Special Event Application

2/19/2025
Standard
29-SE-2025

Event Information

Event Name	CANAL CONVERGENCE | SHOWTIME!
Event Location	7124 E STETSON DR
Event URL	CANALCONVERGENCE.COM
Event Description	CANAL CONVERGENCE IS AN ANNUAL, FREE EVENT THAT CELEBRATES THE VIBRANT ARTS AND CULTURE COMMUNITY. EACH CANAL CONVERGENCE, SINCE THE FIRST OFFICIAL EVENT IN 2012, HAS FEATURED LARGE-SCALE PUBLIC ART INSTALLATIONS, CREATED BY LOCAL, NATIONAL, AND INTERNATIONAL ARTISTS. IN ADDITION TO THE ARTWORKS, THE EVENT INCLUDES AN ARRAY OF EDUCATIONAL PROGRAMMING, FAMILY-ORIENTED ACTIVITIES, ART-MAKING WORKSHOPS, AND MORE. CANAL CONVERGENCE ALSO OFFERS A BROAD SELECTION OF LIVE MUSIC, DANCE PERFORMANCES, AND A BEER, WINE, AND FOOD GARDEN. THE FEATURED THEME OF THIS YEAR'S EVENT, NOV. 7-16, 2025, IS SHOWTIME!.

Event Dates

Event Dates (10)

Start Date	End Date	Participant Attendance	Other Attendance
FRI 11/7/2025 6:00 PM	FRI 11/7/2025 10:00 PM	6000	35
SAT 11/8/2025 6:00 PM	SAT 11/8/2025 10:00 PM	6000	35
SUN 11/9/2025 6:00 PM	SUN 11/9/2025 9:00 PM	5000	35
MON 11/10/2025 6:00 PM	MON 11/10/2025 9:00 PM	5000	35
TUE 11/11/2025 6:00 PM	TUE 11/11/2025 9:00 PM	5000	35
WED 11/12/2025 6:00 PM	WED 11/12/2025 9:00 PM	5000	35
THU 11/13/2025 6:00 PM	THU 11/13/2025 9:00 PM	5000	35
FRI 11/14/2025 6:00 PM	FRI 11/14/2025 10:00 PM	8000	35
SAT 11/15/2025 6:00 PM	SAT 11/15/2025 10:00 PM	8000	35
SUN 11/16/2025 6:00 PM	SUN 11/16/2025 9:00 PM	5000	35

Setup Date	FRI 10/24/2025 8:00 AM - 10:00 PM
Teardown Date	MON 11/17/2025 8:00 AM - 07:00 PM

Applicant Information

Applicant	SCOTTSDALE ARTS		
Applicant Address	7380 E 2ND ST		
Applicant City	SCOTTSDALE, AZ 85251		
Applicant Name	JENNIFER GILL		
Title	DEPUTY DIRECTOR FOR CANAL CONVERGENCE		
Phone	(248) 840-7012	Email	JENNIFERG@SCOTTSDALEARTS.ORG
On-Site Contact	JENNIFER GILL		
Title	DEPUTY DIRECTOR FOR CANAL CONVERGENCE		
Phone	(248) 840-7012	Email	JENNIFERG@SCOTTSDALEARTS.ORG

Special Event Application

Applicant Experience THIS IS A CITY SIGNATURE EVENT AND IS ON ITS 13TH YEAR.

Prior Events

Has this event been produced before? YES

Is this an annual event? YES Previous Years : 12

Are there any changes from previous years? NO

Event Elements

Elements CIVIC, CULTURAL, EDUCATIONAL, ENTERTAINMENT, RECREATIONAL

Description CANAL CONVERGENCE IS AN ANNUAL FREE EVENT THAT FEATURES LARGE-SCALE PUBLIC ART INSTALLATIONS CREATED BY LOCAL, NATIONAL, AND INTERNATIONAL ARTISTS. IN ADDITION TO THE ARTWORKS, THE EVENT INCLUDES AN ARRAY OF EDUCATIONAL PROGRAMMING, FAMILY-ORIENTED ACTIVITIES, ART-MAKING WORKSHOPS, AND MORE. CANAL CONVERGENCE ALSO OFFERS A BROAD SELECTION OF LIVE MUSIC, DANCE PERFORMANCES, AND A BEER, WINE, AND FOOD GARDEN.

Public Property Criteria

Are there any cross promotions or collaborations with local businesses to encourage sales or visibility? NO

CANAL CONVERGENCE WORKS WITH MANY LOCAL BUSINESSES THROUGH VARIOUS SPONSORSHIP OR PARTNERSHIP PROGRAMS THAT PROMOTE SALES AND VISIBILITY FOR THOSE BUSINESSES. WHILE THOSE HAVE YET TO BE CONFIRMED FOR 2025, WE WILL MOVE FORWARD WITH SIMILAR INITIATIVES.

Explain any anticipated regional, national, or international attendance.

WE HOST 8-10 NATIONAL AND INTERNATIONAL ARTISTS AND WORK WITH LARGE PUBLIC ART NETWORKS TO MARKET THIS DESTINATION EVENT.

Is Scottsdale promoted in the special event marketing? YES

THIS IS THE CITY'S SIGNATURE DESTINATION EVENT.

Explain how the community benefits from the event from a civic or cultural perspective.

THIS EVENT IS AN INTEGRAL PART OF OUR ARTS COMMUNITY AND IS AN INTERNATIONAL AND NATIONAL PUBLIC ART DESTINATION EVENT.

Does your event require a paid fee for participants and/or spectators? NO

Event Equipment

Stages	YES	QTY: 2	Tables, Chairs, Furniture	YES	
Generators	YES	KW SIZE: 56 QTY: 6	Inflatables	NO	
Portable Bars	YES	QTY: 4	Amplified Sound	YES	
Speakers	YES	QTY: 5+	Temporary Restrooms	YES	QTY: 20
Fencing	YES	HEIGHT: 4 TYPE: BIKE	BBQ Grills or Propane Use	NO	Fire show - propane storage on south side of canal bank
Lighting	YES		Tents/Canopies	YES	
			10' x 10' QTY: 25	10' x 20' QTY: 2	
			20' x 20' QTY: 1		

Vendor Sales

Special Event Application

Retail Merchandise	YES	QTY: 1	Food And Non-Alcoholic Beverages	YES	QTY: 1
Food Trucks	YES	QTY: 6	Alcohol	YES	QTY: 1
Services	NO		APPLICATION FOR : SPECIAL EVENT LIQUOR LICENSE		
			ORGANIZATION NAME : SCOTTSDALE ARTS		

Signage Plan

On-Site Signs? YES QTY: 10 TYPE: PORTABLE (A-FRAME- SITS ON TOP OF GROUND)

Off-Premise Signs? NO

Signage Plan Description:

8 TOWER SIGNS, 30 HEAVY-DUTY SIGNS, MULTIPLE BANNERS, ETC. ADDITIONAL INFO TBD

Parking Plan

City parking lot	YES	City parking garage	YES
On-street parking	YES	On-site parking	NO
Off-site parking	NO	Shuttle service from off-site parking areas	NO
Valet service	NO	Rider Provider	NO

Parking Plan Description

WE ONLY ADVERTISE FREE AND OPEN-TO-THE-PUBLIC PARKING.

Street Use

Street or Alley Use

Street Closure : YES
Number of Lanes : 1
Direction : N
Street Name : ROUNDABOUT
Closure Dates : 11/3/2025 8:00:00 AM - 11/19/2025 8:00:00 PM
11/4/2025 11/17/2025

Public Parking Use

Parking Closure : YES
Parking Name : 700 E VIA SOLERI DRIVE/NORDSTROM PARKING GARAGE
Closure Dates : 11/7/2025 8:00:00 AM - 11/16/2025 7:00:00 PM

Sidewalk Use

Sidewalk Closure : NO

Barricade Company

Entertainment - Amplification/Sound Plan

Entertainment

LIVE BAND, PRE-RECORDED MUSIC, DJ, SPEAKER/ANNOUNCER, OTHER PERFORMER

Sound Monitoring

Name : JENNIFER GILL
Company : SCOTTSDALE ARTS
Phone Number : (248) 840-7012

Time and type of outside sound and sound check times

ALL MUSIC/ENTERTAINMENT IS DURING THE STATED EVENT HOURS, WITH POSSIBLE SOUND CHECKS DURING THE EVENT SET-UP DATE.

Plan for sound monitoring, containment, and mitigation

WE WILL BE WORKING HAND IN HAND WITH THE CITY OF SCOTTSDALE, SCOTTSDALE ARTS' TECH TEAM, AND NEARBY RESIDENCES TO MANAGE ALL NOISE.

Police/Security

Security Personnel

Inhouse Security	NO	
Hired Security	YES	Estimated Number : 35 Company Name : TBD Contact : TBD Phone : (000) 000-0000
Off Duty Police	YES	

Scottsdale Fire Department and Medical Standby Services

Fire Department Permit Required YES

Medical Standby YES Estimated Number : 2
Contact : SCOTTSDALE FIRE DEPARTMENT

Fire Apparatus/Personnel Standby Required NO

Insurance

Insurance: Event activities on City/public property must be covered by insurance that protects the event sponsor/applicant and the City of Scottsdale. Various types and levels of liability insurance are required depending on the event. The required coverage and limits will be at the discretion of the Risk Management Division depending on the size and scope of the event. It is recommended that you submit your application and receive a determination on coverage and amounts before purchasing insurance coverage. Please refer to the Special Events Users Guide for more detailed information.

The following is a general guideline of the minimum limits that will be required:

Commercial General Liability Insurance coverage is required for all events with minimum limits of $1,000,000 Each Occurrence, $2,000,000 Products & Completed Operations Aggregates, $2,000,000 General Aggregate. Liquor Liability Insurance of $1,000,000 to $5,000,000 Per Occurrence is required for any event where liquor is being served.

All Insurance must endorse the City of Scottsdale as an Additional Insured. A separate insurance addendum with additional insurance requirements may be added to this application and become part of this contract.

I have a race event and have submitted a copy of the participant waiver that includes waiving liability against the city of Scottsdale and holding the city of Scottsdale harmless? NO

I have included a copy of the insurance certificate showing appropriate limits and coverages as required and naming City of Scottsdale as additional insured? NO

Special Event Application

Application Authorization

WARRANTY: Applicant warrants that the information provided in this application is true and accurate to the best of Applicant's knowledge and belief.

INDEMNIFICATION: To the fullest extent allowed by law, the Applicant agrees to defend, indemnify and hold harmless the City, its officers, officials, representatives, agents, employees and volunteers from and against all allegations, demands, proceedings, suits, actions, claims, damages, losses, expenses, including but not limited to, attorney fees, court costs, the cost of appellate proceedings, and all claim adjusting and handling expenses, arising from or related to any acts or omissions of the permit holder or its agents, contractors and subcontractors related to the Special Event including any claims, damages, or losses resulting from the City's or its employees' or agents' negligence.

The Applicant's signature below authorizes a City representative to inspect a special event on City or private property at any time, including setup.

AUTHORITY: For special events on public property, the Applicant warrants:

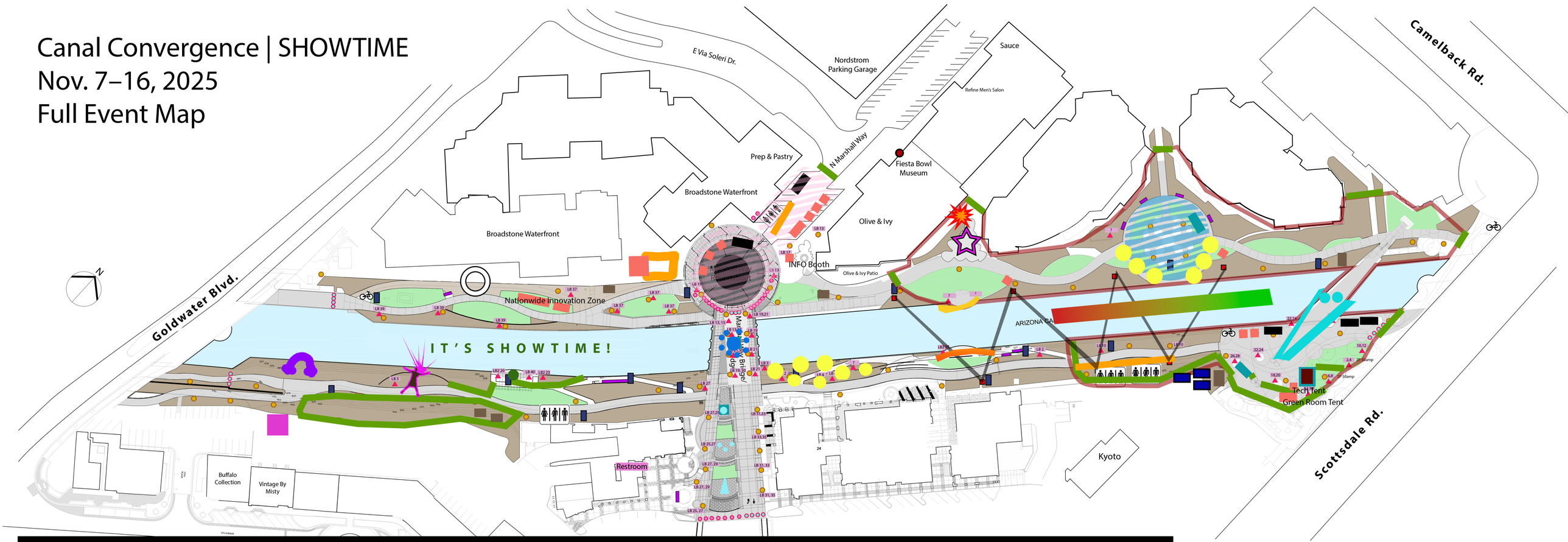
I am the permittee or an authorized agent of the permittee with authority to legally bind the permittee (an agent may sign only if the event is on private property) and agree to the conditions of this permit.

☑ Signature of Applicant - must be the same person listed on application.

Printed Name JENNIFER GILL Date 2/19/2025

Title of Applicant DEPUTY DIRECTOR OF CANAL CONVERGENCE

Canal Convergence | SHOWTIME
Nov. 7–16, 2025
Full Event Map



Parallel Flow
Dina Fisher and David Howe

RECOGNITION
New American Public Art and Wonderspaces

Long Wave
Pneuhaus

Pulse
MattCreative

Octopoda
Amigo & Amigo

Showtime
Walter Productions

STARGATE
Chalk River Labs

BIG TV
BIG ART

HD-BMP
MASARY Studios

Polychroma
In Theory Art Studios

Chainlink Fence

PED Fence

Portable Toliets

Liquor Perimeter

Scottsdale Arts Roundabout

Lounge

Generators

CC24 Staff/Volunteer Check-in and Greenroom

Staff/Volunteer ONLY Fiesta Bowl Entry and Exit

Dumpsters

Food Trucks

Tents

Bars

Main Stage

SRP LED Display

SRP Booth

SRP Info Signs

Light Poles

Permanent Rigging Poles

Benches

Bike Rack

Trash Cans

Permanent Stantions

Temporary Stantions

Electricity


Canal Convergence
SHOWTIME
November 7–16, 2025 at the Scottsdale Waterfront

General Event Information:

Dates:

Nov. 7–16, 2025

Hours:

Fridays + Saturdays:
6-10 pm

Sundays +
Mon.–Thurs.:
6-9 p.m.

Admission:

FREE and open to the public, with nominal fees for some workshops, special events and public art tours.

Location:

Scottsdale Waterfront between Scottsdale Road and Goldwater Boulevard.

Programming Highlights:

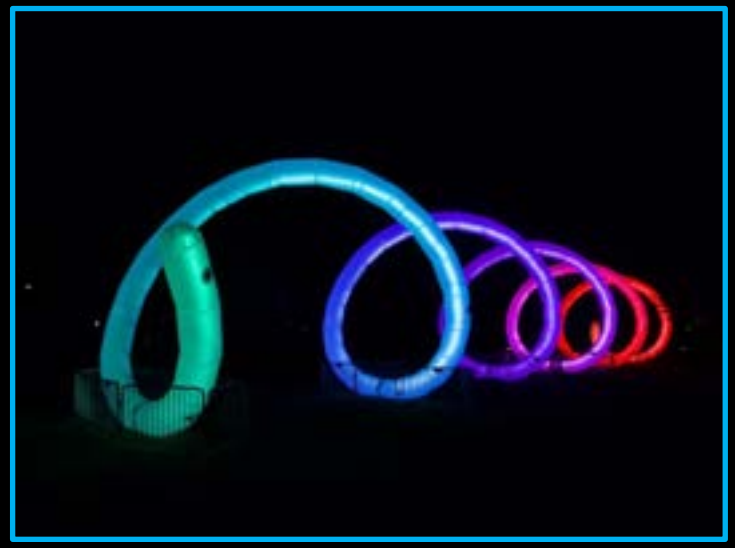
Nationwide Innovation Zone Workshops
Public Art and SRP Tours
Billie Jo Herberger's Lounge Events
Scottsdale Arts Roundabout Community Partners Program
Live Music, Dance, and more!

Featured Theme:

SHOWTIME: This year's event theme will focus on the fusion of public art and performance, as well as the subject of performance itself, including its history, cultural significance, and role in art and society.

Long Wave by Pnuehaus

Fabricated in Rhode Island by Pneuhaus, *Long Wave* is 330 feet long and over 20 feet tall, creating a presence that meets the vast scale of its surroundings. The title refers not only to the sine-like geometry of the structure, but also to broader cycles that unfold slowly and steadily across space.

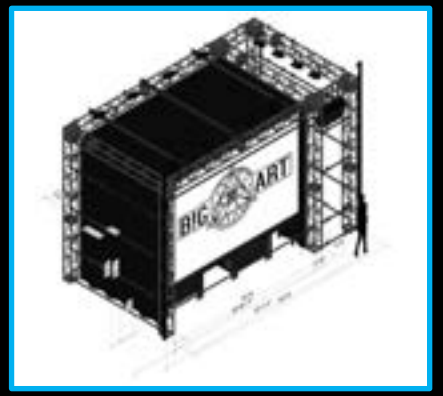


Octopoda by Amigo & Amigo

Join *Octopoda* in his quest to conquer the seas as the greatest eight-legged steampunk drummer-pus. This immersive installation invites you to power and control the intricate machinations of *Octopoda* through eight giant barrel drums, each connected to his fully computerized, light-responsive limbs. Watch his mood blossom to life with every beat and crash.

B!G TV by B!G ART

B!G TV is a 16-foot screen that invites the audience to play, engage, and co-create by triggering animations, responding to prompts, or contributing real-time content. It reimagines the living room TV of your childhood—wood paneling, rabbit ears, Saturday morning cartoons—and catapults it into the future with a bold, interactive twist.



HD-BPM by MASARY Studios

HD-BPM is an instrument for public play that transforms rhythm into light. By striking the illuminated drum pads, participants send crisscrossing pulses of colored light down a series of LED arrays, transforming the artwork into a stage where light becomes the music. Hitting harder produces a faster velocity of light, while playing two drums at once mixes the primary colors.

Parallel Flow by Dina Fisher and David Howe

Parallel Flow is an interactive sound and light show. Twin arrays of colorful light tubes, one on each canal shore, exchange a call-and-response lightshow that continually evolves with a responsive soundscape. Festivalgoers contribute using a handheld interactive sensor, and nightly musical performances by *Parallel Flow*'s creators similarly transform the lightshow.

Pulse by MattCreative

Pulse is an interactive art installation designed to explore our connection to nature. A large LED ring suspended around each tree allows visitors to sit back and watch the trees create stunning visualizations of light, or walk amongst them and discover how they react to your presence.

Recognition by New American Public Art

Recognition uses live facial tracking to automatically project participants' faces onto a giant polygonal 3D form, blending organic and digital elements in real time. This playful yet provocative work explores themes of self-representation, surveillance, and the performative nature of modern digital life.

Showtime by Walter Productions

Showtime captures the essence of live entertainment, intertwining flames, light, and music in a vibrant spectacle. Attendees can interact with Showtime by controlling the lighting of the artwork.

Stargate
by Chalk River Labs

Step into the future with Stargate, an innovative projection sculpture. Featuring a 12-foot square encompassing a circular ring, it is designed to usher viewers on a journey through the cosmos. Viewers are encouraged to climb into the central ring, serving as a meditative space and a photo opportunity, creating interaction and shared experiences.

polychroma by In Theory Art Studios

This mighty rainbow sculpture, composed of dichroic and LEDs, embodies the magnificence of inclusivity and diversity. Casting a vivid spectrum of colors that illuminates the surrounding space, it is a captivating symbol of diversity, celebrating the beauty of differences and inspiring awe and wonder through its impressive iridescent and LED effects.

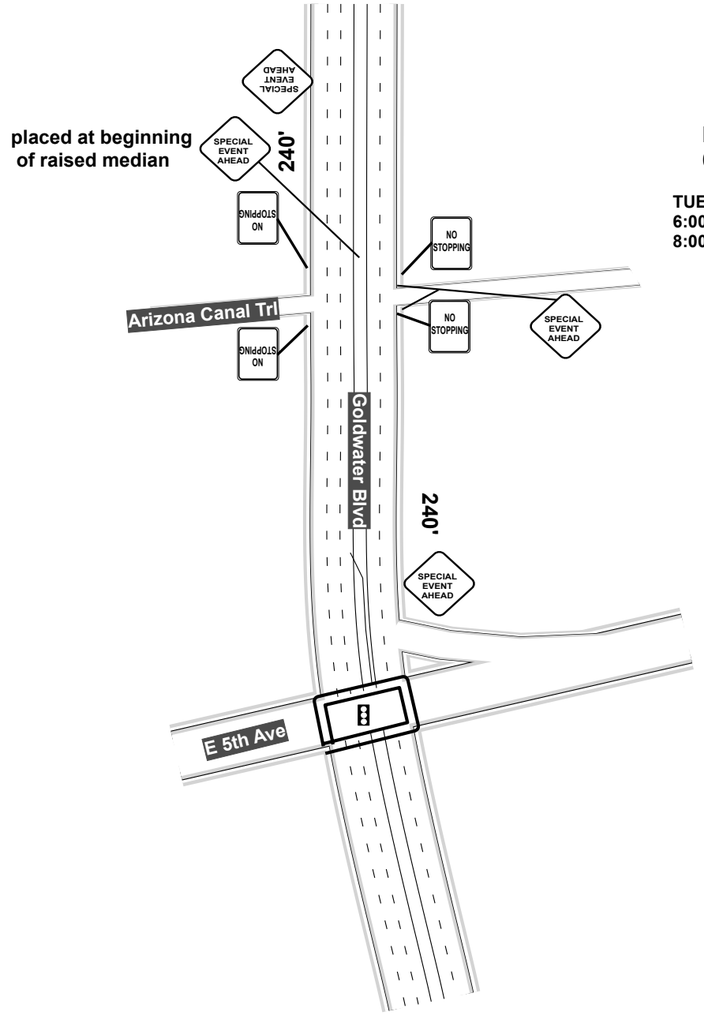
CITY OF SCOTTSDALE

EQUIPMENT LEGEND			
Sign Symbol		"A" Lights	
Vertical Panel		"B" Lights	
Type 1		"C" Lights	
Type 3		Arrow Panel	
		High Level	

PAGE: 1 of 2

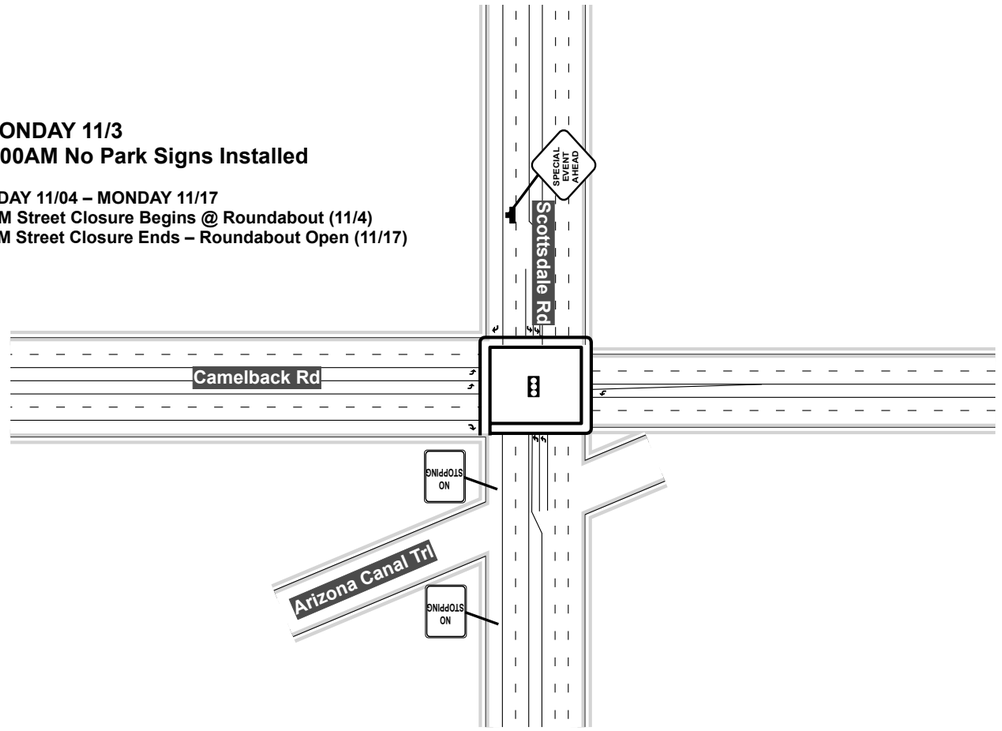
City of Scottsdale Approval
Field Engineering

Traffic Engineering



MONDAY 11/3
6:00AM No Park Signs Installed

TUESDAY 11/04 – MONDAY 11/17
6:00AM Street Closure Begins @ Roundabout (11/4)
8:00PM Street Closure Ends – Roundabout Open (11/17)



OFF-DUTY OFFICER IS REQUIRED IF WORKZONE IS WITHIN 300' OF SIGNALIZED INTERSECTION

DRAWING NOT TO SCALE

Southwest BARRICADES

Drawn by: Gibran Plascencia
Phone: 602-788-2222
Email: TCP@swbarricades.com

ENTERTAINMENT SOLUTIONS Inc.

TCP NAME: 22-4676 A COS PERMIT: X

LOCATION: Via Soleri Dr & Marshall Way

START DATE: 11/4/2025 END DATE: 11/17/2025

WORK HOURS: [X] 8:30am-3:30pm Mon-Fri [ ] 24 HR

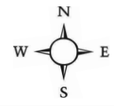
[ ] 10:00pm-5:00am Sun-Thur [ ] Other:

CONTRACTOR: Entertainment Solution

CONTACT PERSON: Kevin Koziol PHONE: 602-620-3351

EMAIL: kevin@solutionsaz.com

COMPASS



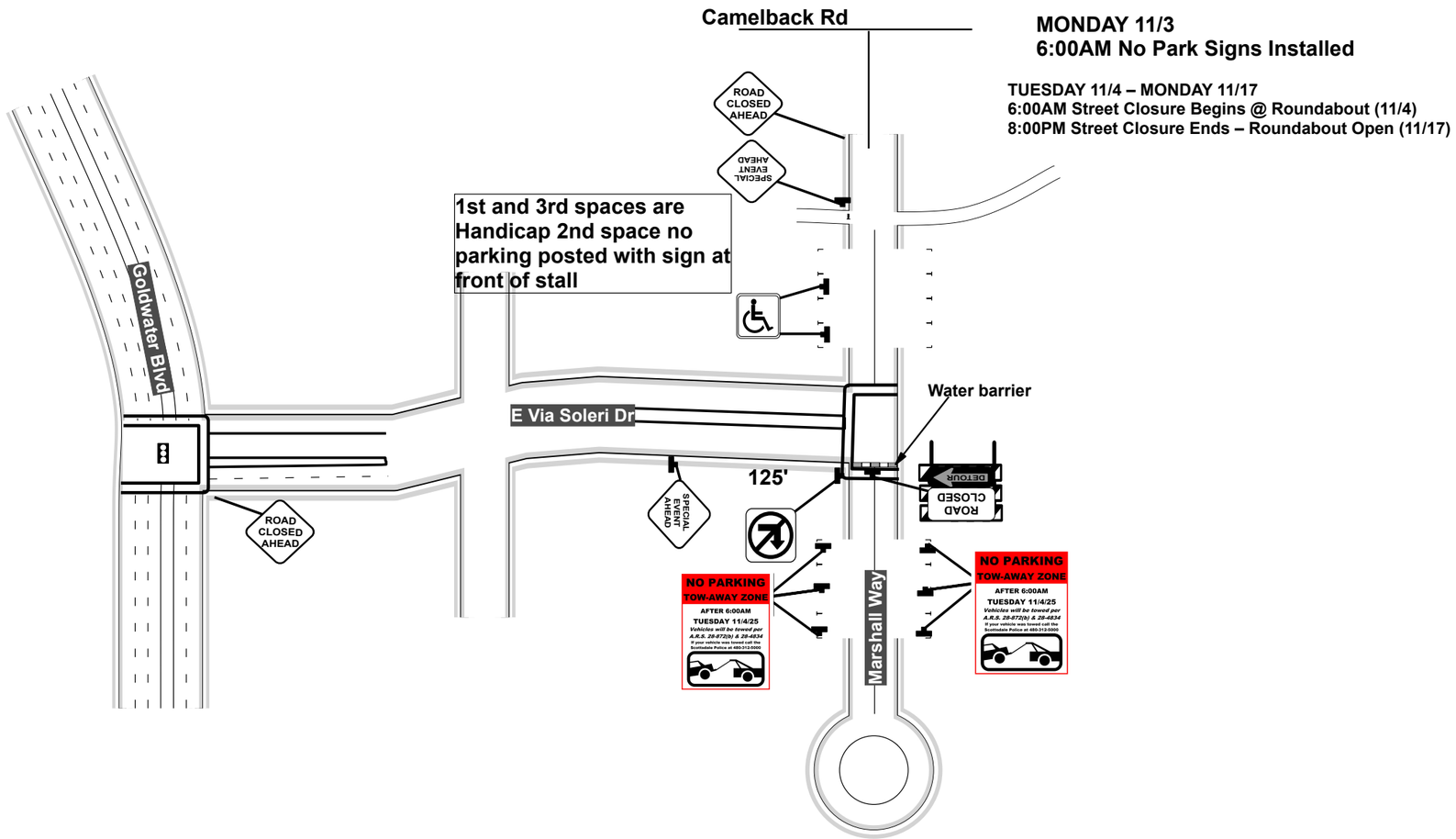
POSTED SPEED

SPEED LIMIT 35

EQUIPMENT LEGEND			
Sign Symbol	"A" Lights	=Water barrier	
Vertical Panel	"B" Lights		
Type 1	"C" Lights		
Type 3	Arrow Panel		
	High Level		

City of Scottsdale Approval
Field Engineering

Traffic Engineering



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CONTACT PERSON: Kevin Koziol PHONE: 602-620-3351

EMAIL: kevin@solutionsaz.com

COMPASS

N W E S

POSTED SPEED

SPEED LIMIT 35

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 10/30/2025

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Marsh & McLennan Agency LLC
8605 E. Raintree Drive, Suite 200
Scottsdale AZ 85260

CONTACT NAME: Soo Murray
PHONE (A/C, No, Ext): | **FAX (A/C, No):**
E-MAIL ADDRESS: Soo.Murray@MarshMMA.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : Philadelphia Indemnity Insurance Co.	18058
INSURER B : CopperPoint Insurance Company	14216
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED SCOTCUL-C1
Scottsdale Arts
fka Scottsdale Cultural Council
7380 E. 2nd St.
Scottsdale AZ 85251

COVERAGES **CERTIFICATE NUMBER:** 1374397343 **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [ ] PRO-JECT [X] LOC [ ] OTHER:	Y	Y	PHPK2566860009	7/1/2025	7/1/2026	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 	$ 1,000,000 $ 1,000,000 $ 20,000 $ 1,000,000 $ 2,000,000 $ 2,000,000 $
A	**AUTOMOBILE LIABILITY** [X] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [X] HIRED AUTOS ONLY [X] NON-OWNED AUTOS ONLY	Y	Y	PHPK2566860009	7/1/2025	7/1/2026	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident) 	$ 1,000,000 $ $ $ $
A	[X] **UMBRELLA LIAB** [ ] OCCUR **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED [X] RETENTION $ 10,000			PHUB868473009	7/1/2025	7/1/2026	EACH OCCURRENCE AGGREGATE 	$ 5,000,000 $ 5,000,000 $
B	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N [ ] **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	N / A	Y	1019573	7/1/2025	7/1/2026	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
A	Liquor Liability			PHPK2566860009	7/1/2025	7/1/2026	Each cause limit Aggregate Limit	1,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
The above-indicated Additional Insured and Waiver of Subrogation (WOS) are provided with respects to General Liability when required in a written and executed contract. Such coverage afforded by these policies for the benefit of the additional insured(s) is primary and any other coverage maintained by such additional insured(s) shall be non-contributory when required in a written and executed contract. Subject to all policy terms, conditions and exclusions

Sexual Abuse Molestation coverage included per Policy #PHPK2566860008: Occurrence Form- Limits $1,000,000 Aggregate/ $1,000,000 Each Abusive Conduct/$0 Deductible

Supporting endorsements attached include: CG2026 04 13; CG2001 04 13; CG2404 05 09
RE: Canal Convergence.

CERTIFICATE HOLDER

City of Scottsdale
3939 N Drinkwater Blvd
Scottsdale AZ 85251

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE
Lisa A. LaVoie

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):
As Per Written Contract
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:

1. In the performance of your ongoing operations; or

2. In connection with your premises owned by or rented to you.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and

2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or

2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

PRIMARY AND NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance** Condition and supersedes any provision to the contrary:

Primary And Noncontributory Insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your policy provided that:

(1) The additional insured is a Named Insured under such other insurance; and

(2) You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Person Or Organization:
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us** of **Section IV – Conditions:**

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY

CA2048-City of Scottsdale

The following is added as additional insured CA2048-Designated Insured
City of Scottsdale, its representatives, agents and employees
9191 E San Salvador Dr
Scottsdale, AZ 85258

All other terms and conditions of this Policy remain unchanged.

CopperPointX
Insurance Companies

COPPERPOINT • ALASKA NATIONAL

WORKERS COMPENSATION AND EMPLOYERS LIABILITY INSURANCE POLICY

WAIVER OF OUR RIGHT TO RECOVER FROM OTHERS ENDORSEMENT

We have the right to recover our payments from anyone liable for an injury covered by this policy. We will not enforce our right against the person or organization named in the Schedule. (This agreement applies only to the extent that you perform work under a written contract that requires you to obtain this agreement from us.)

This agreement shall not operate directly or indirectly to benefit anyone not named in the Schedule.

Schedule

Person or Organization	Job Description
City of Scottsdale	And its officers, officials, agents, employees and volunteers.

This endorsement changes the policy to which it is attached and is effective on the date issued unless otherwise stated.
(The information below is required only when this endorsement is issued subsequent to preparation of the policy.)

Endorsement Effective 07/01/2024 Policy No. 1019573 Endorsement No.
Insured Scottsdale Cultural Council Premiums 100.00

Insurance Company CopperPoint National Insurance Company Countersigned by

Authorized Representative

WC 00 03 13
(Ed. 04-1984)

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):
As Per Written Contract
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

A. **Section II – Who Is An Insured** is amended to include as an additional insured the person(s) or organization(s) shown in the Schedule, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf:

1. In the performance of your ongoing operations; or

2. In connection with your premises owned by or rented to you.

However:

1. The insurance afforded to such additional insured only applies to the extent permitted by law; and

2. If coverage provided to the additional insured is required by a contract or agreement, the insurance afforded to such additional insured will not be broader than that which you are required by the contract or agreement to provide for such additional insured.

B. With respect to the insurance afforded to these additional insureds, the following is added to **Section III – Limits Of Insurance:**

If coverage provided to the additional insured is required by a contract or agreement, the most we will pay on behalf of the additional insured is the amount of insurance:

1. Required by the contract or agreement; or

2. Available under the applicable Limits of Insurance shown in the Declarations;

whichever is less.

This endorsement shall not increase the applicable Limits of Insurance shown in the Declarations.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

PRIMARY AND NONCONTRIBUTORY – OTHER INSURANCE CONDITION

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

The following is added to the **Other Insurance** Condition and supersedes any provision to the contrary:

Primary And Noncontributory Insurance

This insurance is primary to and will not seek contribution from any other insurance available to an additional insured under your policy provided that:

(1) The additional insured is a Named Insured under such other insurance; and

(2) You have agreed in writing in a contract or agreement that this insurance would be primary and would not seek contribution from any other insurance available to the additional insured.

WAIVER OF TRANSFER OF RIGHTS OF RECOVERY AGAINST OTHERS TO US

This endorsement modifies insurance provided under the following:

COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART

SCHEDULE

Name Of Person Or Organization:
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.

The following is added to Paragraph **8. Transfer Of Rights Of Recovery Against Others To Us** of **Section IV – Conditions:**

We waive any right of recovery we may have against the person or organization shown in the Schedule above because of payments we make for injury or damage arising out of your ongoing operations or "your work" done under a contract with that person or organization and included in the "products-completed operations hazard". This waiver applies only to the person or organization shown in the Schedule above.

2025 Canal Convergence Timeline

- Installation, Event and Deinstallation take place along the Arizona Canal between Scottsdale Road and Goldwater Blvd.
- Security will be present throughout the Install/Load-In, Event, and Deinstall/Load-Out.

INSTALL/LOAD-IN SCHEDULE

Monday, October 27th
8:00am-5:00pm
- Artwork Install
- Heavy Equipment arrives on-site
- Homebase Tent Installed

Tuesday, October 28th – Wednesday, October 29
8:00am-10:00pm
- Artwork Install

Thursday, October 30 – Sunday, November 2
8:00am-10:00pm
- Artwork Install
- Light Testing After Dark

Monday, November 3
8:00am-10:00pm
- Artwork Install
- Artwork-Related Rentals Delivered
- Power Delivery
- Light Testing After Dark

Tuesday, November 4
8:00am-10:00pm
- Artwork Install
- Light Testing After Dark

Wednesday, November 5
8:00am-10:00pm
- Artwork Install
- Signage Delivery, Begin Placement
- Temporary Toilets and Bike Fencing Delivery and Installation
- Light Testing After Dark

- 5:30pm-7pm
    - Staff & Volunteer Site Tours
- 8:00pm-10:00pm Dance Rehearsal at *B!G TV* artwork

Thursday, November 6
8:00am-10:00pm

- 6:00am
    - Street Closure Begins at Marshall Way Roundabout (SW Barricades)
- Pro EM (and other misc. rental companies) delivery and installation
- Scottsdale Arts Main Stage and Programming Load-In
- Artwork Install/Artwork Install Contingency Day
- Signage Placement Completed
- 5:30pm-7:30pm
    - VIP Behind the Scenes Tour
- 5:30pm-7:00pm
    - Dance Performance Rehearsal at B!G TV Artwork
- Light Testing After Dark

EVENT SCHEDULE

Friday, November 7 (8:00am – 10:00pm)

- 8:00am– 3:00pm Artwork Install/Event Load-In Wrap Up, Audio/Tech Delivery
- 12:00–1:00pm Dance Rehearsal at B!G TV Artwok
- 2:00-4:00pm Scottsdale Solid Waste Staff On-Site Installing 3-Compartment Containers/90gal Barrels/(50) Cardboard Trash Boxes
- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:00pm-6:00pm: SRP Canal History Tour
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm-10:00pm Merchantile Market – Roundabout
- 6:00pm-10:00pm Community Partner Activities – Roundabout
- 6:00pm-10:00pm Innovation Zone Drop In Workshops: SHOWTIME in Print: Printmaking with Xico
- 6:15pm-7:45pm Innovation Zone Workshop: Create your own Light-Based Artwork w/ Chalk River Labs

- 6:30PM WALTER FIRE SHOW
- 6:45pm Flashmob Performance – Big TV (Steph)
- 6:45pm VIP Area – Stage Remarks
- 7:00pm-9:00pm GLOW by Vessel Performances
- 7:15pm Flashmob Performance – VIP Lounge
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Bad Cactus Brass Band
- 7:45pm Flashmob Performance – Big TV (Steph)
- 8:00pm Herberger Stage Performance – Pijama Piyama
- 8:30PM WALTER FIRE SHOW
- 10:00pm Event Ends

Saturday, November 8 (3:00pm-10:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:00pm-6:00pm: SRP Canal History Tour
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance – Megan Diana
- 6:00pm-9:00pm Scottsdale Arts VIP / Member Night VIP / Opening Celebration
- 6:00pm-10:00pm Community Partner Activities – Roundabout
- 6:00pm-10:00pm Merchantile Market – Roundabout
- 6:00pm-10:00pm Innovation Zone Drop In – SHOWTIME in Print: Printmaking with Xico
- 6:45pm-7:30pm Innovation Zone Workshop at Splashpad – Bucket Drumming w/ MASARY
- 6:30PM WALTER FIRE SHOW
- 6:45pm Dance Performance – Big TV
- 6:45pm VIP Area – Stage Remarks
- 7:00pm-9:00pm GLOW by Vessel Performances
- 7:15pm Dance Performance – VIP Lounge
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Bolero Jonze
- 7:45pm Dance Performance – Big TV
- 8:30PM WALTER FIRE SHOW
- 9:00pm Herberger Stage Performance - MRCH
- 10:00pm Event Ends

Sunday, November 9 (3:00pm-9:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance - Obai
- 6:00pm-9:00pm Community Partner Activities – Roundabout
- 6:00pm-10:00pm Merchantile Market – Roundabout
- 6:00pm-9:00pm Innovation Zone Drop-in Workshops: Canalogic with urbanSTEW
- 6:30PM WALTER FIRE SHOW
- 6:45pm Dance Performance – Big TV
- 6:45pm-7:30pm Innovation Zone Workshop at Splashpad – Bucket Drumming w/ MASARY
- 7:15pm Dance Performance – Big TV
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Outside The Line
- 7:45pm Dance Performance – Big TV
- 8:30PM WALTER FIRE SHOW
- 9:00pm Event Ends

Monday, November 10 (3:00pm-9:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:15–6:15 p.m. My Story as Movement with Ruby Morales
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance - Seligo
- 6:00pm-9:00pm Community Partner Activities – Roundabout
- 6:00pm-9:00pm Innovation Zone Drop-in Workshops: CREATE a Marquee w/ AZ Science Center
- 6:15pm-7:15pm Innovation Zone Workshop: Showstopper Headpieces w/ Walter Hive

- 6:30PM WALTER FIRE SHOW
- 7:30PM WALTER FIRE SHOW
- 6:45–9:00pm Community Get Down with Ruby Morales, Free drop-in activity at B!G TV
- 8:30PM WALTER FIRE SHOW
- 9:00pm Event Ends

Tuesday, November 11 (3:00pm-9:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:30pm-6:30pm Canal Convergence Art Tour w/ Spanish
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance – Dylan Paul Thomas
- 6:00pm-8:00pm Scottsdale Chamber / Young Professionals VIP Night
- 6:00pm-9:00pm Community Partner Activities – Roundabout
- 6:00pm-9:00pm Innovation Zone Drop-in Workshops: Puppets w/ The Great Arizona Puppet Theater
- 6:30PM WALTER FIRE SHOW
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Mo Maduro
- 8:30PM WALTER FIRE SHOW
- 9:00pm Event Ends

Wednesday, November 12 (3:00pm-9:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance – Lunar Calendar
- 6:00pm-8:00pm SRP VIP Night
- 6:00pm-9:00pm Community Partner Activities – Roundabout
- 6:00pm-9:00pm Innovation Zone Drop-in Workshops: Beat Making w/ AZ Beat Lab at Big TV

- 6:15pm-7:15pm Innovation Zone Workshop: Calaca Masks w/ Zarco Guerrero
- 6:30PM WALTER FIRE SHOW
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Miana y la Musica
- 7:30pm-9:00pm Innovation Zone Drop In: Masks w/ Zarco Guerrero
- 8:30PM WALTER FIRE SHOW
- 9:00pm Event Ends

Thursday, November 13 (3:00pm-9:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 5:00pm-6:30pm Scottsdale Salutes Celebration VIP Night
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance – Space Travelers Union
- 6:00pm-9:00pm Community Partner Activities – Roundabout
- 6:00pm-9:00pm Innovation Zone Drop-in Workshops: Masks w/ Zarco Guerrero
- Beat Making w/ AZ Beat Lab at Big TV
- 6:30PM WALTER FIRE SHOW
- 6:30pm-7:00pm VIP Lounge Load Out
- 7:00pm VIP Lounge Open to General Public
- 7:30PM WALTER FIRE SHOW
- 8:00pm Herberger Stage Performance - Valgur
- 8:30PM WALTER FIRE SHOW
- 9:00pm Event Ends

Friday, November 14 (3:00pm-10:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:00pm-6:00pm: SRP Canal History Tour
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins

- 6:00pm Herberger Stage Performance – Betsy Ganz
- 6:00pm-10:00pm VIP Lounge Open to General Public
- 6:00pm-10:00pm Community Partner Activities – Roundabout
- 6:00pm-10:00pm Innovation Zone Drop-in Workshops: Create a Marquee sign w/ AZ Science Center
- 6:30PM WALTER FIRE SHOW
- 7:00pm-7:10pm Nicole Olson Dance Performance at Parallel Flow Artwork
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Cameron Jeong
- 8:00pm-8:10pm Nicole Olson Dance Performance at Stargate Artwork
- 8:30PM WALTER FIRE SHOW
- 9:00pm Herberger Stage Performance – Ali A and the Agency
- 10:00pm Event Ends

Saturday, November 15 (9:00am-10:00pm)

- 9:00am-11:am Nicole Olson Dress Rehearsal
- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On
- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:00pm-6:00pm: SRP Canal History Tour
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance – Rhythm is Life
- 6:00pm-10:00pm VIP Lounge Open to Public
- 6:00pm-10:00pm Community Partner Activities – Roundabout
- 6:00pm-10:00pm Innovation Zone Drop-in Workshops :Create a Marquee sign w/ AZ Science Center, Canalogic w/ ubranSTEW
- 6:30PM WALTER FIRE SHOW
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance – Lunes
- 8:00pm-8:10pm Nicole Olson Dance Performance at Marshall Way Bridge
- 8:30PM WALTER FIRE SHOW
- 9:00pm Herberger Stage Performance – Sugar Thieves
- 10:00pm Event Ends

Sunday, November 16 (3:00pm-10:00pm)

- 3:00–5:00pm Ops On-Site, Daily Event Load-In
- 5:00pm Generators Turned On

- 5:00pm-5:30pm Artwork Turned On
- 5:00pm Info Booth Open
- 5:00pm-11:00pm Scottsdale Solid Waste Staff On-Site
- 5:30pm-6:30pm Canal Convergence Art Tour
- 5:30pm Art Ambassadors & Volunteers On-Site
- 6:00pm Event Begins
- 6:00pm Herberger Stage Performance - Alassane
- 6:00pm-9:00pm VIP Lounge Open to Public
- 6:00pm-9:00pm Community Partner Activities – Roundabout
- 6:00pm-9:00pm Innovation Zone Drop-in Workshops: Puppets w/ The Great AZ Puppet Theater
- 6:15pm-7:15pm Innovation Zone Workshop: The Marvelous Medium of Masking Tape
- 6:30PM WALTER FIRE SHOW
- 7:00PM ASU FASHION SHOW at BIG TV
- 7:30PM WALTER FIRE SHOW
- 7:30pm Herberger Stage Performance - Jaleo
- 8:30PM WALTER FIRE SHOW
- 9:00pm Event Ends
- 9:00pm-10:00pm: Preliminary Event Load-Out

DEINSTALLATION/LOAD-OUT

Monday, November 17

8:00am-5:00pm

- Pro EM and All Other Event Rentals Load-Out (except for Homebase Tent)
- Scottsdale Arts Main Stage and Programming Load-Out
- All Remaining Vendors Load-Out
- Artwork Deinstallation
- Signage Removed
- Power (Generators) Load-Out

Tuesday, November 18

8:00am-5:00pm

- Artwork Deinstallation

Wednesday, November 19

8:00am-5:00pm

- Artwork Deinstallation

Thursday, November 20

8:00am-5:00pm

- Artwork Deinstallation

Friday, November 21

8:00am-5:00pm

- Artwork Deinstallation
- Homebase Tent Load-Out

Scottsdale Arts'
CANAL CONVERGENCE
Theme: SHOWTIME
EVENT PROGRAM
November 7–16, 2025
Hours:
Fridays and Saturdays: 6–10 p.m.
Sundays and Monday–Thursday: 6–9 p.m.
Scottsdale Waterfront

SA logo

[panel 2 and 7]
Map and Key

If additional room at the bottom/end of key:

Explore the artworks online at CanalConvergence.com or scan the QR code.
FY26_CC_2025_Event_Brochure_Artworks_QR_Code.svg

(Panels 3,4,5,6) **Schedule**

Things to Do:
This year's event theme, SHOWTIME, explores the fusion of performance and public art through an exciting variety of light-based artworks, workshops, fire shows, live music, and dance performances.

In addition to the vast selection of art experiences, Canal Convergence offers a Beer and Wine Garden, multiple food vendors, and arts-focused shopping experiences for all 10 evenings.

View the full Things to Do daily schedule and more information about all the event has to offer this year at CanalConvergence.com or scan the QR code.

Nightly Events Schedule:

- **Fire Shows at the Walter Productions 2025 artwork, *Showtime*:**
  - 6:30, 7:30 and 8:30 p.m.
- **Free Drop-in Workshops and Activities at the Nationwide Innovation Zone and Scottsdale Arts Roundabout:**
  - Fridays and Saturdays: 6–10 p.m.

    - Sundays and Monday–Thursday: 6–9 p.m.
- **Dress Up the Future – An Interactive Wearable Experience at the Nationwide Innovation Zone**
    - Fridays and Saturdays: 6–10 p.m.
    - Sundays and Monday–Thursday: 6–9 p.m.
- **Ticketed Canal Convergence Artwork Tours:**
    - 5:30-6:30 p.m.

Daily Event Schedule:

Friday, Nov. 7, 2025
6 p.m. Ang Sirena
Live music: indie-pop/alternative R&B.
6:15–7:45 p.m. Create Your Own Light-Based Artwork
$15
7–9 p.m. GLOW by Vessel
A living lightscape that transforms the desert night into a dreamlike passage, where audiences drift through color, stillness, and wonder.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Bad Cactus Brass Band
Live music: funk/jazz.
8:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
9 p.m. Pijama Piyama
Live music: psychedelic cumbia.

Saturday. Nov. 8, 2025
5:30–6:30 p.m. Canal Convergence Art Tour
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
Time: Surprise! Javi Star Entertainment
We're not going to spoil the surprise; expect a performance by Javi Star Entertainment at some point tonight.
6 p.m. Megan Diana
Live music: disco country.
6–9 p.m. Canal Convergence Opening Celebration
$25/$15 for ONE Members
Enjoy savory bites, festive drinks, glowing décor, and lively conversation alongside artists and other special guests at this one-night-only party at the heart of the festival.
6–10 p.m. SHOWTIME in Print: Printmaking with Xico
Try your hand at the printmaking art form as Xico guides you through inking a printing block, preparing paper, and using a printing press.

6–10 p.m. Finger Puppets with The Walter Hive
Make a fun puppet, headband, or sculpture with pom-poms, pipe cleaners, and googly eyes in this playful workshop, perfect for kids, families, or anyone who loves to create!
6–10 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–10 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
6:45–7:15 p.m. Bucket Drumming with MASARY
$15
Grab a bucket and some sticks to explore the joys of synchronization and syncopation in a fun drumming workshop with Ryan Edwards of Boston's MASARY Studios.
7–9 p.m. GLOW by Vessel
A living lightscape that transforms the desert night into a dreamlike passage, where audiences drift through color, stillness, and wonder.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Bolero Jonze
Live music: bolero/lounge.
8:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
9 p.m. MRCH
Live music: indie-electronica.

Sunday, Nov. 9, 2025
5:30–6:30 p.m. Canal Convergence Art Tour
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
Time: Surprise! Javi Star Entertainment
We're not going to spoil the surprise; expect a performance by Javi Star Entertainment at some point tonight.
6 p.m. Obai
Live music: R&B/pop.
6–9 p.m. Canalogic with urbanSTEW
Make noise. Make art. Make memories at Canalogic, where you build a musical instrument, then use it to add your music to the sound scrambler!
6–9 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.

6–9 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
6:45–7:15 p.m. Bucket Drumming with MASARY
$15
Grab a bucket and some sticks to explore the joys of synchronization and syncopation in a fun drumming workshop with Ryan Edwards of Boston's MASARY Studios.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Outside The Line
Live music: soul/Motown.

Monday, Nov. 10, 2025
5:15–6:15 p.m. My Story as Movement
$10
Reflect and embody your truths and personal stories through journaling, dance, and movement in an intergenerational space where participants of all ages learn from each other.
5:30–6:30 p.m. Canal Convergence Art Tour
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
6 p.m. Seligo
Live music: electro-pop-rock/world.
6–9 p.m. CREATE a Marquee
Make and decorate your own marquee sign using markers, chalk, and acrylic accessories with CREATE at Arizona Science Center, where science, design, and engineering collide.
6–9 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–9 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:15–7:15 Showstopper Headpieces with The Walter Hive
$30
Using rhinestones, feathers, metallic trims, and more, you'll design your own wearable artwork, a headpiece that's part crown, part costume, and all creativity.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.

Tuesday, Nov. 11, 2025
5:30–6:30 p.m. Canal Convergence Art Tour (Spanish Translation)
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence with Spanish translation. Wear comfortable shoes and bring water!
6 p.m. Dylan Thomas
Live music: acoustic rock.
6–8 p.m. Scottsdale Professionals Converge
$20 in advance/$30 day of event
Join us for an evening of unforgettable art, ambiance, and networking with light hors d'oeuvres, a cash bar, and access to Billie Jo Herberger's Lounge.
6–9 p.m. Puppets with the Great Arizona Puppet Theater
Jump into your own SHOWTIME with the Great Arizona Puppet Theater as you design and decorate easy stick puppets in this all-ages workshop!
6–9 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–9 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Mo Maduro
Live music: folk/blues.

Wednesday, Nov. 12, 2025
5:30–6:30 p.m. Canal Convergence Art Tour (ASL Translation)
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence with ASL translation. Wear comfortable shoes and bring water!
6 p.m. Lunar Calendar
Live music: contemporary classical.
6–9 p.m. Beat Making Workshop with AZ Beat Lab
Create your own beats, experiment with sound, and share your music with others in this hands-on workshop open to everyone with a love for sound.
6–9 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–9 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.

6:15–7:15 Calaca Masks with Zarco Guerrero
$20
Learn folded paper cutting techniques to create a Calaca [kah-lah-kah], a highly decorated and colorful Dia de Los Muertos mask to wear to your next party!
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Miana y la Musica
Live music: indie-pop.
7:30–9 p.m. Masks with Zarco Guerrero
Learn how to make a fun and expressive cut-out mask with this easy mask-making process, taught by a professional mask-maker.

Thursday, Nov. 13, 2025
5:30–6:30 p.m. Canal Convergence Art Tour
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
6 p.m. Space Travelers Union
Live music: cosmic jazz.
6–9 p.m. Beat Making Workshop with AZ Beat Lab
Create your own beats, experiment with sound, and share your music with others in this hands-on workshop open to everyone with a love for sound.
6–9 p.m. Masks with Zarco Guerrero
Learn how to make a fun and expressive cut-out mask with this easy mask-making process, taught by a professional mask-maker.
6–9 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–9 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
8 p.m. Valgur
Live music: vampire pop.

Friday, Nov. 14, 2025
5:30–6:30 p.m. Canal Convergence Art Tour
$6

Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
6 p.m. Betsy Ganz
Live music: Americana.
6–10 p.m. Finger Puppets with The Walter Hive
Make a fun puppet, headband, or sculpture with pom-poms, pipe cleaners, and googly eyes in this playful workshop, perfect for kids, families, or anyone who loves to create!
6–10 p.m. CREATE a Marquee
Make and decorate your own marquee sign using markers, chalk, and acrylic accessories with CREATE at Arizona Science Center, where science, design, and engineering collide.
6–10 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–10 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7 p.m. Atmospheric Collision by Scottsdale Community College Dance
A mesmerizing site-specific dance performance from Scottsdale Community College Dance at the *Parallel Flow* artwork by Dina Fisher and David Howe.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Cameron Jeong
Live music: jazz/R&B.
8 p.m. Chroma by Scottsdale Community College Dance
An enchanting site-specific dance performance from Scottsdale Community College Dance at the *Stargate* artwork by Chalk River Labs.
8:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
9 p.m. Ali A and the Agency
Live music: rock.

Saturday, Nov. 15, 2025
5:30–6:30 p.m. Canal Convergence Art Tour
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
6 p.m. Rhythm is Life
Live music: steel pan.
6–10 p.m. Finger Puppets with The Walter Hive
Make a fun puppet, headband, or sculpture with pom-poms, pipe cleaners, and googly eyes in this playful workshop, perfect for kids, families, or anyone who loves to create!

6–10 p.m. CREATE a Marquee
Make and decorate your own marquee sign using markers, chalk, and acrylic accessories with CREATE at Arizona Science Center, where science, design, and engineering collide.
6–10 p.m. Canalogic with urbanSTEW
Make noise. Make art. Make memories at Canalogic, where you build a musical instrument, then use it to add your music to the sound scrambler!
6–10 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–10 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Lunes
Live music: Chicano soul/rock.
8 p.m. Oceana by NicoleOlson|MovementChaos
a captivating site-specific dance performance from NicoleOlson|MovementChaos within the *Octopoda* artwork by Amigo and Amigo.
8:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
9 p.m. Sugar Thieves
Live music: blues.

Sunday, Nov. 16, 2025
5:30–6:30 p.m. Canal Convergence Art Tour
$6
Join us for a one-hour, behind-the-scenes look at Canal Convergence. Wear comfortable shoes and bring water!
6 p.m. Alassane
Live music: rock/jazz.
6–9 p.m. Puppets with the Great Arizona Puppet Theater
Jump into your own SHOWTIME with the Great Arizona Puppet Theater as you design and decorate easy stick puppets in this all-ages workshop!
6–9 p.m. Dress Up the Future – An Interactive Wearable Experience
Immerse yourself in wearable technology, transformative design, and storytelling at The Dress Up Space.
6–9 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies
View student-designed garments that integrate wearable technology and explore biodiversity, ecological grief, and transformative futures.
6:15–7:15 p.m. The Marvelous Medium of Masking Tape: Props, masks, puppets, decor, and more! with Matt McGee of the Great Arizona Puppet Theater

$25
Turn your ideas into 3D artworks with masking tape and some imagination, using tricks and techniques from award-winning master puppet builder Matt McGee.
6:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7 p.m. It's SHOWTIME!—Ephemeral Futures: Wearable Ecologies Fashion Show
Catch a fashion show at Canal Convergence featuring garments that integrate wearable technology to explore biodiversity, ecological grief, and transformative futures.
7:30 p.m. Showtime Fire Show by Walter Productions
Flames intertwine with light and music in a vibrant, choreographed spectacle.
7:30 p.m. Jaleo
Live music: Latin.

6 – 10pm

- **Event Open****
    - Artists Workshops (tickets and drop-in) – Nationwide Innovation Zone and Misc. Locations Around the Scottsdale Waterfront.
    - **Live Music – Soleri Plaza**
    - **Food Trucks and Vendor – Soleri Plaza and Scottsdale Arts Roundabout**
    - Community Partner Activities – Scottsdale Arts Roundabout
    - Sponsors and Partner Booths – **Soleri Plaza and Scottsdale Arts Roundabout**

Special Event Notice

Neighborhood Input

CITY OF SCOTTSDALE

EVENT NOTIFICATION & NEIGHBORHOOD INPUT

Event Name: Canal Convergence
Event Location: Scottsdale Waterfront
Event Dates: Nov. 7 -16, 2025
Event Hours: Fri./Sat.: 6 p.m. - 10 pm, Sun-Thurs: 6 p.m. - 9 p.m.
Street Closures: Nov. 6 (12:01 a.m.) - Nov. 17 (6:00 a.m.)
Day/Time Closed:
Day/Time Reopened:

We are thrilled to be guests in your neighborhood and it's important to us that we are communicating clearly with you, the neighbors, to determine if there are any comments or concerns related to the event and/or proposed street closure. I have provided a copy of the site plan and details of the street closure explaining the proposed Special Event. If you have any comments or concerns related to the event, please note in the applicable column. If you prefer to contact the City's Events Administrator directly, contact Cheryl Sumners at 480-312-7834 or csumners@scottsdaleaz.gov.

Please read before filling out: I hereby declare that I am an authorized representative of the listed business and have been informed by the event applicant/designee of the event details, including proposed street closures. By marking "No" for concerns, I am relaying that I have no significant concerns about the event. By marking "Yes" for concerns, I am relaying that I have concerns with the event and/or street closure and will state the reason(s) why in the comment box.

DATE	PRINTED NAME	TITLE (Owner, Manager, etc.)	EMAIL	BUSINESS NAME & ADDRESS	DID YOU RECEIVE A COPY OF THE SITE PLAN?	CONCERNS?
10/5/2025	Peggy Fiandaca	Owner	peggy@ldvwinery.com	LDV Winery, 7134 E. Stetson Dr., B-110	☒ Yes ☐ No	☐ Yes ☒ No
COMMENTS/CONCERNS: It looks great.						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						

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DATE	PRINTED NAME	TITLE (Owner, Manager, etc.)	EMAIL	BUSINESS NAME & ADDRESS	DID YOU RECEIVE A COPY OF THE SITE PLAN?	CONCERNS?
11/25	Kim Keyser	partner	kim@prepandpastry.com	Prep & Pastry 7025 E Via Soleri dr	☒ Yes ☐ No	☐ Yes ☒ No
COMMENTS/CONCERNS: Approval for closure to begin Tue 11/4 per email 10/25/25.						
10/25	Jennifer Williams	Manager	jennifer.williams@evrealestate.com	Engel + Volkers	☒ Yes ☐ No	☐ Yes ☒ No
COMMENTS/CONCERNS: Approval to begin closure on Tue. 11/4 per Jim Bruske phone call on 11/3.						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						

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DATE	PRINTED NAME	TITLE (Owner, Manager, etc.)	EMAIL	BUSINESS NAME & ADDRESS	DID YOU RECEIVE A COPY OF THE SITE PLAN?	CONCERNS?
9/16	Pamela Dobson	GM SWFRCA	Pamela.dobson@swfrca.org	Scottsdale Waterfront Residence	Y	Height of TV structure
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
9/16	Alison Sanchez	manager SWFMA	~~alison~~ asanchez@msrea.net	Scottsdale Waterfront master	☑ Yes ☐ No	☑ Yes ☐ No insurance use fee
COMMENTS/CONCERNS: Approval for closure to begin Tue 11/4 per email 10/30/25.						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						

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DATE	PRINTED NAME	TITLE (Owner, Manager, etc.)	EMAIL	BUSINESS NAME & ADDRESS	DID YOU RECEIVE A COPY OF THE SITE PLAN?	CONCERNS?
9/23/25	Ashley Guthrie	AGM	amguthrie@foxrc.com	7135 E. CAMELBACK RD STE 195 (OLIVE & IVY)	☑ Yes ☐ No	☐ Yes ☑ No
COMMENTS/CONCERNS: Approval for closure to begin Tue 11/4 per Jakob Michaelis email 10/20/25.						
9/23/25	Victor Castro	GM	victor.castro@marc-taylor.com	7025 E Via Soleri	☑ Yes ☐ No	☐ Yes ☑ No
COMMENTS/CONCERNS: Approval for closure to begin Tue 11/4 per Julie Mizcles email 10/30/25.						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						

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DATE	PRINTED NAME	TITLE (Owner, Manager, etc.)	EMAIL	BUSINESS NAME & ADDRESS	DID YOU RECEIVE A COPY OF THE SITE PLAN?	CONCERNS?
10/8/25	Erik Yee		Chefemail@cityofscottsdale.com	4809732645 Text only	☑ Yes ☐ No	☐ Yes ☑ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						
					☐ Yes ☐ No	☐ Yes ☐ No
COMMENTS/CONCERNS:						

Entertainment Engineering Consultants, LLC

5/8/2025

Insomniac
9441 W. Olympic Blvd.
Beverly Hills, CA 90212
ATTN: Jasmynne Balderama

Entertainment Engineering Consultants, LLC
6104 S. Helena St.
Spokane, WA 9923

Polychroma Stability

EEC Project #: 25.133.35A

Dear Jasmynne,

We have completed our review of the attached structure according to the provisions of the 2018/2021 International Building Code, 2022 California Building Code, and 2023 Florida Building Code.

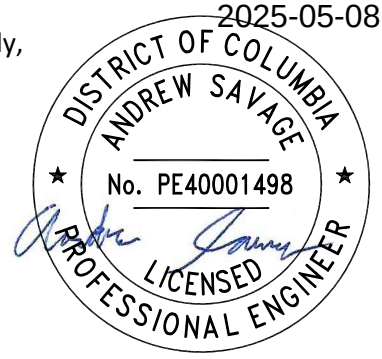
A stability- only review was performed on a structure comprised of steel tubing for use supporting scenic paneling. The structure will be installed at various locations throughout the United States for dates to be determined. The stability only review we performed does not review member framing or connections but rather determines the safe wind load ratings with the assumption that the structure overturns or slides as a single rigid body.

A High Wind Action Plan has been provided with the original report and shall be strictly adhered to for the duration of the event. The structure has a minimum 1.5 factor of safety vs overturning or sliding in a maximum wind speed of 40mph 3-second gusts

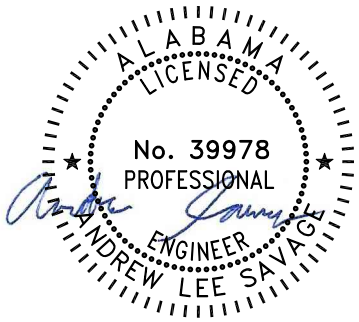
I trust this information is suitable for your needs at this time. Please direct any questions to myself or my office as necessary.

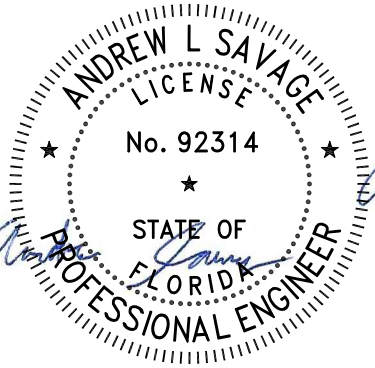
Sincerely,

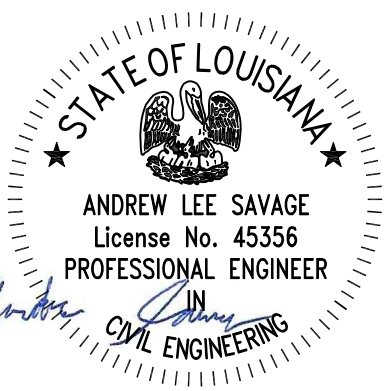
2025-05-08

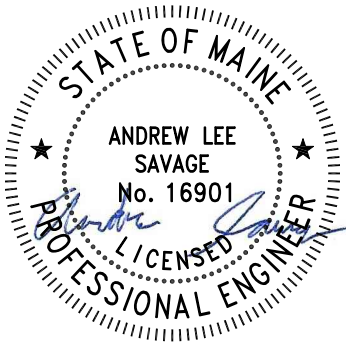


Andrew L. Savage, P.E.
DC Registration No.: PE40001498









Entertainment Engineering Consultants, LLC

Entertainment Engineering Consultants, LLC
6104 S Helena St.
Spokane, WA 99223

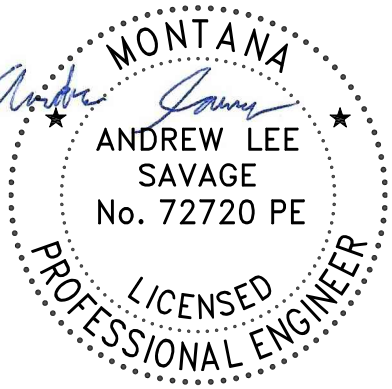
Project Name	Polychroma Stability Review
Event/Venue Name and Address	Varies
Project No.	25.133.35A
Sheet	
Date	05/08/2025

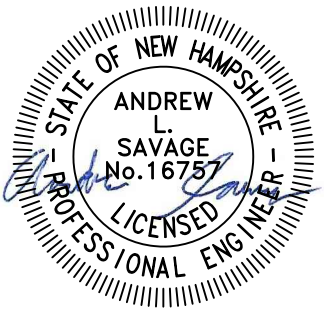
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the state of Minnesota.

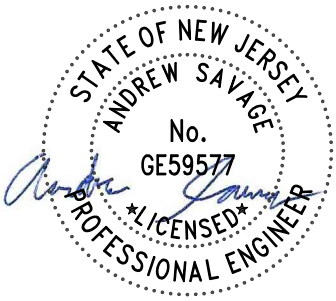
Signature:

Name: Andrew L. Savage

Date: 05/08/205 License Number: 59052







EXPIRES: 06/30/26

Entertainment Engineering Consultants, LLC

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Spokane, WA 99223

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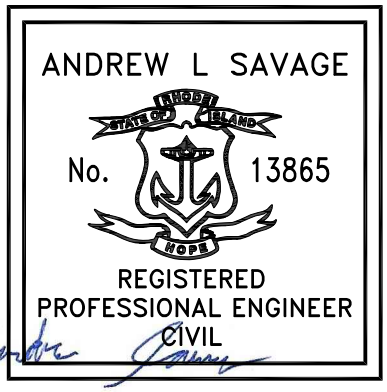

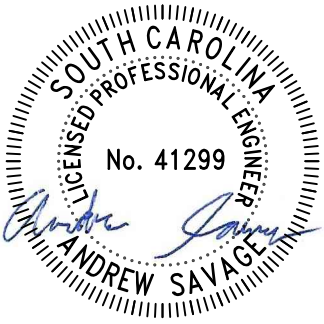

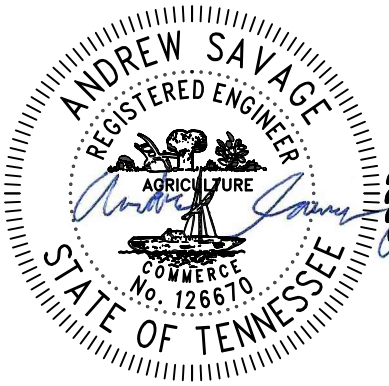

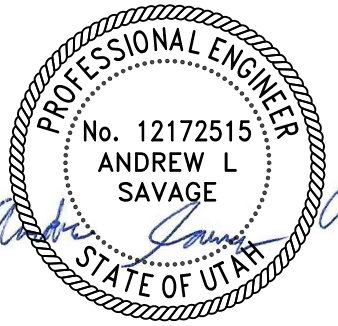

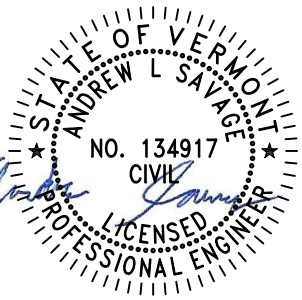

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6104 S Helena St.
Spokane, WA 99223

Project Name	Polychroma Stability Review
Event/Venue Name and Address	Varies
Project No.	25.133.35A
Sheet	
Date	05/08/2025

Entertainment Engineering Consultants, LLC

5/8/2025

GENERAL NOTES

EVENT LOCATION: VARIOUS
EVENT DATES: VARIOUS

REFERENCED CODES AND STANDARDS

1. 2018/2021 INTERNATIONAL BUILDING CODE
2. 2022 CALIFORNIA BUILDING CODE
3. 2023 FLORIDA BUILDING CODE
4. ASCE 7-16 'MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES'
5. ASCE 37-14 'DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION'
6. ANSI E1.21-2020 'ENTERTAINMENT TECHNOLOGY - TEMPORARY STRUCTURES USED FOR TECHNICAL PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS'
7. ANSI E1.2-2021 'ENTERTAINMENT TECHNOLOGY – DESIGN, MANUFACTURER AND USE OF ALUMINUM TRUSSES AND TOWERS'
8. ALUMINUM DESIGN MANUAL, 2015 EDITION
9. AISC STEEL MANUAL, 15TH EDITION

DESIGN LOADS

1. DEAD LOAD: SELF WEIGHT OF STRUCTURE
2. WIND LOAD:
    a. RISK CATEGORY: II
    b. HIGH WIND ACTION PLAN: 40MPH - EVACUATE
    c. EXPOSURE: C
    d. INSTALLATION DURATION: LESS THAN 6 WEEKS
3. SEISMIC LOAD: NOT REVIEWED DUE TO THE TEMPORARY NATURE OF THE STRUCTURE

ALUMINUM

1. FABRICATION AND ERECTION OF STRUCTURAL ALUMINUM SHALL CONFORM TO THE ALUMINUM DESIGN MANUAL – 2015
2. STRUCTURAL ALUMINUM SHALL BE ALLOY 6005A-T6 (U.N.O.)
3. ALL WELD FILLER SHALL BE 4043 (U.N.O.)
4. ALL WELDING MUST CONFORM TO AWS D1.2

STEEL

1. FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION 15TH EDITION.
2. ALL WELDING MUST CONFORM TO AWS D1.1
3. ALL W-SHAPE MEMBERS MUST CONFORM TO ASTM A992
4. 1-3/4" DIAMETER FX LADDER TRUSS CHORD PINS ARE MACHINED FROM 1144 STRESSPROOF STEEL
5. 4"X4" STEEL CLEVIS MACHINED FROM 1045 COLD DRAWN STEEL
6. BOLTS AND FASTENERS ARE MIN. A490 (GR. 8)

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SCAFFOLD, TRUSS AND RIGGING EQUIPMENT

1. ALL SCAFFOLDING SHALL BE INSTALLED PER THE MANUFACTURERS SPECIFICATIONS.
2. ALL SCAFFOLD LEG SPLICES REQUIRE BOLTS AT THE TOP AND BOTTOM OF THE SPLICE.
3. GRAVITY CLIPS MUST BE INSTALLED AT ALL SCAFFOLD STANDARD CONNECTIONS.
4. LOAD CAPACITIES USED IN DESIGN WERE PROVIDED BY THE SCAFFOLD MANUFACTURER (STEP-UP SCAFFOLD)
5. ALL SCAFFOLD, ALUMINUM TRUSS AND RIGGING EQUIPMENT MUST BE INSPECTED FOR DAMAGE PRIOR TO INSTALLATION. ANY DAMAGED OR MODIFIED EQUIPMENT SHALL NOT BE USED.

FOUNDATIONS

1. THE STRUCTURE IS ASSUMED TO BE INSTALLED ON LEVEL GROUND.

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5/8/2025

OPERATIONS MANAGEMENT PLAN

ONE OR MORE COPIES OF THIS OPERATIONS MANAGEMENT PLAN MUST BE POSTED CONSPICUOUSLY ON SITE. THE OPERATIONS MANAGEMENT PLAN MUST BE AVAILABLE TO ALL CREW, STAFF AND AUTHORIZED PUBLIC INSTITUTIONS (POLICE DEPT., FIRE DEPT., BUILDING DEPT., ETC.)

EVENT COMMENCEMENT

1. AN EVENT IS DEFINED TO COMMENCE AT THE INITIAL PREPERATION, INSTALLATION OR ASSEMBLY OF EQUIPMENT AND CONCLUDE AFTER COMPLETE DISASSEMBLY AND REMOVAL OF EQUIPMENT AND PERSONNEL.
2. PRIOR TO THE COMMENCEMENT OF ANY USE OF THE STRUCTURE, THE INDIVIDUAL(S) HAVING AUTHORITY MUST DESIGNATE A RESPONSIBLE PERSON WHO IS IN CHARGE OF IMPLEMENTING ALL ITEMS IN THIS OPERATIONS MANAGEMENT PLAN.
3. PRIOR TO THE COMMENCEMENT OF ANY EVENT A MEETING MUST BE HELD BETWEEN THE RESPONSIBLE PERSON AND THE VENUE, STAGE MANAGER, OWNER OR STAGING COMPANY TO DISCUSS THE IMPLEMENTATION OF ALL ACTIONABLE ITEMS. CRITERIA LEADING TO EVENT CANCELLATION MUST BE CLEARLY DEFINED SUCH THAT IMMEDIATE ACTION MAY BE PERFORMED DUE TO ENVIRONMENTAL CONDITIONS SUCH AS WIND, SNOW, OR RAIN.

HIGH WIND ACTION PLAN

1. THE HIGH WIND ACTION PLAN SHALL BE IN PLACE FOR THE ENTIRE EVENT DURATION.
2. AN ANEMOMETER MUST BE SECURED TO THE HIGHEST ELEVATION STRUCTURE IN THE IMMEDIATE AREA FOR THE PURPOSE OF MONITORING ON-SITE WIND SPEEDS.
3. WEATHER MUST BE CONTINUOUSLY MONITORED VIA NOTICES AND REPORTS ISSUED BY THE NATIONAL WEATHER SERVICE OR LOCAL WEATHER AUTHORITIES AS WELL AS ON-SITE ANEMOMETER READINGS.
4. WIND SPEEDS LISTED BELOW ARE DEFINED AS A 3-SECOND GUST.
5. WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 40MPH: IMMEDIATE AREA SHALL BE EVACUATED OF ALL PERSONS. A SAFE DISTANCE MUST BE MAINTAINED AWAY FROM THE STRUCTURE UNTIL SUCH TIME THAT WINDS HAVE SUBSIDED.
6. FAILURE TO FOLLOW THE HIGH WIND ACTION PLAN MAY RESULT IN INJURY OR DEATH OF PERSONS AND DAMAGE TO EQUIPMENT OR PROPERTY.

SEISMIC ACTION PLANS

1. IN THE EVENT OF AN EARTHQUAKE OF ANY MAGNITUDE THE EVENT SHALL BE POSTPONED UNTIL SUCH TIME THAT ALL STRUCTURES AND EQUIPMENT MAY BE VISUALLY INSPECTED BY A COMPETENT PERSON ON SITE.
2. IF A SEISMIC EVENT OF ANY MAGNITUDE OCCURS WHILE STRUCTURE IS NOT IN USE, THE STRUCTURE SHALL BE VISUALLY INSPECTED BY A COMPETENT PERSON ON SITE PRIOR TO USAGE.

(12) 60LBS SAND BAGS EACH SIDE. TOTAL OF (24) FOR STRUCTURE. MIN. 1440LBS BALLAST REQUIRED (TYP)

1041,4

539,28

520,7

Rainbow parts:
1.5" X 1.5" X .120" Steel square tubing

1055,02

709,21

650,34

661,5

609,6

SCENIC PANELS ATTACHED BY OTHERS

4019,79

4228,63

1257,77

6744,17

Base:
1.5" X 1.5" X 3/16" Steel square tubing

4019,79

1828,8

2025-05-08
DISTRICT OF COLUMBIA
ANDREW SAVAGE
No. PE40001498
LICENSED PROFESSIONAL ENGINEER

Entertainment Engineering Consultants, LLC

THIS STAMP APPLIES TO THE STABILITY ONLY REVIEW OF THE STRUCTURE DETAILED ON THIS PAGE

		NAME	SIGNATURE	DATE
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS				
ANGULAR = ± °	DRAWN	EMILY NICOLOSI		2025-05-01
SURFACE FINISH	CHECKED			
	APPROVED			
DO NOT SCALE DRAWING				
BREAK ALL SHARP EDGES AND REMOVE BURRS				
FIRST ANGLE PROJECTION	MATERIAL		FINISH	

TITLE: Polychroma

SIZE: A1 | DWG NO. | REV.

SCALE: 1:12 | WEIGHT: 800 lbs | SHEET: 1 of 1

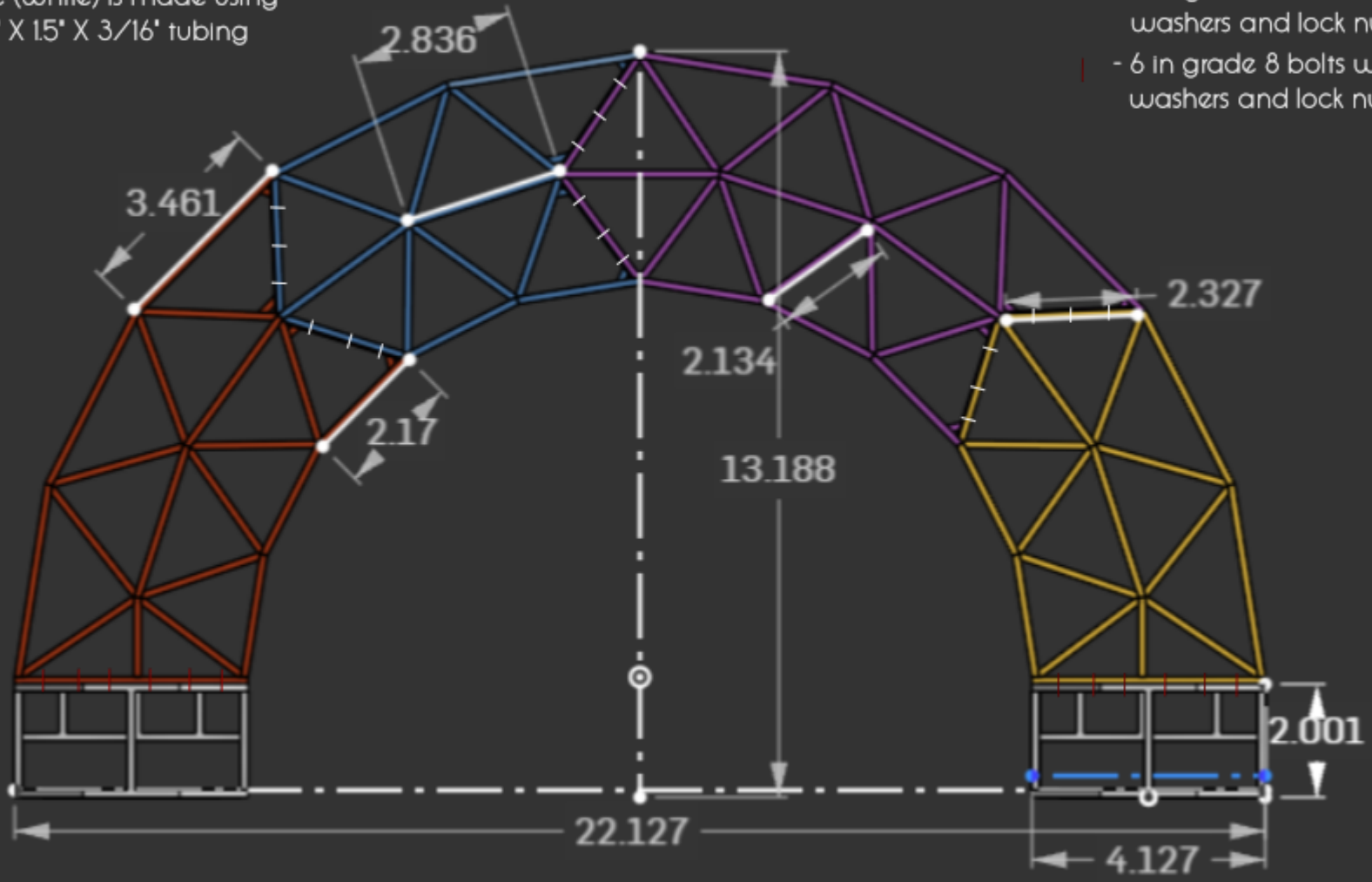
- Rainbow parts are
1.5" X 1.5" X.120" Steel square tubing

- Base (white) is made using
1.5" X 1.5" X 3/16" tubing

-Each colored section is welded together completely individually.

