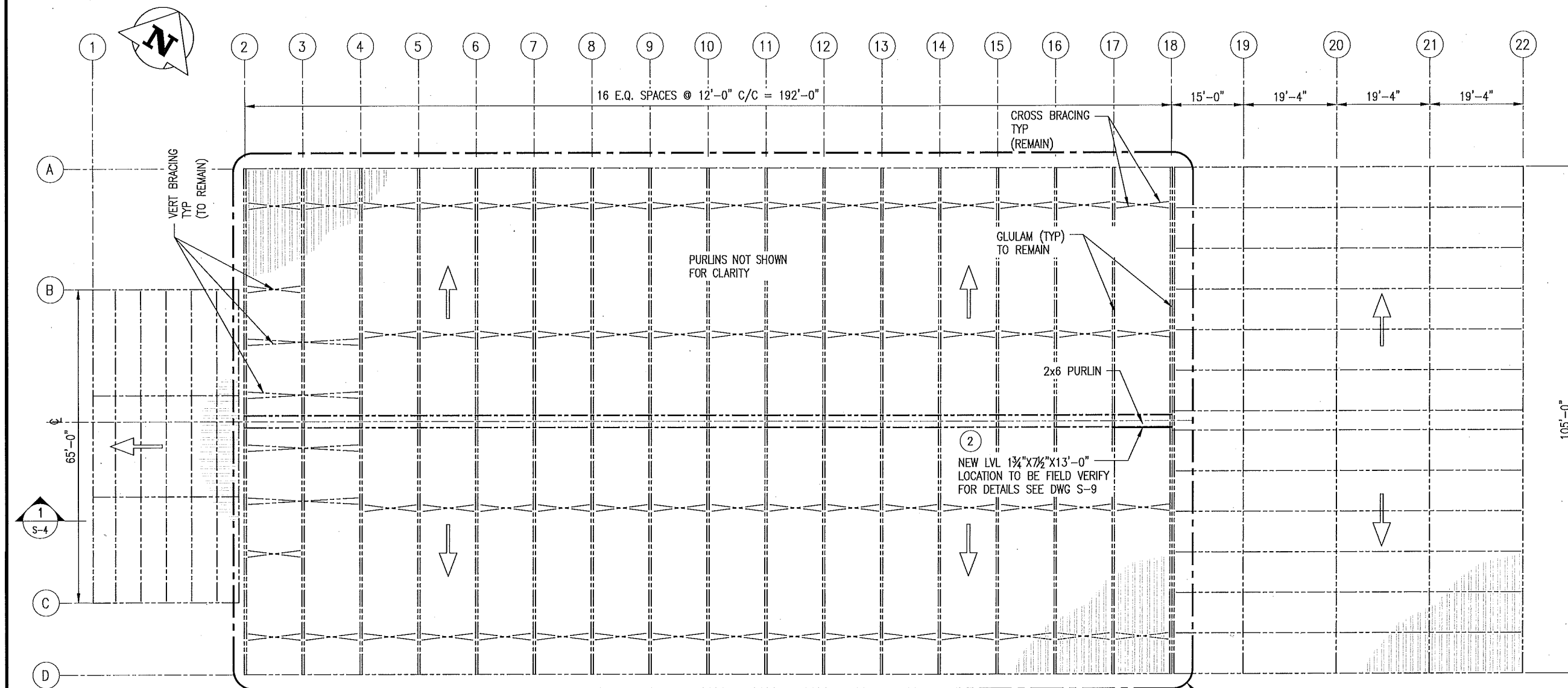


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PROJECT: COCHENOUR ARENA LIFE EXTENSION COCHENOUR, RED LAKE, ONTARIO			
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DRAWN BY:	CHECKED BY:	DATE:	FILE NO.:
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DRAWING NO.:			16-004-S-2



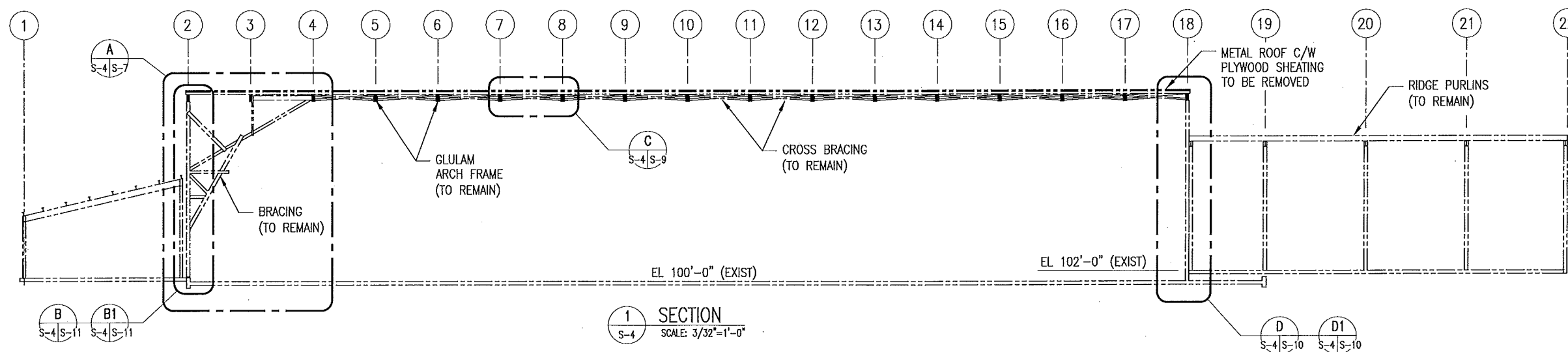
F ROOF PLAN (EXIST.)
SCALE: 3/32"=1'-0"

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DRAWING TITLE: EXISTING ROOF PLAN			
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AR	AM	24MARCH2016	16-004
DRAWING NO.:			16-004-S-3



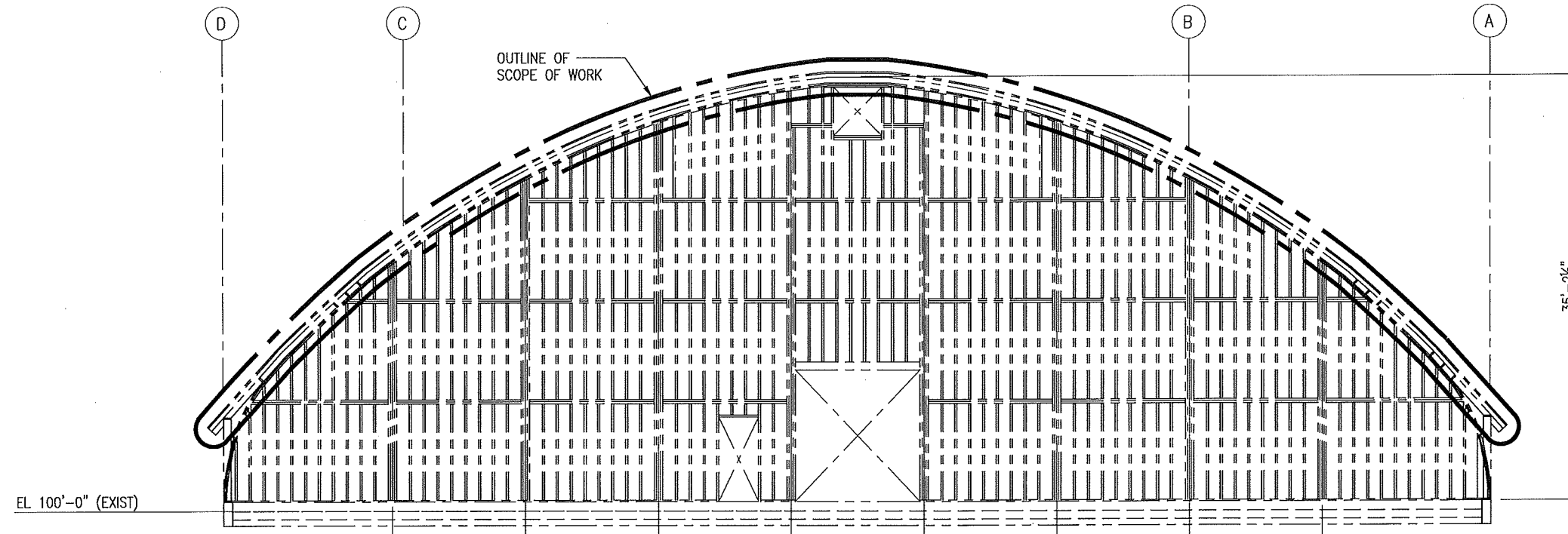
G ROOF FRAMING PLAN (EXISTING)
SCALE: 3/32"=1'-0"

OUTLINE OF SCOPE OF WORK

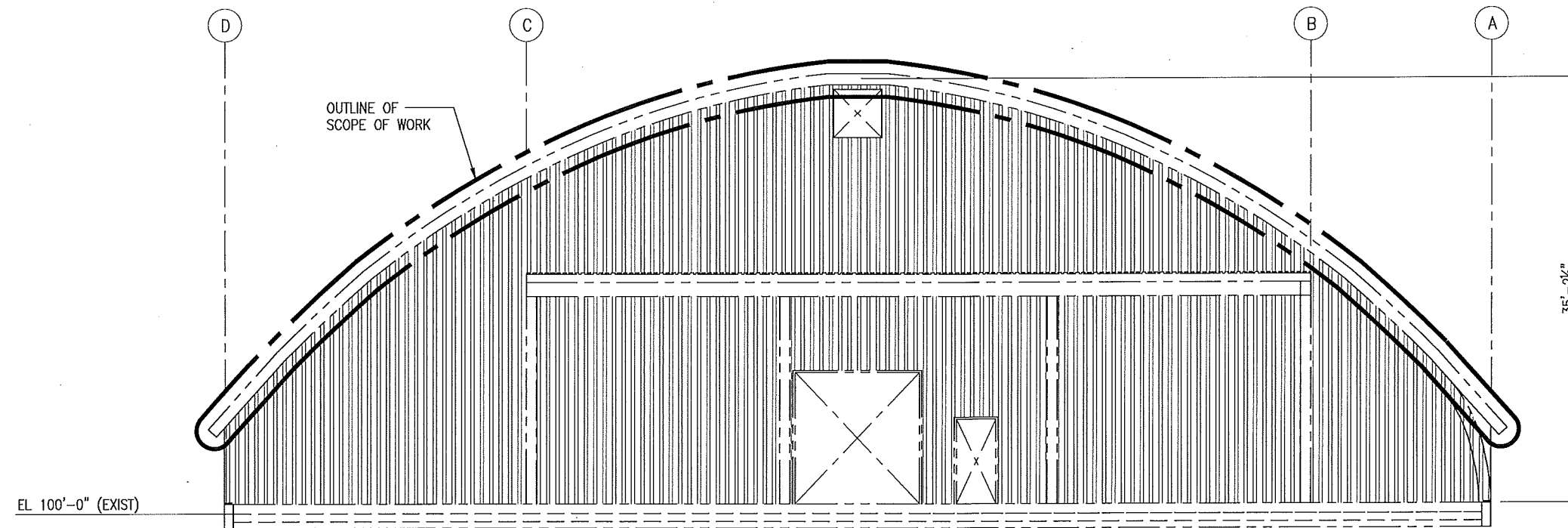


1 SECTION
SCALE: 3/32"=1'-0"



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PROJECT: COCHENOUR ARENA LIFE EXTENSION COCHENOUR, RED LAKE, ONTARIO				
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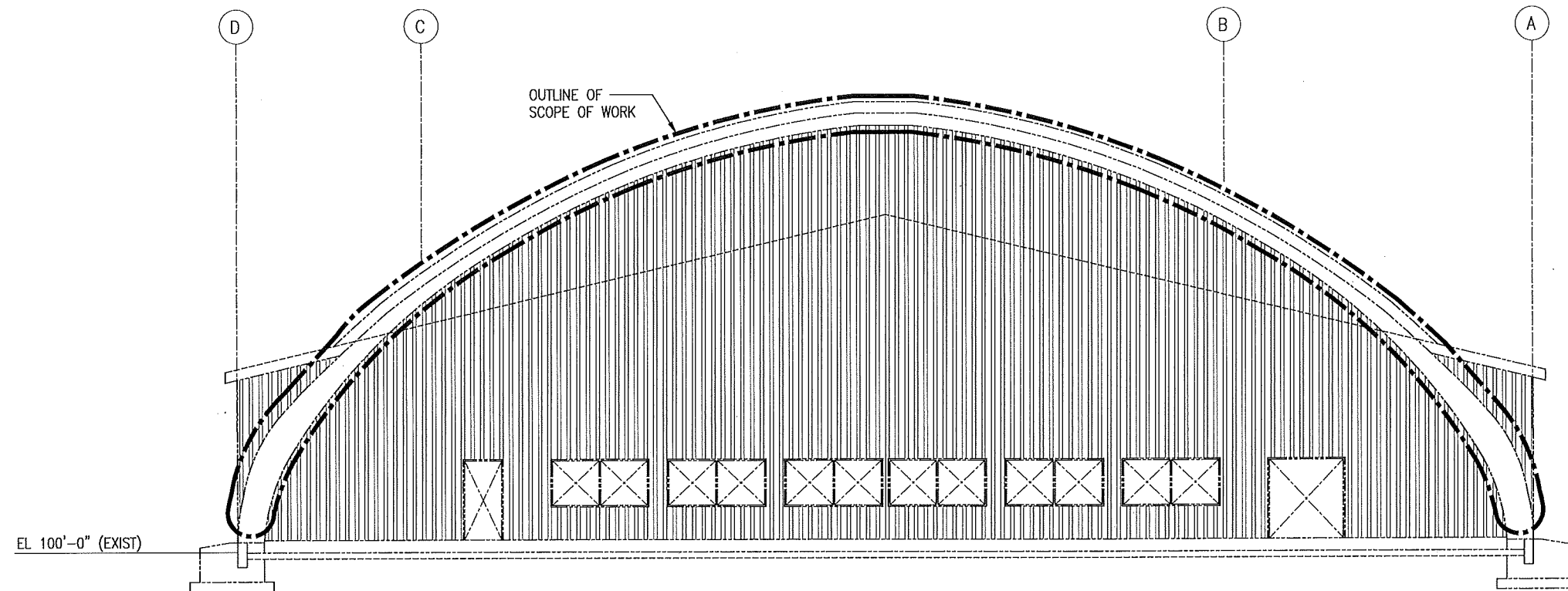


H ELEVATION AT GRIDLINE '8' LOOKING SOUTH
S-5 SCALE: 3/16"=1'-0"

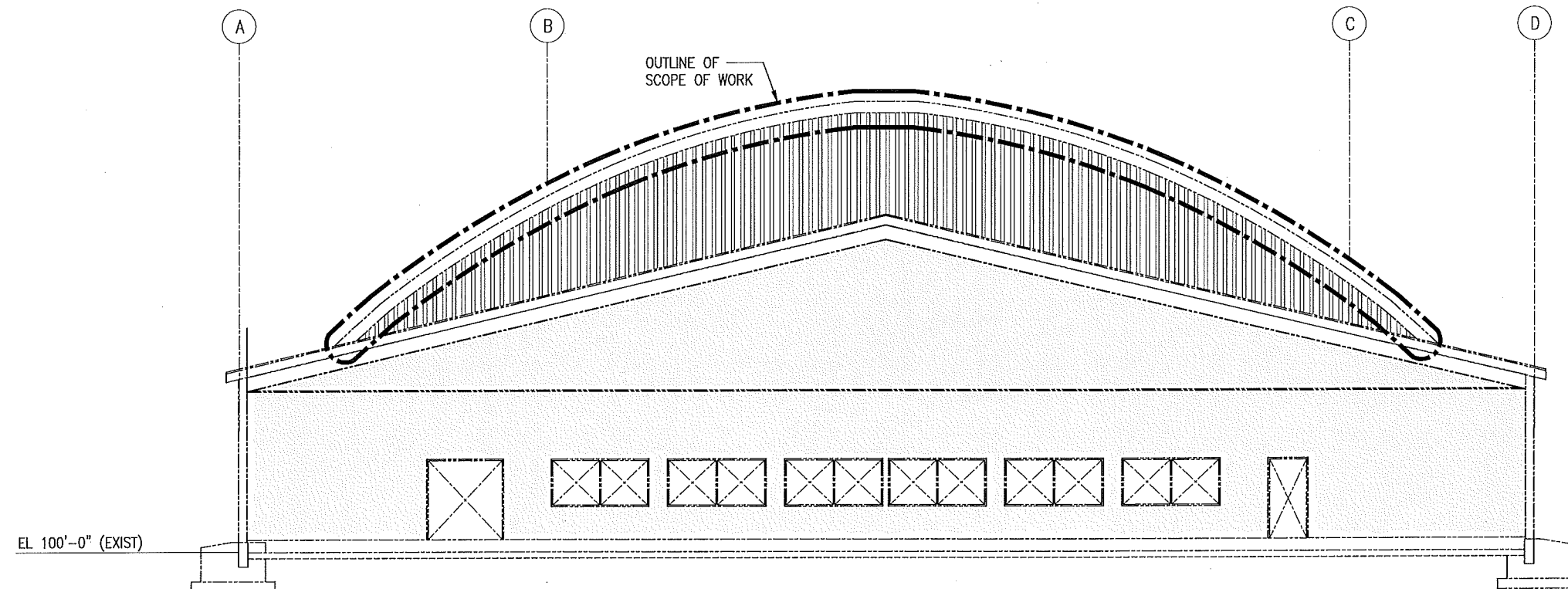


J ELEVATION AT GRIDLINE '8' LOOKING NORTH
S-5 SCALE: 3/16"=1'-0"

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PROJECT: COCHENOUR ARENA LIFE EXTENSION <small>COCHENOUR, RED LAKE ONTARIO</small>			
DRAWING TITLE: SOUTH END WALL ELEVATIONS			
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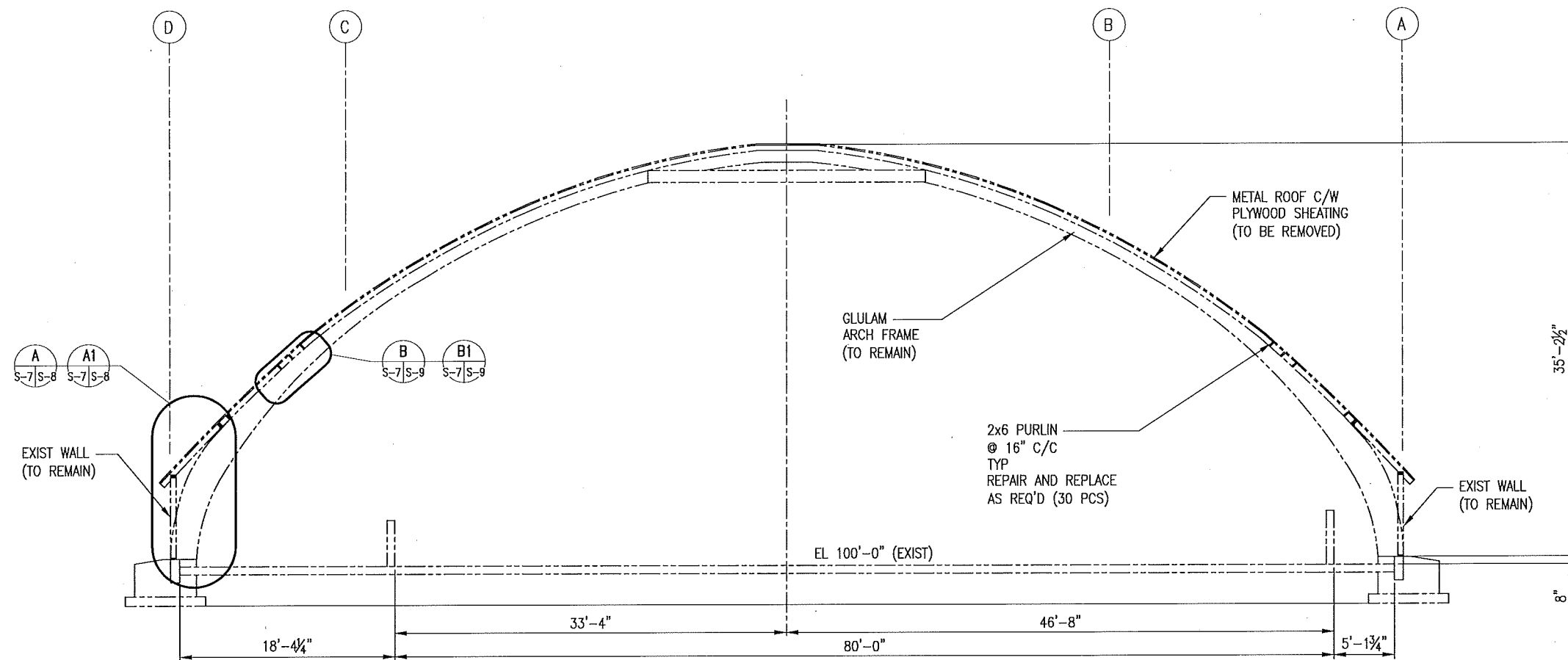


K ELEVATION AT GRIDLINE '18' (LOOKING NORTH)
S-6 SCALE: 3/16"=1'-0"

