Request for Qualifications (Architect / Engineer)
State of Ohio Standard Forms and Documents

Administration of Project: Local Higher Education

Project Name	Perry Stadium Phase II Renovations	Response Deadline	10/23/15	2:00 pm	local time
Project Location	Bowling Green State University	Project Number	BGU-156153		
City / County	Bowling Green / Wood	Project Manager	Brian Swope		
Owner	Bowling Green State University	Contracting Authority	Local Higher Education		
Delivery Method	N/A	Prevailing Wages	State		
No. of paper copies requested (stapled, not bound)	3	No. of electronic copies requested on CD (PDF)	1		

Submit the requested number of Statements of Qualifications (Form F110-330) directly to Beth Nagel at BGSU Purchasing Office, 1851 N Research Drive, Bowling Green, Ohio 43403. See Section H of this RFQ for additional submittal instructions.

Submit all questions regarding this RFQ in writing to Beth Nagel at bnagel@bgsu.edu with the project number included in the subject line (no phone calls please). Questions will be answered and posted to the Opportunities page on the OFCC website at http://ofcc.ohio.gov on a regular basis until one week before the response deadline. The name of the party submitting a question will not be included on the Q&A document.

Project Overview

A. Project Description

Bowling Green State University (the "Owner") is requesting interested firms to submit qualifications to prepare concept documents and imagery for Perry Stadium Phase II Renovations.

Bowling Green State University Department of Athletics is interested in enhancing the functionality and overall fan experience for Perry Stadium. Project will require donor funds and to facilitate this effort concept drawings and images for a revitalized stadium are necessary. A detailed scope of project is articulated under "Scope of Services" portion of this Request for Qualifications.

A Facilities Condition Report for the stadium was completed in 2009. A copy of this report is included herewith.

The stadium is currently embarking upon the Phase I Renovations that include (a) structural repairs, (b) waterproofing seat deck, (c) roof repairs and/or replacements, (d) visitor locker room expansion and remodel, and (e) cosmetic repairs to west press box and club seating. Drawings of this project are included herewith.

B. Scope of Services

The selected Architect/Engineer (A/E), as a portion of its required Scope of Services and prior to submitting its proposals, will discuss and clarify with the Owner, the cost breakdown of the Architect/Engineer Agreement detailed cost components to address the Owner's project requirements. Participation in the Encouraging Growth, Diversity & Equity (EDGE) Program as required by statute and the Agreement is expected.

As required by the Agreement, and as properly authorized, provide for participation in the following categories: Organizational Meeting, and Program Verification Stage. Additional Services will be discussed as necessary during the negotiation phase. Reimbursable Expenses will be approved per the Agreement.

Refer to the *OFC Manual* and/or the *Ohio School Design Manual* for additional information about the type and extent of services required for each. A copy of the standard Agreement can be obtained at the OFCC website at http://ofcc.ohio.gov. Note that all respondents to this RFQ will be responsible for, and held to, the terms of the standard Agreement and Exhibits as completed by the Owner. Any clarification or requested modifications to the same should be identified in the Respondent's response to this RFQ. No modifications to the requirements in the Agreement or Exhibits will be accepted at time of negotiation or technical proposal.

The current intent for the Phase II Renovations are: (a) improving tailgate/entry experience, (b) improving fan experience within stadium (e.g. concession areas, restrooms, bowl seating, viewing opportunities, social spaces, and retail environments), (c) expansion/renovation of suites, club seats and press box, (d) office and indoor seating improvements, (e) elevator and service upgrades, (f) creating multi-purpose spaces sized to host functions and retreats, (g) technology platform upgrades, and (h) exterior façade improvements.

Concept package deliverables include (a) design concepts, (b) images of upgraded stadium, and (c) order of magnitude estimates. Two concept packages reflecting a $15 million program and $30 million program need developed. Draft imagery for both options are due to BGSU on, or before, November 20, 2015. Drafts of remaining deliverables are due by December 30, 2015.

Estimated fee range for the scope of services described is $50,000.00 to $70,000.00

Bowling Green State University reserves the right to expand this contract to full Architect/Engineer services for entire project should it be determined to be in the University's best interest. Fee increases for expanded services shall be negotiated at that time.