- 2 in grade 8 bolts with washers and lock nuts

- 6 in grade 8 bolts with washers and lock nuts



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Polychroma Stability

Project Description

This project includes the stability review of a scenic structure comprised of steel tubing.

Design Codes

- 2018/ 2021 International Building Code
- 2022 California Building Code
- 2023 Florida Building Code
- ASCE 7-16 '*Minimum Design Loads and Associated Criteria for Buildings and Other Structures*'
- ANSI E1.2 - 2021 *'Entertainment Technology - Design, Manufacture and Use of Aluminum Trusses and Towers'*
- ANSI E1.21 - 2020 '*Entertainment Technology - Temporary Structures Used for Technical Production of Outdoor Entertainment Events*'
- ASCE 37-14 'Design Loads on Structures During Construction'

General Design Factors of Safety (U.N.O.)

	Steel	Aluminum
Yield	$\Omega_{s\_y} := 1.67$	$\Omega_{a\_y} := 1.65$
Rupture	$\Omega_{s\_r} := 2$	$\Omega_{a\_r} := 1.95$

Assumptions

Additional assumptions may be located in the body of the calculations.

- Wind Exposure is C for High Wind Action Plan, Exposure C for service
- Risk Category II

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Spokane, WA 99223

Design Loads - Wind

Ground Elevation of site (ft) $EL := 0$

Risk Category is II.

Determination of Velocity Pressure - ASCE 7-16 Section 26

Basic Wind Speed (MPH)
(based on ASCE Hazards Map) $V_{basic} := 115$

ASCE 37-14 Reduction for temporary structure $red := .75$

Service Wind Speed (MPH) $V_{service} := red \cdot \sqrt{.6 \cdot V_{basic}^{2}} = 66.809$

High Wind Action Plan Wind Speed (MPH) $V_{hwap} := 40$

Maximum height of evaluation $h := 13.2 \cdot ft$

Velocity Pressure Coefficient $K_{z\_s} := .85$

Velocity Pressure Coefficient (Exp C) $K_{z\_hwap} := .85$

Topographic factor $K_{zt} := 1$

Wind directionality factor $K_d := .85$

Ground Elevation Factor $K_e := e^{-.0000362 \cdot EL} = 1$

Gust-effect factor $G_e := .85$

Velocity Pressure (Service) $q_{z\_s} := .00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot V_{service}^{2} \cdot psf = 8.256\ psf$

Velocity Pressure (HWAP) $q_{z\_hwap} := .00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot V_{hwap}^{2} \cdot psf = 2.959\ psf$

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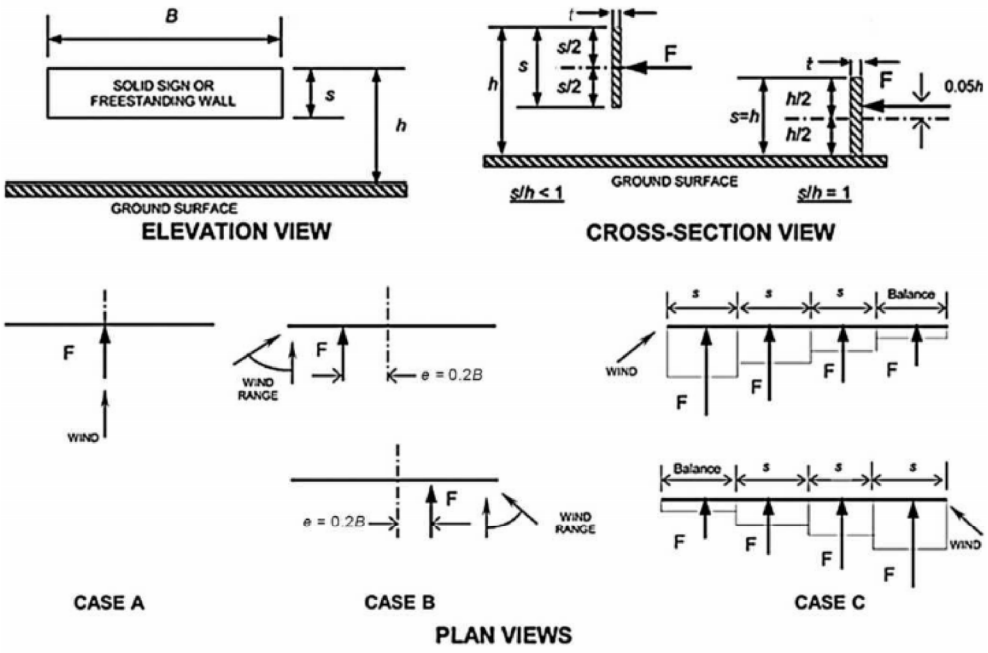
Determination of Sign Wind Pressures - ASCE 7-16 Section 29.3



Force Coefficients, C_f, for Case A and Case B

Clearance Ratio, s/h	Aspect Ratio, B/s ≤0.05	0.1	0.2	0.5	1	2	4	5	10	20	30	≥45
1	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30
0.9	1.85	1.75	1.70	1.60	1.55	1.50	1.45	1.45	1.40	1.40	1.40	1.40
0.7	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55
0.5	1.95	1.85	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75
0.3	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85
0.2	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.85	1.90	1.90	1.95
≤0.16	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95

Taken from ASCE 7-16 Figure 29.3-1

Case A

Top of Sign Height $h := 13.2 \cdot ft$

Vertical Dimension of sign $s := 4.2 \cdot ft$

Width of sign $B := 13 \cdot ft$

Aspect Ratio (B / s) $aspect := \frac{B}{s} = 3.095$

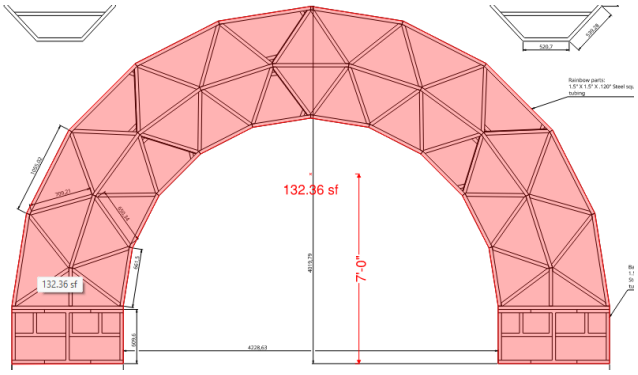
Clearance Ratio (s / h) $clearance := \frac{s}{h} = 0.318$

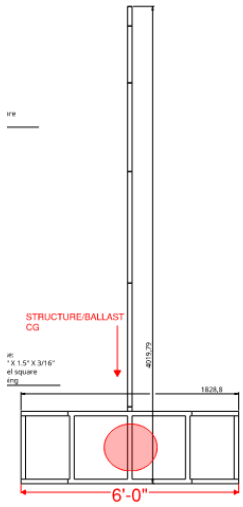
Force Coefficient $C_f := 1.8$

High Wind Action Plan Sign Pressure $q_{sign\_hwap} := q_{z\_hwap} \cdot G_e \cdot C_f = 4.528\ psf$

Service Sign Pressure $q_{sign\_s} := q_{z\_s} \cdot G_e \cdot C_f = 12.631\ psf$

Polychroma Stability





Dimensions of structure

$h_{str} := 13.2\ ft$

$b_{str} := 22.2\ ft$

$d_{str} := 6\ ft$

Weight of structure

$wt_{str} := 800\ lbf$

Weight of ballast

$wt_{ballast} := 24 \cdot (60\ lbf) = (1.44 \cdot 10^3)\ lbf$

Area of scenic

$A_{scenic} := 132.4\ ft^2$

Wind on scenic

$wind_{scenic} := (A_{scenic} \cdot q_{sign\_hwap}) = 599.483\ lbf$

Overturning moment

$M_{ot} := 7\ ft\ (wind_{scenic}) = 4.196\ kip \cdot ft$

Restoring moment

$M_{res} := \frac{d_{str}}{2}\ (wt_{str} + wt_{ballast}) = 6.72\ kip \cdot ft$

$\frac{M_{res}}{M_{ot}} = 1.601$

Sliding calculations

Forces on structure

$p_{slide} := (wind_{scenic}) = 599.483\ lbf$

Self-Weight of structure

$p_{slide\_resistance} := (wt_{str} + wt_{ballast}) \cdot 0.4 = 896\ lbf$

$\frac{p_{slide\_resistance}}{p_{slide}} = 1.495$

Scottsdale Arts
7380 E 2nd Street
Scottsdale, AZ 85251
Attn: Jennifer Gill

RE: Canal Convergence (Stargate) - Peer Review

CRE Proj. No: 25.701.104
Date: October 27th, 2025

Dear Ms. Gill,

Clark Reder Engineering Inc. has completed the structural peer review on the Stargate structure.

Calculations for the Stargate structure were provided by Brushwood Engineering Group. The original calculations are attached for reference. It is our understanding that the structure will be installed for Canal Convergence, which takes place November 7-16, 2025.

The objective of this review is to determine if the structural calculations provided for the referenced project comply with the structural requirements of the applicable building code in Scottsdale, AZ. This review is limited in scope and will be conducted to the extent necessary to render an opinion regarding the stability and integrity of the primary structural system of the project.

At no time shall it be construed that the project peer reviewer, in providing structural peer review services, is supplanting, or supplementing the Structural Engineer of Record in their professional responsibility for the design of the primary structural system. No attempt will be made to verify dimensions, except to the extent necessary to review the adequacy of a particular structural component. This prepared peer review report is intended for one-time use in connection with this project and location. Any reuse without written approval or adaptation by Clark Reder Engineering, Inc. is prohibited.

We have completed our structural peer review for the above-referenced project for conformance to the structural provisions of the 2018 International Building Code, ASCE 7-16, and ASCE 37-14. The proposed temporary structures are aluminum framed structure that are welded together. The stargate structure will be bolted down to a ballast base via (12) M12 class 70 bolts. The projector tower is aluminum framed and bolted together and used to support a speaker and a projector.

The proposed design loads were reviewed with respect to gravity and lateral loading criteria. The dead load consists of the self-weight of the structure and loading for sound or lighting equipment. Rain and snow loading were not considered in the live load calculations, which is consistent with the temporary nature of the structure and seasonal installation (all rain and snow accumulations must be removed from tent structures). Seismic lateral loads were not addressed in the calculations, which is consistent with the temporary nature of the structure (in the event of an earthquake, the event shall be suspended until such

time that the tent structures have been inspected by a competent person on site). Wind lateral loads were addressed for client-specified wind gusts of 33m/s or 74mph. The original engineering has a wind management plan starting at 15m/s(35mph) to have a crew on standby. Then, at 18m/s(40mph) the area surrounding the structure shall be excavated. Temporary structures should not be considered a place of refuge during high-wind events. The high wind action plan (HWAP) must be strictly followed for the duration of the project.

In conclusion, the Stargate structure was reviewed and will be structurally adequate for installation at Canal Convergence 2025 as described in the original calculations.

We trust this information is sufficient for your needs at this time. Please do not hesitate to contact our office should you have any questions or require additional information.

Regards,
Clark-Reder Engineering, Inc.

Jeffrey M. Reder, P.E.

Eric P. Kelly

STRUCTURAL DESIGN CERTIFICATE - TEMPORARY STRUCTURES

Project: Stargate Activation Artwork

Certificate No: BE2024 135

Description of Works: Free Standing Artwork – 4m (L) x 0.5m (W) x 4m (H)

Site Address: Australia Wide – (Wind Region A&B only)

Date of Issue: 13.11.24

Attention: Stormy

Chalk River Labs

studio@chalkriverlabs.art

Brushwood Engineering Group has been engaged to certify the structures outlined in the above description. The design has been carried out in accordance with Australian Standards and the Building Codes of Australia by a registered professional engineer.

The design inputs, including loads, actions and assumptions are in accordance with the following design codes, standards and principles, and meet the requirements of the Australian Standards outlined below and Building Codes of Australia.

- AS1170.0:2002 Structural Design Actions – General principles;
- AS1170.1:2002 Structural Design Actions – Permanent, imposed and other actions;
- AS1170.2:2021 Structural Design Actions – Wind actions;
- AS1664.2:1997 Aluminium Structures – Allowable stress design;
- AS1720:2010 Timber Structures;
- AS4100:2020 Steel Structures;
- ABCB Temporary Structures 2015;
- National Construction Code 2022 (May).

This certificate addresses the structural capacity of the described items and does not relieve the contractor or other parties of responsibilities, and liabilities. It is noted that any modifications not illustrated within this certificate does not form part of this certification.

Document No.	Description
1.	230922 VST773A_a R0 FS Stargate Artwork - 4mH x 4mW Free Standing Sculpture (Generic REG A&B only)
2.	BE2024 135 CRL Stargate Activation - Analysis Pack

This certificate should only be used in conjunction with the attached documents and a safety assessment carried out by contractor or parties involved within this project.

Contractor, client and end user of the design shall be fully aware of the design conditions and limitations as follows:

1. Activation period: 3-4 Week Activation Period;
2. Design Wind Speed: 33m/s (119km/h);
3. Loading Specifications:
   a) Dead = 0.1kPa of Cladding;
   b) Live = Max. 2 People on Bottom Half of Circle;
4. Minimum Ballast:
   a) 1500kg Concrete Ballast
5. Framing Specifications:
   a) 65x65x3.0 SHS (6060 T5) Aluminium – Stargate Frame
   b) 65x65x4.0 SHS (C350) Steel – Stargate Platform Frame
   c) 15mm Plywood Base – Stargate Platform Base
6. Fixings Details:
   a) Ballast to be positioned inside base of stargate frame and tied into structure;
   b) Aluminium & Steel members to be fully welded using 6 CFW all around;
   c) Plywood floor and edging to be bolted down using M8 bolts. Insert riv nuts to top surface and all edges;
   d) 6 M12(ss/Class 70) Bolts to Fix Base Modules Top and Bottom. Total 12 Bolts
7. Amendments: To be provided to the engineer prior to works;
8. Wind Management Plan: 25m/s Maximum Wind Speed (90km/h)
   a) Wind speeds should be monitored by an anemometer on site or by the closest Bureau of Meteorology weather station;
   b) If wind speeds approach 18m/s (65km/h), event crew are to go on standby to evacuate the structure;
   c) If wind speeds approach 20m/s (72km/h), the structure is to be evacuated and an exclusion zone is to be established of 10m radius;
   d) If wind speeds approach 25m/s (90km/h), the structure and site is to be abandoned.

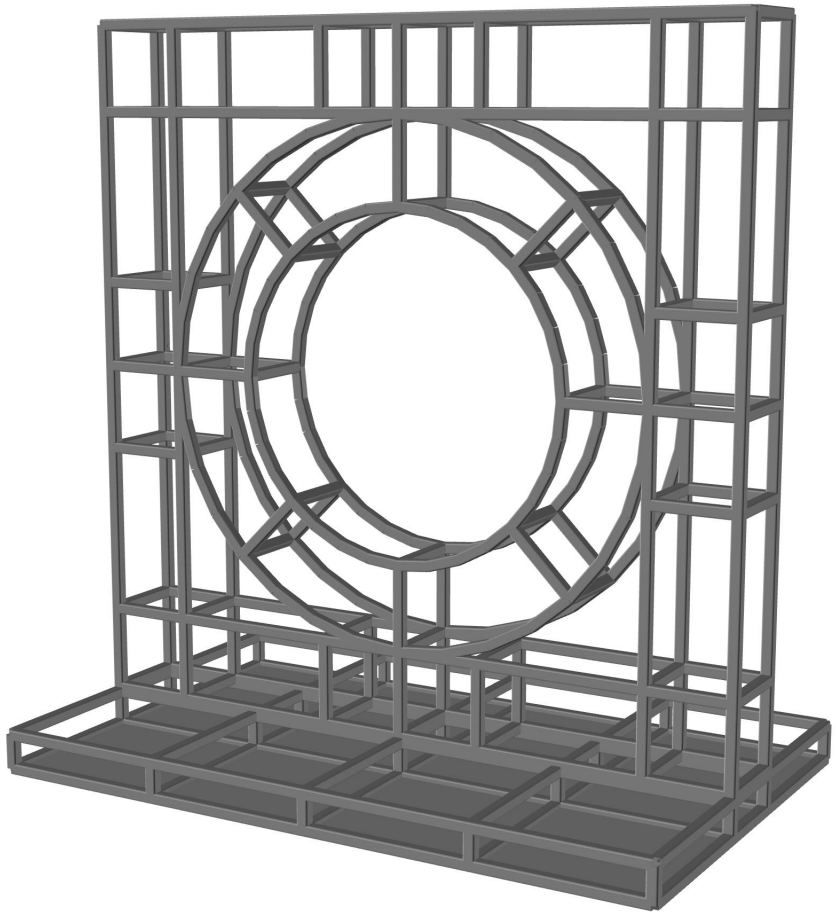
All works are to be carried out by qualified technicians and certified riggers where applicable. Brushwood Engineering Group is not responsible for the safety of the public during engagement with this structure. The scope of works is solely for structural elements and does not relieve the contractor or other parties of responsibilities, and liabilities.

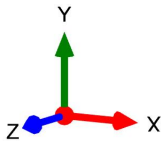
Rowan Doskey
BEng. (Hons) (Structures) MIEAust
PRE0001984 DEP0003280 (NSW)
STRUCTURAL ENGINEER

Notes:
– Frame and Base are 6060 - T6 Aluminum 65x3 SHS Sections
– 5mm Aluminum Base Plate added at bottom of structure for ballast

BE2024 135 CRL Stargate Activation - Analysis Pack

BRUSHWOOD
ENGINEERING GROUP



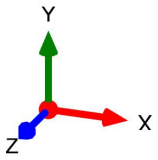


Materials:
1 ALUMINIUM

Sections:
1 65*3 SHS

Load case 12
Axial + Bending Stress:

- 89.54 MPa
- 80.16 MPa
- 70.78 MPa
- 61.40 MPa
- 52.02 MPa
- 42.64 MPa
- 33.26 MPa
- 23.87 MPa
- 14.49 MPa
- 5.11 MPa
- -4.27 MPa
- -13.65 MPa
- -23.03 MPa
- -32.41 MPa
- -41.79 MPa
- -51.17 MPa
- -60.55 MPa
- -69.93 MPa
- -79.31 MPa
- -88.69 MPa



BRUSHWOOD
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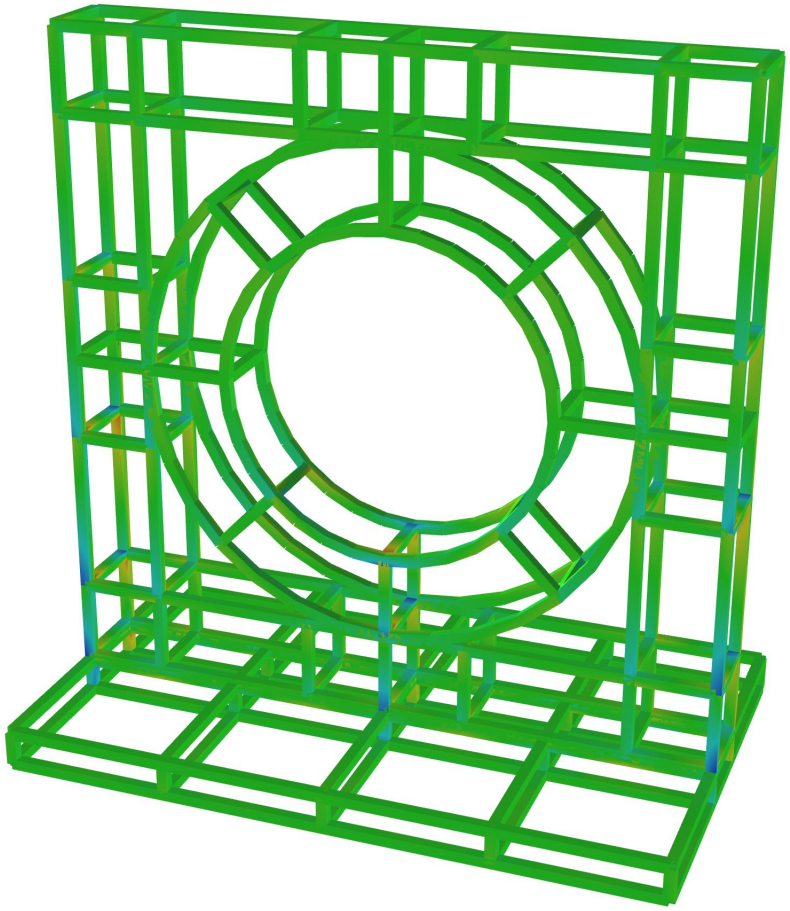


Strength - Frame:
Max Stress = 89.54 MPa
Allowable Stress = 241 MPa
O.K. ✓✓

Materials:
1 ALUMINIUM

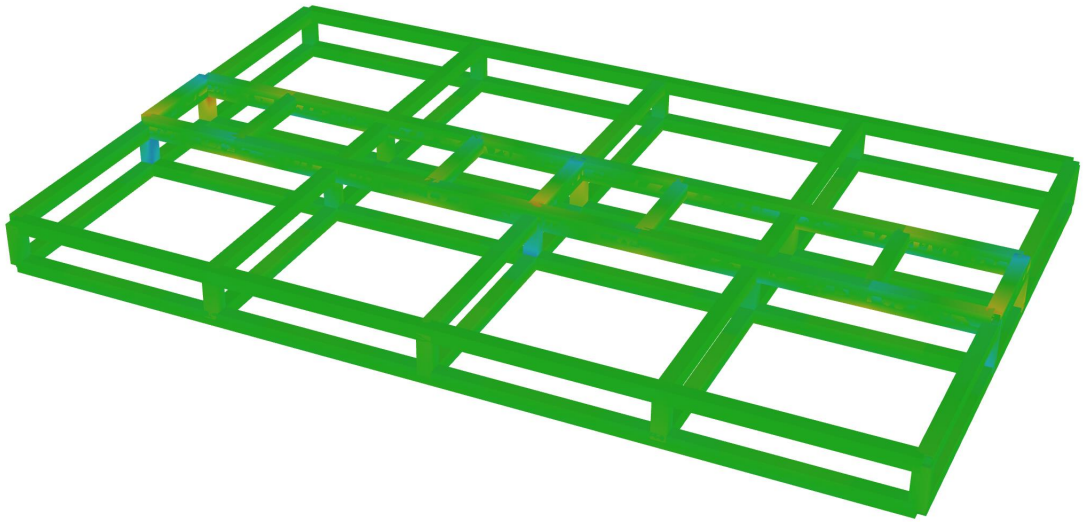
Sections:
1 65*3 SHS

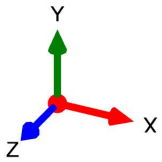
Load case 12
Axial + Bending Stress:

- 89.54 MPa
- 80.16 MPa
- 70.78 MPa
- 61.40 MPa
- 52.02 MPa
- 42.64 MPa
- 33.26 MPa
- 23.87 MPa
- 14.49 MPa
- 5.11 MPa
- -4.27 MPa
- -13.65 MPa
- -23.03 MPa
- -32.41 MPa
- -41.79 MPa
- -51.17 MPa
- -60.55 MPa
- -69.93 MPa
- -79.31 MPa
- -88.69 MPa

BRUSHWOOD
ENGINEERING GROUP

Strength - Frame Base:
Max Stress = 55.32 MPa
Allowable Stress = 241 MPa
O.K. ✓✓





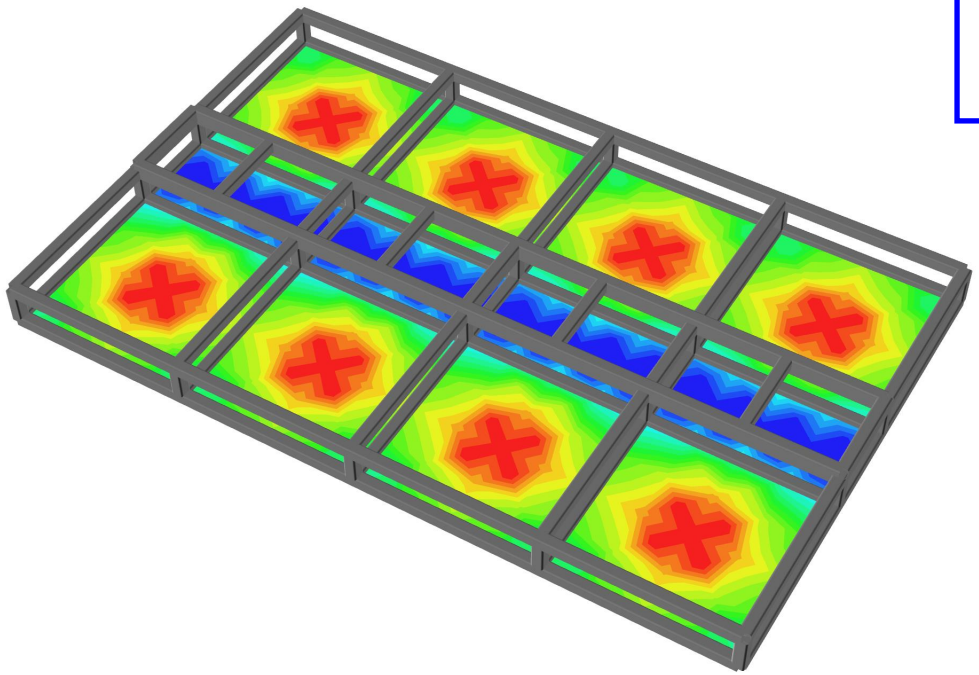
Materials:
1 ALUMINIUM

Sections:
1 65*3 SHS

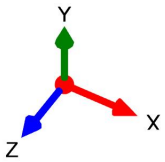
Load case 12
Von Mises Stress:

- 16.67 MPa
- 15.84 MPa
- 15.02 MPa
- 14.20 MPa
- 13.38 MPa
- 12.56 MPa
- 11.74 MPa
- 10.92 MPa
- 10.10 MPa
- 9.27 MPa
- 8.45 MPa
- 7.63 MPa
- 6.81 MPa
- 5.99 MPa
- 5.17 MPa
- 4.35 MPa
- 3.52 MPa
- 2.70 MPa
- 1.88 MPa
- 1.06 MPa
- 0.24 MPa

BRUSHWOOD
ENGINEERING GROUP



Strength - 5mm Aluminum Plate:
Max Stress = 16.67 MPa
Allowable Stress = 241 MPa
O.K. ✓✓



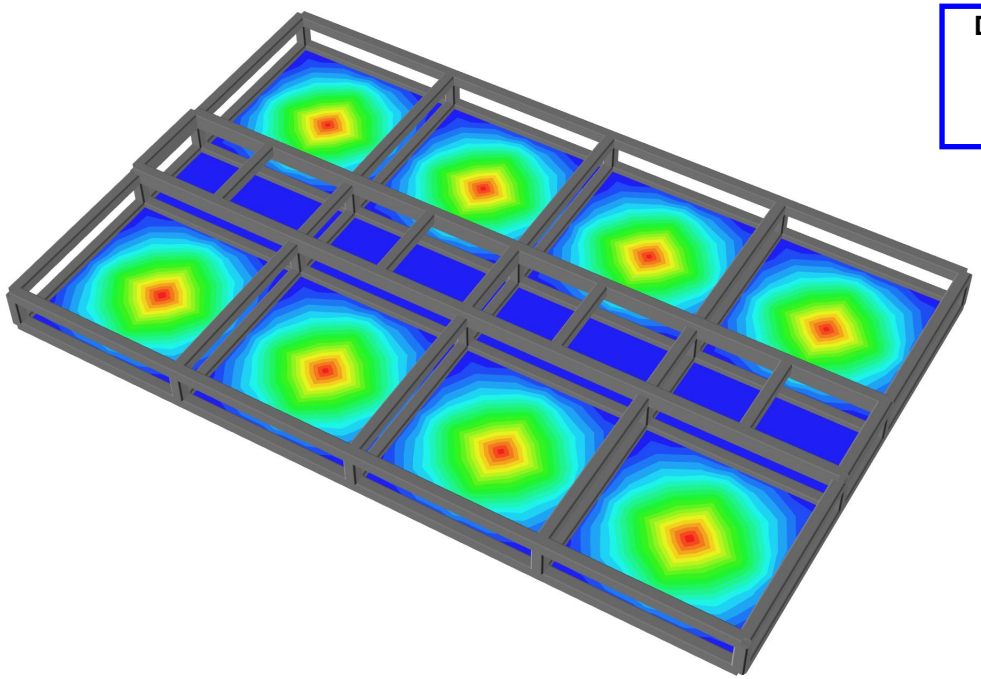
Materials:
1 ALUMINIUM

Sections:
1 65*3 SHS

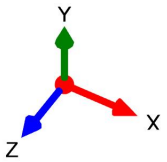
Load case 12
Total Displacement:

- 5.73 mm
- 5.44 mm
- 5.15 mm
- 4.87 mm
- 4.58 mm
- 4.30 mm
- 4.01 mm
- 3.72 mm
- 3.44 mm
- 3.15 mm
- 2.86 mm
- 2.58 mm
- 2.29 mm
- 2.00 mm
- 1.72 mm
- 1.43 mm
- 1.15 mm
- 0.86 mm
- 0.57 mm
- 0.29 mm
- 0.00 mm

BRUSHWOOD
ENGINEERING GROUP



Deflection - 5mm Aluminum Plate:
Max Deflection = 5.73 mm
Allowable Deflection = 8 mm
O.K. ✓✓



Materials:
1 ALUMINIUM

Sections:
1 65*3 SHS

STRUCTURAL DESIGN CERTIFICATE - TEMPORARY STRUCTURES

BRUSHWOOD ENGINEERING GROUP

Project:	Stargate Activation Artwork
Certificate No:	BE2024 135
Description of Works:	Stargate Project Tower – 0.70m (L) x 0.70m (W) x 2.93m (H)
Site Address:	Australia Wide – (Wind Region A&B only)
Date of Issue:	13.11.24

Attention: Stormy

Chalk River Labs

studio@chalkriverlabs.art

Brushwood Engineering Group has been engaged to certify the structures outlined in the above description. The design has been carried out in accordance with Australian Standards and the Building Codes of Australia by a registered professional engineer.

The design inputs, including loads, actions and assumptions are in accordance with the following design codes, standards and principles, and meet the requirements of the Australian Standards outlined below and Building Codes of Australia.

- AS1170.0:2002 Structural Design Actions – General principles;
- AS1170.1:2002 Structural Design Actions – Permanent, imposed and other actions;
- AS1170.2:2021 Structural Design Actions – Wind actions;
- AS1664.2:1997 Aluminium Structures – Allowable stress design;
- AS1720:2010 Timber Structures;
- ABCB Temporary Structures 2015;
- National Construction Code 2022 (May).

This certificate addresses the structural capacity of the described items and does not relieve the contractor or other parties of responsibilities, and liabilities. It is noted that any modifications not illustrated within this certificate does not form part of this certification.

Document No.	Description
1.	Stargate Projector Towers v3

This certificate should only be used in conjunction with the attached documents and a safety assessment carried out by contractor or parties involved within this project.

Contractor, client and end user of the design shall be fully aware of the design conditions and limitations as follows:

1. Activation period: 3-4 Week Activation Period;
2. Design Wind Speed: 33m/s (119km/h);
3. Loading Specifications:
    a) Dead = 0.1kPa of Cladding;
    b) Live = No Loading;
4. Minimum Ballast:
    a) 1000kg Concrete Ballast
5. Framing Specifications:
    a) 65x65x3.0 SHS (6060 T5) Aluminium
    b) 150 x 50 RHS (6060 T5) Aluminium
6. Fixings Details:
    a) Ballast to be positioned on base plate;
    b) Aluminium members in base and top frame section to be fully welded using 6 CFW all around;
    c) 2 M12(ss/Class 70) Bolts each side to fix base module to top frame section. Total 8 Bolts.
7. Amendments: To be provided to the engineer prior to works;
8. Wind Management Plan: 25m/s Maximum Wind Speed (90km/h)
    a) Wind speeds should be monitored by an anemometer on site or by the closest Bureau of Meteorology weather station;
    b) If wind speeds approach 18m/s (65km/h), event crew are to go on standby to evacuate the structure;
    c) If wind speeds approach 20m/s (72km/h), the structure is to be evacuated and an exclusion zone is to be established of 10m radius;
    d) If wind speeds approach 25m/s (90km/h), the structure and site is to be abandoned.

All works are to be carried out by qualified technicians and certified riggers where applicable. Brushwood Engineering Group is not responsible for the safety of the public during engagement with this structure. The scope of works is solely for structural elements and does not relieve the contractor or other parties of responsibilities, and liabilities.

Rowan Doskey
BEng. (Hons) (Structures) MIEAust
PRE0001984 DEP0003280 (NSW)
STRUCTURAL ENGINEER

STRUCTURAL SUBMITTAL PACKAGE

for

Scottsdale Art

Canal Convergence - Recognition

Project Location: Scottsdale, AZ

Event Dates: November 7-16, 2025

Submittal Date: 10/15/2025

Clark Reder Project Number: 25.701.104

Reviewed by:

Jeffrey M. Reder, P.E.
AZ Registration #: PE 50654

Prepared by:

Eric Kelly

Table of Contents for Structural Submittal Package

Project Information

Project Summary

The project referenced by this submittal consists of a temporary aluminum truss goalpost used to support a scenic element (by others). The truss structure will be installed for Canal Convergence in Scottsdale, Arizona which takes place November 7th - November 16th, 2025.

The scenic element weighs 280 pounds. A scrim backdrop will cover the entire area between the truss towers and horizontal span. Ballast blocks will be placed at the end of each outrigger and will be attached to the corner blocks at the top of the structure via 3/8" 7x19 GAC guywires, as well as 2" ratchet straps around the outriggers.

Scope of Review

Clark Reder Engineering reviewed the structure for lateral and gravity loads. The structure was reviewed for 30mph wind speeds with the scenic element and backdrop flown, as well as 59mph wind speeds on the truss wraps only.

No review was performed on the scenic elements or their attachment to the structure.

Conclusions

Our review has concluded that the structure meets the structural requirements of the 2018 International Building Code, ASCE 7-16, and ASCE 37-14.

Limitations and Exceptions

The scope of review for this submittal is limited to the items listed above. All other temporary or permanent structures on site not specifically referenced above under "Scope of Review" are the responsibility of others.

Where the items covered by this submittal are attached to existing structures, it is the responsibility of the engineer of record for those existing structures to review the impact of the elements referenced in this submittal.

The Professional Engineering Stamp on this document is for the one-time use of the structure(s) listed in the project summary above for the specific date and event listed. The reuse of this document for other events must be approved in writing by the Professional Engineer listed on the cover sheet.

GENERAL STRUCTURAL NOTES

EVENT DATE & LOCATION

1. EVENT DATE: NOVEMBER 7-16, 2025
2. EVENT LOCATION: SCOTTSDALE, AZ

CODES

1. 2018 INTERNATIONAL BUILDING CODE
2. ASCE 7-16: MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
3. ASCE 37-14: DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION
4. 2015 ALUMINUM DESIGN MANUAL

REFERENCES

1. ANSI E1.21-2013 ENTERTAINMENT TECHNOLOGY, "TEMPORARY GROUND-SUPPORTED OVERHEAD STRUCTURES USED TO COVER THE STAGE AREAS AND SUPPORT EQUIPMENT IN THE PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS"
2. ANSI E1.2-2012 ENTERTAINMENT TECHNOLOGY, "DESIGN, MANUFACTURE AND USE OF ALUMINUM TRUSSES AND TOWERS"

DESIGN LOADS

1. DEAD LOAD: SELF-WEIGHT OF STRUCTURE
2. RIGGING LOADS: 280-POUND SCENIC ELEMENT
3. WIND LOADS:
    - A. WIND RISK CATEGORY: II
    - B. BEFORE HIGH WIND ACTION PLAN IS ACTIVATED:
        1. DESIGN SERVICE-LEVEL WIND SPEED: 30 MPH
        2. EXPOSURE: C
    - C. AFTER HIGH WIND ACTION PLAN IS ACTIVATED:
        1. DESIGN SERVICE-LEVEL WIND SPEED: 59 MPH
            - a. REQUIRED WIND SPEED HAS BEEN REDUCED IN ACCORDANCE WITH ASCE 37-14 DUE TO THE TEMPORARY NATURE OF STRUCTURE
        2. EXPOSURE: C
    - D. SITE ELEVATION: 1278 FT
    - E. REFERENCE THE HIGH WIND ACTION PLAN FOR SPECIFIC ACTIONS THAT SHALL BE TAKEN TO ENSURE STABILITY OF THE TEMPORARY STRUCTURE IN HIGH WINDS.
4. SEISMIC LOADS DO NOT CONTROL THE DESIGN OF THIS STRUCTURE.

CONSTRUCTION AND SAFETY

1. ENGINEER SHALL NOT BE RESPONSIBLE FOR MEANS, METHODS, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
2. ENGINEER HAS DESIGNED THE STRUCTURES FOR THEIR FINAL AS-BUILT CONDITION. ENGINEER IS NOT RESPONSIBLE FOR TEMPORARY STABILITY OF STRUCTURES DURING ERECTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
3. STRUCTURE HAS BEEN DESIGNED AS A TEMPORARY STRUCTURE THAT SHALL BE IN PLACE FOR LESS THAN SIX WEEKS.

FOUNDATIONS

1. THE STRUCTURE IS ASSUMED TO BE FOUNDED ON LEVEL GROUND (CONCRETE, ASPHALT, GRASS, ETC) WITH A MINIMUM NET ALLOWABLE BEARING CAPACITY OF 1500 PSF.

BALLAST

1. BALLAST SHALL BE INSTALLED PER THE ENGINEERING DRAWINGS. DEVIATIONS IN WEIGHT OR PLACEMENT SHALL BE APPROVED IN WRITING BY THE ENGINEER OF RECORD.
2. BALLAST SHALL NOT BE INSTALLED ON GRAVEL, ICE, GRASS, SLOPING OR OTHERWISE UNSTABLE TERRAIN UNLESS MEANS TO PREVENT SLIDING ARE PROVIDED.
3. BALLAST AMOUNTS GIVEN CONSIDER UPLIFT AND SLIDING, WITH A MINIMUM 1.5 FACTOR OF SAFETY AGAINST OVERTURNING.
4. MULTIPLE BALLAST LOCATIONS MAY NOT BE COMBINED INTO A SINGLE LOCATION WITHOUT PRIOR WRITTEN APPROVAL FROM A LICENSED STRUCTURAL ENGINEER.

CLARK REDER ENGINEERING

RIGGING

1. ALL POINTS SHALL BE DEAD HUNG POINTS.
2. ALL RIGGING SHALL BE HUNG FROM PANEL POINTS (LOCATIONS ON THE TRUSS CHORDS BRACED BOTH VERTICALLY AND HORIZONTALLY) UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
3. BRIDLES SHALL NOT BE USED UNLESS SPECIFICALLY ALLOWED BY THE ENGINEER OF RECORD.

ALUMINUM TRUSS

1. ALUMINUM TRUSS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING COMPANIES OR AN APPROVED EQUAL:
   - A. TOTAL STRUCTURES
   - B. JAMES THOMAS ENGINEERING
   - C. TOMCAT USA
2. TRUSS TO TRUSS CONNECTION HARDWARE (UNLESS NOTED OTHERWISE):
   - A. PLATED ENDS: 5/8"Ø GRADE 8 BOLTS
3. TRUSS END PLATE BOLTS SHALL BE TIGHTED TO THE SNUG TIGHT CONDITION. SNUG TIGHT CONDITION EXISTS WHEN ALL PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND ALL BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT REMOVAL OF THE NUTS WITHOUT THE USE OF WRENCH.
4. UNLESS NOTED OTHERWISE, ALL LOADS SHALL BE APPLIED TO TRUSSES AT PANEL POINTS.
5. RATED SPANS, CAPACITIES AND LOADING CONDITIONS PUBLISHED BY THE TRUSS MANUFACTURER SHALL NOT BE EXCEEDED UNLESS REVIEWED AND APPROVED BY A LICENSED ENGINEER FOR A SPECIFIC USE.
6. DO NOT PLACE LIGHTING CLAMPS OR WIRE ROPE IN DIRECT CONTACT WITH THE TRUSS UNLESS THE CHORD MATERIAL IS PROTECTED FROM DAMAGE DUE TO OVERTIGHTENING OR WIRE ROPE RUBBING.

STRUCTURAL STEEL

1. ALL STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE LATEST VERSION OF THE FOLLOWING SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   - A. AISC 360: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING CRITERIA UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   - A. PIPE SHAPES: ASTM A53, TYPE E OR S, GRADE B, FY = 35 KSI
   - B. HSS ROUND: ASTM A500 GR B, FY = 42KSI
   - C. BOLTS: ASTM A325-N
   - D. HARDENED WASHERS: ASTM F436
   - E. NUTS: ASTM A563

WIRE ROPE AND RIGGING ACCESSORIES

1. WIRE ROPE 3/8" OR LESS IN DIAMETER: 7X19 GAC, MEETING FEDERAL SPEC. RR-W-410E
2. WIRE ROPE 7/16" OR GREATER IN DIAMETER: 6X19 IWRC, MEETING FEDERAL SPEC. RR-W-410D, TYPE 1 CLASS 2
3. SHACKLES: GALVANIZED, SCREW PIN ANCHOR TYPE, ASTM A153
4. TURNBUCKLES: GALVANIZED, ASTM F-1145
5. FORGED WIRE ROPE CLIPS: GALVANIZED, MEETING FEDERAL SPEC. FF-C-450 TYPE I CLASS I
6. WIRE ROPE THIMBLES: GALVANIZED, MEETING FEDERAL SPEC. FF-T-276B TYPE II
7. RATCHET STRAPS: MEETING ASME B30.9 - 2018
8. CHAIN PULLERS: MEETING ASME HST-2 - 2018
9. POLYESTER OR STEEL CORE ROUND SLING: MEETING ASME B30.9 - 2018

INSPECTIONS

1. ALL TRUSS UNITS AND/OR OTHER RIGGING EQUIPMENT SHALL BE VISUALLY INSPECTED PRIOR TO ERECTION. DAMAGED OR CORRODED EQUIPMENT SHALL NOT BE USED. FIELD MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

OPERATIONS MANAGEMENT PLAN

IMPLEMENTATION OF PLAN

1. PRIOR TO EACH INSTALLATION, THE TRUSS PROVIDER IN CONJUNCTION WITH THE VENUE, SHALL DESIGNATE A RESPONSIBLE PERSON IN CHARGE OF IMPLEMENTING ALL PHASES OF THE OPERATIONS MANAGEMENT PLAN AS IT PERTAINS TO THE STRUCTURE.
2. A MEETING SHALL BE HELD AT THE VENUE WITH THE PROMOTER, OWNER OR STAGE MANAGER TO DISCUSS THE HIGH WIND ACTION PLAN AND OTHER OPERATIONAL ITEMS.

DAILY OPERATIONS PLAN

1. CHECK WEATHER EACH MORNING AND PERIODICALLY THROUGHOUT THE DAY.
2. CHECK TOWER BASES DAILY TO ENSURE ALL REMAIN LEVEL AND PLUMB
3. CHECK GUY WIRES DAILY TO VERIFY LINES ARE TENSIONED.
4. PROVIDE A DAILY LOG OF THE ABOVE CHECKS FOR EACH INSTALLATION.

HIGH WIND ACTION PLAN

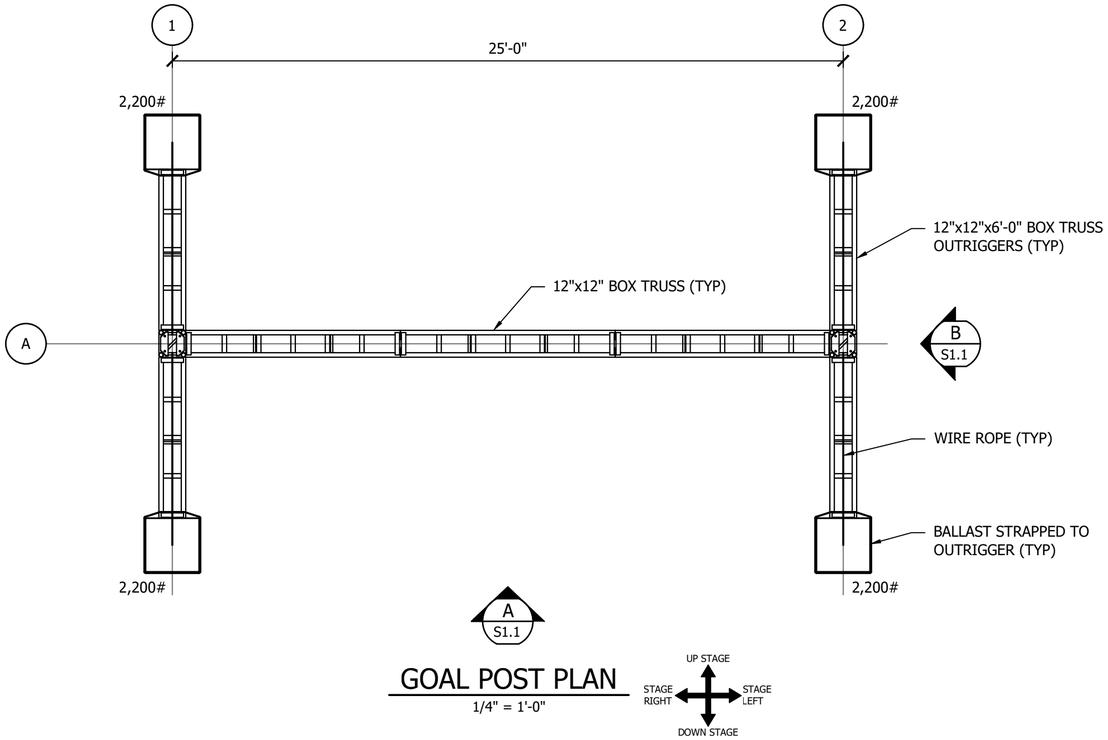
1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE INSTALLATION. AN INSTALLATION SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE TRUSS PROVIDER OR VENUE SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN (SEE ABOVE).
3. A REGULAR LIAISON WITH LOCAL AIRPORTS AND/OR WEATHER INFORMATION CENTERS SHALL BE MAINTAINED TO ASCERTAIN IF ANY SIGNIFICANT WEATHER EVENTS ARE EXPECTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE
4. AN ANEMOMETER SHALL BE PLACED ON THE STRUCTURE TO MONITOR WIND SPEEDS. THE ANEMOMETER SHALL BE PLACED AT THE TOP OF A TOWER OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
5. NOTED WIND SPEEDS ARE 3-SECOND GUSTS IN ACCORDANCE WITH ASCE 7
6. **WHEN THE STRUCTURE IS UNATTENDED OR NOT IN USE**: VIDEO WALLS AND SCRIM/BANNERS SHALL BE LOWERED TO THE GROUND AND SECURED AGAINST MOVEMENT OR COMPLETELY REMOVED FROM THE STRUCTURE.
7. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 20 MPH**: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT. ALL NECESSARY PERSONNEL SHALL BE IN PLACE AND PUT ON STANDBY.
8. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 30 MPH**:
   a. SCRIM/BACKDROP SHALL BE LOWERED AND/OR REMOVED FROM THE SYSTEM.
   b. LOWERING OF SCRIM SHALL BE DONE FROM THE GROUND BY MEANS OF REMOTELY ACTIVATED EQUIPMENT SUCH AS MOTORS OR MECHANICAL RELEASES.
9. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 40 MPH**: ALL SHOW OPERATIONS SHALL BE SUSPENDED, AND THE IMMEDIATE AREA SHALL BE EVACUATED OF ALL PATRONS AND NON-ESSENTIAL PERSONNEL.
10. **AT WINDS SPEEDS IN EXCESS OF 50 MPH**: ALL PERSONNEL SHOULD MAINTAIN SAFE DISTANCE FROM THE STRUCTURE.
11. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.
12. FAILURE TO FOLLOW THE HIGH WIND ACTION PLAN MAY RESULT IN COLLAPSE OF THE STRUCTURE, DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

PLAN EXCEPTIONS

1. THIS PLAN IS SPECIFIC TO THE STRUCTURE LISTED IN THIS SUBMITTAL. THE EVENT OPERATIONS MANAGEMENT PLAN, IF MORE STRINGENT, SHALL BE FOLLOWED.

APPENDIX A

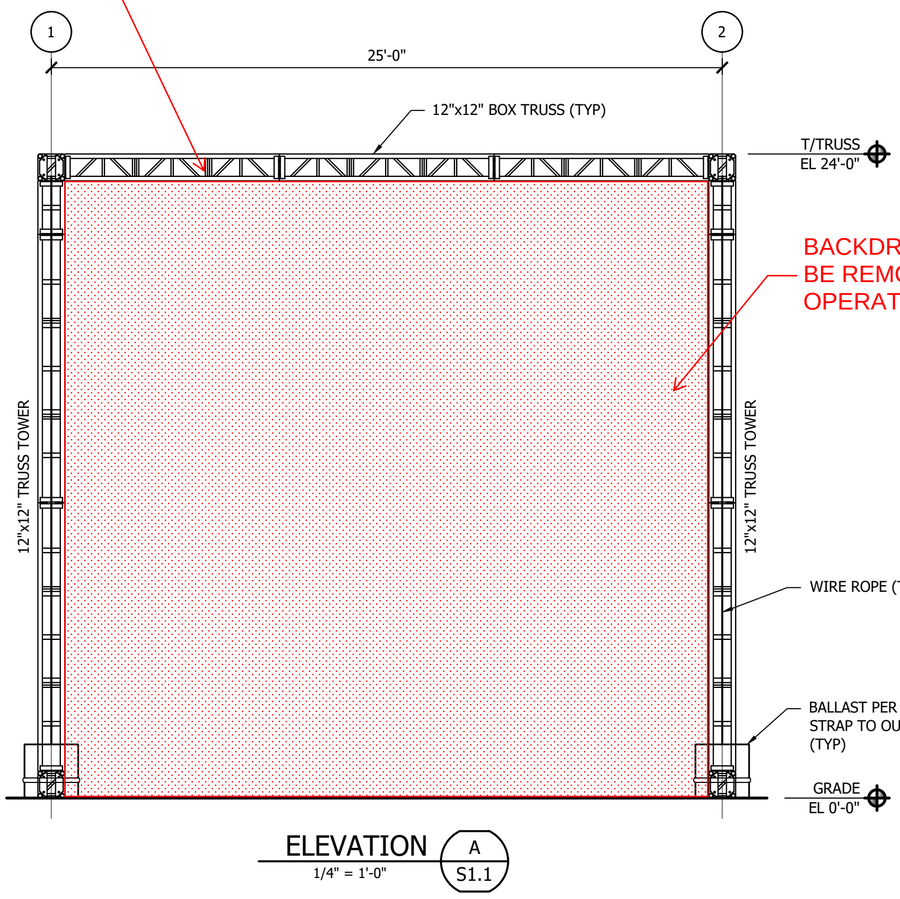
REFERENCE DRAWINGS



GOAL POST PLAN

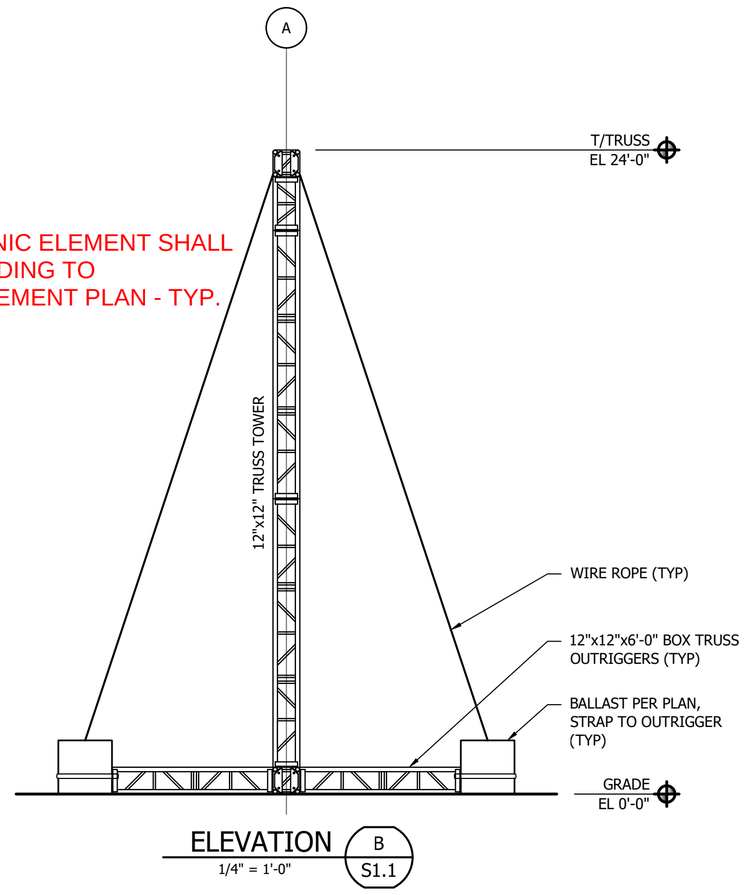
1/4" = 1'-0"

12" x 12" ALUMINUM BOX TRUSS WITH TRUSS WRAPS - TYP.



ELEVATION A

1/4" = 1'-0"



ELEVATION B

1/4" = 1'-0"

CLARK REDER ENGINEERING
10091 Mosteller Lane
West Chester, OH 45069
513 851 1223

Registered Professional Engineer (Structural)
CERTIFICATE NO. 50654
JEFFREY M. REDER
10/15/2025
ARIZONA U.S.A.

CANAL CONVERGENCE
GOAL POST

ARIZONA

ISSUE/REVISIONS

	REVISION DESCRIPTION - DATE

DATE: 10/15/2025
CRE PROJECT NO: 25.701.104
DRAWN BY: EPK/TAK

GOAL POST PLAN & ELEVATIONS

S1.1

CLARK REDER ENGINEERING

APPENDIX B

CALCULATIONS

Clark-Reder Engineering, Inc
10091 Mosteller Lane
Cincinnati, OH 45069

Phone (513) 851-1223
Fax (513) 217-9388
www.clarkreder.com

Canal Convergence - Recongnition

Event Date & Location: November 7-16, 2025; Scottsdale, AZ

Codes and Referenced Standards

- 2018 International Building Code
- Aluminum Design Manual, 2015 ed.
- American Institute of Steel Construction, Steel Construction Manual 15th Edition
- American Society of Civil Engineers 7-16 (ASCE 7-16) *"Minimum Design Loads for Buildings and Other Structures"*
- American Society of Civil Engineers 37-14 (ASCE 37-14) *"Design Loads on Structures During Construction"*
- ANSI E 1.21-2013 *"Temporary Structures Used for Technical Production of Outdoor Entertainment Events"*
- ANSI E 1.2-2012 *"Manufacture and Use of Aluminum Trusses and Towers"*

Project Description

- Review of temporary structure for lateral and gravity loads.

Analysis Assumptions/Design Criteria

- A high wind action plan has been issued and must be strictly followed.
- All truss is 12" x 12" aluminum box truss from Total Structures or equivalent.

Clark-Reder Engineering, Inc
10091 Mosteller Lane
Cincinnati, OH 45069

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General Design - Applies To All Assemblies

Steel/Aluminum Factors of Safety

Note: The following factors/design criteria applies to all assemblies and will be used throughout design package (U.N.O).

AISC Typical Factors of Safety (U.N.O.): $\Omega_{y.AISC} := 1.67$ $\Omega_{r.AISC} := 2.0$

ADM Typical Factors of Safety (U.N.O.): $\Omega_{y.ADM} := 1.65$ $\Omega_{r.ADM} := 1.95$

ASTM A36 Mechanical Properties

Yield Strength: $F_{y.A36} := 36ksi$

Tensile Strength: $F_{u.A36} := 58ksi$

ASTM A572 Mechanical Properties

Yield Strength: $F_{y.A572} := 50ksi$

Tensile Strength: $F_{u.A572} := 65ksi$

ASTM A500 GR. B (Rectangular) Mechanical Properties

Yield Strength: $F_{y.A500.rect} := 46ksi$

Tensile Strength: $F_{u.A500.rect} := 58ksi$

ASTM A500 GR. B (Round) Mechanical Properties

Yield Strength: $F_{y.A500.rd} := 42ksi$

Tensile Strength: $F_{u.A500.rd} := 58ksi$

ASTM A992 Mechanical Properties

Yield Strength: $F_{y.A992} := 50ksi$

Tensile Strength: $F_{u.A992} := 65ksi$

Weld (Steel) Mechanical Properties

Weld Strength: $F_{weld} := 70ksi \cdot 0.6 = 42.00 \cdot ksi$

Grade 8 Bolt Mechanical Properties

Tensile Strength of Bolt: $F_{u.bolt} := 150ksi$

6061-T6 Mechanical Properties	Unwelded	Welded
Tension Ultimate Stress:	$F_{tu} := 38ksi$	$F_{tuw} := 24ksi$
Tension Yield Stress:	$F_{ty} := 35ksi$	$F_{tyw} := 15ksi$
Compression Yield Stress:	$F_{cy} := 35ksi$	$F_{cyw} := 15ksi$
Shear yield stress:	$F_{sy} := 0.6 \cdot F_{ty} = 21.00 \cdot ksi$	$F_{syw} := 0.6 \cdot F_{tyw} = 9.00 \cdot ksi$
Ultimate shear stress:	$F_{su} := 24ksi$	$F_{suw} := 15ksi$
Tension coefficient:	$k_t := 1.0$	$k_{tw} := 1.0$

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Applied Loads:

Wind Loads - Per ASCE 7-16 and ASCE 37-14

Ultimate wind speed (LRFD): $V_u := 101$ mph

Service level wind speed (ASD): $V_s := \sqrt{V_u^2 \cdot 0.6}$ $V_s = 78.23$ mph

HWAP service level wind speed (ASD): $V_{hwap} := 40$ mph

Exposure category (service): $Exp_s :=$ C

Exposure category (HWAP): $Exp_{hwap} :=$ C

Gust effect factor: $G_w := 0.85$

Topographic factor: $K_{zt} := 1.0$

Ground elevation: $z_g := 1278ft$

Ground elevation factor: $K_e := e^{-0.0000362 \cdot \frac{z_g}{ft}} = 0.95$

6.2.1.1.1 Construction Period in Hurricane-Prone Areas
For construction between November 1 and June 30 (outside of the hurricane season), the basic wind speed of 115 mph (51 m/s) shall be permitted for structures sited near the Gulf Coast and Eastern Seaboard, where the ASCE/SEI 7-10 specified basic wind speed exceeds 115 mph (51 m/s) (3 second gust) (hurricane-prone areas). The 115 mph (51 m/s) wind speed is permitted to be reduced by the factors in Section 6.2.1 only for a construction period between November 1 and June 30. If the construction period shifts into the period between July 1 and October 31, the design shall be reviewed and modified, as appropriate, to conform to the requirements shown below for a construction period between July 1 and October 31.

Between July 1 and October 31, basic wind speed of 115 mph (51 m/s) shall be permitted for structures sited near the Gulf Coast and Eastern Seaboard, where the ASCE/SEI 7-10 specified basic wind speed exceeds 115 mph (51 m/s) (3 second gust) provided additional bracing is prepared in advance and applied in time before the onset of an announced hurricane. The 115 mph (51 m/s) wind speed shall not be reduced by the factors in Section 6.2.1 for the construction period. The bracing shall be designed for the full, unmodified wind load determined using the mapped wind speed and procedures found in ASCE/SEI 7-10.

ASCE 37-14 Reduction Factor

Construction Period	Factor
Less than six weeks	0.75
From six weeks to one year	0.8
From one to two years	0.85
From two to five years	0.9

Reduction coefficient for temporary structure: red := 0.75

Service level (ASD) wind speed for design of temporary structure: $V_{temp\_service} := V_s \cdot red$ $V_{temp\_service} = 58.68$ mph

Ultimate level (LRFD) wind speed for design of temporary structure: $V_{temp\_ultimate} := V_u \cdot red$ $V_{temp\_ultimate} = 75.75$ mph

NOTE: *Per ASCE 7-16, ultimate wind speeds are reduced by a factor of 0.6 in all service level (ASD) load combinations found in Section 2.4. Service level wind speeds are the design wind speeds that should be monitored.*

Kh Tables

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Wind Loads on Trussed Towers

This Mathcad sheet calculates the wind pressures on a trussed tower in accordance with figure 29.4-3 of ASCE 7-16.

Height of wind evaluation: $z := 24 \cdot ft$

Type of truss: type := 12" Truss

Wind directionality factor: $K_d :=$ 0.85

Tower cross section: TCS := Square

Are tower members round? RM := YES

Truss property table:

$$Table_{truss} := \begin{pmatrix} \text{"Truss"} & \text{"}\varepsilon\text{"} & \text{"Width"} \\ \text{"12" Truss"} & 0.461 & 12 \\ \text{"20½" Truss"} & 0.329 & 20.5 \\ \text{"26x30 PRT Empty"} & 0.289 & 26 \\ \text{"26x30 PRT Full"} & 0.594 & 26 \\ \text{"20"x30" HD Truss"} & 0.254 & 30 \\ \text{"G2 Truss"} & .220 & 60 \end{pmatrix}$$

Ratio of solid area to gross area: $\varepsilon := Table_{truss_{type,2}} = 0.461$

Truss width: $B_{truss} := Table_{truss_{type,3}} \cdot in = 12.00 \cdot in$

Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(z)$ $K_{z\_s} = 0.94$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(z)$ $K_{z\_hwap} = 0.94$

Wind velocity pressure (service): $q_{z\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $q_{z\_s} = 6.70 \cdot psf$

Wind velocity pressure (HWAP): $q_{z\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $q_{z\_hwap} = 3.12 \cdot psf$

Round member reduction (if applicable):

$$rnd\_red := \begin{cases} 1.0 & \text{if } RM = \text{"NO"} \\ \min(1.0, 0.51 \cdot \varepsilon^2 + 0.57) & \text{otherwise} \end{cases}$$

$rnd\_red = 0.68$

Force coefficient:

$$C_f := rnd\_red \cdot \begin{cases} 4.0 \cdot \varepsilon^2 - 5.9 \cdot \varepsilon + 4.0 & \text{if } TCS = \text{"Square"} \\ 3.4 \cdot \varepsilon^2 - 4.7 \cdot \varepsilon + 3.4 & \text{otherwise} \end{cases}$$

$C_f = 1.45$

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Truss wind pressure (service): $p_{truss\_s} := q_{z\_s} \cdot C_f \cdot G_w$ $p_{truss\_s} = 8.23 \cdot psf$

Truss wind pressure (HWAP): $p_{truss\_hwap} := q_{z\_hwap} \cdot C_f \cdot G_w$ $p_{truss\_hwap} = 3.83 \cdot psf$

Linear wind load (service): $w_{truss\_s} := p_{truss\_s} \cdot B_{truss} \cdot \varepsilon$ $w_{truss\_s} = 3.80 \cdot plf$

Linear wind load (HWAP): $w_{truss\_hwap} := p_{truss\_hwap} \cdot B_{truss} \cdot \varepsilon$ $w_{truss\_hwap} = 1.76 \cdot plf$

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Wind Loads on Wrapped Truss or Solid Members

This Mathcad sheet calculates the wind pressures in accordance with figure 29.4-1 of ASCE 7-16.

Height of structure: $h := 24 \cdot ft$

Diameter or least horizontal dimension: $D := 12in$

Wind evaluation height: $z := h$

Surface roughness definition:
D' = depth of protruding elements

Rough: D'/D = 0.02
Very rough: D'/D = 0.08

Cross section: CS := Square (normal)

Surface Roughness (applies only to round cross section): SR := Not Round

Wind directionality factor:

$$K_d := \begin{cases} 0.90 & \text{if } CS = 1 \vee CS = 2 \\ 0.95 & \text{if } CS = 3 \\ 1.0 & \text{otherwise} \end{cases} \qquad K_d = 0.90$$

Height/Diameter ratio: $hD := \frac{h}{D} = 24.00$

Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(z) = 0.94$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(z) = 0.94$

Wind velocity pressure (service): $q_{z\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $\quad q_{z\_s} = 7.10 \cdot psf$

Wind velocity pressure (HWAP): $q_{z\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $\quad q_{z\_hwap} = 3.30 \cdot psf$

Force Coefficient Table

$$Table\_C_f := \begin{pmatrix} \text{"Cf"} & 0 & 1 & 7 & 25 & 9999 \\ 1 & 1.3 & 1.3 & 1.4 & 2.0 & 2.0 \\ 2 & 1.0 & 1.0 & 1.1 & 1.5 & 1.5 \\ 3 & 1.0 & 1.0 & 1.2 & 1.4 & 1.4 \\ 4 & 0.5 & 0.5 & 0.6 & 0.7 & 0.7 \\ 5 & 0.7 & 0.7 & 0.8 & 0.9 & 0.9 \\ 6 & 0.8 & 0.8 & 1.0 & 1.2 & 1.2 \\ 7 & 0.7 & 0.7 & 0.8 & 1.2 & 1.2 \end{pmatrix}$$

Diameter/velocity pressure variables:

$$Dqz := \frac{D}{ft} \cdot \sqrt{\frac{q_{z\_s}}{psf}} = 2.66 \qquad Dqz_{hwap} := \frac{D}{ft} \cdot \sqrt{\frac{q_{z\_hwap}}{psf}} = 1.82$$

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Applicable row in Force Coefficient Table:

$$CS2 := \begin{cases} CS & \text{if } CS \le 3 \\ 3 & \text{if } CS = 4 \\ \text{otherwise} & \\ \quad \begin{cases} 7 & \text{if } Dqz \le 2.5 \\ \text{otherwise} & \\ \quad \begin{cases} 4 & \text{if } SR \le 2 \\ 5 & \text{if } SR = 3 \\ 6 & \text{otherwise} \end{cases} \end{cases} \end{cases} = 1$$

$$CS2_{hwap} := \begin{cases} CS & \text{if } CS \le 3 \\ 3 & \text{if } CS = 4 \\ \text{otherwise} & \\ \quad \begin{cases} 7 & \text{if } Dqz_{hwap} \le 2.5 \\ \text{otherwise} & \\ \quad \begin{cases} 4 & \text{if } SR \le 2 \\ 5 & \text{if } SR = 3 \\ 6 & \text{otherwise} \end{cases} \end{cases} \end{cases} = 1$$

Force coefficient (service):

$$C_{f\_s} := \text{Spline}\left(\text{Table\_}C_f, CS2, hD\right) \qquad C_{f\_s} = 1.97$$

Force coefficient (HWAP):

$$C_{f\_hwap} := \text{Spline}\left(\text{Table\_}C_f, CS2_{hwap}, hD\right) = 1.97 \qquad C_{f\_hwap} = 1.97$$

Wind pressure (service):

$$p_{wind\_s} := q_{z\_s} \cdot C_{f\_s} \cdot G_w \qquad p_{wind\_s} = 11.87 \cdot psf$$

Wind pressure (HWAP):

$$p_{wind\_hwap} := q_{z\_hwap} \cdot C_{f\_hwap} \cdot G_w \qquad p_{wind\_hwap} = 5.51 \cdot psf$$

Linear wind load (service):

$$w_{wrap\_s} := p_{wind\_s} \cdot D \qquad w_{wrap\_s} = 11.87 \cdot plf$$

Linear wind load (HWAP):

$$w_{wrap\_hwap} := p_{wind\_hwap} \cdot D \qquad w_{wrap\_hwap} = 5.51 \cdot plf$$

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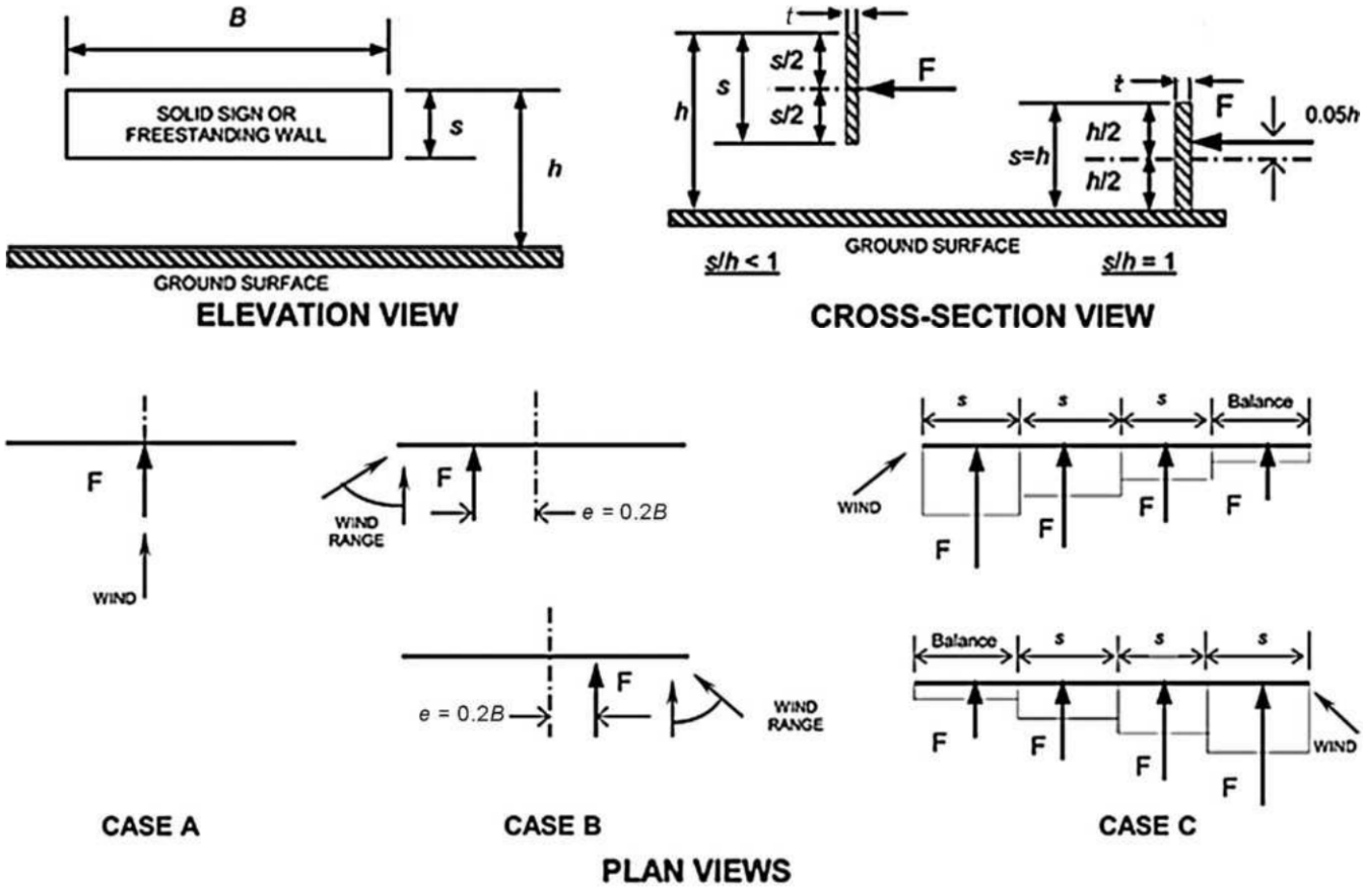
Wind Loads on Scrim / Signs

This Mathcad sheet calculates the wind pressures on a sign or scrim in accordance with figure 29.3-1 of ASCE 7-16.

Diagrams



Top of sign height:	$h := 23 \cdot ft$	Sign Width:	$B := 24 \cdot ft$
Vertical dimension of sign:	$s := 23 \cdot ft$	Wind directionality factor:	$K_d := 0.85$
Aspect ratio, B/s:	$Bs := \frac{B}{s} = 1.04$	Clearance ratio, s/h:	$sh := \frac{s}{h} = 1.00$

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Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(h)$ $K_{z\_s} = 0.93$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(h)$ $K_{z\_hwap} = 0.93$

Wind velocity pressure (service): $q_{h\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $q_{h\_s} = 6.64 \cdot psf$

Wind velocity pressure (HWAP): $q_{h\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $q_{h\_hwap} = 3.09 \cdot psf$

Cases A & B:

Case A & B Force Coefficient Table: $Table\_CfAB :=$

"Cf"	0	0.05	0.1	0.2	0.5	1	2	4	5	10	20	30	45	999
0.0	1.95	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95	1.95
0.16	1.95	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95	1.95
0.2	1.95	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.85	1.90	1.90	1.95	1.95
0.3	1.95	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85	1.85
0.5	1.95	1.95	1.85	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.75
0.7	1.90	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55	1.55
0.9	1.85	1.85	1.75	1.70	1.60	1.55	1.50	1.45	1.45	1.40	1.40	1.40	1.40	1.40
1	1.80	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30	1.30

Case A & B Force Coefficient: $C_{f\_AB} := Spline(Table\_CfAB, sh, Bs)$ $C_{f\_AB} = 1.45$

Sign wind pressure (service): $p_{sign\_s} := q_{h\_s} \cdot C_{f\_AB} \cdot G_w$ $p_{sign\_s} = 8.18 \cdot psf$

Sign wind pressure (HWAP): $p_{sign\_hwap} := q_{h\_hwap} \cdot C_{f\_AB} \cdot G_w$ $p_{sign\_hwap} = 3.80 \cdot psf$

Total sign wind load (service): $P_{sign\_s} := p_{sign\_s} \cdot B \cdot s$ $P_{sign\_s} = 4.51 \cdot kip$

Total sign wind load (HWAP): $P_{sign\_hwap} := p_{sign\_hwap} \cdot B \cdot s$ $P_{sign\_hwap} = 2.10 \cdot kip$

Horizontal offset for Case B: $Offset_B := 0.2 \cdot B$ $Offset_B = 4.80\ ft$

Seismic Loads - Per ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

6.5 EARTHQUAKE

If required by Section 6.5.1 and not exempted by Section 6.5.3, earthquake loads shall be calculated in accordance with procedures in ASCE/SEI 7-10 as modified by Section 6.5.2. All structures shall be treated as Risk Category II, per Table 1.5-1 of ASCE/SEI 7-10, regardless of the group classification of the completed structure.

6.5.1 Applicability Earthquake loads need not be considered unless required by the authority having jurisdiction and the mapped Risk-Targeted MCE_R, 5% damped, spectral response acceleration parameter at a period of 1 s, S_1, defined in Section 11.4.1 of ASCE/SEI 7-10 equals or exceeds 0.40.

6.5.2 Use of ASCE/SEI 7-10 For use of the earthquake load provisions of ASCE/SEI 7-10, the following modifications should be made:

1. The mapped values for S_S and S_1 may be multiplied by a factor less than 1 to represent the reduced exposure period, but the factor shall not be less than 0.20.
2. The restrictions on types of structural systems in seismic performance categories D and E do not apply, as long as the height of the temporary bracing system designed in accordance with this section is limited in height to 60 ft (18.3 m) or five stories, whichever is less, above the completed bracing of the permanent structure.

Seismic

S_S	0.191
S_1	0.067
F_a	1.6
F_v	2.4
S_{MS}	0.306
S_{M1}	0.161
S_{DS}	0.204
S_{D1}	0.108
T_L	6
PGA	0.084
PGA_M	0.135
F_{PGA}	1.6
I_e	1
C_v	0.7
Seismic Design Category	B

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Seismic Analysis - ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

Site coefficients per ASCE 7-16, Site Class D assumed

Mapped MCE, 5% damped, spectral response, acceleration parameter at short periods: $S_S := 0.191$

Mapped MCE, 5% damped, spectral response, acceleration parameter at 1s: $S_1 := 0.067$

Design 5% damped, spectral response, acceleration parameter at short periods: $S_{DS} := 0.204$

Design 5% damped, spectral response, acceleration parameter at 1s: $S_{D1} := 0.108$

Per ASCE 37-14, does seismic need to be considered?

$$Consider\_seismic := \begin{cases} \text{"NO"} & \text{if } S_1 < 0.4 \\ \text{"YES"} & \text{otherwise} \end{cases}$$

Consider_seismic = "NO"

If seismic is required to be considered:

Temporary reduction coefficient as allowed by ASCE 37-14 (minimum value = 0.2): $red_{eq} := 0.2$

ASCE 37-14, Section 6.5.2.3:

3. The R factor used for temporary bracing systems shall not exceed 2.5 unless the system is detailed in accordance with the provisions of ASCE/SEI 7-10. Where R = 2.5 is used, only the requirements dealing with the strength of the seismic-resisting structural system need be satisfied.

Response modification factor: $R_{eq} := 2.5$

Importance factor/Risk Category II: $I_e := 1.0$

Structural height (FT): $h_n := 20$

Approximate period perameters (Table 12.8-2, Page 90): $C_t := 0.02$

Long period transition period (Figure 22-12, Page 224): $T_L := 12$

Approximate Fundamental Period: $T_a := C_t \cdot h_n^{.75} = 0.19$

Modified spectral responses with reduction coefficient:

$S_{S\_mod} := S_S \cdot red_{eq} = 0.04$

$S_{DS\_mod} := S_{DS} \cdot red_{eq} = 0.04$

$S_{1\_mod} := S_1 \cdot red_{eq} = 0.01$

$S_{D1\_mod} := S_{D1} \cdot red_{eq} = 0.02$

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Seismic response coefficient:

$$C_{s.calc} := \min\left[\frac{S_{DS\_mod}}{\left(\frac{R_{eq}}{I_e}\right)}, \begin{vmatrix} \frac{S_{D1\_mod}}{T_a \cdot \left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a \le T_L \\ \frac{S_{D1\_mod} \cdot T_L}{T_a^2 \cdot \left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a > T_L \end{vmatrix}\right] = 0.016$$

$$C_{s.min} := \begin{vmatrix} \max\left(0.044 \cdot S_{DS\_mod} \cdot I_e, 0.01\right) & \text{if } S_1 < 0.6 \\ \max\left(0.044 \cdot S_{DS\_mod} \cdot I_e, 0.01, \frac{0.5 \cdot S_{1\_mod}}{\frac{R_{eq}}{I_e}}\right) & \text{if } S_1 \ge 0.6 \end{vmatrix} = 0.010$$

$$C_s := \begin{vmatrix} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ \max\left(C_{s.calc}, C_{s.min}\right) & \text{otherwise} \end{vmatrix}$$

$C_s = 0.000$

Vertical seismic load effect:

$$EQ_v := \begin{vmatrix} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ 0.2 \cdot S_{DS\_mod} & \text{otherwise} \end{vmatrix}$$

$EQ_v = 0.000$

NOTE: WIND LOADS WILL GOVERN SO SEISMIC LOADS CAN BE IGNORED.