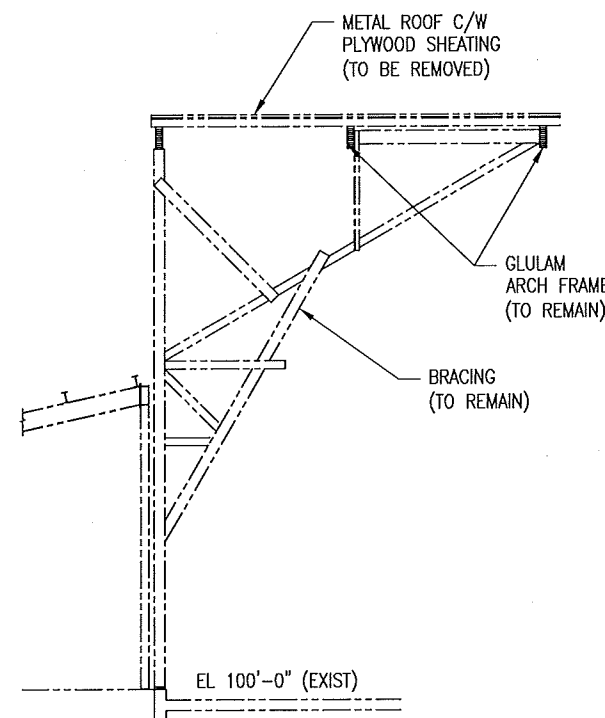


L ELEVATION AT GRIDLINE '18' (LOOKING SOUTH)
S-6 SCALE: 3/16"=1'-0"

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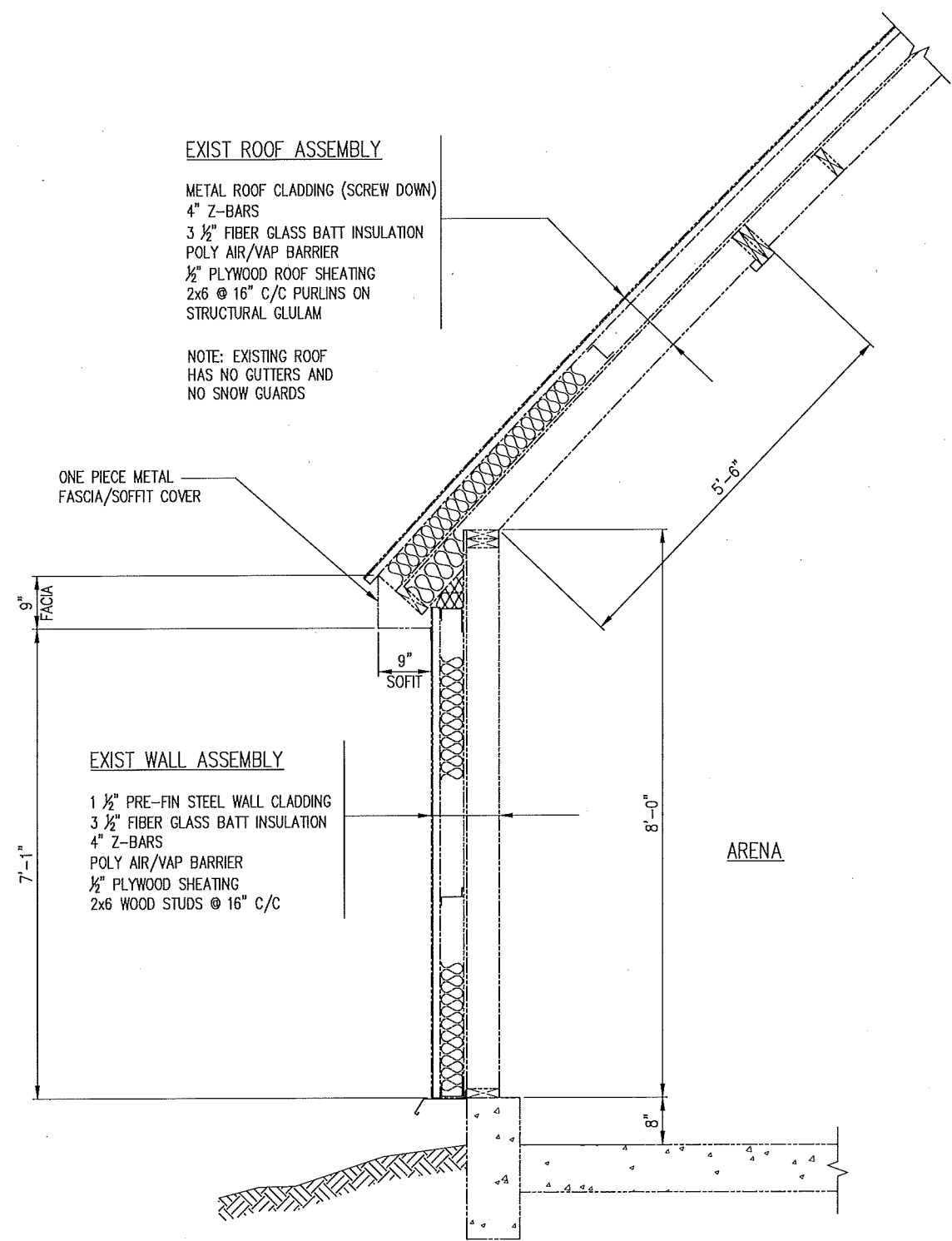


2 SECTION
SCALE: 3/16\"=1'-0"



A DETAIL
SCALE: 3/16\"=1'-0"

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DRAWING TITLE: TYP SECTION DETAILS			
DRAWN BY: AG	CHECKED BY: AM	DATE: 24MARCH2016	FILE NO.: 16-004
DRAWING NO.: 16-004-S-7			



EXIST ROOF ASSEMBLY

METAL ROOF CLADDING (SCREW DOWN)
4" Z-BARS
3 1/2" FIBER GLASS BATT INSULATION
POLY AIR/VAP BARRIER
1/2" PLYWOOD ROOF SHEATHING
2x6 @ 16" C/C PURLINS ON
STRUCTURAL GLULAM

NOTE: EXISTING ROOF
HAS NO GUTTERS AND
NO SNOW GUARDS

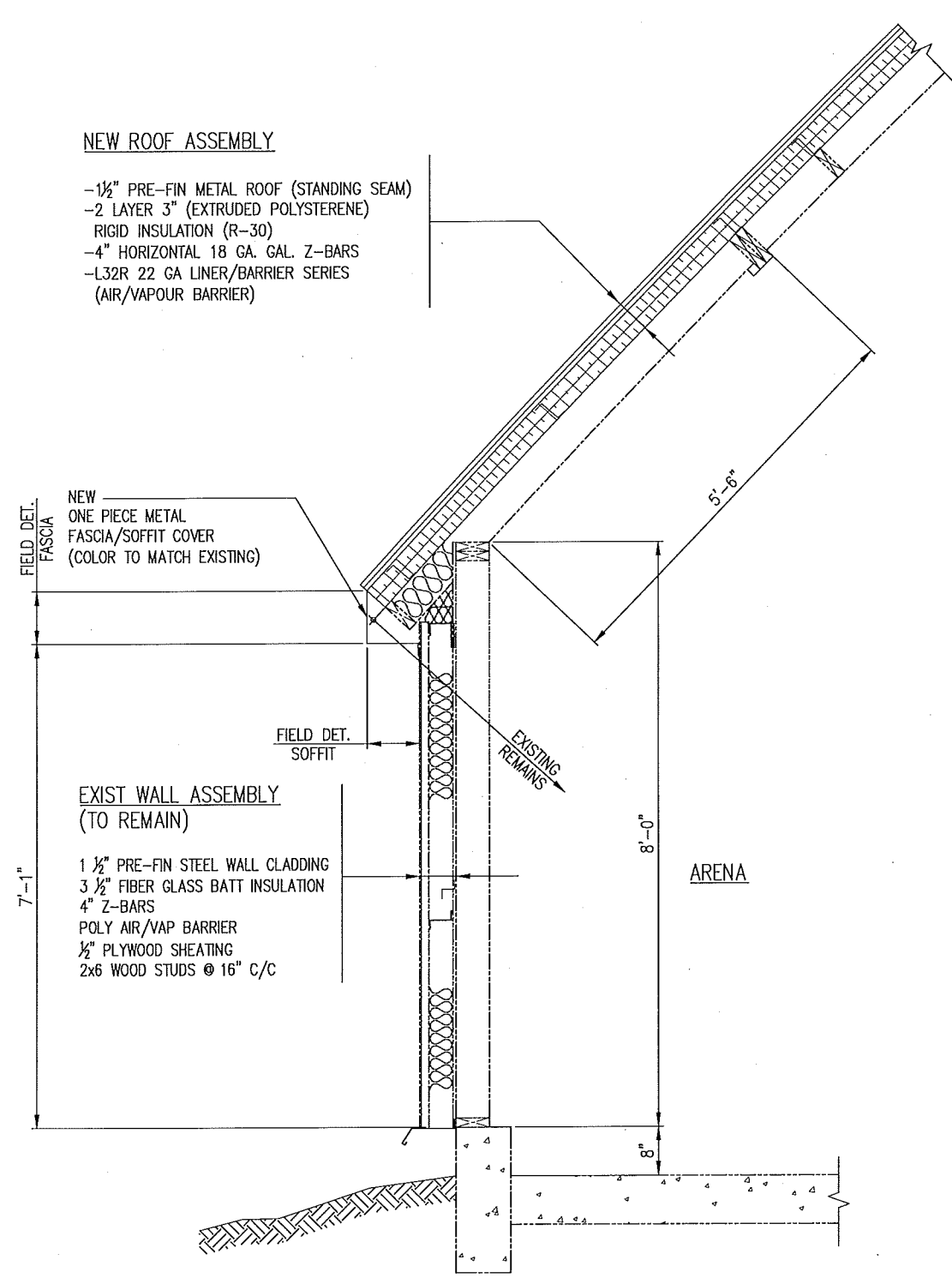
ONE PIECE METAL
FASCIA/SOFFIT COVER

EXIST WALL ASSEMBLY

1 1/2" PRE-FIN STEEL WALL CLADDING
3 1/2" FIBER GLASS BATT INSULATION
4" Z-BARS
POLY AIR/VAP BARRIER
1/2" PLYWOOD SHEATHING
2x6 WOOD STUDS @ 16" C/C

ARENA

A
S-7/S-8
DETAIL - WALL SECTION (EXIST)
SCALE: 1"=1'-0"



NEW ROOF ASSEMBLY

-1 1/2" PRE-FIN METAL ROOF (STANDING SEAM)
-2 LAYER 3" (EXTRUDED POLYSTERENE)
RIGID INSULATION (R-30)
-4" HORIZONTAL 18 GA. GAL. Z-BARS
-L32R 22 GA LINER/BARRIER SERIES
(AIR/VAPOUR BARRIER)

NEW
ONE PIECE METAL
FASCIA/SOFFIT COVER
(COLOR TO MATCH EXISTING)

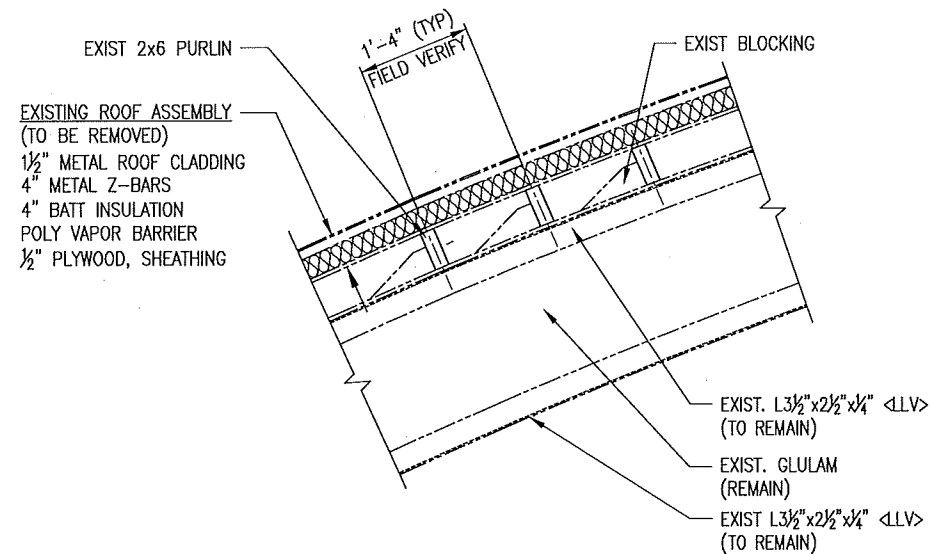
EXIST WALL ASSEMBLY (TO REMAIN)

1 1/2" PRE-FIN STEEL WALL CLADDING
3 1/2" FIBER GLASS BATT INSULATION
4" Z-BARS
POLY AIR/VAP BARRIER
1/2" PLYWOOD SHEATHING
2x6 WOOD STUDS @ 16" C/C

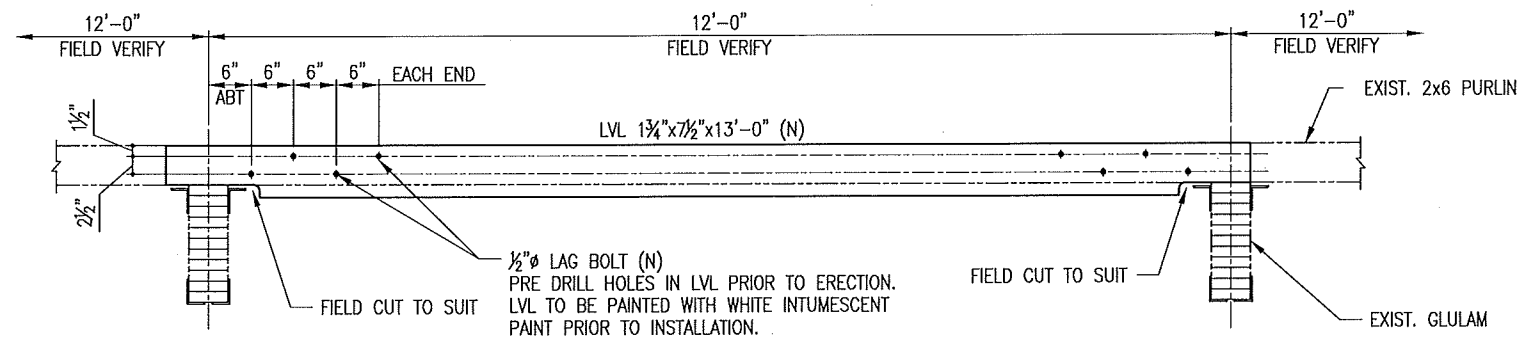
ARENA

A1
S-7/S-8
DETAIL - WALL SECTION WITH NEW ROOF ASSEMBLY
SCALE: 1"=1'-0"

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PROJECT: COCHENOUR ARENA LIFE EXTENSION COCHENOUR, RED LAKE ONTARIO			
DRAWING TITLE: EXISTING ROOF AND WALL DETAILS			
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MT	GS	24/MARCH/2016	16-004
DRAWING NO.: 16-004-S-8			

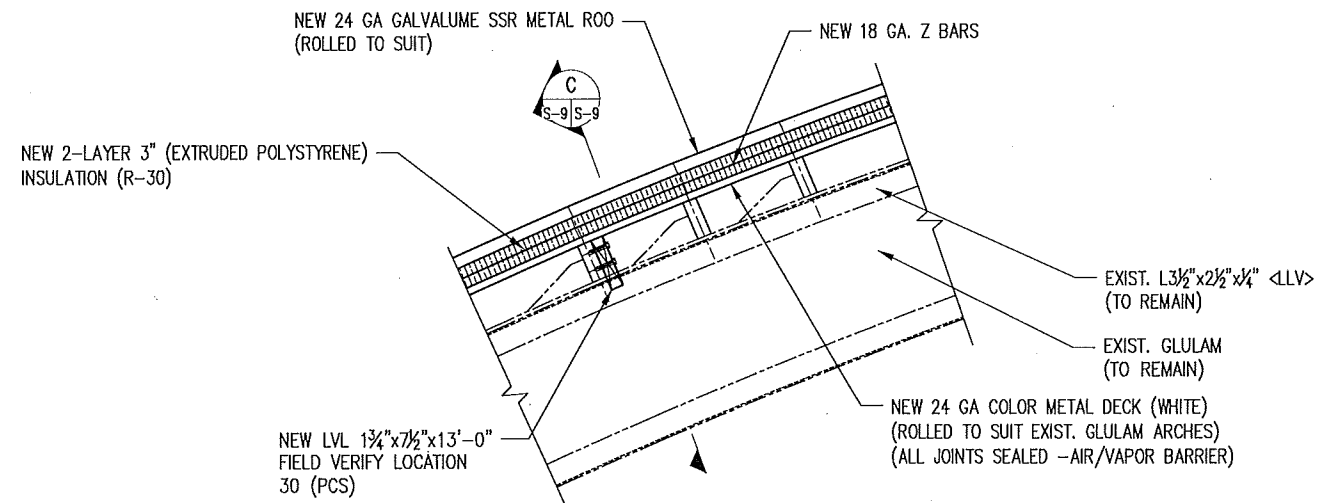


B DETAIL-- (EXISTING)
SCALE: 1"=1'-0"






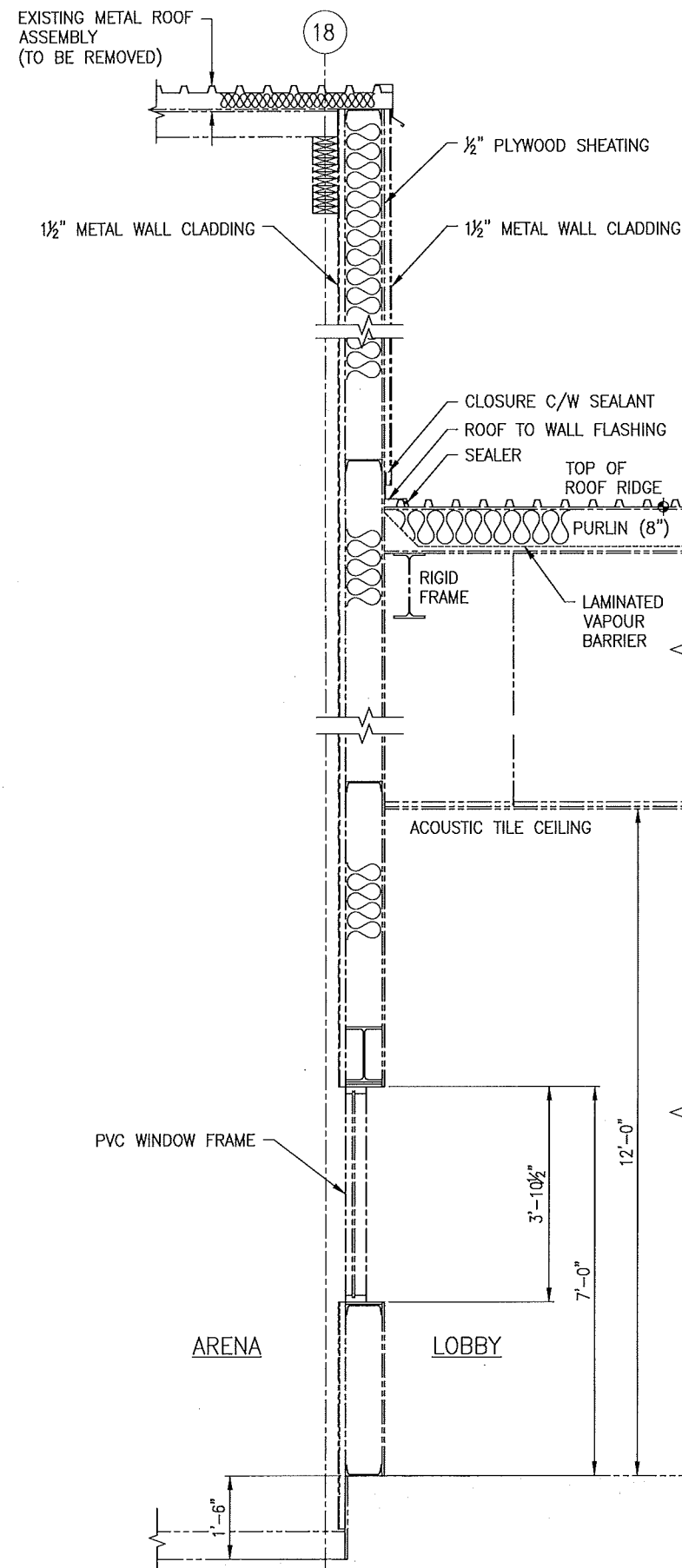
C SECTION
SCALE: 1"=1'-0"

TYPICAL REPAIR DETAIL--PURLINS
SCALE: 1"=1'-0"