The scope of services should also define the types of basic and additional professional design and administration services necessary for the project (e.g. LEED credentials and experience, previous experience with local jurisdiction or similar sites, previous experience working with the State of Ohio, Building Information Modeling ("BIM") experience and training, specific BIM and Owner-defined requirements, level of development to be achieved within BIM models, BIM deliverables, and Owner's intended use of BIM models after construction). This information will be used by each applicant to populate the Relevant Project Experience Matrix in Section F of Form F110-330.

For purposes of completing the Relevant Project Experience Matrix in Section F of the Statement of Qualifications (Form F110-330), below is a list of relevant scope of work requirements for this RFQ:

1) Experience with multiple stadium renovation projects costing more than $15 million
2) Experience improving Intercollegiate arenas or stadia
3) Assigned team must have direct experience on athletic facility projects costing more than $15 million.
4) Demonstrated knowledge of current trends in enhancing fan experience
5) Experience offering innovative architectural solutions to accomplish project scope within available dollars
6) Experience developing compelling design concepts used in fund raising efforts

C. Funding / Estimated Budget

Total Project Cost	$15,000,000 - 30,000,000	State Funding	$N/A
Construction Cost	$9,750,000 - 19,500,000	Other Funding	$15,000,000 - 30,000,000
Estimated A/E Fee	% to %		

NOTE: The A/E fee percentage for this project includes all professional design services, and consultant services necessary for proper completion of the Basic Services for the successful completion of the project, including but not limited to: review and verification of the Program of Requirements provided by the Owner, validation of existing site conditions (but not subsurface or hidden conditions), preparation of cost estimates and design schedules for the project. Fees may be negotiated and allocated for Additional Services (e.g., creation of a Program of Requirements, extensive evaluation or validation of site conditions, extensive pre-design investigations, code-required special inspection and testing, Quality Assurance testing during the construction period, and testing due to unforeseen conditions).

D. Services Required (see note below)

Primary	Architecture & Interior Design
Secondary	Structural Engineering
	MEPT Engineering
	Civil and Landscape
Others	

E. Anticipated Schedule

Professional Services Start (mm/yy)	11 / 15
Construction Stage Start (mm/yy)	/
Construction Stage Completed (mm/yy)	/
Professional Services Completed (mm/yy)	12 / 15

F. EDGE Participation Goal

Percent of *initial* TOTAL A/E Fee	5.0%

NOTE: The primary A/E shall be (1) a registered architect holding a license and certificate of authorization issued by the Ohio Architects Board pursuant to ORC Chapter 4703, (2) a landscape architect holding a license and certificate of authorization issued by the Ohio Landscape Architects Board pursuant to ORC Chapter 4703, or (3) a professional engineer or professional surveyor holding a license and certificate of authorization issued by the Ohio Engineers and Surveyors Board pursuant to ORC Chapter 4733.

G. Evaluation Criteria for Selection

- Demonstrated ability to meet Owner's programmed project vision, scope, budget, and schedule on previous projects.

- Previous experience compatible with the proposed project (e.g., type, size).
- Relevant past work of prospective firm's proposed consultants.
- Past performance of prospective firm and its proposed consultants.
- Qualifications and experience of individuals directly involved with the project.
- Proposer's previous experience (numbers of projects, sizes of projects) when working with its proposed consultants.
- Proximity of prospective firms to the project site.

Interested A/E firms are required to address how they will implement Building Information Modeling ("BIM") on the project, experience and level of training of staff related to BIM, incorporation of team partners that have previous BIM experience, and an understanding of collaborative BIM processes, including but not limited to the *State of Ohio BIM Protocol* available at the OFCC website at http://ofcc.ohio.gov.

Interested A/E firms are required to submit the Commitment to Participate in the EDGE Business Assistance Program form in its Statement of Qualifications (Form F110-330) submitted in response to the RFQ, to indicate its intent to contract with and use EDGE-certified Business Enterprise(s), as a part of the A/E's team. The Intent to Contract and to Perform and / or waiver request letter and Demonstration of Good Faith Effort form(s) with complete documentation must be attached to the A/E's Technical Proposal. Both forms can be accessed via the OFCC website at http://ofcc.ohio.gov. The Intent to Contract and to Perform form is again required at the Fee Proposal stage.

For all Statements of Qualifications, please identify the EDGE-certified Business Enterprises, by name, which will participate in the delivery of the proposed professional services solicited in the RFQ.