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Global Stability Review

30mph Wind Stability Checks:

Overturning Stability:

Height of Structure: $h_{structure} := 24ft$

Length of Span: $l_{span} := 24ft$

Overturning Force: $M_{OT.truss} := 0.56 w_{wrap\_hwap} \cdot \left(2 \cdot h_{structure} \cdot 0.55 h_{structure} + l_{span} \cdot h_{structure}\right) = 3.74 \cdot kip \cdot ft$

Overturning Force: $M_{OT.sign} := 0.56 \cdot p_{sign\_hwap} \cdot h_{structure} \cdot l_{span} \cdot 0.5 \cdot h_{structure} = 14.71 \cdot kip \cdot ft$

Overturning Force: $M_{OT} := M_{OT.truss} + M_{OT.sign} = 18.44 \cdot kip \cdot ft$

Self Weight of Truss: $sw_{truss} := 6.0plf$

Length of Outriggers: $l_{outriggers} := 6ft$

Linear Footage of Structure: $LF_{truss} := 2 \cdot h_{structure} + l_{span} + 4 \cdot l_{outriggers} = 96.00\,ft$

Dead Load of Structure: $wt_{truss} := sw_{truss} \cdot LF_{truss} = 576.00\,lbf$

Weight of Ballast: $wt_{ballast} := 2200lbf$

Depth of Structure: $d_{structure} := 1ft + 2 \cdot l_{outriggers} = 13.00\,ft$

Overturning Resistance: $M_R := 0.5 \cdot d_{structure} \cdot \left(wt_{truss} + 4 \cdot wt_{ballast}\right) = 60.94 \cdot kip \cdot ft$

Overturning Safety Factor: $FS_{ovt} := \frac{M_R}{M_{OT}} = 3.30$

Sliding Stability:

Total Sliding: $F_{slide} := 0.56 w_{wrap\_hwap} \cdot \left(2 \cdot h_{structure} + l_{span}\right) + 0.56 \cdot p_{sign\_hwap} \cdot h_{structure} \cdot l_{span} = 1447.97\,lbf$

Sliding Coefficient: $\mu_{slide} := 0.4$

Weight of Ballast: $Wt_{ballast.slide} := wt_{truss} + 4 \cdot wt_{ballast} = 9376.00\,lbf$

Sliding Resistance: $F_{res.slide} := \left(Wt_{ballast.slide}\right) \cdot \mu_{slide} = 3750.40\,lbf$

Factor of Safety (Sliding): $FS_{sliding} := \frac{F_{res.slide}}{F_{slide}} = 2.59$

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59mph Wind Stability Checks:

Overturning Stability:

Height of Structure: $h_{structure} := 24ft$

Length of Span: $l_{span} := 24ft$

Overturning Force: $M_{OT} := w_{wrap\_s} \cdot \left(2 \cdot h_{structure} \cdot 0.55 h_{structure} + l_{span} \cdot h_{structure}\right) = 14.35 \cdot kip \cdot ft$

Self Weight of Truss: $sw_{truss} := 6.0plf$

Length of Outriggers: $l_{outriggers} := 6ft$

Linear Footage of Structure: $LF_{truss} := 2 \cdot h_{structure} + l_{span} + 4 \cdot l_{outriggers} = 96.00\,ft$

Dead Load of Structure: $wt_{truss} := sw_{truss} \cdot LF_{truss} = 576.00\,lbf$

Weight of Ballast: $wt_{ballast} := 2200lbf$

Depth of Structure: $d_{structure} := 1ft + 2 \cdot l_{outriggers} = 13.00\,ft$

Overturning Resistance: $M_R := 0.5 \cdot d_{structure} \cdot \left(wt_{truss} + 4 \cdot wt_{ballast}\right) = 60.94 \cdot kip \cdot ft$

Overturning Safety Factor: $FS_{ovt} := \frac{M_R}{M_{OT}} = 4.25$

Sliding Stability:

Total Sliding: $F_{slide} := w_{wrap\_s} \cdot \left(2 \cdot h_{structure} + l_{span}\right) = 854.30\,lbf$

Sliding Coefficient: $\mu_{slide} := 0.4$

Weight of Ballast: $Wt_{ballast.slide} := wt_{truss} + 4 \cdot wt_{ballast} = 9376.00\,lbf$

Sliding Resistance: $F_{res.slide} := \left(Wt_{ballast.slide}\right) \cdot \mu_{slide} = 3750.40\,lbf$

Factor of Safety (Sliding): $FS_{sliding} := \frac{F_{res.slide}}{F_{slide}} = 4.39$

STRUCTURAL SUBMITTAL PACKAGE

for

Scottsdale Art

Canal Convergence

Project Location: Scottsdale, AZ

Event Dates: November 7-16, 2025

Submittal Date: 10/10/2025

Clark Reder Project Number: 25.701.104

Reviewed by:

Jeffrey M. Reder, P.E.
AZ Registration #: PE 50654

Prepared by:

Eric Kelly

Table of Contents for Structural Submittal Package

Project Information

Project Summary

The project referenced by this submittal consists of a temporary scenic octopus suspended from a truss span bearing on a bridge. The truss and scenic octopus will be installed for Canal Convergence in Scottsdale, Arizona which takes place November 7th - November 16th, 2025.

The scenic octopus and all rigging components weigh a maximum 200 pounds. The octopus was assumed to be placed at midspan of the F34 truss that spans 24'. The truss is bearing on a bridge at each end and will be attached to the bridge via 3" ratchet straps.

Scope of Review

Clark Reder Engineering reviewed the truss span for gravity loads only. Per client, the octopus and all rigging elements weigh a maximum 200 pounds.

No review was performed on the scenic elements or its attachment to the truss. Clark Reder Engineering did not perform any review on the existing bridge or the loads to the existing bridge. The loads to the existing bridge shall be verified by others.

Conclusions

Our review has concluded that the structure meets the structural requirements of the 2018 International Building Code, ASCE 7-16, and ASCE 37-14.

Limitations and Exceptions

The scope of review for this submittal is limited to the items listed above. All other temporary or permanent structures on site not specifically referenced above under "Scope of Review" are the responsibility of others.

Where the items covered by this submittal are attached to existing structures, it is the responsibility of the engineer of record for those existing structures to review the impact of the elements referenced in this submittal.

The Professional Engineering Stamp on this document is for the one-time use of the structure(s) listed in the project summary above for the specific date and event listed. The reuse of this document for other events must be approved in writing by the Professional Engineer listed on the cover sheet.

GENERAL STRUCTURAL NOTES

EVENT DATE & LOCATION

1. EVENT DATE: NOVEMBER 6-17, 2025
2. EVENT LOCATION: SCOTTSDALE, AZ

CODES

1. 2018 INTERNATIONAL BUILDING CODE
2. ASCE 7-16: MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
3. ASCE 37-14: DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION
4. 2015 ALUMINUM DESIGN MANUAL

REFERENCES

1. ANSI E1.21-2013 ENTERTAINMENT TECHNOLOGY, "TEMPORARY GROUND-SUPPORTED OVERHEAD STRUCTURES USED TO COVER THE STAGE AREAS AND SUPPORT EQUIPMENT IN THE PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS"
2. ANSI E1.2-2012 ENTERTAINMENT TECHNOLOGY, "DESIGN, MANUFACTURE AND USE OF ALUMINUM TRUSSES AND TOWERS"

DESIGN LOADS

1. DEAD LOAD: SELF-WEIGHT OF STRUCTURE
2. RIGGING LOADS: 200-POUND SCENIC OCTOPUS
3. WIND LOADS: CRE REVIEWED FOR GRAVITY LOADS ONLY. OCTOPUS PREVIOUSLY REVIEWED FOR 55MPH WINDS.
4. SEISMIC LOADS DO NOT CONTROL THE DESIGN OF THIS STRUCTURE.

CONSTRUCTION AND SAFETY

1. ENGINEER SHALL NOT BE RESPONSIBLE FOR MEANS, METHODS, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
2. ENGINEER HAS DESIGNED THE STRUCTURES FOR THEIR FINAL AS-BUILT CONDITION. ENGINEER IS NOT RESPONSIBLE FOR TEMPORARY STABILITY OF STRUCTURES DURING ERECTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
3. STRUCTURE HAS BEEN DESIGNED AS A TEMPORARY STRUCTURE THAT SHALL BE IN PLACE FOR LESS THAN SIX WEEKS.

RIGGING

1. ALL POINTS SHALL BE DEAD HUNG POINTS.
2. ALL RIGGING SHALL BE HUNG FROM PANEL POINTS (LOCATIONS ON THE TRUSS CHORDS BRACED BOTH VERTICALLY AND HORIZONTALLY) UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
3. BRIDLES SHALL NOT BE USED UNLESS SPECIFICALLY ALLOWED BY THE ENGINEER OF RECORD.

ALUMINUM TRUSS

1. ALUMINUM TRUSS SHALL BE MANUFACTURED BY GLOBAL TRUSS OR AN APPROVED EQUAL.
2. TRUSS TO TRUSS CONNECTION HARDWARE (UNLESS NOTED OTHERWISE):
   - A. CONICAL COUPLER: 2007-T4 ALUMINUM
   - B. CONICAL ADAPTER: 6082-T6 ALUMINUM
   - C. COUPLER PIN: 42CRMOS4
3. TRUSS END PLATE BOLTS SHALL BE TIGHTED TO THE SNUG TIGHT CONDITION. SNUG TIGHT CONDITION EXISTS WHEN ALL PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND ALL BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT REMOVAL OF THE NUTS WITHOUT THE USE OF WRENCH.
4. UNLESS NOTED OTHERWISE, ALL LOADS SHALL BE APPLIED TO TRUSSES AT PANEL POINTS.
5. RATED SPANS, CAPACITIES AND LOADING CONDITIONS PUBLISHED BY THE TRUSS MANUFACTURER SHALL NOT BE EXCEEDED UNLESS REVIEWED AND APPROVED BY A LICENSED ENGINEER FOR A SPECIFIC USE.
6. DO NOT PLACE LIGHTING CLAMPS OR WIRE ROPE IN DIRECT CONTACT WITH THE TRUSS UNLESS THE CHORD MATERIAL IS PROTECTED FROM DAMAGE DUE TO OVERTIGHTENING OR WIRE ROPE RUBBING.

INSPECTIONS

1. ALL TRUSS UNITS, SCAFFOLD AND/OR OTHER RIGGING EQUIPMENT SHALL BE VISUALLY INSPECTED PRIOR TO ERECTION. DAMAGED OR CORRODED EQUIPMENT SHALL NOT BE USED. FIELD MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

OPERATIONS MANAGEMENT PLAN

IMPLEMENTATION OF PLAN

1. PRIOR TO EACH INSTALLATION, THE TRUSS PROVIDER IN CONJUNCTION WITH THE VENUE, SHALL DESIGNATE A RESPONSIBLE PERSON IN CHARGE OF IMPLEMENTING ALL PHASES OF THE OPERATIONS MANAGEMENT PLAN AS IT PERTAINS TO THE STRUCTURE.
2. A MEETING SHALL BE HELD AT THE VENUE WITH THE PROMOTER, OWNER OR STAGE MANAGER TO DISCUSS THE HIGH WIND ACTION PLAN AND OTHER OPERATIONAL ITEMS.

DAILY OPERATIONS PLAN

1. CHECK WEATHER EACH MORNING AND PERIODICALLY THROUGHOUT THE DAY.
2. CHECK TOWER BASES DAILY TO ENSURE ALL REMAIN LEVEL AND PLUMB
3. CHECK GUY WIRES AND BALLAST ASSEMBLIES DAILY TO VERIFY LINES ARE TENSIONED AND BALLAST HAS NOT MOVED.
4. PROVIDE A DAILY LOG OF THE ABOVE CHECKS FOR EACH INSTALLATION.

HIGH WIND ACTION PLAN

1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE INSTALLATION. AN INSTALLATION SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE TRUSS PROVIDER OR VENUE SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN (SEE ABOVE).
3. A REGULAR LIAISON WITH LOCAL AIRPORTS AND/OR WEATHER INFORMATION CENTERS SHALL BE MAINTAINED TO ASCERTAIN IF ANY SIGNIFICANT WEATHER EVENTS ARE EXPECTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE
4. AN ANEMOMETER SHALL BE PLACED ON THE STRUCTURE TO MONITOR WIND SPEEDS. THE ANEMOMETER SHALL BE PLACED AT THE TOP OF A TOWER OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
5. NOTED WIND SPEEDS ARE 3-SECOND GUSTS IN ACCORDANCE WITH ASCE 7
6. **WHEN THE STRUCTURE IS UNATTENDED OR NOT IN USE**: OCTOPUS SHALL BE REMOVED FROM THE TRUSS IF WINDS ARE EXPECTED TO EXCEED 30MPH WHILE UNATTENDED.
7. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 30 MPH**: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT. ALL NECESSARY PERSONNEL SHALL BE IN PLACE AND PUT ON STANDBY.
8. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 40 MPH**:
    a. ALL SHOW OPERATIONS SHALL BE SUSPENDED, AND THE IMMEDIATE AREA SHALL BE EVACUATED OF ALL PATRONS AND NON-ESSENTIAL PERSONNEL.
    b. OCTOPUS SHALL BE LOWERED AND/OR COMPLETELY REMOVED FROM THE TRUSS.
9. **AT WINDS SPEEDS IN EXCESS OF 50 MPH**: ALL PERSONNEL SHOULD MAINTAIN SAFE DISTANCE FROM THE STRUCTURE.
10. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.
11. FAILURE TO FOLLOW THE HIGH WIND ACTION PLAN MAY RESULT IN COLLAPSE OF THE STRUCTURE, DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

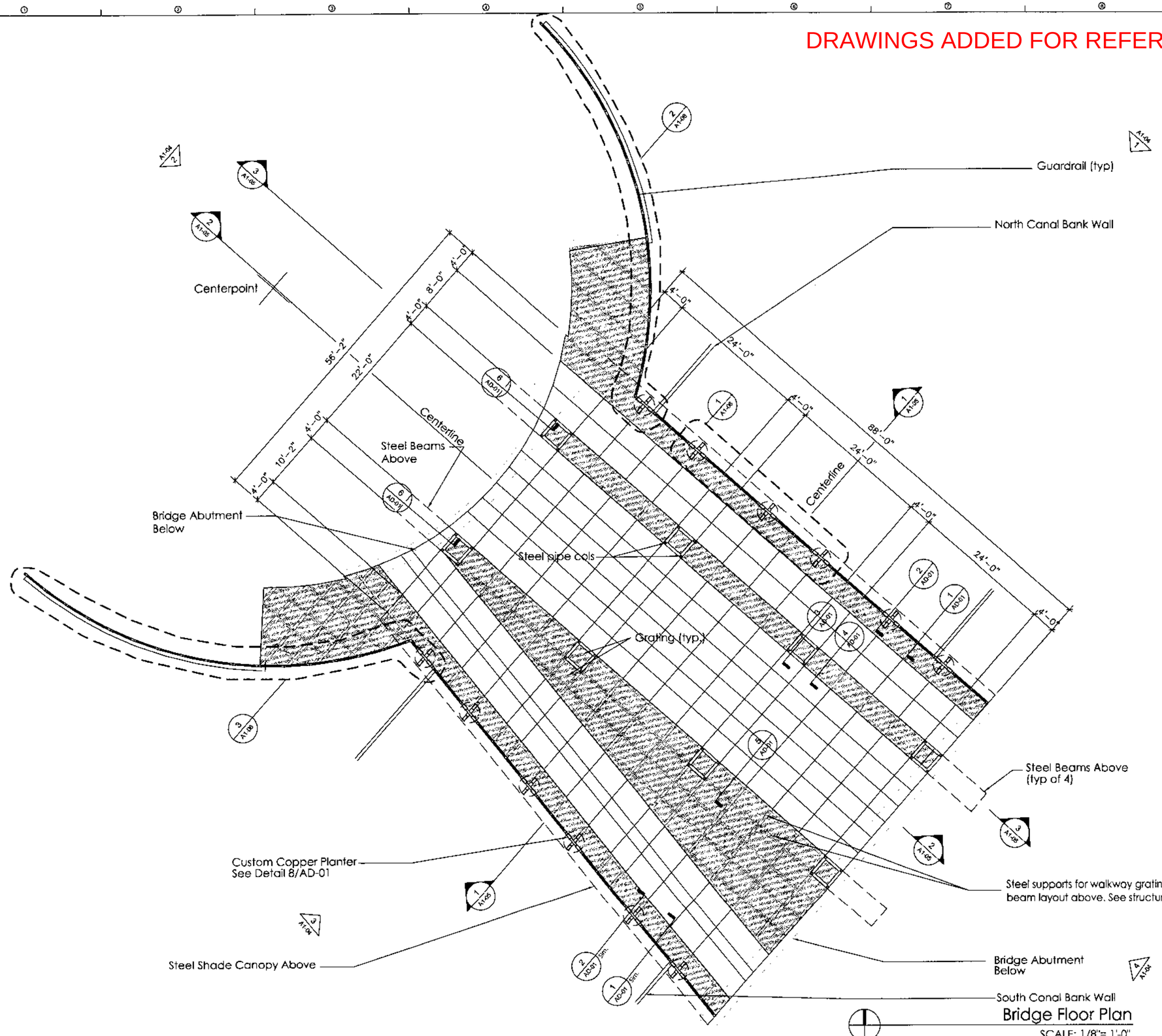
PLAN EXCEPTIONS

1. THIS PLAN IS SPECIFIC TO THE STRUCTURE LISTED IN THIS SUBMITTAL. THE EVENT OPERATIONS MANAGEMENT PLAN, IF MORE STRINGENT, SHALL BE FOLLOWED.

APPENDIX A

REFERENCE DRAWINGS

DRAWINGS ADDED FOR REFERENCE ONLY.



Bridge Floor Plan

SCALE: 1/8"= 1'-0"

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
2-Provide shop drawings for all steel, including guardrails, grating, perf. metal, and structure.

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

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7522 East McDonald Drive, Scottsdale Arizona 85250

BID DOCUMENTS
PHASE ONE

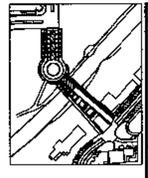
BRIDGE FLOOR PLAN

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829



REVISION BY

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE--PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
	10-10-03	#04PB034	A1-01
DRAWN BY	AS-BUILT	PROJECT NO. 2829	65 OF 89

3”
wrachet straps
securing truss
to bridge

200-POUND SCENIC
OCTOPUS (BY OTHERS) AT
MIDSPAN OF 24' TRUSS RUN.

24’ x 12” F34
Truss

Bridge Roof Plan
SCALE: 1/8"= 1'-0"

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

JOHN CLIFTON DOUGLAS 10579 10/10/03
DOUGLAS
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BID DOCUMENTS
PHASE ONE

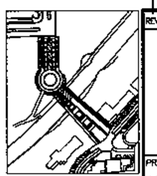
BRIDGE ROOF PLAN

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829



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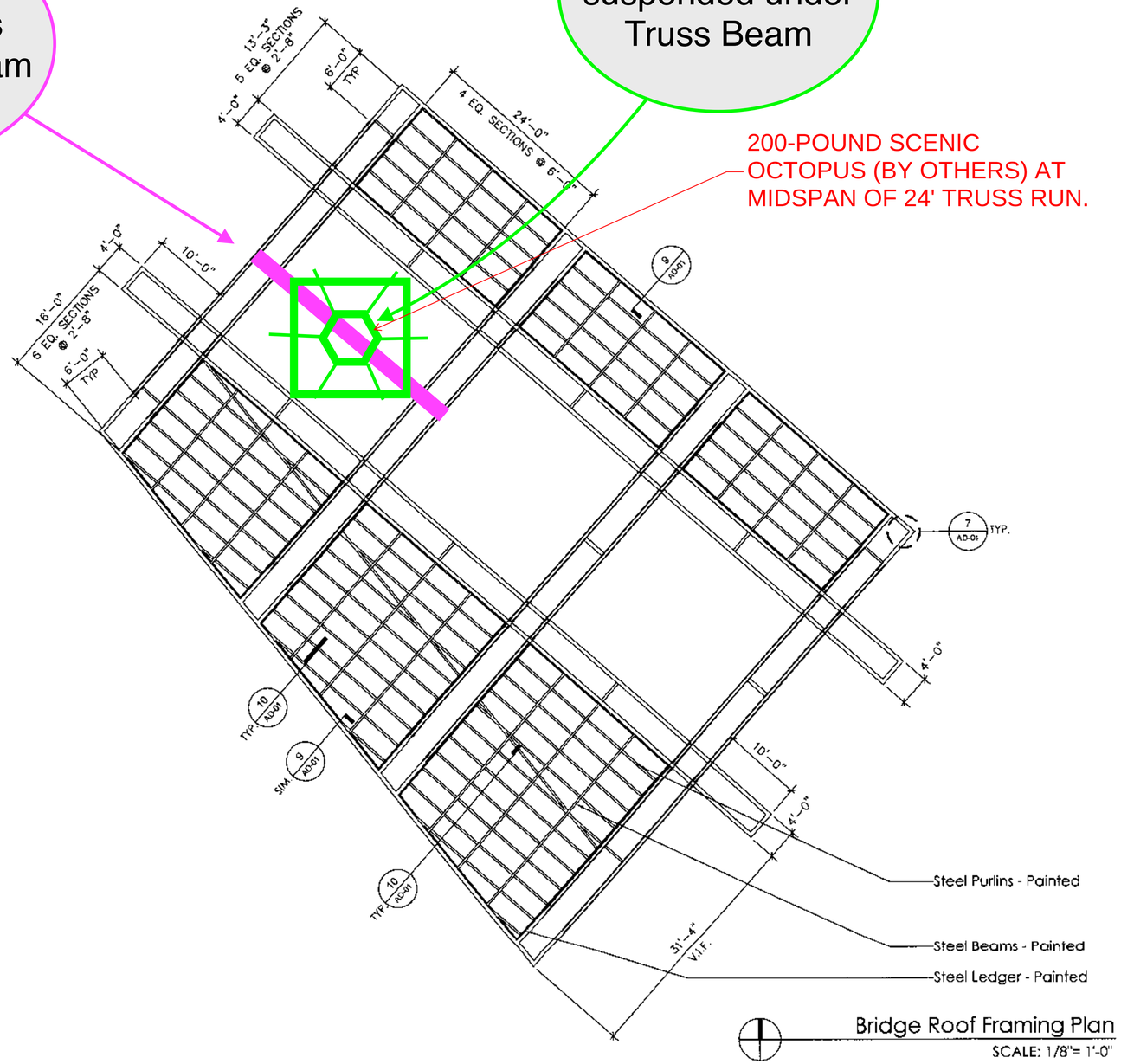
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE–PHASE I

DESIGNED BY	DATE 10-10-03	BID NO. #04PB034	SHT. A1-02
DRAWN BY	AS-BUILT	PROJECT NO. 2829	86 OF 89

12" F34 Truss suspension beam

Octopoda suspended under Truss Beam

200-POUND SCENIC OCTOPUS (BY OTHERS) AT MIDSPAN OF 24' TRUSS RUN.



Bridge Roof Framing Plan
SCALE: 1/8"= 1'-0"

APPROVED
FINAL PLANS PLANNING

DATE APPROVED BY

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
2-Provide shop drawings for all steel, including guardrails, grating, perf. metal, and structure.

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

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BRIDGE ROOF FRAMING PLAN

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

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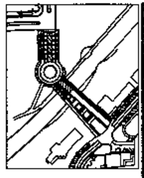
PROJECT NUMBER: 2829



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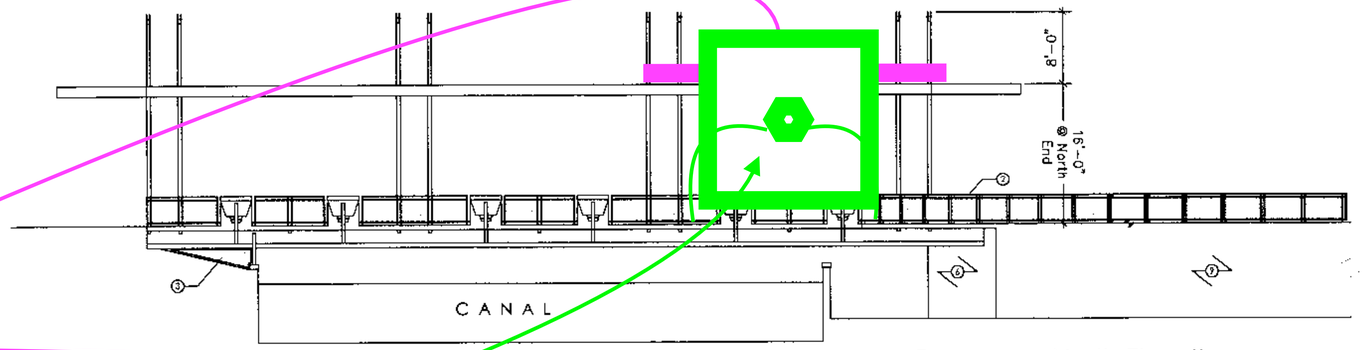
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE–PHASE I

DESIGNED BY	DATE 10-10-03	BID NO. #04PB034	SHT. A1-03
DRAWN BY	AS-BUILT	PROJECT NO. 2829	67 OF 89

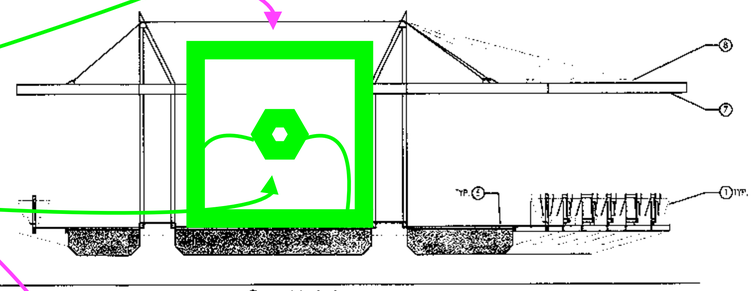
Truss Beam

Octopada

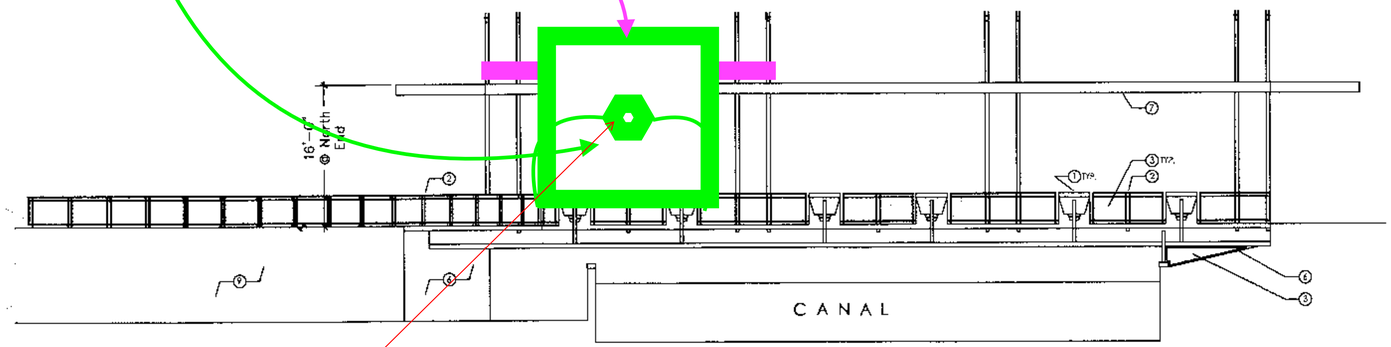
200-POUND SCENIC OCTOPUS (BY OTHERS) AT MIDSPAN OF 24' TRUSS RUN.



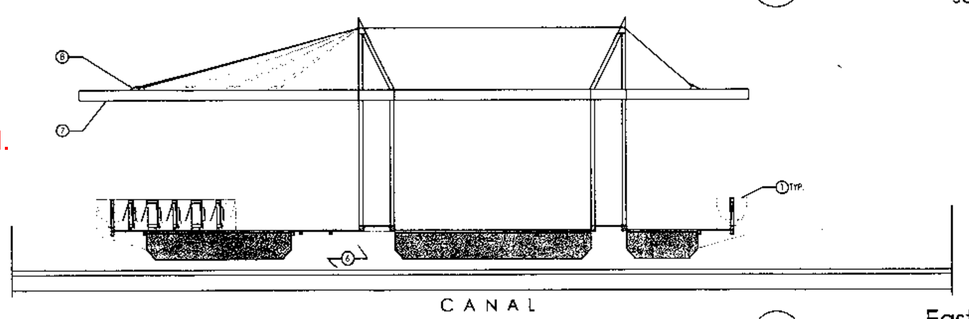
1 North Elevation
SCALE: 1/8"= 1'-0"



2 West Elevation
SCALE: 1/8"= 1'-0"



3 South Elevation
SCALE: 1/8"= 1'-0"



4 East Elevation
SCALE: 1/8"= 1'-0"

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
2-Provide shop drawings for all steel, including guardrails, grating, perf. metal, and structure.

ELEVATION GENERAL NOTES:

A. Bridge height set at 16'-0" to top of fascia above final paving elevation at North side of structure. Grades shall drop 1 % moving to the Southeast, but the elevation of the bridge roof structure shall remain constant.

ELEVATION KEYNOTES:

1. CUSTOM COPPER PLANTER
2. STEEL GUARDRAIL
3. PERFORATED ALUMINUM PANEL, 60 % OPEN
4. CANTILEVERED STEEL SUPPORT
5. CONCRETE BEAM
6. BRIDGE ABUTMENT
7. STEEL SHADE CANOPY
8. CABLE STAY SYSTEM
9. WING WALL

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

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BID DOCUMENTS
PHASE ONE

BRIDGE ELEVATIONS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829

FINAL ELEVATION APPROVAL
APPROVED
BY THE CITY OF SCOTTSDALE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT
CASE NUMBER APPROVED BY DATE
CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THIS PLAN AND ANY AND ALL DEVIATIONS WILL REQUIRE A REAPPROVAL

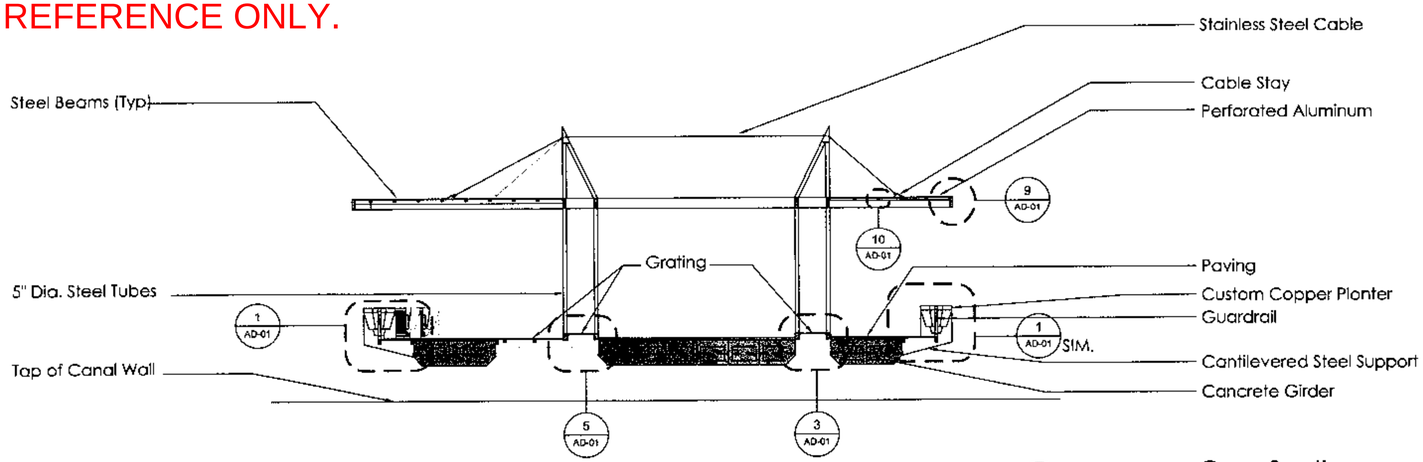
REVISION	BY

CITY OF SCOTTSDALE ARIZONA
MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

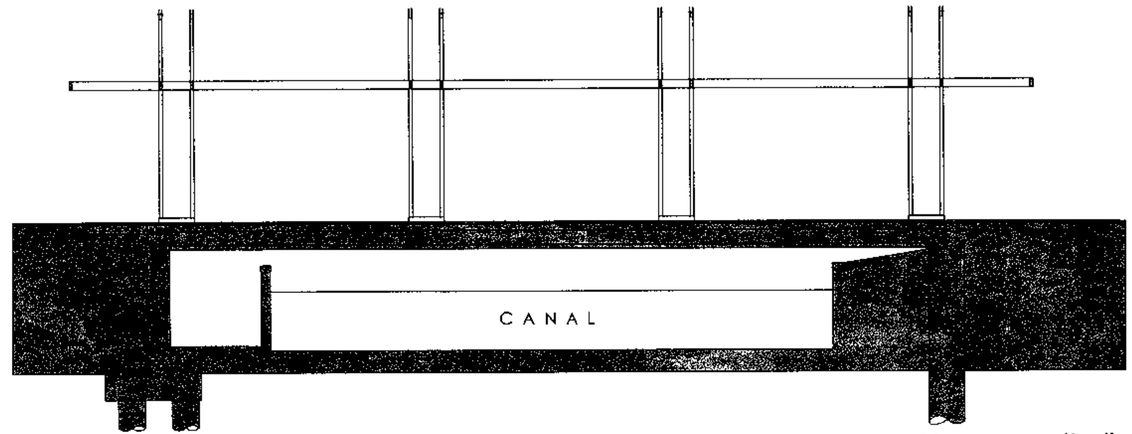
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE–PHASE I

DESIGNED BY	DATE 10-10-03	BID NO. #04PB034	SHT. A1-04
DRAWN BY	AS-BUILT	PROJECT NO. 2829	68 OF 89

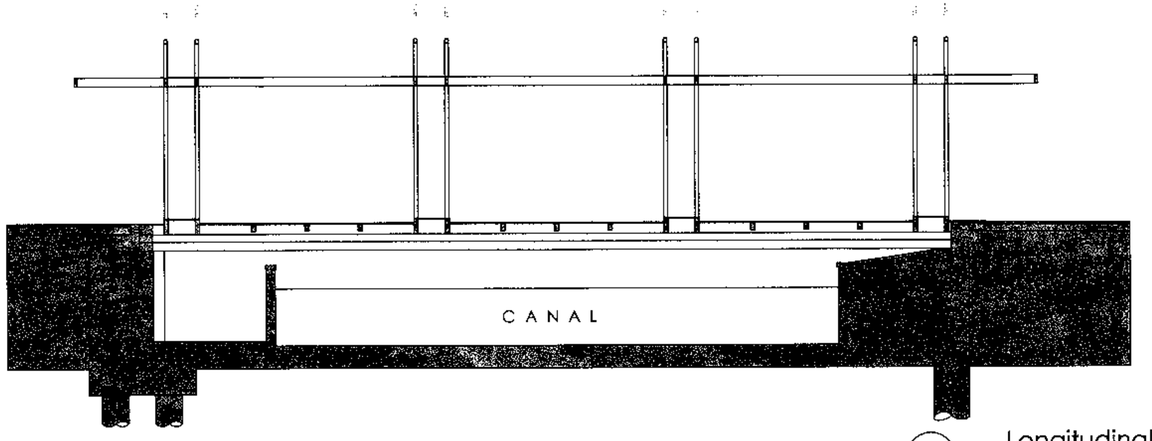
DRAWINGS ADDED FOR REFERENCE ONLY.



1 Cross Section
SCALE: 1/8"= 1'-0"



2 Longitudinal Section
SCALE: 1/8"= 1'-0"



3 Longitudinal Section
SCALE: 1/8"= 1'-0"

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BID DOCUMENTS
PHASE ONE

BRIDGE SECTIONS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829

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MUNICIPAL SERVICES DEPARTMENT
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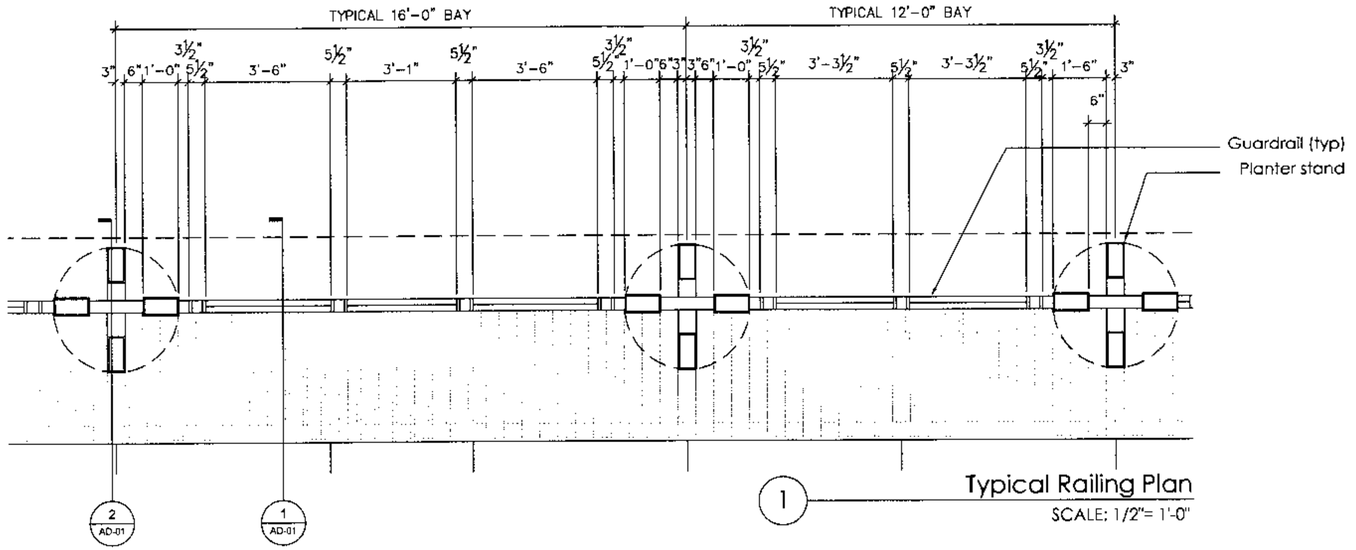
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE–PHASE I

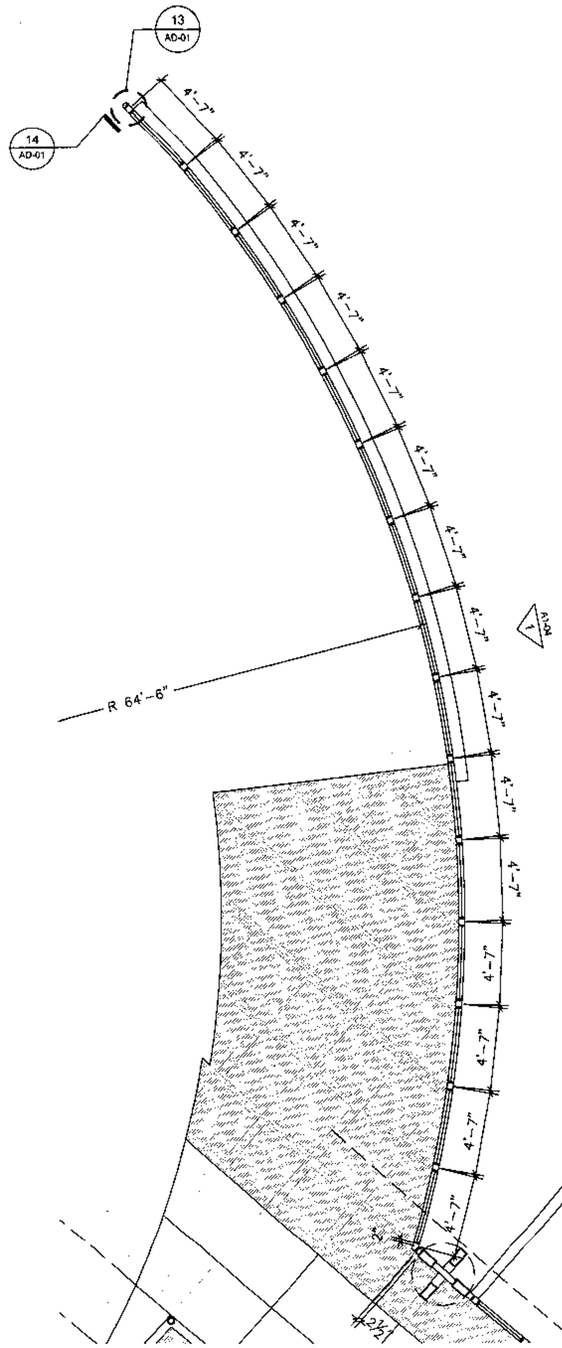
DESIGNED BY	DATE 10-10-03	BID NO. #04PB034	SHT. A1–05
DRAWN BY	AS-BUILT	PROJECT NO. 2829	69 OF 69

DRAWINGS ADDED FOR REFERENCE ONLY.



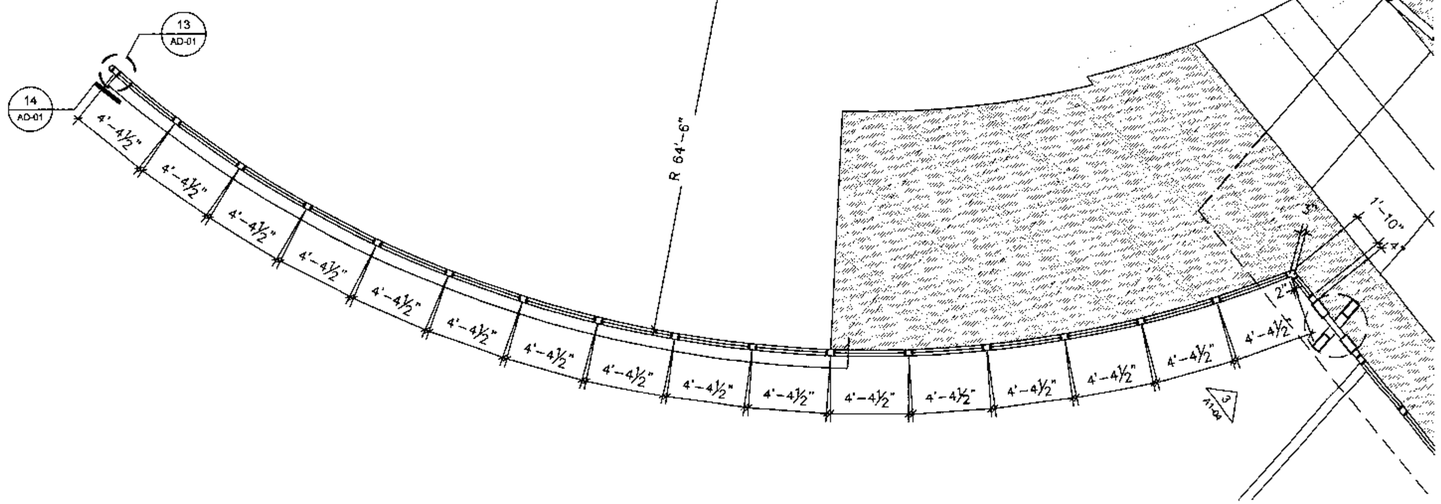
1 Typical Railing Plan

SCALE: 1/2"= 1'-0"



2 Railing Plan @ North Bank

SCALE: 1/4"= 1'-0"



3 Railing Plan @ South Bank

SCALE: 1/4"= 1'-0"

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

JOHN CLIFTON DOUGLAS 32578 10/10/03 Registered Professional Architect Arizona U.S.A.

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BID DOCUMENTS
PHASE ONE

GUARDRAIL PLANS / ELEVATIONS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829

REVISION	BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
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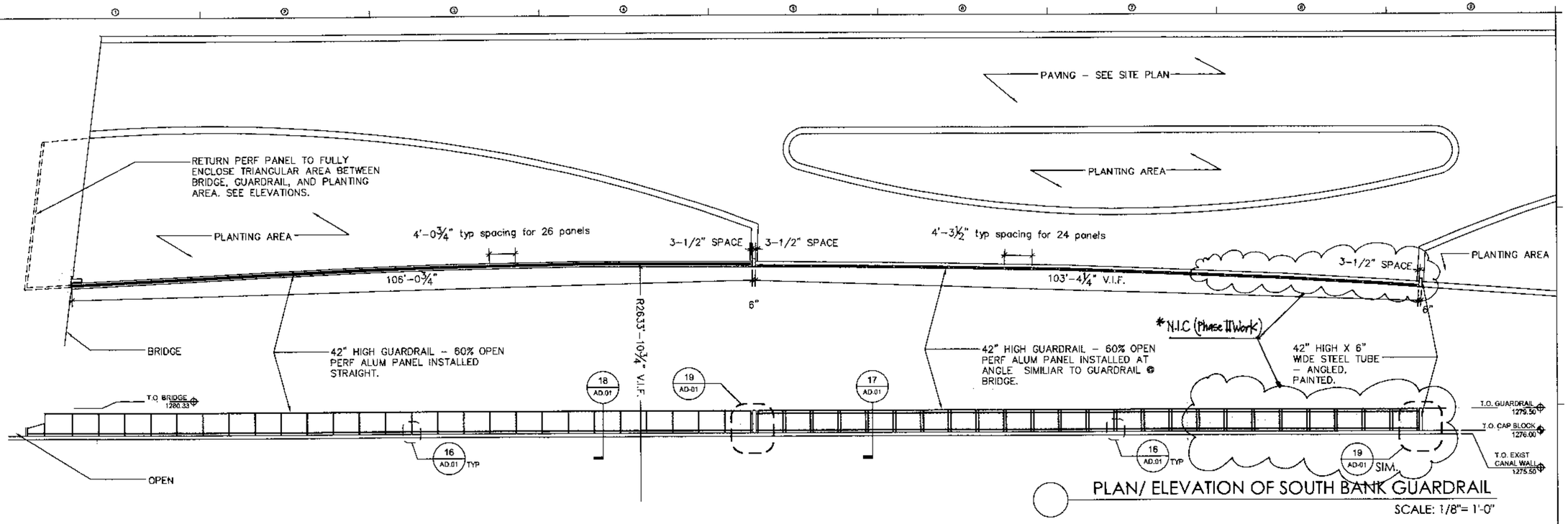
SCOTTSDALE, ARIZONA 85251

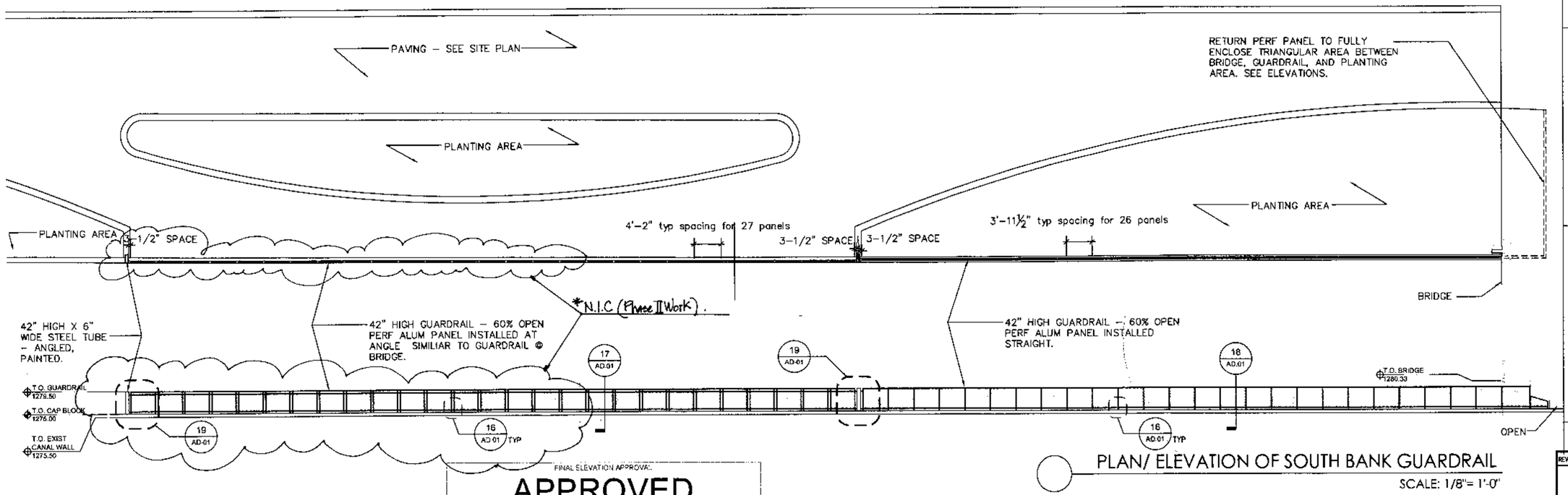
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE–PHASE I

DESIGNED BY	DATE 10-10-03	BID NO. W04PB034	SHT. A1-05
DRAWN BY	AS-BUILT	PROJECT NO. 2829	70 OF 88



PLAN/ ELEVATION OF SOUTH BANK GUARDRAIL

SCALE: 1/8"= 1'-0"



PLAN/ ELEVATION OF SOUTH BANK GUARDRAIL

SCALE: 1/8"= 1'-0"

FINAL ELEVATION APPROVAL

APPROVED

BY THE CITY OF SCOTTSDALE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

CASE NUMBER _____ APPROVED BY _____ DATE _____

CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THIS PLAN AND ANY AND ALL DEVIATIONS WILL REQUIRE A REAPPROVAL

***Note:** Contractor to provide unit prices for handrail components for Phase I area only (not including the Phase II handrails clouded). Final design and length of handrails to be determined by City prior to award of contract.

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
2-Provide shop drawings for all steel, including guardrails, grating, perf. metal, and structure.

DRAWINGS ADDED FOR REFERENCE ONLY.

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(480) 966-5881
Facsimile (480) 966-2799
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OWNER
CITY OF SCOTTSDALE
7447 E. INDIAN SCHOOL RD. SCOTTSDALE, AZ. 85251
480-312-7869

Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

10578 JOHN CLIFTON DOUGLAS 10/10/03 REGISTERED ARCHITECT STATE OF ARIZONA U.S.A.
DOUGLAS
Architecture and Planning, P.C.
7522 East McDonald Drive, Scottsdale Arizona 85250

BID DOCUMENTS
PHASE ONE

GUARDRAIL PLANS / ELEVATIONS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829

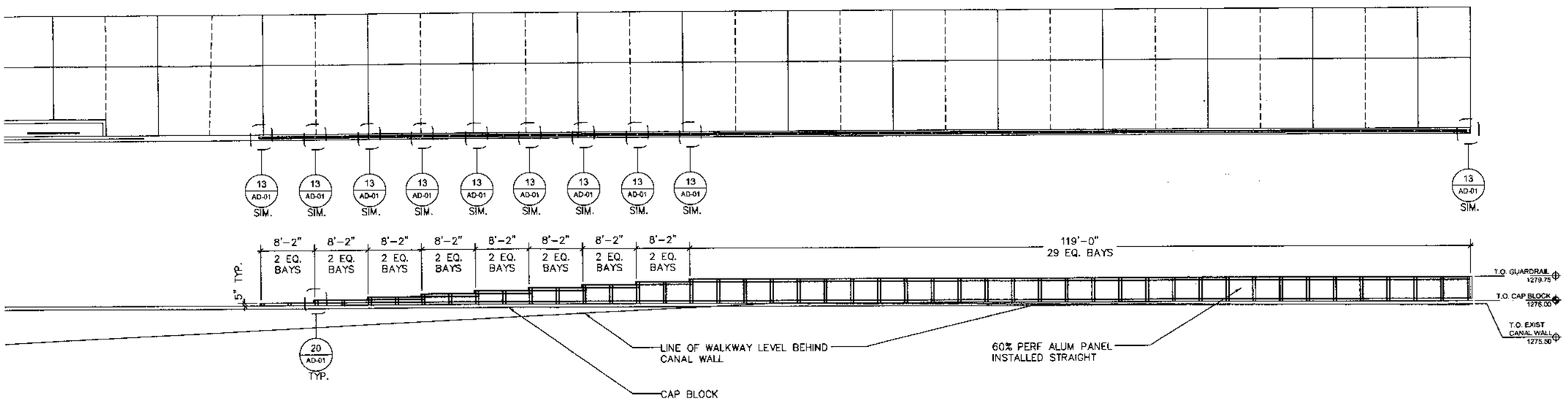
REVISION	BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

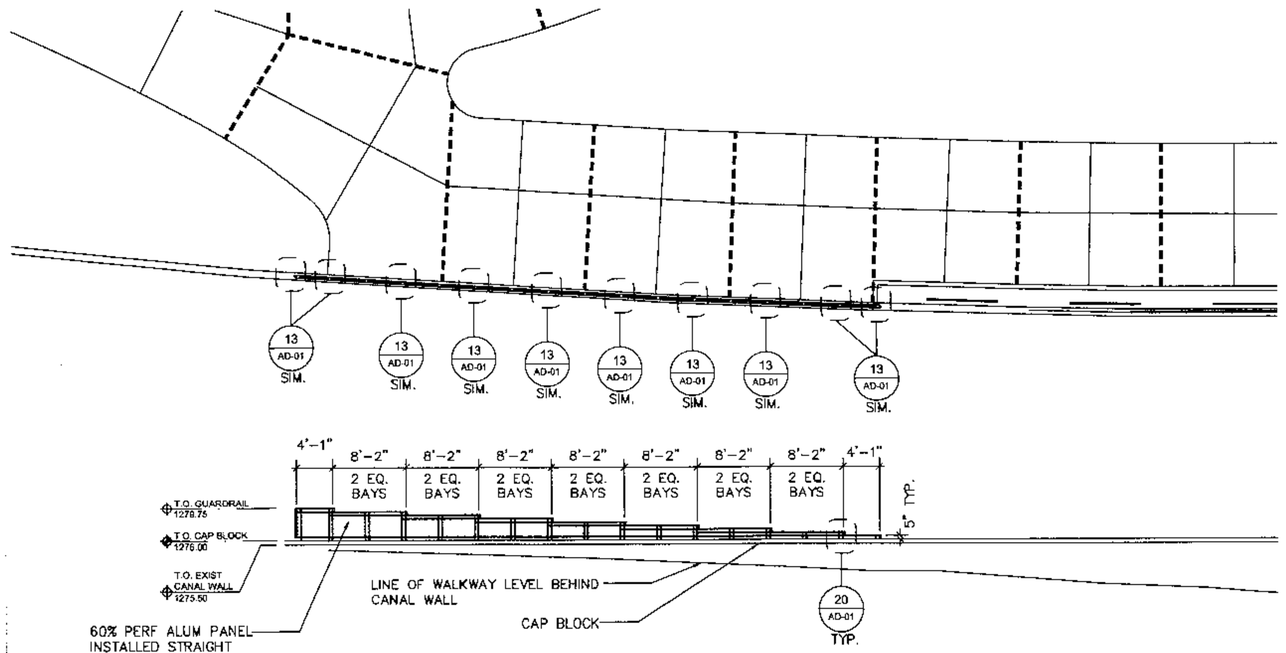
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE–PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
	10-10-03	#04PB034	A1-07
DRAWN BY	AS-BUILT	PROJECT NO.	71 OF 89
		2829	



PLAN/ ELEVATION OF NORTH BANK GUARDRAIL

SCALE: 1/8"= 1'-0"



PLAN/ ELEVATION OF NORTH BANK GUARDRAIL

SCALE: 1/8"= 1'-0"

FINAL ELEVATION APPROVAL

APPROVED

BY THE CITY OF SCOTTSDALE PLANNING AND DEVELOPMENT SERVICES DEPARTMENT

CASE NO. 2829R APPROVED BY DATE

CONSTRUCTION AND INSTALLATION SHALL BE IN ACCORDANCE WITH THIS PLAN AND ANY AND ALL DEVIATIONS WILL REQUIRE A RE-APPROVAL

DRAWINGS ADDED FOR REFERENCE ONLY.

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
2-Provide shop drawings for all steel, including guardrails, grating, perf. metal, and structure.

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OWNER
CITY OF SCOTTSDALE
7447 E. INDIAN SCHOOL RD SCOTTSDALE, AZ. 85251
480-312-7989

Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

DOUGLAS
Architecture and Planning, P.C.
7522 East McDonald Drive, Scottsdale Arizona 85250

BID DOCUMENTS
PHASE ONE

GUARDRAIL PLANS / ELEVATIONS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

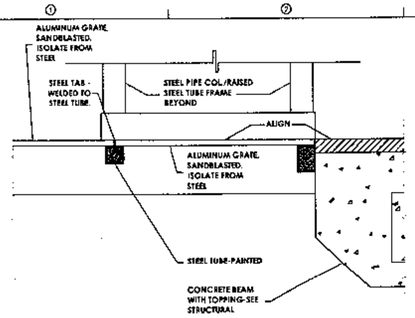
PROJECT NUMBER: 2829

REVISION	BY

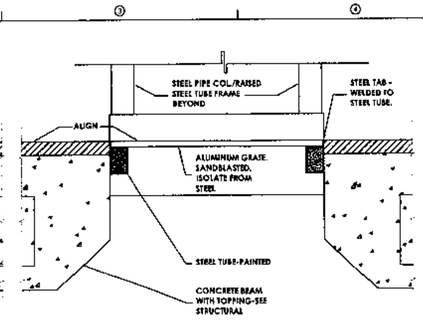
MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

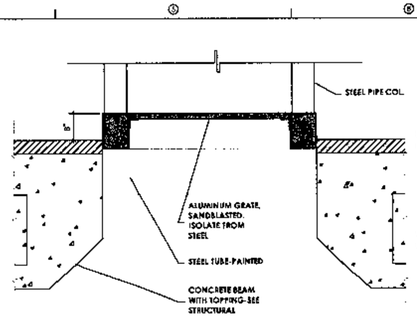
DESIGNED BY	DATE 10-10-03	BID NO. #04PB034	SHT. A1-08
DRAWN BY	AS-BUILT	PROJECT NO. 2829	72 OF 89



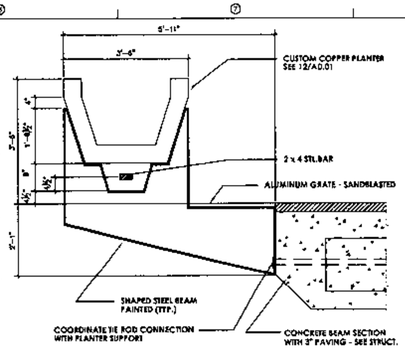
5 **Continuous Grating Detail**
SCALE: 3/4"=1'-0"



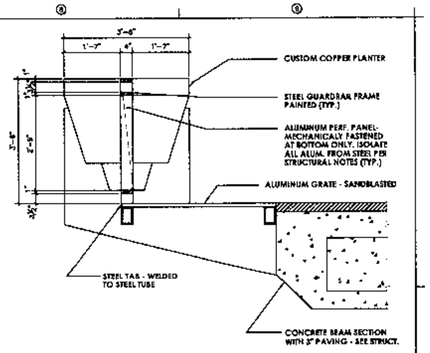
4 **Grating between Conc. Beams**
SCALE: 3/4"=1'-0"



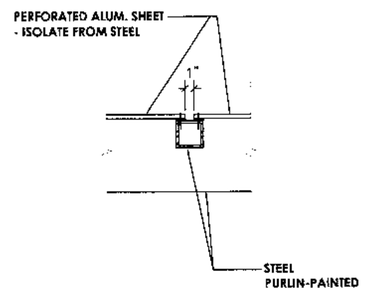
3 **Grating Between Columns**
SCALE: 3/4"=1'-0"



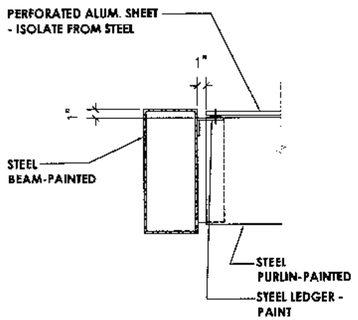
2 **Planter Detail**
SCALE: 1/2"=1'-0"



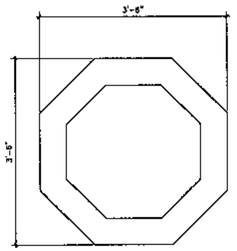
1 **Guardrail Detail**
SCALE: 1/2" - 1'-0"



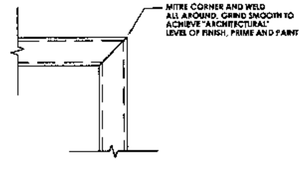
10 **Alum Panel @ Purlin**
SCALE: 1 1/2"=1'-0"



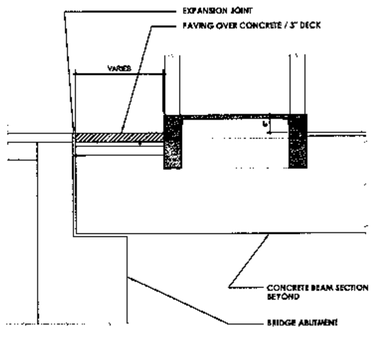
9 **Alum Panel @ Edge Condition**
SCALE: 1 1/2"=1'-0"



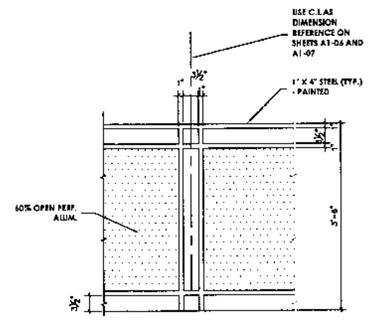
8 **Planter Plan**
SCALE: NTS



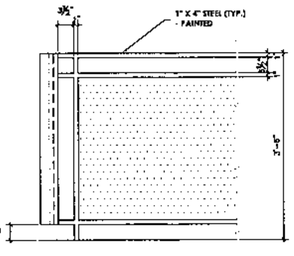
7 **Beam / Beam Corner**
SCALE: 1 1/2"=1'-0"



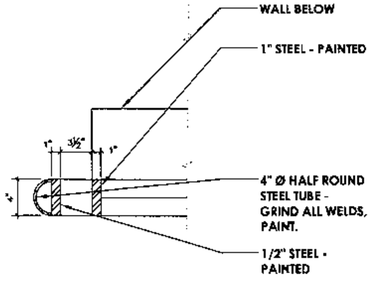
6 **Infill at Curved Abutment**
SCALE: 1/2"=1'-0"
(SEE DETAIL 3 FOR INFORMATION NOT NOTED HERE)



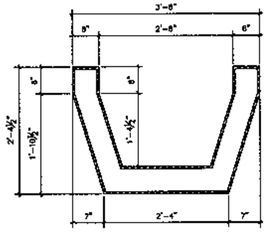
15 **Typical Elevation @ Guardrail**
SCALE: 3/4"=1'-0"



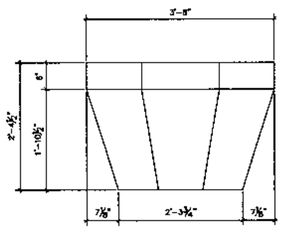
14 **Typical Elevation End @ Guardrail**
SCALE: 3/4"=1'-0"



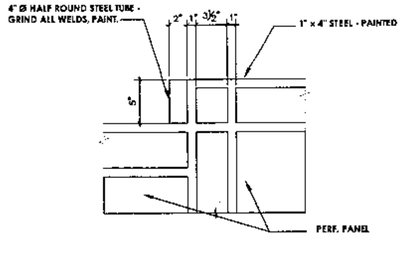
13 **End @ Guardrail**
SCALE: 1 1/2"=1'-0"



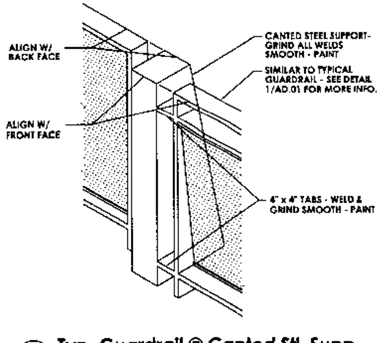
12 **Planter Section**
SCALE: NTS



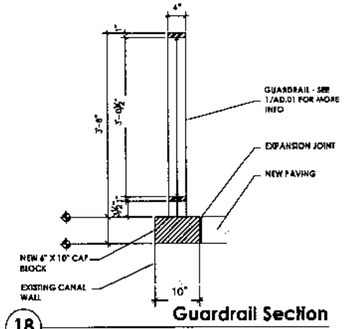
11 **Planter Elevation**
SCALE: NTS



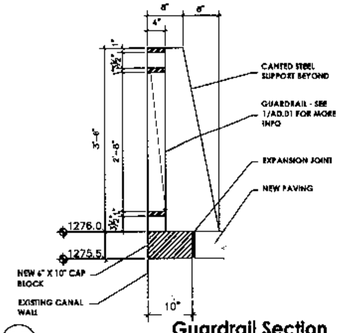
20 **End @ Guardrail Transition**
SCALE: 1 1/2"=1'-0"



19 **Typ. Guardrail @ Canted Stl. Supp.**
SCALE: 1 1/2"=1'-0"



18 **Guardrail Section**
SCALE: 3/4"=1'-0"



17 **Guardrail Section**
SCALE: 3/4"=1'-0"

General Notes:
1-Refer to Structural Drawings for further information on bridge and abutment construction.
2-Provide shop drawings for all steel, including guardrails, grating, perf. metal, and structure.

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

10578 JOHN CLIFTON DOUGLAS 10/10/03

DOUGLAS
Architecture and Planning, P.C.
7322 East McDonald Drive, Scottsdale Arizona 85250

BID DOCUMENTS
PHASE ONE

DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GC REVIEWED: JCD

PROJECT NUMBER: 2829

REVISION	BY

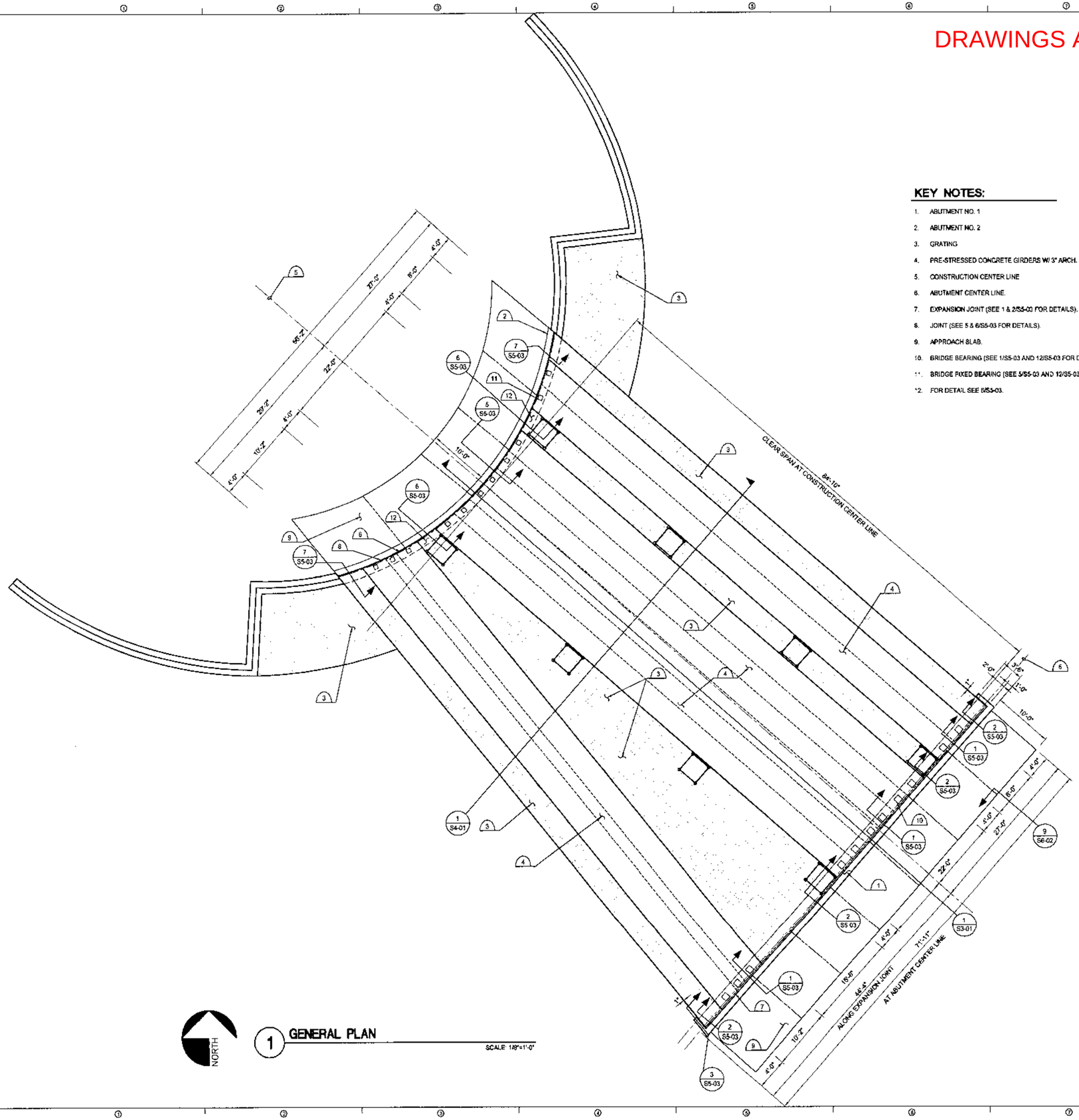
CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE 10-10-03	BID NO. #04PB034	SHT. AD-01
DRAWN BY AS-BUILT		PROJECT NO. 2829	73 OF 89

DRAWINGS ADDED FOR REFERENCE ONLY.



1 GENERAL PLAN

SCALE: 1/8"=1'-0"

KEY NOTES:

1. ABUTMENT NO. 1
2. ABUTMENT NO. 2
3. GRATING
4. PRE-STRESSED CONCRETE GIRDERS W/ 3" ARCH. PAVER ON TOP.
5. CONSTRUCTION CENTER LINE
6. ABUTMENT CENTER LINE.
7. EXPANSION JOINT (SEE 1 & 2/S5-03 FOR DETAILS).
8. JOINT (SEE 5 & 6/S5-03 FOR DETAILS).
9. APPROACH SLAB.
10. BRIDGE BEARING (SEE 1/S5-03 AND 12/S5-03 FOR DETAILS).
11. BRIDGE FIXED BEARING (SEE 5/S5-03 AND 12/S5-03 FOR DETAILS).
12. FOR DETAIL SEE 8/S5-03.

SHEET SCHEDULE

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OWNER
CITY OF SCOTTSDALE
7447 E. INDIAN SCHOOL RD. SCOTTSDALE, AZ. 85251
480-312-7869

Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

23296
MICHAEL S. PUHLMANN
DATE SIGNED
REGISTERED PROFESSIONAL ENGINEER CERTIFICATE NO.
ARIZONA U.S.A.

STAMP / DATE

BID DOCUMENTS
PHASE ONE

GENERAL PLAN

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAAUG REVIEWED: MSP AZ

PROJECT NUMBER: 2529

kpff Consulting Engineers
2800 NORTH CENTRAL AVENUE, SUITE 1010
PHOENIX, ARIZONA 85004
PHONE (602) 264-1010
FAX (602) 265-1010
KPFF PROJECT #: 110149.1

REVISION | BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY MSP/AZ	DATE 10-10-03	BID NO. W04PB034	SHT. S1-00
DRAWN BY GAAUG	AS-BUILT 0000	PROJECT NO. 2829	74 OF 89

GENERAL STRUCTURAL NOTES

APPLY UNLESS NOTED OTHERWISE ON STRUCTURAL DRAWINGS

CODE: COMPLY WITH 2003 IBC, AS AMENDED BY CITY OF SCOTTSDALE

LIVE LOAD: 22' ROADWAY : AASHTO HS25-44 HIGHWAY LOAD
OTHER PORTIONS 100 P.S.F.

SEISMIC: ZONE 2 B, Z = 0.075, V = .034 W

WIND: BASIC WIND SPEED 70 M.P.H., EXPOSURE C.

SHOP DRAWINGS.

1. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS ASSOCIATED W TH COMPLIANCE OF THE FOLLOWING PRE-SHOP DRAWING MEETING(S):

A. CONTRACTOR SHALL SCHEDULE AND CARRY OUT PRE-SHOP DRAWING MEETINGS WITH THE PROJECT STRUCTURAL ENGINEER

B. ALL SUCH MEETINGS SHALL BE HELD AT KPFF PHOENIX OFFICE.
C EACH TRADE DETAILER REQU RED TO SUBMIT SHOP DRAWINGS FOR STRUCTURAL REVIEW SHALL PARTICIPATE.

2. THE STRUCTURAL SHOP DRAWING REVIEW IS INTENDED TO HELP THE ENGINEER VERIFY HIS DESIGN CONCEPT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK HIS OWN SHOP DRAWINGS AND THOSE OF HIS SUBCONTRACTORS.

3. THE STRUCTURAL S-IOP DRAWINGS WILL BE RETURNED FOR RESUBMITTAL IF NOT CHECKED BY CONTRACTOR OR A CURSORY REVIEW SHOWS MAJOR ERRORS WHICH SHOULD HAVE BEEN FOUND BY THE CONTRACTOR'S CHECKING.

4. CONCRETE MIX DESIGNS: SUBMITTALS SHALL BE PREPARED BY OR CERTIFIED TO CONFORM TO ACI CODE BY AN INDEPENDENT TESTING LABORATORY PRIOR TO SUBMITTING TO ARCHITECT. EACH SEPARATE MIX DESIGN SHALL BE INCLUDED WITH A COVER LETTER INDICATING ALL LOCATIONS ON THE PROJECT WHERE THE MIX WILL BE USED.

5. FOLLOWING SHOP DRAWINGS ARE NOT REQUIRED FOR SUBMITTAL FOR STRUCTURAL REVIEW.

A. SHORING AND BRACING.
B. PICK UP INSERT.
C SLAB ON GRADE REBAR AND SPREAD FOOTINGS REBAR.
D. METAL DECK.
E. STRUCTURAL STEEL MILL REPORTS.
F. MESH OR REBAR FOR CONCRETE OVER COMPOSITE STEEL DECK.

6. FOLLOWING SHOP DRAWINGS AND CALCULATIONS WHEN APPLICABLE, ARE REQUIRED FOR SUBMITTAL FOR STRUCTURAL REVIEW. ALLOW THREE DAYS FOR PROCESSING AND ADDITIONAL DAY PER EACH FOUR 24 X 36 SHOP DRAWING SHEETS TO DETERMINE TURN AROUND TIME IN THE STRUCTURAL OFFICE:
A. PRECAST OR PRESTRESSED MEMBERS.
B. STRUCTURAL STEEL AND DECK.
C MISCELLANEOUS STRUCTURAL STEEL, INCLUDING ALL GUARDRAILS.
D. SPLICED REINFORCING.
E. LOCATION OF CONSTRUCTION AND SHRINKAGE CONTROL JOINTS.

7. ANY RESUBMITTAL OF A DETAIL SHEET WITH ADDED INFORMATION SHALL BE ACCOMPANIED BY LOCATION PLAN IDENTIFYING THE MEMBERS INVOLVED, AND CLOUDING AROUND ADDED INFORMATION.

8. DIMENSIONS WILL NOT BE CHECKED. DIMENSION CHECKING AND CHECKING OF DESIGN CHANGES PROPOSED BY CONTRACTOR WITHOUT PRIOR CONSULTATION WITH THE ENGINEER SHALL BE CHECKED ONLY IF THE CONTRACTOR WISHES THEM TO BE CHECKED AT HIS COST.

9. ANY ENGINEERING SUBMITTED FOR REVIEW SHALL BE APPROPRIATELY SEALED FULL RESPONSIBILITY OF SUCH ENGINEERING RESTS WITH THE PERSON SEALING THE DESIGN.

STRUCTURAL OBSERVATION:

IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT ALL STRUCTURAL WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY STRUCTURAL OBSERVATION PROVIDED BY OTHERS DOES NOT RELIEVE HIM OF THIS RESPONSIBILITY. ANY STRUCTURAL DEVIATIONS FROM THE CONTRACT DOCUMENTS THAT ARE FOUND AT A LATER DATE AND ARE DECLARED TO BE SIGNIFICANT BY THE STRUCTURAL ENGINEER SHALL BE CORRECTED BY THE CONTRACTOR WITH ALL DISPATCH. THE STRUCTURAL OBSERVER IS NOT AUTHORIZED TO DIRECT OR APPROVE ANY CHANGES FROM THE CONTRACT DOCUMENTS. IF THE CONTRACTOR WISHES TO QUESTION THE STRUCTURAL OBSERVER'S INTERPRETATION OF THE CONTRACT DOCUMENTS, HE MAY DO SO DIRECTLY WITH THE ARCHITECT OR THE STRUCTURAL ENGINEER. THE STRUCTURAL OBSERVER IS NOT AUTHORIZED TO STOP OR DELAY THE WORK. IF THE CONTRACTOR ELECTS TO CONTINUE WITH A CERTAIN WORK AFTER BEING NOTIFIED BY THE STRUCTURAL OBSERVER THAT SUCH WORK IS UNACCEPTABLE, HE DOES SO AT HIS OWN RESPONSIBILITY AND RISKS CORRECTING THE WORK AT A LESS OPPORTUNE TIME.

THE STRUCTURAL OBSERVER IS NOT INSPECTING FOR OSHA COMPLIANCE AND TEMPORARY CONSTRUCTION, SUCH AS BRACING. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE FACILITIES FOR THE STRUCTURAL OBSERVER. TO ALLOW HIM TO PERFORM HIS WORK SAFELY AND EFFICIENTLY.

SPECIAL STRUCTURAL INSPECTION:

SPECIAL STRUCTURAL OBSERVATION BY SPECIAL OBSERVERS SATISFACTORY TO THE BUILDING OFFICIAL IS REQUIRED FOR THE FOLLOWING TYPES OF WORK IN CONFORMANCE WITH IBC CODE AND CITY OF SCOTTSDALE BUILDING INSPECTION DEPARTMENT NEWSLETTERS:

1. CONCRETE: DURING THE TAKING OF TEST SPECIMENS AND PLACING OF REINFORCED CONCRETE EXCEPT SLABS ON GRADE.

2. BOLTS INSTALLED IN CONCRETE: DURING INSTALLATION OF EMBEDDED BOLTS IN CONCRETE AND DURING INSTALLATION OF EXPANSION BOLTS AND EPOXY BOLTS/REBAR INTO EXISTING CONCRETE.

3. REINFORCING STEEL AND PRESTRESSING STEEL:

4. SPECIAL GRADING, EXCAVATION AND FILL.

5. FAUNDATIONS AND CASSIONS.

6. WELDING.

A DURING PLACING OF REINFORCING STEEL, PLACING OF TENDONS AND PRESTRESSING STEEL FOR ALL CONCRETE REQUIRED TO HAVE SPECIAL INSPECTION BY ITEM 1. ABOVE AND PLACING REINFORCING STEEL IN EPOXIED HOLES PER ITEM 2. ABOVE.

B. DURING ALL STRESSING AND GROUTING OF PRESTRESSED CONCRETE.

4. WELDING:
A. DURING ALL STRUCTURAL WELDING, INCLUDING WELDING OF REINFORCING STEEL

FOUNDATIONS:

SOIL REPORT BY:_RICKER,ATKINSON,McBEE & ASSOCIATES, INC.,
R.A.M. PROJECT NO. G07880, AUGUST 16, 2002.

BOTTOMS OF CAISSON FOUNDATIONS SHALL BE PER DRAWINGS. THE CONTRACTOR SHALL ASSUME THE RISK OF ACTUAL DEPTH BEING GREATER.

DUE TO THE COLLAPSE POTENTIAL OF THE NEAR-SURFACE SITE SOILS, AND THE CLOSE PROXIMITY OF THE BRIDGE FOUNDATIONS TO THE EXISTING CANAL BANK THE MARSHALL WAY BRIDGE SHOULD BE SUPPORTED BY DRILLED SHAFTS EXTENDING TO A DEPTH OF AT LEAST 15 FEET BELOW THE PILE CAP. THE ALLOWABLE CAPACITY FOR A SINGLE, STRAIGHT SHAFT DRILLED PIER WITH 4.0 FT. DIAMETER AND VARIOUS DEPTHS FOR THE BRIDGE SITE IS SHOWN BELOW:

DEPTH	ALLOWABLE PIER (4'-0" DIAMETER CAISSON) CAPACITY (KIPS)
15 FT.	125.3
20 FT.	150.0
25 FT.	181.0

CONCRETE:

SHALL MEET ALL THE REQUIREMENTS OF ACI 301 WITH TYPE II CEMENT. MINIMUM 28 DAY STRENGTH 4,000 P.S.I., EXCEPT AS FOLLOWS:

PRESTRESSED GIRDERS.....6,000 P.S.I.

CONCRETE TOPPING OVER PRECAST.....*5,000 P.S.I.
*GREATER IF REQUIRED BY PRECAST MANUFACTURER

SIDEWALKS, CURBS, AND GUTTERS,
SLABS ON GRADE.....2,500 P.S.I.

FOUNDATIONS.....4,000 P.S.I.

NO ADMIXTURES WITHOUT APPROVAL. ADMIXTURES CONTAINING CHLORIDES SHALL NOT BE USED. CONCRETE SHALL NOT BE IN CONTACT WITH ALUMINUM.

CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCHING AND SHALL NOT EXCEED A TEMPERATURE OF 90 DEGREES FAHRENHEIT UNLESS PREAPPROVED BY THE ENGINEER.

MIX DESIGNS FOR CONCRETE CONTAINING FLY ASH SHALL BE BY AN INDEPENDENT TESTING LABORATORY. ONLY ASTM C618 CLASS F FLY ASH SHALL BE USED. FLY ASH SHALL BE BY PHOENIX CEMENT OR WESTERN ASH COMPANY. THE AMOUNT OF FLY ASH USED SHALL NOT EXCEED 20 PERCENT BY WEIGHT OF THE COMBINED WEIGHT OF FLY ASH PLUS CEMENT.

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED, EXCEPT THAT SLABS ON GRADE NEED BE VIBRATED ONLY AROUND EMBEDDED ITEMS. SLUMP 5 INCHES. DO NOT TAMP SLABS. USE ROLLER BUG, VIBRATING SCREED OR BULL FLOAT TO FINISH. DO NOT ADD WATER TO CONCRETE AT SITE.

ALL REINFORCING, INCLUDING DOWELS AND ANCHOR BOLTS, SHALL BE SECURELY TIED IN LOCATION BEFORE PLACING CONCRETE OR GROUT. DOWELS WILL NOT BE ALLOWED TO BE "STABBED" IN.

TAPE JOINTS WITH 6 INCH LAPS AND COVER WITH SAND. CURING COMPOUND FOR OTHER WORK SHALL BE COMPATIBLE WITH APPLIED FINISH, CONFORM TO ASTM C-309 AND SHALL BE CLEAR ON UNCOVERED STRUCTURE AND WHITE PIGMENTED ON COVERED STRUCTURE. APPLY AT A RATE SUFFICIENT TO RETAIN MOISTURE, BUT NOT LESS THAN 1 GALLON PER 200 SQUARE FEET.

HIGH-RANGE WATER REDUCING ADMIXTURE
THE CONTRACTOR SHALL USE SUPER PLASTICIZER ADMIX IN LOCATIONS INDICATED ON DRAWINGS AND SHALL CONSIDER ITS USE WHERE CONGESTION OF REBAR IS LIKELY TO CAUSE ROCK POCKETS. THE CEMENT FOR THE MIX SHALL BE TYPE II. THE RATE OF PLACING SUCH CONCRETE SHALL BE REDUCED OR THE FORM STRENGTH SHALL BE INCREASED TO SAFELY RESIST INCREASED PRESSURE AGAINST FORMS.
THE USE OF THE ADMIX SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, ASTM C494 TYPE F OR G, AND ACI RECOMMENDATIONS. DO NOT USE WITH COLORED CONCRETE.