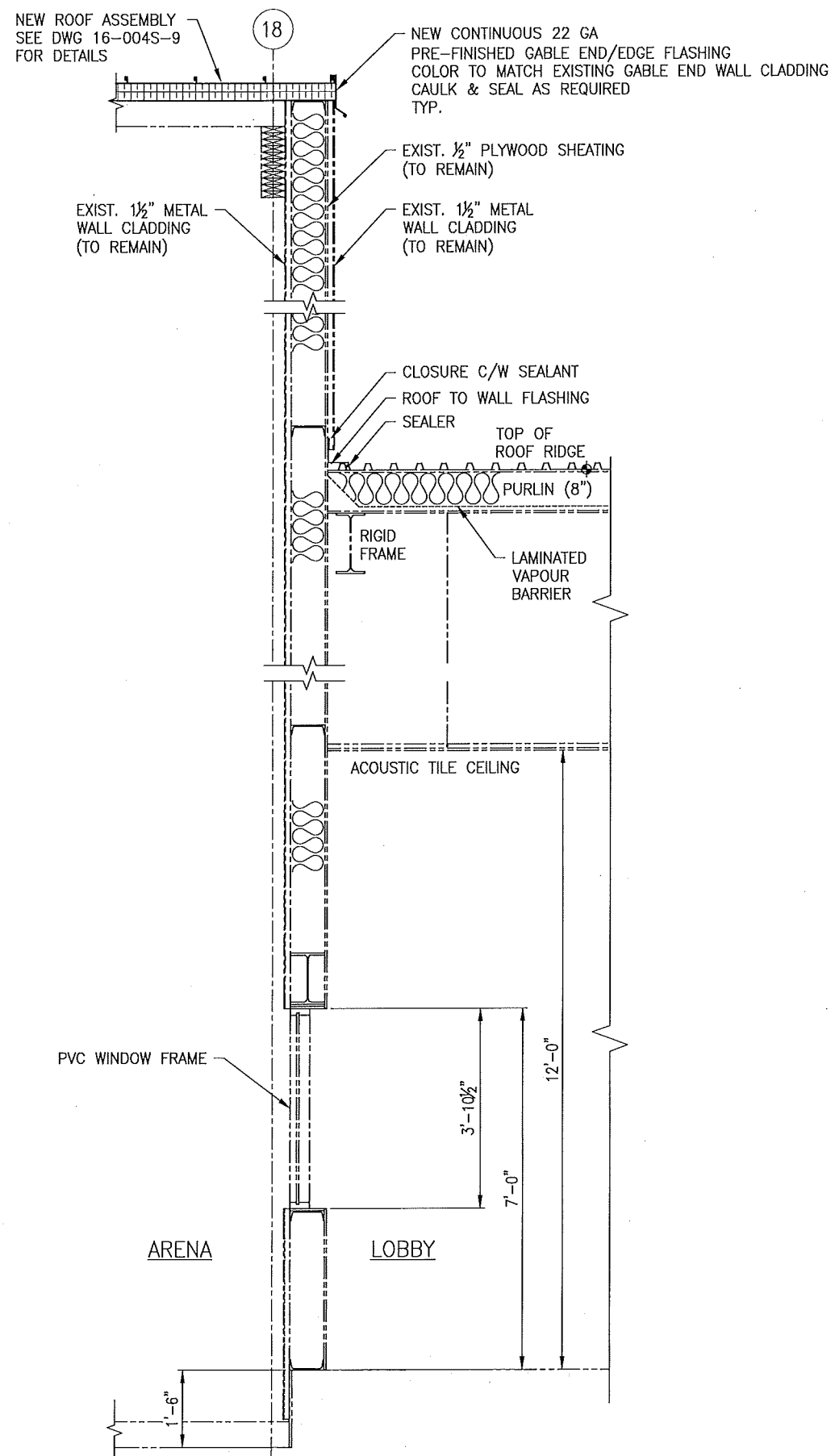


B1 DETAIL-NEW INSULATED METAL ROOF -- ASSEMBLY
SCALE: 1"=1'-0"




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PROJECT: <div>COCHENOUR ARENA LIFE EXTENSION</div> <div>COCHENOUR, RED LAKEONTARIO</div>			
DRAWING TITLE: <div>TYPICAL PURLIN REPAIR AND NEW ROOF ASSEMBLY DETAILS</div>			
DRAWN BY: MT	CHECKED BY: AM	DATE: 24MARCH2016	FILE NO.: 16-004
DRAWING NO.: 16-004-S-9			

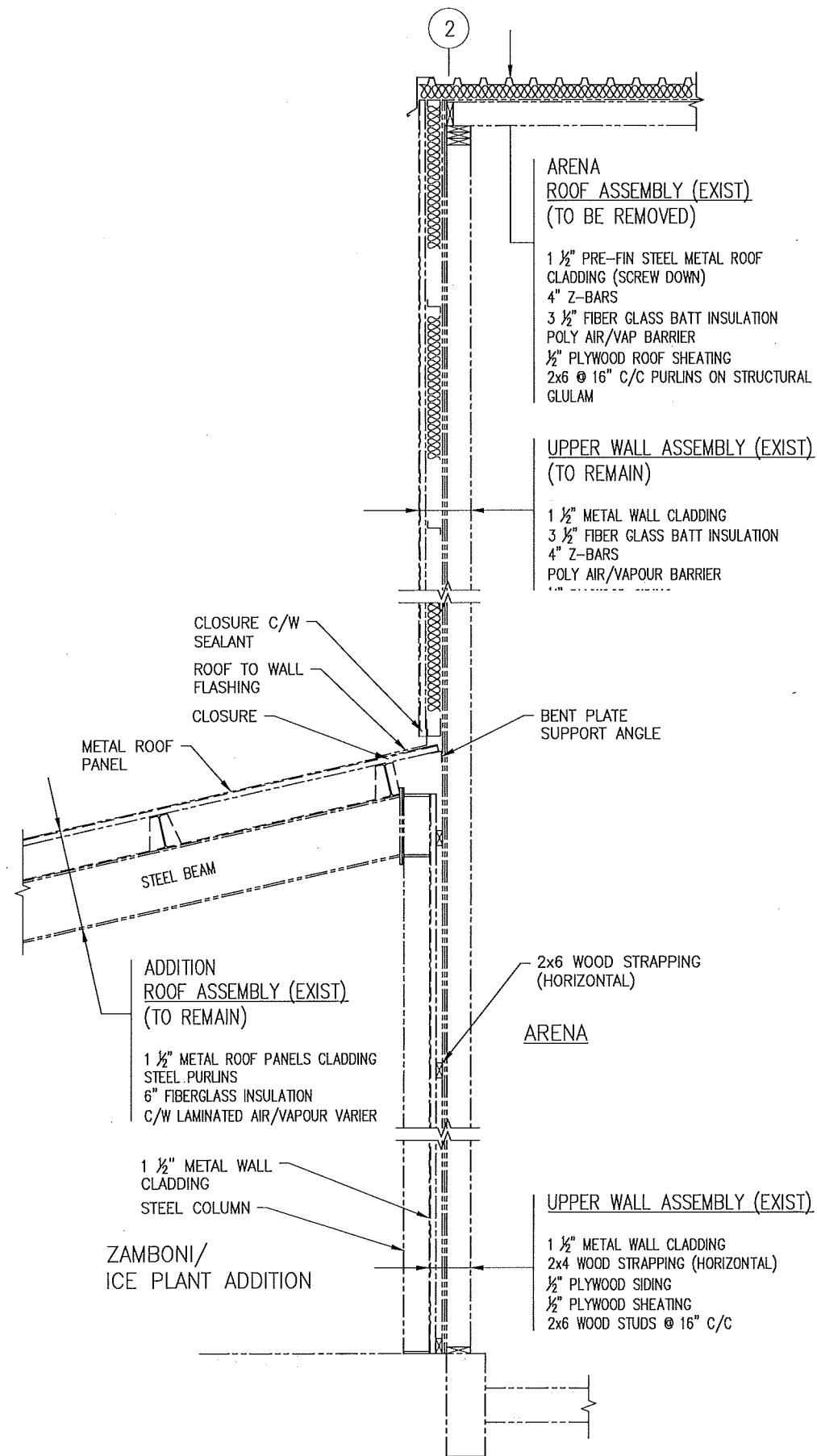


D DETAIL -- NORTH WALL SECTION (EXIST)
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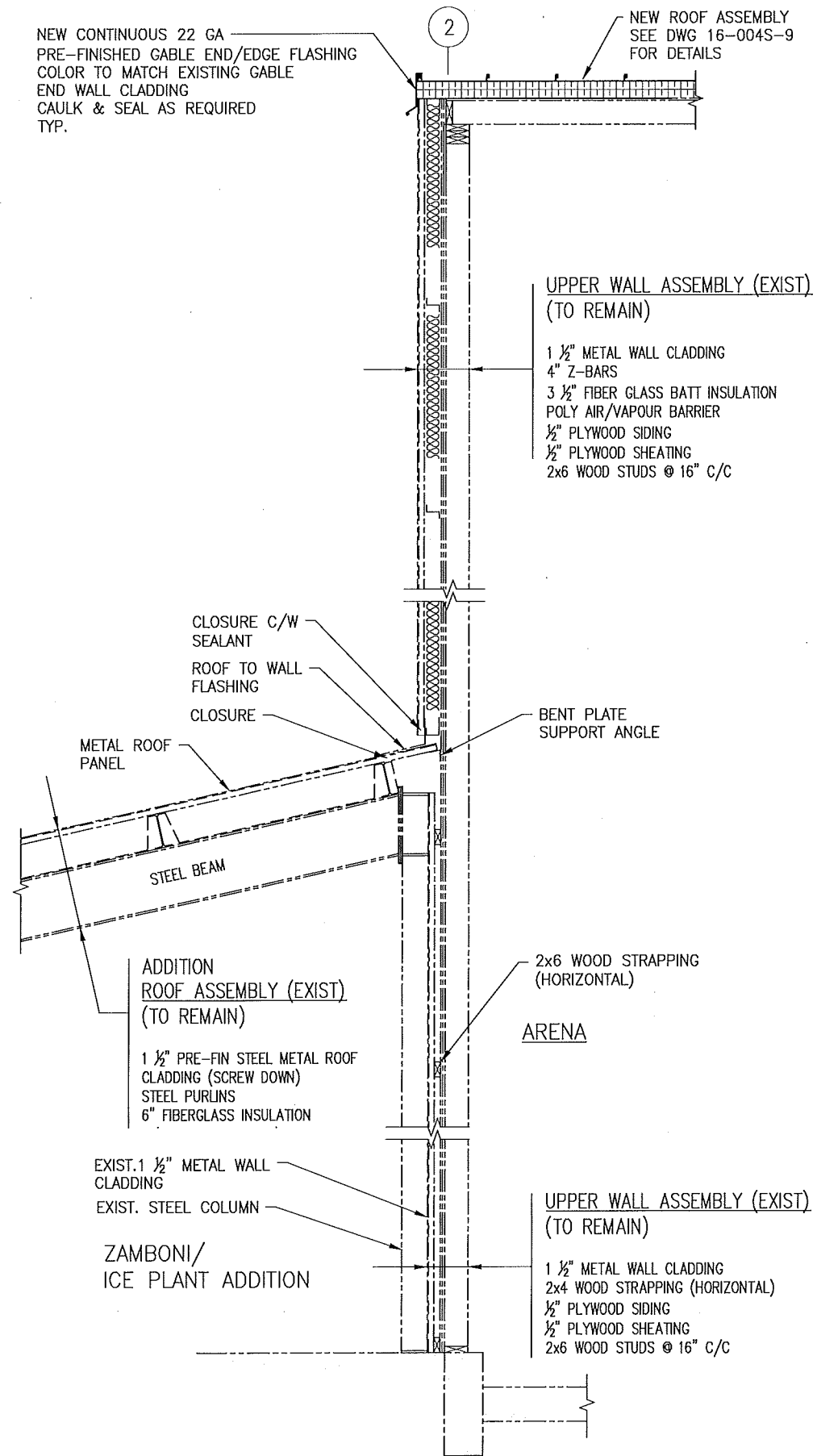


D1 DETAIL -- NORTH WALL SECTION WITH NEW ROOF ASSEMBLY
SCALE: 3/4"=1'-0"

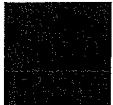


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PROJECT: COCHENOUR ARENA LIFE EXTENSION COCHENOUR, RED LAKE ONTARIO			
DRAWING TITLE: NORTH END SECTION WALL EXIST WITH NEW ROOF ASSEMBLY			
DRAWN BY: MT	CHECKED BY: AM	DATE: 24MARCH2016	FILE NO.1: 16-004
DRAWING NO.:			16-004-S-10 



B DETAIL - SOUTH WALL SECTION (EXIST)
SCALE: 3/4"=1'-0"



B1 DETAIL - SOUTH WALL SECTION WITH NEW ROOF ASSEMBLY
SCALE: 3/4"=1'-0"

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PROJECT: <div>COCHENOUR ARENA LIFE EXTENSION</div> <div>COCHENOUR, RED LAKEONTARIO</div>			
DRAWING TITLE: <div>SOUTH END SECTION WALL EXIST WITH NEW ROOF ASSEMBLY</div>			
DRAWN BY: MT	CHECKED BY: AM	DATE: 24/MARCH/2016	FILE NO.: 16-004
DRAWING NO.: 16-004-S-11			

GENERAL NOTES – DEMOLITION AND CONSTRUCTION NOTES

1. THE CONSTRUCTION OF THE NEW ROOF REQUIRES THE DEMOLITION OF THE EXISTING ROOF. PRIOR TO SUBMITTING OF A BID FOR THE WORK, BIDDERS SHALL VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH ALL ASPECTS OF THE WORK.
2. THE DRAWNGS PROVIDED ARE FOR GENERAL INFORMATION PURPOSES ONLY. THE CONTRACTOR SHALL VISIT THE SITE AND REVIEW ALL ASPECTS PERTAINING TO DEMOLITION AND CONSTRUCTION TO COMPLETE A PROJECT IN A SAFE MANNER WHICH PROTECTS ALL EXISTING WORKS OF ANY KIND. ALL DIMENSIONS TO BE SITE VERIFIED PRIOR TO CONSTRUCTION. DO NOT SCALE DRAWING.
3. ALL WORK IS TO BE UNDERTAKEN IN COMPLIANCE WITH ALL APPLICABLE WORKPLACE, SAFETY AND HEALTH REQUIREMENTS.
4. CARRY OUT DEMOLITION WORK IN ACCORDANCE WITH CSA S350, UNLESS OTHERWISE SPECIFIED.
5. CARRY OUT DEMOLITION IN A MANNER TO MINIMIZE INCONVENIENCE TO ADJACENT OCCUPIED SPACE.
6. THE CONTRACTOR SHALL SUBMIT A SAFE WORK PLAN REVIEWED AND APPROVED BY A PROFESSIONAL ENGINEER WHICH INCLUDES FOR THE INDIVIDUAL ELEMENTS AND THE OVERALL STRUCTURAL STRENGTH AND STABILITY OF THE ENTIRE STRUCTURE THROUGHOUT THE DEMOLITION AND CONSTRUCTION WORK. POSSIBLE AND PREVAILING WEATHER CONDITIONS AND FORECASTS SHALL BE CONSIDERED. WORK SHALL NOT PROCEED WHEN WEATHER CONDITIONS CONSTITUTE A HAZARD TO THE WORKERS OR SITE. THE WORK PLAN AND ANY DEMOLITION DRAWINGS SHALL BEAR THE SIGNATURE AND STAMP OF A QUALIFIED PROFESSIONAL ENGINEER REGISTERED OR LICENSED TO PRACTICE IN THE PROVINCE OF ONTARIO. THE WORK SHALL NOT PROCEED UNTIL THE ENGINEERED WORK PLAN AND ANY DRAWINGS HAVE BEEN SUBMITTED TO THE OWNER. THAT ENGINEER SHALL MONITOR THE WORK AND ASSURE THAT THE SAFE WORK PLAN IS FOLLOWED TO THE ENGINEER'S SATISFACTION.
7. THE CONTRACTOR SHALL CAREFULLY IDENTIFY ALL FIXTURES, MATERIAL, EQUIPMENT, ELECTRICAL WORKS, MECHANICAL AND PIPING WORKS AND PROTECT THE SAME THROUGHOUT THE PROJECT. THE CONTRACTOR SHALL DISCONNECT AND RECONNECT ALL ELECTRICAL, TELEPHONE, MECHANICAL, GAS AND PIPING WORKS AS MAY BE REQUIRED FOR THE WORK TO THE REQUIREMENTS OF LOCAL AUTHORITY HAVING JURISDICTION WITH QUALIFIED TRADES PEOPLE.
8. ANY WASTE FROM DEMOLITION OR CONSTRUCTION BECOMES THE PROPERTY OF THE CONTRACTOR WHO SHALL DEAL WITH THE WASTE IN ACCORDANCE WITH ALL APPLICABLE BY-LAWS, CODES AND STANDARDS. ALL DEMOLITION AND WASTE MATERIALS ASSOCIATED WITH THE CONSTRUCTION SHALL BE PERMANENTLY REMOVED FROM THE PLACE OF THE WORK. ALL ASSOCIATED COSTS ARE TO BE PAID BY THE CONTRACTOR.
9. IF REQUIRED BY AUTHORITIES HAVING JURISDICTION AND PRIOR TO STARTING THE WORK, SUBMIT FOR AND RECEIVE APPROVAL, DRAWINGS, DIAGRAMS, DETAILS AND SUPPORTING DATA REQUIRED CLEARLY DESCRIBING THE DEMOLITION AND CONSTRUCTION WORK.
10. OBTAIN AND PAY FOR ANY PERMITS WHICH MAY BE REQUIRED FROM UTILITY COMPANIES, MUNICIPALITIES, AUTHORITIES HAVING JURISDICTION AND ADJACENT PROPERTY OWNERS.
11. PROTECT ALL EXISTING WORKS AND BE LIABLE TO MAKE GOOD TO THE SATISFACTION OF THE OWNER ANYTHING THAT IS DAMAGED DURING CONSTRUCTION.
12. PROTECT ALL WORKERS AND VISITORS TO THE SITE THROUGHOUT THE PROJECT.
13. DO NOT ALLOW WASTE MATERIAL, RUBBISH, AND WINDBLOWN CONSTRUCTION MATERIAL OR DEBRIS TO REACH AND CONTAMINATE ADJACENT PROPERTIES.
14. LOWER WASTE MATERIALS IN A CONTROLLED MANNER; DO NOT DROP OR THROW MATERIALS FROM HEIGHTS.
15. BURNING OF MATERIALS ON SITE IS NOT PERMITTED UNLESS PERMISSION IS GRANTED BY THE MUNICIPALITY.
16. RESTORE TO ITS ORIGINAL CONDITION ANY PORTION OF THE BUILDING DEMOLISHED UNNECESSARILY OR DAMAGED DURING CONSTRUCTION.
17. ADJOINING STRUCTURES SHALL BE ADEQUATELY PROTECTED FROM ALL WEATHER IF THEY WILL BE EXPOSED TO WEATHER BY THE DEMOLITION AND CONSTRUCTION PROCESS.
18. CLEAN-UP DURING DEMOLITION AND CONSTRUCTION AND FINAL CLEANING SHALL LEAVE A CLEAN SITE WHICH IS CLEAN TO THE STANDARD THAT THE MUNICIPALITY OF RED LAKE WILL ACCEPT AT THE CONCLUSION OF THE PROJECT.

DESIGN LOADS:

DETERMINED IN ACCORDANCE WITH SECTIONS 4.1.5 TO 4.1.7 OF THE NATIONAL BUILDING CODE OF CANADA 2010

ROOF

DEAD LOAD = 20 PSF

SNOW LOAD

IMPORTANCE FACTOR, $I_s = 1.0$
1 IN 50 YEARS GROUND SNOW LOAD, $S_s = 50.16$ PSF
1 IN 50 YEARS RAIN LOAD, $S_r = 6.27$ PSF
BASIC SNOW LOAD FACTOR, $C_b = 0.80$
WIND EXPOSURE FACTOR, $C_w = 1.00$
SLOPE FACTOR, $C_s = 1.00$
SHAPE FACTOR, $C_a = 1.00$
CALCULATED SNOW LOAD, $S = I_s (S_s.C_b.C_w.C_s.C_a + S_r)$
CALCULATED SNOW LOAD = 46.40 PSF

WIND LOAD

IMPORTANCE FACTOR, $I_w = 1.0$
1 IN 50 YEARS REFERENCE VELOCITY PRESSURE, $q = 6.27$ PSF
EXPOSURE FACTOR, $C_e = 1.00$
EXPOSURE PRESSURE COEFFICIENT, $C_p = 1.3$
GUST EFFECT FACTOR, $C_g = 2.00$
CALCULATED WIND LOAD, $p = I_w.q.C_e.C_p.C_g$
CALCULATED WIND LOAD (FOR BLDG. ACTING AS A WHOLE) = 16.51 PSF

WIND LOAD (ACTING SIMULTANEOUSLY ON VARIOUS SURFACES OF THE BUILDING)

CpCg COEFFICIENT	PRESSURE OR SUCTION
1.3	PRESSURE ON WINDWARD WALL = 8.26 PSF
0.5	PRESSURE ON WINDWARD ROOF = 3.18 PSF
-1.0	SUCTION ON LEEWARD ROOF = -6.35 PSF
-0.9	SUCTION ON LEEWARD WALL = -5.72 PSF

SEISMIC DATA

$S_a (0.20) = 0.095$
 $S_a (0.50) = 0.057$
 $S_a (1.0) = 0.025$
 $S_a (2.0) = 0.008$
 $PGA = 0.036$

WOOD

1. ALL WOOD FRAMING TO CONFORM TO THE LATEST EDITION OF CAN3-086 "CODE FOR ENGINEERING DESIGN IN WOOD".
2. ALL WOOD FRAMING TO BE SPECIES GROUP D S-P-F NO. 2 OR BETTER KILN DRIED TO A MAXIMUM MOISTURE CONTENT OF 19%.
3. ALL WALLS TO HAVE CONTINUOUS ROWS OR SOLID BLOCKING AT VERTICAL SPACINGS NOT EXCEEDING 1200mm.