H. RFQ Evaluation Schedule

Activity	Date
RFQ Responses Due:	October 23, 2015
Short-Listed Firms Notified	October 27, 2015
Interview Date	November 02, 2015
Preferred Firm Selection	November 02, 2015
Contract Award	November 04, 2015

I. Submittal Instructions

Firms are required to submit the current version of Statement of Qualifications (Form F110-330) available via the OFCC website at http://ofcc.ohio.gov.

Proposers shall also organize the RFQ response in such a manner that clearly documents team proficiency for each item stipulated as Selection Criteria on the CM at Risk Selection Rating Form. As an example the RFQ response can be indexed or tab denoting each of the sixteen (16) selection criteria.

(3)Paper copies of the Statement of Qualifications, submittals should be stapled. Do not use special bindings or coverings of any type. Cover letters and transmittals are not necessary.

Electronic submittals (Flash Drive preferred) should be combined into one PDF file named with the project number listed on the RFQ and your firm's name. Use the "print" feature of Adobe Acrobat Professional or similar software for creating a PDF rather than using a scanner. If possible, please reduce the file size of the PDF. In Adobe Acrobat Professional, go to Advanced, then PDF Optimizer. Also, please label the CD and the CD cover with the project number and firm name.

Facsimile or e-mailed copies of the Statement of Qualifications will not be accepted.

Submit all questions regarding this RFQ in writing to Beth Nagel at bnagel@bgsu.edu with the project number included in the subject line **(no phone calls please)**. Questions will be answered and posted to the BGSU Purchasing Department website at http://www.bgsu.edu/offices/purchasing/page85370.html and/or OAKS Capital Improvements (OAKS CI) website at http://ci.oaks.ohio.gov on a regular basis until two days before the response deadline. The name of the party submitting a question will not be included on the Q&A document.

Firms are requested to identify professional registrations, memberships and credentials including but not limited to: LEED GA, LEED AP, LEED AP+, CCCA, CCM, CCS, CDT, DBIA, CPE, and any other appropriate design and construction industry credentials. Identify that information on the resume page for individual in Block 22, Section E of the F110-330 form.

Architect/Engineer Selection Rating Form
State of Ohio Standard Forms and Documents

Project Name Perry Stadium Phase II Renovations

Project Number BGU-156153

Proposer Firm _____

City, State, Zip _____

Selection Criteria		Value		Score
1. Primary Firm Location, Workload and Size (Maximum 10 points)				
a. Proximity of firm to project site	Less than 125 miles	5		
	125 miles to 200 miles	2		
	More than 200 miles	0		
b. Amount of fees awarded by Contracting Authority in previous 24 months	Less than $1,000,000	2		
	$1,000,000 to $2,000,000	1		
	More than $2,000,000	0		
c. Number of licensed professionals	Less than 10 professionals	1	Max = 3	
	10 to 20 professionals	2		
	More 20 than professionals	3		
2. Primary Firm Qualifications (Maximum 30 points)				
a. Project management lead	Experience / ability of project manager to manage scope / budget / schedule / quality	0 - 10		
b. Project design lead	Experience / creativity of project designer to achieve owner's vision and requirements	0 - 20	Max = 20	
c. Technical staff	Experience / ability of technical staff to create fully coordinated construction documents	0 - 0		
d. Construction administration staff	Experience / ability of field representative to identify and solve issues during construction	0 - 0		
3. Key Consultant Qualifications (Maximum 20 points)				
a. Key discipline leads	Experience / ability of key consultants to perform effectively and collaboratively	0 - 15		
b. Proposed EDGE-certified Consultant participation*	One additional point for every 2 percent increase in professional services over the advertised EDGE participation goal	0 - 5		
4. Overall Team Qualifications (Maximum 10 points)				
a. Previous team collaboration	Less than 2 sample projects	1	Max = 3	
	2 to 4 sample projects	2		
	More than 4 sample projects	3		
b. LEED** Registered / Certified project experience	Registered projects	1	Max = 2	
	Certified projects	2		
c. BIM project experience	Training and knowledge	1	Max = 3	
	Direct project experience	3		
d. Team organization	Clarity of responsibility / communication demonstrated by table of organization	0 - 2		
5. Overall Team Experience (Maximum 30 points)				
a. Previous team performance	Past performance as indicated by evaluations and letters of reference	0 - 10		
b. Experience with similar projects / delivery methods	Less than 2 projects	0 - 3		
	2 to 4 projects	4 - 6		
	More than 4 projects	7 - 10		
c. Budget and schedule management	Performance in completing projects within original construction budget and schedule	0 - 5		
d. Knowledge of Ohio Capital Improvements process	Less than 3 projects	0 - 1		
	3 to 6 projects	2 - 3		
	More than 6 projects	4 - 5		
* Must be comprised of professional design services consulting firm(s) and NOT the primary firm ** Leadership in Energy & Environmental Design administered by the Green Building Certification Institute		**Subtotal**		