MAXIMUM SLUMP MAY BE INCREASED OVER SPECIFIED SLUMP BUT SHALL NOT EXCEED 8".

REINFORCING:

ASTM A-615 GRADE 60 EXCEPT AS FOLLOWS:

#2 BARS.....GRADE 40

#7 AND LARGER BARS TO BE WELDED.....A-706

WIRE MESH, FLAT SHEETS.....A-185

WELDED ANCHORS.....GRADE 40, CHEMICAL ANALYSIS LIMITED PER AWS SPEC FOR WELD WITHOUT PREHEAT. ALSO SEE "WELDING" BELOW.

ALL REINFORCING BARS DEFORMED EXCEPT #2 BARS AND WIRE MESH. LATEST ACI CODE AND DETAILING MANUAL APPLY. CLEAR CONCRETE COVERAGES TO ANY REINFORCING INCLUDING TIES ARE AS FOLLOWS.
CONCRETE PLACED AGAINST ROUGH EARTH.....3"

*ALL OTHER.....1 1/2"

*2" COVERAGE FOR FORMED CONCRETE EXPOSED TO EARTH OR WEATHER IS REQUIRED FOR #6 OR LARGER REBAR. SMALLER CLEARANCES PERMISSIBLE FOR PRECAST OR PRESTRESSED.

LAP SPLICES IN CONCRETE: SEE DRAWINGS.
UNLESS NOTED OTHERWISE, PROVIDE THE FOLLOWING LAP SPLICES:
#3, 16"; #4, 22"; #5, 27"; #6, 35"; #7, 46"; #8, 63"; #9, 80"; #10, 102"; #11, 125".
MINIMUM CLEAR COVER FOR SPLICED REINFORCING IS GREATER THAN ONE BAR DIAMETER, AND MINIMUM CLEAR SPACING IS GREATER THAN TWO BAR DIAMETERS.
SPLICE BOTTOM BAR OVER SUPPORTS AND TOP BAR AT MIDSPAN ONLY.
WHERE BARS ARE SHOWN SPLICED, THEY MAY RUN CONTINUOUS AT CONTRACTOR'S OPTION.

ALL SPLICE LOCATIONS SUBJECT TO APPROVAL. PROVIDE REQUIRED SHOP DRAWINGS AND FABRICATE AFTER THE ARCHITECT'S REVIEW. SEE SHOP DRAWING SECTION ABOVE. PLACE REBAR PER CRSI MANUAL.
REBAR SPACINGS GIVEN ARE MAXIMUM ON CENTER WHETHER STATED AS "O.C." OR NOT, AND ALL REBAR IS CONTINUOUS WHETHER STATED AS "CONT." OR NOT. PROVIDE BENT CORNER REBAR TO MATCH AND LAP WITH HORIZONTAL REBARS AT CORNERS AND INTERSECTION OF WALLS, BEAMS, BOND BEAMS AND FOOTINGS PER ACI MANUAL
DOWEL ALL VERTICAL REBAR TO FOUNDATIONS. SECURELY TIE ALL REBAR, INCLUDING DOWELS, IN LOCATION BEFORE PLACING CONCRETE OR GROUT.

WHERE REINFORCING IS SHOWN CONTINUOUS THRU CONSTRUCTION JOINTS, LENTON FORM SAVERS DOWEL BAR SPLICE DEVICES AS MANUFACTURED BY ERICO PRODUCTS, INC. (OR EQUIVALENT) MAY BE USED. SIZES AND TYPES SHALL BE SELECTED TO DEVELOP THE FULL TENSION STRENGTH OF THE BAR PER ICBO RESEARCH REPORT.

STRUCTURAL STEEL:

ASTM A572 GRADE 50 WITH SPECIAL REQUIREMENTS PER AISC TECHNICAL BULLETIN 3 FOR ALL WIDE FLANGE SECTIONS AND ASTM A-36 FOR ALL OTHER SECTIONS EXCEPT AS FOLLOWS: PIPE STEEL: ASTM A-53 GRADE B OR A-501. TUBE STEEL: ASTM A-500 GRADE B (FY = 46 KSI) FOR SIZES UP TO 5/8" THICK ASTM A-501 (FY = 36 KSI) FOR OTHERS UP TO 1" THICK. ASTM A572 GRADE 50 FOR MEMBERS SPECIFICALLY MARKED ON PLANS AND SCHEDULES WITH SYMBOL (50). STRUCTURAL MEMBERS IN AISC GROUPS 4 AND 5 "JUMBO SECTIONS" SHALL BE KILLED FINE-GRAINED STEEL. PLAIN BOLTS, ASTM A-307, PLAIN ANCHOR BOLTS, ASTM A-307 OR ASTM A-36. HIGH STRENGTH ANCHOR BOLTS ASTM A449 OR A325. HIGH STRENGTH BOLTS, ASTM A-325-N. TESTED BY A CALIBRATED WRENCH UNLESS LOAD INDICATOR BOLTS ARE USED. HIGH STRENGTH BOLTS SHALL BE TIGHTENED TO "SNUG TIGHT" CONDITION PER AISC, UNLESS SPECIFICALLY CALLED OUT TO BE "TORQUED AND TESTED" BY A CALIBRATED TORQUE WRENCH. OPEN WEB JOISTS PER STEEL JOIST INSTITUTE SPECIFICATIONS. LATEST AISC MANUAL PARTS 1 THROUGH 4 AND AISC SPECIFICATIONS APPLY (EXCEPT SECTION A7 AND CHAPTER N) AND EXCLUDING SECTIONS 3 AND 4 OF THE "AISC CODE OF STANDARD PRACTICE." (DESIGNER NOTE: EDIT OUT REFERENCE TO A-501 FOR TUBES IF NONE EXIST WITH WALL THICKNESS GREATER THAN 5/8".)

MINIMUM EMBEDMENT OF ALL HORIZONTAL BOLTS AND PLAIN ANCHORS IN GROUT OR CONCRETE SHALL BE 5 INCHES INCLUDING HEAD OR 8 INCHES WITH A 3 INCH HOOK. VERTICAL BOLTS SHALL HAVE 8 INCHES VERTICAL EMBEDMENT INCLUDING HEAD OR 8 INCHES WITH A 3 INCH HOOK. WELDED "ANCHORS" AND WELDED ANCHOR BOLTS SHALL BE HEADED STUDS, WELDED ALL AROUND WITH 5/16 INCH FILLET WELD AND SHALL NOT CONTAIN THREADS. "HEADED ANCHOR STUDS (H.A.S.)" AND "SHEAR CONNECTORS" SHALL BE USED ONLY WHERE SPECIFICALLY CALLED FOR AND SHALL BE NELSON OR KSM INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. THEY SHALL BE 3/4 INCH DIAMETER X 5 INCHES LONG UNLESS NOTED OTHERWISE.

SEE MECHANICAL DRAWINGS FOR MECHANICAL EQUIPMENT SUPPORT FRAMING AND SPREADERS.

STEEL STAIRS AND RAILINGS SHALL CONFORM TO THE CURRENT EDITION OF THE METAL STAIRS MANUAL BY NAAMM, 221 NORTH LASALLE STREET, CHICAGO, ILLINOIS. IN CASE OF CONFLICT SEE SUPPLEMENTARY SECTION THIS SHEET

PROVISIONS FOR TEMPERATURE EXPANSION DURING ERECTION: STRUCTURAL STEEL SHALL BE SO DETAILED AND ERECTED SO THAT DURING ERECTION, BEFORE THE DECK IS COVERED AND INSULATED, TEMPERATURE CHANGES ANTICIPATED, DO NOT CAUSE UNACCEPTABLE PERMANENT MISALIGNMENT AND DO NOT THRUST OR PULL AGAINST WALLS OR OTHER ADJOINING CONSTRUCTION TO CAUSE THEM TO BE OVERSTRESSED OR DAMAGED. SUCH PROVISIONS CAN BE MADE BY PROVIDING TEMPORARY SLIP CONNECTIONS AT SUFFICIENT INTERVALS.

TEFLON BEARING PADS: TEFLON BEARING PADS SHALL HAVE LOW-FRICTION SLIDING SURFACES BETWEEN STEEL PLATES. MATERIAL SHALL BE 3/32 INCH THICK WITH SPECIALLY FORMULATED TEFLON TFE BEARING SURFACE. TEFLON TFE SPECIAL FORMULATION SHALL BE REINFORCED WITH GLASS FIBER AND OTHER AGGREGATES, LOW FRICTION (.03 TO .06), AND CHEMICALLY INERT CHARACTERISTICS. MATERIALS SHALL BE BONDED TO 10 GAGE CARBON STEEL PLATES WITH 1/4 INCH LIP. BEARING SURFACES SHALL BE FLUOROGOLD FC 1025-CS AS PRODUCED BY FLUOROCARBON CO. OR APPROVED EQUIVALENT MAXIMUM 2,000 P.S.I. BEARING PRESSURE.

SEE "WELDING" SECTION FOR SPECIAL REQUIREMENTS.
SEE "SHOP DRAWING" SECTION FOR SPECIAL REQUIREMENTS.

PERFORATED PANELS:

SHALL BE 5052-H34 ALUMINUM ALLOY, PANELS WITH 58% OPEN AREA SHALL HAVE 1/4" DIA. HOLES AT 5/16" STAGGERED CENTERS, 12 HOLES P.S.I. FABRICATED BY McNICHOLS CO. PANELS WITH 40% OPEN AREA SHALL HAVE 1/4" DIA. HOLES AT 3/8" STAGGERED CENTERS, 8.5 HOLES P.S.I. FABRICATED BY McNICHOLS CO., WITH A 3" SOLID METAL BORDER AROUND ALL PERIMETERS OF PREFORATED METAL. SANDBLAST BOTH SIDES.

SEE SPECIFICATIONS FOR SEPARATION MATERIAL
REQUIRED BETWEEN ALUMINUM AND STEEL.

FASTENERS: ALUMINUM TO STEEL, #14 STAINLESS STEEL X 3/4" SELF TAPPING SCREWS WITH WEATHER SEAL WASHERS.

SEE "WELDING" SECTION FOR SPECIAL REQUIREMENTS.

ALUMINUM GRATING:

SHALL BE PROVIDED IN ACCORDANCE WITH ANSI/NAAMM METAL BAR GRATING MANUAL", SIXTH EDITION, CAPABLE OF CARRYING A SAFE LIVE LOAD OF 100 POUNDS PER SQUARE FOOT. TOP AND BOTTOM SHOULD BE SANDBLASTED.
FASTEN TO SUPPORTS WITH SADDLE CLIPS WHERE GRATING IS TO BE REMOVABLE AND USING WELDING ELSEWHERE.
BANDING BARS SHOULD BE PROVIDED TO THE ENDS OF THE BEARING BARS IN REMOVABLE GRATING PANELS.

WELDING:

ALL BRIDGE STEEL CONNECTIONS AT SRUCTURE AND ALL GUARDRAILS MUST BE GROUND SMOOTH AND FINISHED TO AN "ARCHITECTURAL EXPOSED STRUCTURAL STEEL LEVEL" PER AISC.

ALL CONSTRUCTION AND TESTING PER AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT VALID CERTIFICATES AND HAVING CURRENT EXPERIENCE IN TYPE OF WELD CALLED FOR

WELDING RODS TO BE LOW HYDROGEN TYPE, E70 SERIES, PER AWS D1.1 TYPICALLY EXCEPT E-6010 SERIES FOR STEEL SHEET METAL PER AWS D1.3 AND REINFORCING WELDMENTS PER AWS D1.4. USE E90 SERIES WELDING RODS FOR A706 REBAR.

ALL FULL-PENETRATION GROOVE OR BUTT WELDED SPLICES IN MATERIAL THICKER THAN 5/16" SHALL BE INSPECTED BY AN INDEPENDENT TESTING LABORATORY, WHICH SHALL TEST ULTRASONICALLY A SUFFICIENT NUMBER OF WELDS BUT NOT LESS THAN 25 PERCENT OF TOTAL PER WELDER, TO CERTIFY ALL SPLICES AS MEETING OR EXCEEDING STRENGTH OF MATERIAL SPLICED. TWO COPIES OF ALL TEST REPORTS AND A LETTER OF SUCH CERTIFICATION SHALL BE SUBMITTED TO THE ARCHITECT.

SHOP INDICATED WELDS MAY BE DONE IN FIELD.

CONCRETE GIRDERS:

PRESTRESSED PRETENSIONED HARDROCK ITEMS SHALL BE AS MANUFACTURED BY TPAC (ICBO # PFC-2755), CORESLAB (ICBO # PFC-4121) OR APPROVED EQUAL. MANUFACTURER SHALL BE RESPONSIBLE FOR DESIGN OF THESE ITEMS FOR LOADS IN ADDITION TO THEIR WEIGHT AS SHOWN ON PLANS, & SHALL INFORM THE ARCHITECT PRIOR TO BIDDING, IF LARGER THAN SPECIFIED SIZES BECOME ADVISABLE.

SUBSTITUTION TO THE DESIGN SHOWN WILL NOT BE PERMITTED UNLESS APPROVED PRIOR TO BIDDING. IF CONTRACTOR ELECTS TO SUBSTITUTE, HE SHALL BE RESPONSIBLE FOR ALL ADDED COORDINATION, COSTS & TIME REQUIRED TO ACHIEVE THE DESIGN INTENT.

PRESTRESSING STRANDS SHALL HAVE SUFFICIENT COVER FOR MIN. TWO HOUR FIRE RATING.

DESIGN MUST INCLUDE VERIFICATION OF ALL OPENINGS AND MECHANICAL LOADS REQUIRED BY CONTRACT DOCUMENTS. DESIGN, FABRICATION, TRANSPORTATION, AND ERECTION PER LATEST ACI CODES & PCI HANDBOOK.

SEALED DESIGN CALCULATIONS SUFFICIENT TO OBTAIN A BUILDING PERMIT SHALL BE SUBMITTED TO THE ARCHITECT SOON AFTER AWARD OF THE CONTRACT. THESE AND ANY ADDITIONAL CALCULATIONS SHALL BE SUBMITTED FOR REVIEW WITH THE SHOP DRAWINGS PRIOR TO FABRICATION.

CONTRACTOR SHALL BE RESPONSIBLE FOR PICK UP POINT INSERTS AND LOCATIONS, SPECIAL PICK UP REINFORCING AND STRONG BACKS, AND ALL PICK UP AND PLACING OPERATIONS.

DO NOT TAMP FLAT PRECAST SLABS. USE ROLLER BUG, VIBRATING SCREED OR BULL FLOAT TO FINISH.

SUPPLEMENTARY NOTES

THESE CONTRACT DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE.
THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE, WORKERS, AND OTHER PERSONS DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, MEANS AND METHODS, BRACING, SHORING, FORMS, SCAFFOLDING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER OR STRUCTURAL OBSERVERS SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
ANY MEMBERS REQUIRED TO SUPPORT EQUIPMENT FROM THE FRAMING SHOWN SHALL BE DESIGNED AND PROVIDED BY THE EQUIPMENT CONTRACTOR.

FOR CONNECTIONS, SEE DETAILS. IF NOT SHOWN OR NOTED, MINIMUM CONNECTIONS TO BE INCLUDED IN COST SHALL BE TWO 3/4" DIAMETER BOLTS OR 3/16" FILLET WELD 4" LONG USING 1/4" CONNECTION MATERIAL AND DETAILED TO MINIMIZE BENDING IN CONNECTION. PROCEED AFTER CLARIFICATION THROUGH SHOP DRAWING SUBMITTAL.

EXPANSION BOLTS IN CONCRETE SHOWN IN DRAWINGS SHALL BE KWIK-BOLT II OR HDI BY HILTI, OR APPROVED ALTERNATE WITH ALLOWABLE VALUES EQUAL TO OR EXCEEDING THOSE FOR HILTI, PER CURRENT ICBO RESEARCH RECOMMENDATION. EMBED 3-1/4" MINIMUM FOR 3/4" DIAMETER BOLTS. WHERE SPALLING IS ANTICIPATED DUE TO INSUFFICIENT EDGE DISTANCE, USE THREADED ANCHOR ROD EPOXIED INTO DRILLED HOLE.

INSTALLATION OF EPOXIED DOWELS SHALL FOLLOW THE STRICT RECOMMENDATIONS OF THE MANUFACTURER AND THE APPLICABLE ICBO REPORT, IF ANY.

EXPANSION BOLTS IN CONCRETE SHOWN IN DRAWINGS SHALL BE BY ONE OF THE FOLLOWING MANUFACTURERS OR SUBMITTED ALTERNATE FOR APPROVAL ALONG WITH ICBO APPROVAL REPORT NUMBER:

HILTI KWIK-BOLT II	ICBO REPORT NO. 4627
ITW RAMSET / REDHEAD TRUBOLT	ICBO REPORT NO. 1372
RAWL BOLT OR STUD	ICBO REPORT NO. 4514
WEJ-IT ANKR-TITE	ICBO REPORT NO. ER-1821

EMBED 3-1/4" MINIMUM FOR 3/4" DIAMETER BOLTS. WHERE SPALLING IS ANTICIPATED DUE TO INSUFFICIENT EDGE DISTANCE, USE THREADED ANCHOR ROD SPOXIED INTO DRILLED HOLE

OPTIONS AND APPROVED SUBSTITUTIONS ARE FOR CONTRACTOR'S CONVENIENCE. HE SHALL BE RESPONSIBLE FOR ALL CHANGES AND ADDITIONAL COSTS NECESSARY AND HE SHALL COORDINATE ALL DETAILS.

ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BE BY AN INSURED STRUCTURAL ENGINEER WITH CONTINUOUS FIVE YEARS OF EXPERIENCE IN THE TYPE OF DESIGN SUBMITTED.

UNLESS NOTED OTHERWISE, DETAILS ON STRUCTURAL DRAWINGS ARE TYPICAL AS INDICATED BY CUTS, REFERENCES, OR TITLES.

IN CASE OF CONFLICTS, MORE COSTLY REQUIREMENTS GOVERN FOR BIDDING. SUBMIT CLARIFICATION REQUEST PRIOR TO PROCEEDING WITH WORK

VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.

CONTRACTOR SHALL ESTABLISH AND VERIFY IN FIELD ALL EXISTING CONDITIONS AFFECTING NEW CONSTRUCTION. CONTACT ARCHITECT IMMEDIATELY IF EXISTING CONDITIONS ARE NOT AS DEPICTED IN DRAWINGS.

ALL CONSTRUCTION MEETING OR CROSSING EXPANSION OR SHRINKAGE CONTROL JOINTS IN FRAMED FLOORS OR ROOFS MUST HAVE PROVISIONS TO ACCOMMODATE THE MOVEMENT OR MUST BE DELAYED UNTIL THE JOINT IS CLOSED.

ENGINEERING DESIGN TO BE PROVIDED BY CONTRACTOR:

THE CONTRACTOR SHALL INCLUDE IN HIS BID, CONSTRUCTION COSTS AND STRUCTURAL DESIGN BY AN INSURED ARIZONA REGISTERED STRUCTURAL ENGINEER OR THE ENGINEER'S BONA FIDE EMPLOYEE FOR THE FOLLOWING PHASES OF CONSTRUCTION, IF APPLICABLE.

THE DESIGN ENGINEER SHALL HAVE CONTINUOUS FIVE YEARS OF EXPERIENCE IN THE TYPE OF DESIGN SUBMITTED, OR SHALL BE PREQUALIFIED BY THE ARCHITECT.

A. CORRECTIVE MEASURES FOR ERRORS IN CONSTRUCTION, WHEN SUCH MEASURES ARE ACCEPTABLE TO THE ARCHITECT.

B. SUPPORT FOR CAISSON DRILLING RIG

C. LIFTING AND BRACING OF PRECAST CONCRETE (DESIGN FOR INSERTS, BRACES, ETC., FOR ALL LOADS INCLUDING IMPACT).

D. THE PRECAST CONNECTIONS SHOWN ON PLANS AND DETAILS ARE THE MINIMUM IN-PLACE CONNECTIONS REQUIRED. THE PRECASTER SHALL CHECK ALL CONNECTIONS AND SUPPLY ANY ADDITIONAL CONNECTIONS NECESSARY.

E. SHORING UNDER ALL UNDERGROUND FACILITIES DUE TO LOADING CAUSED BY CRANES, CONSTRUCTION EQUIPMENT, TRUCKS, AND STORED CONSTRUCTION MATERIALS.

F. CONCRETE GIRDERS

DRAWINGS ADDED FOR REFERENCE ONLY.

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

23296
MICHAEL S. PUHLMANN
REGISTERED PROFESSIONAL ENGINEER
CERTIFICATE NO.
STATE OF ARIZONA
U.S.A.

STAMP / DATE

BID DOCUMENTS
PHASE ONE

GENERAL STRUCTURAL NOTES

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP,AZ

PROJECT NUMBER: 2829

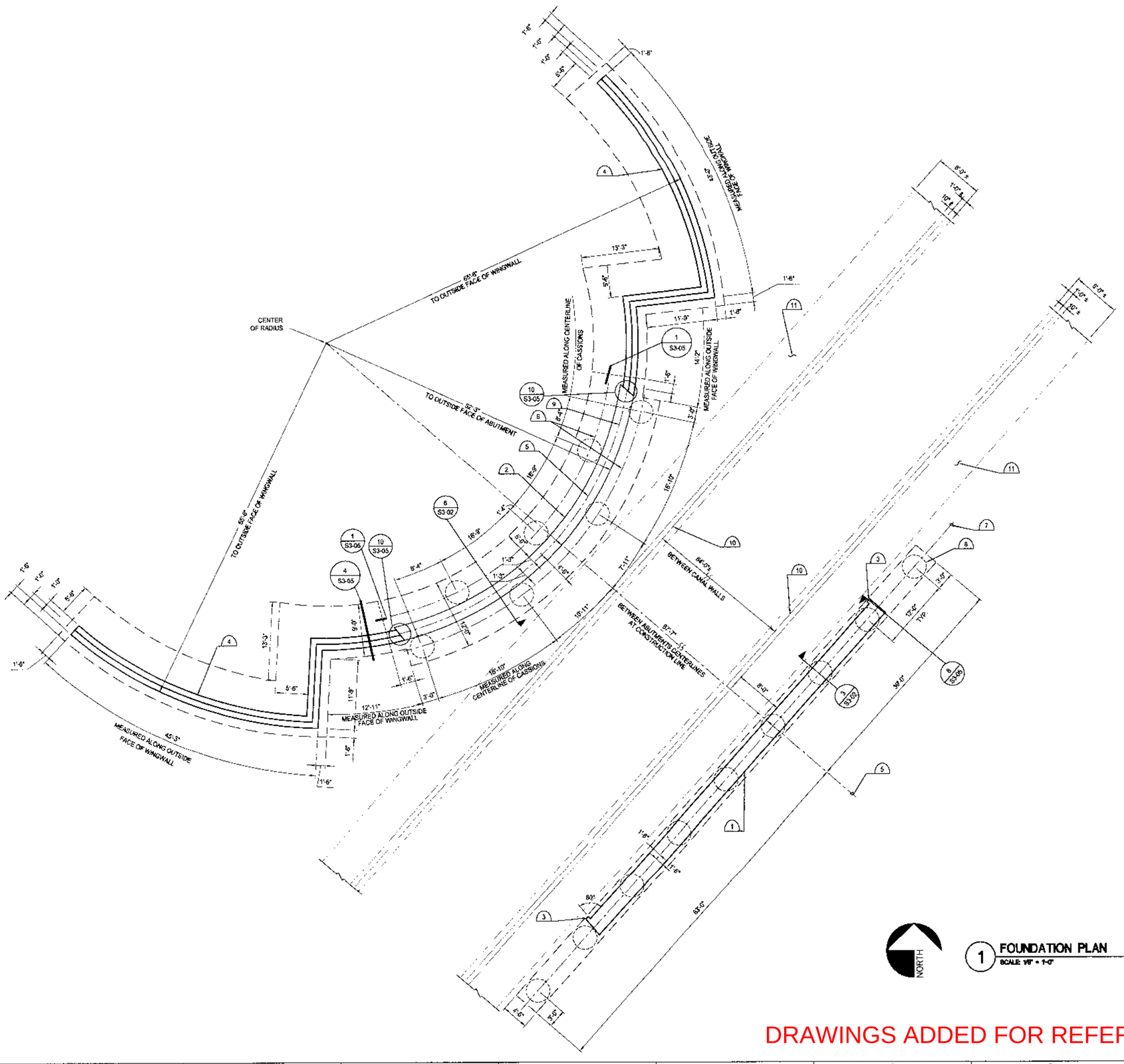
REVISION	BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY MSP/AZ	DATE 10-10-03	BD NO. #04PB034	SHT. S1-01
DRAWN BY GAA/JG	AS-BUILT 00/00	PROJECT NO. 2829	75 OF 89



KEY NOTES:

1. ABUTMENT NO. 1
2. ABUTMENT NO. 2
3. WINGWALL (SEE 8/S3-05 FOR DETAILS).
4. WINGWALL (SEE 4/S3-05 FOR DETAILS).
5. CONSTRUCTION CENTER LINE.
6. CENTER LINE OF CASSIONS FOR ABUTMENT NO. 2.
7. CENTER LINE OF CASSIONS AND ABUTMENT NO. 1.
8. 4'-0"Ø CASSIONS (TYP.) (SEE 6/S3-02 FOR DETAILS).
9. ABUTMENT NO. 2 CENTERLINE.
10. EXISTING CANAL WALL
11. EXISTING CANAL WALL FOOTING.

NORTH

1 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

DRAWINGS ADDED FOR REFERENCE ONLY.

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

ARIZONA STATE BOARD OF TECHNICAL REGISTRATION
23298
MICHAEL S. PUHLMANN
REGISTERED PROFESSIONAL ENGINEER
STAMP / DATE

BID DOCUMENTS
PHASE ONE

FOUNDATION LAYOUT AND DETAILS

ISSUED FOR: BID DOCUMENTS
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PROJECT TITLE
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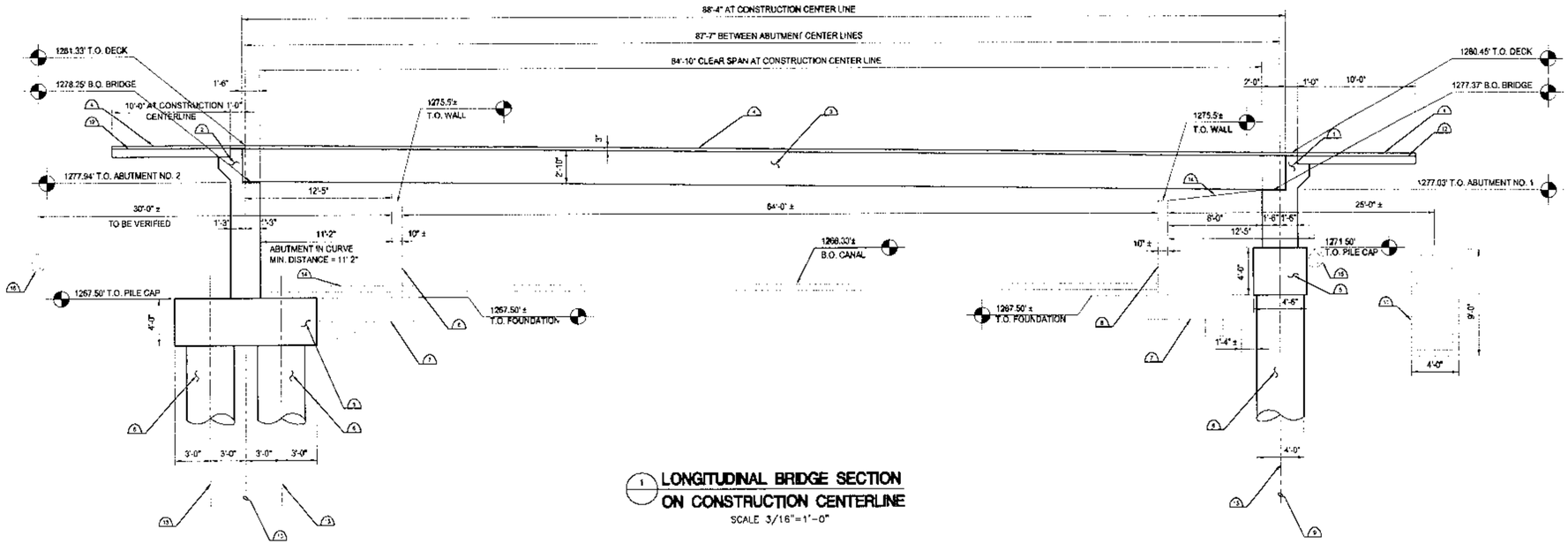
DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	W04PB034	S2-01
DRAWN BY	AS-BUILT	PROJECT NO.	
GA/JG	0000	2829	76 OF 89



1 LONGITUDINAL BRIDGE SECTION ON CONSTRUCTION CENTERLINE
SCALE 3/16"=1'-0"

KEY NOTES:

1. ABUTMENT NO. 1 (SEE 3/S3-02 FOR DETAILS).
2. ABUTMENT NO. 2 (SEE 6/S3-02 FOR DETAILS).
3. CONCRETE GIRDER (SEE S4-01 FOR DETAILS).
4. 3" ARCHITECTURAL NON-COMPOSITE PAVER.
5. ABUTMENT CAP (SEE 3/S3-02 AND 6/S3-02 FOR DEATILS).
6. 4'-0" DIA. TYPICAL CAISSON (SEE 9/S3-02 FOR DETAILS).
7. EXISTING CANAL WALL FOOTING.
8. EXISTING CANAL WALL.
9. ABUTMENT NO. 1 CENTER LINE.
10. ABUTMENT NO. 2 CENTER LINE.
11. EXISTING 69KV UTILITY VAULT.
12. APPROACH SLAB, 6" SLAB WITH #4 @ 12" O.C. EACH WAY AT MIDDEPTH (SEE 1/S5-03 AND 5/S5-03).
13. CAISSON CENTER LINES.
14. GRADE AND SURFACE TREATMENT, SEE LANDSCAPE ARCHITECT.
15. EXISTING 12KV (TO BE REMOVED BY SRP).
16. EXISTING 12KV (TO BE VERIFIED).

DRAWINGS ADDED FOR REFERENCE ONLY.

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BID DOCUMENTS
PHASE ONE

LONGITUDINAL BRIDGE SECTION

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
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#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP-AZ

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REVISION | BY

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DESIGNED BY MSP/AZ	DATE 10-10-03	BID NO. #04PB034	SHT. S3-01
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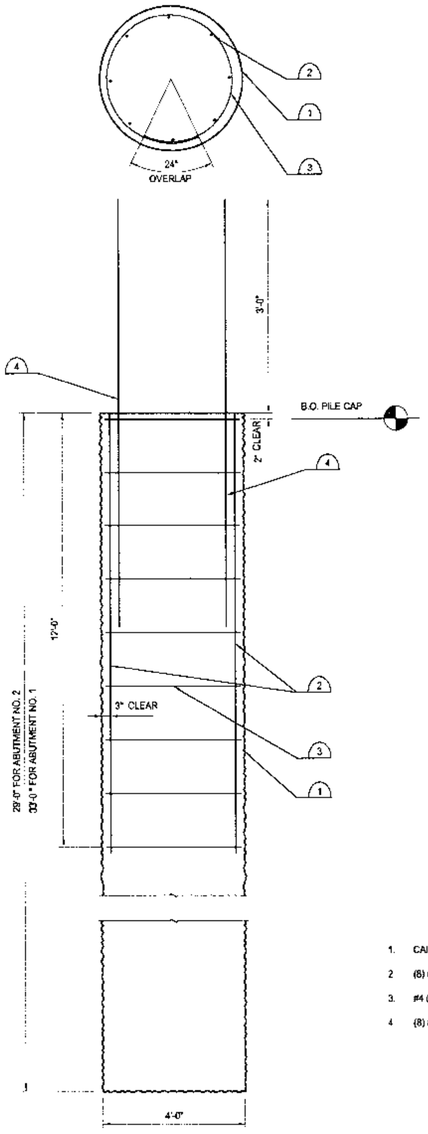
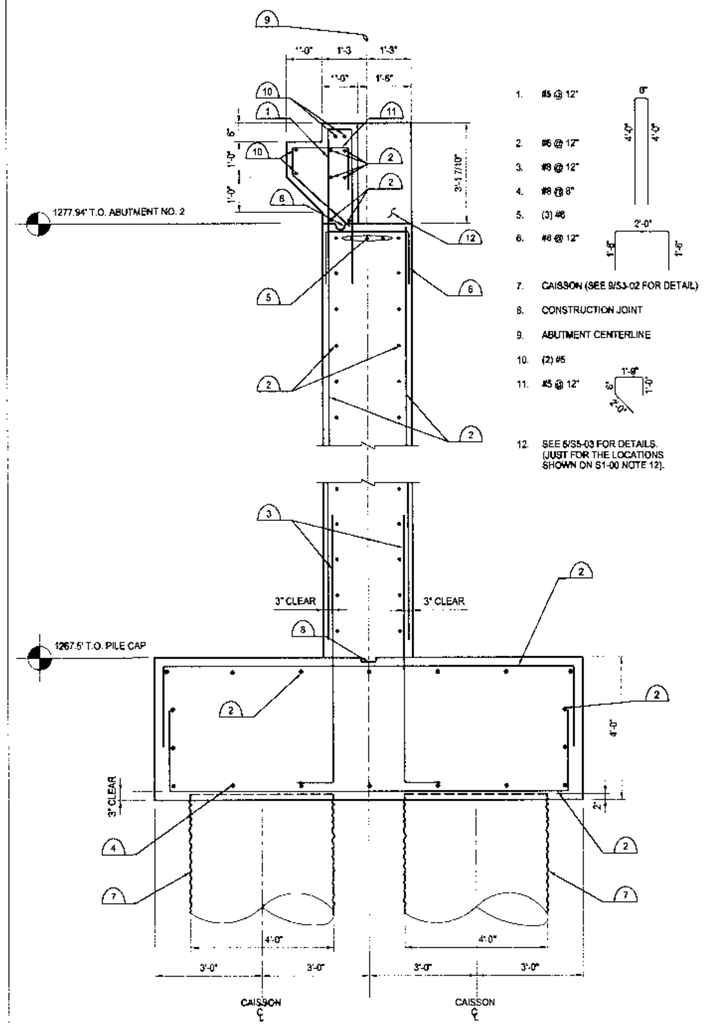


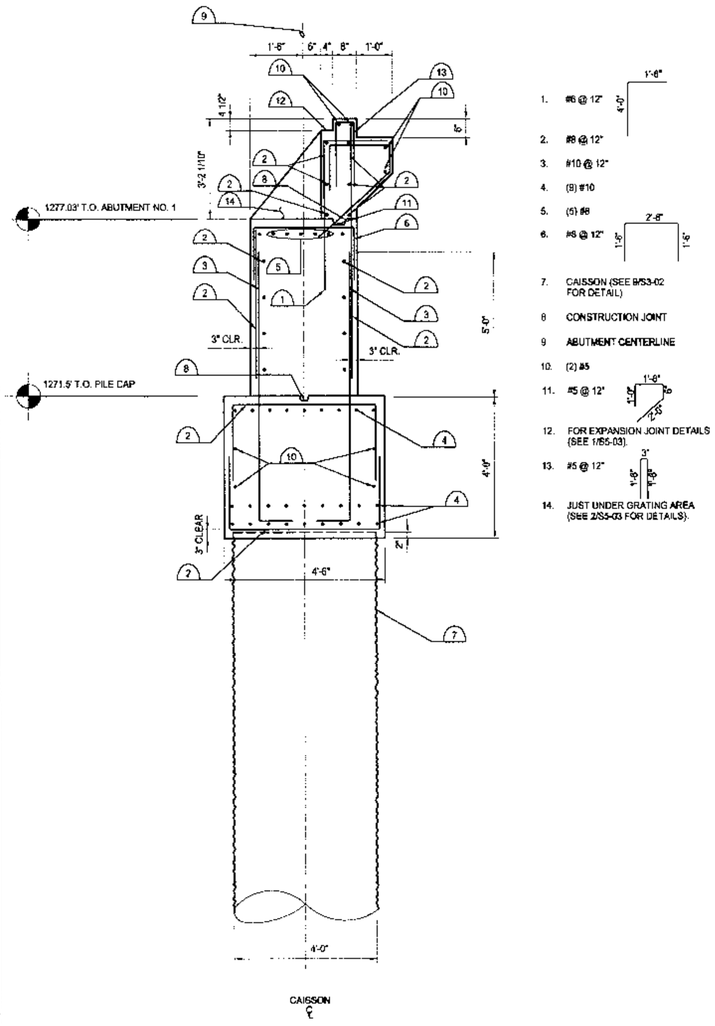
1. CAISSON (TYP.)
2. (8) #10 VERTICAL REINFORCEMENT
3. #4 @ 18" O.C.
4. (8) #10 x 6'-0" DOWELS

9 CAISSON SECTION



1. #5 @ 12"
2. #6 @ 12"
3. #8 @ 12"
4. #8 @ 8"
5. (3) #8
6. #8 @ 12"
7. CAISSON (SEE 8/S3-02 FOR DETAIL)
8. CONSTRUCTION JOINT
9. ABUTMENT CENTERLINE
10. (2) #5
11. #5 @ 12"
12. SEE 6/S5-03 FOR DETAILS. (JUST FOR THE LOCATIONS SHOWN ON S1-00 NOTE 12).

6 ABUTMENT NO. 2 SECTION



1. #6 @ 12"
2. #8 @ 12"
3. #10 @ 12"
4. (9) #10
5. (5) #8
6. #5 @ 12"
7. CAISSON (SEE 8/S3-02 FOR DETAIL)
8. CONSTRUCTION JOINT
9. ABUTMENT CENTERLINE
10. (2) #5
11. #5 @ 12"
12. FOR EXPANSION JOINT DETAILS (SEE 1/S5-03).
13. #5 @ 12"
14. JUST UNDER GRATING AREA (SEE 2/S5-03 FOR DETAILS).

3 ABUTMENT NO. 1 SECTION

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 23296 — MICHAEL S. PUHLMANN — DATE SIGNED — ARIZONA, U.S.A.

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BID DOCUMENTS
PHASE ONE

ABUTMENT DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP/AZ

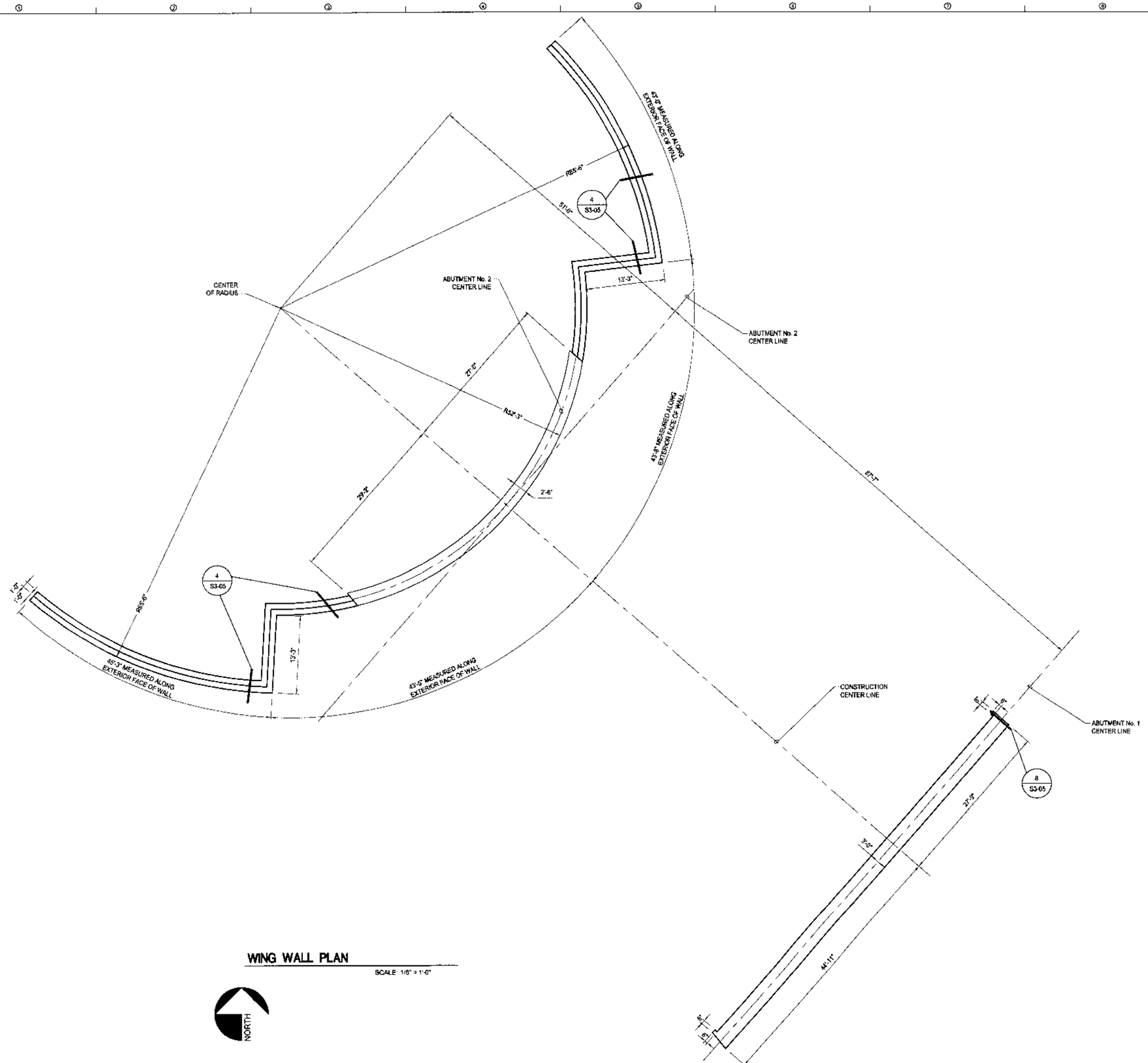
PROJECT NUMBER: 2829

REVISION	BY

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S3-02
DRAWN BY	AS-BUILT	PROJECT NO.	78 OF 89
GAA/JG	0000	2829	



WING WALL PLAN

SCALE: 1/8" = 1'-0"

NORTH

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Scottsdale, Arizona

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DATE SIGNED
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WINGWALL PLAN

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PROJECT NUMBER 2829

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KPFF PROJECT #: 110149.1

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
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DRAWN BY	AS-BUILT	PROJECT NO.	
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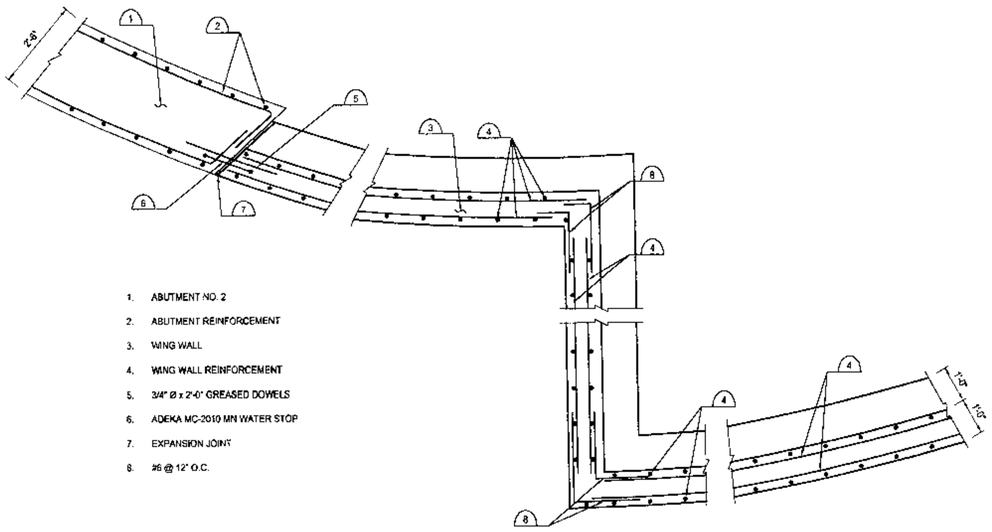
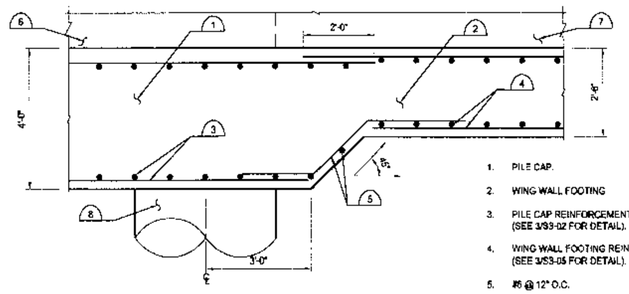


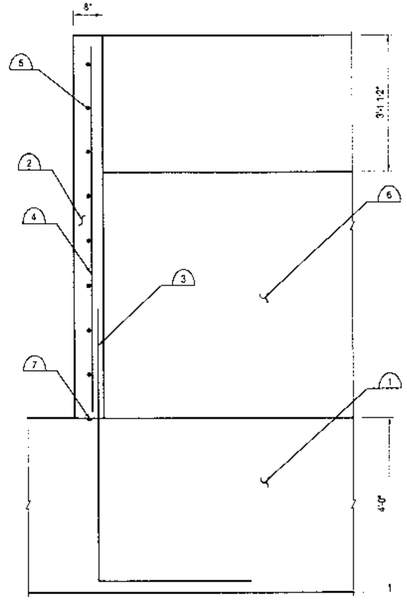
1. ABUTMENT NO. 2
2. ABUTMENT REINFORCEMENT
3. WING WALL
4. WING WALL REINFORCEMENT
5. 3/4" Ø x 2'-0" GREASED DOWELS
6. ADEKA MC-2010 MN WATER STOP
7. EXPANSION JOINT
8. #6 @ 12" O.C.

10 EXPANSION JOINT AT ABUTMENT TO WING WALL CONNECTION ON NORTH SIDE



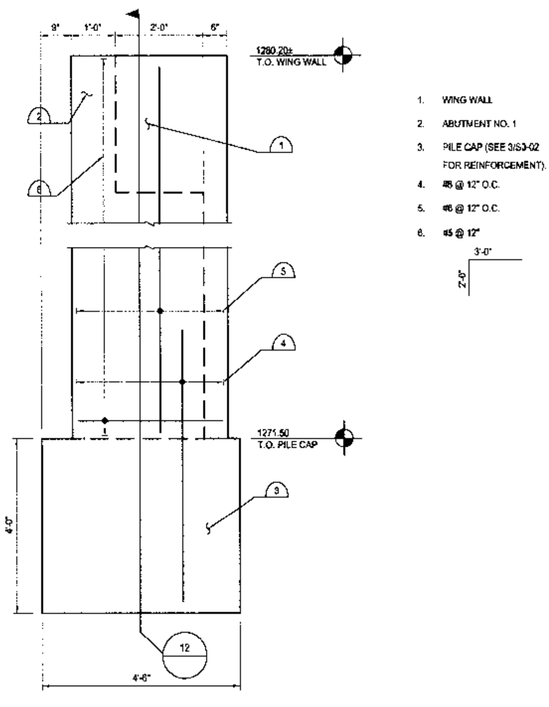
1. PILE CAP.
2. WING WALL FOOTING
3. PILE CAP REINFORCEMENT. (SEE 3/S3-02 FOR DETAIL).
4. WING WALL FOOTING REINFORCEMENT. (SEE 3/S3-05 FOR DETAIL).
5. #6 @ 12" O.C.
6. ABUTMENT NO. 2.
7. WING WALL.
8. CAISSON.

1 PILE CAP TO WING WALL FOOTING CONNECTION



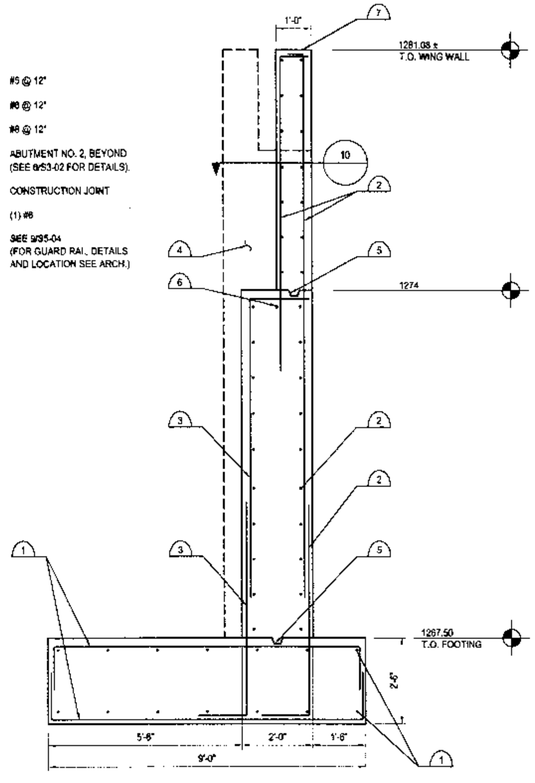
1. PILE CAP
2. WING WALL
3. VERTICAL REINF. PER SECTION 8
4. VERTICAL REINF. PER SECTION 8
5. HORIZONTAL REINF. PER SECTION 8
6. ABUTMENT NO. 1 (SEE 3/S3-02 FOR DETAILS).
7. CONSTRUCTION JOINT

12 WING WALL SECTION



1. WING WALL
2. ABUTMENT NO. 1
3. PILE CAP (SEE 3/S3-02 FOR REINFORCEMENT).
4. #5 @ 12" O.C.
5. #6 @ 12" O.C.
6. #5 @ 12"

8 WING WALL SECTION ON SOUTH SIDE



1. #5 @ 12"
2. #6 @ 12"
3. #8 @ 12"
4. ABUTMENT NO. 2, BEYOND (SEE 6/S3-02 FOR DETAILS).
5. CONSTRUCTION JOINT
6. (1) #8
7. SEE 9/S5-04 (FOR GUARD RAIL DETAILS AND LOCATION SEE ARCH.)

4 WING WALL SECTION ON NORTH SIDE

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PHASE ONE

WINGWALL DETAILS

ISSUED FOR: BID DOCUMENTS
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CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

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MSP/AZ	10-10-03	#04PB034	S3-05
DRAWN BY	AS-BUILT	PROJECT NO.	
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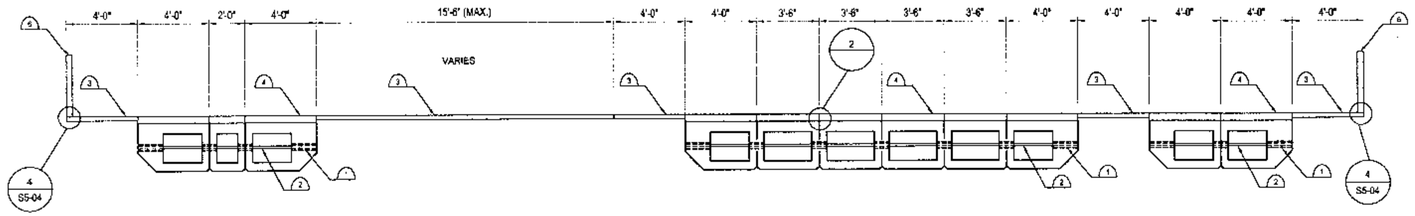
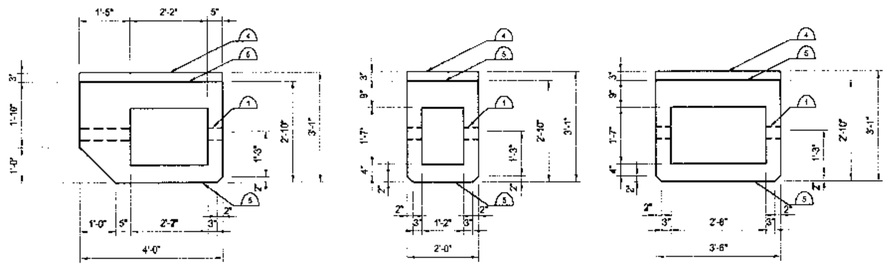


1. 4" Ø HOLE JUST AT THE LOCATION OF PLANTERS (SEE ARCH.) (SEE S1S5-02 AND CONTRACTOR'S SHOP DRAWINGS FOR DETAILS).
2. 1 1/4" Ø TIE ROD W/ ACCESSORIES TENSION FROM ONE END (SEE CONTRACTOR'S SHOP DRAWINGS FOR ALL DIMENSIONS AND DETAILS)
3. GRATING PER PLAN.
4. NON-COMPOSITE CONCRETE.
5. CARBON FIBER LAYER. (CARBON FIBER DESIGN IS PENDING THE RESULTS OF THE CARBON FIBER TESTING. FINAL CARBON FIBER DRAWINGS AND SPECIFICATIONS WILL BE SUBMITTED WHEN THE TESTING IS COMPLETE).
6. GUARD RAIL.

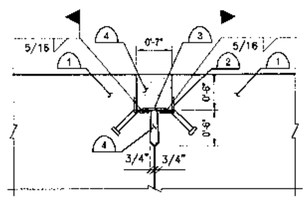
1 BRIDGE DECK SECTION
SCALE 1/4"=1'-0"



4'-0" WIDE EDGE BEAM
SCALE 1/2"=1'-0"

2'-0" WIDE BEAM
SCALE 1/2"=1'-0"

3'-6" WIDE BEAM
SCALE 1/2"=1'-0"



1. CONCRETE GIRDER.
2. 2 1/2" x 2 1/2" x 3/8" x 0'-10" ANGLES @ 24" W/ (2) 3/4" H.A.S. @ 6" O.C.
3. 3/8" x 8" x 4" PLATE
4. FILL WITH APPROVED NON-SHRINK 5000 P.S.I. GROUT AFTER UNITS ARE IN PLACE AND AFTER LATERALLY TENSIONED. (ALL BY TPAC). COVER FOR CURING.

2 CONCRETE GIRDER SHEAR CONNECTION (TYP.)

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

23296 MICHAEL S. PUHLMANN — REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. — ARIZONA U.S.A.

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GIRDER DETAILS

ISSUED FOR: BID DOCUMENTS
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PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY MSP/AZ	DATE 10-10-03	BID NO. #04PB034	SHT. S4-01
DRAWN BY GAAUG	AS-BUILT DATE	PROJECT NO. 2829	81 OF 89

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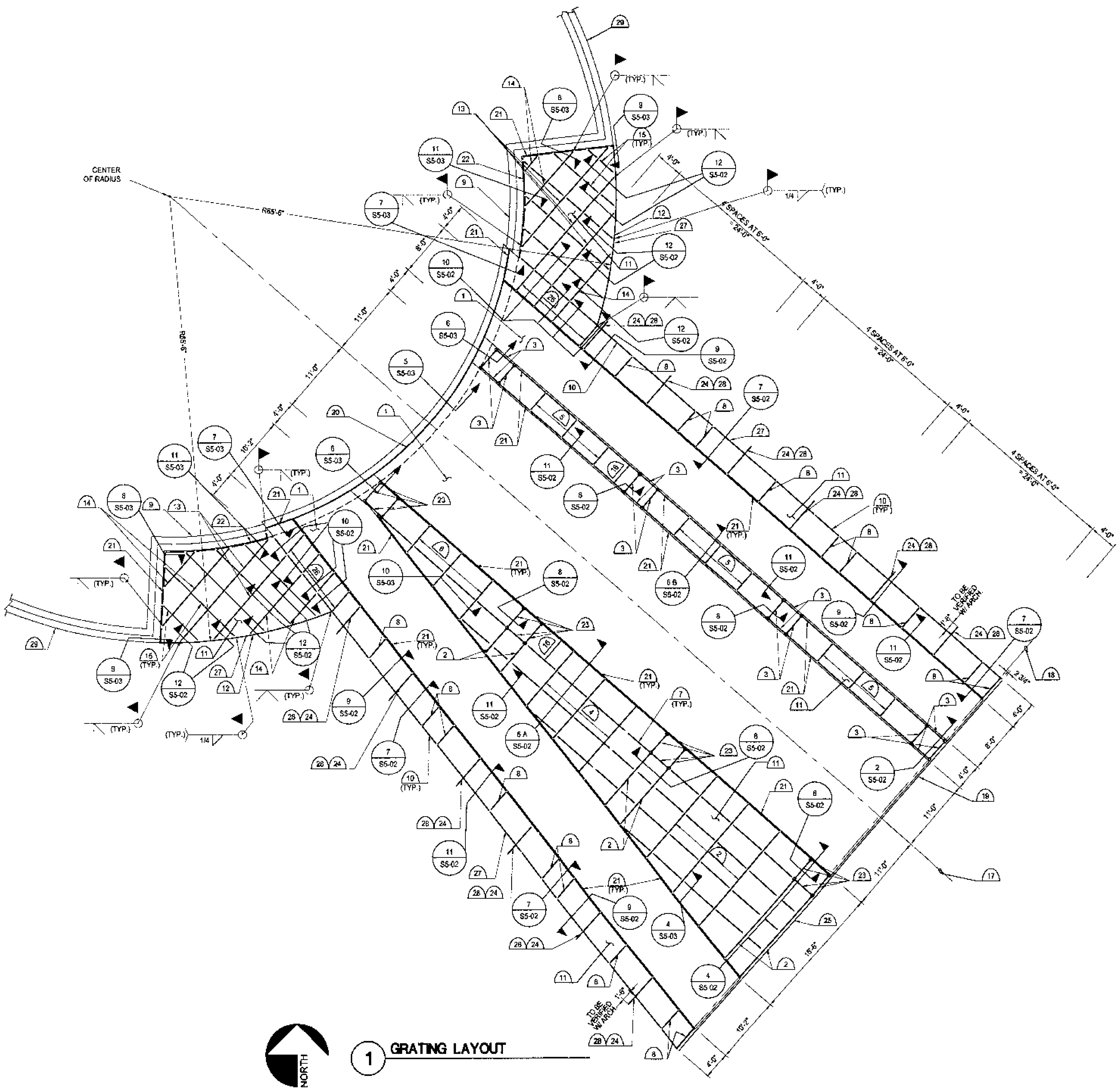


1 GRATING LAYOUT

KEY NOTES:

1 CONCRETE GIRDERS.

2. TS 10 x 6 x 5/8.

3. TS 10 x 6 x 5/8 AND TS 6 x 6 x 5/8 (SEE 2/S5-02 FOR DETAILS).

4 TS 10 x 6 x 5/16

5. TS 10 x 6 x 1/4.

6. TS 10 x 6 x 3/16.

7. TS 4 x 4 x 1/4.

8. TS 10 x 6 x 3/16 (TAPERED).

9. WING WALL

10. TS 6 x 6 x 1/4

11. GRATING, McNICHOLS GCM-1 SERIES, ALUMINUM CLOSE MESH, 1 1/4" x 3/16" (SEE S1-01).

12. TS 6 x 6 x 9/16.

13. TS 6 x 6 x 1/2.

14 TS 6 x 6 x3/8.

15 TS 6 x 6 x 1/4.

16. GRATING TO BE REMOVABLE CONTINUOUSLY AT 4'-0" STRIP BY FASTENED MECHANICAL CLIPS. (SEE MANUFACTURER).

17. CONSTRUCTION CENTERLINE.

18. ABUTMENT CENTERLINE.

19. 2 3/4" WIDTH EXPANSION JOINT (SEE 1 & 2 /S5-03 FOR DETAILS).

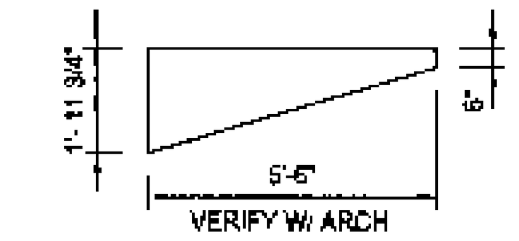
20. 1 1/4" WIDTH JOINT (SEE 5 & 6 /S5-03 FOR DETAILS).

21. TS 6 x 4 x 1/4. (SEE 7/S5-03)

22. TS 6 x 4 x 1/4 CURVED.

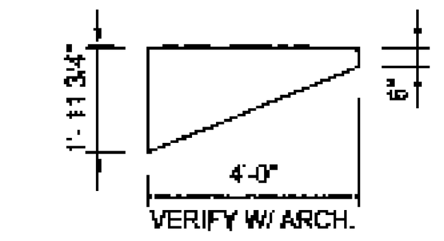
23 TS 10 x 6 x 5/8 AND TS 6 x 6 x 5/8 (SEE 4/S5-02 FOR DETAILS)

24. BUILT UP STEEL TUBE 1'-11 3/4" x 6" x 3/8" x 6" TOTAL WIDTH.



25. TS 10 x 6 x 1/4 (SEE 1/S5-03 FOR EXPANSION JOINT DETAILS).

26. BUILT UP STEEL TUBE 1'-11 3/4" x 6" x 9/16" x 6" TOTAL WIDTH.



27. GUARDRAIL ALONG EACH SIDE OF BRIDGE (SEE ARCH & 4/S5-04).

28. SEE 3/S5-04 FOR PLANTER DETAIL.

29. GUARD RAIL AT TOP OF WING WALL (SEE ARCH AND 9/S5-04).

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Scottsdale, Arizona

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GRATING PLAN

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MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
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PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY MSP/AZ	DATE 10-10-03	BID NO. #04PB034	SHT. S5-01
DRAWN BY GAA/JG	AS-BUILT 0000	PROJECT NO. 2829	82 OF 89

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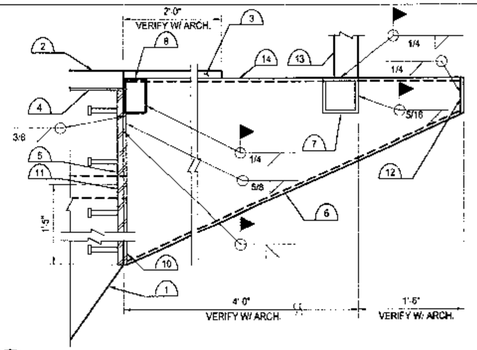
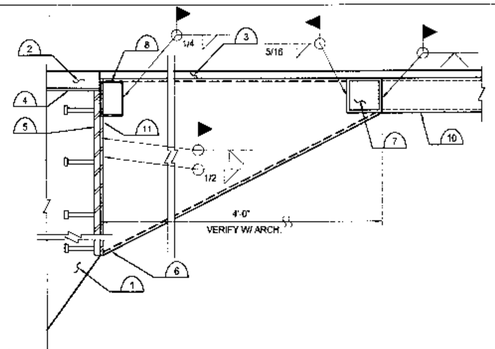


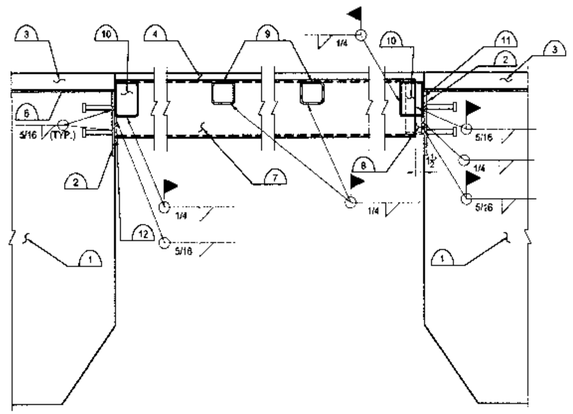
1. CONCRETE GIRDER.
2. 3" PAVERS.
3. GRATING PER PLAN.
4. CARBON FIBER LAYER
5. PL 1" x 22" x 12" W/ (6) 3/4" Ø H.A.S. @ 6" O.C. & W/ 4" Ø HOLE PER NOTE 11.
6. BEAM PER PLAN.
7. BEAM PER PLAN.
8. TS 6 x 4 x 1/4.
9. NOT USED.
10. 1'-11 3/4" x 6" x 3/8" END PLATE.
11. 4"Ø HOLE FOR INSTALLATION OF 1 1/4" Ø TIE ROD W/ ACCESSORIES TO FASTEN CONC. GIRDERS TOGETHER. (SEE S4-01)
12. 6" x 6" x 1/4" CLOSURE PLATE.
13. GUARD RAIL BEYOND (SEE ARCH.)
14. SEE 3/S5-04 FOR PLANTER DETAIL.

9 TYPICAL CANTILEVER BEAM CONNECTIONS AT PLANTERS LOCATION

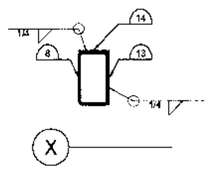


1. CONCRETE GIRDER.
2. 3" PAVERS.
3. GRATING PER PLAN.
4. CARBON FIBER LAYER
5. 1" x 22" x 22" PL. W/ (8) 3/4" DIA. H.A.S. AT 6" O.C.
6. BEAM PER PLAN.
7. BEAM PER PLAN.
8. BEAM PER PLAN.
9. NOT USED.
10. BEAM PER PLAN.
11. 1'-11 3/4" x 6" x 9/16" END PLATE.

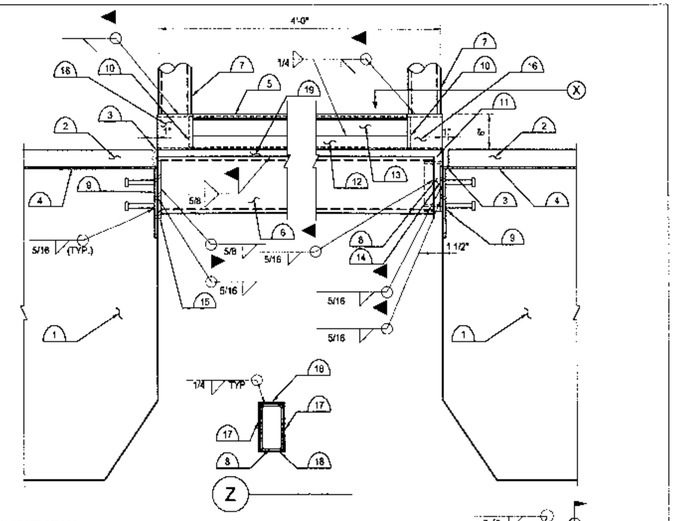
10 TYPICAL CANTILEVER BEAM CONNECTIONS



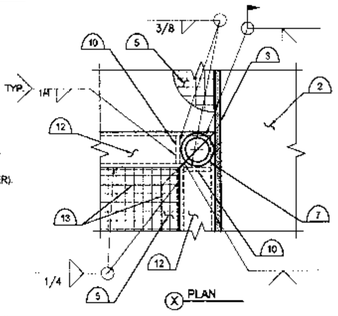
1. CONCRETE GIRDER.
2. 1/2" x 9" x 9" W/ (4) 3/4" Ø H.A.S. @ 6" O.C.
3. 3" PAVERS.
4. GRATING PER PLAN.
5. NOT USED
6. CARBON FIBER LAYER.
7. BEAM PER PLAN.
8. TS 9" x 5" x 5/16" x 0'-3" (SEE DETAIL X).
9. BEAM PER PLAN (FOR 6A).
10. TS 6" x 4" x 1/4".
11. 9 x 5 x 5/16 END PLATE.
12. 10 x 6 x 5/16 END PLATE.
13. 1/4" x 9 1/4" x 3" PLATE.
14. 1/4" x 5" x 3" PLATE.



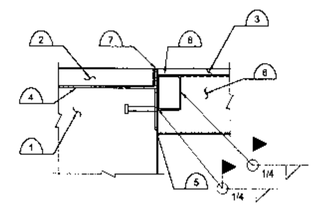
6A STEEL FRAMING CONNECTION
6B TO CONCRETE GIRDER



1. CONCRETE GIRDER.
2. 3" PAVERS.
3. JOINT, SEE ARCH
4. CARBON FIBER LAYER.
5. GRATING PER PLAN.
6. TS 10 x 6 x 5/8.
7. SHADE CANOPY COLUMN PER PLAN.
8. TS 8 x 4 x 3/8 x 0'-3" (SEE DETAIL Z).
9. PL 1/2" x 12" x 12" W/ (4) 3/4" Ø H.A.S. @ 6" O.C.
10. 5/8" x 4 3/4" x 4 3/4" STIFFENER PLATE. (BEAM ON NOTE 12 SHOULD BE CUT AND REWELDED AFTER WELDING THE STIFFENER).
11. FILL W/ WELD.
12. TS 8 x 6 x 5/8
13. 3 x 3 x 5/16 ANGLE.
14. 8 x 4 x 3/8 END PLATE.
15. 10 x 6 x 5/8 END PLATE.
16. FOR BEAM ON OTHER DIRECTION SEE 8/S5-02
17. (2) 1/4" x 8 1/2" x 3" PLATES.
18. (2) 1/4" x 4" x 3" PLATES.
19. 1 1/4" x 6" x 4" PLATE (FILLER).

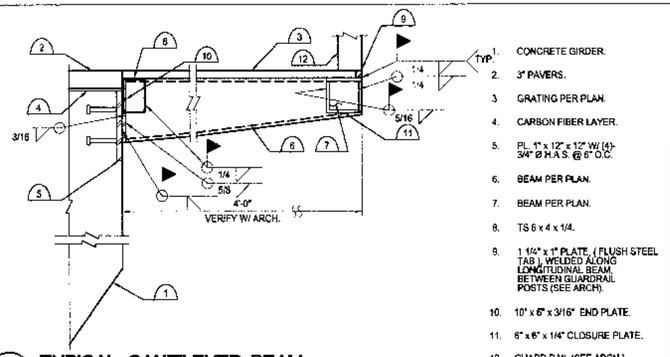


2 STEEL FRAMING CONNECTION TO CONCRETE GIRDER



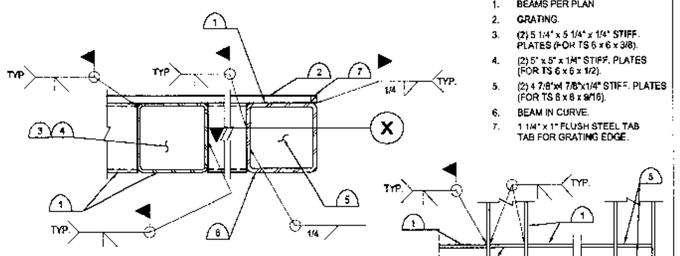
1. PRESTRESSED GIRDER.
2. 3" PAVERS.
3. 1 1/4" x 3/16" CLOSE MESH ALUMINUM GRATING (4'-0" MAX. SPAN).
4. CARBON FIBER LAYER.
5. 1/4" x 7" x 3" PLATE @12" O.C. W/ (1) 3/4" Ø H.A.S.
6. BEAM BEYOND (FOR CONNECTION TO CONCRETE GIRDER SEE 4/S5-03).
7. JOINT, SEE ARCH.
8. TS 6" x 4" x 1/4".

11 GRATING BEARING TYPICAL, CONNECTION OF LONGITUDINAL STEEL TUBE TO CONCRETE GIRDER



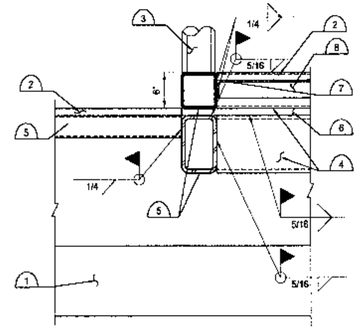
1. CONCRETE GIRDER.
2. 3" PAVERS.
3. GRATING PER PLAN.
4. CARBON FIBER LAYER.
5. PL. 1" x 12" x 12" W/ (4) 3/4" Ø H.A.S. @ 6" O.C.
6. BEAM PER PLAN.
7. BEAM PER PLAN.
8. TS 6 x 4 x 1/4.
9. 1 1/4" x 1" PLATE, (FLUSH STEEL TAB), WELDED ALONG LONGITUDINAL BEAM, BETWEEN GUARDRAIL POSTS (SEE ARCH).
10. 10" x 6" x 3/16" END PLATE.
11. 6" x 6" x 1/4" CLOSURE PLATE.
12. GUARD RAIL (SEE ARCH.).

7 TYPICAL CANTILEVER BEAM CONNECTIONS



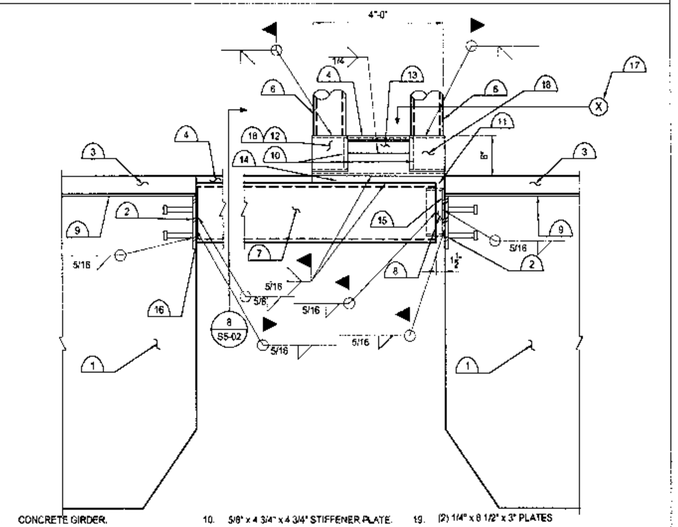
1. BEAMS PER PLAN
2. GRATING.
3. (2) 5 1/4" x 5 1/4" x 1/4" STIFF. PLATES (FOR TS 6 x 6 x 3/8).
4. (2) 5" x 5" x 1/4" STIFF. PLATES (FOR TS 6 x 6 x 1/2).
5. (2) 4 7/8"x4 7/8"x1/4" STIFF. PLATES (FOR TS 6 x 6 x 9/16).
6. BEAM IN CURVE.
7. 1 1/4" x 1" FLUSH STEEL TAB TAB FOR GRATING EDGE.

12 TYPICAL RIGID CONNECTIONS OF GRATING FRAMING BEAMS



1. CONCRETE GIRDER BEYOND.
2. GRATING.
3. COLUMN BEYOND.
4. BEAM BEYOND (SEE 4/S5-02 FOR DETAILS).
5. BEAM PER PLAN.
6. 1 1/4x6x4'-0" PLATE FILLER
7. 3 x 3 x 5/16 ANGLE.
8. 3 x 3 x 5/16 ANGLE, BEYOND.

8 TYPICAL CONNECTION AT THE LOCATION OF COLUMNS



1. CONCRETE GIRDER.
2. 1/2" x 9" x 9" PLATE W/ (4) 3/4" Ø H.A.S @ 6" O.C.
3. 3" PAVERS.
4. GRATING PER PLAN.
5. NOT USED.
6. COLUMN PER PLAN.
7. TS 10" x 6" x 5/8".
8. TS 8" x 4" x 3/8" x 0'-3" (SEE DETAIL Z).
9. CARBON FIBER LAYER.
10. 5/8" x 4 3/4" x 4 3/4" STIFFENER PLATE. (BEAM ON NOTE 12 SHOULD BE CUT AND REWELDED AFTER WELDING THE STIFFENER).
11. FILL W/ WELD.
12. TS 6" x 6" x 5/8".
13. 3 x 3 x 5/16 ANGLE.
14. 1 1/4" x 6" x 4'-0" PLATE (FILLER).
15. 8 x 4 x 3/8 END PLATE.
16. 10 x 6 x 5/8 END PLATE.
17. SEE DETAIL 2/S5-02.
18. FOR BEAM ON OTHER DIRECTION SEE 8/S5-02.
19. (2) 1/4" x 8 1/2" x 3" PLATES
20. (2) 1/4" x 4" x 3" PLATES

4 STEEL FRAMING CONNECTION TO CONCRETE GIRDER

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

23296
MICHAEL S. PUHLMANN
REGISTERED PROFESSIONAL ENGINEER
ARIZONA U.S.A.

STAMP / DATE

BID DOCUMENTS
PHASE ONE

GRATING DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP,AZ

PROJECT NUMBER: 2829

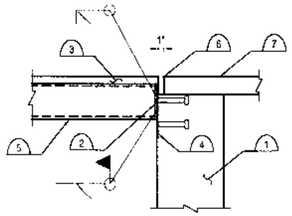
REVISION	BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

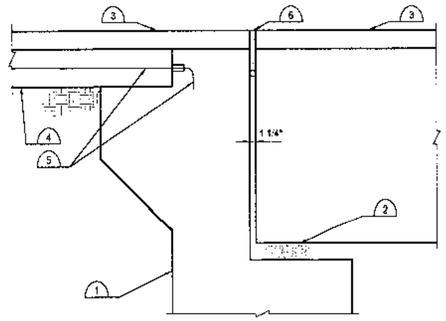
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S5-02
DRAWN BY	AS-BUILT	PROJECT NO.	
GAA/JG	0000	2829	83 OF 89



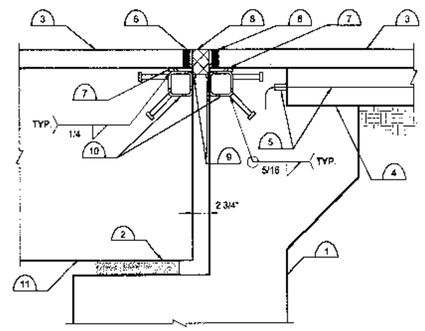
1. WING WALL.
2. 6 x 6 x 9/16 END PLATE.
3. GRATING PER PLAN.
4. PL. 1" x 9" x 13'-3" W/ (2) 3/4" DIA. H.A.S. AT 12" O.C. (SEE 8/S5-03 DETAIL X FOR PLATE DETAILS).
5. BEAM PER PLAN.
6. JOINT, SEE ARCH.
7. 3" PAVER.

9 TYPICAL DETAIL FOR RIGID CONNECTION OF BEAMS TO WING WALL



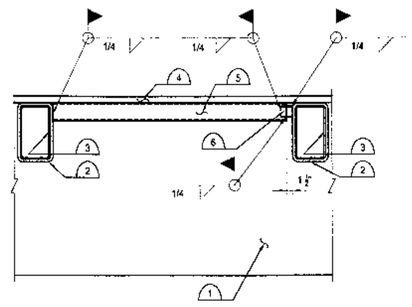
1. 2'-6" WIDE ABUTMENT.
2. BRIDGE GIRDER BEARING, VERIFLEX HLMR, FIXED PF-200 BEARING WITH 80 KIPS HORIZONTAL LOAD CAPACITY, SEE MANUFACTURER FOR CONNECTION DETAIL. (SEE 12/S5-03 FOR DETAILS).
3. 3" PAVERS, SEE ARCH.
4. 6" SLAB ON GRADE.
5. #4 @ 18" WITH FERRULE LOOP INSERTS.
6. 1 1/4" JOINT WITH BACKER ROD.

5 JOINT AT BRIDGE



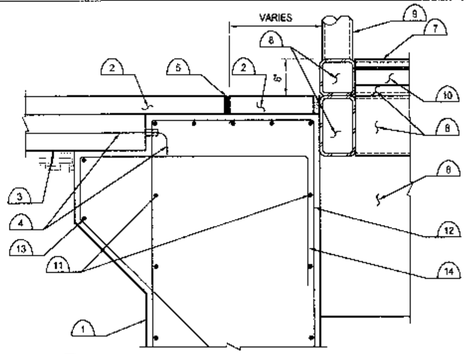
1. 3'-0" WIDE ABUTMENT.
2. BRIDGE GIRDER BEARING, VERIFLEX HLMR, UNI-DIRECTIONAL PMG-200 BEARING WITH 80 KIPS HORIZONTAL LOAD CAPACITY, SEE MANUFACTURER FOR CONNECTION DETAIL. (SEE 12/S5-03 FOR DETAILS).
3. 3" PAVERS, SEE ARCH.
4. 6" SLAB ON GRADE.
5. #4 @ 18" WITH FERRULE LOOP INSERTS.
6. JOINT, SEE ARCH.
7. 4" x 3 1/2" X 1/2" ANGLE.
8. PERFORATED ELASTOMERIC JOINT SEAL, DS BROWN AF-500 DELASTIC SEAL W/ 2.30" MAX. MOVEMENT, INSTALLED @ 2 3/4" OPENING. (SEE MANUFACTURER FOR INSTALLATION AND DETAILS).
9. 1/2" x 1/2" BARS.
10. T.S. 4" x 4" x 3/8" W/ (2) 3/4" Ø H.A.S. ANCHORS @ 18" O.C.
11. BRIDGE GIRDER.

1 EXPANSION JOINT AT BRIDGE



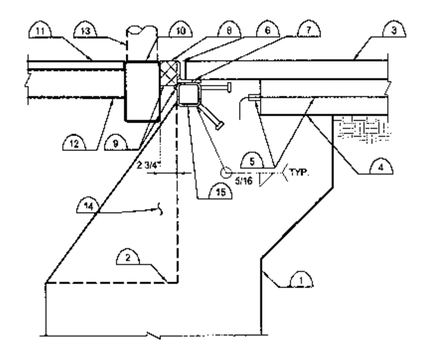
1. CONCRETE GIRDER.
2. BEAM PER PLAN.
3. TS 9" x 5" x 5/16" x 0'-3".
4. GRATING PER PLAN.
5. BEAM PER PLAN.
6. TS 3" x 3" x 1/4" x 0'-3".