LAMINATED VENEER LUMBER LVL

1. ALL LAMINATED VENEER LUMBER TO HAVE STRESS GRADE OF AT LEAST 1.8E DOUGLAS FIR.
2. ALL LAMINATED VENEER LUMBER SHALL MEET REQUIREMENTS OF CSA 086, CSA 0141 AND THE REQUIREMENTS OF SPECIAL INVESTIGATIVE REPORT NO. LO 4000-4196.
3. ALL LAMINATED VENEER LUMBER SHALL BE ABLE TO PROVIDE THE FOLLOWING ALLOWABLE DESIGN STRESSES FOR LOADS OF NORMAL DURATION; FLEXURAL STRESS 2600 PSI, TENSION PARALLEL TO GRAIN 1850 PSI, COMPRESSION PARALLEL TO GRAIN 2700 PSI, COMPRESSION PERPENDICULAR TO GRAIN 400 PSI, HORIZONTAL SHEAR 285 PSI AND ELASTIC MODULUS 2,000,000 PSI.
PROVIDE 4 COPIES OF SHOP DRAWINGS FOR ALL LVL. THESE SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED OR LICENSED TO PRACTICE IN THE PROVINCE IN WHICH THE PROJECT IS LOCATED. THE ENGINEER'S SEAL SHALL MEAN THAT THE LVL USED ON THE PROJECT DOES CONFORM TO THE REQUIREMENTS LISTED ABOVE AND THAT THE LVL USED WILL NOT LOSE STRENGTH OR OTHERWISE DETERIORATE OVER TIME IN A MANNER WHICH WOULD REDUCE THE STRESS CAPABILITY BELOW THE LEVELS LISTED ABOVE.
5. WHERE CONNECTION TO PREFABRICATED TRUSSES OR OTHER LVL SECTIONS IS REQUIRED, OR WHERE CONNECTION DETAILS ARE NOT SHOWN IT IS THE RESPONSIBILITY OF THE SUPPLIER'S ENGINEER TO PROVIDE THE APPROPRIATE CONNECTION DETAILS. THESE CONNECTION DETAILS SHALL ALSO BEAR THE ENGINEER'S SEAL.
6. SHOP DRAWINGS SHALL INCLUDE AN ERECTION DIAGRAM WHICH SHALL INDICATE THE LOCATION OF EACH SUPPLIED MEMBER.
7. LAMINATE LVL MEMBERS FOR BUILT-UP BEAMS WITH 3 ROWS OF 3 1/2 IN NAILS AT 12 IN. CENTRES UNLESS NOTED OTHERWISE OR AS DIRECTED BY SUPPLIER'S ENGINEER.
8. THE ENGINEER'S SEALED DRAWING IS TO SPECIFY THE CCHC MEMBER NUMBER FOR THE PRODUCT THAT IS SUPPLIED.
9. PAINT WITH WHITE INTUMESCENT PAINT.

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PROJECT: COCHENOUR ARENA LIFE EXTENSION			
COCHENOUR, RED LAKE ONTARIO			
DRAWING TITLE: DEMOLITION AND CONSTRUCTION NOTES			
DRAWN BY: MT	CHECKED BY: AM	DATE: 24MARCH2016	FILE NO: 16-004
DRAWING NO: 16-004-S-12			

STANDING SEAM METAL ROOFING ASSEMBLY

1. METAL STANDING SEAM ROOF PANELS:
NOMINAL PANEL WIDTH: 16"
PANEL THICKNESS 24 GAUGE
MACHINE ROLL FORMED
2. SEAMS:
MECHANICAL LOCK PROFILE
SEAM HEIGHT – 38MM (1.5")
3. PANEL CLIPS:
(CONCEALED FASTENER) TWO PIECE
22 GAUGE – 87.5MM WIDE (3 1/2") WIDE BY APPROPRIATE HEIGHT TO SUIT SEAM HEIGHT.
4. PANEL MATERIAL:
4.1 STEEL
ASTM STANDARD SPECIFICATION A653/A653M, SHEET STEEL, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY COATED (GALVANEALD) BY THE HOT-DIP PROCESS, MINIMUM GRADE 33, WITH A DESIGN THICKNESS OF 24 GAUGE (0.024") OR GREATER AND A MINIMUM ZINC COATING DESIGNATION Z275 (G-90)

4.2 ALUMINUM-ZINC (GALVALUME)
ASTM STANDARD SPECIFICATION A792/A792M, SHEET STEEL, 55% ALUMINUM-ZINC ALLOY COATED BY THE HOT-DIP PROCESS, MINIMUM GRADE 33, WITH A DESIGN THICKNESS OF 24 GAUGE (0.024") OR GREATER AND MINIMUM DESIGNATION AZ150
5. PAINTING:
EXTERIOR FINISH (WALLS, FLASHINGS AND TRIM/ACCESSORIES): TWO-COAT FLUOROPOLYMER (8000 SERIES)
COLOR: TO MATCH EXISTING
6. SHOP DRAWINGS:
PROVIDE SHOP DRAWINGS FOR FABRICATION AND INSTALLATION LAYOUTS OF METAL PANELS; DETAILS OF EDGE CONDITIONS, JOINTS, PANEL PROFILES, CORNERS, ANCHORAGES, ATTACHMENT SYSTEM, TRIM, FLASHINGS, CLOSURES, AND ACCESSORIES; AND SPECIAL DETAILS.

ALL STANDING SEAM METAL ROOF SYSTEMS SHALL BE PROVIDED WITH AN ENGINEERED STAMPED SHOP DRAWING CONFIRMING FASTENING REQUIREMENTS OF THE METAL PANELS ONTO THE SUPPORTING SUBSTRATE (2X6 PURLINS).
7. MISCELLANEOUS MATERIALS:
MISCELLANEOUS METAL SUBFRAMING AND FURRING: ASTM C645; COLD-FORMED, METALLIC-COATED STEEL SHEET, ASTM A653/A 653M (G-90) (Z275 HOT DIP GALVANIZED) COATING DESIGNATION OR ASTM A792/A 792M CLASS AZ50 (CLASS AZM150) COATING DESIGNATION. PROVIDE MANUFACTURE'S STANDARD SECTIONS AS REQUIRED FOR SUPPORT AND ALIGNMENT OF METAL PANEL SYSTEM.
8. PANEL ACCESSORIES:
PROVIDE COMPONENTS REQUIRED FOR A COMPLETE, WEATHERTIGHT PANEL SYSTEM INCLUDING TRIM, COPINGS, FASCIA, MULLIONS, SILLS, CORNER UNITS, CLIPS, FLASHINGS, SEALANTS, GASKETS FILLERS, CLOSURE STRIPS AND SIMILAR ITEMS. MATCH MATERIAL AND FINISH OF METAL PANELS UNLESS OTHERWISE INDICATED.
9. FLASHINGS AND TRIM:
PROVIDE FLASHING AND TRIM FORMED FROM SAME MATERIAL AS METAL PANELS AS REQUIRED TO SEAL AGAINST WEATHER AND TO PROVIDE FINISHED APPEARANCE. LOCATIONS INCLUDE, BUT ARE NOT LIMITED TO: EAVES, RAKES, CORNERS, BASES, FRAMED OPENINGS, RIDGES, FASCIA, AND FILLERS. FINISH FLASHING AND TRIM WITH SAME FINISH SYSTEM AS ADJACENT METAL PANELS.
10. ROOF INSULATION:
EXTRUDED POLYSTYRENE BOARD TO ASTM C578, TYPE IV, RIGID, CLOSED CELL TYPE WITH INTEGRAL HIGH DENSITY SKIN.
AGED THERMAL RSISTANCE (ASTMC518):R-5 PER INCH (RSI 0.87 PER 25MM)
INSTALL IN TWO LAYERS WITH STAGGERED JOINTS.
EACH LAYER TO BE 75MM (3") THICK.

11. INTERIOR LINER PANEL:
NOMINAL 32" WIDE WITH 1¼" INCH SEAM RIB AND STIFF RIBS
MACHINE ROLLED

LINER PANEL TO BE 24 GAUGE (0.024") THICKNESS

ASTM STANDARD SPECIFICATION A653/A653M, SHEET STEEL, ZINC COATED (GALVANIZED) OR ZINC-IRON ALLOY COATED (GALVANEALD) BY THE HOT-DIP PROCESS, MINIMUM GRADE 33, WITH A DESIGN THICKNESS OF 24 GAUGE (0.024") OR GREATER AND A MINIMUM ZINC COATING DESIGNATION Z275 (G-90)

PAINTED LINER PANEL TO HAVE 8000 SERIES SILICONE POLYESTER PAINT ON THE EXPOSED SIDE AND NON COLOR-CONTROLLED WASH COAT PRIMER ON UNEXPOSED SIDE.
12. VAPOR RETARDER:
VAPOR RETARDER SHALL CONSIST OF LINER PANEL WITH SIDELAPS SEALED WITH FACTORY APPLIED SIKA 901 AND BUTYL TAPE SEALER ON ENDS TO PREVENT VAPOR TRANSMISSION BETWEEN SHEETS.

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PROJECT: COCHENOUR ARENA LIFE EXTENSION			
COCHENOUR, RED LAKE ONTARIO			
DRAWING TITLE: GENERAL NOTES			
DRAWN BY: MT	CHECKED BY: AM	DATE: 24MARCH2016	FILE NO.: 16-004
DRAWING NO.: 16-004-S-13			

Appendix B Photos - Architectural



Figure 1 - Arena exterior with entry stair and ramp



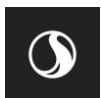
Figure 2 – Community Centre exterior with entry stair and ramp



Figure 3 –Rink , dasher boards and spectator stands



Figure 4 – ramp into rink from Foyer



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 5 – Damaged ceiling equipment storage room within rink



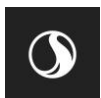
Figure 6 – Exit door with concrete curb from rink not meeting accessibility requirements



Figure 7 – cover over header trench for chilled slab and access to ice plant



Figure 8 – leaks and damage to roof in ice resurfacer room



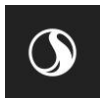
COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 9 – glulam structure interfering with dasher board glass



Figure 10 – exit from kitchen not meeting accessibility requirements



Appendix C Photos - Structural



Figure 1 – Overall picture of the Cochenour Arena



Figure 2 – Cracks in the glulam arched beams indicating delamination.



Figure 3 – Cracked stud at west wall of the arena.





Figure 4 – Wood purlins in the arena



Figure 5 – Fastening of angles on Glulam beams





Figure 6 – Cracks in grade beams and concrete



Figure 7 – Concrete floor cracks under ice board to the north-west corner of ice rink



Figure 8 – Cracks in concrete slab near pilaster



Figure 9 – Crack in grade beam at the north-west corner of the arena





Figure 10 – Crack in grade beam at the north-west corner of the arena



Figure 11 – Slab-on-grade shrinkage cracking

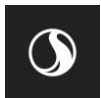




Figure 12 – Difference in concrete slab elevation



Figure 13 – Insulation at the wall
between Hockey Arena and
Reception Area



Figure 14 – Damage in Ice Resurfacer room roofing
membrane



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 15 – Cracking and spalling of concrete slab in Ice Resurfacer Room



Figure 16 – Reception Area (Left), and Dressing Rooms (Right)

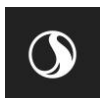




Figure 17 – Structural Steel Framing in the Reception Area



Figure 18 – Stairs at the Entrance of the Reception Area

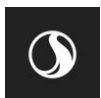




Figure 19 – Concrete ramp deterioration in front of the reception area



Figure 20 – Exterior concrete pad deteriorations near dressing rooms area



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

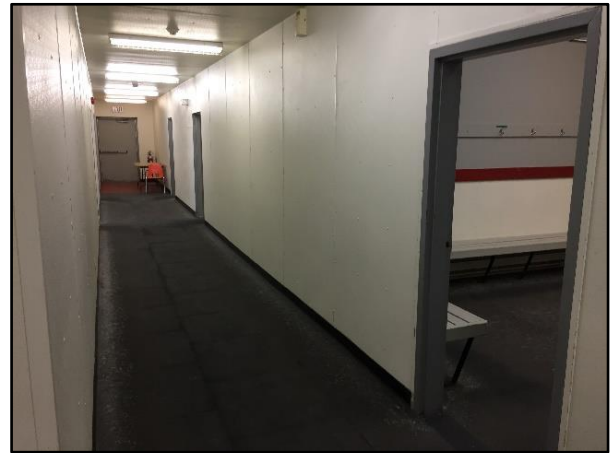


Figure 21 – Dressing rooms area



Figure 22 – Concrete floor in Mechanical



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

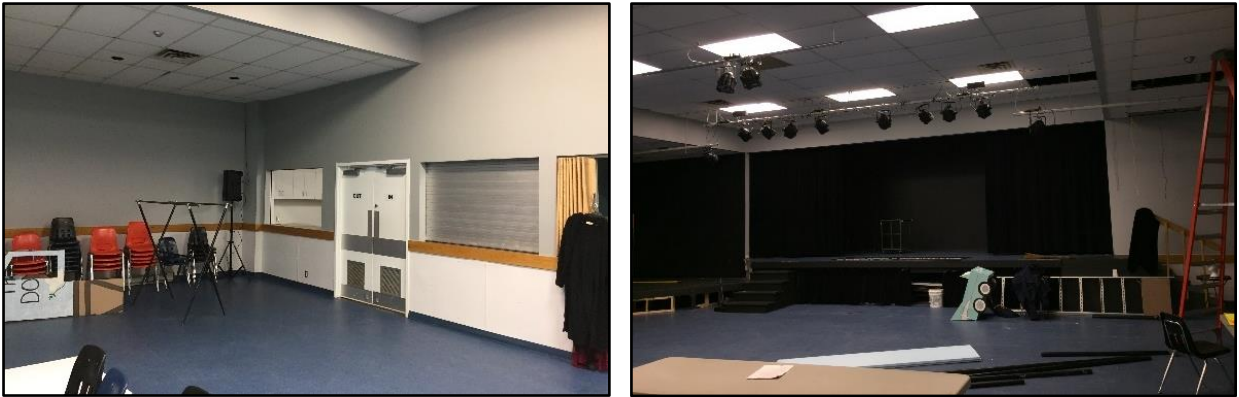


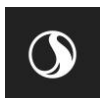
Figure 23 – Interior of the Community Hall



Figure 24 – Structural Steel Framing in the Community Hall



Figure 25 – Deteriorations in Entry stairs and ramp to the community hall



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 26 – Exterior of Arena



Figure 27 – Exterior of Community Hall



Figure 28 – Ground slopes towards north wall of the arena room slab.



Figure 29 – Emergency exit from the community hall is blocked with snow



Appendix D Photos - Mechanical



Figure 1 - Community Hall's 1-1/4" domestic cold water



Figure 2 – Community Hall's domestic water heaters



Figure 3 – Community Hall's AC Unit

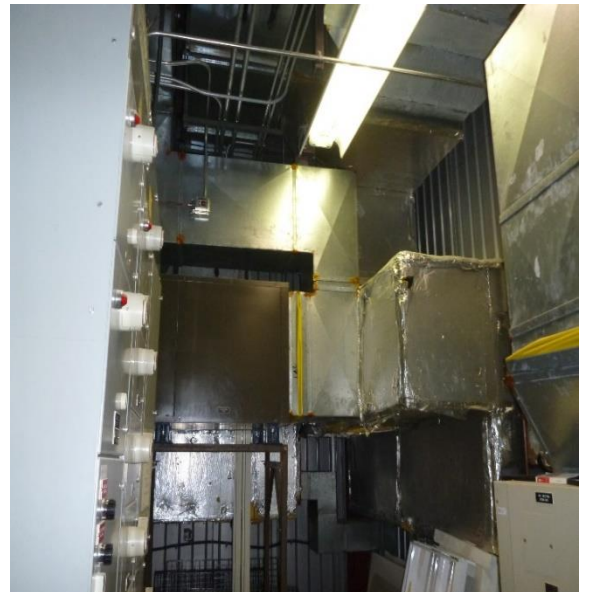


Figure 4 – Community Hall's Kitchen Make-up unit



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 5 – Community Hall's condensing unit



Figure 6 – Community Hall's roof - mounted kitchen exhaust fan



Figure 7– Community Hall's exhaust hood & fire suppression

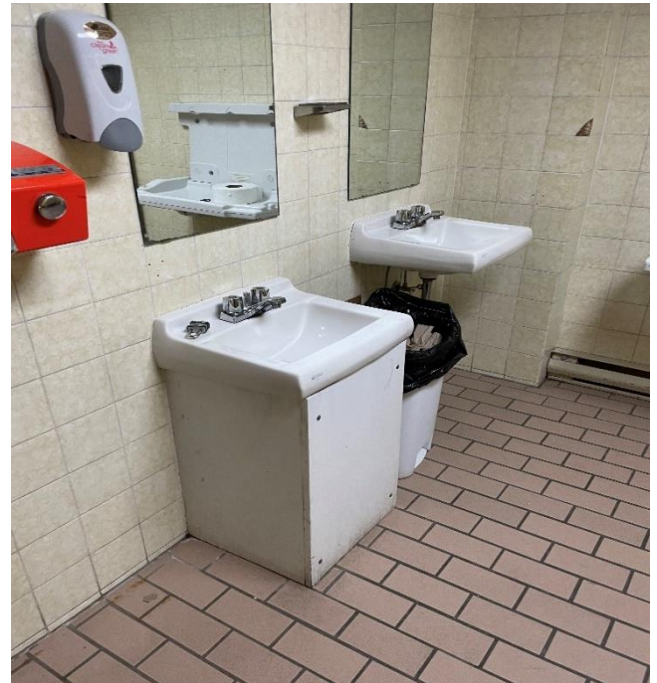
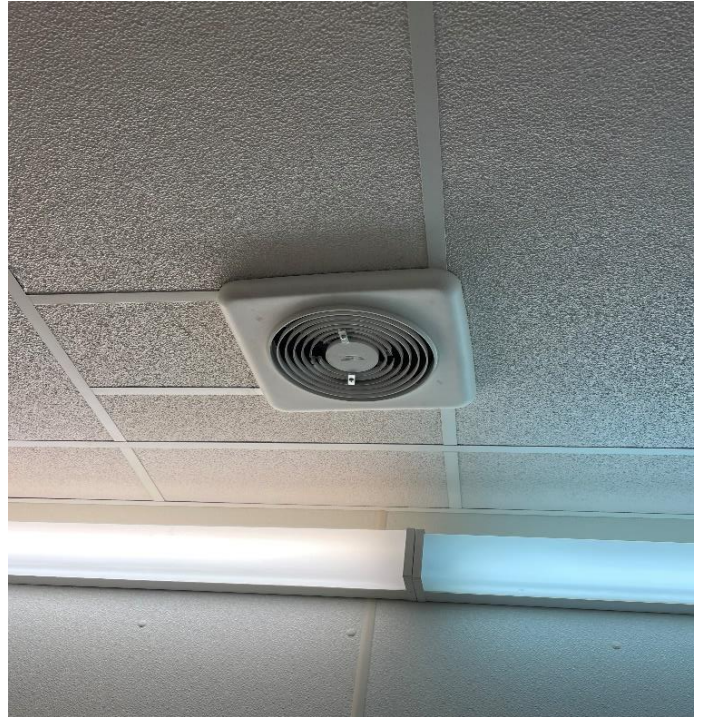


Figure 8– Typical lavatories in Community Hall

COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



**Figure 9 – Typical Water closed in
Arena & Community Hall**



**Figure 10 – Typical washroom exhaust
fan in Arena & Community Hall**



Figure 11 – Typical lavatories in Arena



Figure 12 – Arena Hall janitor room



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 13 – Arena Hall's 2" domestic cold water supply