10 STEEL FRAMING CONNECTION TO CONCRETE GIRDER



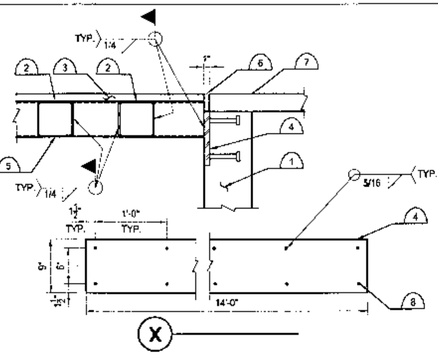
1. 2'-6" WIDE ABUTMENT.
2. 3" PAVERS, SEE ARCH.
3. 6" SLAB ON GRADE.
4. #4 @ 18" WITH FERRULE LOOP INSERTS.
5. 1 1/4" JOINT.
6. CONC. GIRDER (BEYOND).
7. GRATING, SEE GRATING PLAN, SHEET S5-01.
8. GRATING FRAMING, SEE GRATING PLAN, SHEET S5-01.
9. SHADE CANOPY COLUMN
10. ANGLE - SEE DETAIL 2/S5-02.
11. #6 @ 12" O.C.
12. #6 @ 12" O.C. VARIES 4'-0" 4'-0"
13. (2) #5.
14. #5 @ 12" O.C. VARIES 1'-0" 4'-0"

6 JOINT AT BRIDGE



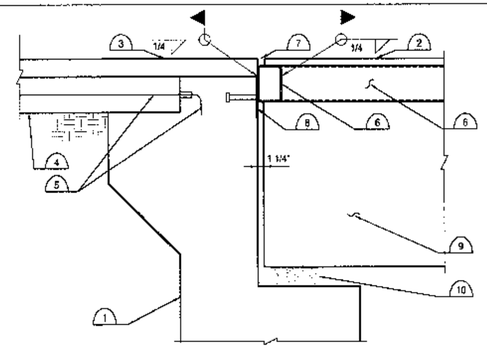
1. 3'-0" WIDE ABUTMENT.
2. BRIDGE GIRDER BEARING BEYOND.
3. 3" PAVERS, SEE ARCH.
4. 6" SLAB ON GRADE.
5. #4 @ 18" WITH FERRULE LOOP INSERTS.
6. JOINT, SEE ARCH.
7. 4" x 3 1/2" X 1/2" ANGLE.
8. PREFORATED ELASTOMERIC JOINT SEAL, (SEE 1/S5-03).
9. 1/2" x 1/2" BARS.
10. T.S 10" x 6" x 1/4".
11. GRATING, SEE GRATING PLAN, SHEET S5 01.
12. GRATING FRAMING, SEE GRATING PLAN, SHEET S5-01.
13. SHADE CANOPY COLUMN BEYOND.
14. SEE DETAIL 3/S5-00 FOR REINFORCEMENT.
15. T.S. 4" x 4" x 3/8" W/ (2) 3/4" Ø H.A.S. ANCHORS @ 18" O.C.

2 EXPANSION JOINT AT GRATING



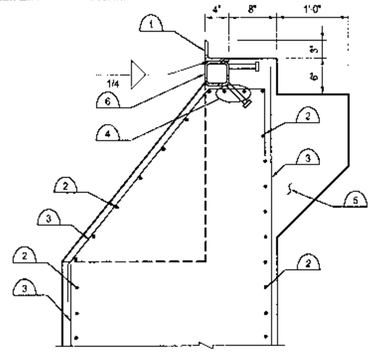
1. WING WALL.
2. BEAM PER PLAN.
3. GRATING PER PLAN
4. 1" x 9" x 14'-0" PLATE CURVED W/ (2) 3/4" DIA. H.A.S. AT 12" O.C. SEE DETAIL X.
5. BEAM PER PLAN (BEYOND).
6. JOINT, SEE ARCH.
7. 3" PAVER.
8. (2) 3/4" DIA. x 6" H.A.S. AT 12" O.C.

11 GRATING BEARING AT WING WALL



1. 2'-6" WIDE ABUTMENT.
2. GRATING.
3. 3" PAVERS, SEE ARCH
4. 6" SLAB ON GRADE.
5. #4 @ 18" WITH FERRULE LOOP INSERTS.
6. BEAM PER PLAN.
7. 1 1/4" JOINT.
8. 1/4" x 7" x 3" PLATE @ 12" O.C. W/ (1) 3/4" DIA. H.A.S.
9. CONCRETE GIRDER BEYOND.
10. BRIDGE GIRDER BEARING, (SEE 5/S5-03 FOR DETAILS).

7 JOINT AT GRATING

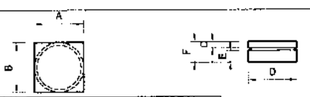


1. 4" x 3 1/2" X 1/2" ANGLE.
2. ABUTMENT NO. 1 HORIZONTAL REINFORCEMENT (SEE 3/S3-02).
3. ABUTMENT NO. 1 VERTICAL REINFORCEMENT (SEE 3/S3-02).
4. (2) #6.
5. FOR DETAIL SEE 3/S3-02.
6. T.S. 4" x 4" x 3/8" W/ (2) 3/4" Ø H.A.S. ANCHORS @ 18" O.C.

3 REINFORCEMENT DETAIL FOR ABUTMENT NO. 1 UNDER GRATING AREAS

FIXED TYPE

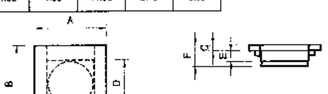
(PF200)



MODEL NUMBER	DIMENSIONS (IN.)					
	A	B	C	D	E	F
PF200	11.50	11.50	1.00	11.38	2.15	3.68

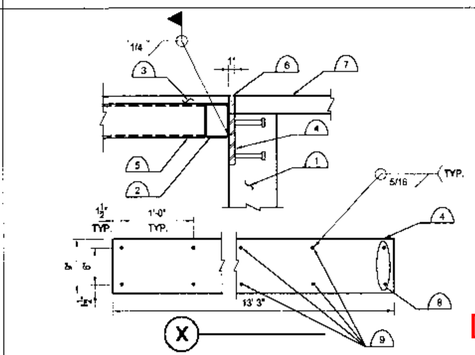
UNI-DIRECTIONAL TYPE

(PMG200)



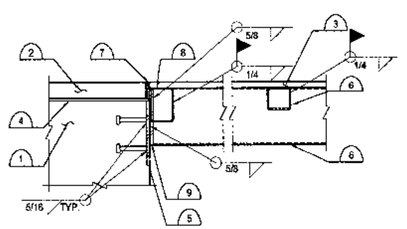
MODEL NUMBER	DIMENSIONS (IN.)					
	A	B	C	D	E	F
PMG200	15.50	15.25	1.00	10.38	2.22	4.13

12 BRIDGE GIRDER BEARING FIXED TYPE (TOP) AND UNI-DIRECTIONAL TYPE (BOT.)



1. WING WALL.
2. BEAM PER PLAN
3. GRATING PER PLAN.
4. PL. 1" x 9" x 13'-3" W/ (2) 3/4" DIA. H.A.S. AT 12" O.C., SEE DETAIL X.
5. BEAM PER PLAN (BEYOND)
6. JOINT, SEE ARCH.
7. 3" PAVER.
8. (2) 3/4" DIA. x 12" H.A.S
9. 3/4" DIA. x 6" H.A.S.

8 GRATING BEARING AT WING WALL



1. PRESTRESSED GIRDER.
2. 3" PAVERS.
3. 1 1/4" x 3/16" CLOSE MESH ALUMINUM GRATING (4'-0" MAX. SPAN).
4. CARBON FIBER LAYER.
5. 1/2" x 9" x 9" EMBEDED PLATE W/ (4) 3/4" Ø H.A.S. @ 6" O.C.
6. GRATING FRAMING, SEE PLAN.
7. JOINT, SEE ARCH.
8. TS 6" x 4" x 1/4" (FOR CONNECTION TO CONCRETE GIRDER SEE 12/S5-03).
9. 10 x 6 x 5/8 END PLATE.

4 GRATING BEARING TYPICAL, CONNECTION OF GRATING FRAMING BEAM TO CONCRETE GIRDER

DRAWINGS ADDED FOR REFERENCE ONLY.

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KPFF PROJECT #: 110149.1

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

REGISTERED PROFESSIONAL ENGINEER — 23296 MICHAEL S. PUHLMANN — DATE SIGNED — ARIZONA, U.S.A.

STAMP / DATE

BID DOCUMENTS
PHASE ONE

GRATING DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003

REVISIONS

#	DATE	DESCRIPTION

DRAWN: GA/JG REVIEWED: MSP,AZ

PROJECT NUMBER: 2829

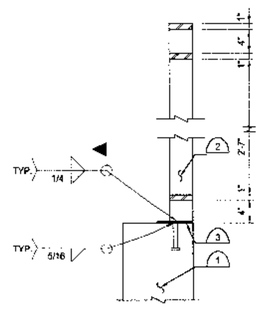
REVISION	BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

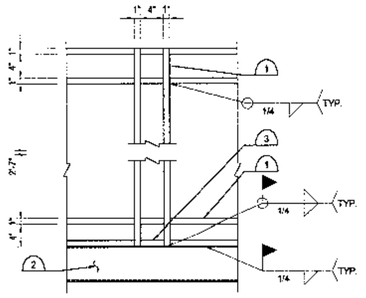
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S5-03
DRAWN BY	AS-BUILT	PROJECT NO.	
GA/JG	00/00	2829	84 OF 89



1. WING WALL OR RETAINING WALL (SEE ARCH.)
2. GUARDRAIL MEMBERS, SEE ARCH. FOR LOCATION.
3. 6" x 6" x 1/4" PLATE W/ (2) 3/4" Ø H.A.S. @ 4" O.C.

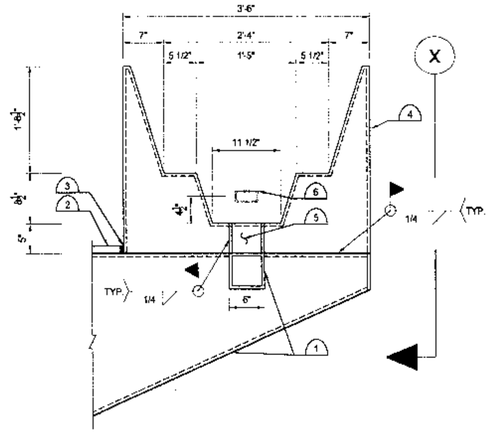
9 GUARD RAIL AT TOP OF WING WALL OR RETAINING WALL



1. GUARDRAIL MEMBERS, SEE ARCH (4" x 1" PLATE, TYP.).
2. BEAM PER PLAN.
3. 1 1/4" x 1" PLATE (FLUSH STEEL TABS).

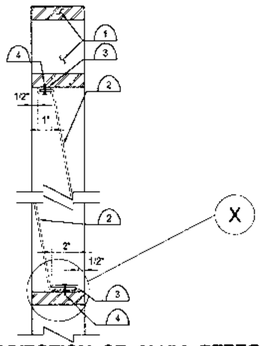
5 GUARD RAIL CONNECTION TO LONGITUTONAL BEAM ALONG EACH SIDE OF BRIDGE

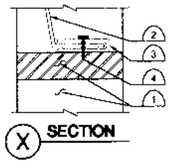
1. BEAM PER PLAN.
2. GRATING PER PLAN.
3. JOINT PER ARCH'L.
4. BUILT UP BOX W/ 6" TOTAL WIDTH. SEE ARCH. (ALL PLATES THK. = 1/4").
5. BUILT UP BOX IN OTHER DIRECTION.
6. TS 4" x 2" x 1/4" (CUT TO FIT). SEE ARCH.



X VIEW

3 PLANTER DETAIL

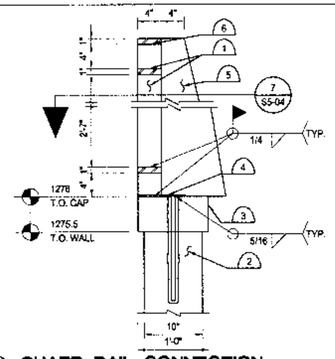




X SECTION

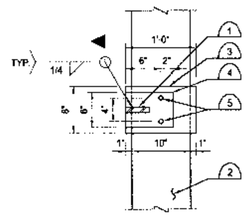
1. GUARDRAIL MEMBERS,
2. PERFORATED ALUM. PANEL. (SEE ARCH.).
3. BENT ALUM. SHAPE (SAME GUAGE AS PER ALUM. PANEL)
4. #12 TEKS/5 SELF-DRILLING BUILDEX FASTENERS @ 8" O.C.

10 TYP. CONNECTION OF ALUM. PERFORATED PANELS TO GUARD RAIL



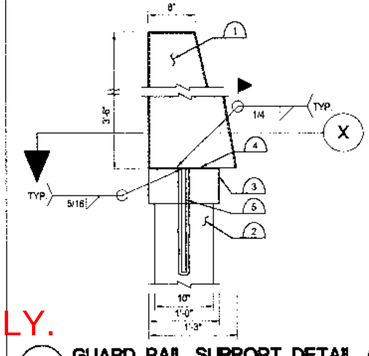
1. GUARDRAIL MEMBERS, SEE ARCH (4" x 1" PLATE, TYP.).
2. EXISTING CANAL WALL.
3. 12" x 6" x 8" CONC. CAP.
4. 6" x 6" x 1/4" PLATE W/ (2) 3/4" Ø x 12" THREADED RODS, DRILLED AND EPOXIED.
5. GUARD RAIL SUPPORT BEYOND (FOR DETAILS SEE 9/S504)
6. FOR ALUM. PERFORATED PANEL CONNECTION SEE 10/S5-04.

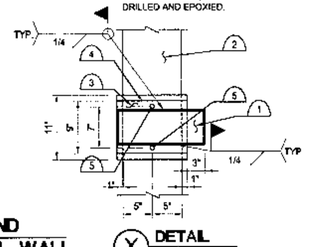
6 GUARD RAIL CONNECTION TO EXISTING CANAL WALL



1. GUARDRAIL MEMBERS, SEE ARCH. (4" x 1" PLATE, TYP.).
2. EXISTING CANAL WALL.
3. 12" x 6" x 8" CONC. CAP.
4. 8" x 6" x 1/4" PLATE.
5. (2) 3/4" Ø x 18" THREADED RODS, DRILLED AND EPOXIED.

7 GUARD RAIL CONNECTION TO EXISTING CANAL WALL

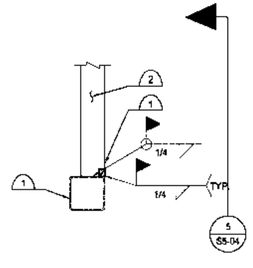




1. BUILT UP BOX W/ 4" TOTAL WIDTH (SEE ARCH. FOR DETAILS AND LOCATIONS) (ALL PLATES THK. = 1/4").
2. EXISTING CANAL WALL
3. 12" x 8" x 1'-1" CONC. CAP.
4. 12" x 8" x 1/4" PLATE.
5. (2) 3/4" Ø x 18" THREADED RODS, DRILLED AND EPOXIED.

X DETAIL

8 GUARD RAIL SUPPORT DETAIL AND CONNECTION TO EXISTING CANAL WALL



1. BEAM PER PLAN (SEE GRATING PLAN, SHEETS S5-01).
2. GUARD RAIL VERTICAL MEMBER (SEE ARCH. FOR DETAIL).
3. 1 1/4" x 1" PLATE (FLUSH STEEL TABS).

4 GUARD RAIL CONNECTION TO LONGITUTONAL BEAM ALONG EACH SIDE OF BRIDGE

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

23296
MICHAEL S. PUHLMANN
REGISTERED
ARIZONA, U.S.A.
STAMP / DATE

BID DOCUMENTS
PHASE ONE

GRATING DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAAUG REVIEWED: MSP/AZ

PROJECT NUMBER: 2829

REVISION	BY

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
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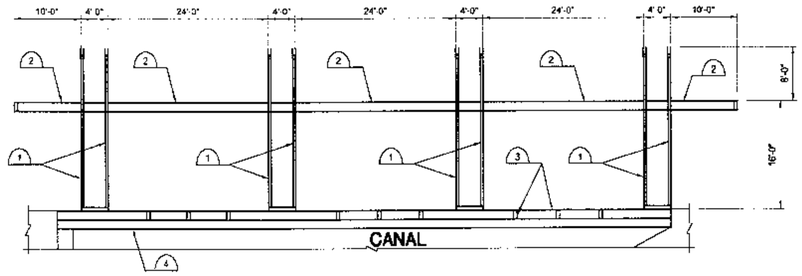
KPFF PROJECT #: 110149.1

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S5-04
DRAWN BY GAAUG	AS-BUILT 00/00	PROJECT NO. 2829	85 OF 89

KEY NOTES:

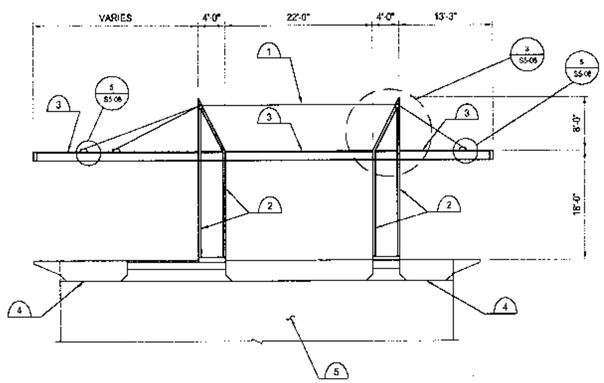
1. COLUMN PER PLAN.
2. BEAM PER PLAN.
3. SEE GRATING PLAN S5-01 FOR DETAILS.
4. CONCRETE GIRDER.



1 LONGITUDINAL SECTION

KEY NOTES:

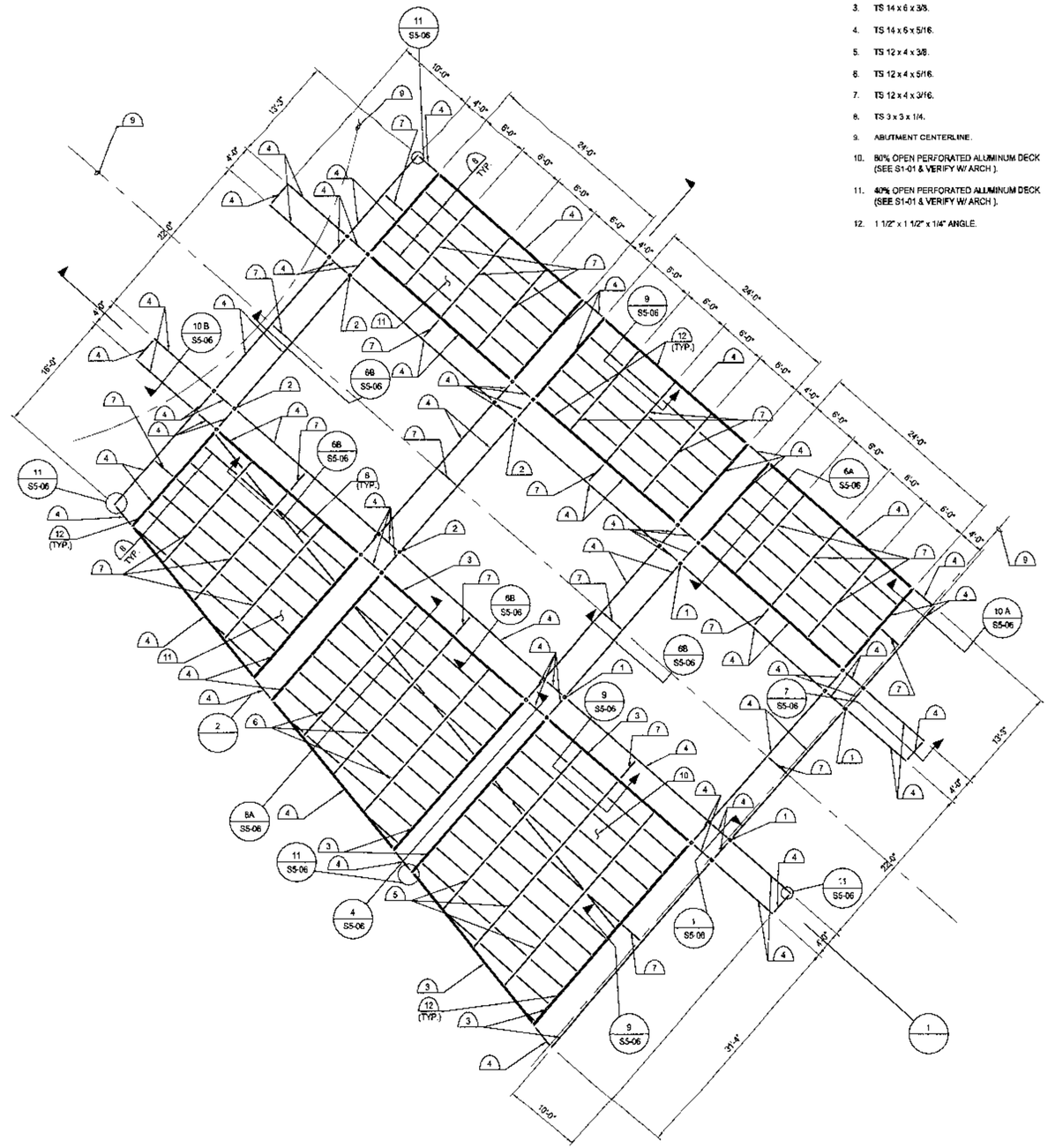
1. WIRE ROPE (SEE 3 & 5/S5-06 FOR TYPE).
2. COLUMN PER PLAN.
3. BEAM PER PLAN.
4. CONCRETE GIRDERS (SEE S4-01 FOR DETAILS).
5. ABUTMENT NO. 2



2 CROSS SECTION

KEY NOTES:

1. STEEL PIPE 5" Ø, DOUBLE-EXTRA STRONG.
2. STEEL PIPE 5" Ø, EXTRA STRONG.
3. TS 14 x 6 x 3/8.
4. TS 14 x 6 x 5/16.
5. TS 12 x 4 x 3/8.
6. TS 12 x 4 x 5/16.
7. TS 12 x 4 x 3/16.
8. TS 3 x 3 x 1/4.
9. ABUTMENT CENTERLINE.
10. 60% OPEN PERFORATED ALUMINUM DECK (SEE S1-01 & VERIFY W/ ARCH).
11. 40% OPEN PERFORATED ALUMINUM DECK (SEE S1-01 & VERIFY W/ ARCH).
12. 1 1/2" x 1 1/2" x 1/4" ANGLE.



NORTH

SHADE CANOPY ROOF PLAN

DRAWINGS ADDED FOR REFERENCE ONLY.

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Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

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CERTIFICATE NO.
ARIZONA U.S.A.

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BID DOCUMENTS
PHASE ONE

SHADE CANOPY PLAN, ELEVATION AND SECTIONS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP/AZ

PROJECT NUMBER: 2829

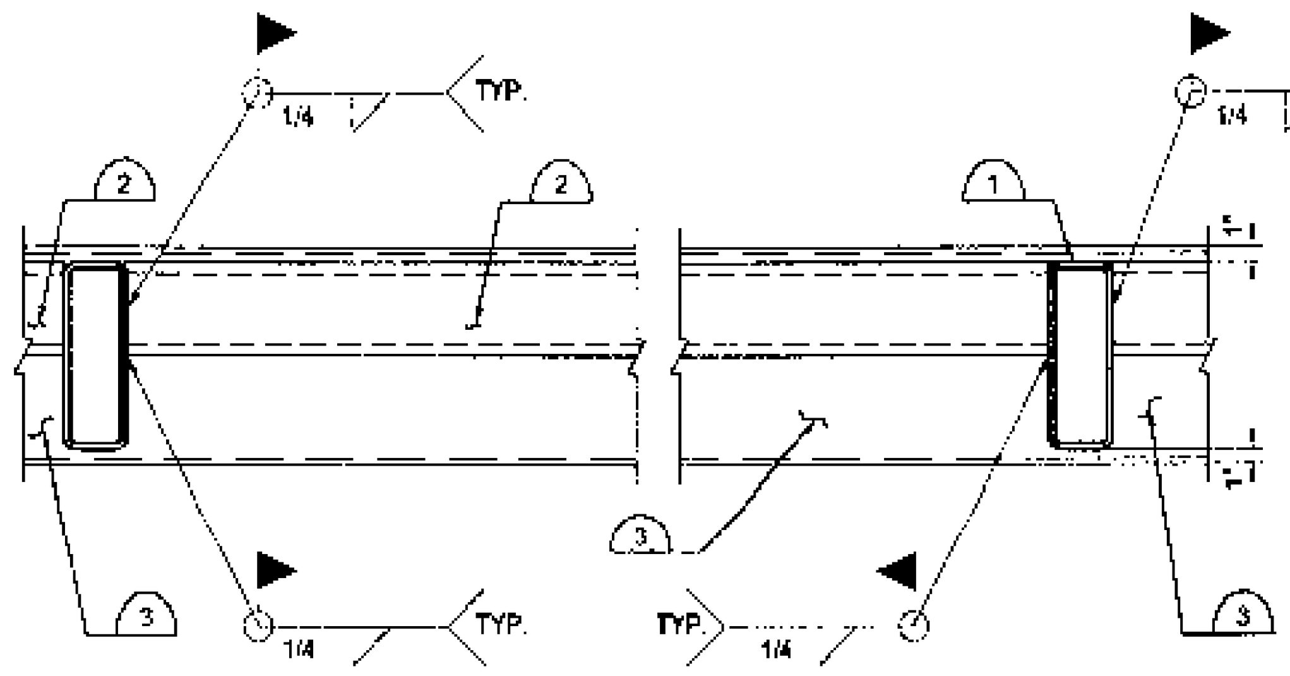
REVISION	BY

CITY OF SCOTTSDALE ARIZONA

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

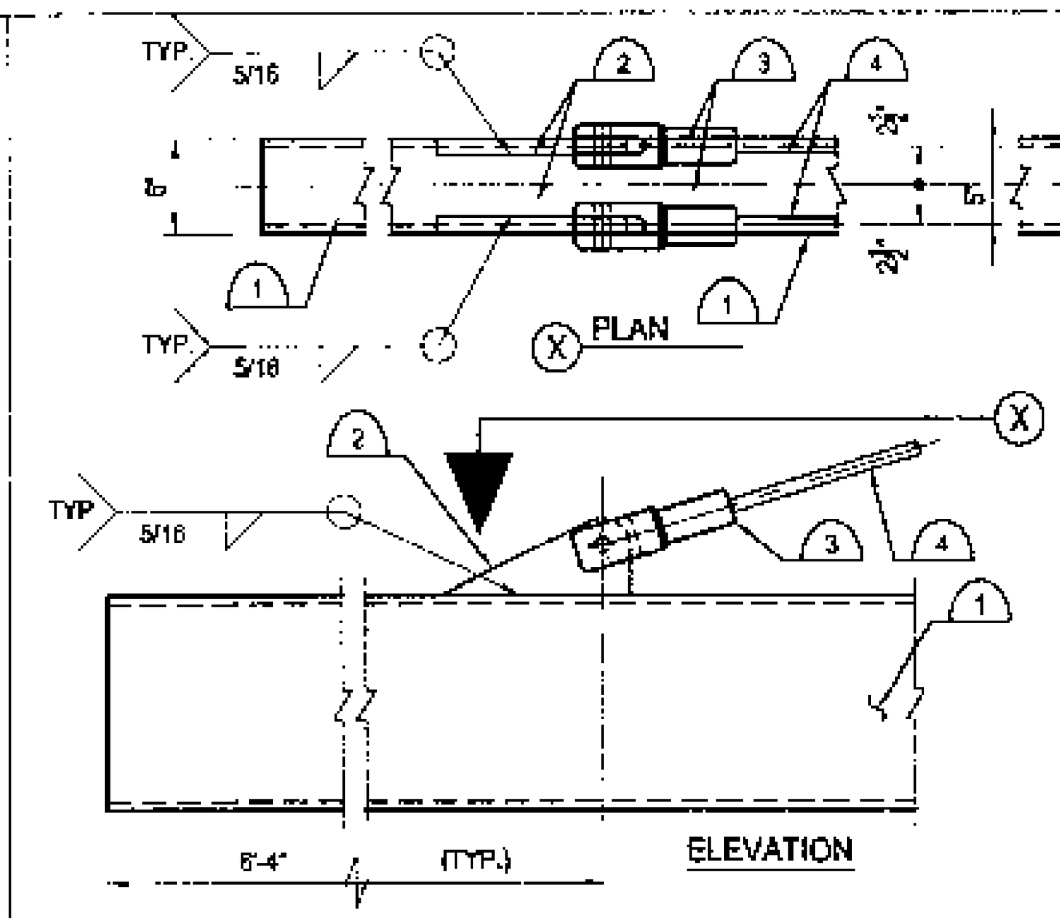
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S5-05
DRAWN BY	AS-BUILT	PROJECT NO.	
GAA/JG	0000	2829	88 OF 89



9 BEAM TO BEAM CONNECTION

1. BEAM PER PLAN.
2. BEAM PER PLAN
3. BEAM PER PLAN, BEYOND.



1. BEAM PER PLAN.
2. (2) 1" x 5" x 12" PLATE. SEE DETAIL BELOW.
3. (2) R-X-CEX-0875-S, FT-800 FRONTIER TECHNOLOGIES CLEVIS JAWS (7/8" SIZE).
4. (2) OCISCO 7/8" DIA., 19 WIRE, EXTRA-HIGH STRENGTH WIRE ROPES WITH MIN. BREAKING STRENGTH OF 79,700 lbs.

5 WIRE ROPE TO BEAM CONNECTION

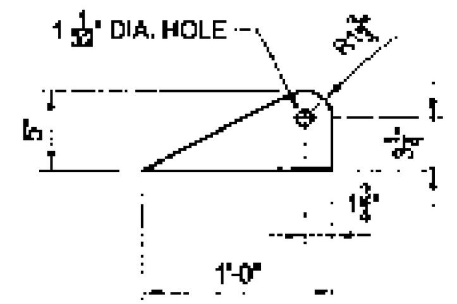
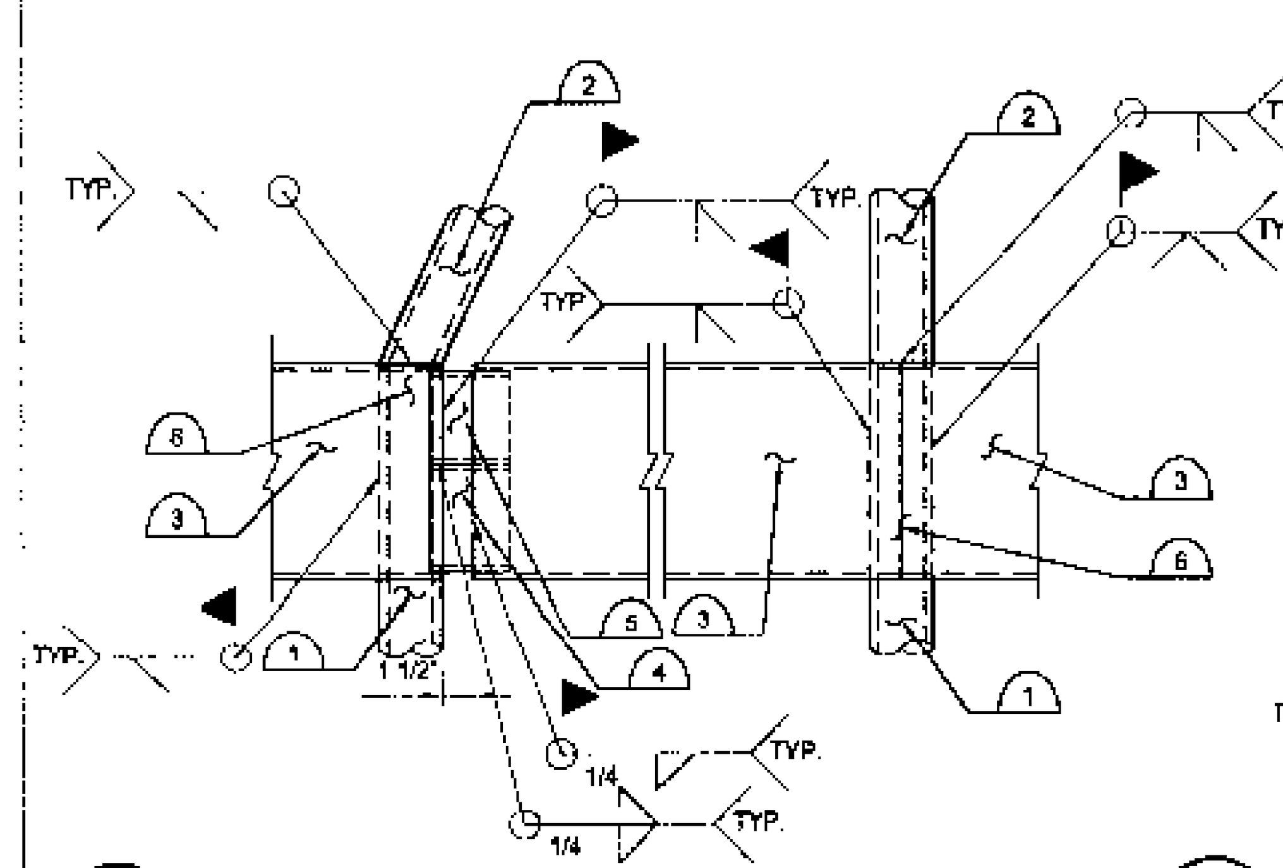
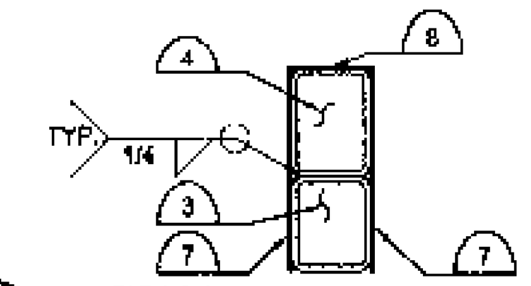


PLATE (2) DETAIL

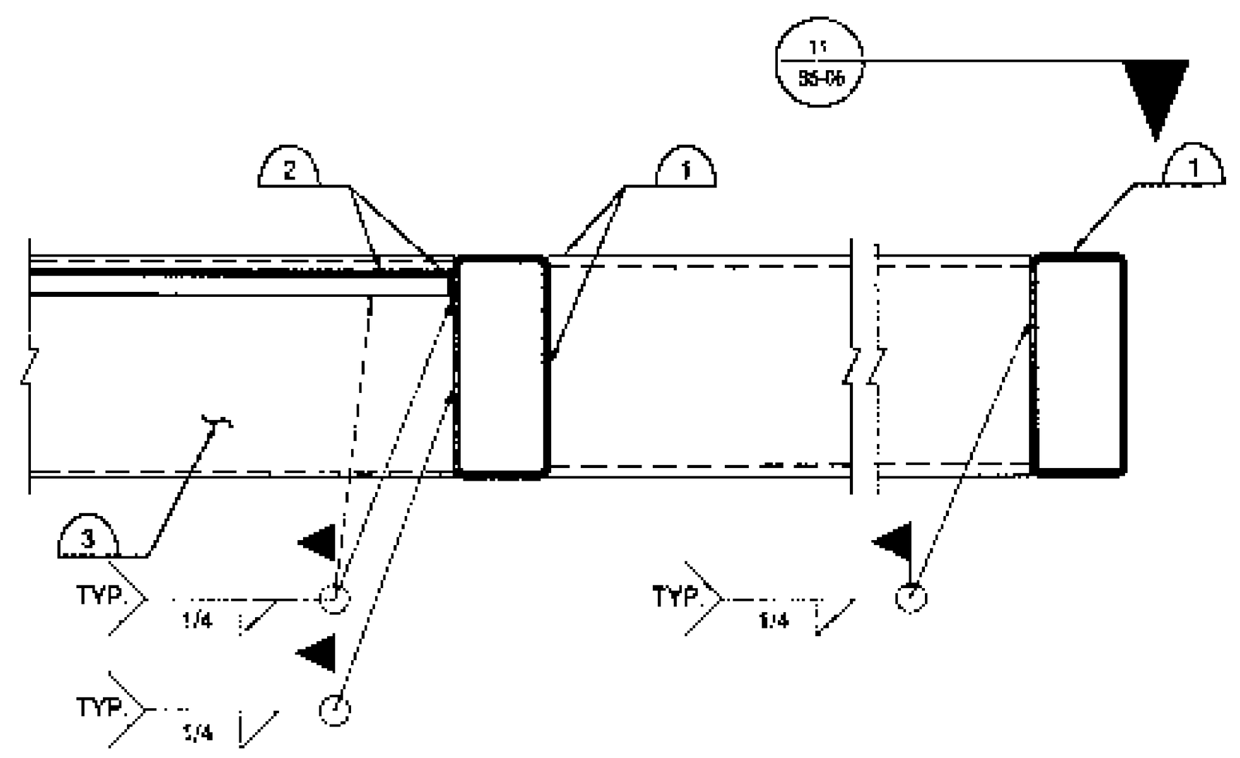


1 BEAM TO COLUMN CONNECTION

1. COLUMN PER PLAN
2. PIPE 5" Ø DOUBLE EXTRA STRONG.
3. BEAM PER PLAN.
4. TS 7" x 5" x 3/8" x 0'-3" (SEE DETAIL X).
5. TS 6" x 5" x 3/8" x 0'-3" (SEE DETAIL X).
6. BEAMS ON OTHER DIRECTION NOT SHOWN FOR CLARITY.
7. 13" x 3" x 3/16" PLATE (FILLER).
8. 5 3/8" x 3" x 3/16" PLATE (FILLER).

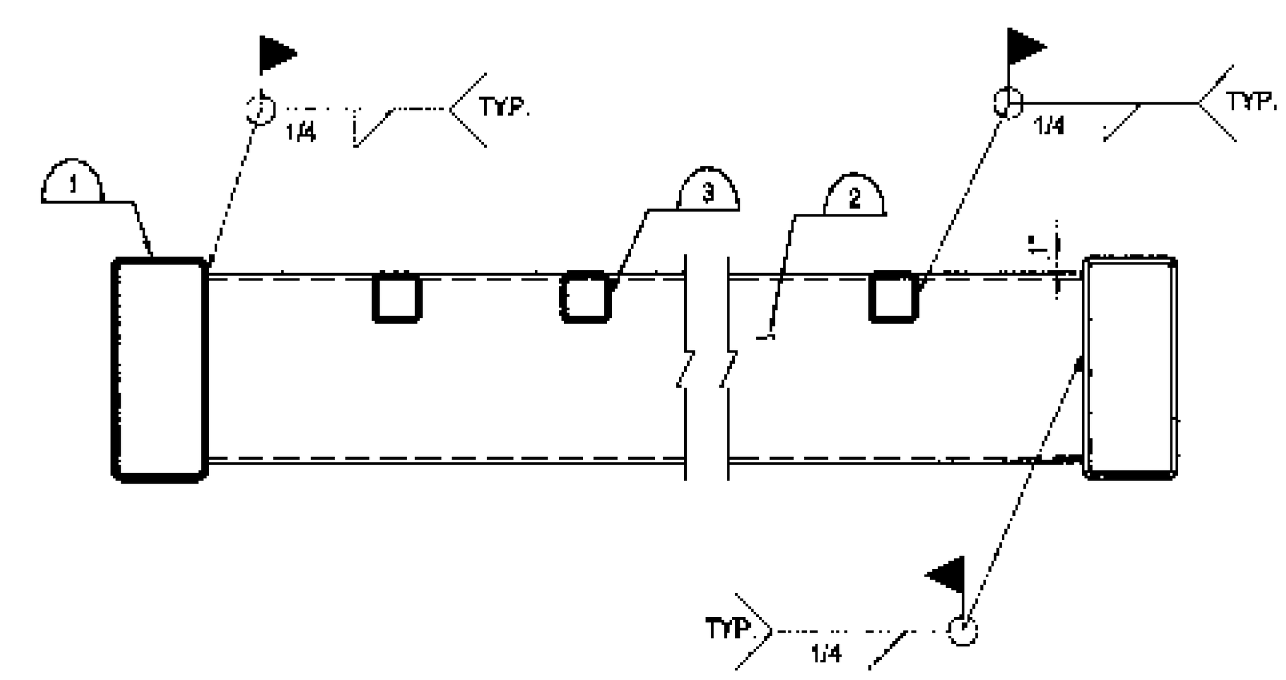


X DETAIL



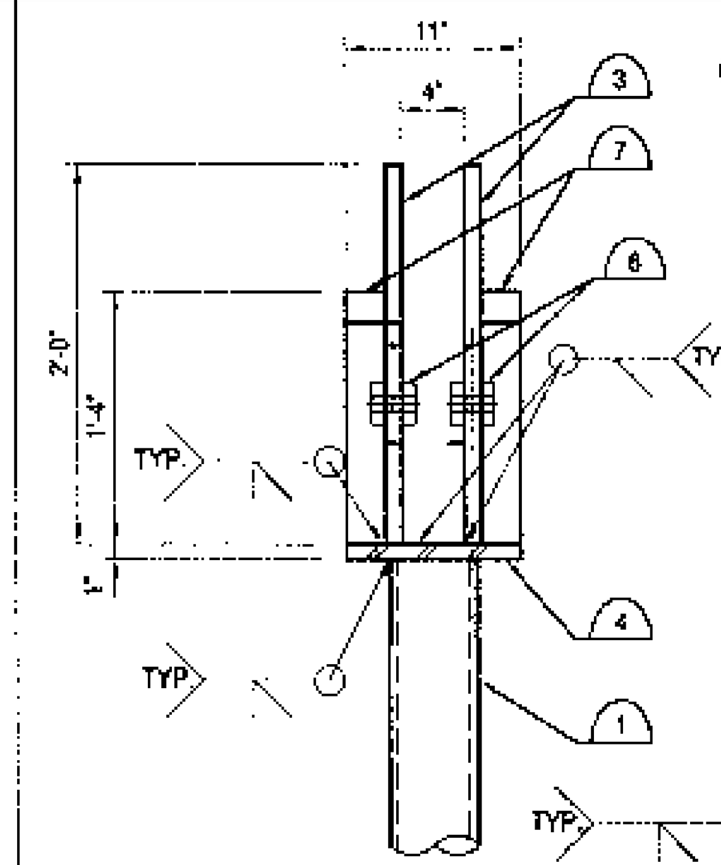
1. BEAM PER PLAN.
2. ANGLE PER PLAN. (JUST FOR 10A).
3. BEAM PER PLAN (FOR 10A ONLY)

10A/10B BEAM TO BEAM CONNECTION

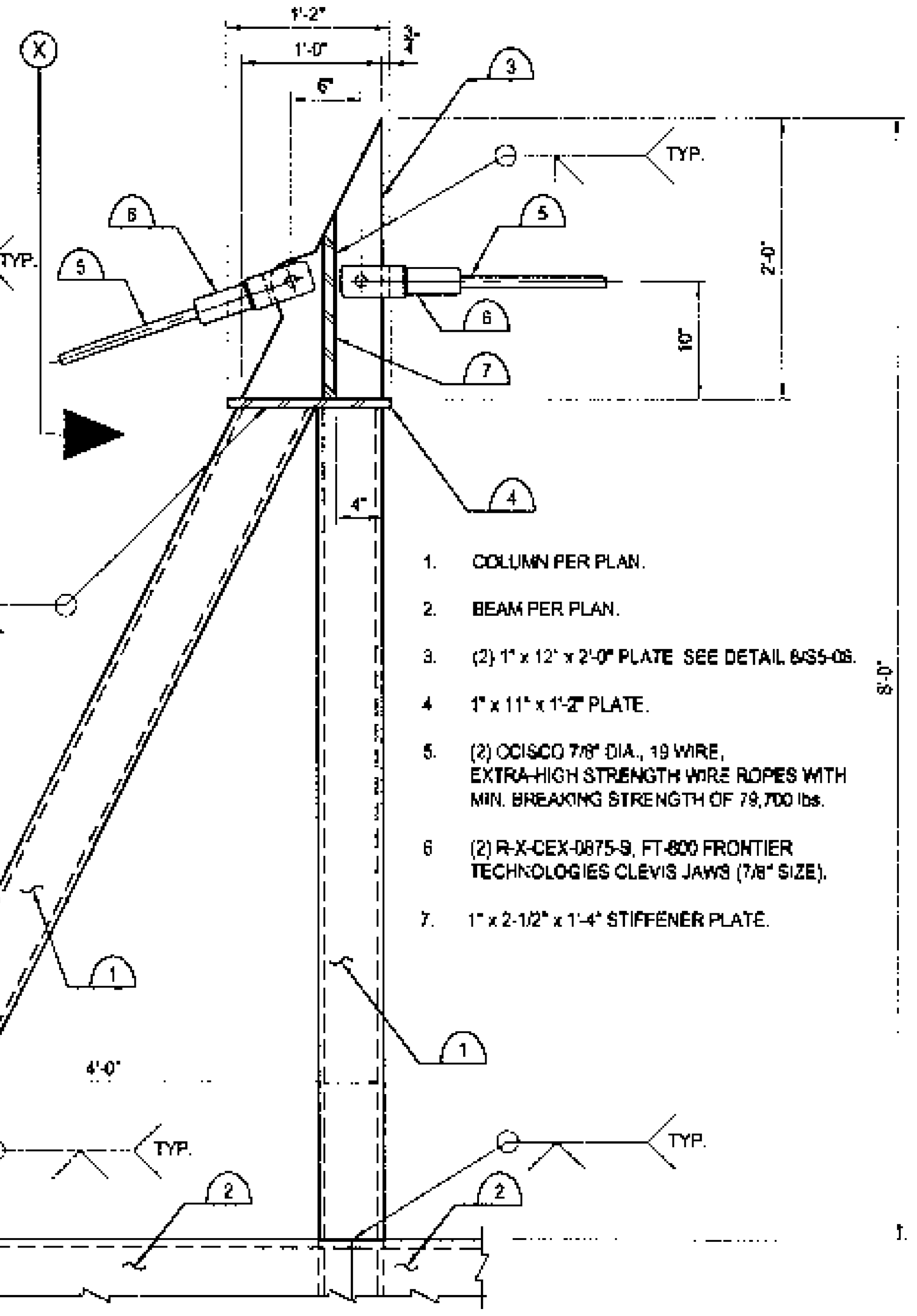


1. BEAM PER PLAN.
2. BEAM PER PLAN.
3. BEAM PER PLAN (FOR 6A ONLY).

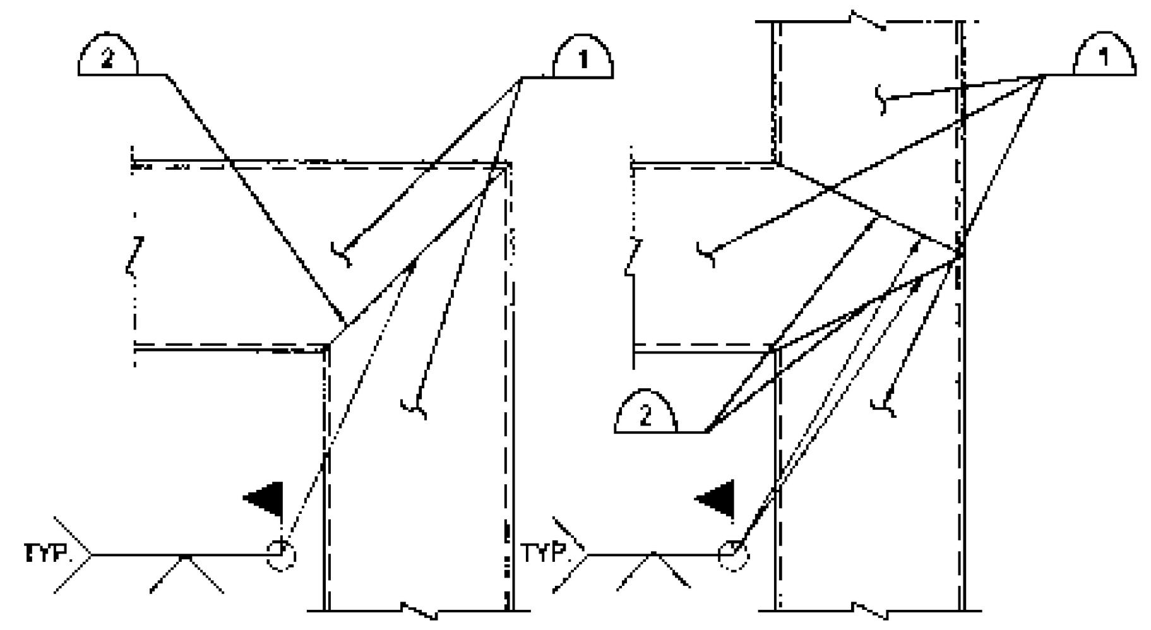
6A/6B BEAM TO BEAM CONNECTION



X VIEW

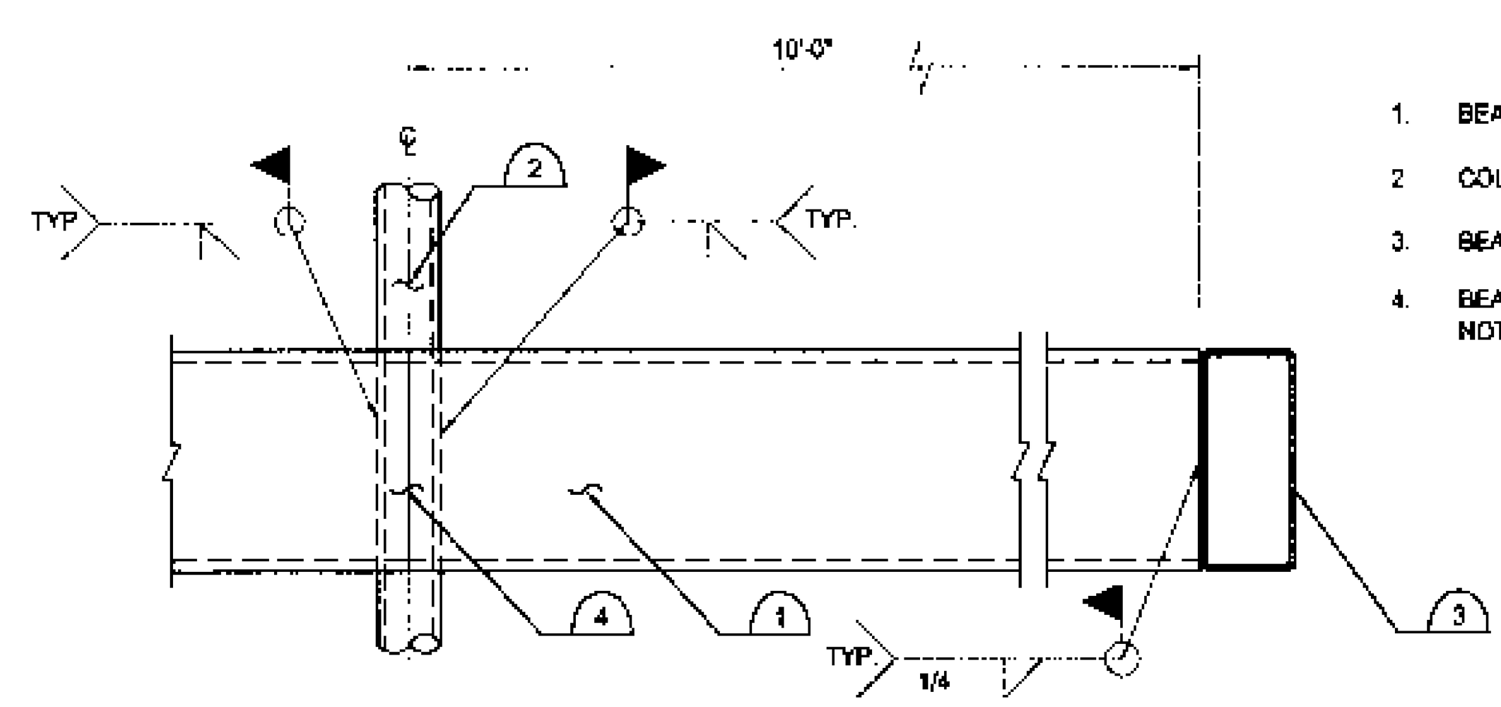


1. COLUMN PER PLAN.
2. BEAM PER PLAN.
3. (2) 1" x 12" x 2'-0" PLATE. SEE DETAIL 8/S5-06.
4. 1" x 11" x 1'-2" PLATE.
5. (2) OCISCO 7/8" DIA., 19 WIRE, EXTRA-HIGH STRENGTH WIRE ROPES WITH MIN. BREAKING STRENGTH OF 79,700 lbs.
6. (2) R-X-CEX-0875-S, FT-800 FRONTIER TECHNOLOGIES CLEVIS JAWS (7/8" SIZE).
7. 1" x 2-1/2" x 1'-4" STIFFENER PLATE.



1. BEAM PER PLAN.
2. MITER CORNER AND WELD ALL AROUND, GRIND SMOOTH (SEE ARCH.).

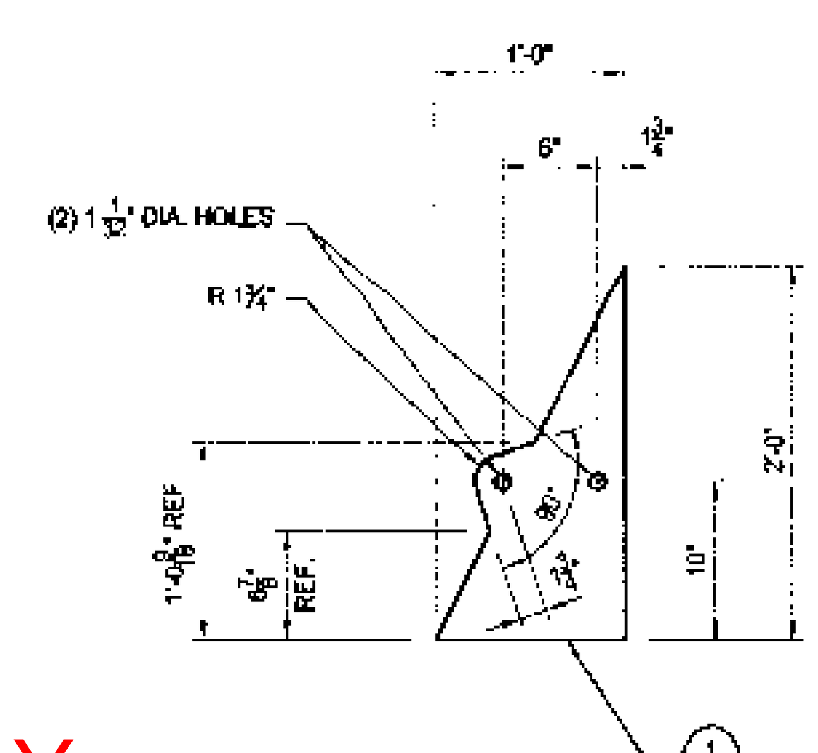
11 BEAM TO BEAM CORNER CONNECTION



1. BEAM PER PLAN
2. COLUMN PER PLAN
3. BEAM PER PLAN (SEE 11/S5-06).
4. BEAMS ON OTHER DIRECTION NOT SHOWN FOR CLARITY.

7 BEAM TO COLUMN CONNECTION

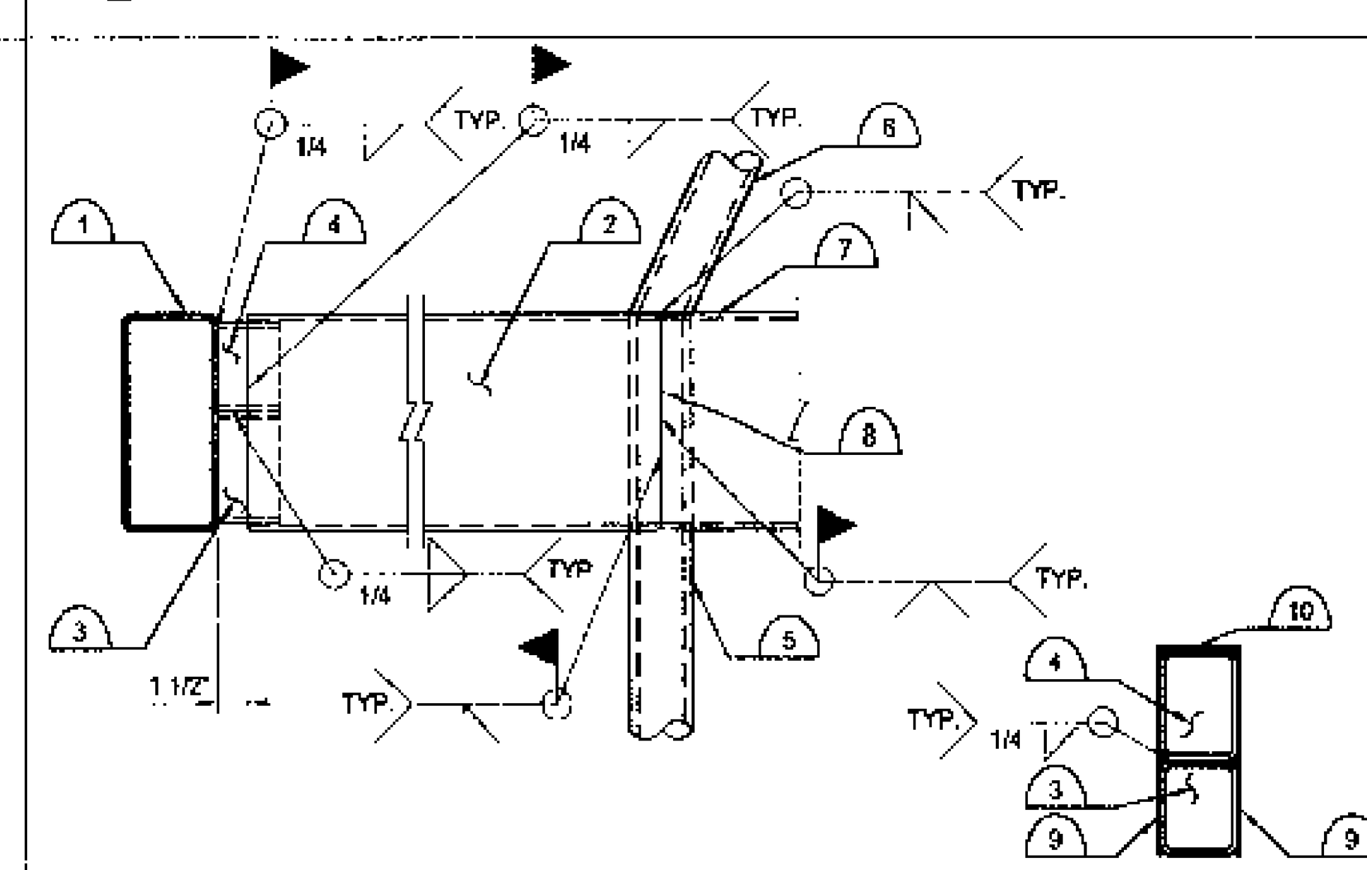
3 SHADE CANOPY DETAIL



1. 1" PLATE. SEE DETAIL 3/S5-06 FOR ADDITIONAL INFORMATION.

DRAWINGS ADDED FOR REFERENCE ONLY.

8 PLATE DETAIL



1. BEAM PER PLAN.
2. BEAM PER PLAN.
3. TS 7" x 5" x 3/8" x 0'-3" (SEE DETAIL X).
4. TS 6" x 5" x 3/8" x 0'-3" (SEE DETAIL X).
5. COLUMN PER PLAN.
6. PIPE 5" Ø EXTRA STRONG.
7. BEAM PER PLAN.
8. BEAMS ON OTHER DIRECTION NOT SHOWN FOR CLARITY.
9. 13" x 3" x 1/8" PLATE (FILLER).
10. 5 1/4" x 3" x 1/8" PLATE (FILLER)

X DETAIL

4 BEAM TO BEAM AND BEAM TO COLUMN CONNECTION

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Arizona Canal at Scottsdale - Phase I
Scottsdale, Arizona

23296 MICHAEL S. PUHLMANN
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PHASE ONE

SHADE CANOPY DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
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#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP,AZ

PROJECT NUMBER: 2829

REVISION | BY

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

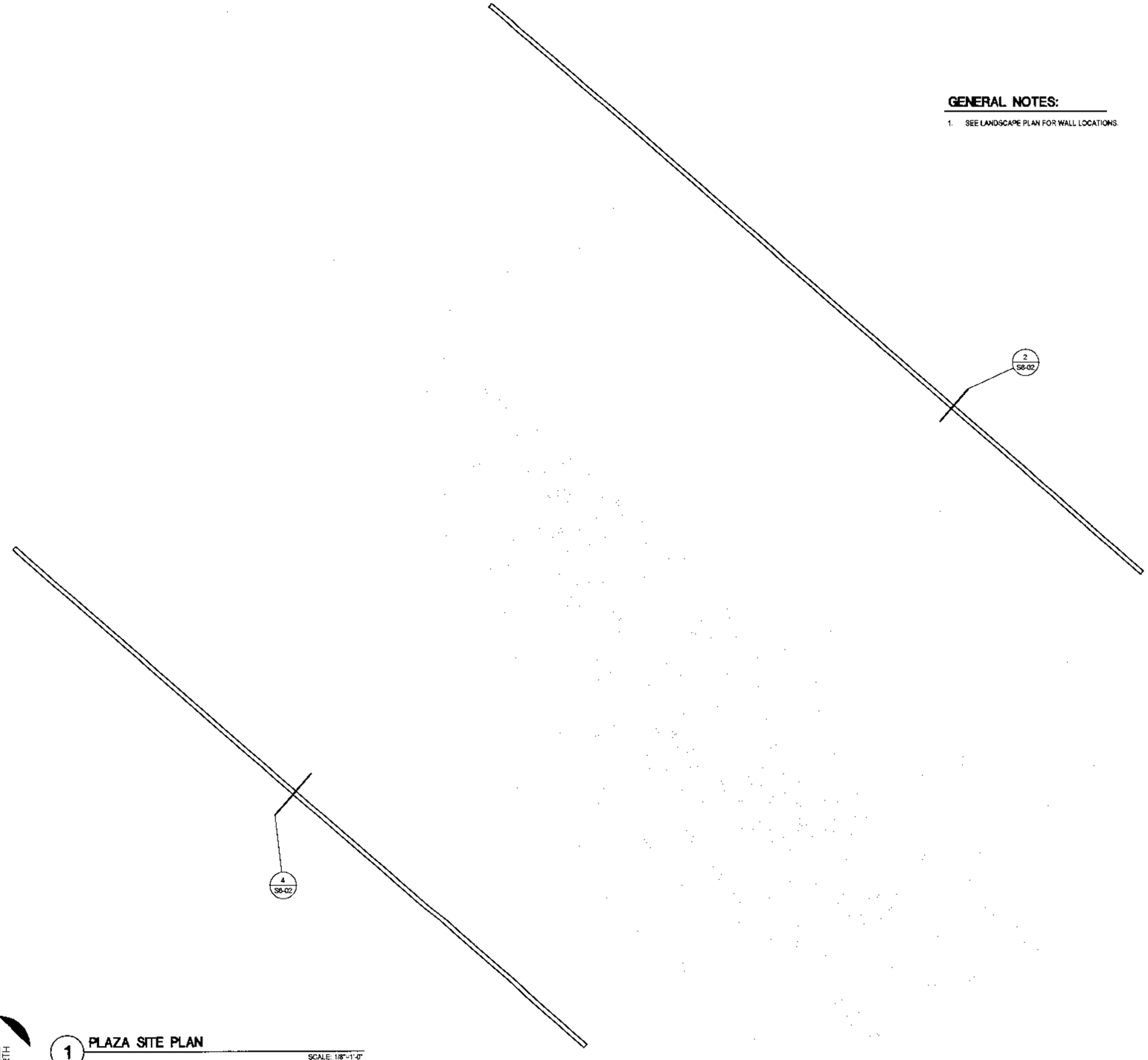
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S5-06
DRAWN BY GAA/JG	AS-BUILT 0000	PROJECT NO. 2829	87 OF 89

DRAWINGS ADDED FOR REFERENCE ONLY.

GENERAL NOTES:

1. SEE LANDSCAPE PLAN FOR WALL LOCATIONS.



NORTH

1 PLAZA SITE PLAN

SCALE: 1/8"=1'-0"

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Scottsdale, Arizona

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BID DOCUMENTS
PHASE ONE

PLAZA SITE PLAN

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP/AZ

PROJECT NUMBER: 2829

REVISION	BY

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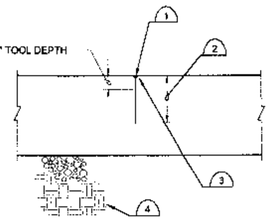
PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

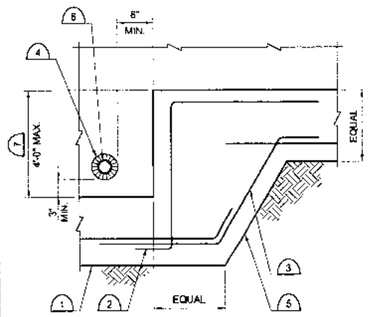
DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S6-01
DRAWN BY	AS-BUILT	PROJECT NO.	
GAA/JG	0000	2829	88 OF 89



1. CUT FRESH CONC. JUST AFTER IT HAS BEGUN TO HARDEN, WITH 1/4" THICK ANGLE. REMOVE AND TOOL JOINT.
2. 2-1/2" DEPTH OF CUT.
3. 1/8" TOOLED R. AT EXPOSED AREA.
4. PLACE CONCRETE ON 4" ABC OVER COMPACTED EARTH BASE.

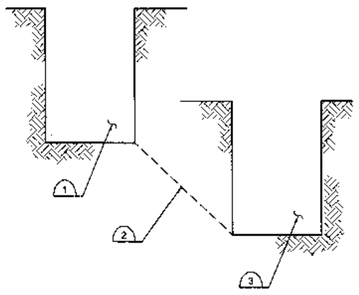
NOTE: AT CONTRACTOR'S OPTION, THIS DETAIL ANTICIPATES "STRIP" PLACING WITH THE CONTROL JOINTS CUTTING ACROSS THE THE STRIP. IF OTHER PLACING PATTERNS ARE USED, DO NOT USE THIS TYPE OF CONTROL JOINT.

9 SHRINKAGE CONTROL JOINT



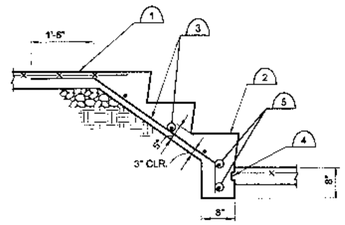
1. PLACE ALL CONCRETE AGAINST UNDISTURBED SOIL. IF SOIL IS DISTURBED DURING CONCRETE PLACING, REPLACE DISTURBED SOIL WITH CONCRETE.
2. REBAR MAY BE LAP SPLICED AT CONTRACTORS OPTION.
3. REBAR TO MATCH AND LAP WITH TYPICAL FOOTING REINFORCEMENT.
4. 1" SPONGE RUBBER AROUND PIPE WHEN APPLICABLE.
5. SLOPE AS REQUIRED FOR EARTH STABILITY.
6. SEE "DETAILS OF PIPE AT CONCRETE FOOTING", FOR PIPE PLACEMENT CRITERIA
7. STEP FOOTING AS REQUIRED TO DEPRESS FOOTING TO FIRM BEARING, OR TO GET BELOW UNDERGROUND PIPING, OR WHENEVER CHANGE IN FOOTING ELEVATION OCCURS. SEE DETAIL "MAXIMUM SLOPES BETWEEN FOOTINGS AND EXCAVATIONS", WHICH MAY REQUIRE LOWERING OF FOOTING ELEVATION. SPACE STEPS NO CLOSER THAN 4'-0" CLEAR.

5 STEP IN FOOTING



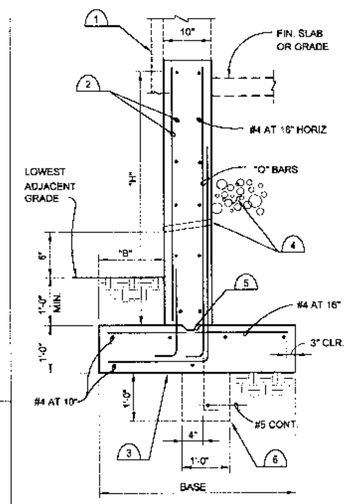
1. FOOTING.
2. THIS SLOPES SHALL NOT BE STEEPER THAN 1 VERTICAL TO 1 HORIZONTAL IF EXCAVATION STAND VERTICALLY WITHOUT SHORING AND 1 VERTICAL TO 1 1/2 HORIZONTAL IF EXCAVATIONS NEED TO BE SLOPE OR SHORED.
3. EXCAVATION AND BACKFILL UNDERMINNING FOOTING ABOVE.

10 MAXIMUM SLOPES BETWEEN FOOTINGS AND EXCAVATIONS



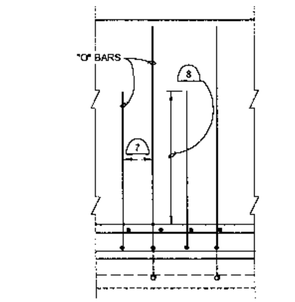
1. SLAB AND REINF., IF ANY, PER PLAN.
2. SEE ARCHITECTURAL DRAWINGS FOR NUMBER OF TREADS AND RISER SHAPE AND TREATMENT.
3. #4 @ 12" O.C. EACH WAY, DOWEL INTO SIDE WALLS, WHERE OCCUR
4. SEE TYPICAL SLAB JOINT DETAIL FOR SLAB CONSTRUCTION, INCLUDING REINFORCING, IN ANY
5. (2) #4 x CONT. AT TOE.

6 STEPS ON GRADE



SCHEDULE			
"H" UP TO	BASE	"B"	"O" BARS
3'-0"	2' 0"	0'-7"	#4 @ 16"
4'-0"	2'-6"	0'-10"	#4 @ 16"
5'-0"	3'-0"	1'-1"	#4 @ 16"
6'-0"	3'-6"	1'-4"	#4 @ 16"

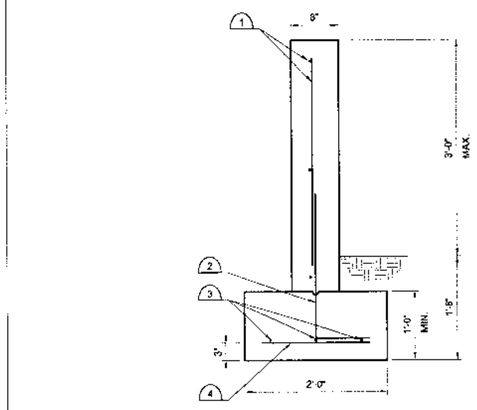
2 RETAINING WALL UP TO 10'-0"



REBAR PLACEMENT IN BACK OF WALL

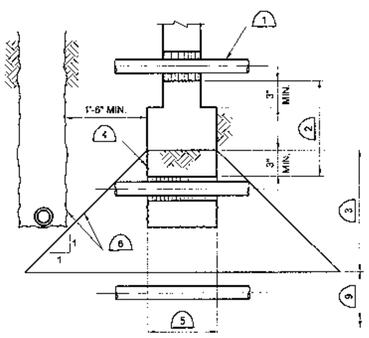
1. SEE PLANS AND ARCH'L DWGS WHERE CAP OCCURS ABOVE. REINFORCE AND DOWEL PER O.S.N.
2. #4 AT 16" EACH WAY, THIS FACE.
3. STEP FOOTING PER DETAIL 5/S6-02.
4. 1"Ø WEEP HOLES AT 6'-0" (WEEP HOLES ARE NOT REQ'D AT WALLS LESS THAN 3'-0") WITH 18" SQUARE CRUSHED ROCK CONTINUOUS.
5. 1 1/2" X 3 1/2" CONTINUOUS KEY
6. USE CONCRETE LUG AT WALL WITH HEIGHT OVER 6'-0" WITH ALTERNATE WALL VERTICALS INTO LUG.
7. ALTERNATE LONG SHORT "O" BARS, SPACING PER SCHEDULE
8. 40 "H" WHEN "H" EXCEEDS 6'-0" (FULL HEIGHT FOR "H" EQUAL TO OR LESS THAN 6'-0".

NOTE: BATTER BOTH FACES OF WALL 1/16" PER FOOT HEIGHT "H".



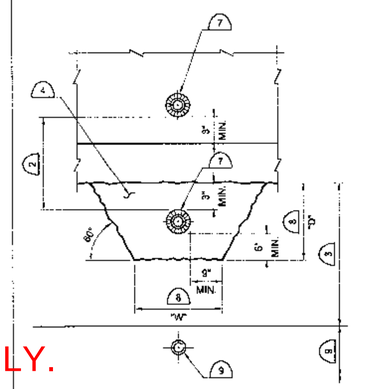
1. #4 @ 16" O.C. EACH WAY.
2. #4 @ 16" O.C.
3. (3) #4
4. #4 @ 16" O.C.

12 CONCRETE FREE STANDING WALL

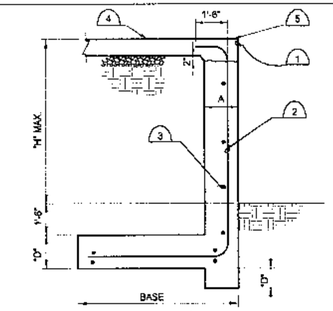


1. PIPE THRU STEM WALL - SLEEVE PIPE THRU WALL SEE DETAIL BELOW.
2. STEP FOOTING IF PIPE OCCURS WITHIN THIS AREA.
3. 1-1/2 x FOOTING WIDTH, ENCASE PIPE IN CONCRETE IF PIPE OCCURS WITHIN THIS AREA.
4. CONCRETE FILL SHALL BE PLACED BEFORE FOOTING IS CAST.
5. CONCRETE PIPE ENCASEMENT SAME WIDTH AS FOOTING
6. NO EXCAVATION FOR PIPE TRENCH PARALLEL TO FOOTING BELOW THIS LINE.
7. 1" SPONGE RUBBER. REQUIRED WHERE PIPE PASSES THRU WALL AND WHERE PIPE IS ENCASED IN CONCRETE.
8. CONCRETE ENCASEMENT DIMENSIONS "W" (WIDTH) AND "D" (DEPTH) DETERMINED BY SIZE OF PIPE PLUS NOTED MINIMUM EDGE DIMENSIONS AND 60 DEGREE SLOPE.
9. IF PIPE IS BELOW FOOTING BY 1-1/2 x FOOTING WIDTH, THEN NO ENCASEMENT REQUIRED. COMPACT SOIL BACKFILL TO 95% MINIMUM.

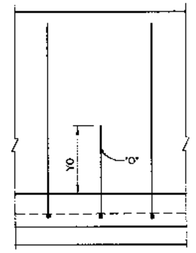
NOTE:
NO PIPES SHALL PASS THRU CASSIONS.

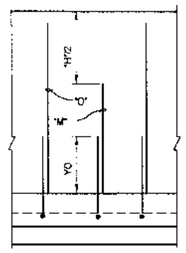


8 DETAILS OF PIPE AT CONCRETE FOOTING



1. PROPERTY LINE.
2. "O" BARS.
3. "L" BARS.
4. SEE ARCH. FOR SLAB ON GRADE.
5. FOR GUARD RAIL SEE 9/S5-04 AND ARCH.





"H" HEIGHT	BASE	"A"	"D"	"O" BARS SIZE-SP/CG	"O" BARS YO	"M" BARS SIZE-SP/CG	"M" BARS YO	"L" BARS
2'-6"	4'-0"	8"	12"	#4 @ 12"	—	—	—	#4 @ 12"
4'-6"	7'-0"	10"	14"	#4 @ 8"	—	—	—	#4 @ 8"
6'-6"	9'-6"	12"	14"	#5 @ 12"	3'-0"	—	3'-0"	#5 @ 12"

4 PROPERTY LINE RETAINING WALL

DRAWINGS ADDED FOR REFERENCE ONLY.

kpff Consulting Engineers
2800 NORTH CENTRAL AVENUE, SUITE 1010
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PHONE (602) 264-1010
FAX (602) 265-1010
KPFF PROJECT #: 110149.1

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OWNER
CITY OF SCOTTSDALE
7447 E. INDIAN SCHOOL RD. SCOTTSDALE, AZ. 85251
480-312-7860

Arizona Canal at Scottsdale - Phase I

Scottsdale, Arizona

REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE NO. 23296 — MICHAEL S. PUHLMANN — DATE SIGNED — ARIZONA U.S.A.

STAMP / DATE

BID DOCUMENTS
PHASE ONE

STRUCTURAL SITE DETAILS

ISSUED FOR: BID DOCUMENTS
ISSUE DATE: OCTOBER 10, 2003
REVISIONS

#	DATE	DESCRIPTION

DRAWN: GAA/JG REVIEWED: MSP,AZ

PROJECT NUMBER: 2829

REVISION	BY

MUNICIPAL SERVICES DEPARTMENT
CAPITAL PROJECT MANAGEMENT
3939 DRINKWATER BLVD.
SCOTTSDALE, ARIZONA 85251

PROJECT TITLE
ARIZONA CANAL AT SCOTTSDALE-PHASE I

DESIGNED BY	DATE	BID NO.	SHT.
MSP/AZ	10-10-03	#04PB034	S6-02
DRAWN BY GAA/JG	AS-BUILT 0000	PROJECT NO. 2829	89 OF 89

CLARK REDER ENGINEERING

APPENDIX B

CALCULATIONS

Clark-Reder Engineering, Inc
10091 Mosteller Lane
Cincinnati, OH 45069

Phone (513) 851-1223
Fax (513) 217-9388
www.clarkreder.com

Canal Convergence - Octopoda

Event Date & Location: November 7-16, 2025; Scottsdale, AZ

Codes and Referenced Standards

- 2018 International Building Code
- Aluminum Design Manual, 2015 ed.
- American Institute of Steel Construction, Steel Construction Manual 15th Edition
- American Society of Civil Engineers 7-16 (ASCE 7-16) *"Minimum Design Loads for Buildings and Other Structures"*
- American Society of Civil Engineers 37-14 (ASCE 37-14) *"Design Loads on Structures During Construction"*
- ANSI E 1.21-2013 *"Temporary Structures Used for Technical Production of Outdoor Entertainment Events"*
- ANSI E 1.2-2012 *"Manufacture and Use of Aluminum Trusses and Towers"*

Project Description

- Review of temporary structure for lateral and gravity loads.

Analysis Assumptions/Design Criteria

- A high wind action plan has been issued and must be strictly followed.
- All truss is F34 truss from Global Truss or equivalent.
- Truss secured to bridge via 3" ratchet strap.
- Clark Reder Engineering did not review the loads to the bridge or the truss connection to the bridge.
- Clark Reder Engieering scope of work limited to a review of the F34 truss for gravity loads only.
- Octopaus scenic element assumed to be free to swing.

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General Design - Applies To All Assemblies

Steel/Aluminum Factors of Safety

Note: The following factors/design criteria applies to all assemblies and will be used throughout design package (U.N.O).

AISC Typical Factors of Safety (U.N.O.): $\Omega_{y.AISC} := 1.67$ $\Omega_{r.AISC} := 2.0$

ADM Typical Factors of Safety (U.N.O.): $\Omega_{y.ADM} := 1.65$ $\Omega_{r.ADM} := 1.95$

ASTM A36 Mechanical Properties

Yield Strength: $F_{y.A36} := 36ksi$

Tensile Strength: $F_{u.A36} := 58ksi$

ASTM A572 Mechanical Properties

Yield Strength: $F_{y.A572} := 50ksi$

Tensile Strength: $F_{u.A572} := 65ksi$

ASTM A500 GR. B (Rectangular) Mechanical Properties

Yield Strength: $F_{y.A500.rect} := 46ksi$

Tensile Strength: $F_{u.A500.rect} := 58ksi$

ASTM A500 GR. B (Round) Mechanical Properties

Yield Strength: $F_{y.A500.rd} := 42ksi$

Tensile Strength: $F_{u.A500.rd} := 58ksi$

ASTM A992 Mechanical Properties

Yield Strength: $F_{y.A992} := 50ksi$

Tensile Strength: $F_{u.A992} := 65ksi$

Weld (Steel) Mechanical Properties

Weld Strength: $F_{weld} := 70ksi \cdot 0.6 = 42.00 \cdot ksi$

Grade 8 Bolt Mechanical Properties

Tensile Strength of Bolt: $F_{u.bolt} := 150ksi$

6061-T6 Mechanical Properties	Unwelded	Welded
Tension Ultimate Stress:	$F_{tu} := 38ksi$	$F_{tuw} := 24ksi$
Tension Yield Stress:	$F_{ty} := 35ksi$	$F_{tyw} := 15ksi$
Compression Yield Stress:	$F_{cy} := 35ksi$	$F_{cyw} := 15ksi$
Shear yield stress:	$F_{sy} := 0.6 \cdot F_{ty} = 21.00 \cdot ksi$	$F_{syw} := 0.6 \cdot F_{tyw} = 9.00 \cdot ksi$
Ultimate shear stress:	$F_{su} := 24ksi$	$F_{suw} := 15ksi$
Tension coefficient:	$k_t := 1.0$	$k_{tw} := 1.0$

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Applied Loads:

Seismic Loads - Per ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

6.5 EARTHQUAKE

If required by Section 6.5.1 and not exempted by Section 6.5.3, earthquake loads shall be calculated in accordance with procedures in ASCE/SEI 7-10 as modified by Section 6.5.2. All structures shall be treated as Risk Category II, per Table 1.5-1 of ASCE/SEI 7-10, regardless of the group classification of the completed structure.

6.5.1 Applicability Earthquake loads need not be considered unless required by the authority having jurisdiction and the mapped Risk-Targeted MCE_R, 5% damped, spectral response acceleration parameter at a period of 1 s, S_1, defined in Section 11.4.1 of ASCE/SEI 7-10 equals or exceeds 0.40.

6.5.2 Use of ASCE/SEI 7-10 For use of the earthquake load provisions of ASCE/SEI 7-10, the following modifications should be made:

1. The mapped values for S_S and S_1 may be multiplied by a factor less than 1 to represent the reduced exposure period, but the factor shall not be less than 0.20.
2. The restrictions on types of structural systems in seismic performance categories D and E do not apply, as long as the height of the temporary bracing system designed in accordance with this section is limited in height to 60 ft (18.3 m) or five stories, whichever is less, above the completed bracing of the permanent structure.