Figure 14 –Arena Hall's ventilation unit



Figure 15 – Arena dressing room water heaters



Figure 16– Arena dressing room ventilation units



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT

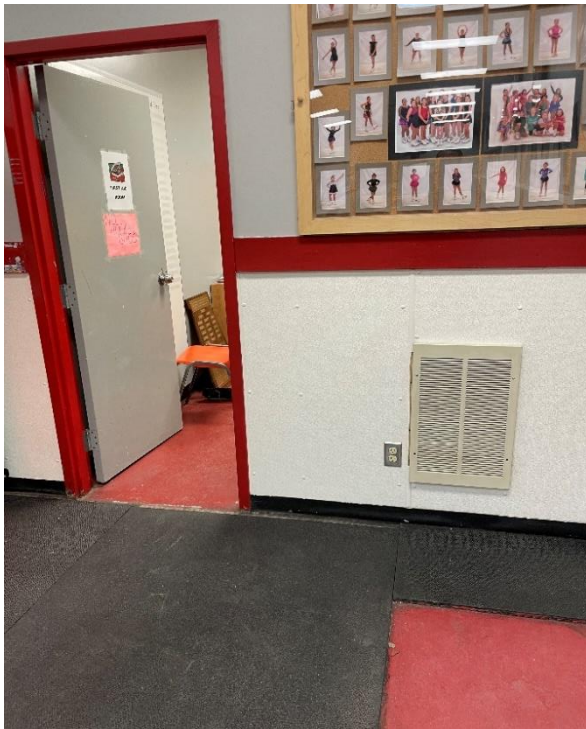


Figure 17– Arena dressing room ventilation units

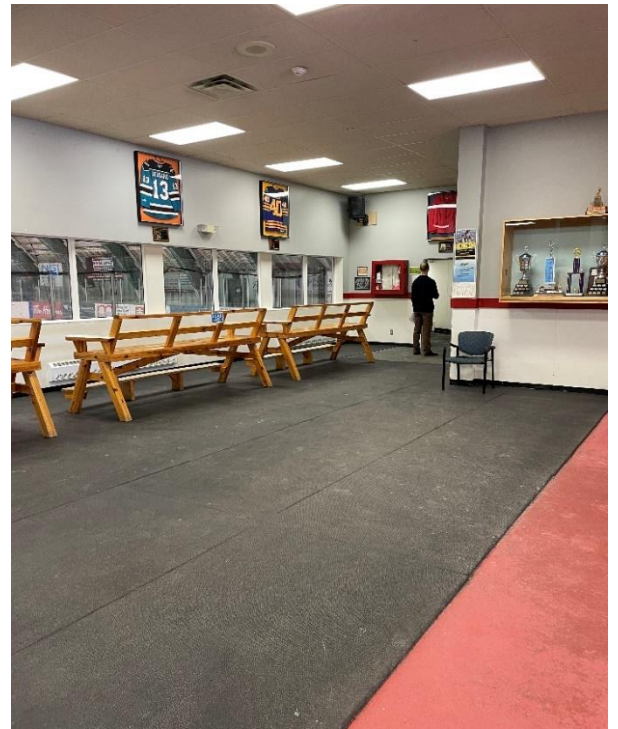


Figure 18– Arena Hall baseboard heaters and fire hose cabinet



Figure 19– Seating/bleacher's radiant tube heaters

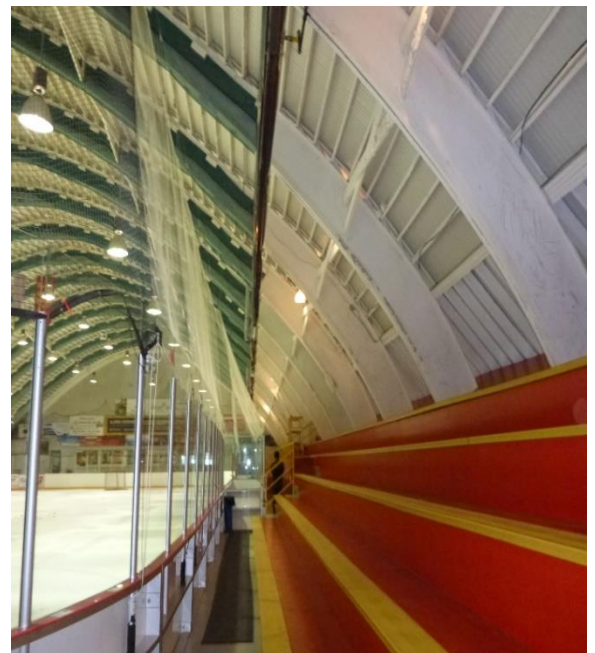


Figure 20– Another view of seating/bleacher's radiant tube

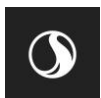




Figure 21– Scorer's electric infrared radiant heaters



Figure 22– Ice Rink's dehumidifier



Figure 23– Ammonia refrigeration compressors and evaporator



Figure 24– Frosted brine pump impeller casing



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 25– Glycol System

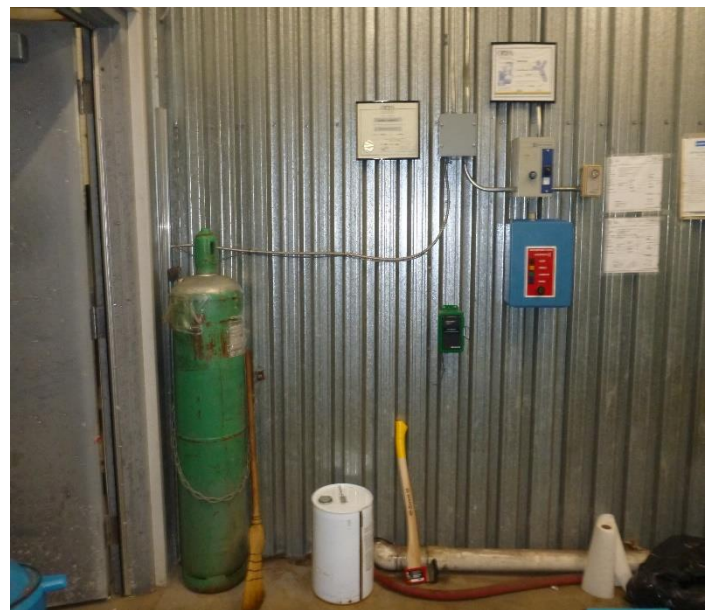


Figure 26– Ammonia leak detection system



Figure 27– Filter unit and floor drain

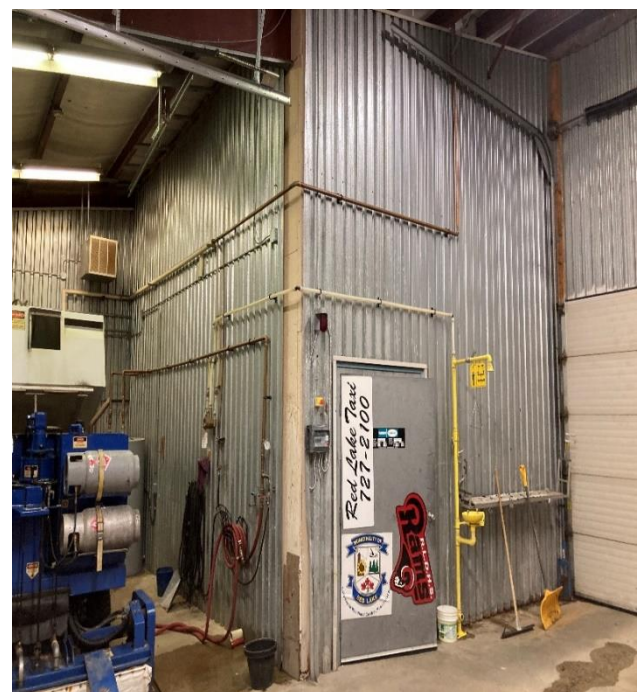


Figure 28– Leak detection strobe light and emergency eyewash/shower





Figure 29– Cooling tower and wall-mounted centrifugal exhaust fan



Figure 30– Ice rink electric water heaters



Figure 31– Ice rink gas-fired water heater

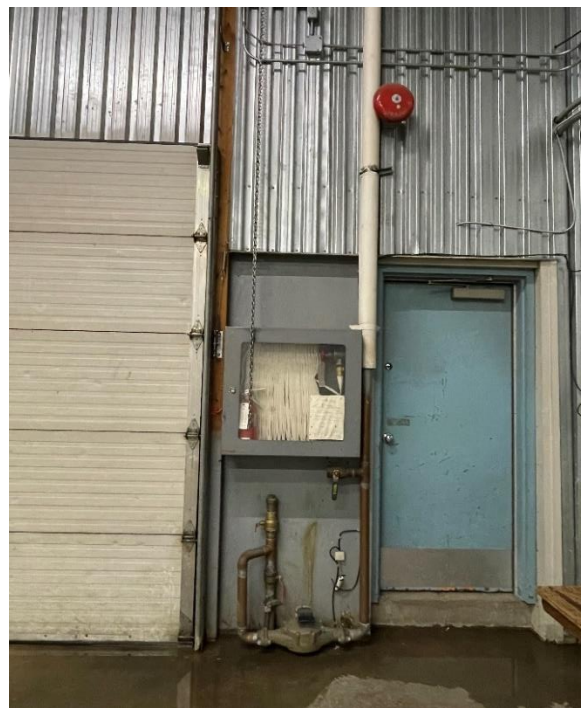


Figure 32– Ice Resurfacer room's 2" domestic water supply and fire hose cabinet



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 33– Natural gas service to ice rink water heater



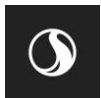
Figure 34– Propane gas tank and ice rink's southeast ventilation fan



Figure 35– Ice rink's northwest ventilation fan



Figure 36– Ice rink's southeast ventilation fan



Appendix E Photos – Electrical



Figure 1 – Utility transformer



Figure 2 – Meter and portable generator plug-in



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 3 – Electrical layout in the [back] mechanical room



Figure 4 – Main Distribution Panel





Figure 5 – CDP-B



Figure 6 – MCC located in Cochenour Community Hall





Figure 7 – Electrical panel by the stage



Figure 8 – Kitchen panel





Figure 9 – Electrical layout in the [front] mechanical room



Figure 10 – Field wiring





Figure 11 – General lighting



Figure 12 – Arena lighting



COCHENOUR ARENA BUILDING CONDITION ASSESSMENT



Figure 13 – Arena lighting Controls



Figure 14 – Exterior lighting

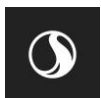
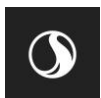




Figure 15 – Exterior lighting



Figure 16 – Tbaytel termination in the [back] mechanical room



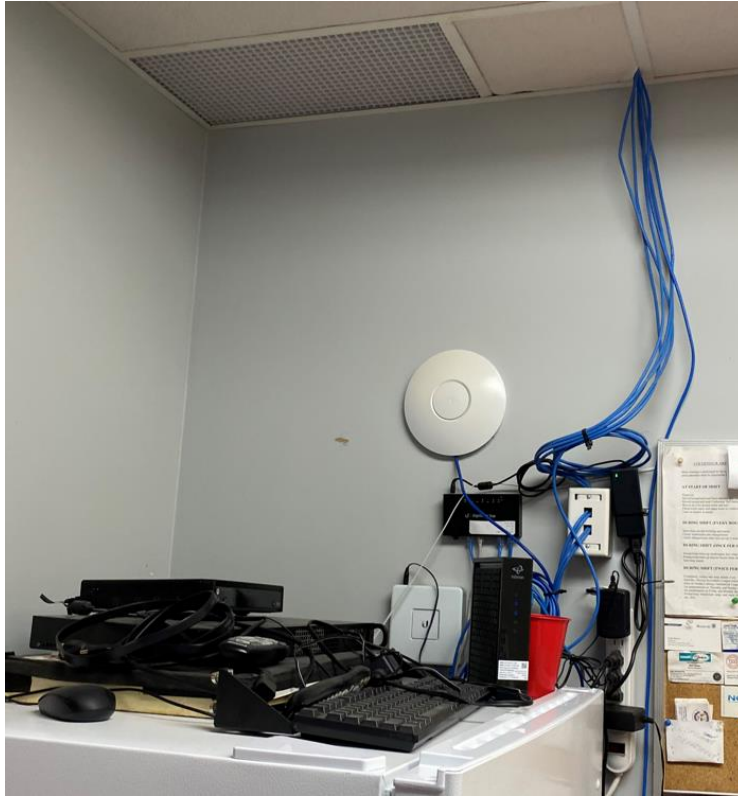


Figure 17 – Internet router in the front office



Figure 18 – P.A. system plug-in





Figure 19 – Scoreboard system



Figure 20 – Fire alarm control panel





Figure 21 – Exit sign (no longer functional)



Figure 22 – Baseboard heater



Appendix F New Concept Plan



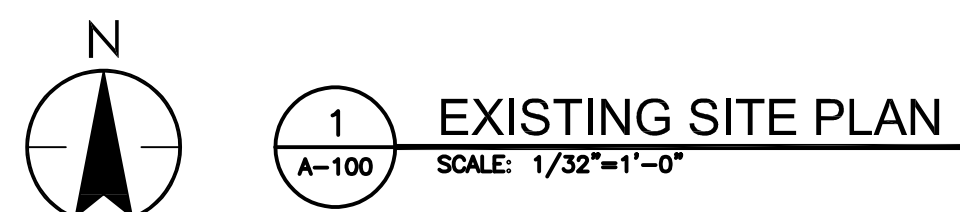


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Client/Project			
COCHENOUR ARENA ASSESSMENT			
COCHENOUR, RED LAKE			
Title			
SITE PLAN			
Project No.		Scale	
115422000		1/32"=1'-0"	
Drawing No.		Sheet	
A-100		Revision	
of		0	



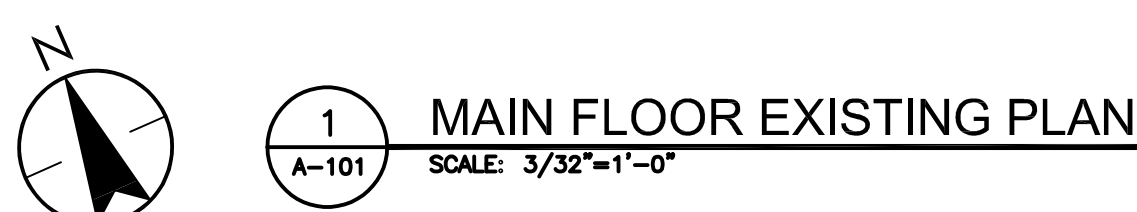
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ORIGINAL SHEET - ARTICLE 5

Client/Project
COCHENOUR ARENA
ASSESSMENT

COCHENOUR, RED LAKE

Title
FLOOR PLAN - EXISTING

Project No.	Scale
115422000	3/32"=1'-0"
Drawing No.	Sheet

A-101 of 0

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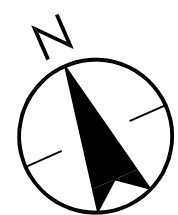
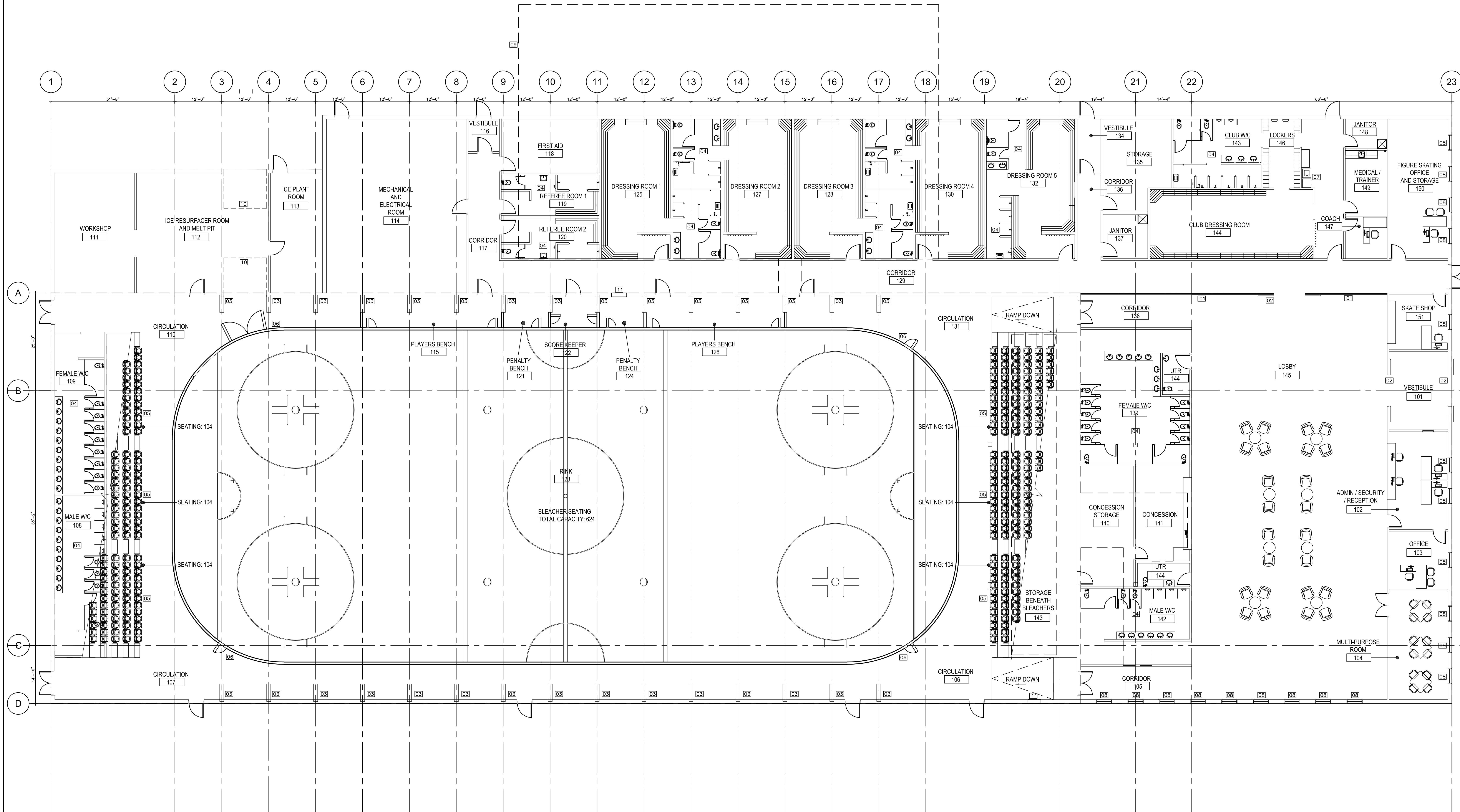
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No



1
A-201
MAIN FLOOR CONCEPT PLAN
SCALE: 3/32"=1'-0"

CONSTRUCTION KEYNOTES

- 01 8" HIGH TEMPERED GLASS
- 02 2 - 4" WIDE TEMPERED GLASS SLIDING DOORS
- 03 EXISTING GLUAM STRUCTURE
- 04 WASHROOM TO BE COMPLETE W/ TILE FLOOR AND TILE ON WALL TO 5"
- 05 CAST-IN-PLACE CONCRETE BLEACHERS W/ INDIVIDUAL SEATS
- 06 NEW ALUMINUM DASHER BOARDS C/W TEMPERED GLASS
- 07 WASHER AND DRYER FOR CLUB DRESSING ROOM
- 08 4" WIDE X 12" HIGH EXTERIOR WINDOW
- 09 LINE OF EXISTING BUILDING AND STRUCTURE
- 10 EXISTING ICE PLANT OVERHEAD DOORS
- 11 INFILL EXISTING WALL

Revision

Issued

File Name:

Permit-Seal

Client/Project
COCHENOUR ARENA
ASSESSMENT

COCHENOUR, RED LAKE

Title
MAIN FLOOR CONCEPT PLAN

Project No. 115422000

Scale 3/32"=1'-0"

Drawing No. Sheet

Revision

A-201 of 0

Appendix G Class D Estimate



CLASS 'D' ESTIMATE

COCHENOUR ARENA UPGRADES
BUILDING CONDITION ASSESSMENT
RED LAKE, ONTARIO

Prepared for:
Stantec Architecture

June 30, 2022

Harscomb
QUANTITY SURVEYORS

June 30, 2022

Ref # WIN1975



Stantec Architecture
500 - 311 Portage Avenue
Winnipeg, Manitoba R3B 2B9
T: (204) 928-8824
E: myron.paryniuk@stantec.com

Attn: Myron Paryniuk, Manufacturing Lead

Re: Cochenour Arena Upgrades, Building Condition Assessment, Red Lake,
Ontario

Dear Myron:

Please find attached our Class 'D' Estimate for the Cochenour Arena Upgrades, Building Condition Assessment in Red Lake, Ontario.

This Class 'D' Estimate is intended to provide a realistic allocation of direct construction costs and is a determination of fair market value. Pricing shown reflects probable construction costs obtainable in the Red Lake, Ontario area on the effective date of this report and is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.

Hanscomb has prepared this estimate(s) in accordance with generally accepted principles and practices. Our general assumptions are included in Section 3 of this report and any exclusions are identified in Section 1.6. For quality assurance, this estimate has been reviewed by the designated Team Lead as signed below. Hanscomb staff are available and pleased to discuss the contents of this report with any interested party.

Requests for modifications of any apparent errors or omissions to this document must be made to Hanscomb within ten (10) days of receipt of this estimate. Otherwise, it will be understood that the contents have been concurred with and accepted.

We trust our estimate is complete and comprehensive and provides the necessary information to allow for informed capital decisions for moving this project forward. Please do not hesitate to contact us if you have any questions or require additional information.

Yours truly,

Hanscomb Limited
Team Lead

A handwritten signature in black ink, appearing to read 'Irene Malang'.

Irene Malang
B.Sc. CE, EIT, PQS
Technical Manager

Hanscomb Limited
Principal / Estimate Reviewer

A handwritten signature in blue ink, appearing to read 'Isaac Gwendo'.

Isaac Gwendo
PQS, B.A. (Build. Econ)
Executive Vice President

Hanscomb Limited

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Winnipeg, Manitoba
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Appendices

Estimates:

A - Detailed Cost Estimate

Documents and Drawings:

AA - Documents and Drawings List

AB - Representative Drawings

1. INTRODUCTION

1.1 PURPOSE

This Class 'D' Estimate is intended to provide a realistic allocation of direct construction costs for the Cochenour Arena Upgrades, Building Condition Assessment, located in Red Lake, Ontario, with the exception of the items listed in 1.6 Exclusions.

1.2 DESCRIPTION

The Cochenour Arena Upgrades, Building Condition Assessment located in Red Lake, Ontario is comprised of the following key elements:

The project includes upgrades to the existing Cochenour Arena based on the Building Condition Assessment report. This project comprises a gross floor area (GFA) of 1,865 m² of the Old Arena, 180 m² of the West Addition and 685 m² of the East Addition for a total GFA of 2,730 m².

This estimate has been categorized into: Code Upgrades, Operations Upgrades, Efficiency Upgrades and Annual Costs.

1.3 METHODOLOGY

Hanscomb has prepared this estimate(s) in accordance with generally accepted principles and practices. Hanscomb staff are available to discuss its contents with any interested party.

From the documentation and information provided, quantities of all major elements were assessed or measured where possible and priced at rates considered competitive for a project of this type under a stipulated sum form of contract in Red Lake, Ontario.

Pricing shown reflects probable construction costs obtainable in the Red Lake, Ontario area on the effective date of this report. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the work.

1.4 SPECIFICATIONS

For building components and systems where specifications and design details are not available, quality standards have been established based on discussions with the design team.

1. INTRODUCTION

1.5 ESTIMATE CLASSIFICATION AND COST PREDICTABILITY

Estimates are defined and classified based on the stage of a project's development and the level of information available at the time of the milestone estimate.

This Class 'D' Estimate is considered to have an expected degree of accuracy of +/- 20-30%. In other words, bid results might vary by this amount if the construction budget were set at this milestone estimate.

At the initial stages of a contemplated project, the cost accuracy of the estimate is low as there may be little or no information available to inform a first high-level concept estimate or order of magnitude estimate. As a project nears design completion and is ready to be released to market for tender, the level of accuracy of the estimate is high as the detail is generally extensive and typically represents the information on which contractors will bid.

Milestone cost estimates or "checks" are recommended as the project design develops to keep track of scope and budget. Early detection of potential budget overruns will allow for remedial action before design and scope are locked in. The number of milestone estimates will depend on a project's size and schedule and cost predictability will improve as the design advances.

According to the Canadian Joint Federal Government/Industry Cost Predictability Taskforce, industry standards for estimate classification and cost estimate accuracy may be summarized as follows:

COST ESTIMATE CLASSIFICATION SYSTEM						
AACE	Class 5	Class 4	Class 3		Class 2	Class 1
DND			Indicative		Substantive	
RAIC	OME	Sketch Design	Design Develop		Contract Documents	Tender Documents
GOC	OME	D	C	← B →		A
	↓	↓	↓		↓	↓
Design Documentation % Complete		12.5%	25.0%		95.0%	100.0%
Cost Estimate Accuracy (+/-%)	+/- 30%	+/- 20-30%	+/- 15-20%		+/- 10-15%	+/- 5-10%

Legend

AACE	Association for the Advancement of Cost Engineering
DND	Department of National Defence
GOC	Government of Canada
RAIC	Royal Architectural Institute of Canada
OME	Order of Magnitude Estimate

While the classification categories differ from one authority to the next, the overarching principle for cost predictability remains the same – as the level of detail and design development increases, so does the level of accuracy of the estimate.

1. INTRODUCTION

1.6 EXCLUSIONS

This Class 'D' Estimate does not provide for the following, if required:

- Cost of contaminated soil removal
- Cost of hazardous material (e.g. asbestos, lead, PCB, etc.) removal
- Equipment beyond that identified in this estimate
- Financing costs
- Window treatments
- Loose furniture, furnishings and equipment
- Special audio, visual, security equipment or installation other than provision of empty conduit systems carried in electrical division
- Value-added tax (Goods and Services Tax)
- Cash allowances
- Premiums associated with Public-Private Partnership procurement model
- Trade tariffs
- Third party commissioning costs
- Overtime premiums for work done outside normal working hours
- Phased construction premium
- Soft Costs
 - Building permit
 - Development charges
 - Easement costs
 - Fund raising costs
 - Land acquisition costs and impost charges
 - Legal fees and expenses
 - Owner's staff and associated management
 - Preventative maintenance contracts
 - Professional fees and expenses
 - Relocation of existing facilities, including furniture and equipment
 - Right of way charges
 - Value-added tax (Goods and Services Tax)
- unexpected labour unavailability and productivity disruptions leading to delays and added costs
- supply chain disruptions leading to delays and added costs

2. DOCUMENTATION

This Class 'D' Estimate has been prepared from the documentation included in Appendix AA of this report.

All of the above documentation was received from Stantec Architecture and was supplemented with information gathered in meeting(s) and telephone conversations with the design team, as applicable.

Design changes and/or additions made subsequent to this issuance of the documentation noted above have not been incorporated in this report.

3. COST CONSIDERATIONS

3.1 COST BASE

All costs are estimated on the basis of competitive bids (a minimum of 4 general contractor bids and at least 4 subcontractor bids for each trade) being received in June 2022 from general contractors and all major subcontractors and suppliers based on a stipulated sum form of contract. If these conditions are not met, bids received could be expected to exceed this estimate.

3.2 UNIT RATES

The unit rates in the preparation of this Class 'D' Estimate include labour and material, equipment, subcontractor's overheads and profit. Union contractors are assumed to perform the work with the fair wage policy in effect.

3.3 GENERAL REQUIREMENTS AND FEE

General Requirements and Fee cover the General Contractor's indirect costs which may include but not be limited to supervision, site set up, temporary utilities, equipment, utilities, clean up, etc. as covered in Division 1 General Conditions of the Contract Documents. It also includes the contractor's fees and should not be confused with Design or Consultant fees which are excluded from the Construction Costs and carried separately in the Owner's Total Project Costs.

3.4 DESIGN AND PRICING ALLOWANCE

An allowance of 20.0% has been included to cover design and pricing unknowns. This allowance is not intended to cover any program space modifications but rather to provide some flexibility for the designers and cost planners during the remaining contract document stages.

It is expected that this allowance amount will be absorbed into the base construction costs as the design advances. The amount by which this allowance is reduced corresponds to an increase in accuracy and detailed design information. Hanscomb recommends that careful consideration be made at each milestone estimate to maintain adequate contingency for this allowance.

As a project nears completion of design, Hanscomb recommends retaining some contingency for this allowance for the final coordination of documents.

3.5 ESCALATION ALLOWANCE

All costs are based on June 2022 dollars. An allowance of 11.0% per annum has been made for construction cost escalation. Thus, the escalation allowance for this estimate is 11.0% for escalation that may occur between June 2022 and anticipated tender date in 12 months for the project. Escalation during construction is included in the unit rates.

For escalation, the budgeted amount will typically decline as the time to award nears. Forecasting escalation requires careful assessment of a continually changing construction market which at best is difficult to predict. The escalation rate should be monitored.

3. COST CONSIDERATIONS

3.6 CONSTRUCTION ALLOWANCE

An allowance of 10.0% has been made to cover construction (post contract) unknowns. This allowance, also known as the Post Contract Contingency (PCC), is intended to cover costs for change orders during construction that are not foreseeable. It is not intended to cover scope changes to the contract. The amount carried in a budget for this allowance is typically set at the initial planning stage and should be based on the complexity of the project and the probability of unknowns and retained risks.

3.7 CASH ALLOWANCE

Cash allowances are intended to allow the contractor to include in the bid price the cost for work that is difficult to fully scope at the time of tendering based on factors that are beyond the Owner and Prime Consultant's control. Cash allowances attempt to reduce the risks by dedicating a set amount for use against a certain cost that cannot yet be detailed. The Contractor is obligated to work as best as possible within the limitations of the Cash Allowance.

Examples of Cash Allowances include hardware, inspection and testing, site conditions, replacement of existing elements during demolition for renovation, hazardous materials abatement, signage, etc.

Any Cash Allowances if applicable are included either in the details of this estimate under the appropriate discipline or at the summary level.

3.8 TAXES

No provision has been made for the Goods and Services Tax. It is recommended that the owner make separate provision for GST in the project budget.

3.9 SCHEDULE

Pricing assumes a standard schedule of work appropriate to the size and scope of this project. Premiums for off-hour work, working in an operational facility, accelerated schedule, etc., if applicable, are identified separately in the body of the estimate.

3.10 STATEMENT OF PROBABLE COSTS

Hanscomb has no control over the cost of labour and materials, the contractor's method of determining prices, or competitive bidding and market conditions. This opinion of probable cost of construction is made on the basis of experience, qualifications and best judgment of the professional consultant familiar with the construction industry. Hanscomb cannot and does not guarantee that proposals, bids or actual construction costs will not vary from this or subsequent cost estimates.

3. COST CONSIDERATIONS

3.11 ONGOING COST CONTROL

Hanscomb recommends that the Owner and design team carefully review this document, including line item description, unit prices, clarifications, exclusions, inclusions and assumptions, contingencies, escalation, and mark-ups. If the project is over budget, or if there are unresolved budgeting issues, alternative systems/schemes should be evaluated before proceeding into the next design phase.

It is recommended that a final updated estimate at the end of the design stage be produced by Hanscomb using Bid Documents to determine overall cost changes which may have occurred since the preparation of this estimate. The final updated estimate will address changes and additions to the documents, as well as addenda issued during the bidding process. Hanscomb cannot reconcile bid results to any estimate not produced from bid documents including all addenda.

This estimate does not constitute an offer to undertake the work, nor is any guarantee given that an offer, to undertake the work at the estimate(s) price, will subsequently be submitted by a construction contractor. Unless explicitly stated otherwise, it is assumed that competitive bids will be sought when tender documents have been completed. Any significant deviation between bids received and a pre-tender estimate prepared by Hanscomb from the same tender documents, should be evaluated to establish the possible cause(s).

3.12 COVID-19 CLASS A ESTIMATE STATEMENT

If this project is expected to be tendered in the near future and because risks related to COVID-19 are a currently known but unquantifiable project risk at this time and therefore may not support a claim under any force majeure contract clause. Hanscomb expects general contractors to include in their bids an allowance for COVID-19 risk unless that risk is mitigated in the bid documents. Inclusion of an allowance for risk related to COVID-19 will increase the overall cost of the project, in some cases materially.

The current risk of Covid-19 within the North American market has been rapidly reducing. Many jurisdictions are planning to reduce or even eliminate Covid-19 restrictions in the near future. Although the economic activity within the global economy has seen improvements, there has been increased Covid- 19 infections recently in the Southern Hemisphere. If this situation continues within the Asia countries, then it will impact the delivery of materials and finished goods to the Northern Hemisphere. Supply chain issues will persist in the Northern Hemisphere.

Hanscomb believes inclusion of these risks in bids could impact normal competitive market conditions resulting in a bid price increase by a minimum of 5 to 10% or in extreme situations as much as 10 to 20%.

We encourage building owners and Architect & Engineering teams to address this situation by providing clear directives to the bidders on risk mitigation for COVID-19 within the tender documents.

3. COST CONSIDERATIONS

3.12 COVID-19 CLASS A ESTIMATE STATEMENT cont'd

Items related to COVID-19 that may be included in bidders' risk allowances:

- Reduced site productivity due to:
 - lack of availability of labour for sickness and other reasons,
 - delays related to recruiting or unavailability of replacement workers,
 - social/physical distancing requirements,
 - site shutdowns due to outbreaks among site workers,
 - government mandated industry shutdowns,
 - delays in delivery of materials and equipment to the site,
 - unavailability of materials due to factory closure or shipping interruption,
 - delays related to acquiring substitutions for unavailable materials,
- Effect of reduced site productivity on project schedule,
- Effect of project schedule delays on overheads.

If any or all of these risks are encountered the completion date for the project will be delayed.

3.13 OTHER CURRENT RISKS TO CONSTRUCTION ESCALATION

THE IMPACT OF THE RUSSIA / UKRAINE WAR:

The impact of the Russia / Ukraine war on the Western economy will accelerate inflationary pressure within the Western economy. The Western Countries have laid siege to Russia in the form of severe sanctions on most transactions of goods and services that originate from Russia. The impact of these sanctions will reduce the function of normal trade of goods and services within the global economy. The impact will thus affect the construction activity as follows:

- Increase in costs of oil and natural gas
- The restriction of the trade of base metal materials (Nickel, palladium, iron, zinc, aluminum etc.)
- Increased constrained of supply of oil-based chemicals and other materials
- Shortages of fertilizers (potash and products made from oil & gas)
- Shortages of wheat and sunflower based products

We expect that Russia will increase trade of the above materials to China to avoid the effect of sanctions on the Russian economy. It is currently unclear how the Western Countries will react towards Chinese businesses. The situation will likely increase inflationary pressure on the Western Countries which will, in turn, fuel higher wage demands within these Western Countries.

4. GROSS FLOOR AND SITE DEVELOPED AREAS

Gross Floor Area

Description	m2
Old Arena	1,865
West Addition	180
East Addition	685
Total Gross Floor Area	2,730

The above areas have been measured in accordance with the Canadian Institute of Quantity Surveyors' Method of Buildings by Area and Volume.

5. CONSTRUCTION COST ESTIMATE SUMMARY

Description	% Adds-on	Code Upgrades	Operations Upgrades	Efficiency Upgrades	TOTAL
- Net Renovation Cost		\$ 1,694,830	\$3,809,550	\$1,220,920	\$ 6,725,300
Total		\$ 1,694,830	\$3,809,550	\$1,220,920	\$ 6,725,300
- Transport & Accommodation	8.0%	\$ 135,600	\$ 304,800	\$ 97,700	\$ 538,100
- General Requirements	10.0%	\$ 183,000	\$ 411,400	\$ 131,900	\$ 726,300
- Fee	5.0%	\$ 100,700	\$ 226,300	\$ 72,500	\$ 399,500
Total- Excluding Contingencies		\$ 2,114,100	\$4,752,100	\$1,523,000	\$ 8,389,200
- Design and Pricing Allowance	20.0%	\$ 422,800	\$ 950,400	\$ 304,600	\$ 1,677,800
- Escalation Allowance	11.0%	\$ 279,100	\$ 627,300	\$ 201,000	\$ 1,107,400
- Construction Allowance	10.0%	\$ 281,600	\$ 633,000	\$ 202,900	\$ 1,117,500
Total- Including Contingencies		\$ 3,100,000	\$6,960,000	\$2,232,000	\$ 12,292,000
- Goods & Services Tax		Excluded	Excluded	Excluded	Excluded
Total Construction Estimate		\$ 3,100,000	\$6,960,000	\$2,232,000	\$ 12,292,000
Note: Cost based on project tendered as a single contract.					
Separate Prices: Annual Costs (Not Included in the above Base Cost)					
					% adds-on included
1) Operations: Water service valves have to be serviced to confirm they are working. Repair or replace damaged valves					\$ 35,500
2) Operations: Periodically inspect and test standpipe and hose system					\$ 3,590
3) Operations: Periodically inspect and test fire extinguishers					\$ 7,720
4) Operations: Periodically inspect and test ammonia leak detection system					\$ 4,600
5) Efficiency: The ice plant should be replaced within the next ten years assuming it has been regularly serviced and has not experienced excessive tube failure.*					\$ 592,700
6) Periodically inspect drain pan and replace air filters					\$ 11,380
Total Annual Cost					\$ 655,490
*Cost for replacement ice plant in 10 year has been prorated for 10 years and included in Annual Costs					

**Appendix
A - Detailed Cost Estimate**

CODE UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodation 8%	General Requirements 10%	Fee	5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
2.0 ARCHITECTURAL ASSESSMENT																	
2.3.2.2 Code																	
2.3.2.2	a. Provide a safe means of egress away from the building at the exit doors	Remove existing door and replace with new single metal door c/w hardware	7	No.	\$ 2,700.00	\$ 18,900.00		\$ 22,050.00	\$ 1,800.00	\$ 2,400.00	\$ 1,300.00	\$ 27,550.00	\$ 5,500.00	\$ 3,600.00	\$ 3,700.00	\$ 40,350.00	
		Exterior concrete pad landing	7	No.	\$ 450.00	\$ 3,150.00											
	b. Replace the front entry stair and ramp	Remove and replace front entry stair and ramp	43	m2	\$ 500.00	\$ 21,500.00		\$ 56,700.00	\$ 4,500.00	\$ 6,100.00	\$ 3,400.00	\$ 70,700.00	\$ 14,100.00	\$ 9,300.00	\$ 9,400.00	\$ 103,500.00	
		New Railing	44	m	\$ 800.00	\$ 35,200.00											
2.4.2.1 Code:																	
	1 Clean and prepare all existing wood structure within arena for new intumescent paint finish (assumed structure is 1m wide beams)	Clean wood structure	1798	m2	\$ 20.00	\$ 35,960.00		\$ 240,760.00	\$ 19,300.00	\$ 26,000.00	\$ 14,300.00	\$ 300,360.00	\$ 60,100.00	\$ 39,700.00	\$ 40,000.00	\$ 440,160.00	
		Intumescent paint finish	512	m2	\$ 400.00	\$ 204,800.00											
	2 Install transition strips for all locations from sheet flooring to hockey skate flooring.		150	m	\$ 50.00	\$ 7,500.00		\$ 7,500.00	\$ 600.00	\$ 800.00	\$ 400.00	\$ 9,300.00	\$ 1,900.00	\$ 1,200.00	\$ 1,200.00	\$ 13,600.00	
2.4.4.1 Code:																	
	1 Upgrade washrooms to meet accessibility requirements	New door operator	4	No.	\$ 4,000.00	\$ 16,000.00		\$ 20,000.00	\$ 1,600.00	\$ 2,200.00	\$ 1,200.00	\$ 25,000.00	\$ 5,000.00	\$ 3,300.00	\$ 3,300.00	\$ 36,600.00	
		Miscellaneous changes (grab bars etc.)	2	No.	\$ 2,000.00	\$ 4,000.00											
	2 Add universal access washroom.		1	No.	\$ 80,000.00	\$ 80,000.00		\$ 80,000.00	\$ 6,400.00	\$ 8,600.00	\$ 4,800.00	\$ 99,800.00	\$ 20,000.00	\$ 13,200.00	\$ 13,300.00	\$ 146,300.00	
	3 Add accessible showers.		2	No.	\$ 10,000.00	\$ 20,000.00		\$ 20,000.00	\$ 1,600.00	\$ 2,200.00	\$ 1,200.00	\$ 25,000.00	\$ 5,000.00	\$ 3,300.00	\$ 3,300.00	\$ 36,600.00	
3.0 STRUCTURAL ASSESSMENT																	
Code:																	
	1 The deteriorated base plates and anchor bolts should be repaired. It should be addressed immediately. Further structural analysis is required to determine the damage.	Replace base plates and anchor bolts, allow	20	No.	\$ 1,000.00	\$ 20,000.00		\$ 20,000.00	\$ 1,600.00	\$ 2,200.00	\$ 1,200.00	\$ 25,000.00	\$ 5,000.00	\$ 3,300.00	\$ 3,300.00	\$ 36,600.00	
	2 The cracks in the slab around the column should be repaired. This also should be addressed immediately.	Allow	10	No.	\$ 1,500.00	\$ 15,000.00		\$ 15,000.00	\$ 1,200.00	\$ 1,600.00	\$ 900.00	\$ 18,700.00	\$ 3,700.00	\$ 2,500.00	\$ 2,500.00	\$ 27,400.00	
	3 The exterior wall panels should be repaired immediately. - is this separate from item 2.3.2.3 above?	Remove damaged wall panels and replace with new, allow	100	m2	\$ 500.00	\$ 50,000.00		\$ 50,000.00	\$ 4,000.00	\$ 5,400.00	\$ 3,000.00	\$ 62,400.00	\$ 12,500.00	\$ 8,200.00	\$ 8,300.00	\$ 91,400.00	
	4 The exterior metal stair and the canopy should be repaired immediately. Further structural analysis will be required to determine the damage and to provide the repair detail. - is the stair separate from item 2.3.2.2b above? We assume so, only canopy cost included here	Demolish existing canopy	15	m2	\$ 150.00	\$ 2,250.00		\$ 32,250.00	\$ 2,600.00	\$ 3,500.00	\$ 1,900.00	\$ 40,250.00	\$ 8,100.00	\$ 5,300.00	\$ 5,400.00	\$ 59,050.00	
		New Canopy	15	m2	\$ 2,000.00	\$ 30,000.00											
	5 Slab-on-ground construction is susceptible to seasonal movement. Floor finishes such as tiles and carpet should be monitored to ensure they do not become a trip hazard. Only monitoring is allowed here					\$ 10,000.00		\$ 10,000.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,500.00	\$ 2,500.00	\$ 1,700.00	\$ 1,700.00	\$ 18,400.00	
4.0 MECHANICAL ASSESSMENT																	
4.1 PLUMBING SYSTEMS																	
4.1.1 Domestic Water																	
4.1.2.2 Code																	
	a. Modify domestic water service mains entering the building by providing backflow preventer.		1	unit	\$ 7,500.00	\$ 7,500.00	\$ 750.00	\$ 8,250.00	\$ 700.00	\$ 900.00	\$ 500.00	\$ 10,350.00	\$ 2,100.00	\$ 1,400.00	\$ 1,400.00	\$ 15,250.00	
	b. Separate domestic water service from fire protection water supply.	provide new valves	1	sum	\$ 15,000.00	\$ 15,000.00	\$ 1,500.00	\$ 16,500.00	\$ 1,300.00	\$ 1,800.00	\$ 1,000.00	\$ 20,600.00	\$ 4,100.00	\$ 2,700.00	\$ 2,700.00	\$ 30,100.00	
4.1.3 Sanitary Drainage																	
4.1.4.1 Code																	
	a. Replace existing shower room floor drain with a trench drain.	includes floor cutting, new trench drain, patching to existing conditions, assume all shower rooms	1	sum	\$ 50,000.00	\$ 50,000.00	\$ 5,000.00	\$ 55,000.00	\$ 4,400.00	\$ 5,900.00	\$ 3,300.00	\$ 68,600.00	\$ 13,700.00	\$ 9,100.00	\$ 9,100.00	\$ 100,500.00	