Seismic

S_S	0.191
S_1	0.067
F_a	1.6
F_v	2.4
S_{MS}	0.306
S_{M1}	0.161
S_{DS}	0.204
S_{D1}	0.108
T_L	6
PGA	0.084
PGA_M	0.135
F_{PGA}	1.6
I_e	1
C_v	0.7
Seismic Design Category	B

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Seismic Analysis - ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

Site coefficients per ASCE 7-16, Site Class D assumed

Mapped MCE, 5% damped, spectral response, acceleration parameter at short periods: $S_S := 0.191$

Mapped MCE, 5% damped, spectral response, acceleration parameter at 1s: $S_1 := 0.067$

Design 5% damped, spectral response, acceleration parameter at short periods: $S_{DS} := 0.204$

Design 5% damped, spectral response, acceleration parameter at 1s: $S_{D1} := 0.108$

Per ASCE 37-14, does seismic need to be considered?

$$Consider\_seismic := \begin{cases} \text{"NO"} & \text{if } S_1 < 0.4 \\ \text{"YES"} & \text{otherwise} \end{cases}$$

Consider_seismic = "NO"

If seismic is required to be considered:

Temporary reduction coefficient as allowed by ASCE 37-14 (minimum value = 0.2): $red_{eq} := 0.2$

ASCE 37-14, Section 6.5.2.3:

3. The R factor used for temporary bracing systems shall not exceed 2.5 unless the system is detailed in accordance with the provisions of ASCE/SEI 7-10. Where R = 2.5 is used, only the requirements dealing with the strength of the seismic-resisting structural system need be satisfied.

Response modification factor: $R_{eq} := 2.5$

Importance factor/Risk Category II: $I_e := 1.0$

Structural height (FT): $h_n := 20$

Approximate period perameters (Table 12.8-2, Page 90): $C_t := 0.02$

Long period transition period (Figure 22-12, Page 224): $T_L := 12$

Approximate Fundamental Period: $T_a := C_t \cdot h_n^{.75} = 0.19$

Modified spectral responses with reduction coefficient: $S_{S\_mod} := S_S \cdot red_{eq} = 0.04$ $S_{DS\_mod} := S_{DS} \cdot red_{eq} = 0.04$

$S_{1\_mod} := S_1 \cdot red_{eq} = 0.01$ $S_{D1\_mod} := S_{D1} \cdot red_{eq} = 0.02$

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Seismic response coefficient:

$$C_{s.calc} := \min\left[\frac{S_{DS\_mod}}{\left(\frac{R_{eq}}{I_e}\right)}, \begin{vmatrix} \frac{S_{D1\_mod}}{T_a\cdot\left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a \le T_L \\ \frac{S_{D1\_mod}\cdot T_L}{T_a^{\,2}\cdot\left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a > T_L \end{vmatrix}\right] = 0.016$$

$$C_{s.min} := \begin{vmatrix} \max\left(0.044\cdot S_{DS\_mod}\cdot I_e, 0.01\right) & \text{if } S_1 < 0.6 \\ \max\left(0.044\cdot S_{DS\_mod}\cdot I_e, 0.01, \frac{0.5\cdot S_{1\_mod}}{\frac{R_{eq}}{I_e}}\right) & \text{if } S_1 \ge 0.6 \end{vmatrix} = 0.010$$

$$C_s := \begin{vmatrix} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ \max\left(C_{s.calc}, C_{s.min}\right) & \text{otherwise} \end{vmatrix}$$

$C_s = 0.000$

Vertical seismic load effect:

$$EQ_v := \begin{vmatrix} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ 0.2\cdot S_{DS\_mod} & \text{otherwise} \end{vmatrix}$$

$EQ_v = 0.000$

NOTE: WIND LOADS WILL GOVERN SO SEISMIC LOADS CAN BE IGNORED.

Gravity Loads

Weight of Octopada: $wt_{octopada} := 200lbf$

Rigging Information

Length of Span: $l_{span} := 24ft$

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www.clarkreder.com

Truss Checks:

F34 Global Truss:

Note: Allowable strengths will be determined from load tables provided by client.

GLOBAL TRUSS F34 LOAD SPAN TABLE

Limited based on Strength and Reduced per ANSI E1.21

TRUSS SPAN		UNIFORMLY DISTRIBUTED LOAD (UDL)		CENTER POINT LOAD (CPL)		THIRD POINT LOADS (TPL)		QUARTER POINT LOADS (QPL)	
METERS	FEET	LOAD (PLF)	DEFLECTION (IN)	LOAD (LBS)	DEFLECTION (IN)	LOAD (LBS)	DEFLECTION (IN)	LOAD (LBS)	DEFLECTION (IN)
2	6.56	230	0.06	1360	0.09	810	0.08	510	0.07
2.5	8.2	202	0.12	1265	0.14	765	0.14	505	0.14
3	9.84	174	0.18	1170	0.20	725	0.21	500	0.21
3.5	11.48	147	0.24	1075	0.25	680	0.27	490	0.28
4	13.12	119	0.30	980	0.30	640	0.34	485	0.35
4.5	14.76	107	0.43	905	0.39	595	0.44	455	0.47
5	16.41	94	0.56	830	0.47	555	0.54	420	0.58
5.5	18.05	82	0.69	755	0.56	510	0.64	390	0.70
6	19.69	70	0.82	680	0.65	470	0.74	355	0.81
6.5	21.33	61	0.94	640	0.77	450	0.91	330	0.94
7	22.97	53	1.06	595	0.89	435	1.09	305	1.07
7.5	24.61	45	1.18	555	1.01	415	1.27	280	1.19
8	26.25	37	1.3	510	1.13	400	1.45	255	1.32

Global Truss Tables

Note: Maximum moment and shear on truss will be extracted from table.

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Bending Moment Capacity:

Uniform Loads:

$$w_{uniform} := \begin{pmatrix} 174 \\ 107 \\ 70 \\ 45 \end{pmatrix} plf \qquad l_{truss} := \begin{pmatrix} 9.84 \\ 14.76 \\ 19.69 \\ 24.61 \end{pmatrix} ft \qquad i := 1..4$$

Maxmimum Allowable Moment:

$$M_{max_i} := \frac{w_{uniform_i} \cdot \left(l_{truss_i}\right)^2}{8}$$

$$M_{max} = \begin{pmatrix} 2.11 \\ 2.91 \\ 3.39 \\ 3.41 \end{pmatrix} \cdot kip \cdot ft$$

Allowable Maximum Moment (Design):

$$M_{max.design} := \max\left(M_{max}\right) = 3.41 \cdot kip \cdot ft$$

Shear Capacity:

Uniform Loads:

$$w_{uniform} := (202)\,plf \qquad l_{truss} := (8.2)\,ft \qquad i := 1$$

Maximum Allowable Shear:

$$V_{max_i} := \frac{w_{uniform_i} \cdot l_{truss_i}}{2}$$

$$V_{max} = (0.83) \cdot kip$$

Allowable Maximum Shear (Design):

$$V_{max.design} := \max\left(V_{max}\right) = 0.83 \cdot kip$$

Utilization Checks:

Maximum Bending in Truss:

$$M_{actual} := \frac{wt_{octopada} \cdot l_{span}}{4} = 1.20 \cdot kip \cdot ft$$

Utilization Percentage:

$$\%util := \frac{M_{actual}}{M_{max.design}} = 35.22 \cdot \%$$

Maximum Shear in Truss:

$$V_{actual} := 0.5 \cdot wt_{octopada} = 100.00\,lbf$$

Utilization Percentage:

$$\%util := \frac{V_{actual}}{V_{max.design}} = 12.07 \cdot \%$$

APPENDIX C

ORIGINAL ENGINEERING REPORT

09.08.22

Unit 3/1-7 Jabez St,
Marrickville NSW 2204

ATTENTION: Simone Chua & Daniel Rodrigeuz

STRUCTURAL DESIGN AND INSPECTION CERTIFICATE FOR TEMPORARY STRUCTURES

EVENT: Hurstville Activation

STRUCTURE: 5.5m(H) x 5.8m (W) Truss Frame
with Suspended /Steel and Acrylic Octopus

LOCATION: Westfield Hurstville Plaza, 3 Cross St, Hurstville NSW 2220

DURATION: 12th August – 23rd August 2022

We Event Engineering, being professional Chartered Structural Engineers within the meaning of the National Construction Code (NCC) of Australia, confirm that we have been appointed as the engineers responsible for the Structural Certification of the above project. We certify that the design, subject to the limitations listed within this certificate, is in accordance with the relevant provisions of the standard building codes of Australia, accepted engineering practice and principles and the design methods for *Temporary Demountable Structures* as per the *Guidance on Procurement, Design and Use of Temporary Demountable Structures* (Institution of Structural Engineers, 2017).

We advise that the maximum design 3 second wind gust speed for the above structures is 25m/s, in accordance with the minimum requirements set forth by AS1170.2:2011 (Clause 2.3. Should the wind speed approach this speed, the safety steps identified within this certificate must be implemented.

We also certify that we have carried out an inspection of the structural elements for the above installation on **09.08.22,** and confirm that the installation complied with the design as specified in this certificate and our site instructions. We note that this certification is effective only for the dates specified and that further review and certification will be required if the design is modified in any way. This certificate shall not be construed as relieving any other party of their responsibilities, liabilities or contractual obligations. This certificate is applicable only for this installation and relies upon all other risk assessments, WHS requirements and job safety statements associated with this project.

Damian Ferrari
B.Eng (Civil) (Hons)
GradIEAust
STRUCTURAL ENGINEER

Morgan Sheehy
MEng (Hons I) Tech Cert Eng (Civil)
MIEAust CPEng NER 3468223 (Civil & Structural)
APEC Engineer IntPE(Aus) RPEQ 14767
PE 657 (Civil Engineer)
SENIOR ENGINEER

1. REFERENCED STANDARDS

1.1. **ABCB:2015** Temporary Structures Standard;

1.2. **AS1170.0:2002** General principles;

1.3. **AS1170.1:2002** Permanent, imposed and other actions;

1.4. **AS1170.2:2011** Wind actions;

1.5. **AS1576.1:2010** Scaffolding;

1.6. **AS1664.1:1997** Aluminium structures;

1.7. **AS3600:2018** Concrete Structures;

1.8. **AS4100:1998** Steel Structures;

1.9. **IStructE:2017** Temporary Demountable Structures.

2. ATTACHMENTS

Att. No.	Title Reference	Issued By	Pages
1	Octapoda GA	Amigo & Amigo Marked by EE	6

3. DESIGN LIMITATIONS & REQUIREMENTS

3.1. Maximum Loading:

3.1.1. Dead:

3.1.1.1. Self-weight and 40kg in each steel drum;

3.1.2. Live:

3.1.2.1. No live loading permitted;

3.1.2.2. Personnel to monitor installation to prevent the public from climbing, hanging and otherwise loading the installation;

3.2. Minimum Ballast:

3.2.1. Octopoda: 40kg sandbag within each steel drum;

3.2.2. Truss: 2,000kg per upright (4,000kg total)

3.3. Member Specifications:

3.3.1. Global F44 truss arch;

3.4. Minimum Fixings: As per manufacturer's specifications;

3.5. Rubber Matting: Rubber matting to be provided under bases when located on hardstand;

3.6. Catenary Loading: No catenaries to be fixed to structures;

3.7. Rigging: Certified rigging technicians must install and sign-off on all rigging;

3.8. Bearing Capacity: Minimum bearing capacity shall be 100kPa;

3.9. Spreader Plates: To be provided beneath all structural support struts;

3.10. Workshop Drawings: Shall be submitted for engineer's written approval prior to modifications;

3.11. Wind Management Plan:

3.11.1. The wind speed must be measured on site by an anemometer or the nearest weather station;

3.11.2. If the wind speed approaches 20m/s, personnel must go on standby to implement an evacuation;

3.11.3. If the wind speed approaches 22m/s, all non-essential personnel must be evacuated;

3.11.4. If the wind speed approaches 25m/s, all structures must be abandoned and all personnel moved within a permanent structure of importance level 2-4 as specified within the BCA;

3.12. Operational Safety:

3.12.1. Event Engineering is not responsible for the operational safety of the structure and the public;

3.12.2. We have been engaged for structural engineering compliance, not how the end user engages with the structure, that is solely the responsibility of the client and event organiser.

4. SITE INSPECTION

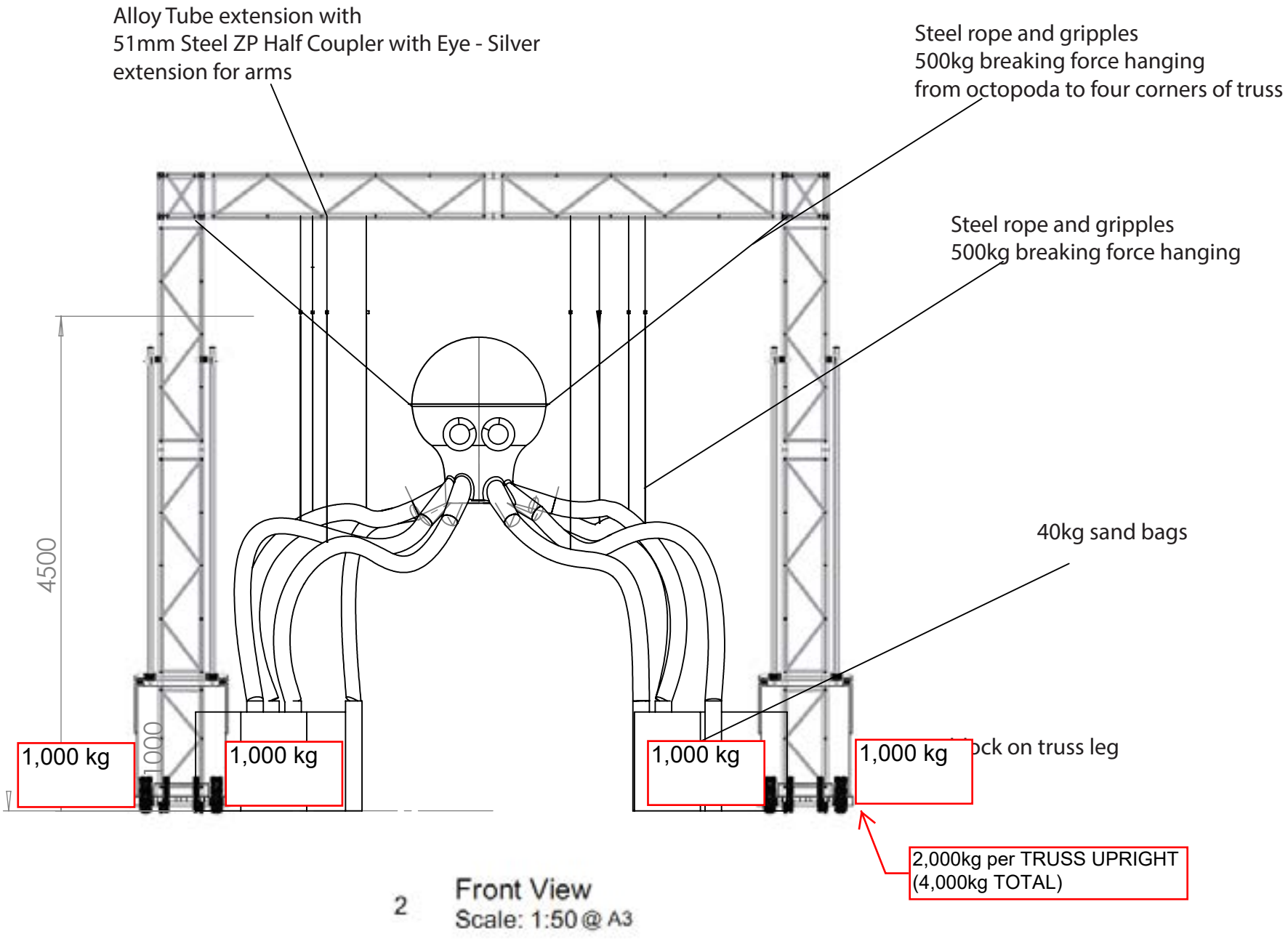
Event Engineering: Damian Ferrari

Site Contact: Daniel Rodrigeuz

Elements Inspected:		**Comments:**
4.1.	General Arrangement:	OK;
4.2.	Truss:	OK;
4.3.	Cables:	OK;
4.4.	Connections:	OK;
4.5.	Base Plates:	OK;
4.6.	Ballast:	OK;
4.7.	Rigging Specifications:	OK;
4.8.	Rigging:	Tri-Point Rigging

5. PHOTOGRAPHIC REFERENCE

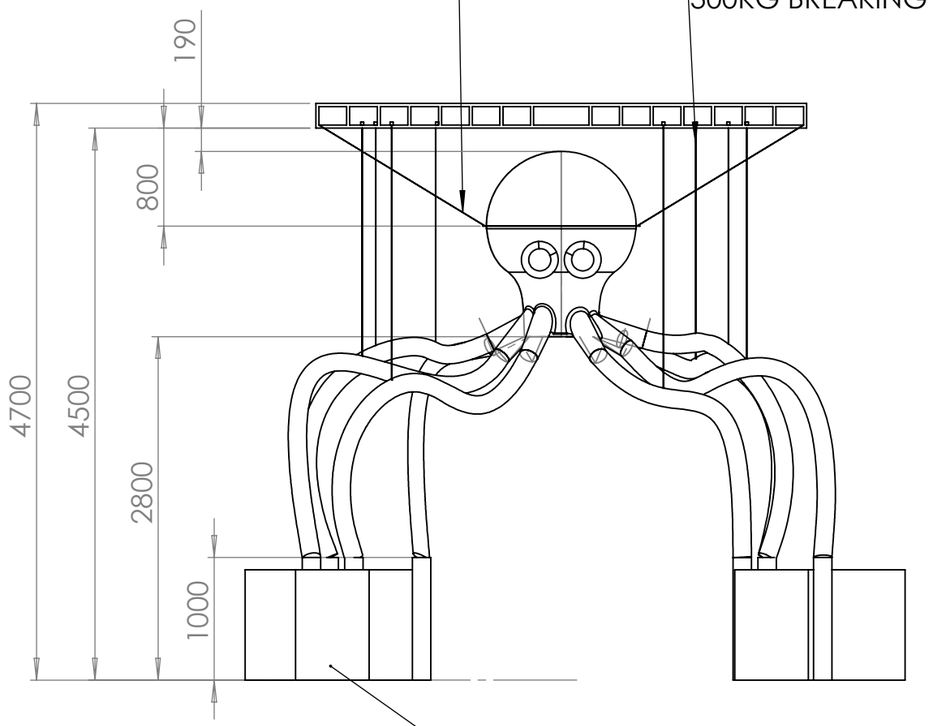
Refer to overleaf



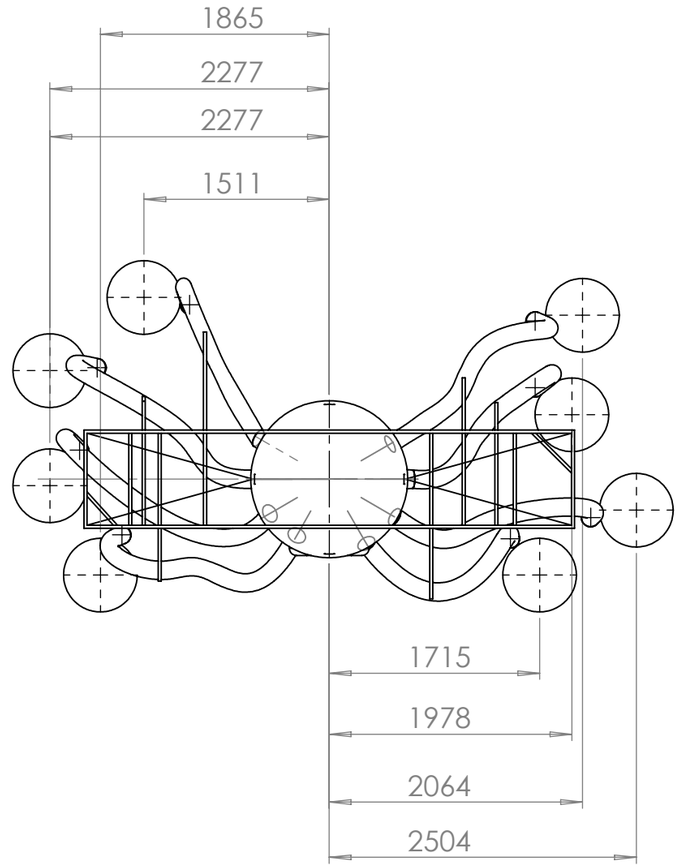
2 Front View
Scale: 1:50 @ A3

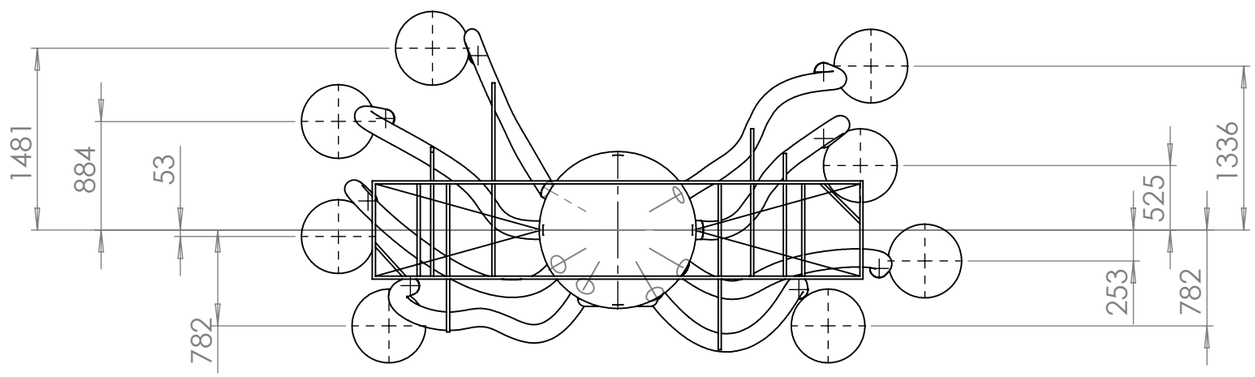
STEEL ROPE 500KG BREAKING FORCE 2.5MM THICK
RIGGING FROM CENTRE OF HEAD TO FOUR CORNERS OF RIGGING BOX

STEEL CHAIN WITH SCENIC FINISH
300KG BREAKING FORCE 6MM THICK



40KG SAND BAG WEIGHT IN DRUMS





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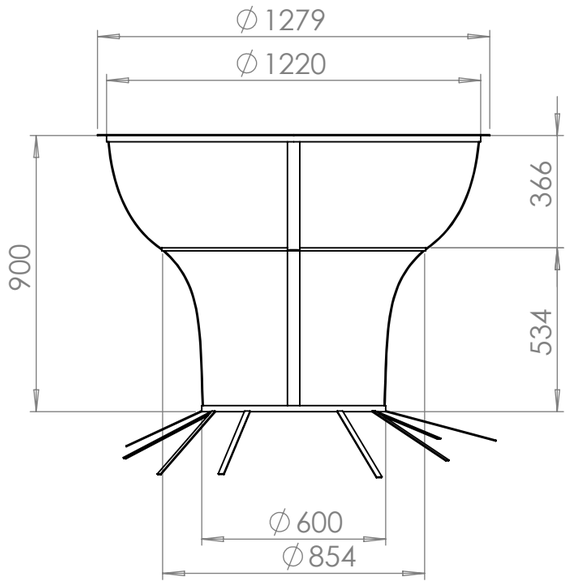
WEIGHT:	SCALE:1:20 SHEET 2 OF 5



L1- 115dg
370 long

L2 - 120 DG
270 LONG

L3 - 140 DG
290 LONG

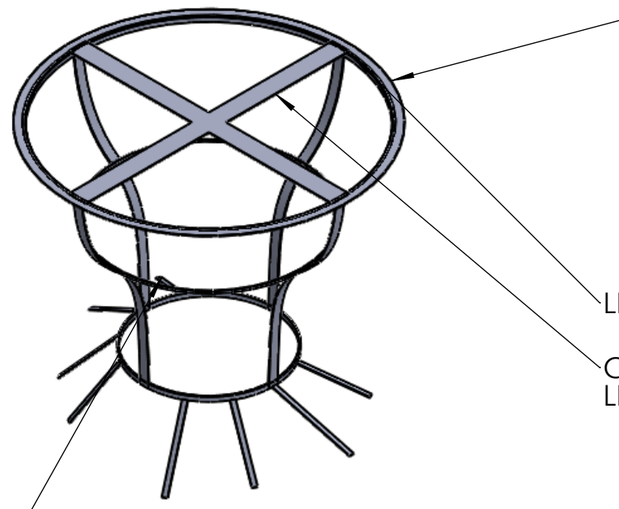
L4 - 160 DG
270 LONG

L5 - 150 DG
335 LONG

L6 - 125DG
320 LONG

L7 - 115 DG
370LONG

L8 - 105 DG
262 LONG

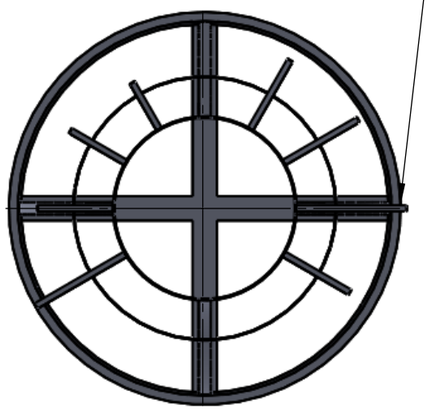


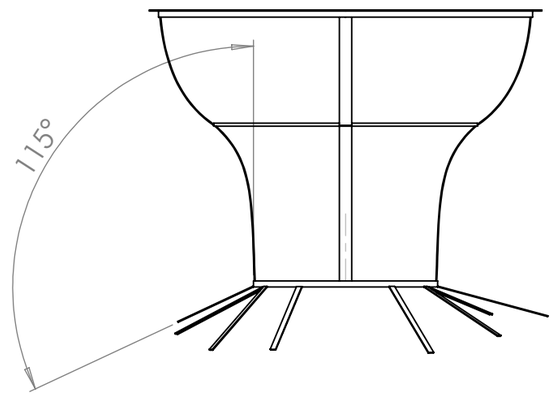
ROLLED CHS

LIP SECTION FOR ACRYLIC FIXINGS

CROSS SECTION FOR INSIDE BRAIN LIGHT DETAIL

FIXINGS ON LIP TO ATTACH STEEL ROPE 500KG BREAKING FORCE FOR HANGING





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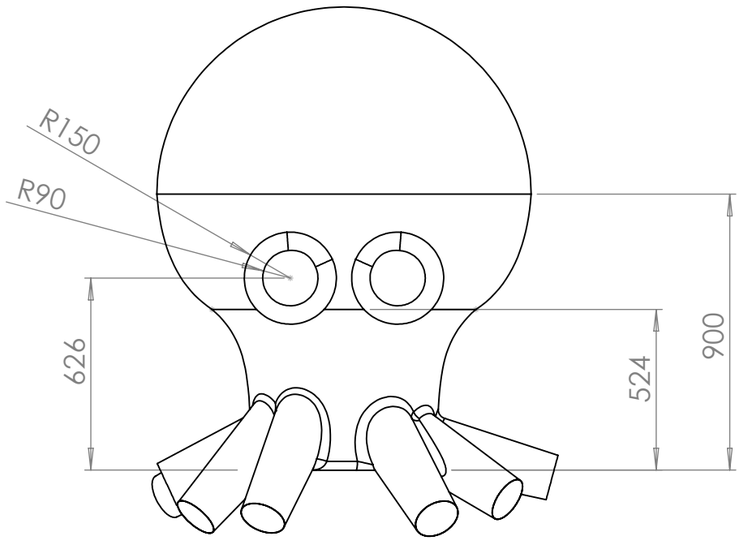
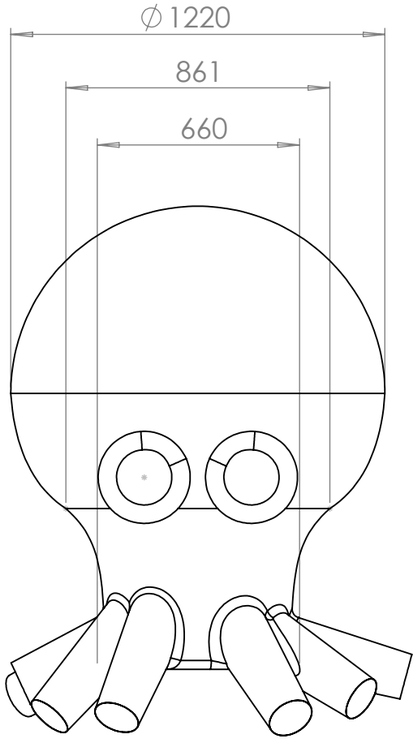
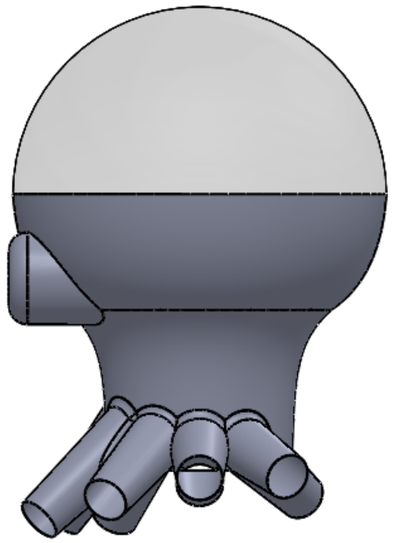
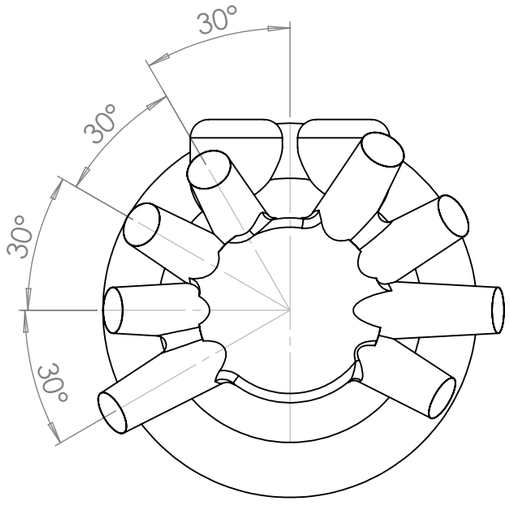


FRONT VIEW HEIGHTS

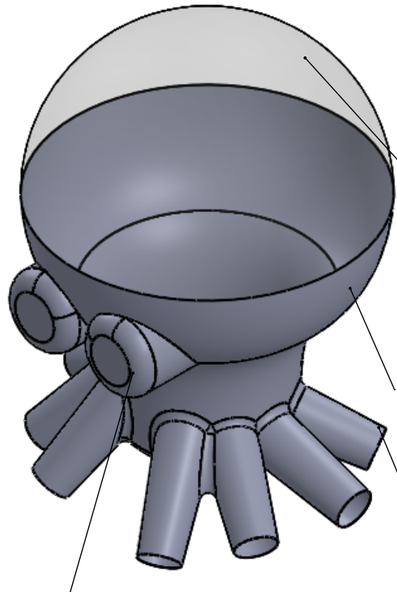


FRONT VIEW DIAMETER





BOTTOM VIEW LEG ANGLES



1200MM ACRYLIC DOME
10MM THICK

SHEET METAL STEAM PUNK BRONZE FINISH

SHEET METAL TUBE 150MM DIAMETER SLEEVE

EYE GOGGLES TRANSLUCENT FRONT WITH PCB LIGHT BEHIND

DO NOT SCALE DRAWING	REVISION
TITLE: amigo and amigo	
DWG NO. OCTOPUS SHEET METAL	A3
WEIGHT:	SCALE:1:20 SHEET 4 OF 5

EVENT
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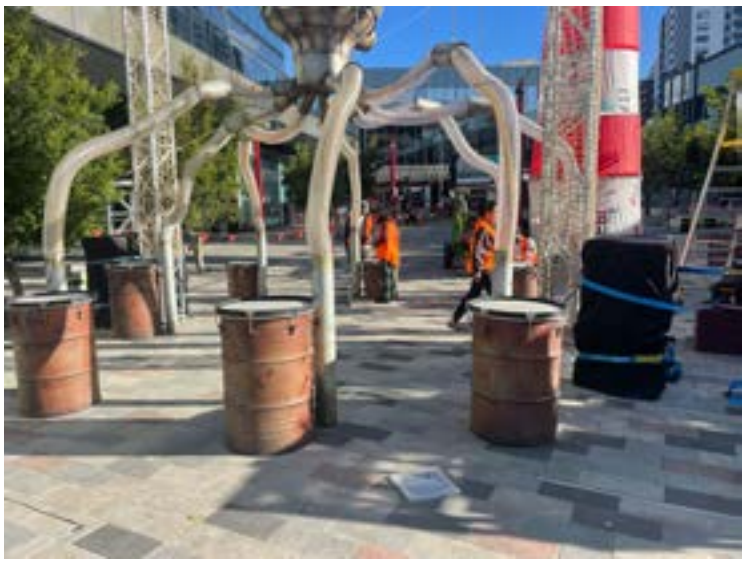

STRUCTURAL SUBMITTAL PACKAGE

for

Big Art

BIG TV

Project Location: Varies

Event Dates: Varies (installation shall not exceed 1 week)

Submittal Date: 9/9/2025

Clark Reder Project Number: 25.401.197

Reviewed by:

Jeffrey M. Reder, P.E.
CA Registration #: C70581

Prepared by:

Eric Kelly

Clark Reder Engineering
10091 Mosteller Lane
West Chester, OH 45069

Phone: (513) 851-1223
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www.clarkreder.com

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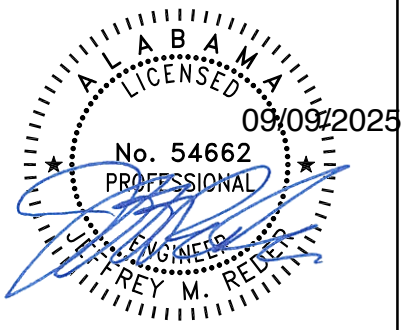		
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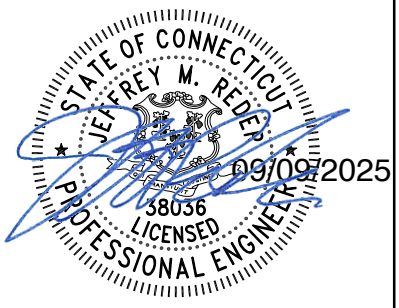
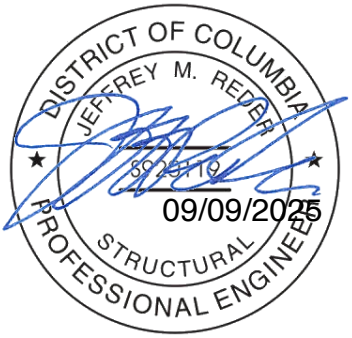
		
Jeffrey M. Reder, C.E. P.E. # C 70581	Jeffrey M. Reder, P.E. P.E. # PE0051394	Jeffrey M. Reder, P.E. P.E. # 38036
Delaware	**District of Columbia**	**Florida**
		
Jeffrey M. Reder, P.E. P.E. # 17438	Jeffrey M. Reder, P.E. P.E. # S920119	Jeffrey M. Reder, P.E. P.E. # 68622

Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

Clark Reder Engineering
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West Chester, OH 45069

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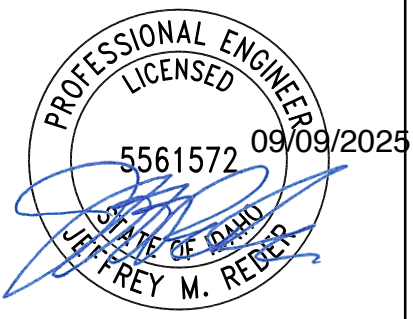
Georgia	Hawaii	Idaho
		
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	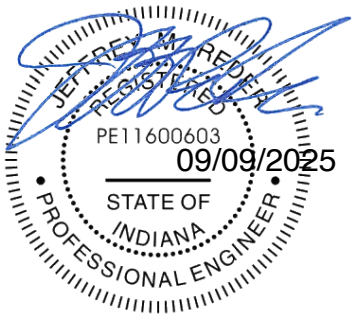	
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	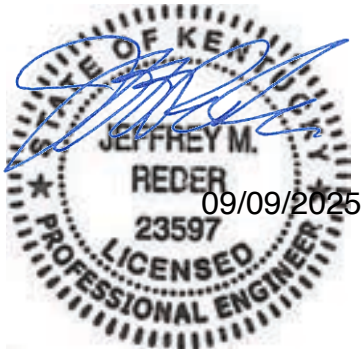	
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Clark Reder Engineering, Inc. is a professional design firm registered in Illinois #184.006693

Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

Clark Reder Engineering
10091 Mosteller Lane
West Chester, OH 45069

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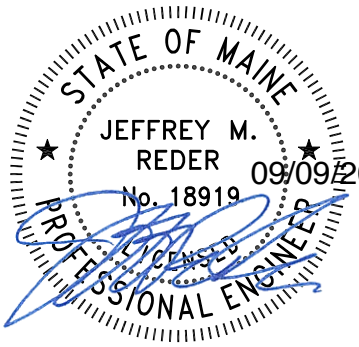
Maine	Maryland	Massachusetts
	 Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License # 38421, Expiration Date: 1/29/2025	
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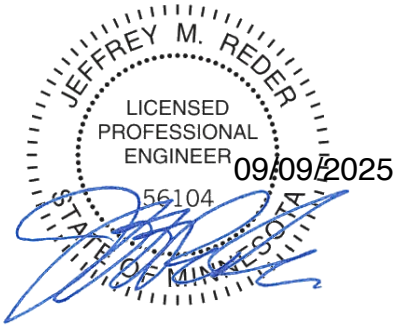
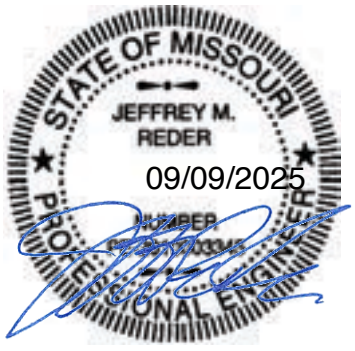
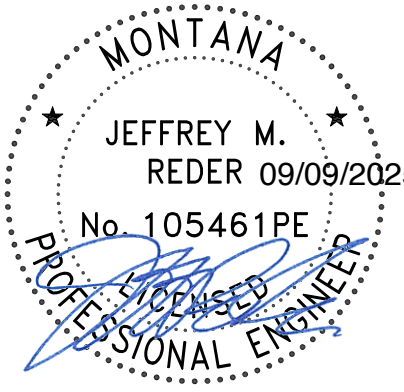
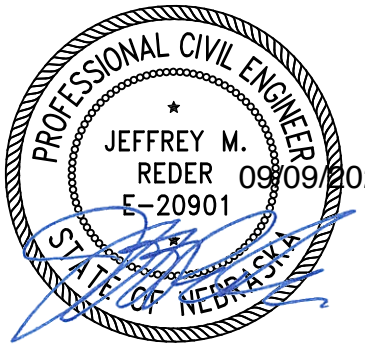
		 "I have reviewed this document in sufficient depth to accept full responsibility for its contents and to assure code compliance and coordination"
Jeffrey M. Reder, P.E. P.E. # 6201056952	Jeffrey M. Reder, P.E. P.E. # 56104	Jeffrey M. Reder, P.E. P.E. # 35564
Missouri	**Montana**	**Nebraska**
		
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Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

Clark Reder Engineering
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Fax: (513) 217-9388
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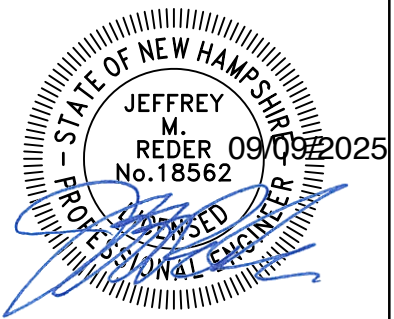
Nevada	New Hampshire	New Jersey
		
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Jeffrey M. Reder, P.E. P.E. # PE-40952	Jeffrey M. Reder, P.E. P.E. # E-67450	Jeffrey M. Reder, P.E. P.E. # 24780

Project: BIG TV
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Oregon	Pennsylvania	Rhode Island
		
Jeffrey M. Reder, P.E. P.E. # 93904PE	Jeffrey M. Reder, P.E. P.E. # PE77455	Jeffrey M. Reder, P.E. P.E. # 9610
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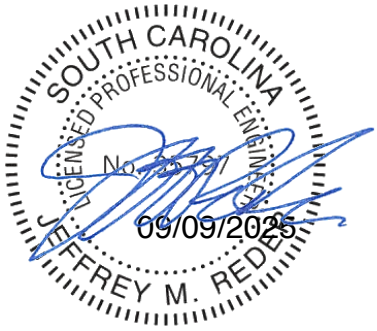		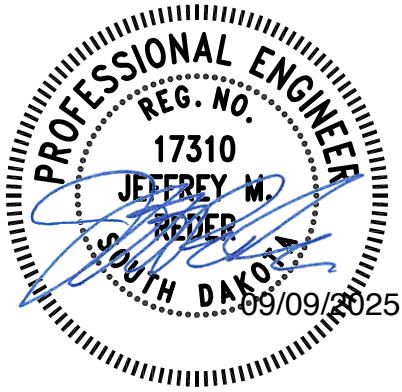
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	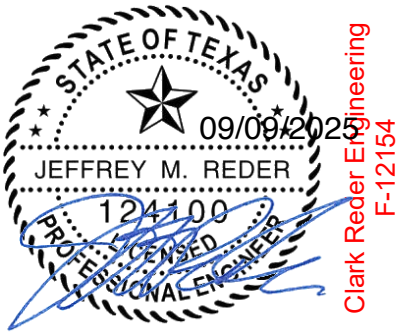 Clark Reder Engineering F-12154	
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Project: BIG TV
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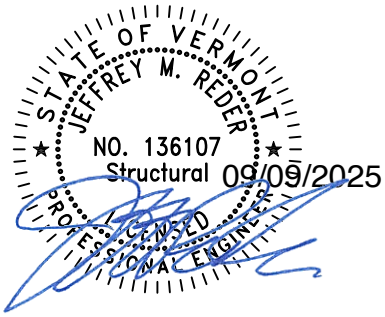		
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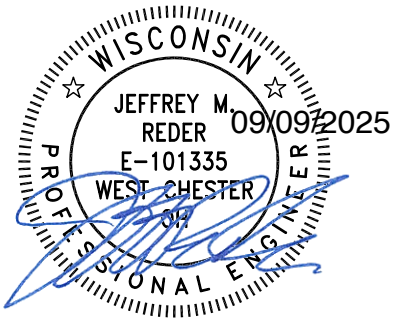
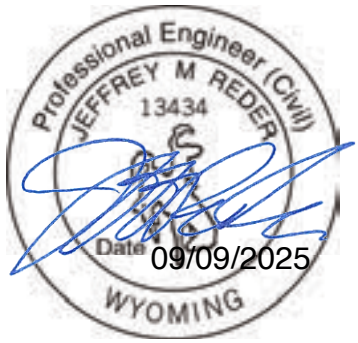
		
Jeffrey M. Reder, P.E. P.E. # 18628	Jeffrey M. Reder, P.E. P.E. # E-101335	Jeffrey M. Reder, P.E. P.E. # 13434

Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

Table of Contents for Structural Submittal Package

Project Information

Project Summary

The project referenced by this submittal consists of a temporary aluminum truss structure. The structure will be used to support scenic cladding, as well as a video wall that is attached to (3) I-beams. The structure will be installed in various locations for various events, with each installation lasting approximately 1 week.

The structure is composed of 12" x 12" aluminum box truss from Unisson or equivalent. The I-beams are S4x7.7 beams and will be used to support a video wall that weighs approximately 1400 pounds. The video wall is attached via I-beam trolleys and will be free to move along the beam. Clark Reder Engineering did not review the structure for any dynamic loads but reviewed the structure for various loading conditions assuming a static load only.

Scope of Review

Clark Reder Engineering reviewed the structure for lateral and gravity loads. The structure was reviewed for 40mph wind speeds with scenic cladding attached to the truss and LED attached to the I-beams, as well as 67mph wind speeds on the bare structure.

No review was performed on the scenic elements or their attachment to the structure.

Conclusions

Our review has concluded that the structure meets the structural requirements of the 2021 International Building Code, National Building Code – 2023 Alberta Edition, ASCE 7-16, and ASCE 37-14.

Limitations and Exceptions

The scope of review for this submittal is limited to the items listed above. All other temporary or permanent structures on site not specifically referenced above under "Scope of Review" are the responsibility of others.

Where the items covered by this submittal are attached to existing structures, it is the responsibility of the engineer of record for those existing structures to review the impact of the elements referenced in this submittal.

GENERAL STRUCTURAL NOTES

EVENT DATE & LOCATION

1. EVENT DATE: VARIES
2. EVENT LOCATION: VARIES

CODES

1. 2021 INTERNATIONAL BUILDING CODE
2. NATIONAL BUILDING CODE – 2023 ALBERTA EDITION
3. ASCE 7-16: MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
4. ASCE 37-14: DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION
5. 2020 ALUMINUM DESIGN MANUAL

REFERENCES

1. ANSI E1.21-2013 ENTERTAINMENT TECHNOLOGY, "TEMPORARY GROUND-SUPPORTED OVERHEAD STRUCTURES USED TO COVER THE STAGE AREAS AND SUPPORT EQUIPMENT IN THE PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS"
2. ANSI E1.2-2012 ENTERTAINMENT TECHNOLOGY, "DESIGN, MANUFACTURE AND USE OF ALUMINUM TRUSSES AND TOWERS"

DESIGN LOADS

1. DEAD LOAD: SELF-WEIGHT OF STRUCTURE
2. RIGGING LOADS: SEE ATTACHED DRAWINGS
3. WIND LOADS:
    - A. WIND RISK CATEGORY: II
    - B. BEFORE HIGH WIND ACTION PLAN IS ACTIVATED:
        1. DESIGN SERVICE-LEVEL WIND SPEED: 40 MPH
        2. EXPOSURE: C
    - C. AFTER HIGH WIND ACTION PLAN IS ACTIVATED:
        1. DESIGN SERVICE-LEVEL WIND SPEED: 67 MPH
            - a. REQUIRED WIND SPEED HAS BEEN REDUCED IN ACCORDANCE WITH ASCE 37-14 DUE TO THE TEMPORARY NATURE OF STRUCTURE
        2. EXPOSURE: C
    - D. SITE ELEVATION: 0 FT
    - E. REFERENCE THE HIGH WIND ACTION PLAN FOR SPECIFIC ACTIONS THAT SHALL BE TAKEN TO ENSURE STABILITY OF THE TEMPORARY STRUCTURE IN HIGH WINDS.
4. SEISMIC LOADS DO NOT CONTROL THE DESIGN OF THIS STRUCTURE.

CONSTRUCTION AND SAFETY

1. ENGINEER SHALL NOT BE RESPONSIBLE FOR MEANS, METHODS, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
2. ENGINEER HAS DESIGNED THE STRUCTURES FOR THEIR FINAL AS-BUILT CONDITION. ENGINEER IS NOT RESPONSIBLE FOR TEMPORARY STABILITY OF STRUCTURES DURING ERECTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
3. STRUCTURE HAS BEEN DESIGNED AS A TEMPORARY STRUCTURE THAT SHALL BE IN PLACE FOR LESS THAN SIX WEEKS.

FOUNDATIONS

1. THE STRUCTURE IS ASSUMED TO BE FOUNDED ON LEVEL GROUND (CONCRETE, ASPHALT, GRASS, ETC) WITH A MINIMUM NET ALLOWABLE BEARING CAPACITY OF 1500 PSF.

BALLAST

1. BALLAST SHALL BE INSTALLED PER THE ENGINEERING DRAWINGS. DEVIATIONS IN WEIGHT OR PLACEMENT SHALL BE APPROVED IN WRITING BY THE ENGINEER OF RECORD.
2. BALLAST SHALL NOT BE INSTALLED ON GRAVEL, ICE, GRASS, SLOPING OR OTHERWISE UNSTABLE TERRAIN UNLESS MEANS TO PREVENT SLIDING ARE PROVIDED.
3. BALLAST AMOUNTS GIVEN CONSIDER UPLIFT AND SLIDING, WITH A MINIMUM 1.5 FACTOR OF SAFETY AGAINST OVERTURNING.

RIGGING

1. ALL POINTS SHALL BE DEAD HUNG POINTS.
2. ALL RIGGING SHALL BE HUNG FROM PANEL POINTS (LOCATIONS ON THE TRUSS CHORDS BRACED BOTH VERTICALLY AND HORIZONTALLY) UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
3. BRIDLES SHALL NOT BE USED UNLESS SPECIFICALLY ALLOWED BY THE ENGINEER OF RECORD.

ALUMINUM TRUSS

1. ALUMINUM TRUSS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING COMPANIES OR AN APPROVED EQUAL:
   - A. TOTAL STRUCTURES
   - B. UNISSON
   - C. JAMES THOMAS ENGINEERING
   - D. TOMCAT USA
2. TRUSS TO TRUSS CONNECTION HARDWARE (UNLESS NOTED OTHERWISE):
   - A. PLATED ENDS: 5/8"Ø GRADE 8 BOLTS
3. TRUSS END PLATE BOLTS SHALL BE TIGHTED TO THE SNUG TIGHT CONDITION. SNUG TIGHT CONDITION EXISTS WHEN ALL PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND ALL BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT REMOVAL OF THE NUTS WITHOUT THE USE OF WRENCH.
4. UNLESS NOTED OTHERWISE, ALL LOADS SHALL BE APPLIED TO TRUSSES AT PANEL POINTS.
5. RATED SPANS, CAPACITIES AND LOADING CONDITIONS PUBLISHED BY THE TRUSS MANUFACTURER SHALL NOT BE EXCEEDED UNLESS REVIEWED AND APPROVED BY A LICENSED ENGINEER FOR A SPECIFIC USE.
6. DO NOT PLACE LIGHTING CLAMPS OR WIRE ROPE IN DIRECT CONTACT WITH THE TRUSS UNLESS THE CHORD MATERIAL IS PROTECTED FROM DAMAGE DUE TO OVERTIGHTENING OR WIRE ROPE RUBBING.

STRUCTURAL STEEL

1. ALL STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE LATEST VERSION OF THE FOLLOWING SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   - A. AISC 360: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
   - B. AISC 303: CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
   - C. RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS
   - D. AWS D1.1: STRUCTURAL WELDING CODE-STEEL
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING CRITERIA UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   - A. ROLLED WIDE FLANGE SHAPES: ASTM A992, FY = 50 KSI
   - B. MISC PLATE, BAR, ANGLES AND CHANNELS: ASTM A36, FY = 36 KSI
   - C. PIPE SHAPES: ASTM A53, TYPE E OR S, GRADE B, FY = 35 KSI
   - D. HSS TUBES: ASTM A500 GR B, FY = 46 KSI
   - E. HSS ROUND: ASTM A500 GR B, FY = 42KSI
   - F. BOLTS: ASTM A325-N
   - G. HARDENED WASHERS: ASTM F436
   - H. NUTS: ASTM A563

INSPECTIONS

1. ALL TRUSS UNITS, I-BEAMS AND/OR OTHER RIGGING EQUIPMENT SHALL BE VISUALLY INSPECTED PRIOR TO ERECTION. DAMAGED OR CORRODED EQUIPMENT SHALL NOT BE USED. FIELD MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

OPERATIONS MANAGEMENT PLAN

IMPLEMENTATION OF PLAN

1. PRIOR TO EACH INSTALLATION, THE TRUSS PROVIDER IN CONJUNCTION WITH THE VENUE, SHALL DESIGNATE A RESPONSIBLE PERSON IN CHARGE OF IMPLEMENTING ALL PHASES OF THE OPERATIONS MANAGEMENT PLAN AS IT PERTAINS TO THE STRUCTURE.
2. A MEETING SHALL BE HELD AT THE VENUE WITH THE PROMOTER, OWNER OR STAGE MANAGER TO DISCUSS THE HIGH WIND ACTION PLAN AND OTHER OPERATIONAL ITEMS.

DAILY OPERATIONS PLAN

1. CHECK WEATHER EACH MORNING AND PERIODICALLY THROUGHOUT THE DAY.
2. CHECK TOWER BASES DAILY TO ENSURE ALL REMAIN LEVEL AND PLUMB
3. CHECK GUY WIRES AND BALLAST ASSEMBLIES DAILY TO VERIFY LINES ARE TENSIONED AND BALLAST HAS NOT MOVED.
4. PROVIDE A DAILY LOG OF THE ABOVE CHECKS FOR EACH INSTALLATION.

HIGH WIND ACTION PLAN

1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE INSTALLATION. AN INSTALLATION SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE TRUSS PROVIDER OR VENUE SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN (SEE ABOVE).
3. A REGULAR LIAISON WITH LOCAL AIRPORTS AND/OR WEATHER INFORMATION CENTERS SHALL BE MAINTAINED TO ASCERTAIN IF ANY SIGNIFICANT WEATHER EVENTS ARE EXPECTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE
4. AN ANEMOMETER SHALL BE PLACED ON THE STRUCTURE TO MONITOR WIND SPEEDS. THE ANEMOMETER SHALL BE PLACED AT THE TOP OF A TOWER OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
5. NOTED WIND SPEEDS ARE 3-SECOND GUSTS IN ACCORDANCE WITH ASCE 7
6. **WHEN THE STRUCTURE IS UNATTENDED OR NOT IN USE**: SCENIC CLADDING SHALL BE REMOVED FROM THE STRUCTURE IF WINDS ARE EXPECTED TO EXCEED 35MPH WHILE LEFT UNATTENDED.
7. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 30 MPH**: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT. ALL NECESSARY PERSONNEL SHALL BE IN PLACE AND PUT ON STANDBY.
8. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 40 MPH**:
    a. ALL SHOW OPERATIONS SHALL BE SUSPENDED, AND THE IMMEDIATE AREA SHALL BE EVACUATED OF ALL PATRONS AND NON-ESSENTIAL PERSONNEL.
    b. SCENIC CLADDING SHALL BE REMOVED FROM THE STRUCTURE.
    c. VIDEO WALL SHALL BE LOWERED TO THE GROUND AND SECURED AGAINST MOVEMENT.
9. **AT WINDS SPEEDS IN EXCESS OF 50 MPH**: ALL PERSONNEL SHOULD MAINTAIN SAFE DISTANCE FROM THE STRUCTURE.
10. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.
11. FAILURE TO FOLLOW THE HIGH WIND ACTION PLAN MAY RESULT IN COLLAPSE OF THE STRUCTURE, DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

PLAN EXCEPTIONS

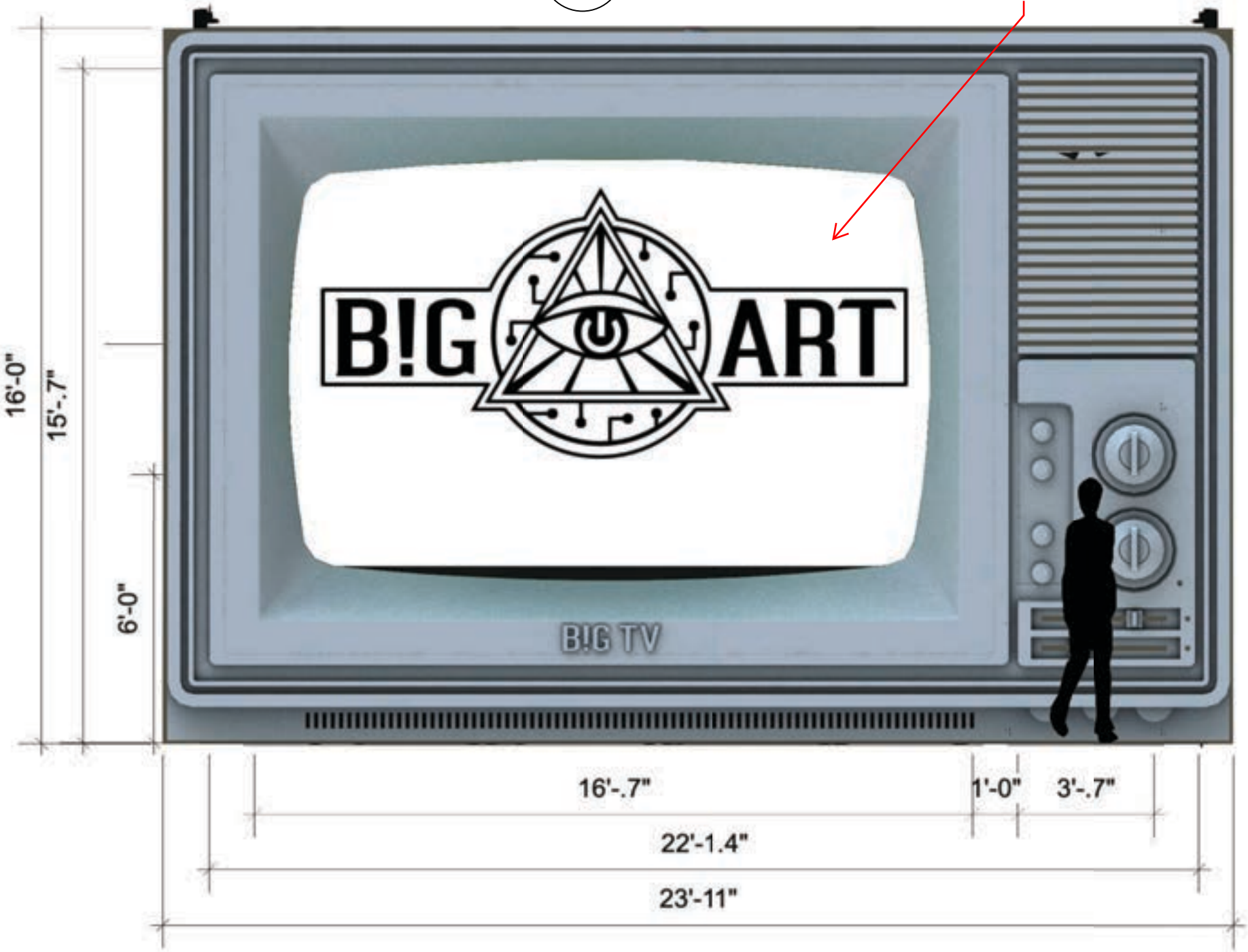
1. THIS PLAN IS SPECIFIC TO THE STRUCTURE LISTED IN THIS SUBMITTAL. THE EVENT OPERATIONS MANAGEMENT PLAN, IF MORE STRINGENT, SHALL BE FOLLOWED.

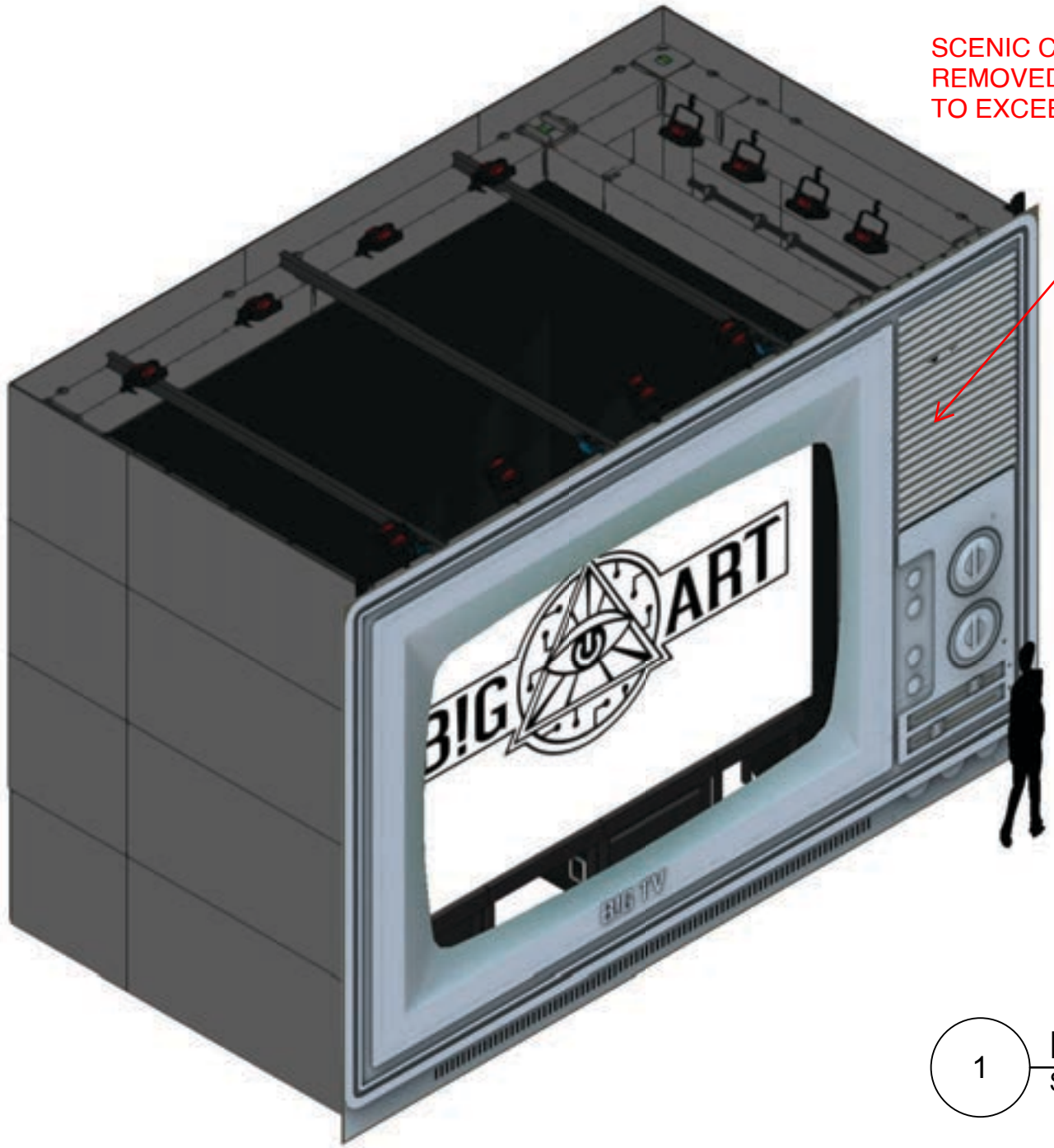
APPENDIX A

REFERENCE DRAWINGS

1 B!G TV
Scale: 1:35

SCENIC CLADDING SHALL BE REMOVED IF WINDS ARE EXPECTED TO EXCEED 40MPH - TYP.



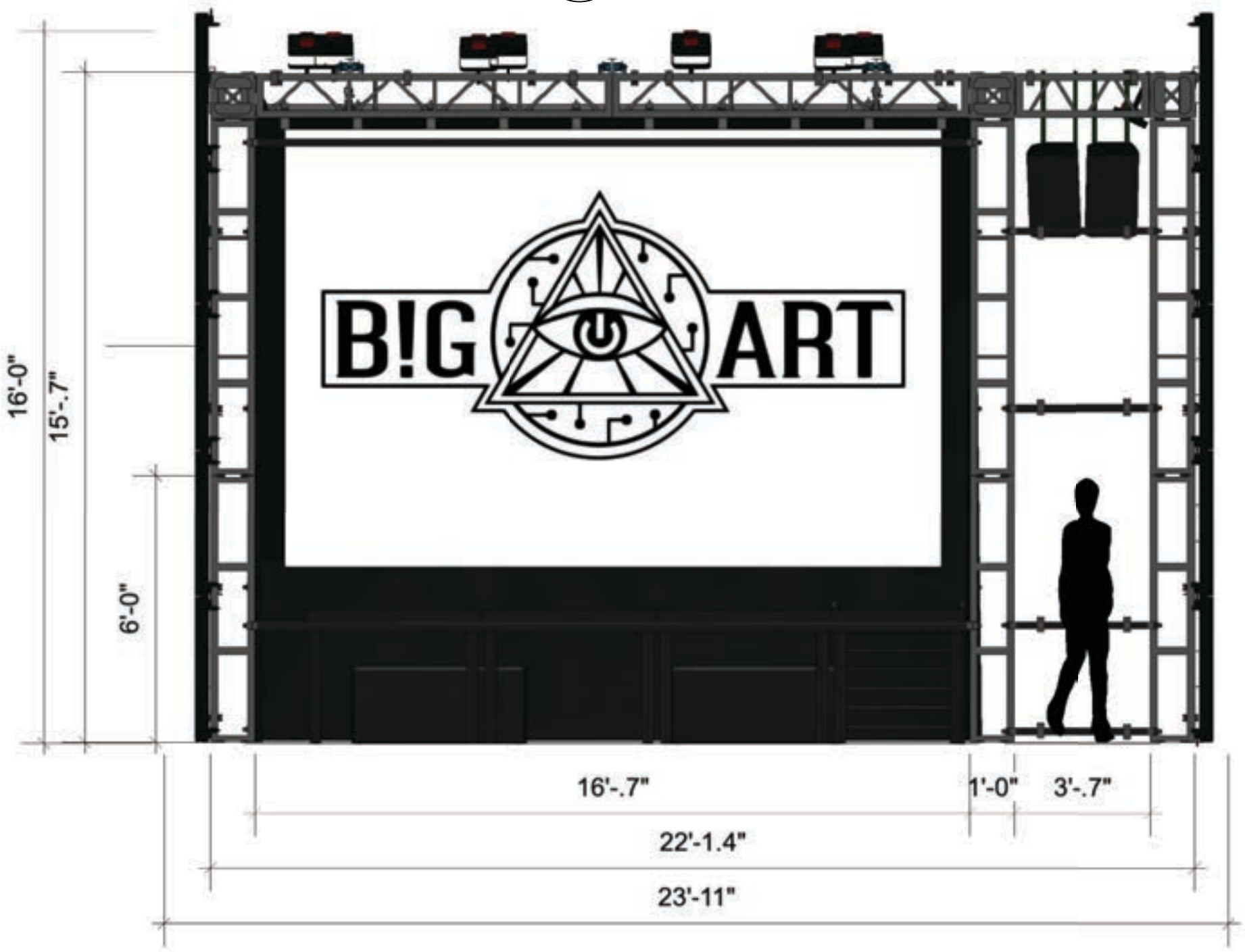


1 B!G TV
Scale: 1:46

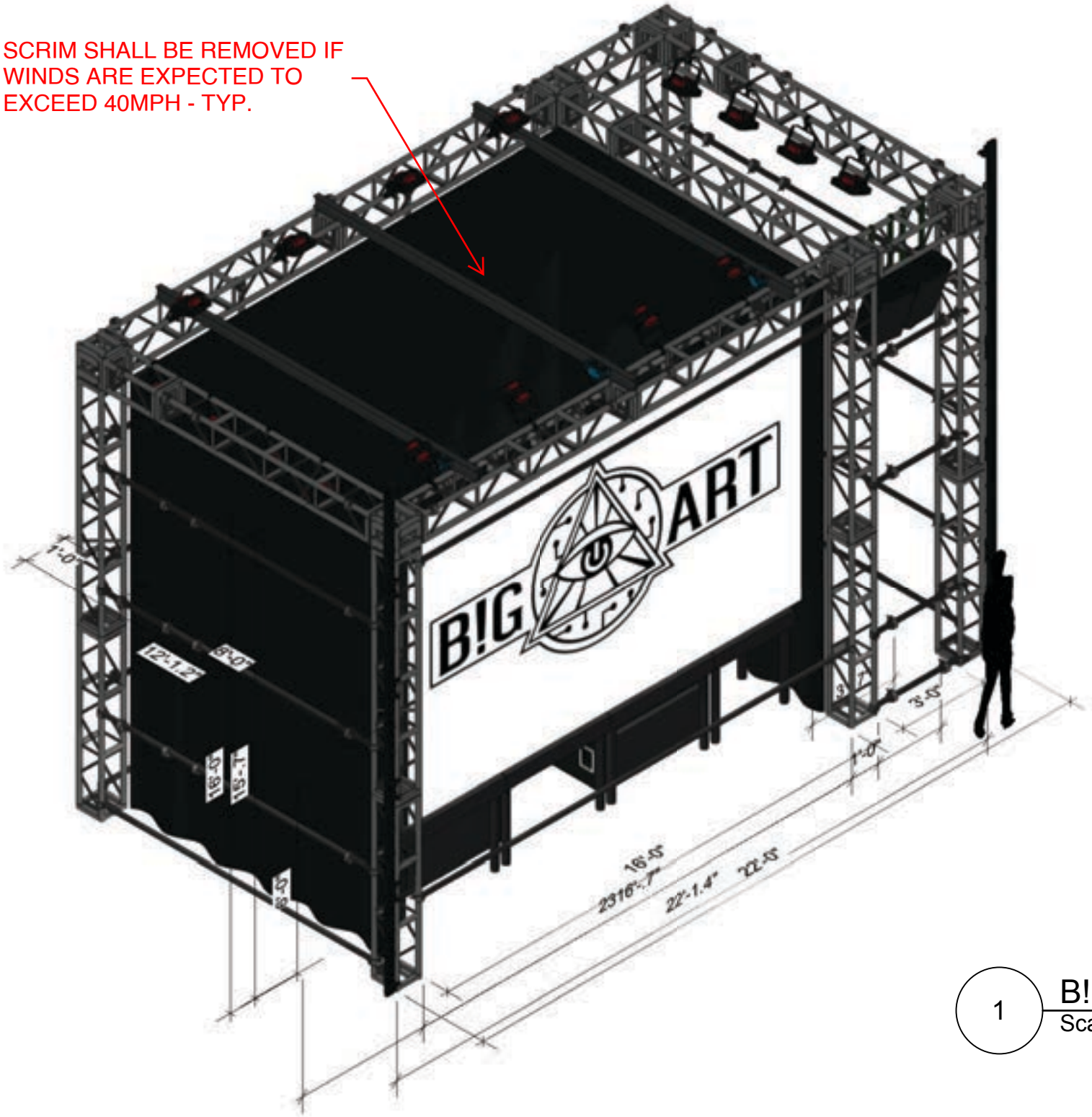
1

B!G TV

Scale: 1:35



SCRIM SHALL BE REMOVED IF WINDS ARE EXPECTED TO EXCEED 40MPH - TYP.

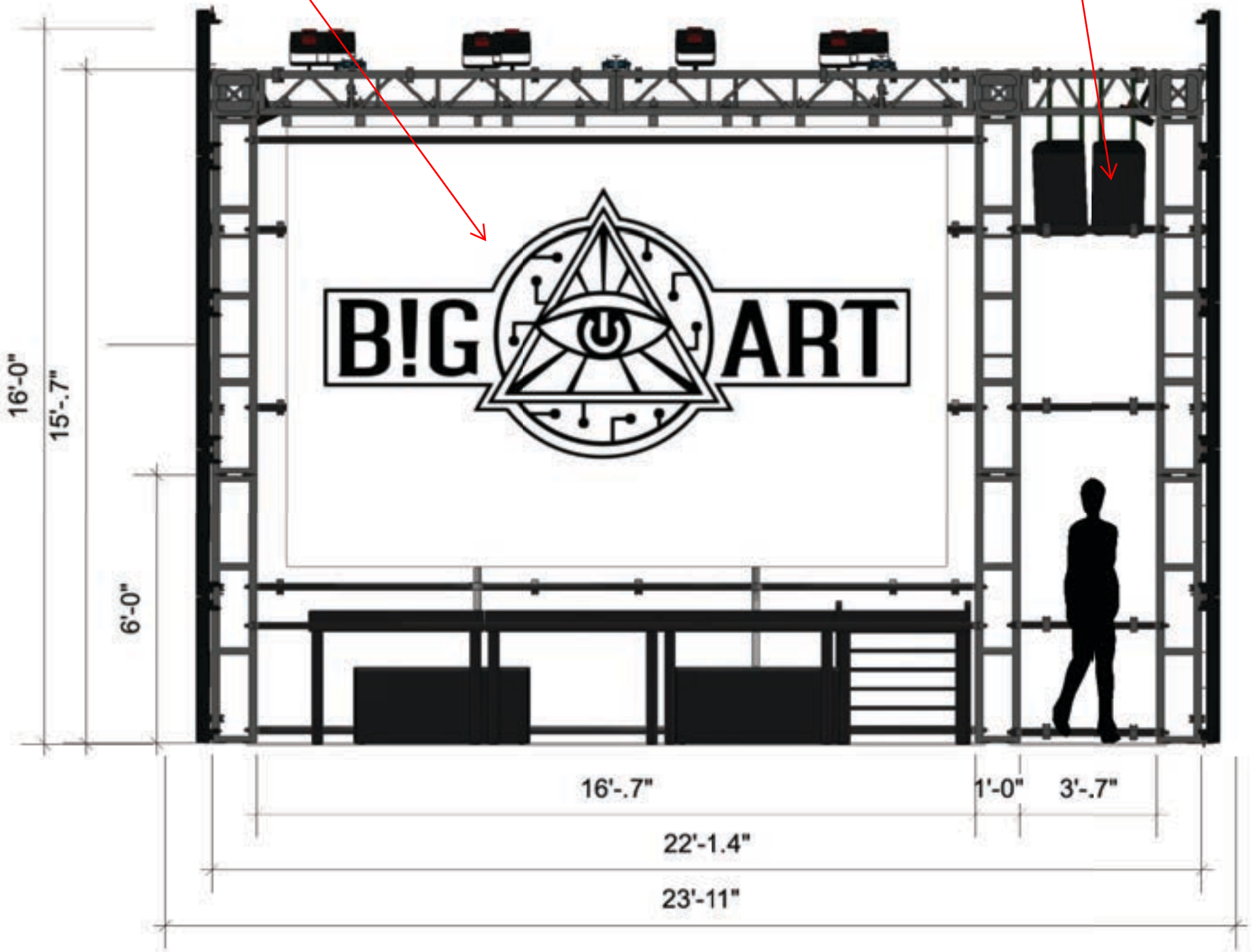


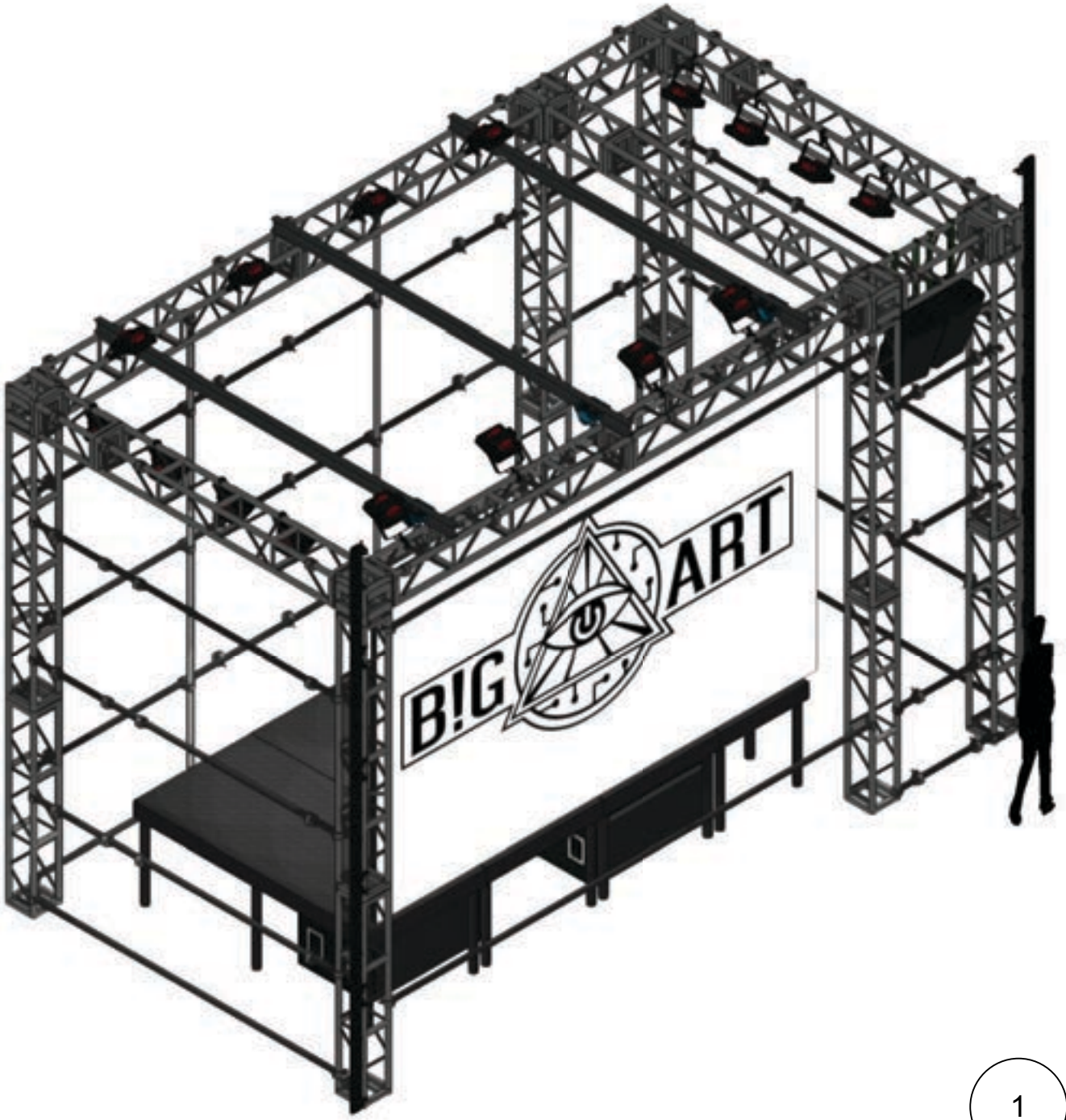
1 B!G TV
Scale: 1:44

PER CLIENT, VIDEO WALL WEIGHS APPROXIMATELY 1400 POUNDS.

1 B!G TV
Scale: 1:35

PER CLIENT, AUDIO WEIGHS APPROXIMATELY 160 POUNDS.



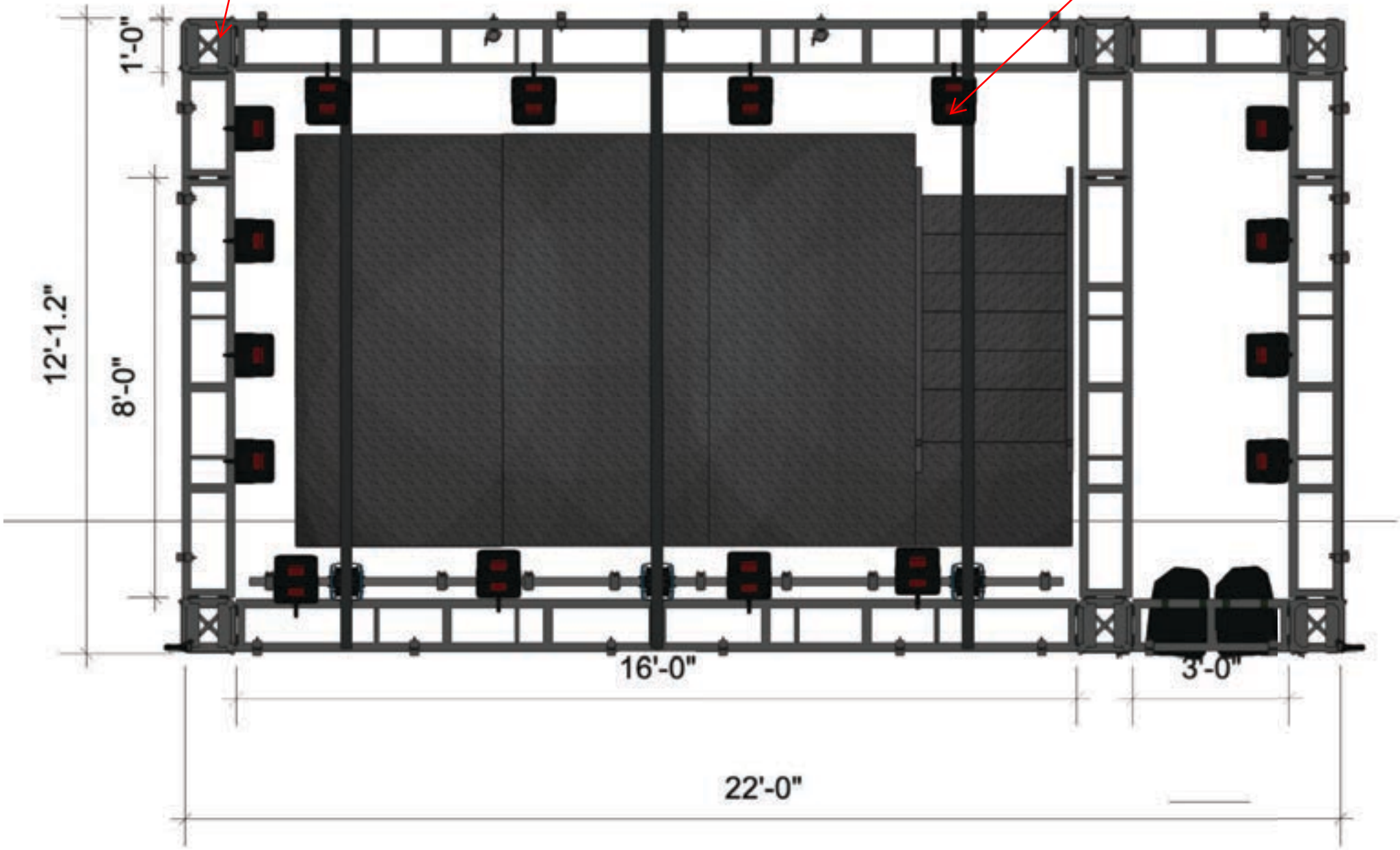


1 B!G TV
Scale: 1:44

MINIMUM 300 POUNDS OF BALLAST
REQUIRED AT EACH TOWER - TYP. (6)

1 B!G TV
Scale: 1:30

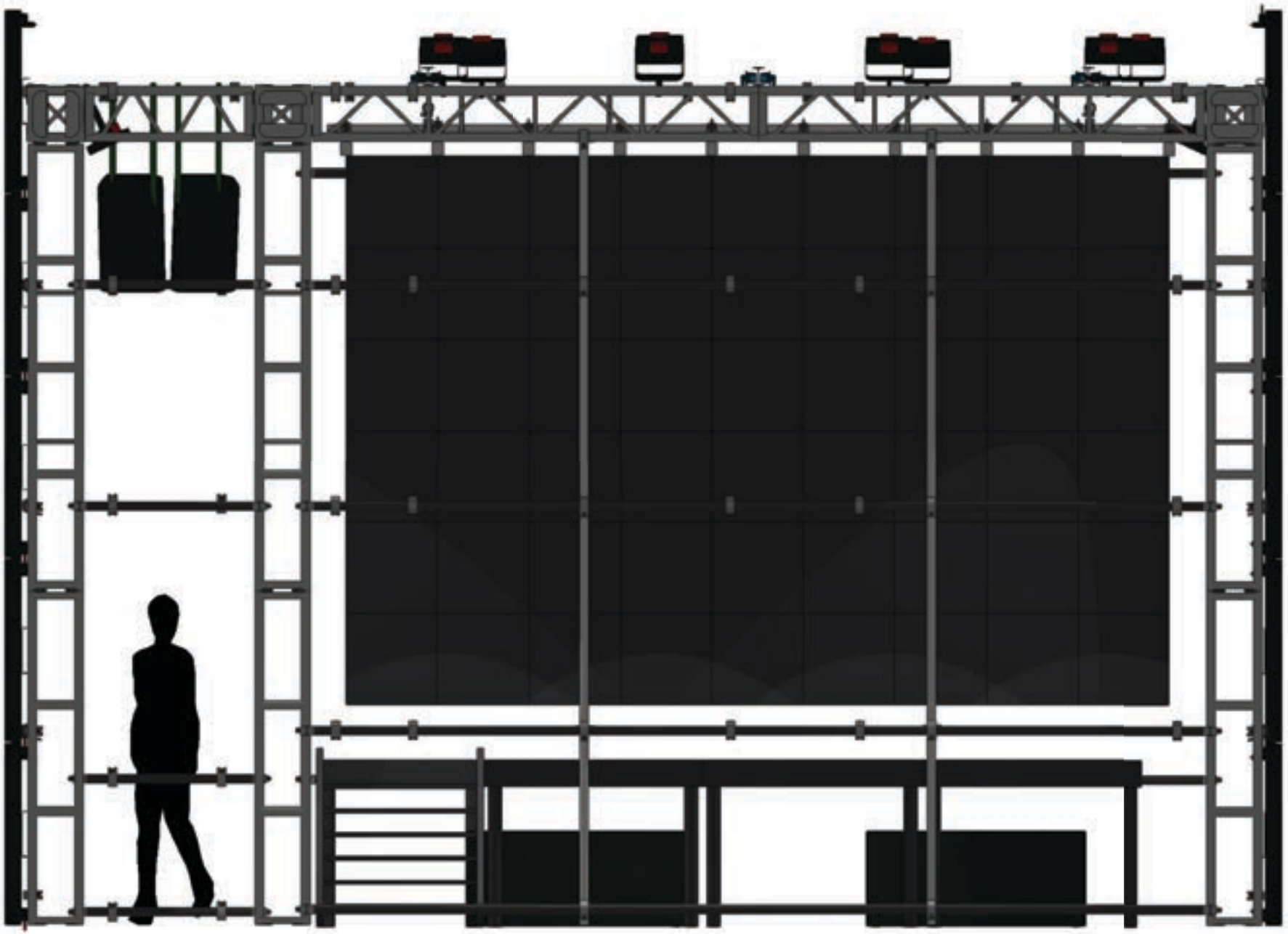
PER CLIENT, EACH LIGHT WEIGHS
APPROXIMATELY 25 POUNDS - TYP.