CODE UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodation 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
	b. Provide a new floor drain located near the backflow preventers.	includes hub drain and 75mm branch to existing sanitary, assume floor trench cut and patching	1	sum	\$ 12,000.00	\$ 12,000.00	\$ 1,200.00	\$ 13,200.00	\$ 1,100.00	\$ 1,400.00	\$ 800.00	\$ 16,500.00	\$ 3,300.00	\$ 2,200.00	\$ 2,200.00	\$ 24,200.00
	4.1.5 Plumbing Fixtures															
	4.1.6.1 Code															
	a. Provide barrier-free plumbing fixtures, see 4.1.6.2															
	4.1.7 Other Plumbing Services															
	4.1.8.1 Code															
	e. No action items															
	4.2 FIRE PROTECTION SYSTEMS															
	4.2.2.1 Code															
	a. Provide a separate water supply to building standpipe and hose system.	include 150mm fire line, assume connection to water main (30m), trenching, curb valve	1	sum	\$ 35,000.00	\$ 35,000.00	\$ 3,500.00	\$ 38,500.00	\$ 3,100.00	\$ 4,200.00	\$ 2,300.00	\$ 48,100.00	\$ 9,600.00	\$ 6,300.00	\$ 6,400.00	\$ 70,400.00
	b. Provide a backflow preventer serving the existing standpipe and hose system	assume 150mm	1	unit	\$ 11,000.00	\$ 11,000.00	\$ 1,100.00	\$ 12,100.00	\$ 1,000.00	\$ 1,300.00	\$ 700.00	\$ 15,100.00	\$ 3,000.00	\$ 2,000.00	\$ 2,000.00	\$ 22,100.00
	4.2.3 Sprinkler System															
	4.2.4.1 Code															
	a. Provide a dry-pipe sprinkler suppression system in the ice rink area.		1700	sqm	\$ 60.00	\$ 102,000.00	\$ 10,200.00	\$ 112,200.00	\$ 9,000.00	\$ 12,100.00	\$ 6,700.00	\$ 140,000.00	\$ 28,000.00	\$ 18,500.00	\$ 18,700.00	\$ 205,200.00
	b. Provide a wet pipe system in the Arena Hall and Facilities and Community Hall.		900	sqm	\$ 60.00	\$ 54,000.00	\$ 5,400.00	\$ 59,400.00	\$ 4,800.00	\$ 6,400.00	\$ 3,500.00	\$ 74,100.00	\$ 14,800.00	\$ 9,800.00	\$ 9,900.00	\$ 108,600.00
	c. Provide a sprinkler system to serve the space below the wooden seating/bleachers.		400	sqm	\$ 60.00	\$ 24,000.00	\$ 2,400.00	\$ 26,400.00	\$ 2,100.00	\$ 2,900.00	\$ 1,600.00	\$ 33,000.00	\$ 6,600.00	\$ 4,400.00	\$ 4,400.00	\$ 48,400.00
	d. Provide a sprinkler tree to serve the different zones in the Arena Facility and Community Hall	includes zone valves, jockey pump and air compressor	1	sum	\$ 32,000.00	\$ 32,000.00	\$ 3,200.00	\$ 35,200.00	\$ 2,800.00	\$ 3,800.00	\$ 2,100.00	\$ 43,900.00	\$ 8,800.00	\$ 5,800.00	\$ 5,900.00	\$ 64,400.00
	e. Provide a Storz fire department connection.		1	unit	\$ 2,500.00	\$ 2,500.00	\$ 250.00	\$ 2,750.00	\$ 200.00	\$ 300.00	\$ 200.00	\$ 3,450.00	\$ 700.00	\$ 500.00	\$ 500.00	\$ 5,150.00
	f. Provide a fire alarm and detection system.	see electrical section														
	.2.5 Fire Extinguishers															
	4.2.6.1 Code															
	e. No action items															
	4.3 ICE RINK MECHANICAL SYSTEM															
	4.3.1 Refrigeration															
	4.3.2.1 Code															
	a. Provide a roof-mounted strobic or high plume exhaust fan. and walk way	includes stack, roof curb, access to roof very difficult, requires access ladder and extended platform	1	unit	\$ 84,000.00	\$ 84,000.00	\$ 8,400.00	\$ 92,400.00	\$ 7,400.00	\$ 10,000.00	\$ 5,500.00	\$ 115,300.00	\$ 23,100.00	\$ 15,200.00	\$ 15,400.00	\$ 169,000.00
	4.4 HVAC SYSTEMS															
	4.4.1 Heating & Air conditioning															
	4.4.2.1 Code															
	a. Provide a new packaged air handler using ozone friendly refrigerant to serve the Arena Hall	cfm unit dx cooling, electric heating, location tbd, check for ASHRAE 62 compliance	1	unit	\$ 120,000.00	\$ 120,000.00	\$ 12,000.00	\$ 132,000.00	\$ 10,600.00	\$ 14,300.00	\$ 7,800.00	\$ 164,700.00	\$ 32,900.00	\$ 21,700.00	\$ 21,900.00	\$ 241,200.00
	b. Provide a new packaged air handler using ozone friendly refrigerant to serve the Community Hall							\$ 242,000.00	\$ 19,400.00	\$ 26,100.00	\$ 14,400.00	\$ 301,900.00	\$ 60,400.00	\$ 39,900.00	\$ 40,200.00	\$ 442,400.00
		include for new roof openings, roof curb, flashing, based on 20000cfm unit dx cooling, electric heating	1	unit	\$ 100,000.00	\$ 100,000.00	\$ 10,000.00	\$ 110,000.00								
		ductwork, insulation, air terminals, balancing dampers allowance	1	sum	\$ 72,000.00	\$ 72,000.00	\$ 7,200.00	\$ 79,200.00								
		Existing HVAC equipment and ductwork demo as required, patching etc.	1	sum	\$ 48,000.00	\$ 48,000.00	\$ 4,800.00	\$ 52,800.00								
	4.4.3 Ventilation System															

CODE UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodation 8%	General Requirements 10%	Fee	5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
4.4.4.1 Code																	
	a. Provide local exhaust in the Arena and Community Hall's Janitor room.		1	sum	\$ 9,000.00	\$ 9,000.00	\$ 900.00	\$ 9,900.00	\$ 800.00	\$ 1,100.00	\$ 600.00		\$ 12,400.00	\$ 2,500.00	\$ 1,600.00	\$ 1,700.00	\$ 18,200.00
	b. Provide a new ventilation system to serve the ice rink per indoor air quality (air distribution method, temperature of air, relative humidity) requirements.		1	sum	\$ 160,000.00	\$ 160,000.00	\$ 16,000.00	\$ 176,000.00	\$ 14,100.00	\$ 19,000.00	\$ 10,500.00		\$ 219,600.00	\$ 43,900.00	\$ 29,000.00	\$ 29,300.00	\$ 321,800.00
	c. Provide an exhaust system in Referee room's shower stall.		1	sum	\$ 3,200.00	\$ 3,200.00	\$ 320.00	\$ 3,520.00	\$ 300.00	\$ 400.00	\$ 200.00		\$ 4,420.00	\$ 900.00	\$ 600.00	\$ 600.00	\$ 6,520.00
5.0 ELECTRICAL ASSESSMENT																	
5.1 POWER DISTRIBUTION																	
5.1.1.1 Code:																	
	a. No action items.																
	b. not included in report, electrical service to building, considering all new heating will be electrical, see HVAC consultant to confirm no new power line and transformer required for increased electrical load due to replacing propane heating with electric heating		1	sum													
5.2 LIGHTING																	
5.2.1.1 Code:																	
	e. No action items																
5.2.2 Voice/Data Communication System																	
5.2.3 Public Address System and Arena Controls																	
5.2.4.1 Code:																	
	e. No action items																
5.3 LIFE SAFETY SYSTEMS																	
5.3.1 Fire Alarm System																	
5.3.2 Exit Signage and Emergency Lighting																	
5.3.3.1 Code:																	
	a. Existing system appears to be obsolete and no longer supported. It might be difficult to find a compatible auto dialer. Replace the existing fire alarm panel with a system that has an auto dialer		1	unit	\$ 8,800.00	\$ 8,800.00	\$ 880.00	\$ 9,680.00	\$ 1,200.00	\$ 1,600.00	\$ 900.00		\$ 18,605.00	\$ 3,700.00	\$ 2,500.00	\$ 2,500.00	\$ 27,305.00
		auto dialer	1	unit	\$ 4,750.00	\$ 4,750.00	\$ 475.00	\$ 5,225.00									
	b. Replace exit signs throughout the building.		29	unit	\$ 550.00	\$ 15,950.00	\$ 1,595.00	\$ 17,545.00	\$ 1,400.00	\$ 1,900.00	\$ 1,000.00		\$ 21,845.00	\$ 4,400.00	\$ 2,900.00	\$ 2,900.00	\$ 32,045.00
5.4 SECURITY SYSTEMS																	
5.4.1 Intrusion Alarm System																	
5.4.2 Access Control System																	
5.4.4.1 Code:																	
	a. No action items																
5.5 HEATING																	
5.5.1.1 Code:																	
	e. No action items																
GRAND TOTAL								\$ 1,694,830.00									\$ 3,100,000.00

OPERATIONS UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodation 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
2.0 ARCHITECTURAL ASSESSMENT																
2.3.2.3 Operations																
	c. Create a swale on the north side of building to direct rainwater and snowmelt away from building foundation.	Form new swale	90	m	\$ 300.00	\$ 27,000.00		\$ 27,000.00	\$ 2,200.00	\$ 2,900.00	\$ 1,600.00	\$ 33,700.00	\$ 6,700.00	\$ 4,400.00	\$ 4,500.00	\$ 49,300.00
	d. Repaint all exterior hollow metal doors and replace weatherstripping and thresholds.	Repaint doors	9	No.	\$ 850.00	\$ 7,650.00		\$ 7,650.00	\$ 600.00	\$ 800.00	\$ 500.00	\$ 9,550.00	\$ 1,900.00	\$ 1,300.00	\$ 1,300.00	\$ 14,050.00
	e. Add snow fence and snow rakes to arena roof, north and south sides.	Snow fence	120	m	\$ 60.00	\$ 7,200.00		\$ 19,200.00	\$ 1,500.00	\$ 2,100.00	\$ 1,100.00	\$ 23,900.00	\$ 4,800.00	\$ 3,200.00	\$ 3,200.00	\$ 35,100.00
		Snow rake	120	m	\$ 100.00	\$ 12,000.00										
	f. Replace damaged exterior cladding. (estimate assumes 50%)	Remove damaged metal cladding and replace with new	100	m2	\$ 500.00	\$ 50,000.00		\$ 50,000.00	\$ 4,000.00	\$ 5,400.00	\$ 3,000.00	\$ 62,400.00	\$ 12,500.00	\$ 8,200.00	\$ 8,300.00	\$ 91,400.00
2.4.2.2 Operations:																
	.1 Replace all flooring in east addition.	Remove and replace flooring	680	m2	\$ 110.00	\$ 74,800.00		\$ 74,800.00	\$ 6,000.00	\$ 8,100.00	\$ 4,400.00	\$ 93,300.00	\$ 18,700.00	\$ 12,300.00	\$ 12,400.00	\$ 136,700.00
	.2 Patch repair and paint walls as required.							\$ 100,000.00	\$ 8,000.00	\$ 10,800.00	\$ 5,900.00	\$ 124,700.00	\$ 24,900.00	\$ 16,500.00	\$ 16,600.00	\$ 182,700.00
	.3 Replace west wall of First Aid Room that has water damage.					\$ 20,000.00		\$ 20,000.00	\$ 1,600.00	\$ 2,200.00	\$ 1,200.00	\$ 25,000.00	\$ 5,000.00	\$ 3,300.00	\$ 3,300.00	\$ 36,600.00
2.4.4.2 Operations:																
	.1 Replace section of damaged dasher board framing.					\$ 10,000.00		\$ 10,000.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,500.00	\$ 2,500.00	\$ 1,700.00	\$ 1,700.00	\$ 18,400.00
	.2 Provide accessible access to west addition for maintenance staff.	New door operator	1	No.	\$ 4,000.00	\$ 4,000.00		\$ 10,300.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,800.00	\$ 2,600.00	\$ 1,700.00	\$ 1,700.00	\$ 18,800.00
		Provide entry ramp	3	m2	\$ 500.00	\$ 1,500.00										
		New Railing	6	m	\$ 800.00	\$ 4,800.00										
	.3 Replace Concession entirely and install commercial kitchen with correct cooking equipment and plumbing requirements.	Demolish				\$ 10,000.00		\$ 210,000.00	\$ 16,800.00	\$ 22,700.00	\$ 12,500.00	\$ 262,000.00	\$ 52,400.00	\$ 34,600.00	\$ 34,900.00	\$ 383,900.00
		New commercial kitchen c/w equipment				\$ 200,000.00										
3.0 STRUCTURAL ASSESSMENT																
Operations:																
	.1 The cracks in the rink slab should be repaired in short term. Need to monitor the cracks in the slab.					\$ 10,000.00		\$ 10,000.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,500.00	\$ 2,500.00	\$ 1,700.00	\$ 1,700.00	\$ 18,400.00
	.2 The rusted ties should be repaired in short term before it gets deteriorated.					\$ 10,000.00		\$ 10,000.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,500.00	\$ 2,500.00	\$ 1,700.00	\$ 1,700.00	\$ 18,400.00
4.0 MECHANICAL ASSESSMENT																
4.1 PLUMBING SYSTEMS																
4.1.1 Domestic Water																
4.1.2.3 Operations																
	a. Complete domestic water piping insulation.		1	sum	\$ 15,000.00	\$ 15,000.00	\$ 1,500.00	\$ 16,500.00	\$ 1,300.00	\$ 1,800.00	\$ 1,000.00	\$ 20,600.00	\$ 4,100.00	\$ 2,700.00	\$ 2,700.00	\$ 30,100.00
	b. Provide a contingency in the event the water service has a failure and needs to be replaced in the future.	cannot be quantified, allowance.	1	sum	\$ 24,000.00	\$ 24,000.00	\$ 2,400.00	\$ 26,400.00	\$ 2,100.00	\$ 2,900.00	\$ 1,600.00	\$ 33,000.00	\$ 6,600.00	\$ 4,400.00	\$ 4,400.00	\$ 48,400.00
	c. Provide separate metering for the Arena and Community Hall.	assume 50mm domestic service.	1	unit	\$ 4,500.00	\$ 4,500.00	\$ 450.00	\$ 4,950.00	\$ 400.00	\$ 500.00	\$ 300.00	\$ 6,150.00	\$ 1,200.00	\$ 800.00	\$ 800.00	\$ 8,950.00
	e. Drain the domestic water tanks and rinse out mineral sediment and anode rods in the tanks should be removed for inspection and replace as required.		1	sum	\$ 4,000.00	\$ 4,000.00	\$ 400.00	\$ 4,400.00	\$ 400.00	\$ 500.00	\$ 300.00	\$ 5,600.00	\$ 1,100.00	\$ 700.00	\$ 700.00	\$ 8,100.00
	f. Map or as built the existing domestic water piping.	employ plumbing contractor and consulting engineer, get as build drawings in paper and electronic format.	1	sum	\$ 16,000.00	\$ 16,000.00	\$ 1,600.00	\$ 17,600.00	\$ 1,400.00	\$ 1,900.00	\$ 1,000.00	\$ 21,900.00	\$ 4,400.00	\$ 2,900.00	\$ 2,900.00	\$ 32,100.00

OPERATIONS UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodatio n 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
	g. provide new domestic tempered water line, insulated and domestic hot water recir line and pump, backflow preventer for water heaters		1	sum	\$ 54,000.00	\$ 54,000.00	\$ 5,400.00	\$ 59,400.00	\$ 4,800.00	\$ 6,400.00	\$ 3,500.00	\$ 74,100.00	\$ 14,800.00	\$ 9,800.00	\$ 9,900.00	\$ 108,600.00
4.1.3 Sanitary Drainage																
4.1.4.2 Operations																
	a. Map or as built the existing sanitary drainage system.	employ plumbing contractor and mechanical consultant, includes floor scanning, sketches and as built drawings in both paper and electronic format	1	sum	\$ 20,000.00	\$ 20,000.00	\$ 2,000.00	\$ 22,000.00	\$ 1,800.00	\$ 2,400.00	\$ 1,300.00	\$ 27,500.00	\$ 5,500.00	\$ 3,600.00	\$ 3,700.00	\$ 40,300.00
4.1.5 Plumbing Fixtures																
4.1.6.2 Operations																
	a. Replace all shower room fixtures, assume showers and mixing valves, includes rough in and restore conditions to existing		14	unit	\$ 3,000.00	\$ 42,000.00	\$ 4,200.00	\$ 46,200.00	\$ 3,700.00	\$ 5,000.00	\$ 2,700.00	\$ 57,600.00	\$ 11,500.00	\$ 7,600.00	\$ 7,700.00	\$ 84,400.00
4.1.7 Other Plumbing Services																
4.1.8.2 Operations																
	a. De-commission existing propane gas system.		1	sum	\$ 24,000.00	\$ 24,000.00	\$ 2,400.00	\$ 26,400.00	\$ 2,100.00	\$ 2,900.00	\$ 1,600.00	\$ 33,000.00	\$ 6,600.00	\$ 4,400.00	\$ 4,400.00	\$ 48,400.00
4.2 FIRE PROTECTION SYSTEMS																
4.2.3 Sprinkler System																
.2.5 Fire Extinguishers																
4.3 ICE RINK MECHANICAL SYSTEM																
4.3.1 Refrigeration																
4.3.2.2 Operations																
	a. Insulate the brine pump impeller casing and replace corroded drain pan with stainless steel and pipe drain to the nearest floor drain.		1	sum	\$ 2,000.00	\$ 2,000.00	\$ 200.00	\$ 2,200.00	\$ 200.00	\$ 200.00	\$ 100.00	\$ 2,700.00	\$ 500.00	\$ 400.00	\$ 400.00	\$ 4,000.00
	b. Implement mold removal or mold remediation in refrigeration room and pipe trench.															
	c. Set up a reserve fund for replacing the chiller plant compressors within the next ten years. Note that catastrophic failure of an ammonia chiller plant is high risk and can result in fatality. It is strongly recommended to replace the chiller plant before catastrophic failure. This should be based from maintenance records and number of tubes replaced or sealed.	allow for total plant replacement, for safe future operation	1	sum	\$ 2,500,000.00	\$ 2,500,000.00	\$ 250,000.00	\$ 2,750,000.00	\$ 220,000.00	\$ 297,000.00	\$ 163,400.00	\$ 3,430,400.00	\$ 686,100.00	\$ 452,800.00	\$ 456,900.00	\$ 5,026,200.00
	e. Periodically check/inspect emergency eyewash	check if eyewash water tempered per code?	1	sum	\$ 640.00	\$ 640.00	\$ 64.00	\$ 704.00	\$ 100.00	\$ 100.00	\$ -	\$ 904.00	\$ 200.00	\$ 100.00	\$ 100.00	\$ 1,304.00
4.4 HVAC SYSTEMS																
4.4.1 Heating & Air conditioning																
4.4.2.2 Operations																
	a. Provide new unit heaters in the Workshop and Ice Resurfacer room	assume electrical, includes electrical work component	2	unit	\$ 3,500.00	\$ 7,000.00	\$ 700.00	\$ 7,700.00	\$ 600.00	\$ 800.00	\$ 500.00	\$ 9,600.00	\$ 1,900.00	\$ 1,300.00	\$ 1,300.00	\$ 14,100.00
4.4.3 Ventilation System																
5.0 ELECTRICAL ASSESSMENT																
5.1 POWER DISTRIBUTION																