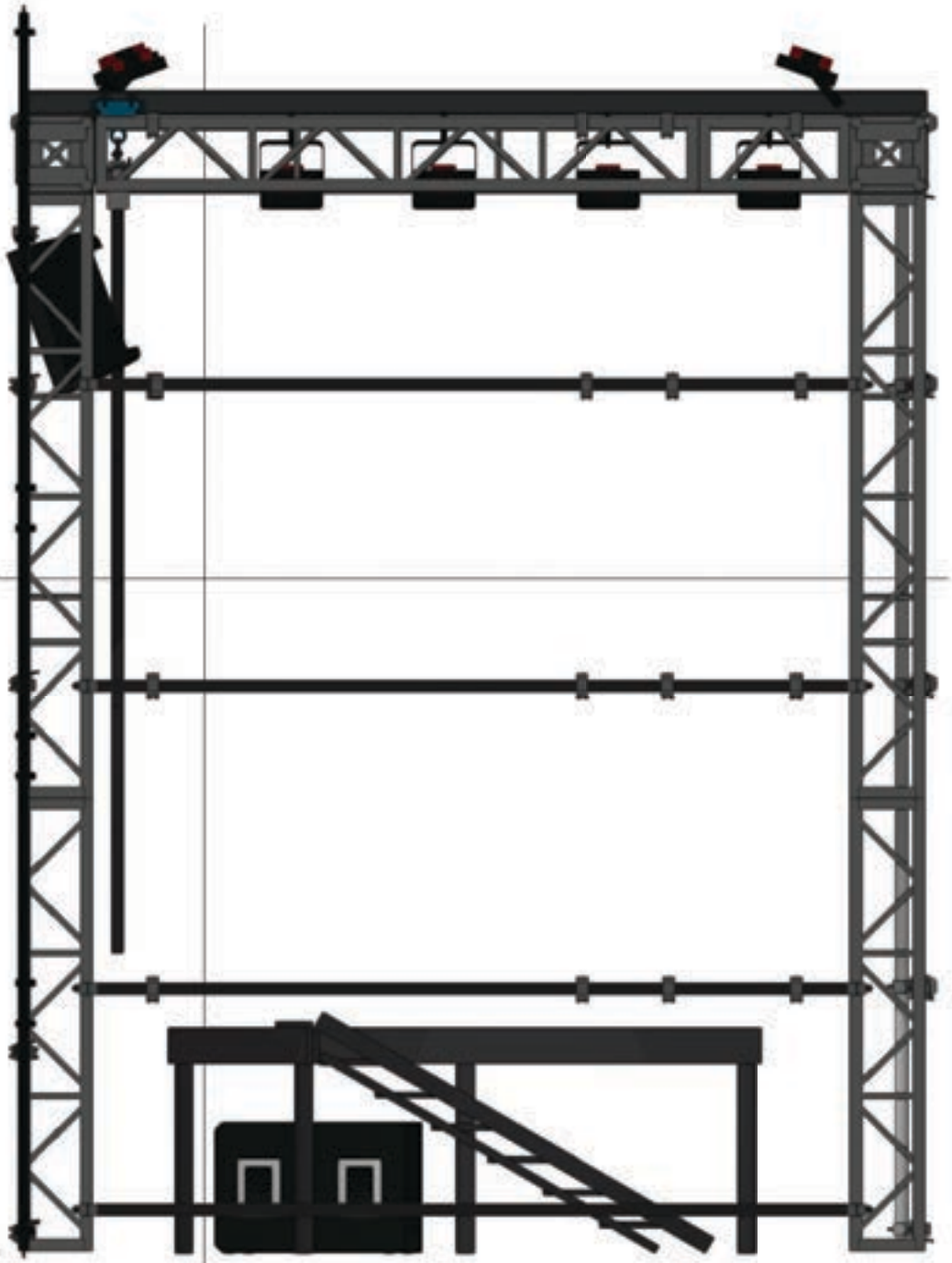


1

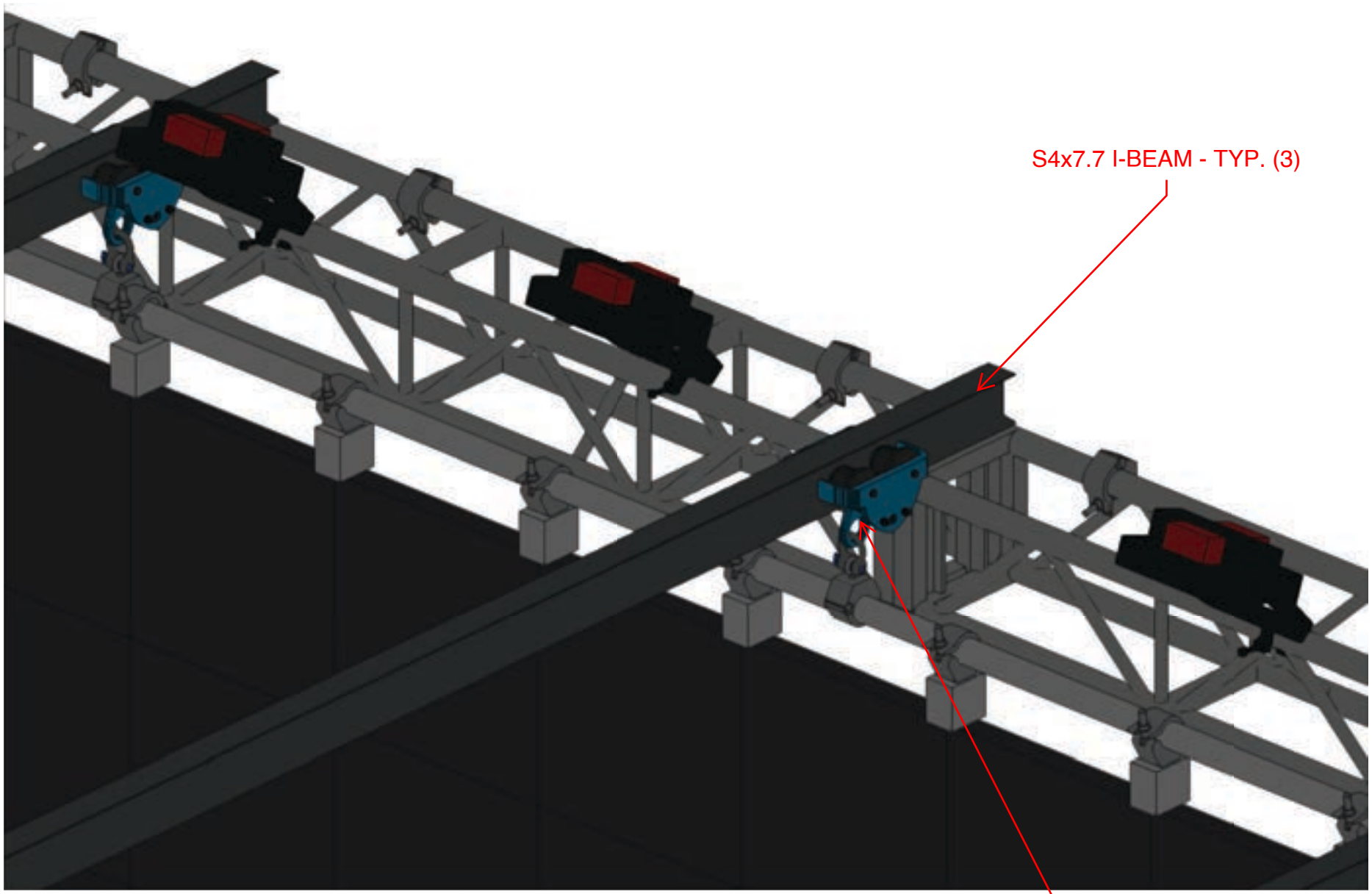
B!G TV

Scale: 1:30





1 B!G TV
Scale: 1:28



1 B!G TV
Scale: 1:10

CLARK REDER ENGINEERING

APPENDIX B

CALCULATIONS

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BIG TV

Event Date & Location: Varies - Installation shall not exceed 1 week

Codes and Referenced Standards

- 2021 International Building Code
- National Building Code - 2023 Alberta Edition
- Aluminum Design Manual, 2020 ed.
- American Institute of Steel Construction, Steel Construction Manual 15th Edition
- American Society of Civil Engineers 7-16 (ASCE 7-16) *"Minimum Design Loads for Buildings and Other Structures"*
- American Society of Civil Engineers 37-14 (ASCE 37-14) *"Design Loads on Structures During Construction"*
- ANSI E 1.21-2013 *"Temporary Structures Used for Technical Production of Outdoor Entertainment Events"*
- ANSI E 1.2-2012 *"Manufacture and Use of Aluminum Trusses and Towers"*

Project Description

- Review of temporary structure for lateral and gravity loads.

Analysis Assumptions/Design Criteria

- A high wind action plan has been issued and must be strictly followed.
- All truss is 12" x 12" aluminum box truss from Unisson or equivalent.
- Scenic cladding and its attachment to the structure not reviewed by CRE.

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General Design - Applies To All Assemblies

Steel/Aluminum Factors of Safety

Note: The following factors/design criteria applies to all assemblies and will be used throughout design package (U.N.O).

AISC Typical Factors of Safety (U.N.O.): $\Omega_{y.AISC} := 1.67$ $\Omega_{r.AISC} := 2.0$

ADM Typical Factors of Safety (U.N.O.): $\Omega_{y.ADM} := 1.65$ $\Omega_{r.ADM} := 1.95$

ASTM A36 Mechanical Properties

Yield Strength: $F_{y.A36} := 36ksi$

Tensile Strength: $F_{u.A36} := 58ksi$

ASTM A572 Mechanical Properties

Yield Strength: $F_{y.A572} := 50ksi$

Tensile Strength: $F_{u.A572} := 65ksi$

ASTM A500 GR. B (Rectangular) Mechanical Properties

Yield Strength: $F_{y.A500.rect} := 46ksi$

Tensile Strength: $F_{u.A500.rect} := 58ksi$

ASTM A500 GR. B (Round) Mechanical Properties

Yield Strength: $F_{y.A500.rd} := 42ksi$

Tensile Strength: $F_{u.A500.rd} := 58ksi$

ASTM A992 Mechanical Properties

Yield Strength: $F_{y.A992} := 50ksi$

Tensile Strength: $F_{u.A992} := 65ksi$

Weld (Steel) Mechanical Properties

Weld Strength: $F_{weld} := 70ksi \cdot 0.6 = 42.00 \cdot ksi$

Grade 8 Bolt Mechanical Properties

Tensile Strength of Bolt: $F_{u.bolt} := 150ksi$

6061-T6 Mechanical Properties	Unwelded	Welded
Tension Ultimate Stress:	$F_{tu} := 38ksi$	$F_{tuw} := 24ksi$
Tension Yield Stress:	$F_{ty} := 35ksi$	$F_{tyw} := 15ksi$
Compression Yield Stress:	$F_{cy} := 35ksi$	$F_{cyw} := 15ksi$
Shear yield stress:	$F_{sy} := 0.6 \cdot F_{ty} = 21.00 \cdot ksi$	$F_{syw} := 0.6 \cdot F_{tyw} = 9.00 \cdot ksi$
Ultimate shear stress:	$F_{su} := 24ksi$	$F_{suw} := 15ksi$
Tension coefficient:	$k_t := 1.0$	$k_{tw} := 1.0$

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Applied Loads:

Wind Loads - Per ASCE 7-16 and ASCE 37-14

Ultimate wind speed (LRFD): $V_u := 115$ mph

Service level wind speed (ASD): $V_s := \sqrt{V_u^2 \cdot 0.6}$ $V_s = 89.08$ mph

HWAP service level wind speed (ASD): $V_{hwap} := 40$ mph

Exposure category (service): $Exp_s :=$ C

Exposure category (HWAP): $Exp_{hwap} :=$ C

Gust effect factor: $G_w := 0.85$

Topographic factor: $K_{zt} := 1.0$

Ground elevation: $z_g := 0ft$

Ground elevation factor: $K_e := e^{-0.0000362 \cdot \frac{z_g}{ft}} = 1.00$

6.2.1.1.1 Construction Period in Hurricane-Prone Areas
For construction between November 1 and June 30 (outside of the hurricane season), the basic wind speed of 115 mph (51 m/s) shall be permitted for structures sited near the Gulf Coast and Eastern Seaboard, where the ASCE/SEI 7-10 specified basic wind speed exceeds 115 mph (51 m/s) (3 second gust) (hurricane-prone areas). The 115 mph (51 m/s) wind speed is permitted to be reduced by the factors in Section 6.2.1 only for a construction period between November 1 and June 30. If the construction period shifts into the period between July 1 and October 31, the design shall be reviewed and modified, as appropriate, to conform to the requirements shown below for a construction period between July 1 and October 31.

Between July 1 and October 31, basic wind speed of 115 mph (51 m/s) shall be permitted for structures sited near the Gulf Coast and Eastern Seaboard, where the ASCE/SEI 7-10 specified basic wind speed exceeds 115 mph (51 m/s) (3 second gust) provided additional bracing is prepared in advance and applied in time before the onset of an announced hurricane. The 115 mph (51 m/s) wind speed shall not be reduced by the factors in Section 6.2.1 for the construction period. The bracing shall be designed for the full, unmodified wind load determined using the mapped wind speed and procedures found in ASCE/SEI 7-10.

ASCE 37-14 Reduction Factor

Construction Period	Factor
Less than six weeks	0.75
From six weeks to one year	0.8
From one to two years	0.85
From two to five years	0.9

Reduction coefficient for temporary structure: red := 0.75

Service level (ASD) wind speed for design of temporary structure: $V_{temp\_service} := V_s \cdot red$ $V_{temp\_service} = 66.81$ mph

Ultimate level (LRFD) wind speed for design of temporary structure: $V_{temp\_ultimate} := V_u \cdot red$ $V_{temp\_ultimate} = 86.25$ mph

NOTE: *Per ASCE 7-16, ultimate wind speeds are reduced by a factor of 0.6 in all service level (ASD) load combinations found in Section 2.4. Service level wind speeds are the design wind speeds that should be monitored.*

Kh Tables

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Wind Loads on Trussed Towers

This Mathcad sheet calculates the wind pressures on a trussed tower in accordance with figure 29.4-3 of ASCE 7-16.

Height of wind evaluation: $z := 16 \cdot ft$

Type of truss: type := 12" Truss

Wind directionality factor: $K_d :=$ 0.85

Tower cross section: TCS := Square

Are tower members round? RM := YES

Truss property table:

$$Table_{truss} := \begin{pmatrix} \text{"Truss"} & \text{"}\varepsilon\text{"} & \text{"Width"} \\ \text{"12" Truss"} & 0.461 & 12 \\ \text{"20½" Truss"} & 0.329 & 20.5 \\ \text{"26x30 PRT Empty"} & 0.289 & 26 \\ \text{"26x30 PRT Full"} & 0.594 & 26 \\ \text{"20"x30" HD Truss"} & 0.254 & 30 \\ \text{"G2 Truss"} & .220 & 60 \end{pmatrix}$$

Ratio of solid area to gross area: $\varepsilon := Table_{truss_{type,2}} = 0.461$

Truss width: $B_{truss} := Table_{truss_{type,3}} \cdot in = 12.00 \cdot in$

Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(z)$ $K_{z\_s} = 0.86$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(z)$ $K_{z\_hwap} = 0.86$

Wind velocity pressure (service): $q_{z\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $q_{z\_s} = 8.36 \cdot psf$

Wind velocity pressure (HWAP): $q_{z\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $q_{z\_hwap} = 3.00 \cdot psf$

Round member reduction (if applicable):

$$rnd\_red := \begin{cases} 1.0 & \text{if RM = "NO"} \\ \min(1.0, 0.51 \cdot \varepsilon^2 + 0.57) & \text{otherwise} \end{cases}$$

$rnd\_red = 0.68$

Force coefficient:

$$C_f := rnd\_red \cdot \begin{cases} 4.0 \cdot \varepsilon^2 - 5.9 \cdot \varepsilon + 4.0 & \text{if TCS = "Square"} \\ 3.4 \cdot \varepsilon^2 - 4.7 \cdot \varepsilon + 3.4 & \text{otherwise} \end{cases}$$

$C_f = 1.45$

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Truss wind pressure (service): $p_{truss\_s} := q_{z\_s} \cdot C_f \cdot G_w$ → $p_{truss\_s} = 10.27 \cdot psf$

Truss wind pressure (HWAP): $p_{truss\_hwap} := q_{z\_hwap} \cdot C_f \cdot G_w$ → $p_{truss\_hwap} = 3.68 \cdot psf$

Linear wind load (service): $w_{truss\_s} := p_{truss\_s} \cdot B_{truss} \cdot \varepsilon$ → $w_{truss\_s} = 4.73 \cdot plf$

Linear wind load (HWAP): $w_{truss\_hwap} := p_{truss\_hwap} \cdot B_{truss} \cdot \varepsilon$ → $w_{truss\_hwap} = 1.70 \cdot plf$

Adjustment for wind along a diagonal: $Diag := \min(1.2, 1 + 0.75 \cdot \varepsilon) = 1.20$

Linear wind load, diagonal (service): $w_{diag\_s} := w_{truss\_s} \cdot Diag$ → $w_{diag\_s} = 5.68 \cdot plf$

Linear wind load, diagonal (HWAP): $w_{diag\_hwap} := w_{truss\_hwap} \cdot Diag$ → $w_{diag\_hwap} = 2.04 \cdot plf$

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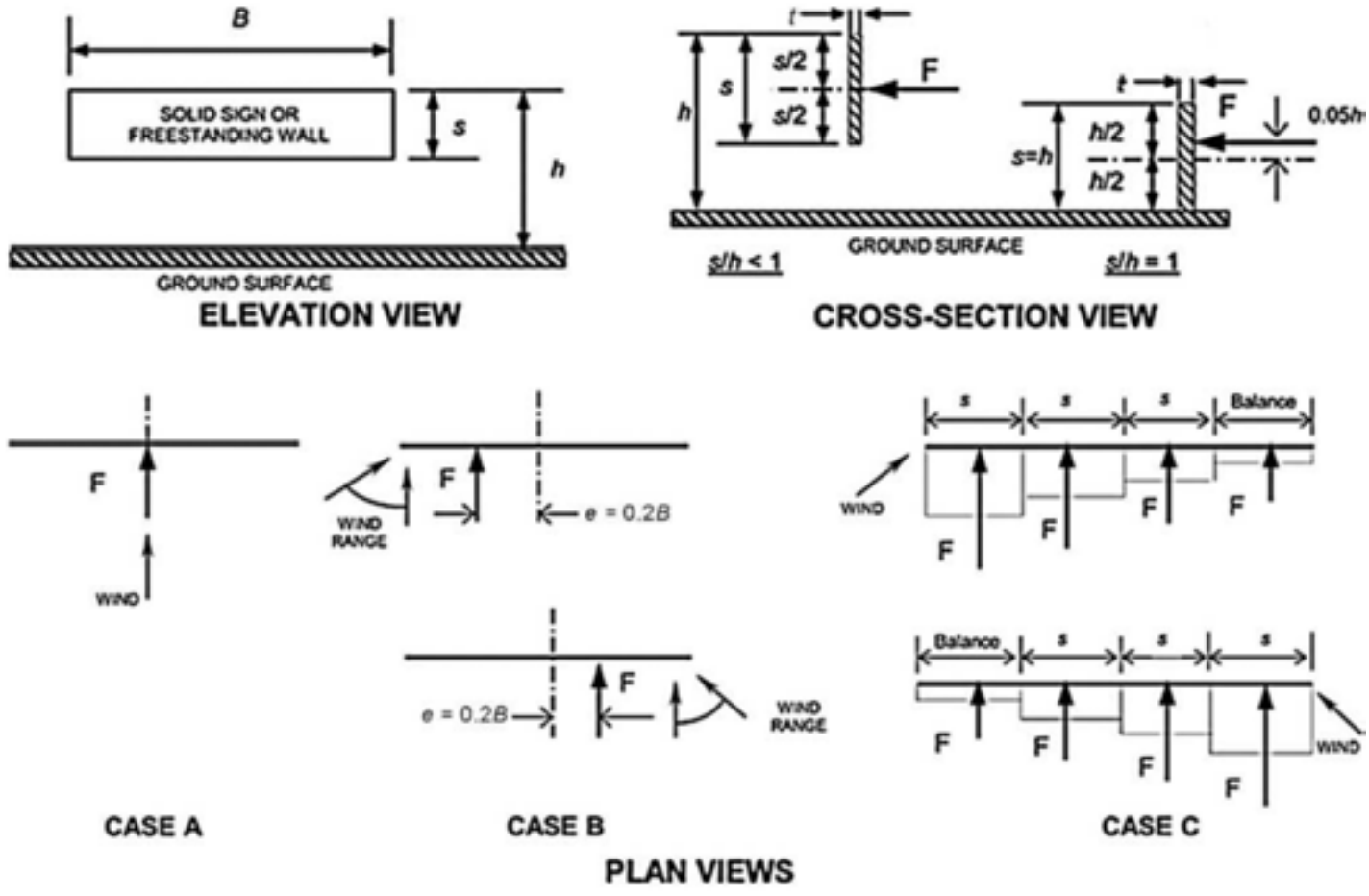
Wind Loads on Scrim / Signs

This Mathcad sheet calculates the wind pressures on a sign or scrim in accordance with figure 29.3-1 of ASCE 7-16.

Diagrams



Top of sign height:	$h := 16 \cdot ft$	Sign Width:	$B := 22 \cdot ft$
Vertical dimension of sign:	$s := 16 \cdot ft$	Wind directionality factor:	$K_d := 0.85$
Aspect ratio, B/s:	$Bs := \frac{B}{s} = 1.38$	Clearance ratio, s/h:	$sh := \frac{s}{h} = 1.00$

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Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(h)$ $K_{z\_s} = 0.86$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(h)$ $K_{z\_hwap} = 0.86$

Wind velocity pressure (service): $q_{h\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $q_{h\_s} = 8.36 \cdot psf$

Wind velocity pressure (HWAP): $q_{h\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $q_{h\_hwap} = 3.00 \cdot psf$

Cases A & B:

Case A & B Force Coefficient Table: $Table\_CfAB :=$

"Cf"	0	0.05	0.1	0.2	0.5	1	2	4	5	10	20	30	45	999
0.0	1.95	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95	1.95
0.16	1.95	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95	1.95
0.2	1.95	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.85	1.90	1.90	1.95	1.95
0.3	1.95	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85	1.85
0.5	1.95	1.95	1.85	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.75
0.7	1.90	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55	1.55
0.9	1.85	1.85	1.75	1.70	1.60	1.55	1.50	1.45	1.45	1.40	1.40	1.40	1.40	1.40
1	1.80	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30	1.30

Case A & B Force Coefficient: $C_{f\_AB} := Spline(Table\_CfAB, sh, Bs)$ $C_{f\_AB} = 1.43$

Sign wind pressure (service): $p_{sign\_s} := q_{h\_s} \cdot C_{f\_AB} \cdot G_w$ $p_{sign\_s} = 10.17 \cdot psf$

Sign wind pressure (HWAP): $p_{sign\_hwap} := q_{h\_hwap} \cdot C_{f\_AB} \cdot G_w$ $p_{sign\_hwap} = 3.64 \cdot psf$

Total sign wind load (service): $P_{sign\_s} := p_{sign\_s} \cdot B \cdot s$ $P_{sign\_s} = 3.58 \cdot kip$

Total sign wind load (HWAP): $P_{sign\_hwap} := p_{sign\_hwap} \cdot B \cdot s$ $P_{sign\_hwap} = 1.28 \cdot kip$

Horizontal offset for Case B: $Offset_B := 0.2 \cdot B$ $Offset_B = 4.40\ ft$

Seismic Loads - Per ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

6.5 EARTHQUAKE

If required by Section 6.5.1 and not exempted by Section 6.5.3, earthquake loads shall be calculated in accordance with procedures in ASCE/SEI 7-10 as modified by Section 6.5.2. All structures shall be treated as Risk Category II, per Table 1.5-1 of ASCE/SEI 7-10, regardless of the group classification of the completed structure.

6.5.1 Applicability Earthquake loads need not be considered unless required by the authority having jurisdiction and the mapped Risk-Targeted MCE_R, 5% damped, spectral response acceleration parameter at a period of 1 s, S_1, defined in Section 11.4.1 of ASCE/SEI 7-10 equals or exceeds 0.40.

6.5.2 Use of ASCE/SEI 7-10 For use of the earthquake load provisions of ASCE/SEI 7-10, the following modifications should be made:

1. The mapped values for S_S and S_1 may be multiplied by a factor less than 1 to represent the reduced exposure period, but the factor shall not be less than 0.20.
2. The restrictions on types of structural systems in seismic performance categories D and E do not apply, as long as the height of the temporary bracing system designed in accordance with this section is limited in height to 60 ft (18.3 m) or five stories, whichever is less, above the completed bracing of the permanent structure.

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Seismic Analysis - ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

Site coefficients per ASCE 7-16, Site Class D assumed

Mapped MCE, 5% damped, spectral response, acceleration parameter at short periods: $S_S := 2.45$

Mapped MCE, 5% damped, spectral response, acceleration parameter at 1s: $S_1 := 0.86$

Design 5% damped, spectral response, acceleration parameter at short periods: $S_{DS} := 1.63$

Design 5% damped, spectral response, acceleration parameter at 1s: $S_{D1} := 0.86$

Per ASCE 37-14, does seismic need to be considered?

$$Consider\_seismic := \begin{cases} \text{"NO"} & \text{if } S_1 < 0.4 \\ \text{"YES"} & \text{otherwise} \end{cases}$$

Consider_seismic = "YES"

If seismic is required to be considered:

Temporary reduction coefficient as allowed by ASCE 37-14 (minimum value = 0.2): $red_{eq} := 0.2$

ASCE 37-14, Section 6.5.2.3:

3. The R factor used for temporary bracing systems shall not exceed 2.5 unless the system is detailed in accordance with the provisions of ASCE/SEI 7-10. Where R = 2.5 is used, only the requirements dealing with the strength of the seismic-resisting structural system need be satisfied.

Response modification factor: $R_{eq} := 2.5$

Importance factor/Risk Category II: $I_e := 1.0$

Structural height (FT): $h_n := 20$

Approximate period perameters (Table 12.8-2, Page 90): $C_t := 0.02$

Long period transition period (Figure 22-12, Page 224): $T_L := 12$

Approximate Fundamental Period: $T_a := C_t \cdot h_n^{.75} = 0.19$

Modified spectral responses with reduction coefficient:

$S_{S\_mod} := S_S \cdot red_{eq} = 0.49$ $\quad S_{DS\_mod} := S_{DS} \cdot red_{eq} = 0.33$

$S_{1\_mod} := S_1 \cdot red_{eq} = 0.17$ $\quad S_{D1\_mod} := S_{D1} \cdot red_{eq} = 0.17$

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Seismic response coefficient:

$$C_{s.calc} := \min\left[\frac{S_{DS\_mod}}{\left(\frac{R_{eq}}{I_e}\right)}, \begin{cases} \frac{S_{D1\_mod}}{T_a \cdot \left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a \le T_L \\ \frac{S_{D1\_mod} \cdot T_L}{T_a^2 \cdot \left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a > T_L \end{cases}\right] = 0.130$$

$$C_{s.min} := \begin{cases} \max\left(0.044 \cdot S_{DS\_mod} \cdot I_e, 0.01\right) & \text{if } S_1 < 0.6 \\ \max\left(0.044 \cdot S_{DS\_mod} \cdot I_e, 0.01, \frac{0.5 \cdot S_{1\_mod}}{\frac{R_{eq}}{I_e}}\right) & \text{if } S_1 \ge 0.6 \end{cases} = 0.034$$

$$C_s := \begin{cases} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ \max\left(C_{s.calc}, C_{s.min}\right) & \text{otherwise} \end{cases}$$

$C_s = 0.130$

Vertical seismic load effect:

$$EQ_v := \begin{cases} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ 0.2 \cdot S_{DS\_mod} & \text{otherwise} \end{cases}$$

$EQ_v = 0.065$

NOTE: WIND LOADS WILL GOVERN SO SEISMIC LOADS CAN BE IGNORED.

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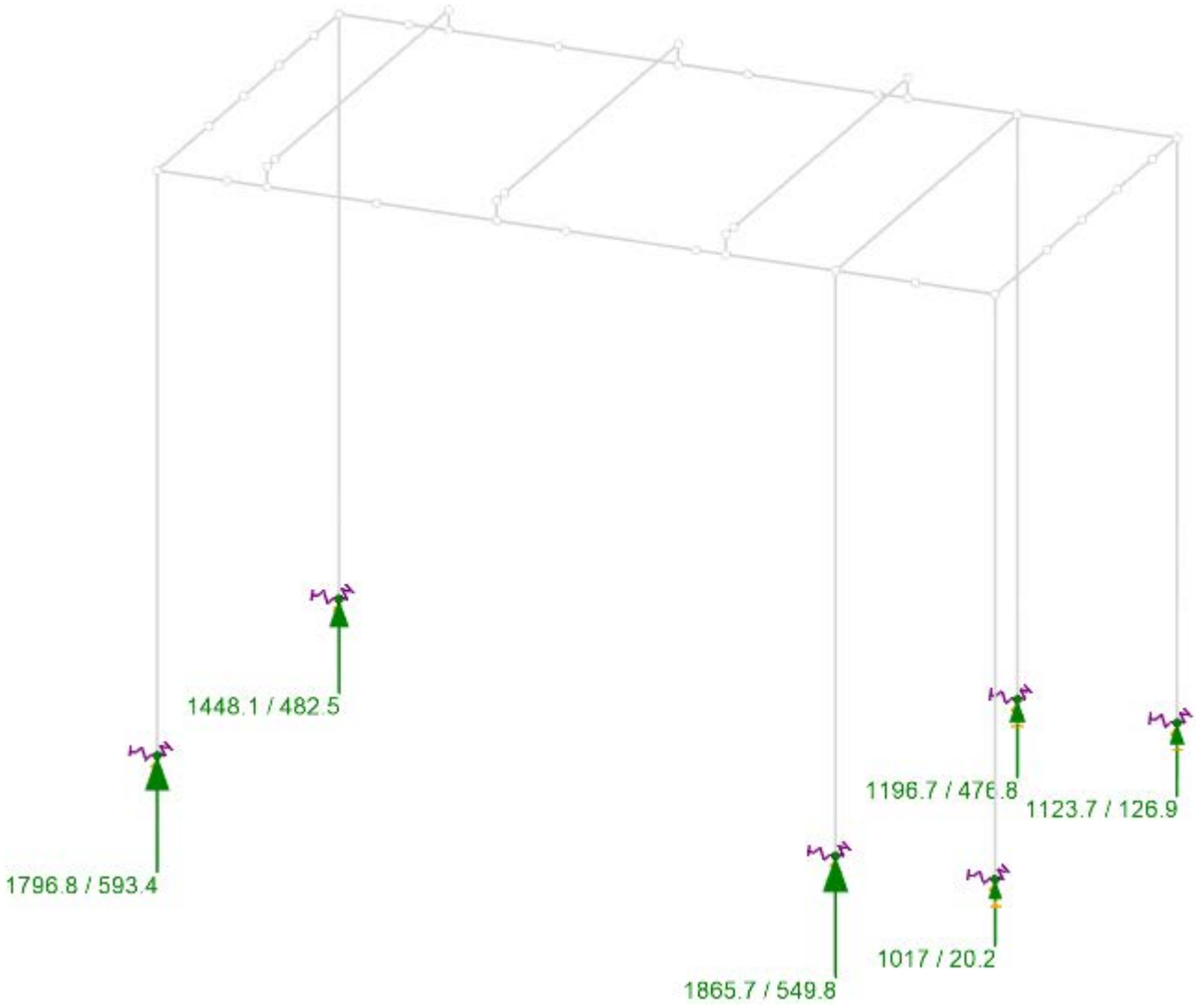
Global Stability:

Overturning and Uplift Checks:



Enveloped Vertical Reactions - Video Wall on Front Edge of Beam

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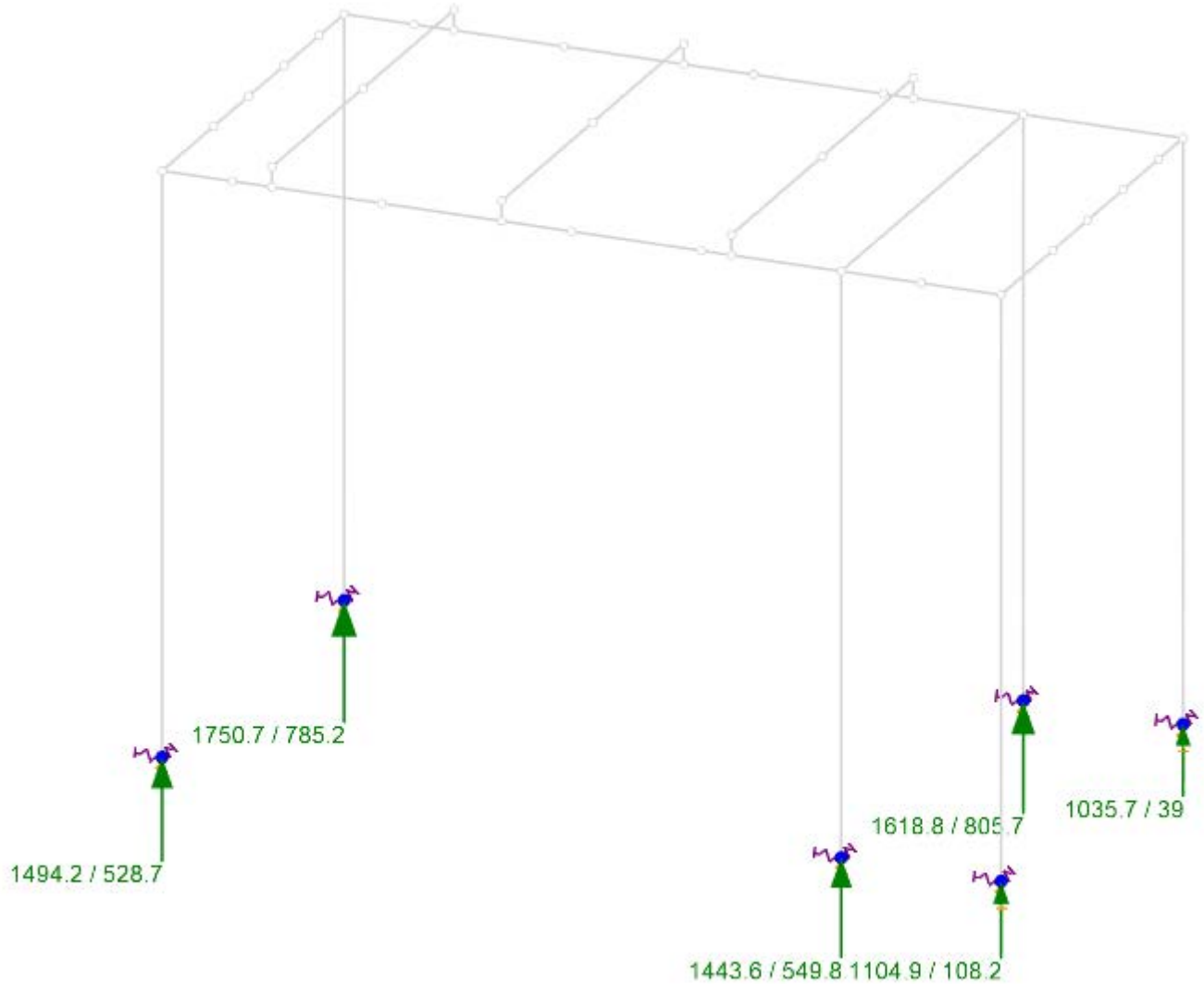

Enveloped Vertical Reactions - Video Wall on Center of Beam

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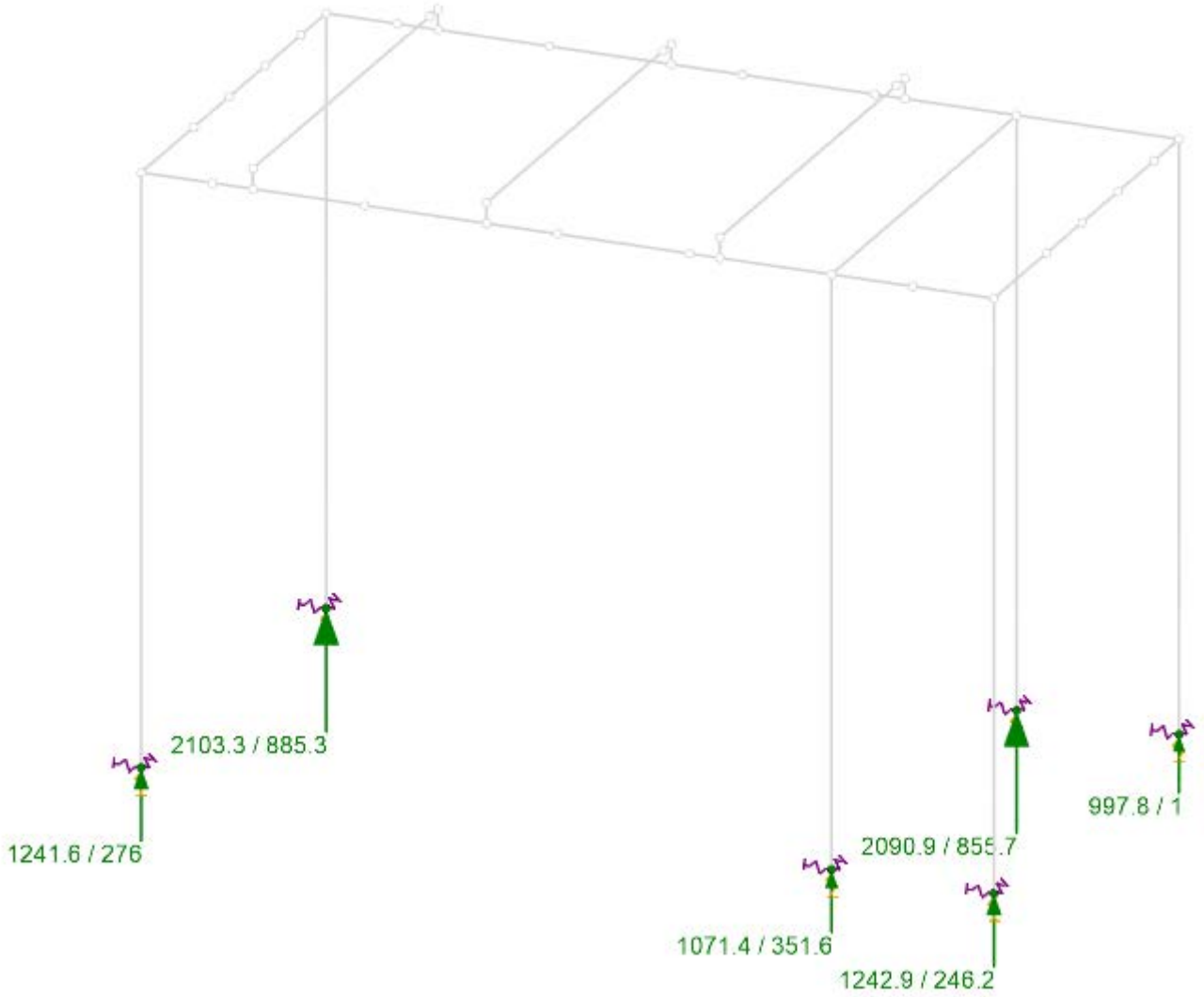

Enveloped Vertical Reactions - Video Wall on Rear Edge of Beam

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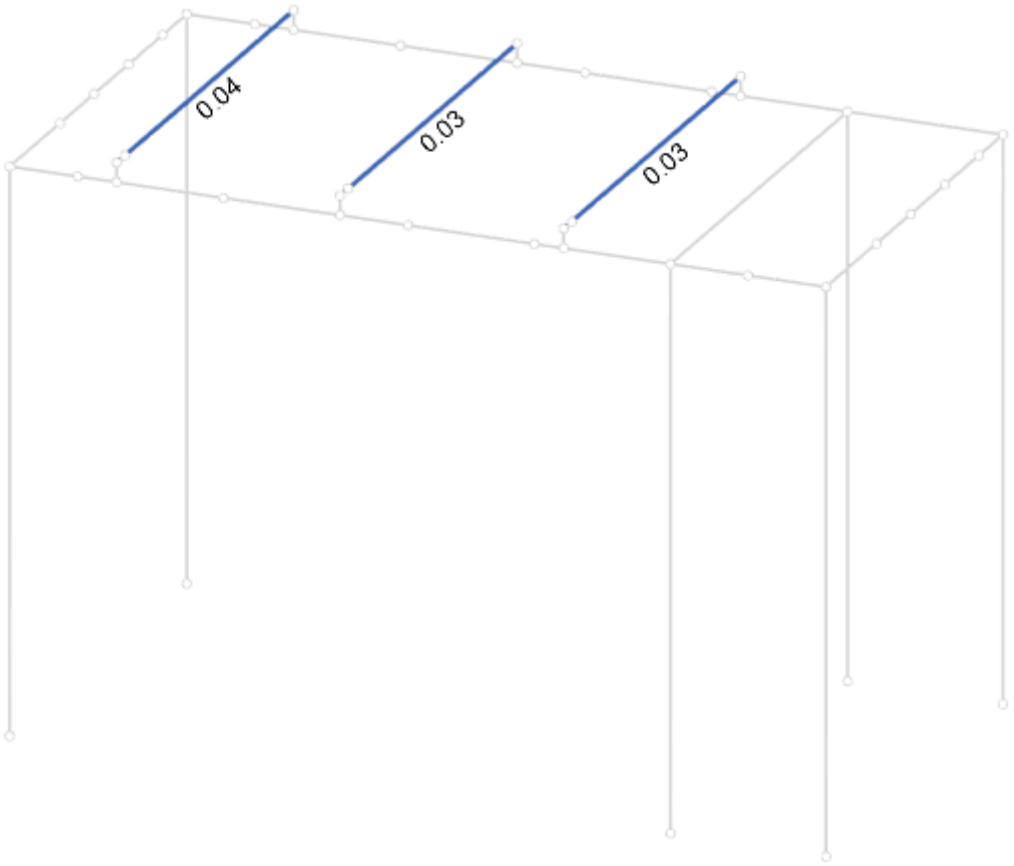
Strength Checks:

S4x7.7 I-Beam:



Unity Check - Video Wall at Front Edge of Beam

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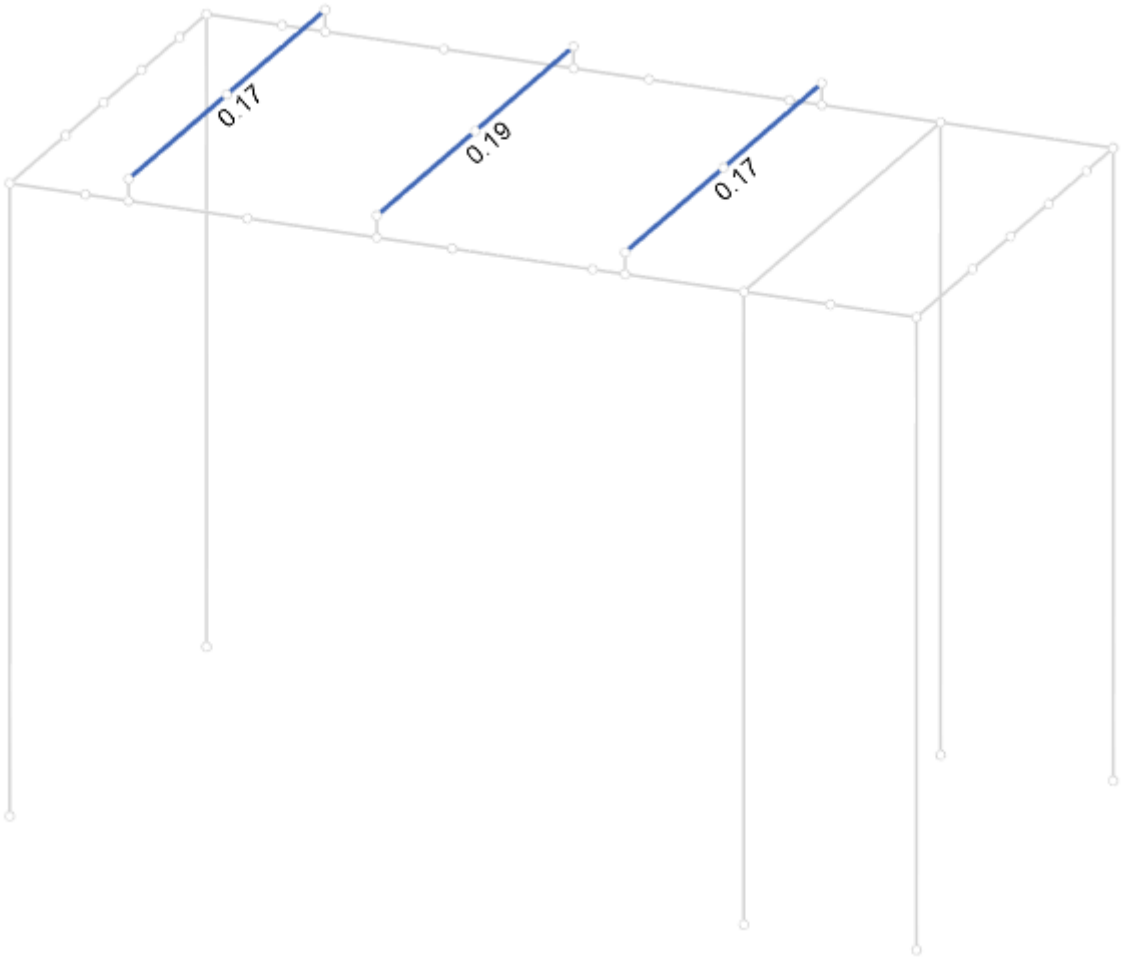

Unity Check - Video Wall Centered on Beam

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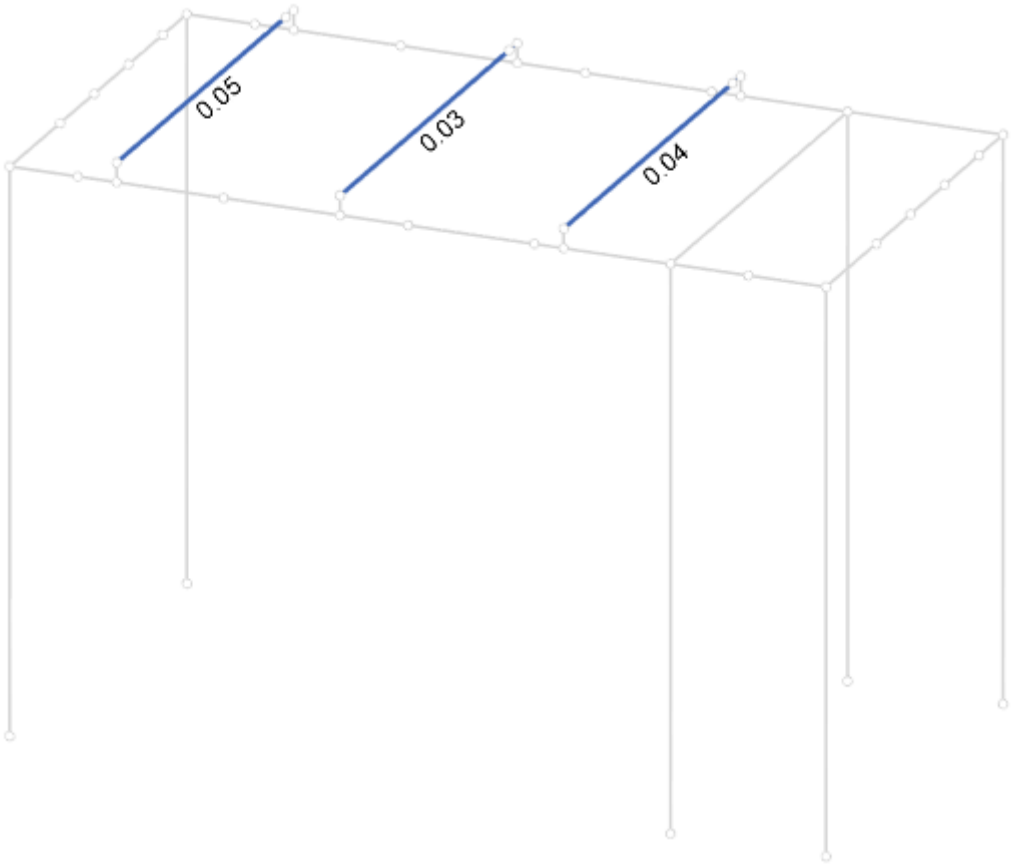

Unity Check - Video Wall at Rear Edge of Beam

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12" x 12" Truss:

12" Truss Review

Axial Capacity:	14400	lb
Shear Capacity (Y-axis):	2454	lb
Shear Capacity (Z-axis):	981	lb
Moment Capacity (Y-axis):	2400	lb-ft
Moment Capacity (Z-axis):	6000	lb-ft
Chord Area:	0.736	in²

Truss Brand:	Tomcat	
Truss Size:	Core 12x12 Plated	
Shear Weak/Strong Axis Ratio:	0.4	
Moment Weak/Strong Axis Ratio:	0.4	

	Forces						Controlling Strength Ratio	
	Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]		
Maximum:	1528	798	157	107	1918	2574	0.889	0.35
Minimum:	-349	-871	-140	-118	-1803	-2235		

Case	Member	Location	Forces						Strength Ratio	
			Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]	Axial + Moment	Shear

Unity Check - Video Wall at Front Edge of Beam

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	Forces						Controlling Strength Ratio	
	Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]		
Maximum:	1340	576	337	214	1580	2313	0.738	0.34
Minimum:	-422	-618	-338	-203	-1607	-2308		

Case	Member	Location	Forces						Strength Ratio	
			Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]	Axial + Moment	Shear

Unity Check - Video Wall Centered on Beam

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Truss Size:	Core 12x12 Plated	
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	Forces						Controlling Strength Ratio	
	Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]		
Maximum:	1703	871	159	129	2057	2788		
Minimum:	-418	-952	-149	-118	-1938	-2274	0.952	0.39

Case	Member	Location	Strength Ratio	
			Axial + Moment	Shear

Unity Check - Video Wall at Rear Edge of Beam

STRUCTURAL SUBMITTAL PACKAGE

for

Big Art

BIG TV

Project Location: Varies

Event Dates: Varies (installation shall not exceed 1 week)

Submittal Date: 9/9/2025

Clark Reder Project Number: 25.401.197

Reviewed by:

Jeffrey M. Reder, P.E.
CA Registration #: C70581

Prepared by:

Eric Kelly

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		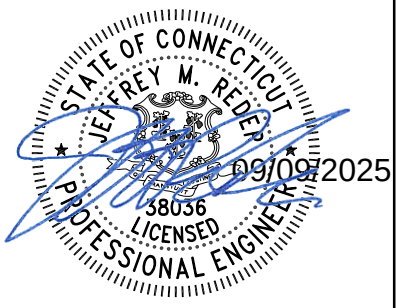
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	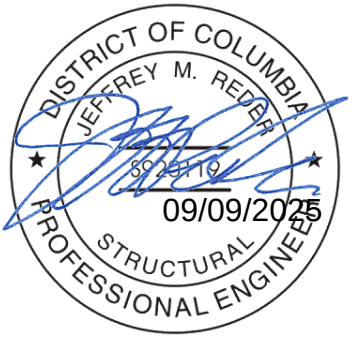	
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Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

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	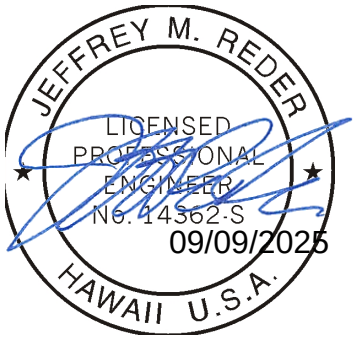	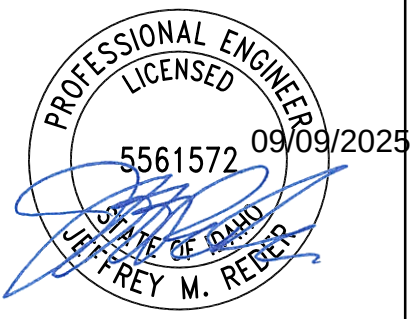
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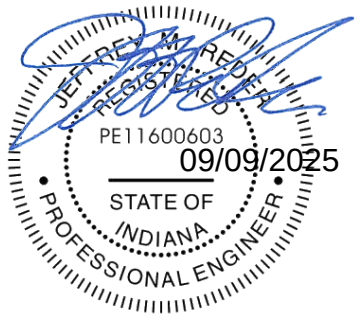
 Clark Reder Engineering, Inc. is a professional design firm registered in Illinois #184.006693		
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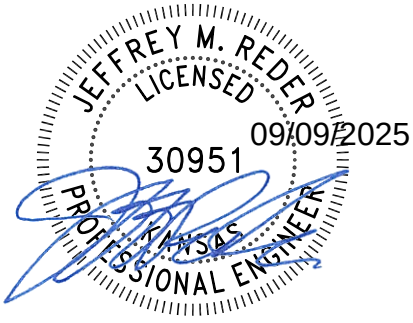		
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Maine

Jeffrey M. Reder, P.E.
P.E. # 18919

Maryland

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License # 38421, Expiration Date: 1/29/2025

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Jeffrey M. Reder, P.E.
P.E. # 48535

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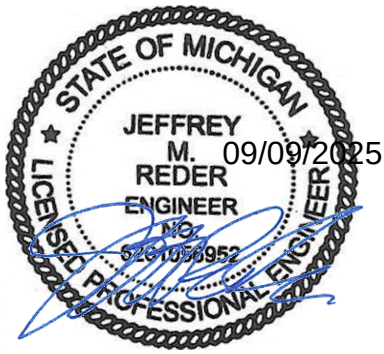

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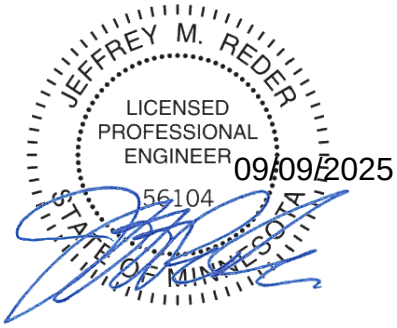

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P.E. # 35564

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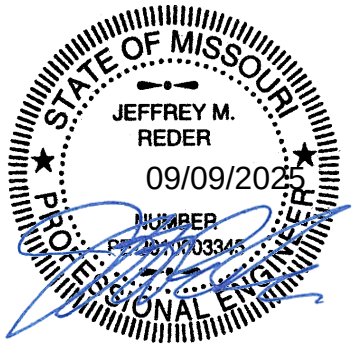

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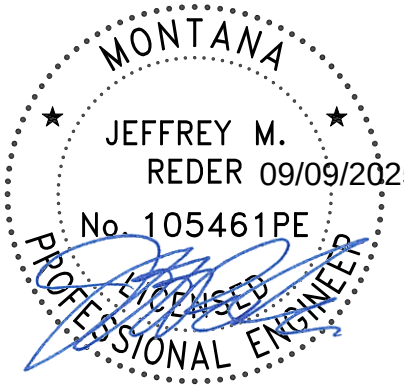

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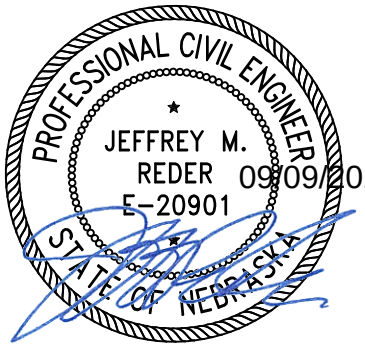

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P.E. # E-20901

Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

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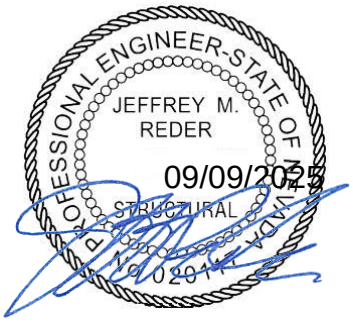	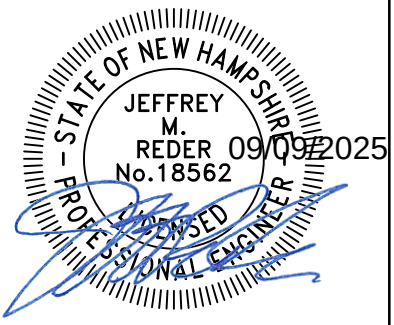	
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Engineer: EPK

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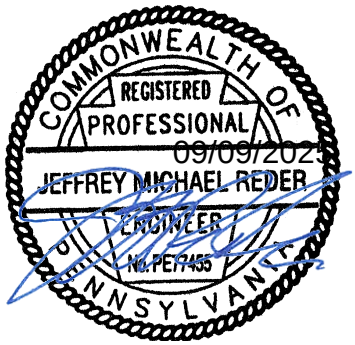
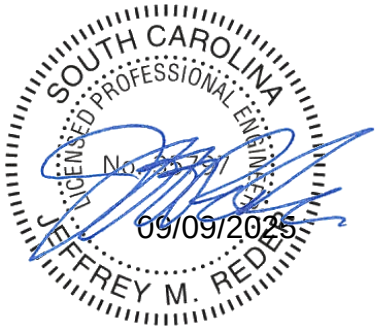
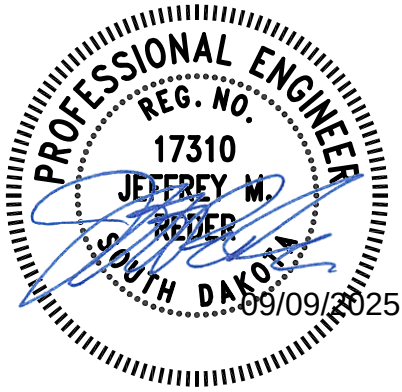
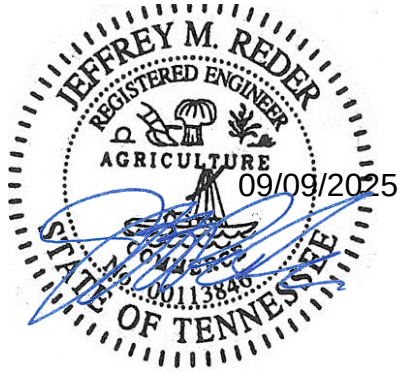
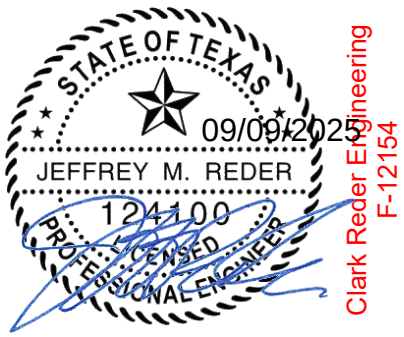
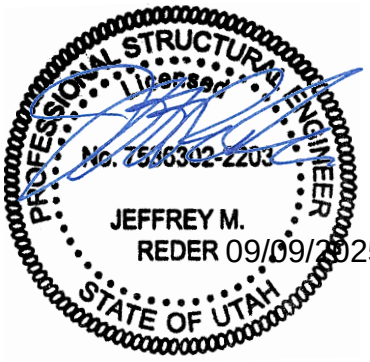
		
Jeffrey M. Reder, P.E. P.E. # 93904PE	Jeffrey M. Reder, P.E. P.E. # PE77455	Jeffrey M. Reder, P.E. P.E. # 9610
South Carolina	**South Carolina**	**South Dakota**
		
Jeffrey M. Reder, P.E. P.E. # 35797	Clark Reder Engineering P.E. # 4827	Jeffrey M. Reder, P.E. P.E. # 17310
Tennessee	**Texas**	**Utah**
	 Clark Reder Engineering F-12154	
Jeffrey M. Reder, P.E. P.E. # 00113846	Jeffrey M. Reder, P.E. P.E. # 124100	Jeffrey M. Reder, P.E. P.E. # 7536302-2203

Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

Clark Reder Engineering
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West Chester, OH 45069

Phone: (513) 851-1223
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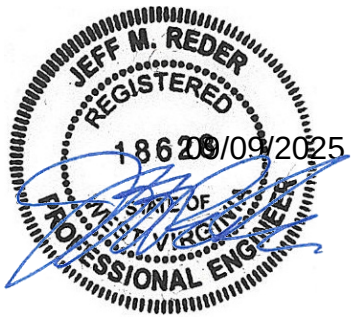
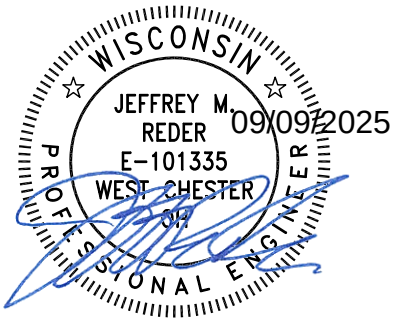
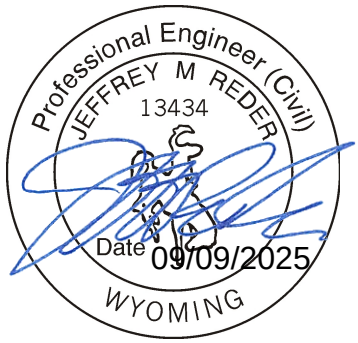
Vermont	Virginia	Washington
		
Jeffrey M. Reder, P.E. P.E. # 136107	Jeffrey M. Reder, P.E. P.E. # 402061022	Jeffrey M. Reder, P.E. P.E. # 56469
West Virginia	**Wisconsin**	**Wyoming**
		
Jeffrey M. Reder, P.E. P.E. # 18628	Jeffrey M. Reder, P.E. P.E. # E-101335	Jeffrey M. Reder, P.E. P.E. # 13434
		

Project: BIG TV
Client: Big Art

CRE Project #: 25.401.197
Date: 09/09/2025
Engineer: EPK

Table of Contents for Structural Submittal Package

Project Information

Project Summary

The project referenced by this submittal consists of a temporary aluminum truss structure. The structure will be used to support scenic cladding, as well as a video wall that is attached to (3) I-beams. The structure will be installed in various locations for various events, with each installation lasting approximately 1 week.

The structure is composed of 12" x 12" aluminum box truss from Unisson or equivalent. The I-beams are S4x7.7 beams and will be used to support a video wall that weighs approximately 1400 pounds. The video wall is attached via I-beam trolleys and will be free to move along the beam. Clark Reder Engineering did not review the structure for any dynamic loads but reviewed the structure for various loading conditions assuming a static load only.

Scope of Review

Clark Reder Engineering reviewed the structure for lateral and gravity loads. The structure was reviewed for 40mph wind speeds with scenic cladding attached to the truss and LED attached to the I-beams, as well as 67mph wind speeds on the bare structure.

No review was performed on the scenic elements or their attachment to the structure.

Conclusions

Our review has concluded that the structure meets the structural requirements of the 2021 International Building Code, National Building Code – 2023 Alberta Edition, ASCE 7-16, and ASCE 37-14.

Limitations and Exceptions

The scope of review for this submittal is limited to the items listed above. All other temporary or permanent structures on site not specifically referenced above under "Scope of Review" are the responsibility of others.

Where the items covered by this submittal are attached to existing structures, it is the responsibility of the engineer of record for those existing structures to review the impact of the elements referenced in this submittal.

GENERAL STRUCTURAL NOTES

EVENT DATE & LOCATION

1. EVENT DATE: VARIES
2. EVENT LOCATION: VARIES

CODES

1. 2021 INTERNATIONAL BUILDING CODE
2. NATIONAL BUILDING CODE – 2023 ALBERTA EDITION
3. ASCE 7-16: MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES
4. ASCE 37-14: DESIGN LOADS ON STRUCTURES DURING CONSTRUCTION
5. 2020 ALUMINUM DESIGN MANUAL

REFERENCES

1. ANSI E1.21-2013 ENTERTAINMENT TECHNOLOGY, "TEMPORARY GROUND-SUPPORTED OVERHEAD STRUCTURES USED TO COVER THE STAGE AREAS AND SUPPORT EQUIPMENT IN THE PRODUCTION OF OUTDOOR ENTERTAINMENT EVENTS"
2. ANSI E1.2-2012 ENTERTAINMENT TECHNOLOGY, "DESIGN, MANUFACTURE AND USE OF ALUMINUM TRUSSES AND TOWERS"

DESIGN LOADS

1. DEAD LOAD: SELF-WEIGHT OF STRUCTURE
2. RIGGING LOADS: SEE ATTACHED DRAWINGS
3. WIND LOADS:
    - A. WIND RISK CATEGORY: II
    - B. BEFORE HIGH WIND ACTION PLAN IS ACTIVATED:
        1. DESIGN SERVICE-LEVEL WIND SPEED: 40 MPH
        2. EXPOSURE: C
    - C. AFTER HIGH WIND ACTION PLAN IS ACTIVATED:
        1. DESIGN SERVICE-LEVEL WIND SPEED: 67 MPH
            - a. REQUIRED WIND SPEED HAS BEEN REDUCED IN ACCORDANCE WITH ASCE 37-14 DUE TO THE TEMPORARY NATURE OF STRUCTURE
        2. EXPOSURE: C
    - D. SITE ELEVATION: 0 FT
    - E. REFERENCE THE HIGH WIND ACTION PLAN FOR SPECIFIC ACTIONS THAT SHALL BE TAKEN TO ENSURE STABILITY OF THE TEMPORARY STRUCTURE IN HIGH WINDS.
4. SEISMIC LOADS DO NOT CONTROL THE DESIGN OF THIS STRUCTURE.

CONSTRUCTION AND SAFETY

1. ENGINEER SHALL NOT BE RESPONSIBLE FOR MEANS, METHODS, OR SEQUENCE OF CONSTRUCTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
2. ENGINEER HAS DESIGNED THE STRUCTURES FOR THEIR FINAL AS-BUILT CONDITION. ENGINEER IS NOT RESPONSIBLE FOR TEMPORARY STABILITY OF STRUCTURES DURING ERECTION UNLESS SPECIFICALLY STATED ON THE DRAWINGS.
3. STRUCTURE HAS BEEN DESIGNED AS A TEMPORARY STRUCTURE THAT SHALL BE IN PLACE FOR LESS THAN SIX WEEKS.

FOUNDATIONS

1. THE STRUCTURE IS ASSUMED TO BE FOUNDED ON LEVEL GROUND (CONCRETE, ASPHALT, GRASS, ETC) WITH A MINIMUM NET ALLOWABLE BEARING CAPACITY OF 1500 PSF.

BALLAST

1. BALLAST SHALL BE INSTALLED PER THE ENGINEERING DRAWINGS. DEVIATIONS IN WEIGHT OR PLACEMENT SHALL BE APPROVED IN WRITING BY THE ENGINEER OF RECORD.
2. BALLAST SHALL NOT BE INSTALLED ON GRAVEL, ICE, GRASS, SLOPING OR OTHERWISE UNSTABLE TERRAIN UNLESS MEANS TO PREVENT SLIDING ARE PROVIDED.
3. BALLAST AMOUNTS GIVEN CONSIDER UPLIFT AND SLIDING, WITH A MINIMUM 1.5 FACTOR OF SAFETY AGAINST OVERTURNING.

CLARK REDER ENGINEERING

RIGGING

1. ALL POINTS SHALL BE DEAD HUNG POINTS.
2. ALL RIGGING SHALL BE HUNG FROM PANEL POINTS (LOCATIONS ON THE TRUSS CHORDS BRACED BOTH VERTICALLY AND HORIZONTALLY) UNLESS SPECIFICALLY APPROVED BY THE ENGINEER OF RECORD.
3. BRIDLES SHALL NOT BE USED UNLESS SPECIFICALLY ALLOWED BY THE ENGINEER OF RECORD.

ALUMINUM TRUSS

1. ALUMINUM TRUSS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING COMPANIES OR AN APPROVED EQUAL:
   - A. TOTAL STRUCTURES
   - B. UNISSON
   - C. JAMES THOMAS ENGINEERING
   - D. TOMCAT USA
2. TRUSS TO TRUSS CONNECTION HARDWARE (UNLESS NOTED OTHERWISE):
   - A. PLATED ENDS: 5/8"Ø GRADE 8 BOLTS
3. TRUSS END PLATE BOLTS SHALL BE TIGHTED TO THE SNUG TIGHT CONDITION. SNUG TIGHT CONDITION EXISTS WHEN ALL PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND ALL BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT REMOVAL OF THE NUTS WITHOUT THE USE OF WRENCH.
4. UNLESS NOTED OTHERWISE, ALL LOADS SHALL BE APPLIED TO TRUSSES AT PANEL POINTS.
5. RATED SPANS, CAPACITIES AND LOADING CONDITIONS PUBLISHED BY THE TRUSS MANUFACTURER SHALL NOT BE EXCEEDED UNLESS REVIEWED AND APPROVED BY A LICENSED ENGINEER FOR A SPECIFIC USE.
6. DO NOT PLACE LIGHTING CLAMPS OR WIRE ROPE IN DIRECT CONTACT WITH THE TRUSS UNLESS THE CHORD MATERIAL IS PROTECTED FROM DAMAGE DUE TO OVERTIGHTENING OR WIRE ROPE RUBBING.

STRUCTURAL STEEL

1. ALL STEEL DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO THE LATEST VERSION OF THE FOLLOWING SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   - A. AISC 360: SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
   - B. AISC 303: CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
   - C. RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS
   - D. AWS D1.1: STRUCTURAL WELDING CODE-STEEL
2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING CRITERIA UNLESS NOTED OTHERWISE ON THE DRAWINGS:
   - A. ROLLED WIDE FLANGE SHAPES: ASTM A992, FY = 50 KSI
   - B. MISC PLATE, BAR, ANGLES AND CHANNELS: ASTM A36, FY = 36 KSI
   - C. PIPE SHAPES: ASTM A53, TYPE E OR S, GRADE B, FY = 35 KSI
   - D. HSS TUBES: ASTM A500 GR B, FY = 46 KSI
   - E. HSS ROUND: ASTM A500 GR B, FY = 42KSI
   - F. BOLTS: ASTM A325-N
   - G. HARDENED WASHERS: ASTM F436
   - H. NUTS: ASTM A563

INSPECTIONS

1. ALL TRUSS UNITS, I-BEAMS AND/OR OTHER RIGGING EQUIPMENT SHALL BE VISUALLY INSPECTED PRIOR TO ERECTION. DAMAGED OR CORRODED EQUIPMENT SHALL NOT BE USED. FIELD MODIFICATIONS SHALL BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

OPERATIONS MANAGEMENT PLAN

IMPLEMENTATION OF PLAN

1. PRIOR TO EACH INSTALLATION, THE TRUSS PROVIDER IN CONJUNCTION WITH THE VENUE, SHALL DESIGNATE A RESPONSIBLE PERSON IN CHARGE OF IMPLEMENTING ALL PHASES OF THE OPERATIONS MANAGEMENT PLAN AS IT PERTAINS TO THE STRUCTURE.
2. A MEETING SHALL BE HELD AT THE VENUE WITH THE PROMOTER, OWNER OR STAGE MANAGER TO DISCUSS THE HIGH WIND ACTION PLAN AND OTHER OPERATIONAL ITEMS.

DAILY OPERATIONS PLAN

1. CHECK WEATHER EACH MORNING AND PERIODICALLY THROUGHOUT THE DAY.
2. CHECK TOWER BASES DAILY TO ENSURE ALL REMAIN LEVEL AND PLUMB
3. CHECK GUY WIRES AND BALLAST ASSEMBLIES DAILY TO VERIFY LINES ARE TENSIONED AND BALLAST HAS NOT MOVED.
4. PROVIDE A DAILY LOG OF THE ABOVE CHECKS FOR EACH INSTALLATION.

HIGH WIND ACTION PLAN

1. THE HIGH WIND ACTION PLAN SHALL BE IN EFFECT FOR THE ENTIRETY OF THE INSTALLATION. AN INSTALLATION SHALL BE DEFINED AS STARTING AT THE INITIAL COMMENCEMENT OF THE STRUCTURE INSTALLATION AND ENDING ONCE THE STRUCTURE IS COMPLETELY DISMANTLED.
2. A COMPETENT RESPONSIBLE PERSON FROM THE TRUSS PROVIDER OR VENUE SHALL BE PRESENT FOR THE DURATION OF THE EVENT TO IMPLEMENT THE HIGH WIND ACTION PLAN (SEE ABOVE).
3. A REGULAR LIAISON WITH LOCAL AIRPORTS AND/OR WEATHER INFORMATION CENTERS SHALL BE MAINTAINED TO ASCERTAIN IF ANY SIGNIFICANT WEATHER EVENTS ARE EXPECTED IN THE IMMEDIATE VICINITY OF THE STRUCTURE
4. AN ANEMOMETER SHALL BE PLACED ON THE STRUCTURE TO MONITOR WIND SPEEDS. THE ANEMOMETER SHALL BE PLACED AT THE TOP OF A TOWER OR AN ADJACENT STRUCTURE AT A HEIGHT EQUIVALENT TO THE HEIGHT OF THE TOWER. THE ANEMOMETER SHALL BE LOCATED WITHIN 50 YARDS OF THE STRUCTURE.
5. NOTED WIND SPEEDS ARE 3-SECOND GUSTS IN ACCORDANCE WITH ASCE 7
6. **WHEN THE STRUCTURE IS UNATTENDED OR NOT IN USE**: SCENIC CLADDING SHALL BE REMOVED FROM THE STRUCTURE IF WINDS ARE EXPECTED TO EXCEED 35MPH WHILE LEFT UNATTENDED.
7. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 30 MPH**: A TEAM OF QUALIFIED PERSONNEL SHALL BE PUT ON ALERT. ALL NECESSARY PERSONNEL SHALL BE IN PLACE AND PUT ON STANDBY.
8. **WHEN WIND SPEEDS ARE EXPECTED TO EXCEED 40 MPH**:
    a. ALL SHOW OPERATIONS SHALL BE SUSPENDED, AND THE IMMEDIATE AREA SHALL BE EVACUATED OF ALL PATRONS AND NON-ESSENTIAL PERSONNEL.
    b. SCENIC CLADDING SHALL BE REMOVED FROM THE STRUCTURE.
    c. VIDEO WALL SHALL BE LOWERED TO THE GROUND AND SECURED AGAINST MOVEMENT.
9. **AT WINDS SPEEDS IN EXCESS OF 50 MPH**: ALL PERSONNEL SHOULD MAINTAIN SAFE DISTANCE FROM THE STRUCTURE.
10. THE HIGH WIND ACTION PLAN SHALL BE POSTED AT A CONSPICUOUS AREA ON SITE. IT MUST BE AVAILABLE AT ALL TIMES TO VENUE OPERATORS AND CREW.
11. FAILURE TO FOLLOW THE HIGH WIND ACTION PLAN MAY RESULT IN COLLAPSE OF THE STRUCTURE, DAMAGE TO EQUIPMENT AND INJURY TO PERSONS.

PLAN EXCEPTIONS

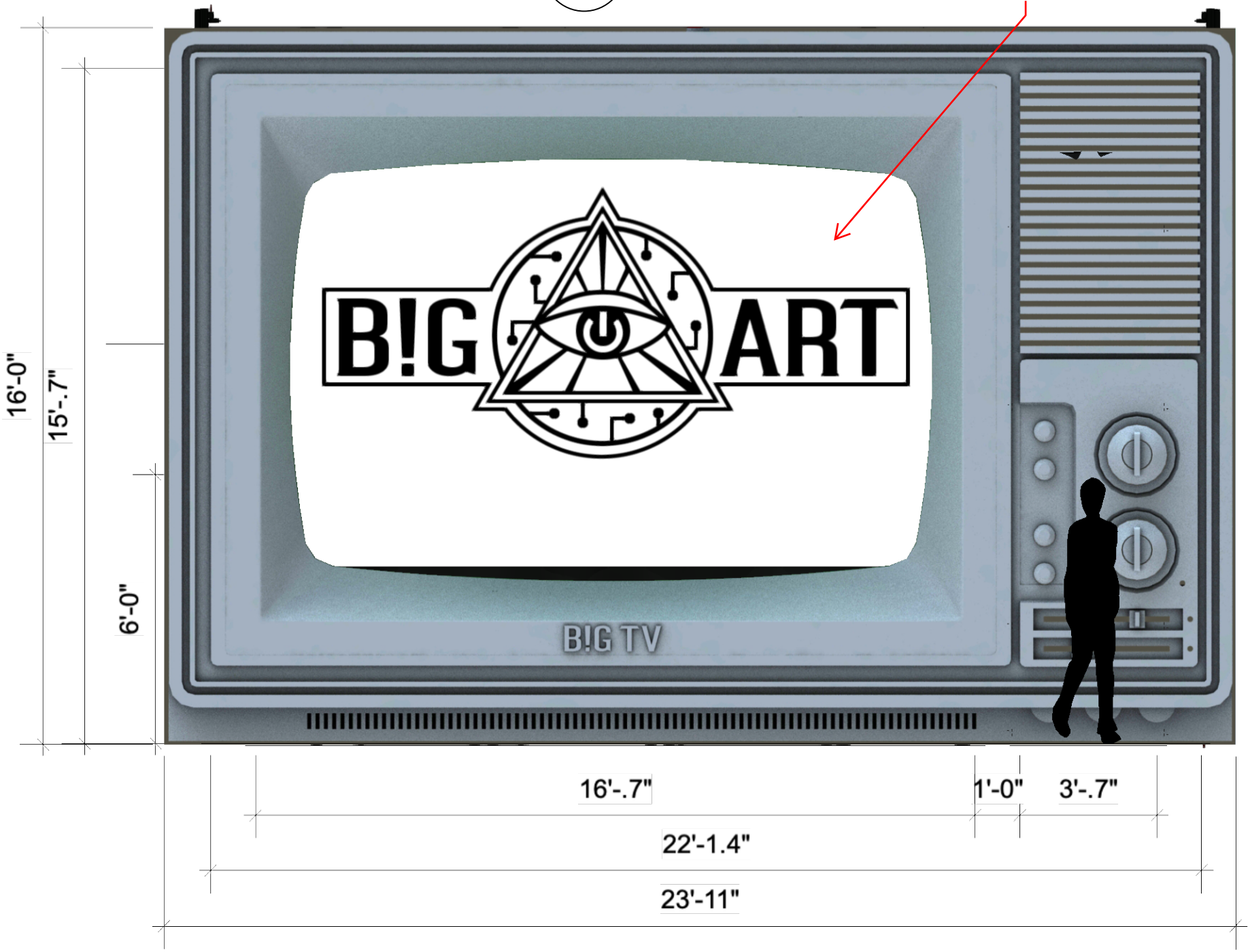
1. THIS PLAN IS SPECIFIC TO THE STRUCTURE LISTED IN THIS SUBMITTAL. THE EVENT OPERATIONS MANAGEMENT PLAN, IF MORE STRINGENT, SHALL BE FOLLOWED.