OPERATIONS UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodatio n 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
5.1.1.2 Operations:																
	b. Look to replace and consolidate older panels in the mechanical rooms.		4	unit	\$ 550.00	\$ 2,200.00	\$ 220.00	\$ 2,420.00	\$ 200.00	\$ 300.00	\$ 100.00	\$ 3,020.00	\$ 600.00	\$ 400.00	\$ 400.00	\$ 4,420.00
	c. Properly support cables in areas where the cabling is exposed and hanging	Fire stopping where required	1	sum	\$ 8,000.00	\$ 8,000.00	\$ 800.00	\$ 8,800.00	\$ 700.00	\$ 1,000.00	\$ 500.00	\$ 11,000.00	\$ 2,200.00	\$ 1,500.00	\$ 1,500.00	\$ 16,200.00
5.2 LIGHTING																
5.2.1.2 Operations:																
	b. Replace the existing lighting serving the ice rink and stands with new fixtures to improve quality and uniformity of light							\$ 45,925.00								
		28 high bay	28	unit	\$ 650.00	\$ 18,200.00	\$ 1,820.00	\$ 20,020.00	\$ 3,700.00	\$ 5,000.00	\$ 2,700.00	\$ 57,325.00	\$ 11,500.00	\$ 7,600.00	\$ 7,600.00	\$ 84,025.00
		.08mx1.2m surface mount power to new air handling units, fans, etc.	21	unit	\$ 550.00	\$ 11,550.00	\$ 1,155.00	\$ 12,705.00								
			1	sum	\$ 12,000.00	\$ 12,000.00	\$ 1,200.00	\$ 13,200.00								
5.2.2 Voice/Data Communication System																
5.2.3 Public Address System and Arena Controls																
5.2.4.2 Operations:																
	b. New IT rack to be installed if the arena is being expanded to have all communications systems at one location instead of having them scattered throughout the building.		1	unit	\$ 6,500.00	\$ 6,500.00	\$ 650.00	\$ 7,150.00	\$ 600.00	\$ 800.00	\$ 400.00	\$ 8,950.00	\$ 1,800.00	\$ 1,200.00	\$ 1,200.00	\$ 13,150.00
	c. Replace the existing Public Address System.		31	unit	\$ 520.00	\$ 16,120.00	\$ 1,612.00	\$ 17,732.00	\$ 1,400.00	\$ 1,900.00	\$ 1,100.00	\$ 22,132.00	\$ 4,400.00	\$ 2,900.00	\$ 2,900.00	\$ 32,332.00
	d. Replace scoreboard with a system suitably rated for environmental conditions of a hockey arena.		1	sum	\$ 48,000.00	\$ 48,000.00	\$ 4,800.00	\$ 52,800.00	\$ 4,200.00	\$ 5,700.00	\$ 3,100.00	\$ 65,800.00	\$ 13,200.00	\$ 8,700.00	\$ 8,800.00	\$ 96,500.00
5.3 LIFE SAFETY SYSTEMS																
5.3.2 Exit Signage and Emergency Lighting																
5.3.3.2 Operations:																
	d. Replace existing battery banks and remote heads serving the building.							\$ 20,212.50								
			6	unit	\$ 700.00	\$ 4,200.00	\$ 420.00	\$ 4,620.00	\$ 1,600.00	\$ 2,200.00	\$ 1,200.00	\$ 25,212.50	\$ 5,000.00	\$ 3,300.00	\$ 3,400.00	\$ 36,912.50
	e.remote heads		63	unit	\$ 225.00	\$ 14,175.00	\$ 1,417.50	\$ 15,592.50								
5.4 SECURITY SYSTEMS																
5.4.1 Intrusion Alarm System																
5.4.2 Access Control System																
5.4.4.2 Operations:																
	b. Install new security systems (Intrusion, Access Control and Video Surveillance).							\$ 85,910.00	\$ 6,900.00	\$ 9,300.00	\$ 5,100.00	\$ 107,210.00	\$ 21,400.00	\$ 14,100.00	\$ 14,300.00	\$ 157,010.00
		door contacts	15	unit	\$ 2,000.00	\$ 30,000.00	\$ 3,000.00	\$ 33,000.00								
		Operations Intrusion Door contacts, 9 inside/4 outside	13	unit	\$ 500.00	\$ 6,500.00	\$ 650.00	\$ 7,150.00								
			13	unit	\$ 3,200.00	\$ 41,600.00	\$ 4,160.00	\$ 45,760.00								
5.5 HEATING																
5.5.1.2 Operations:																
	b. Replace the baseboard heaters with new ones.		1	sum	\$ 32,000.00	\$ 32,000.00	\$ 3,200.00	\$ 35,200.00	\$ 2,800.00	\$ 3,800.00	\$ 2,100.00	\$ 43,900.00	\$ 8,800.00	\$ 5,800.00	\$ 5,900.00	\$ 64,400.00
GRAND TOTAL								\$ 3,809,550.00								\$ 6,960,000.00

EFFICIENCY UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodation 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
2.0 ARCHITECTURAL ASSESSMENT																
2.3.2.4 Efficiency																
	g. Replace roof over entire west side addition.	Remove existing metal roof covering and replace with new	182	m2	\$ 500.00	\$ 91,000.00		\$ 91,000.00	\$ 7,300.00	\$ 9,800.00	\$ 5,400.00	\$ 113,500.00	\$ 22,700.00	\$ 15,000.00	\$ 15,100.00	\$ 166,300.00
	h. Replace / repair roof over east addition where leak was identified.	Remove existing metal roof covering and replace with new - allow 2m wide full width of roof	60	m2	\$ 500.00	\$ 30,000.00		\$ 30,000.00	\$ 2,400.00	\$ 3,200.00	\$ 1,800.00	\$ 37,400.00	\$ 7,500.00	\$ 4,900.00	\$ 5,000.00	\$ 54,800.00
	i. Replace cladding and insulation at front entry.	Remove metal cladding and insulation and replace with new	6	m2	\$ 600.00	\$ 3,600.00		\$ 3,600.00	\$ 300.00	\$ 400.00	\$ 200.00	\$ 4,500.00	\$ 900.00	\$ 600.00	\$ 600.00	\$ 6,600.00
	j. Open exterior wall types and review insulation	Allowance				\$ 10,000.00		\$ 10,000.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,500.00	\$ 2,500.00	\$ 1,700.00	\$ 1,700.00	\$ 18,400.00
2.4.2.3 Efficiency:																
	.1 No action items															
2.4.4.3 Efficiency:																
	.4 Add ice melt pit for disposing of ice resurfacer ice.					\$ 10,000.00		\$ 10,000.00	\$ 800.00	\$ 1,100.00	\$ 600.00	\$ 12,500.00	\$ 2,500.00	\$ 1,700.00	\$ 1,700.00	\$ 18,400.00
3.0 STRUCTURAL ASSESSMENT																
Efficiency:																
	.1 The cracks in the rink slab should be repaired in short term. Need to monitor the cracks in the slab.						See operations above									
	.2 The rusted ties should be repaired in short term before it gets deteriorated.						See operations above									
4.0 MECHANICAL ASSESSMENT																
4.1 PLUMBING SYSTEMS																
4.1.1 Domestic Water																
4.1.2.4 Efficiency																
	e. No action items															
4.1.3 Sanitary Drainage																
4.1.5 Plumbing Fixtures																
4.1.6.3 Efficiency																
	a. Replace all washroom and dressing room fixtures with water-saving fixtures.							\$ 97,900.00	\$ 7,800.00	\$ 10,600.00	\$ 5,800.00	\$ 122,100.00	\$ 24,400.00	\$ 16,100.00	\$ 16,300.00	\$ 178,900.00
		wall hung lavs, c/w proximity faucets, wall carriers, ADA compatible	6	unit	\$ 3,500.00	\$ 21,000.00	\$ 2,100.00	\$ 23,100.00								
		Replace countertop lavs c/w proximity faucets, tempered water	14	unit	\$ 2,500.00	\$ 35,000.00	\$ 3,500.00	\$ 38,500.00								
		replace all water closets with dual flush toilets, ADA	14	unit	\$ 2,000.00	\$ 28,000.00	\$ 2,800.00	\$ 30,800.00								
		urinals, c/w wall carriers	2	unit	\$ 2,500.00	\$ 5,000.00	\$ 500.00	\$ 5,500.00								
4.1.7 Other Plumbing Services																
4.1.8.3 Efficiency																
	e. No action items															
4.2 FIRE PROTECTION SYSTEMS																
4.2.2.3 Efficiency																
	a. No action items.															
4.2.3 Sprinkler System																
4.2.4.3 Efficiency																
	a. No action items															
.2.5 Fire Extinguishers																

EFFICIENCY UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodation 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
4.2.6.3 Efficiency																
	e. No action items															
4.3 ICE RINK MECHANICAL SYSTEM																
4.3.1 Refrigeration																
4.3.2.3 Efficiency																
	a. Provide a new Cimco Guntner Adiabatic Condenser that reduces water demand and has very specific controls for optimal energy savings.	would help to know the tonnage, made assumption 2x100 ammonia tons compressors, includes installation	2	no	\$ 140,000.00	\$ 280,000.00	\$ 28,000.00	\$ 308,000.00	\$ 24,600.00	\$ 33,300.00	\$ 18,300.00	\$ 384,200.00	\$ 76,800.00	\$ 50,700.00	\$ 51,200.00	\$ 562,900.00
4.4 HVAC SYSTEMS																
4.4.1 Heating & Air conditioning																
4.4.2.3 Efficiency																
	a. Provide a ventilation system with electric heating c/w duct distribution in the seating/bleacher section	scope to be better defined	1	sum	\$ 200,000.00	\$ 200,000.00	\$ 20,000.00	\$ 220,000.00	\$ 17,600.00	\$ 23,800.00	\$ 13,100.00	\$ 274,500.00	\$ 54,900.00	\$ 36,200.00	\$ 36,600.00	\$ 402,200.00
	b. Replace the heating system in the Scorer's section.		1	sum	\$ 12,000.00	\$ 12,000.00	\$ 1,200.00	\$ 13,200.00	\$ 1,100.00	\$ 1,400.00	\$ 800.00	\$ 16,500.00	\$ 3,300.00	\$ 2,200.00	\$ 2,200.00	\$ 24,200.00
4.4.3 Ventilation System																
4.4.4.3 Efficiency																
	a. Relocate the existing Arena dehumidifier near the peak or duct the inlet up high to improve dehumidification. Add another unit, to be done in phases, if elevating the existing unit will not improve the dehumidification	allowance for new humidifier included, considering the existing conditions	1	sum	\$ 200,000.00	\$ 200,000.00	\$ 20,000.00	\$ 220,000.00	\$ 17,600.00	\$ 23,800.00	\$ 13,100.00	\$ 274,500.00	\$ 54,900.00	\$ 36,200.00	\$ 36,600.00	\$ 402,200.00
	b. Replace the two HRV units with bigger capacity to serve all the Arena dressing and shower rooms including the referee dressing/shower room.	assume 1,000cfm HRVx2, ductwork, preheat electric coil, controls, rework ductwork to suit, new air terminals	1	sum	\$ 45,000.00	\$ 45,000.00	\$ 4,500.00	\$ 49,500.00	\$ 4,000.00	\$ 5,400.00	\$ 2,900.00	\$ 61,800.00	\$ 12,400.00	\$ 8,200.00	\$ 8,200.00	\$ 90,600.00
5.0 ELECTRICAL ASSESSMENT																
5.1 POWER DISTRIBUTION																
5.1.1.3 Efficiency:																
	d. No action items.															
5.2 LIGHTING																
5.2.1.3 Efficiency:																
	a. Replace existing light fixtures with new LED lights.		307	unit	\$ 425.00	\$ 130,475.00	\$ 13,047.50	\$ 143,522.50	\$ 11,500.00	\$ 15,500.00	\$ 8,500.00	\$ 179,022.50	\$ 35,800.00	\$ 23,600.00	\$ 23,800.00	\$ 262,222.50
	b. Provide new addressable lighting control system to provide the desired amount of light where and when it is needed. There are areas with light fixtures that are always on during the day and remain on at night when maintenance forgets to turn them off. A new lighting system would increase energy savings.		1	sum	\$ 22,000.00	\$ 22,000.00	\$ 2,200.00	\$ 24,200.00	\$ 1,900.00	\$ 2,600.00	\$ 1,400.00	\$ 30,100.00	\$ 6,000.00	\$ 4,000.00	\$ 4,000.00	\$ 44,100.00
5.2.2 Voice/Data Communication System																
5.2.3 Public Address System and Arena Controls																
5.2.4.3 Efficiency:																
	e. No action items															
5.3 LIFE SAFETY SYSTEMS																
5.3.2 Exit Signage and Emergency Lighting																
5.3.3.3 Efficiency:																

EFFICIENCY UPGRADES

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodatio n 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
	e. No action items															
	5.4 SECURITY SYSTEMS															
	5.4.1 Intrusion Alarm System															
	5.4.2 Access Control System															
	5.4.4.3 Efficiency:															
	e. No action items															
	5.5 HEATING															
	5.5.1.3 Efficiency:															
	e. No action items															
	GRAND TOTAL							\$ 1,220,920.00								\$ 2,232,000.00

ANNUAL COST

			Qty	Unit	Rate	Sum	Sub-Trade Overhead	Sum	Transport & Accommodatio n 8%	General Requirements 10%	Fee 5%	Total	Design & Pricing Allowance 20%	Escalation Allowance 11%	Construction Contingency 10%	Total Estimate including D & P Contingency
4.0 MECHANICAL ASSESSMENT																
4.1 PLUMBING SYSTEMS																
4.1.1 Domestic Water																
4.1.2.3 Operations																
	d. Water service valves have to be serviced to confirm they are working. Repair or replace damaged valves	cannot be quantified or anticipated, annual allowance	1	sum	\$ 15,000.00	\$ 15,000.00	\$ 1,500.00	\$ 16,500.00	\$ 1,300.00	\$ 1,800.00	\$ 1,000.00	\$ 20,600.00	\$ 4,100.00	\$ 4,900.00	\$ 5,900.00	\$ 35,500.00
4.2 FIRE PROTECTION SYSTEMS																
4.2.2.2 Operations																
	a. Periodically inspect and test standpipe and hose system.	every year, allow 2 man days	1	sum	\$ 1,540.00	\$ 1,540.00	\$ 154.00	\$ 1,694.00	\$ 100.00	\$ 200.00	\$ 100.00	\$ 2,094.00	\$ 400.00	\$ 500.00	\$ 600.00	\$ 3,590.00
4.2.3 Sprinkler System																
2.5 Fire Extinguishers																
4.2.6.2 Operations																
	a. Periodically inspect and test fire extinguishers	per year, assume 20% to be replaced	1	sum	\$ 3,200.00	\$ 3,200.00	\$ 320.00	\$ 3,520.00	\$ 300.00	\$ 400.00	\$ 200.00	\$ 4,420.00	\$ 900.00	\$ 1,100.00	\$ 1,300.00	\$ 7,720.00
4.3 ICE RINK MECHANICAL SYSTEM																
4.3.1 Refrigeration																
4.3.2.2 Operations																
	d. Periodically inspect and test ammonia leak detection system	per year by certified refrigeration technician	1	sum	\$ 2,000.00	\$ 2,000.00	\$ 200.00	\$ 2,200.00	\$ 200.00	\$ 200.00	\$ 100.00	\$ 2,700.00	\$ 500.00	\$ 600.00	\$ 800.00	\$ 4,600.00
4.3.2.3 Efficiency																
	b. The ice plant should be replaced within the next ten years assuming it has been regularly serviced and has not experienced excessive tube failure.	a new ice plant in second quarter 2022 for one rink, \$2,500,000, allocation for one year, \$250,000 include inflation escalation*	1	sum	\$ 250,000.00	\$ 250,000.00	\$ 25,000.00	\$ 275,000.00	\$ 22,000.00	\$ 29,700.00	\$ 16,300.00	\$ 343,000.00	\$ 68,600.00	\$ 82,300.00	\$ 98,800.00	\$ 592,700.00
4.4 HVAC SYSTEMS																
4.4.1 Heating & Air conditioning																
4.4.3 Ventilation System																
4.4.4.2 Operations																
	a. Periodically inspect drain pan and replace air filters	twice a year, materials and labor.	1	sum	\$ 4,800.00	\$ 4,800.00	\$ 480.00	\$ 5,280.00	\$ 400.00	\$ 600.00	\$ 300.00	\$ 6,580.00	\$ 1,300.00	\$ 1,600.00	\$ 1,900.00	\$ 11,380.00
GRAND TOTAL ANNUAL COST								\$ 304,194.00								\$ 655,490.00

*Note: Cost for replacement ice plant in 10 year has been prorated for 10 years and included in Annual Costs.

**Appendix AA
Documents and Drawings List**

DOCUMENTS AND DRAWING LIST

DOCUMENTS

Number	Title	Dated	Received
85 pages	Building Condition Assessment	June 21, 2022	June 21, 2022

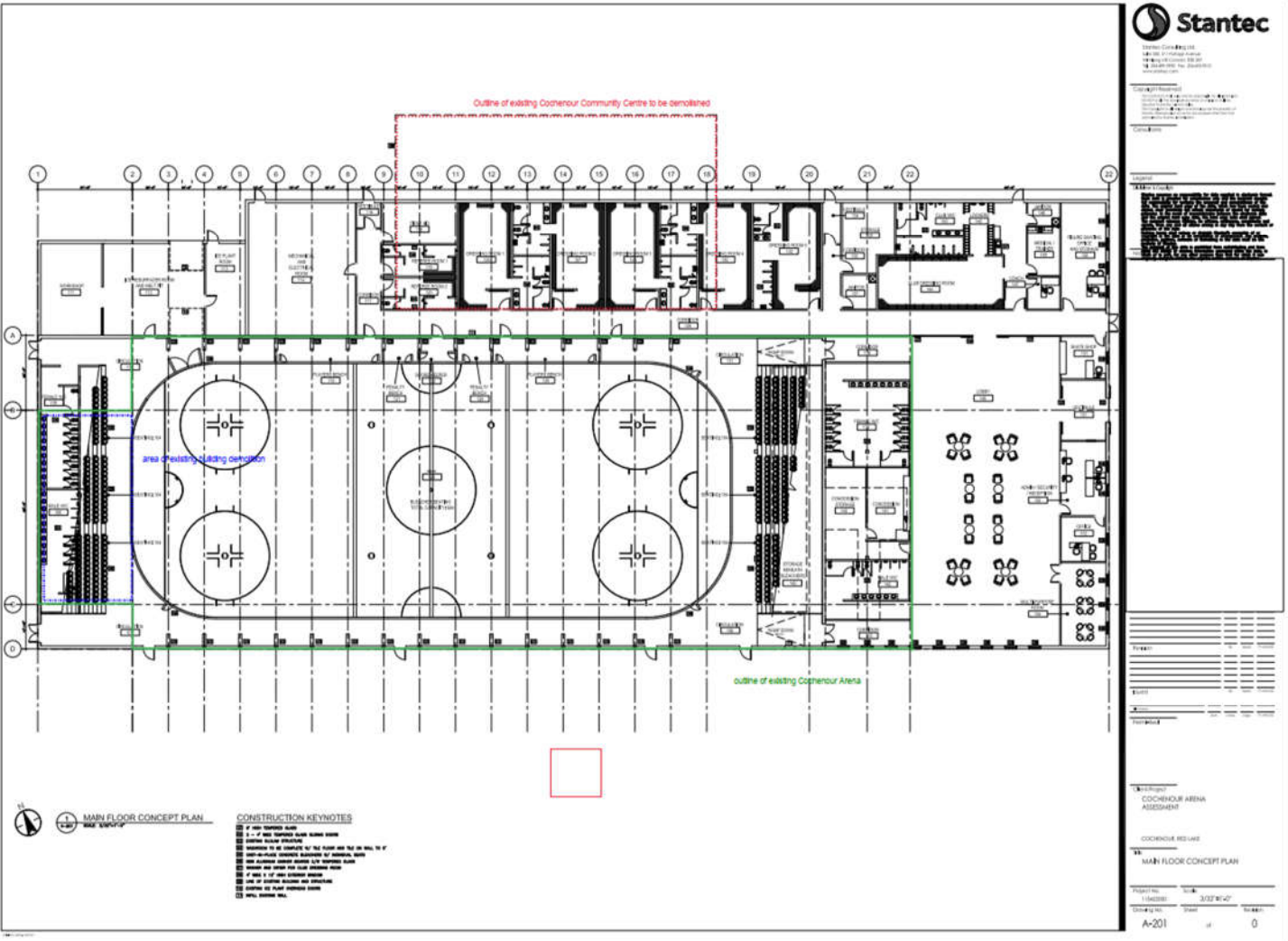
ARCHITECTURAL DRAWINGS

Number	Title	Dated	Received
1 sheet	Main Floor Concept Plan Mark-up		June 21, 2022

**Appendix AB
Representative Drawings**

COCHENOUR ARENA UPGRADES
BUILDING CONDITION ASSESSMENT
RED LAKE, ONTARIO

Report date : June 2022



Hanscomb: Providing Excellence in the Construction Industry Since 1957

Hanscomb Limited, a leading independent organization of project control specialists, has been privileged to serve both Canadian and international clients on a wide variety of construction projects since 1957. By planning, monitoring, and controlling cost in an unbiased independent professional manner, Hanscomb has become an internationally recognized leader in the coordinated management of capital projects.

Our growing team of trusted professionals and experts consists of quantity surveyors, cost consultants, project monitors, schedulers, and value specialists, skilled in a remarkable variety of project sectors including but not limited to transportation, civil infrastructure, education, healthcare, residential, and commercial. Hanscomb takes pride in the multi-disciplinary character of the company and the ability of its people to bring together, in a team, the professional and practical skills of the very diverse field of quantity surveying.

Our nationwide network of offices and worldwide associates allows for the easy exchange of information, skills and resources ensuring we stay abreast of the latest in design, construction practices and trends. With offices located coast to coast, Hanscomb has the local experience and worldwide presence to keep your projects on track.

Cost Planning & Control

- Master plan costing
- Construction cost estimates
- Replacement cost estimates

Scheduling

Value Management

Financial Analysis

- Life cycle costing
- Operations and maintenance
- Cost / benefit analysis
- Feasibility studies

Applied Research

- Construction price indexing
- Risk and gap analysis
- Cost publications

Project Loan Monitoring

Project Management

Litigation Support

From east to west, our leadership team is here to serve you. We collaborate on many projects nationally and internationally and are available to assist.

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