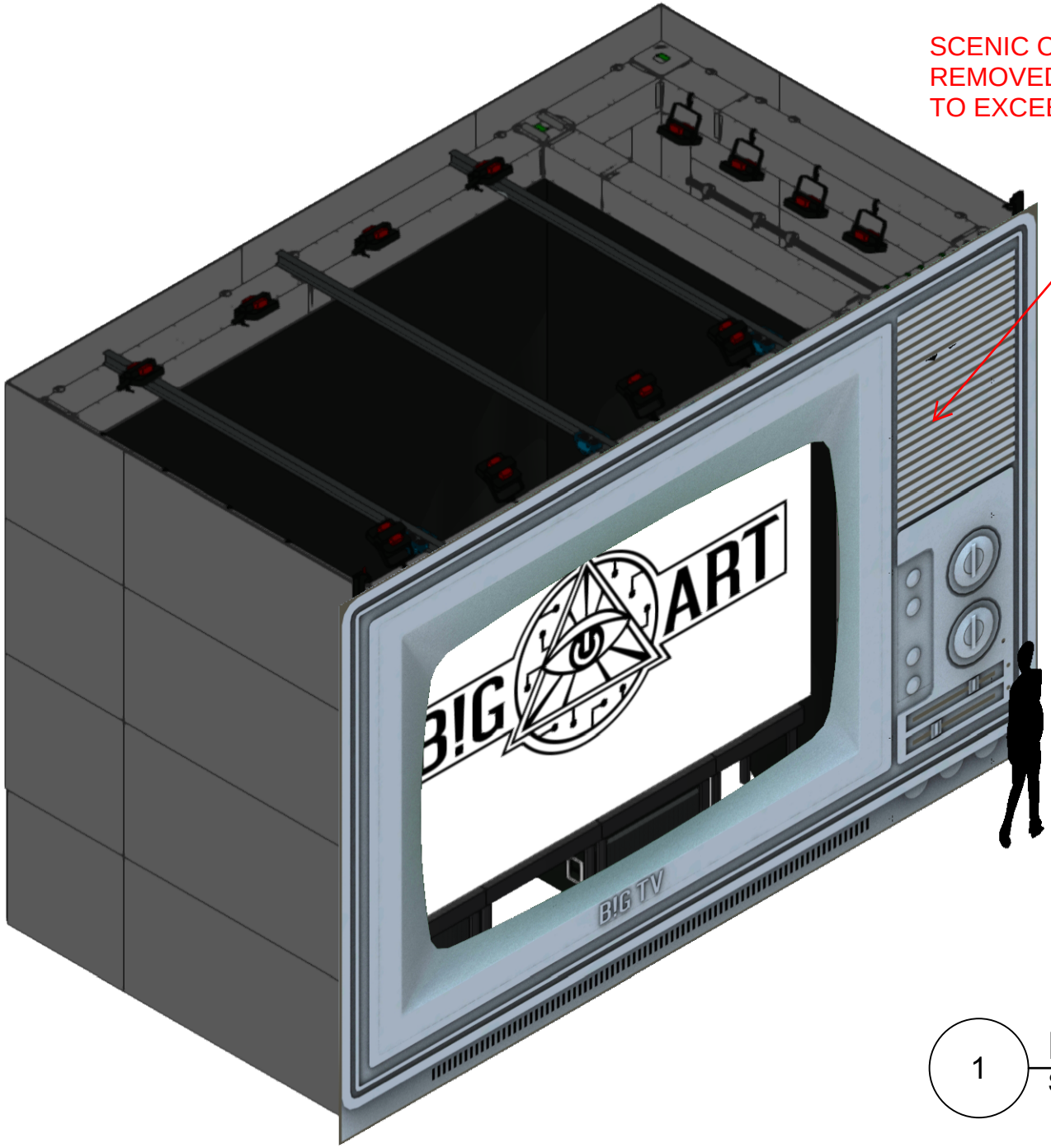
APPENDIX A

REFERENCE DRAWINGS

1 B!G TV
Scale: 1:35

SCENIC CLADDING SHALL BE REMOVED IF WINDS ARE EXPECTED TO EXCEED 40MPH - TYP.





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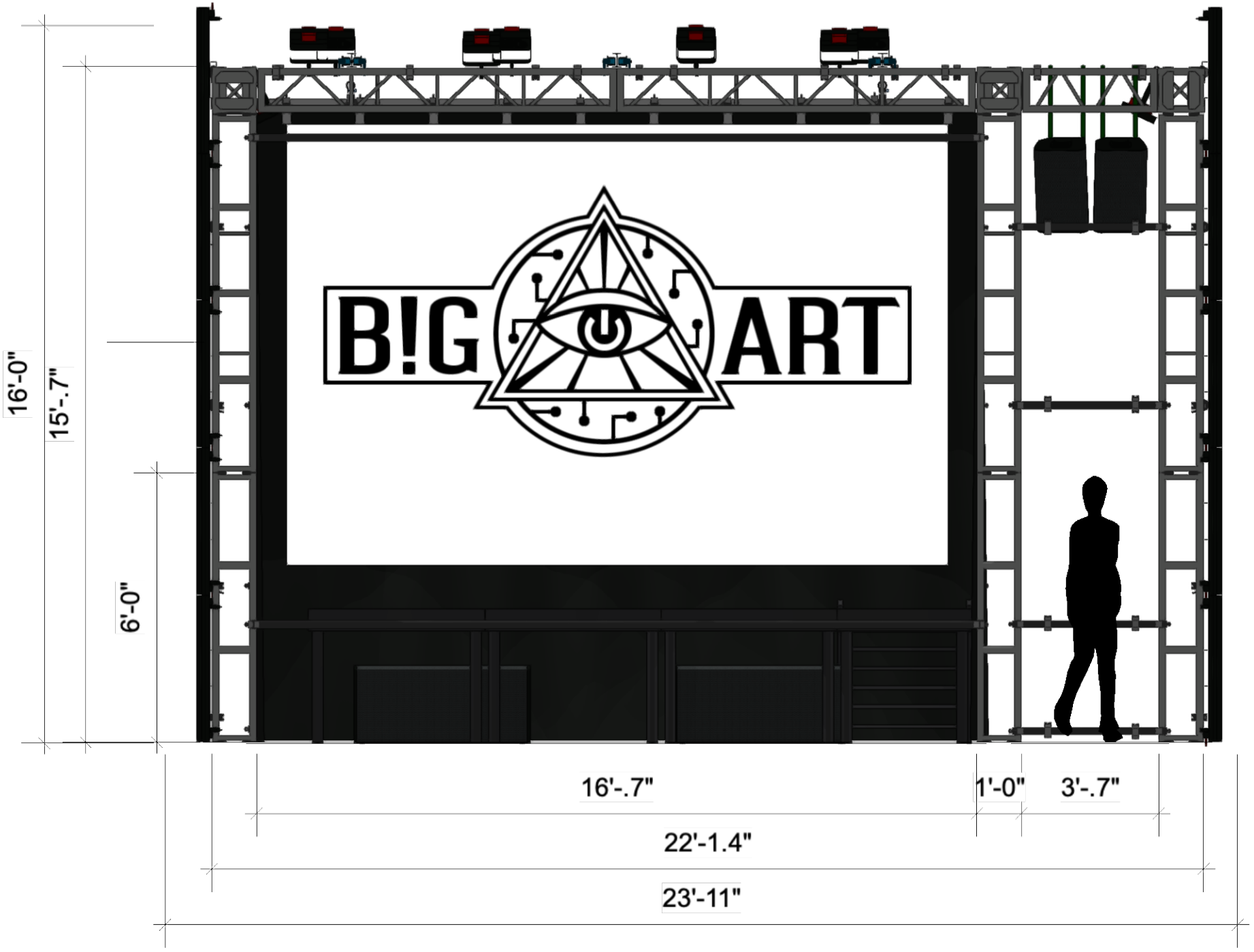
Scale: 1:46

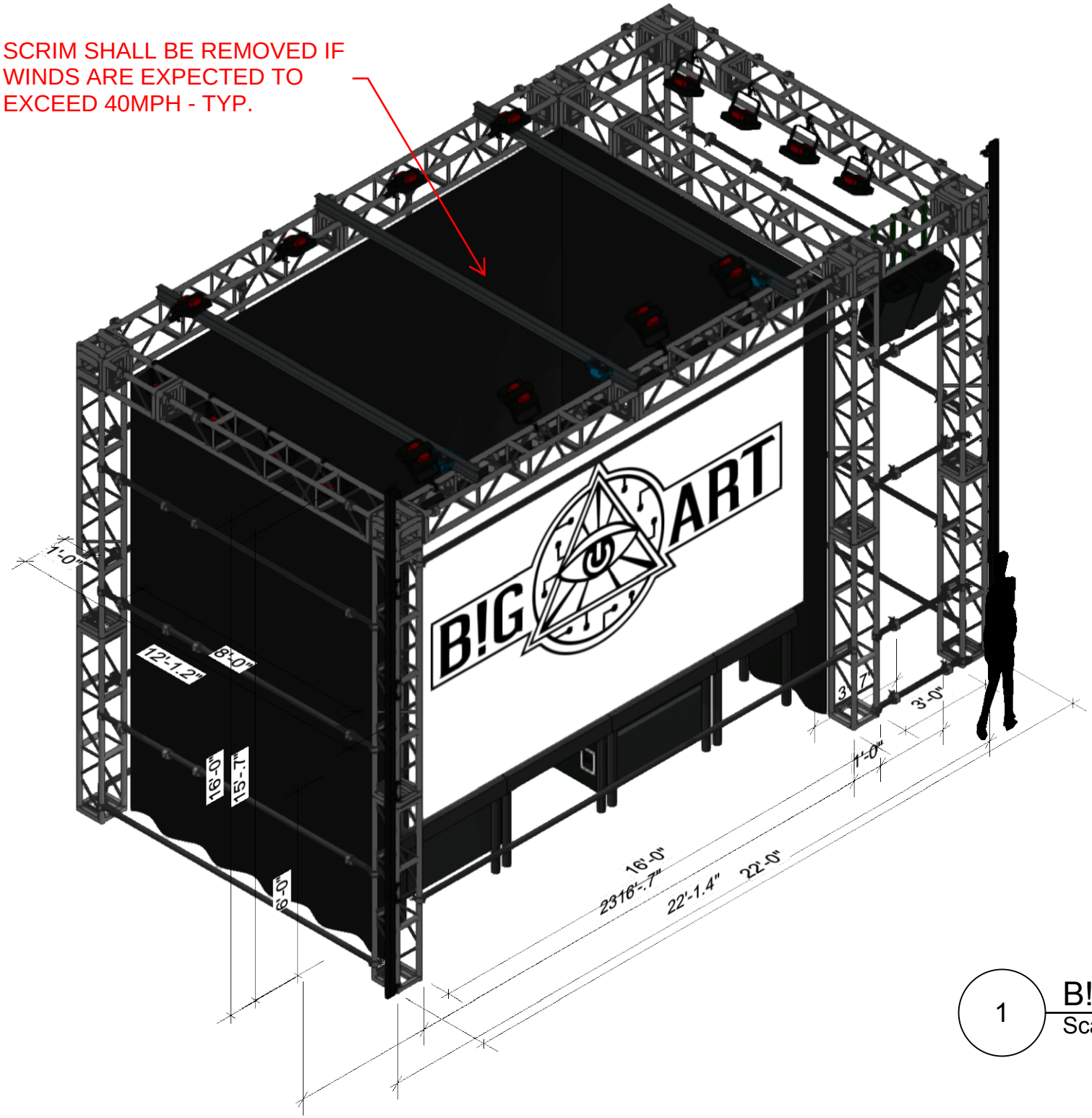
1

B!G TV

Scale: 1:35



SCRIM SHALL BE REMOVED IF WINDS ARE EXPECTED TO EXCEED 40MPH - TYP.

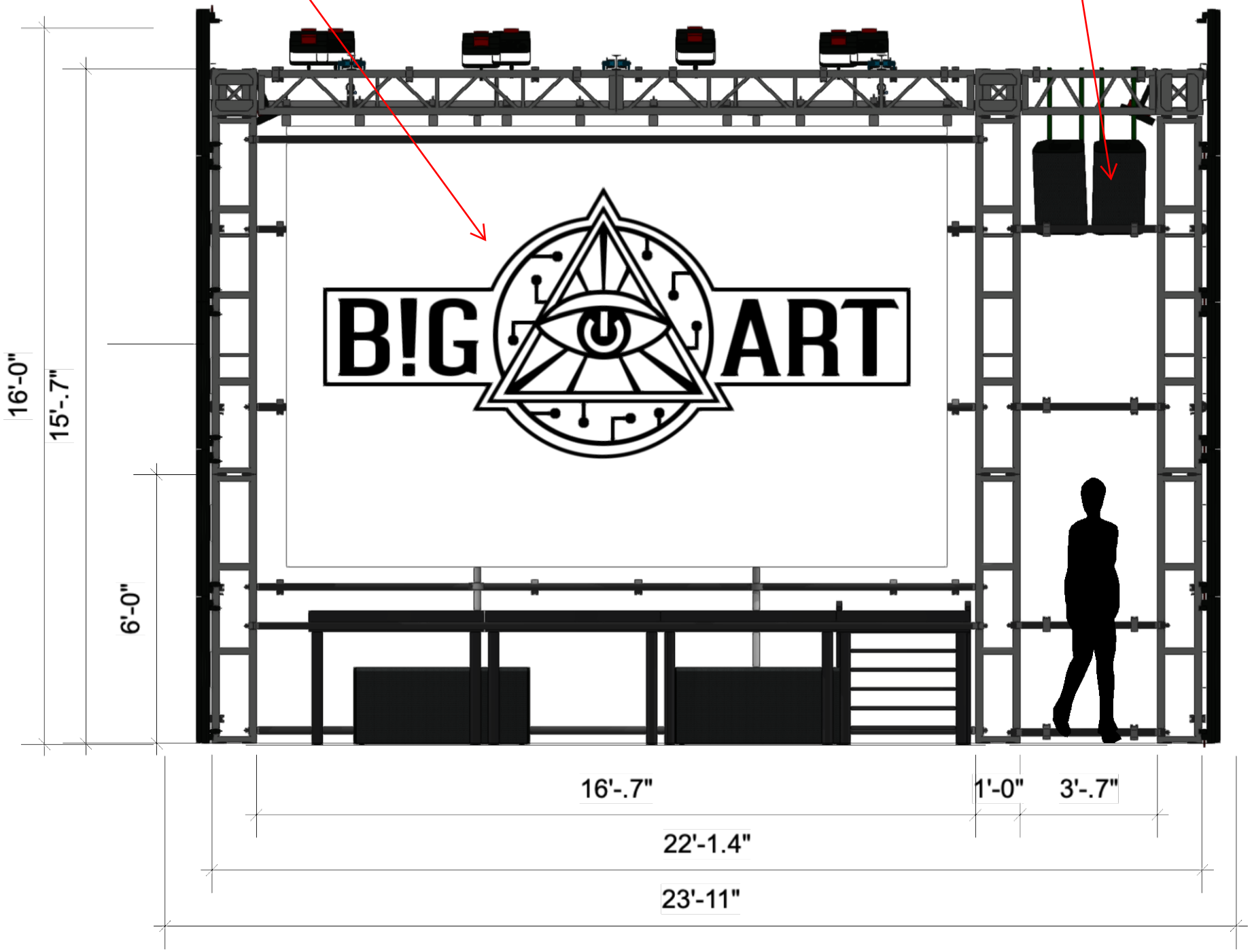


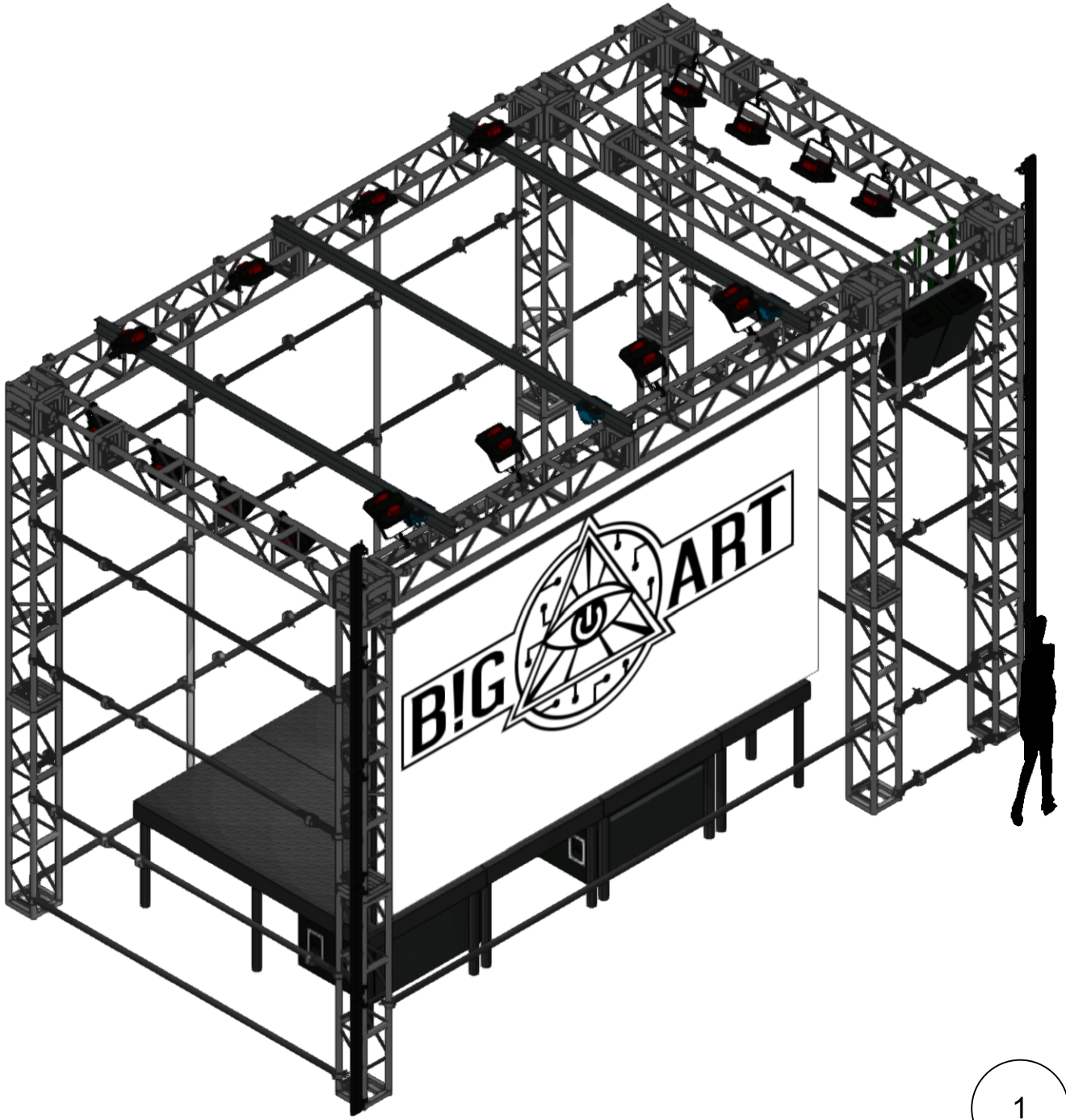
1 B!G TV
Scale: 1:44

PER CLIENT, VIDEO WALL WEIGHS APPROXIMATELY 1400 POUNDS.

1 B!G TV
Scale: 1:35

PER CLIENT, AUDIO WEIGHS APPROXIMATELY 160 POUNDS.



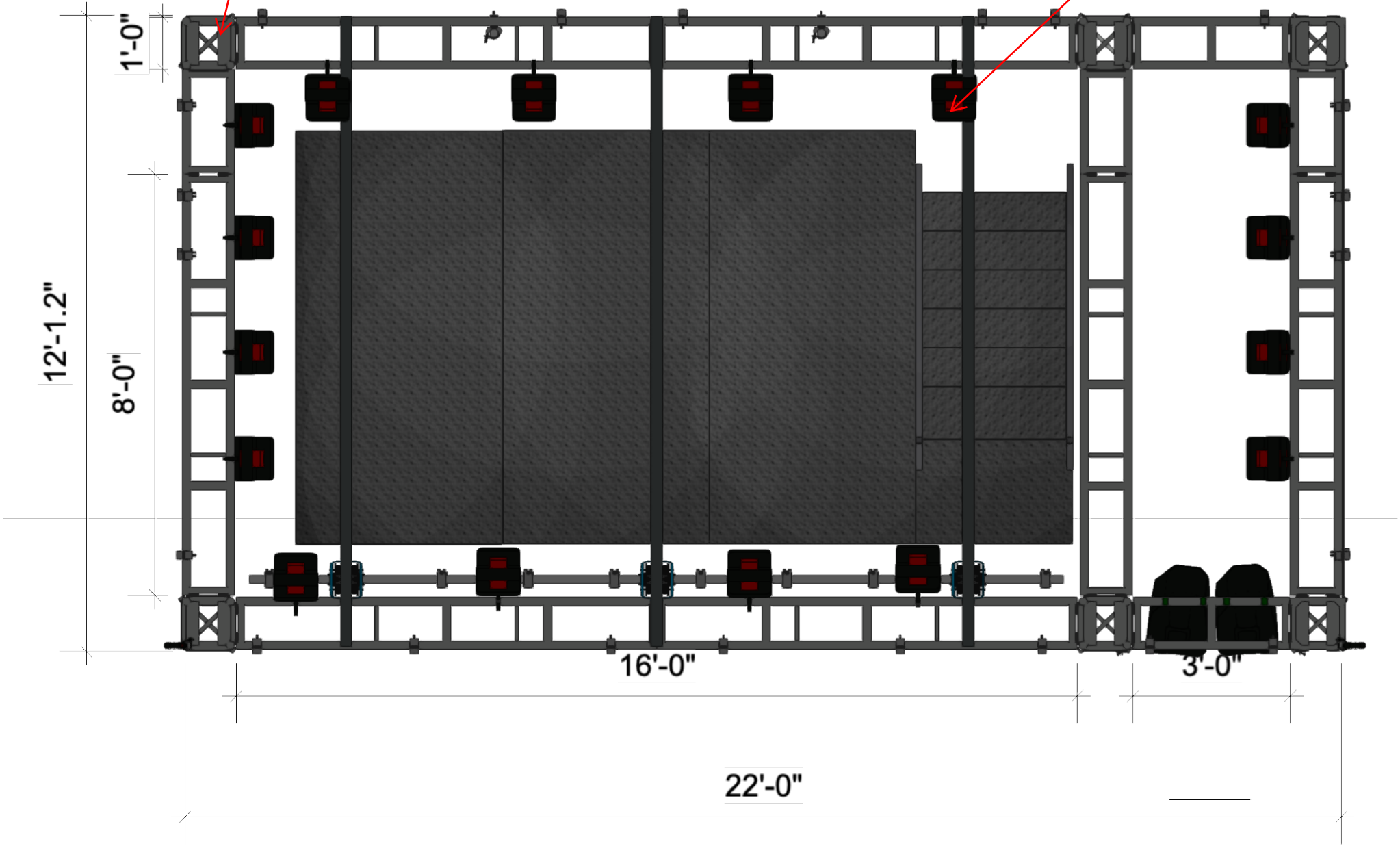


1 B!G TV
Scale: 1:44

MINIMUM 300 POUNDS OF BALLAST
REQUIRED AT EACH TOWER - TYP. (6)

1 B!G TV
Scale: 1:30

PER CLIENT, EACH LIGHT WEIGHS
APPROXIMATELY 25 POUNDS - TYP.



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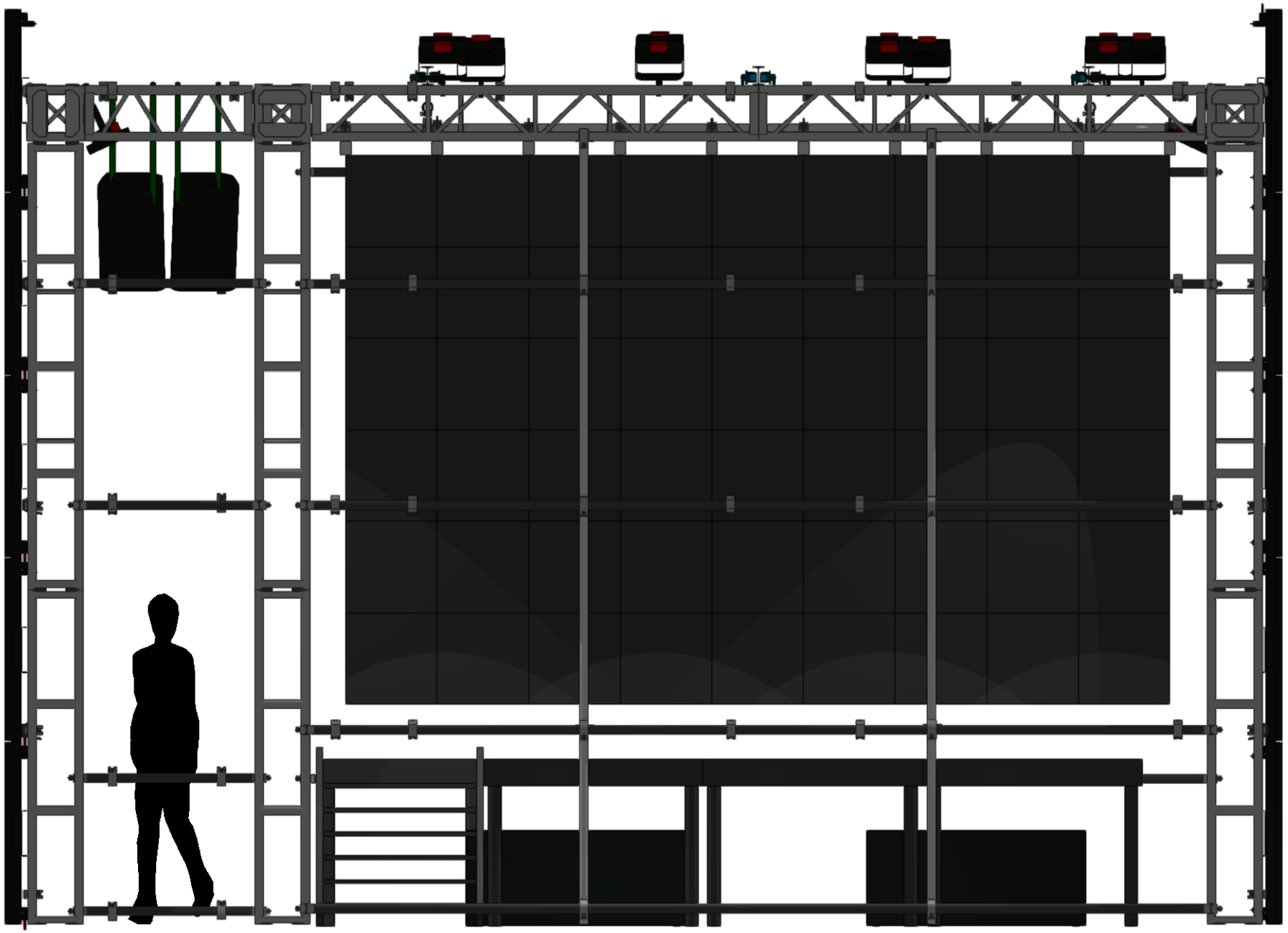
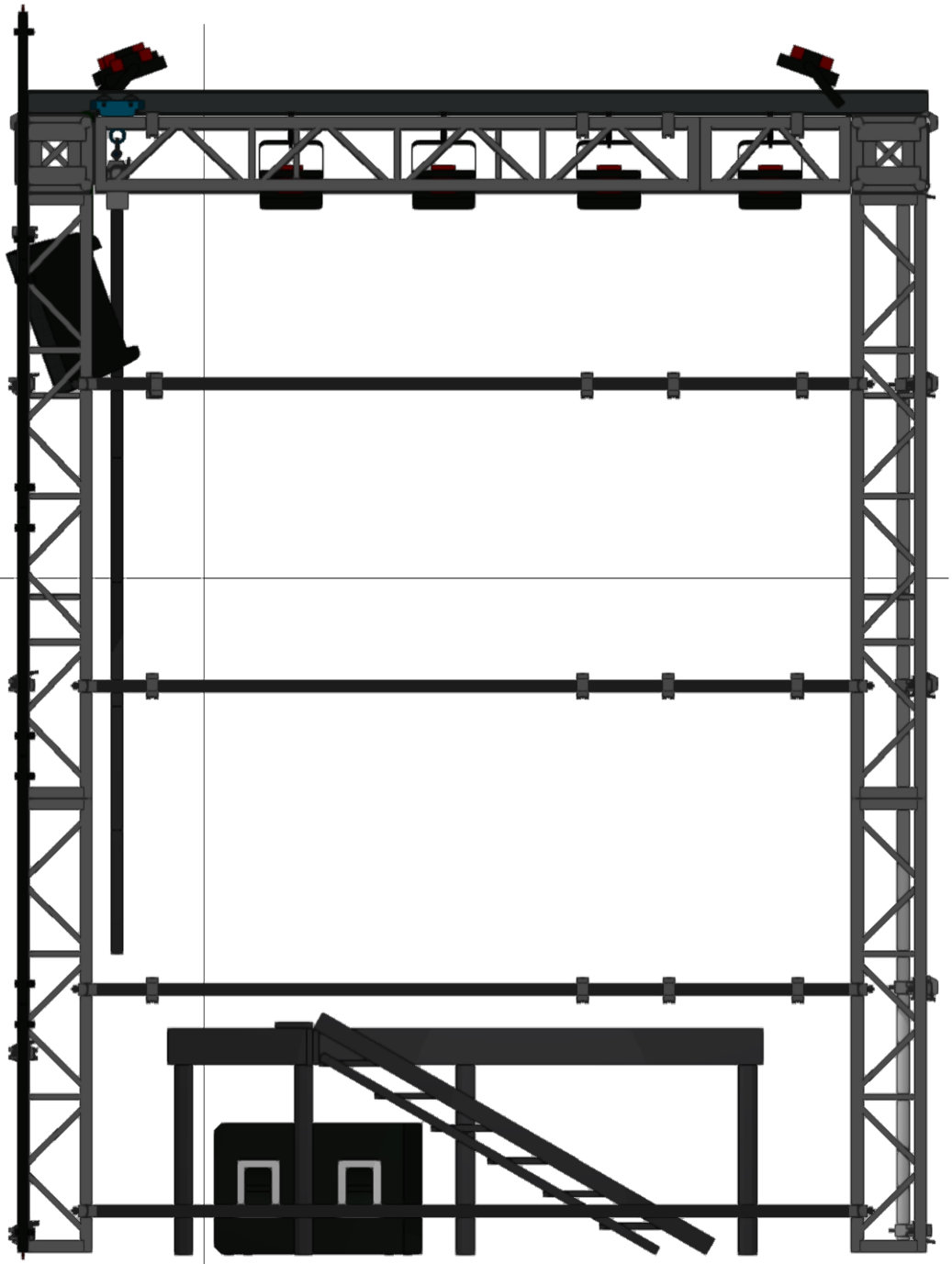
B!G TV

Scale: 1:30





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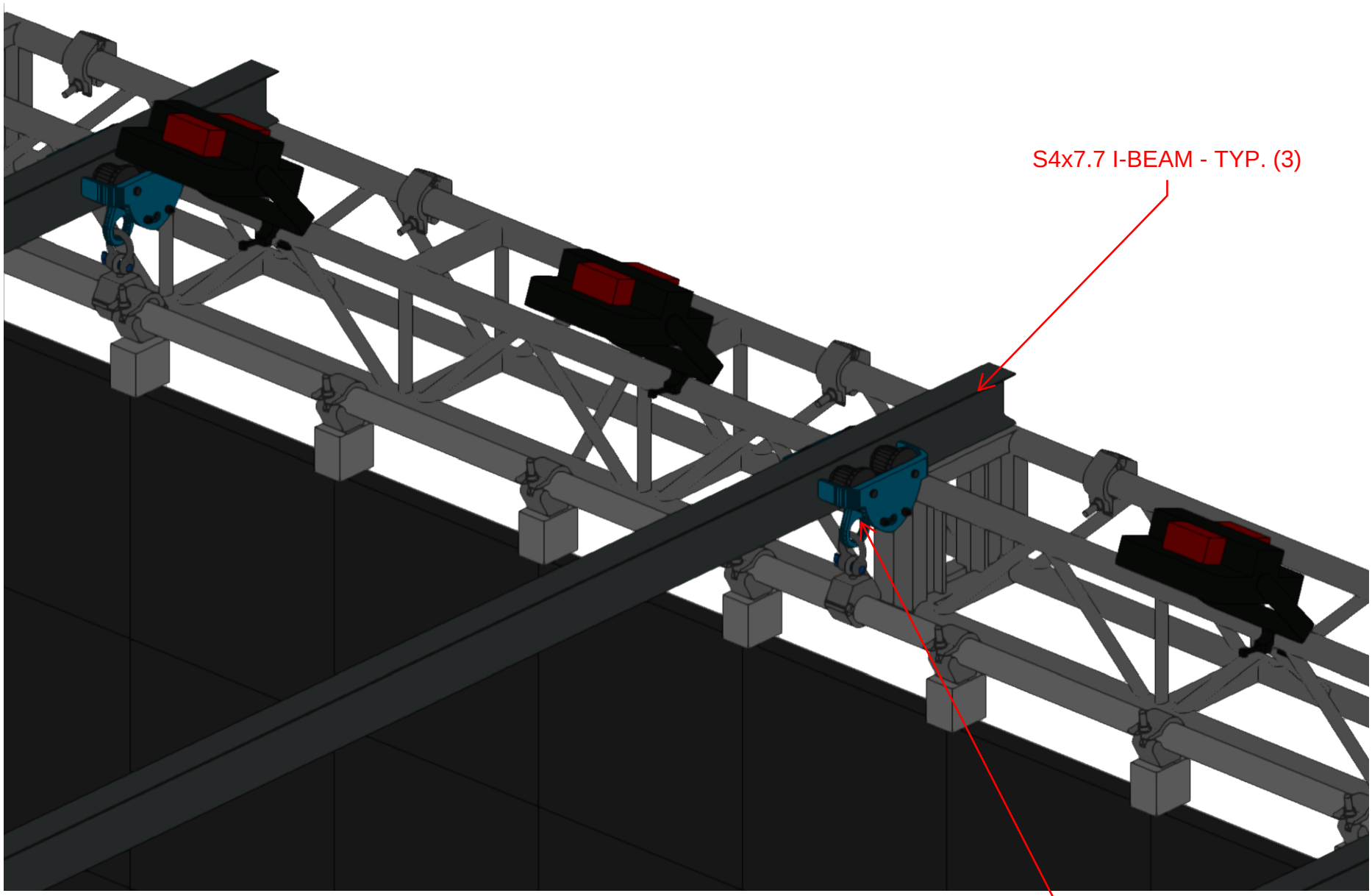
B!G TV

Scale: 1:28



1 B!G TV
Scale: 1:10

CLARK REDER ENGINEERING

APPENDIX B

CALCULATIONS

Clark-Reder Engineering, Inc
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BIG TV

Event Date & Location: Varies - Installation shall not exceed 1 week

Codes and Referenced Standards

- 2021 International Building Code
- National Building Code - 2023 Alberta Edition
- Aluminum Design Manual, 2020 ed.
- American Institute of Steel Construction, Steel Construction Manual 15th Edition
- American Society of Civil Engineers 7-16 (ASCE 7-16) *"Minimum Design Loads for Buildings and Other Structures"*
- American Society of Civil Engineers 37-14 (ASCE 37-14) *"Design Loads on Structures During Construction"*
- ANSI E 1.21-2013 *"Temporary Structures Used for Technical Production of Outdoor Entertainment Events"*
- ANSI E 1.2-2012 *"Manufacture and Use of Aluminum Trusses and Towers"*

Project Description

- Review of temporary structure for lateral and gravity loads.

Analysis Assumptions/Design Criteria

- A high wind action plan has been issued and must be strictly followed.
- All truss is 12" x 12" aluminum box truss from Unisson or equivalent.
- Scenic cladding and its attachment to the structure not reviewed by CRE.

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General Design - Applies To All Assemblies

Steel/Aluminum Factors of Safety

Note: The following factors/design criteria applies to all assemblies and will be used throughout design package (U.N.O).

AISC Typical Factors of Safety (U.N.O.): $\Omega_{y.AISC} := 1.67$ $\Omega_{r.AISC} := 2.0$

ADM Typical Factors of Safety (U.N.O.): $\Omega_{y.ADM} := 1.65$ $\Omega_{r.ADM} := 1.95$

ASTM A36 Mechanical Properties

Yield Strength: $F_{y.A36} := 36ksi$

Tensile Strength: $F_{u.A36} := 58ksi$

ASTM A572 Mechanical Properties

Yield Strength: $F_{y.A572} := 50ksi$

Tensile Strength: $F_{u.A572} := 65ksi$

ASTM A500 GR. B (Rectangular) Mechanical Properties

Yield Strength: $F_{y.A500.rect} := 46ksi$

Tensile Strength: $F_{u.A500.rect} := 58ksi$

ASTM A500 GR. B (Round) Mechanical Properties

Yield Strength: $F_{y.A500.rd} := 42ksi$

Tensile Strength: $F_{u.A500.rd} := 58ksi$

ASTM A992 Mechanical Properties

Yield Strength: $F_{y.A992} := 50ksi$

Tensile Strength: $F_{u.A992} := 65ksi$

Weld (Steel) Mechanical Properties

Weld Strength: $F_{weld} := 70ksi \cdot 0.6 = 42.00 \cdot ksi$

Grade 8 Bolt Mechanical Properties

Tensile Strength of Bolt: $F_{u.bolt} := 150ksi$

6061-T6 Mechanical Properties	Unwelded	Welded
Tension Ultimate Stress:	$F_{tu} := 38ksi$	$F_{tuw} := 24ksi$
Tension Yield Stress:	$F_{ty} := 35ksi$	$F_{tyw} := 15ksi$
Compression Yield Stress:	$F_{cy} := 35ksi$	$F_{cyw} := 15ksi$
Shear yield stress:	$F_{sy} := 0.6 \cdot F_{ty} = 21.00 \cdot ksi$	$F_{syw} := 0.6 \cdot F_{tyw} = 9.00 \cdot ksi$
Ultimate shear stress:	$F_{su} := 24ksi$	$F_{suw} := 15ksi$
Tension coefficient:	$k_t := 1.0$	$k_{tw} := 1.0$

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Applied Loads:

Wind Loads - Per ASCE 7-16 and ASCE 37-14

Ultimate wind speed (LRFD): $V_u := 115$ mph

Service level wind speed (ASD): $V_s := \sqrt{V_u^2 \cdot 0.6}$ $V_s = 89.08$ mph

HWAP service level wind speed (ASD): $V_{hwap} := 40$ mph

Exposure category (service): $Exp_s :=$ C

Exposure category (HWAP): $Exp_{hwap} :=$ C

Gust effect factor: $G_w := 0.85$

Topographic factor: $K_{zt} := 1.0$

Ground elevation: $z_g := 0ft$

Ground elevation factor: $K_e := e^{-0.0000362 \cdot \frac{z_g}{ft}} = 1.00$

6.2.1.1.1 Construction Period in Hurricane-Prone Areas
For construction between November 1 and June 30 (outside of the hurricane season), the basic wind speed of 115 mph (51 m/s) shall be permitted for structures sited near the Gulf Coast and Eastern Seaboard, where the ASCE/SEI 7-10 specified basic wind speed exceeds 115 mph (51 m/s) (3 second gust) (hurricane-prone areas). The 115 mph (51 m/s) wind speed is permitted to be reduced by the factors in Section 6.2.1 only for a construction period between November 1 and June 30. If the construction period shifts into the period between July 1 and October 31, the design shall be reviewed and modified, as appropriate, to conform to the requirements shown below for a construction period between July 1 and October 31.

Between July 1 and October 31, basic wind speed of 115 mph (51 m/s) shall be permitted for structures sited near the Gulf Coast and Eastern Seaboard, where the ASCE/SEI 7-10 specified basic wind speed exceeds 115 mph (51 m/s) (3 second gust) provided additional bracing is prepared in advance and applied in time before the onset of an announced hurricane. The 115 mph (51 m/s) wind speed shall not be reduced by the factors in Section 6.2.1 for the construction period. The bracing shall be designed for the full, unmodified wind load determined using the mapped wind speed and procedures found in ASCE/SEI 7-10.

ASCE 37-14 Reduction Factor

Construction Period	Factor
Less than six weeks	0.75
From six weeks to one year	0.8
From one to two years	0.85
From two to five years	0.9

Reduction coefficient for temporary structure: red := 0.75

Service level (ASD) wind speed for design of temporary structure: $V_{temp\_service} := V_s \cdot red$ $V_{temp\_service} = 66.81$ mph

Ultimate level (LRFD) wind speed for design of temporary structure: $V_{temp\_ultimate} := V_u \cdot red$ $V_{temp\_ultimate} = 86.25$ mph

NOTE: *Per ASCE 7-16, ultimate wind speeds are reduced by a factor of 0.6 in all service level (ASD) load combinations found in Section 2.4. Service level wind speeds are the design wind speeds that should be monitored.*

Kh Tables

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Wind Loads on Trussed Towers

This Mathcad sheet calculates the wind pressures on a trussed tower in accordance with figure 29.4-3 of ASCE 7-16.

Height of wind evaluation: $z := 16 \cdot ft$

Type of truss: type := 12" Truss

Wind directionality factor: $K_d :=$ 0.85

Tower cross section: TCS := Square

Are tower members round? RM := YES

Truss property table:

$$Table_{truss} := \begin{pmatrix} \text{"Truss"} & \text{"}\varepsilon\text{"} & \text{"Width"} \\ \text{"12" Truss"} & 0.461 & 12 \\ \text{"20½" Truss"} & 0.329 & 20.5 \\ \text{"26x30 PRT Empty"} & 0.289 & 26 \\ \text{"26x30 PRT Full"} & 0.594 & 26 \\ \text{"20"x30" HD Truss"} & 0.254 & 30 \\ \text{"G2 Truss"} & .220 & 60 \end{pmatrix}$$

Ratio of solid area to gross area: $\varepsilon := Table_{truss_{type,2}} = 0.461$

Truss width: $B_{truss} := Table_{truss_{type,3}} \cdot in = 12.00 \cdot in$

Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(z)$ $K_{z\_s} = 0.86$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(z)$ $K_{z\_hwap} = 0.86$

Wind velocity pressure (service): $q_{z\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $q_{z\_s} = 8.36 \cdot psf$

Wind velocity pressure (HWAP): $q_{z\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $q_{z\_hwap} = 3.00 \cdot psf$

Round member reduction (if applicable):

$$rnd\_red := \begin{cases} 1.0 & \text{if RM = "NO"} \\ \min(1.0, 0.51 \cdot \varepsilon^2 + 0.57) & \text{otherwise} \end{cases}$$

$rnd\_red = 0.68$

Force coefficient:

$$C_f := rnd\_red \cdot \begin{cases} 4.0 \cdot \varepsilon^2 - 5.9 \cdot \varepsilon + 4.0 & \text{if TCS = "Square"} \\ 3.4 \cdot \varepsilon^2 - 4.7 \cdot \varepsilon + 3.4 & \text{otherwise} \end{cases}$$

$C_f = 1.45$

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Truss wind pressure (service): $p_{truss\_s} := q_{z\_s} \cdot C_f \cdot G_w$ → $p_{truss\_s} = 10.27 \cdot psf$

Truss wind pressure (HWAP): $p_{truss\_hwap} := q_{z\_hwap} \cdot C_f \cdot G_w$ → $p_{truss\_hwap} = 3.68 \cdot psf$

Linear wind load (service): $w_{truss\_s} := p_{truss\_s} \cdot B_{truss} \cdot \varepsilon$ → $w_{truss\_s} = 4.73 \cdot plf$

Linear wind load (HWAP): $w_{truss\_hwap} := p_{truss\_hwap} \cdot B_{truss} \cdot \varepsilon$ → $w_{truss\_hwap} = 1.70 \cdot plf$

Adjustment for wind along a diagonal: $Diag := \min(1.2, 1 + 0.75 \cdot \varepsilon) = 1.20$

Linear wind load, diagonal (service): $w_{diag\_s} := w_{truss\_s} \cdot Diag$ → $w_{diag\_s} = 5.68 \cdot plf$

Linear wind load, diagonal (HWAP): $w_{diag\_hwap} := w_{truss\_hwap} \cdot Diag$ → $w_{diag\_hwap} = 2.04 \cdot plf$

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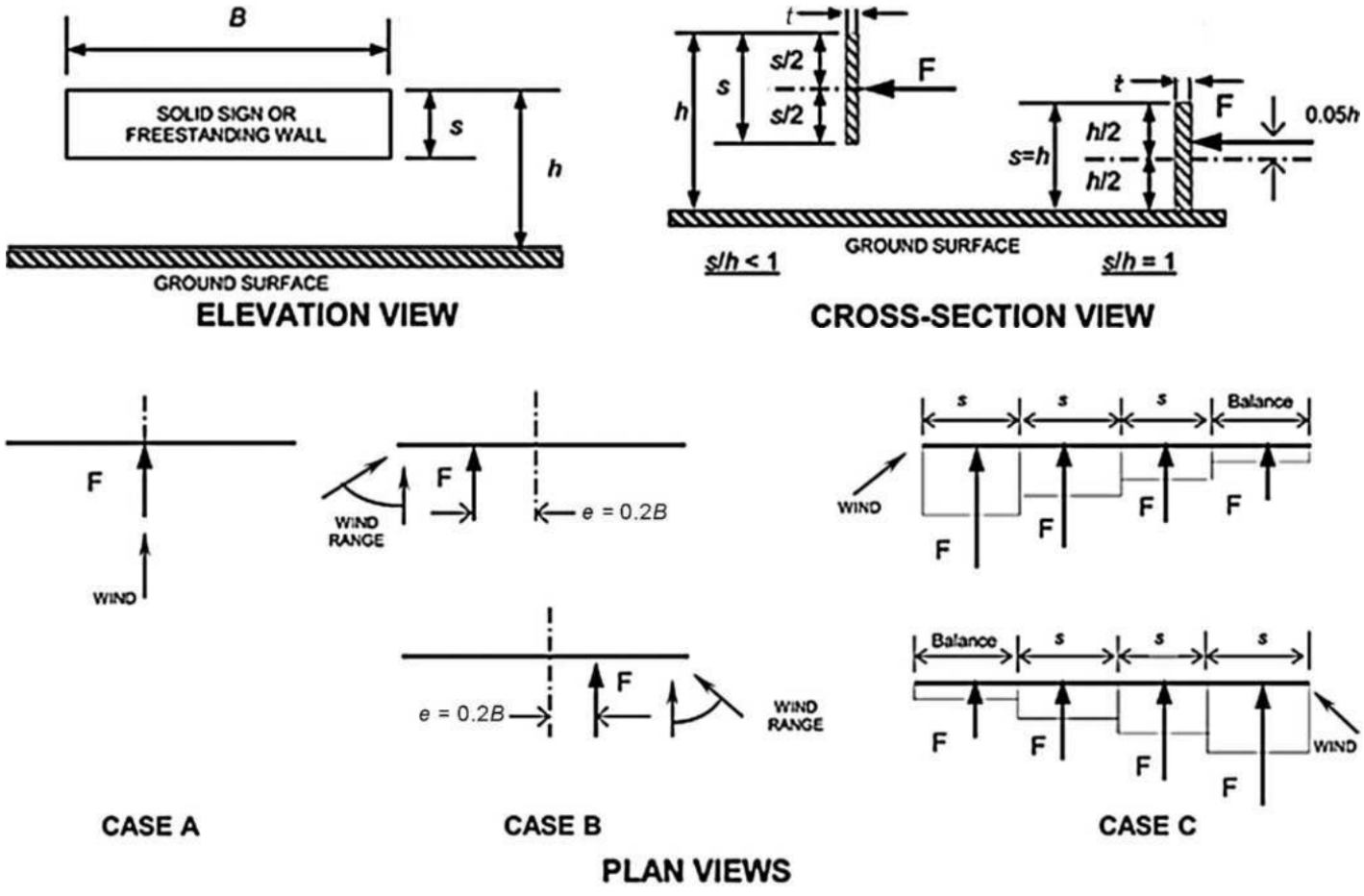
Wind Loads on Scrim / Signs

This Mathcad sheet calculates the wind pressures on a sign or scrim in accordance with figure 29.3-1 of ASCE 7-16.

Diagrams



Top of sign height:	$h := 16 \cdot ft$	Sign Width:	$B := 22 \cdot ft$
Vertical dimension of sign:	$s := 16 \cdot ft$	Wind directionality factor:	$K_d := 0.85$
Aspect ratio, B/s:	$Bs := \frac{B}{s} = 1.38$	Clearance ratio, s/h:	$sh := \frac{s}{h} = 1.00$

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Velocity Pressure Exposure Coefficient (service): $K_{z\_s} := K_{z\_F\_s}(h)$ $K_{z\_s} = 0.86$

Velocity Pressure Exposure Coefficient (HWAP): $K_{z\_hwap} := K_{z\_F\_hwap}(h)$ $K_{z\_hwap} = 0.86$

Wind velocity pressure (service): $q_{h\_s} := 0.00256 \cdot K_{z\_s} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (red \cdot V_s)^2 \cdot psf$ $q_{h\_s} = 8.36 \cdot psf$

Wind velocity pressure (HWAP): $q_{h\_hwap} := 0.00256 \cdot K_{z\_hwap} \cdot K_{zt} \cdot K_d \cdot K_e \cdot (V_{hwap})^2 \cdot psf$ $q_{h\_hwap} = 3.00 \cdot psf$

Cases A & B:

Case A & B Force Coefficient Table: $Table\_CfAB :=$

"Cf"	0	0.05	0.1	0.2	0.5	1	2	4	5	10	20	30	45	999
0.0	1.95	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95	1.95
0.16	1.95	1.95	1.90	1.85	1.85	1.80	1.80	1.85	1.85	1.85	1.90	1.90	1.95	1.95
0.2	1.95	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.85	1.90	1.90	1.95	1.95
0.3	1.95	1.95	1.90	1.85	1.80	1.80	1.80	1.80	1.80	1.80	1.85	1.85	1.85	1.85
0.5	1.95	1.95	1.85	1.80	1.75	1.75	1.70	1.70	1.70	1.70	1.70	1.70	1.75	1.75
0.7	1.90	1.90	1.85	1.75	1.70	1.65	1.60	1.60	1.55	1.55	1.55	1.55	1.55	1.55
0.9	1.85	1.85	1.75	1.70	1.60	1.55	1.50	1.45	1.45	1.40	1.40	1.40	1.40	1.40
1	1.80	1.80	1.70	1.65	1.55	1.45	1.40	1.35	1.35	1.30	1.30	1.30	1.30	1.30

Case A & B Force Coefficient: $C_{f\_AB} := Spline(Table\_CfAB, sh, Bs)$ $C_{f\_AB} = 1.43$

Sign wind pressure (service): $p_{sign\_s} := q_{h\_s} \cdot C_{f\_AB} \cdot G_w$ $p_{sign\_s} = 10.17 \cdot psf$

Sign wind pressure (HWAP): $p_{sign\_hwap} := q_{h\_hwap} \cdot C_{f\_AB} \cdot G_w$ $p_{sign\_hwap} = 3.64 \cdot psf$

Total sign wind load (service): $P_{sign\_s} := p_{sign\_s} \cdot B \cdot s$ $P_{sign\_s} = 3.58 \cdot kip$

Total sign wind load (HWAP): $P_{sign\_hwap} := p_{sign\_hwap} \cdot B \cdot s$ $P_{sign\_hwap} = 1.28 \cdot kip$

Horizontal offset for Case B: $Offset_B := 0.2 \cdot B$ $Offset_B = 4.40\ ft$

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Seismic Loads - Per ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

6.5 EARTHQUAKE

If required by Section 6.5.1 and not exempted by Section 6.5.3, earthquake loads shall be calculated in accordance with procedures in ASCE/SEI 7-10 as modified by Section 6.5.2. All structures shall be treated as Risk Category II, per Table 1.5-1 of ASCE/SEI 7-10, regardless of the group classification of the completed structure.

6.5.1 Applicability Earthquake loads need not be considered unless required by the authority having jurisdiction and the mapped Risk-Targeted MCE_R, 5% damped, spectral response acceleration parameter at a period of 1 s, S_1, defined in Section 11.4.1 of ASCE/SEI 7-10 equals or exceeds 0.40.

6.5.2 Use of ASCE/SEI 7-10 For use of the earthquake load provisions of ASCE/SEI 7-10, the following modifications should be made:

1. The mapped values for S_S and S_1 may be multiplied by a factor less than 1 to represent the reduced exposure period, but the factor shall not be less than 0.20.
2. The restrictions on types of structural systems in seismic performance categories D and E do not apply, as long as the height of the temporary bracing system designed in accordance with this section is limited in height to 60 ft (18.3 m) or five stories, whichever is less, above the completed bracing of the permanent structure.

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Seismic Analysis - ASCE 37-14 & ASCE 7-16 (Chapter 12/15)

Site coefficients per ASCE 7-16, Site Class D assumed

Mapped MCE, 5% damped, spectral response, acceleration parameter at short periods: $S_S := 2.45$

Mapped MCE, 5% damped, spectral response, acceleration parameter at 1s: $S_1 := 0.86$

Design 5% damped, spectral response, acceleration parameter at short periods: $S_{DS} := 1.63$

Design 5% damped, spectral response, acceleration parameter at 1s: $S_{D1} := 0.86$

Per ASCE 37-14, does seismic need to be considered?

$$Consider\_seismic := \begin{cases} \text{"NO"} & \text{if } S_1 < 0.4 \\ \text{"YES"} & \text{otherwise} \end{cases}$$

Consider_seismic = "YES"

If seismic is required to be considered:

Temporary reduction coefficient as allowed by ASCE 37-14 (minimum value = 0.2): $red_{eq} := 0.2$

ASCE 37-14, Section 6.5.2.3:

3. The R factor used for temporary bracing systems shall not exceed 2.5 unless the system is detailed in accordance with the provisions of ASCE/SEI 7-10. Where R = 2.5 is used, only the requirements dealing with the strength of the seismic-resisting structural system need be satisfied.

Response modification factor: $R_{eq} := 2.5$

Importance factor/Risk Category II: $I_e := 1.0$

Structural height (FT): $h_n := 20$

Approximate period perameters (Table 12.8-2, Page 90): $C_t := 0.02$

Long period transition period (Figure 22-12, Page 224): $T_L := 12$

Approximate Fundamental Period: $T_a := C_t \cdot h_n^{.75} = 0.19$

Modified spectral responses with reduction coefficient:

$S_{S\_mod} := S_S \cdot red_{eq} = 0.49$ $\quad S_{DS\_mod} := S_{DS} \cdot red_{eq} = 0.33$

$S_{1\_mod} := S_1 \cdot red_{eq} = 0.17$ $\quad S_{D1\_mod} := S_{D1} \cdot red_{eq} = 0.17$

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Seismic response coefficient:

$$C_{s.calc} := \min\left[\frac{S_{DS\_mod}}{\left(\frac{R_{eq}}{I_e}\right)}, \begin{vmatrix} \frac{S_{D1\_mod}}{T_a\cdot\left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a \le T_L \\ \frac{S_{D1\_mod}\cdot T_L}{T_a^{\,2}\cdot\left(\frac{R_{eq}}{I_e}\right)} & \text{if } T_a > T_L \end{vmatrix}\right] = 0.130$$

$$C_{s.min} := \begin{vmatrix} \max\left(0.044\cdot S_{DS\_mod}\cdot I_e, 0.01\right) & \text{if } S_1 < 0.6 \\ \max\left(0.044\cdot S_{DS\_mod}\cdot I_e, 0.01, \frac{0.5\cdot S_{1\_mod}}{\frac{R_{eq}}{I_e}}\right) & \text{if } S_1 \ge 0.6 \end{vmatrix} = 0.034$$

$$C_s := \begin{vmatrix} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ \max\left(C_{s.calc}, C_{s.min}\right) & \text{otherwise} \end{vmatrix}$$

$C_s = 0.130$

Vertical seismic load effect:

$$EQ_v := \begin{vmatrix} 0 & \text{if Consider\_seismic} = \text{"NO"} \\ 0.2\cdot S_{DS\_mod} & \text{otherwise} \end{vmatrix}$$

$EQ_v = 0.065$

NOTE: WIND LOADS WILL GOVERN SO SEISMIC LOADS CAN BE IGNORED.

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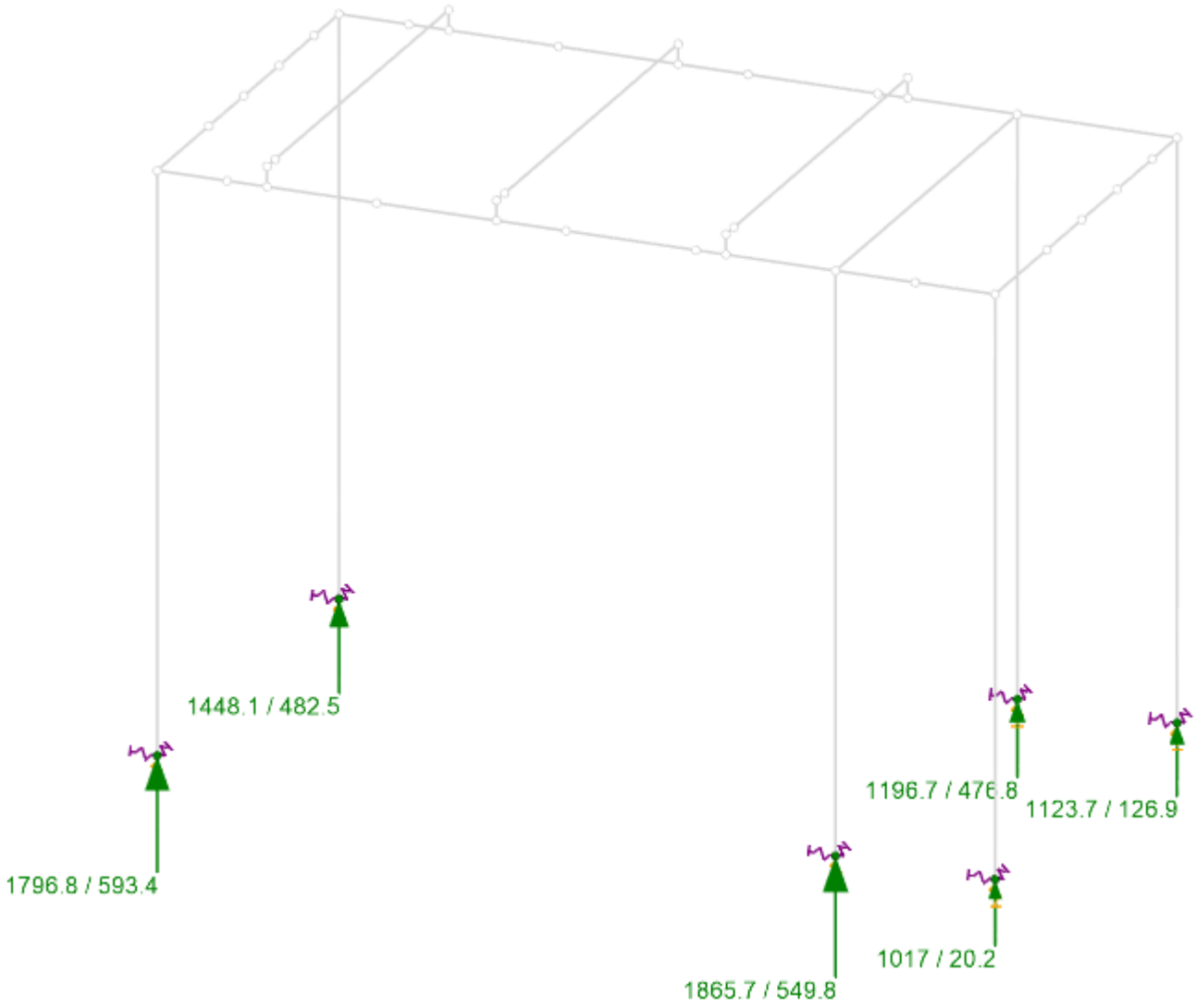
Global Stability:

Overturning and Uplift Checks:



Enveloped Vertical Reactions - Video Wall on Front Edge of Beam

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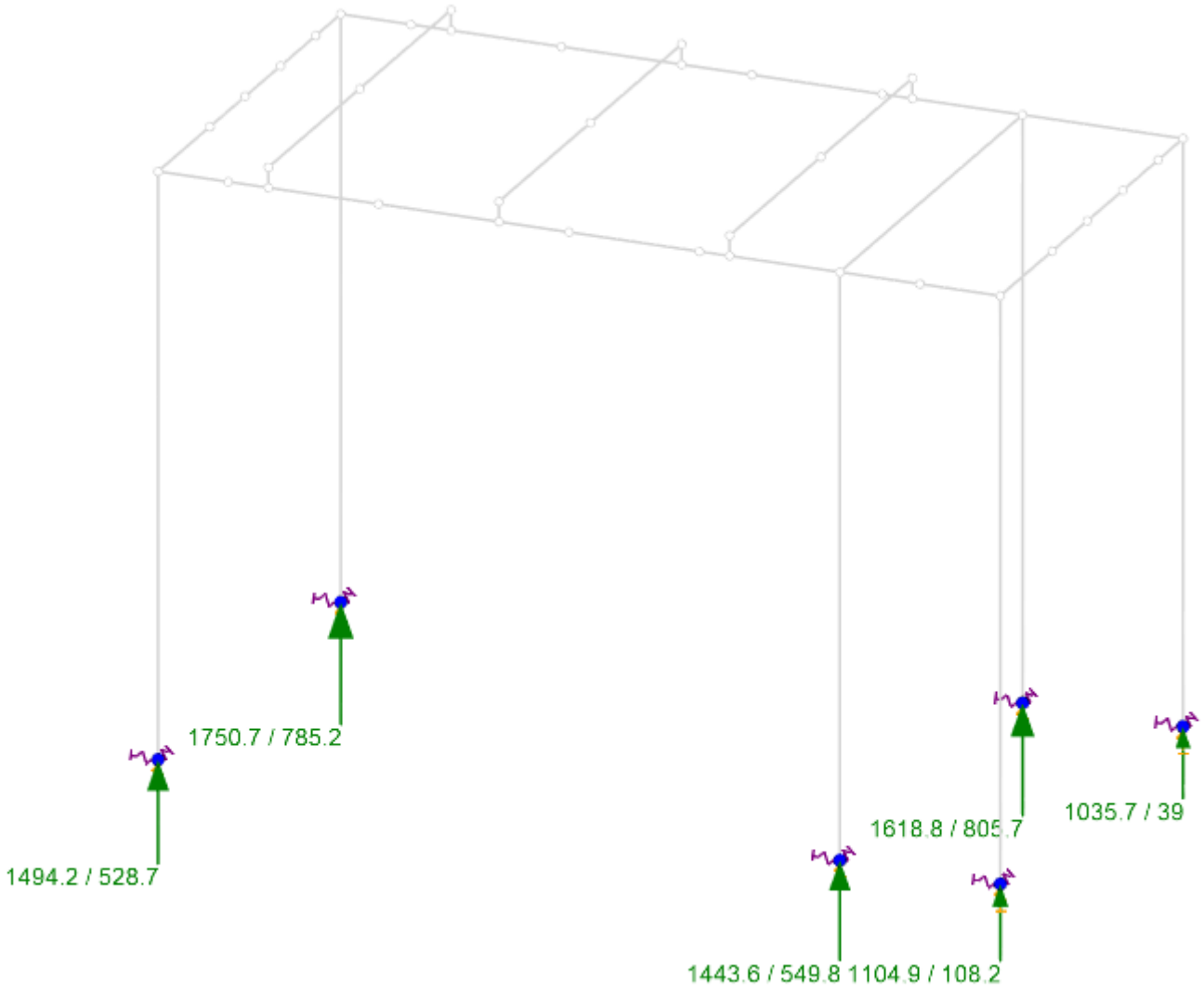

Enveloped Vertical Reactions - Video Wall on Center of Beam

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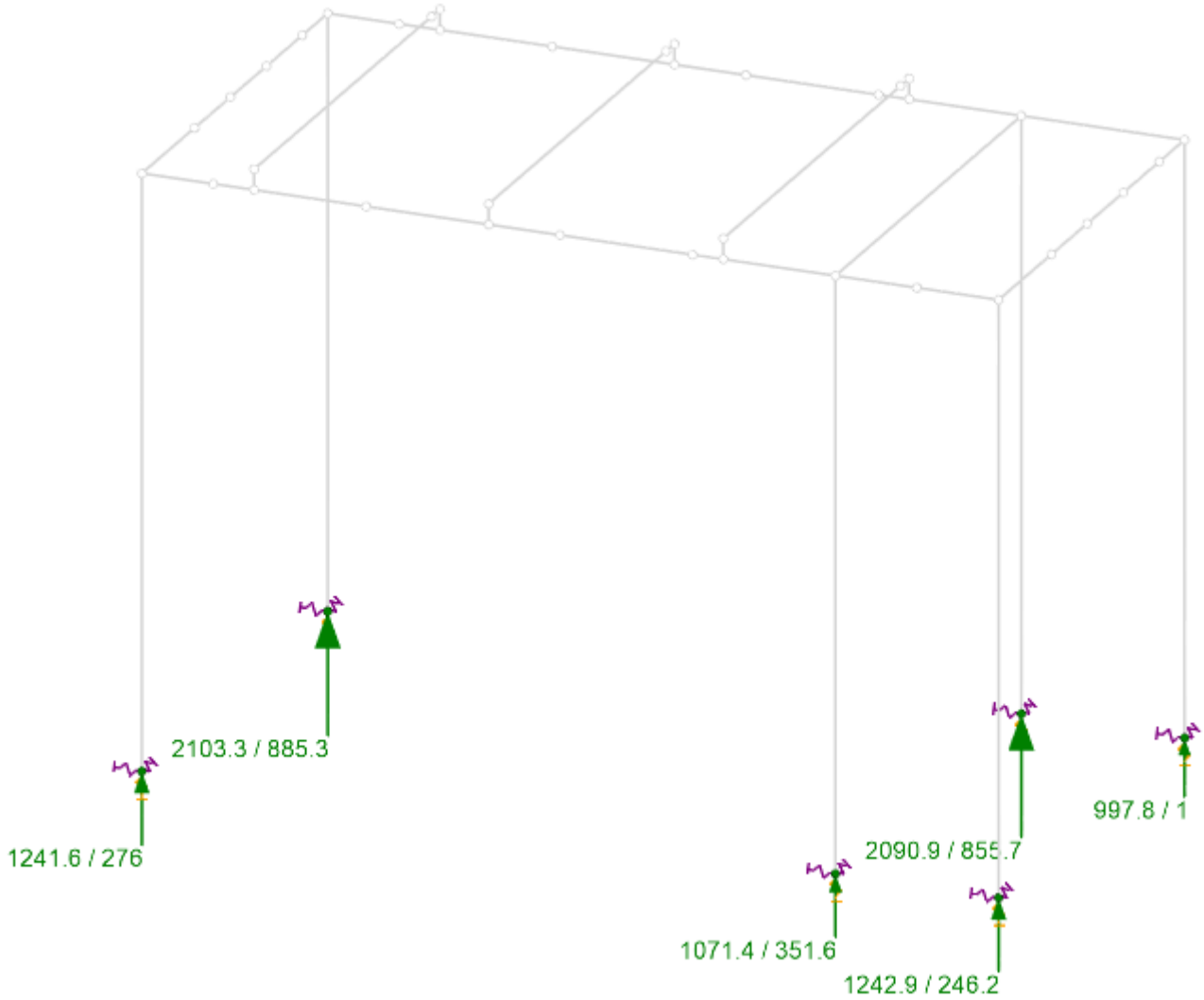

Enveloped Vertical Reactions - Video Wall on Rear Edge of Beam

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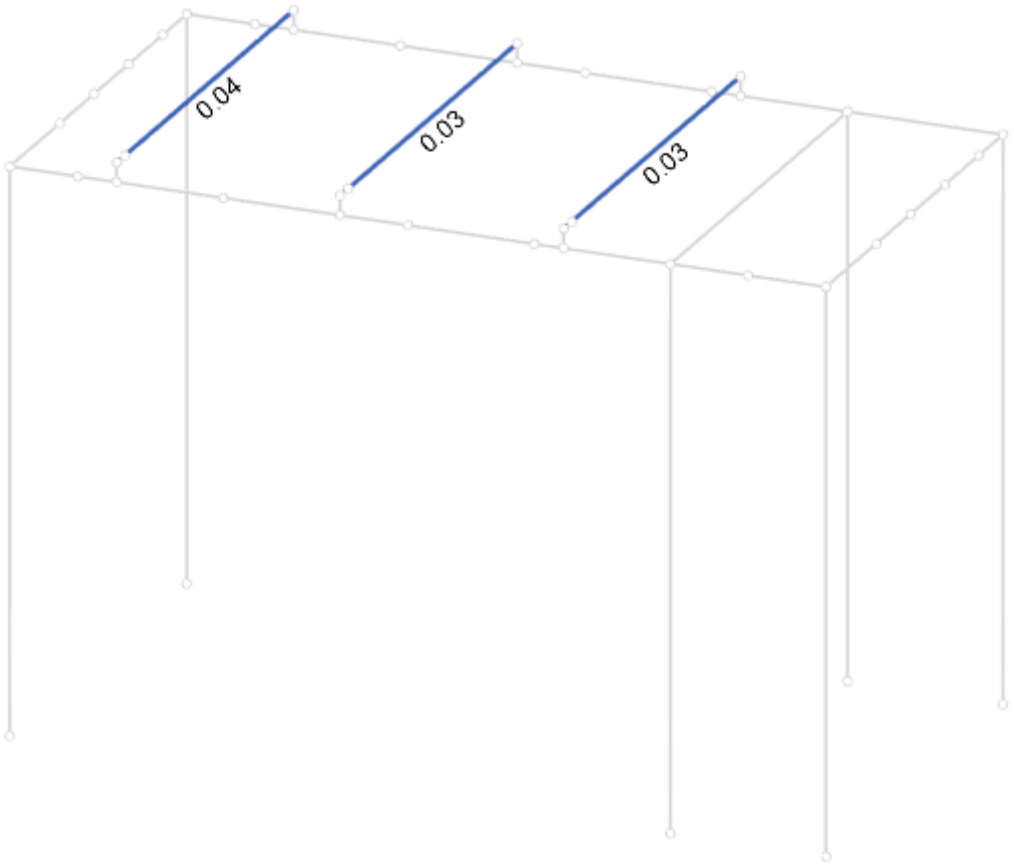
Strength Checks:

S4x7.7 I-Beam:



Unity Check - Video Wall at Front Edge of Beam

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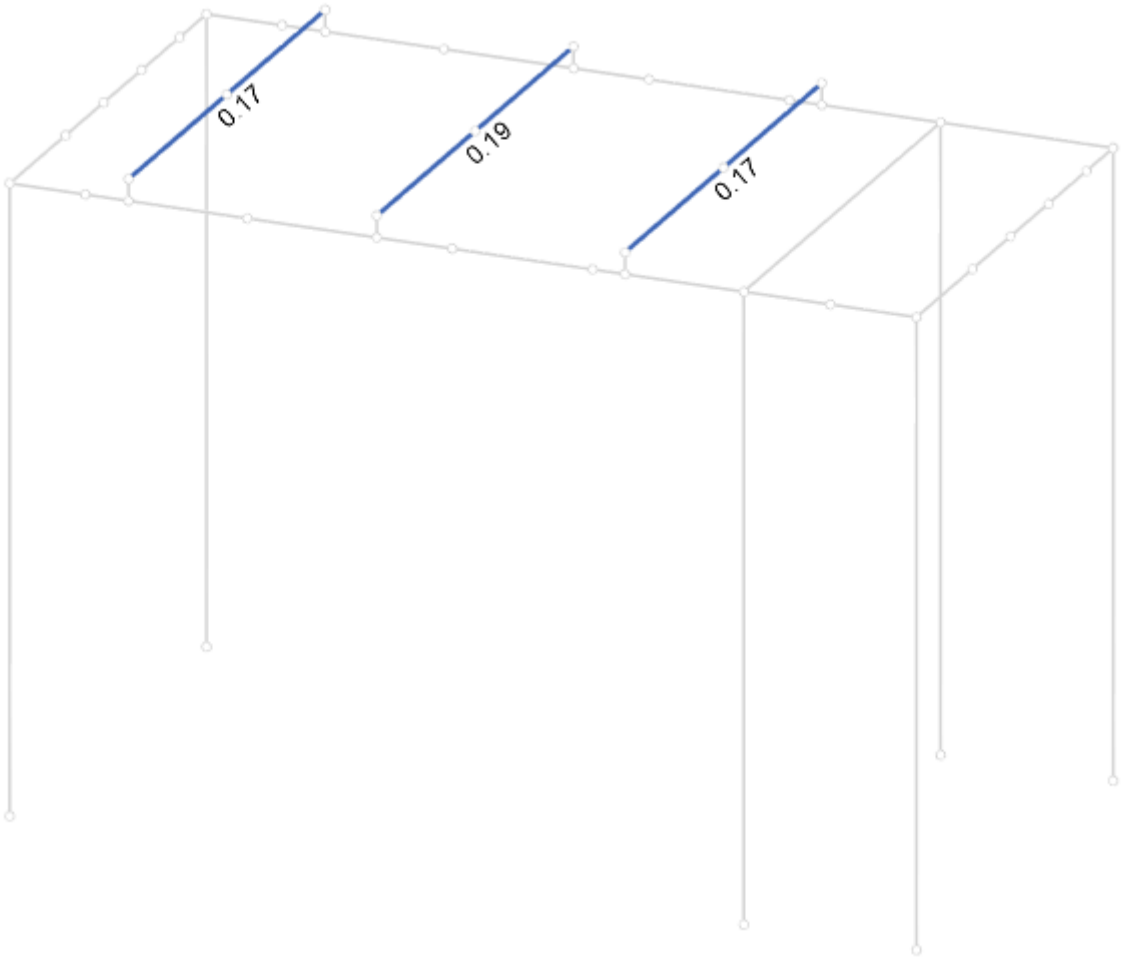

Unity Check - Video Wall Centered on Beam

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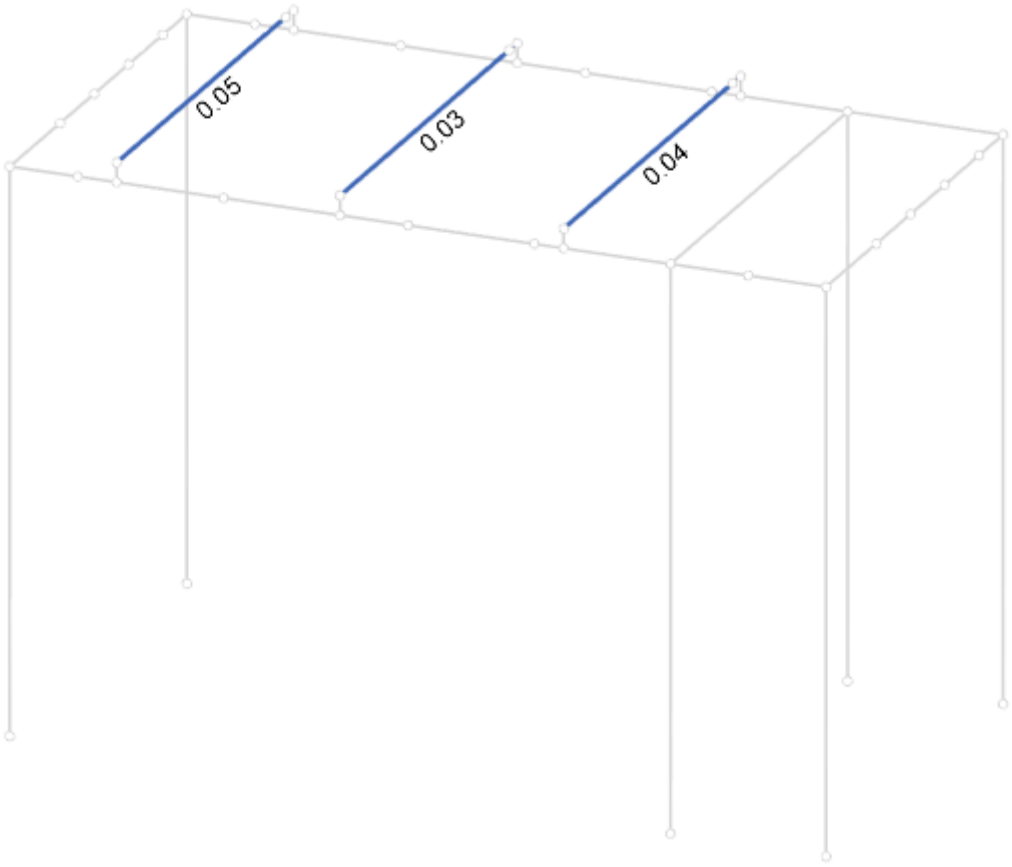

Unity Check - Video Wall at Rear Edge of Beam

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12" x 12" Truss:

12" Truss Review

Axial Capacity:	14400	lb
Shear Capacity (Y-axis):	2454	lb
Shear Capacity (Z-axis):	981	lb
Moment Capacity (Y-axis):	2400	lb-ft
Moment Capacity (Z-axis):	6000	lb-ft
Chord Area:	0.736	in²

Truss Brand:	Tomcat	
Truss Size:	Core 12x12 Plated	
Shear Weak/Strong Axis Ratio:	0.4	
Moment Weak/Strong Axis Ratio:	0.4	

	Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]
Maximum:	1528	798	157	107	1918	2574
Minimum:	-349	-871	-140	-118	-1803	-2235

Controlling Strength Ratio	
0.889	0.35

Case	Member	Location	Forces						Strength Ratio	
			Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]	Axial + Moment	Shear

Unity Check - Video Wall at Front Edge of Beam

12" Truss Review

Axial Capacity:	14400	lb
Shear Capacity (Y-axis):	2454	lb
Shear Capacity (Z-axis):	981	lb
Moment Capacity (Y-axis):	2400	lb-ft
Moment Capacity (Z-axis):	6000	lb-ft
Chord Area:	0.736	in²

Truss Brand:	Tomcat	
Truss Size:	Core 12x12 Plated	
Shear Weak/Strong Axis Ratio:	0.4	
Moment Weak/Strong Axis Ratio:	0.4	

	Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]
Maximum:	1340	576	337	214	1580	2313
Minimum:	-422	-618	-338	-203	-1607	-2308

Controlling Strength Ratio	
0.738	0.34

Case	Member	Location	Forces						Strength Ratio	
			Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]	Axial + Moment	Shear

Unity Check - Video Wall Centered on Beam

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12" Truss Review

Axial Capacity:	14400	lb
Shear Capacity (Y-axis):	2454	lb
Shear Capacity (Z-axis):	981	lb
Moment Capacity (Y-axis):	2400	lb-ft
Moment Capacity (Z-axis):	6000	lb-ft
Chord Area:	0.736	in²

Truss Brand:	Tomcat	
Truss Size:	Core 12x12 Plated	
Shear Weak/Strong Axis Ratio:	0.4	
Moment Weak/Strong Axis Ratio:	0.4	

	Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]
Maximum:	1703	871	159	129	2057	2788
Minimum:	-418	-952	-149	-118	-1938	-2274

Controlling Strength Ratio	
Axial + Moment	Shear
0.952	0.39

Case	Member	Location	Forces						Strength Ratio	
			Axial [lb]	Shear Y [lb]	Shear Z [lb]	Torque [lb-ft]	Moment YY [lb-ft]	Moment ZZ [lb-ft]	Axial + Moment	Shear

Unity Check - Video Wall at Rear Edge of Beam

Notification of Proposed Special Events
Canal Bank area

The City of Scottsdale has received several special event applications and is programming events to occur along the Old Town Scottsdale canal banks. The purpose of this email is to provide awareness to residents and businesses in the nearby area, relay details about the proposed events, and solicit feedback.

Please review the below information and if you have any comments, questions or concerns, contact Cheryl Sumners no later than Friday, June 20, 2025.

Canal Convergence
10 days, November 7 - 16

Returning for its 15th season, Canal Convergence is produced by Scottsdale Public Art as a free event that celebrates the vibrant arts and culture community, featuring large-scale public art installations with illuminated, interactive technology, created by local, national, and international artists. In addition to the artworks, the event includes educational programming, family-oriented activities, art-making workshops, live music, dance performances, and food/beverage options.

Event details and information include:

- Event Hours: Nightly. Fri. & Sat. 6 p.m.- 10 p.m.; Sun-Thu 6 p.m. - 9 p.m.
- Event Set-up: Art installations begin Oct. 27 and continues through Nov. 7.
- Event Tear-down: Begins immediately following the event, with installation removal completed by November 21.
- Entertainment: Live music, pre-recorded music, DJ, speaker/announcer and fire performances set to music during event hours.
- Event Parking: Volunteers, vendors, and attendees will be directed to the nearby public parking garages.
- Street Closures: Marshall Way located north of the bridge and south of Via Soleri from Thu. Nov. 6 at 6 a.m. – Mon. Nov. 17 at 6 a.m.

For more information, view the **Application and Site Plan**
Event Info: **CanalConvergence.com**