Notes:

Evaluator:

Name _____

Signature _____ Date _____

PROJECT NUMBER 95060008

STADIUM PHASE I REPAIRS - UPGRADE

PREPARED FOR

BOWLING GREEN STATE UNIVERSITY

BOWLING GREEN, OHIO

OFFICE OF DESIGN AND CONSTRUCTION

UNIVERSITY ARCHITECT

Barbara Shergalis, AIA

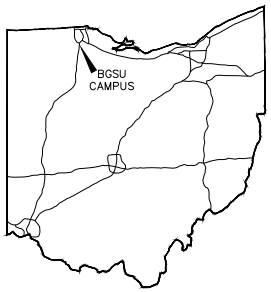
PREPARED BY

OSPORTS

CLEVELAND, OHIO

PROJECT ARCHITECT/ENGINEERS

VICINITY MAP



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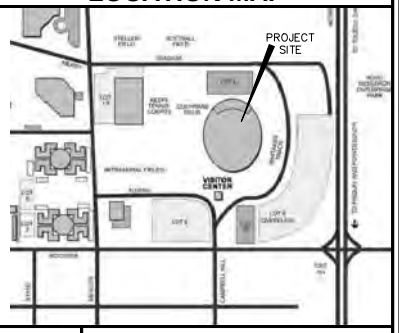
LOCATION MAP



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DEPARTMENT OF ATHLETICS ATHLETIC DIRECTOR		UNIVERSITY ARCHITECT FACILITIES DESIGN AND CONSTRUCTION									

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A	SD REVIEW	6-22-15
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COVER SHEET

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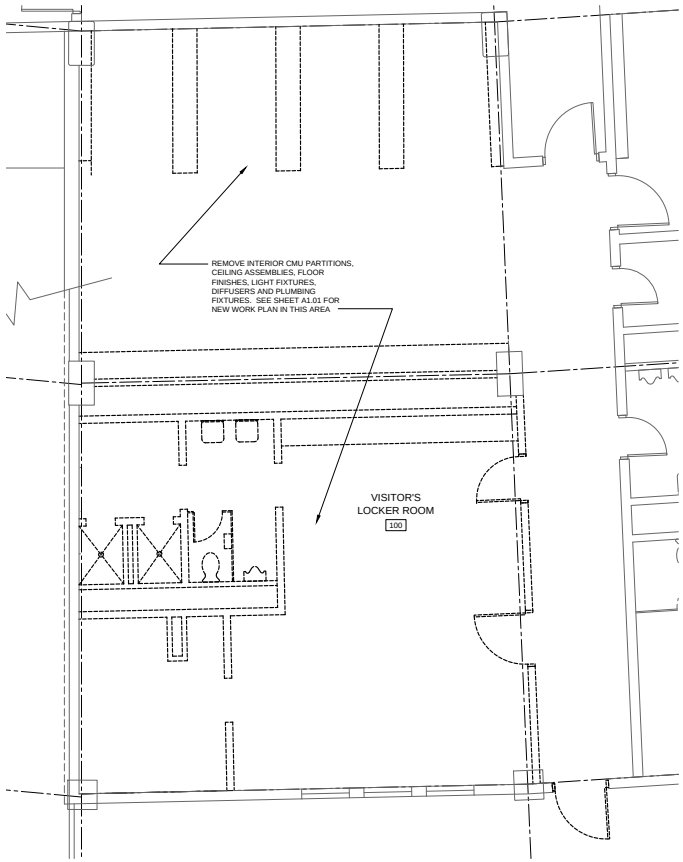

1 VISITORS LOCKER ROOM DEMOLITION PLAN

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

0' 1' 2' 4' 8'

PLAN NORTH

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VISITOR'S LOCKER ROOM DEMOLITION PLAN

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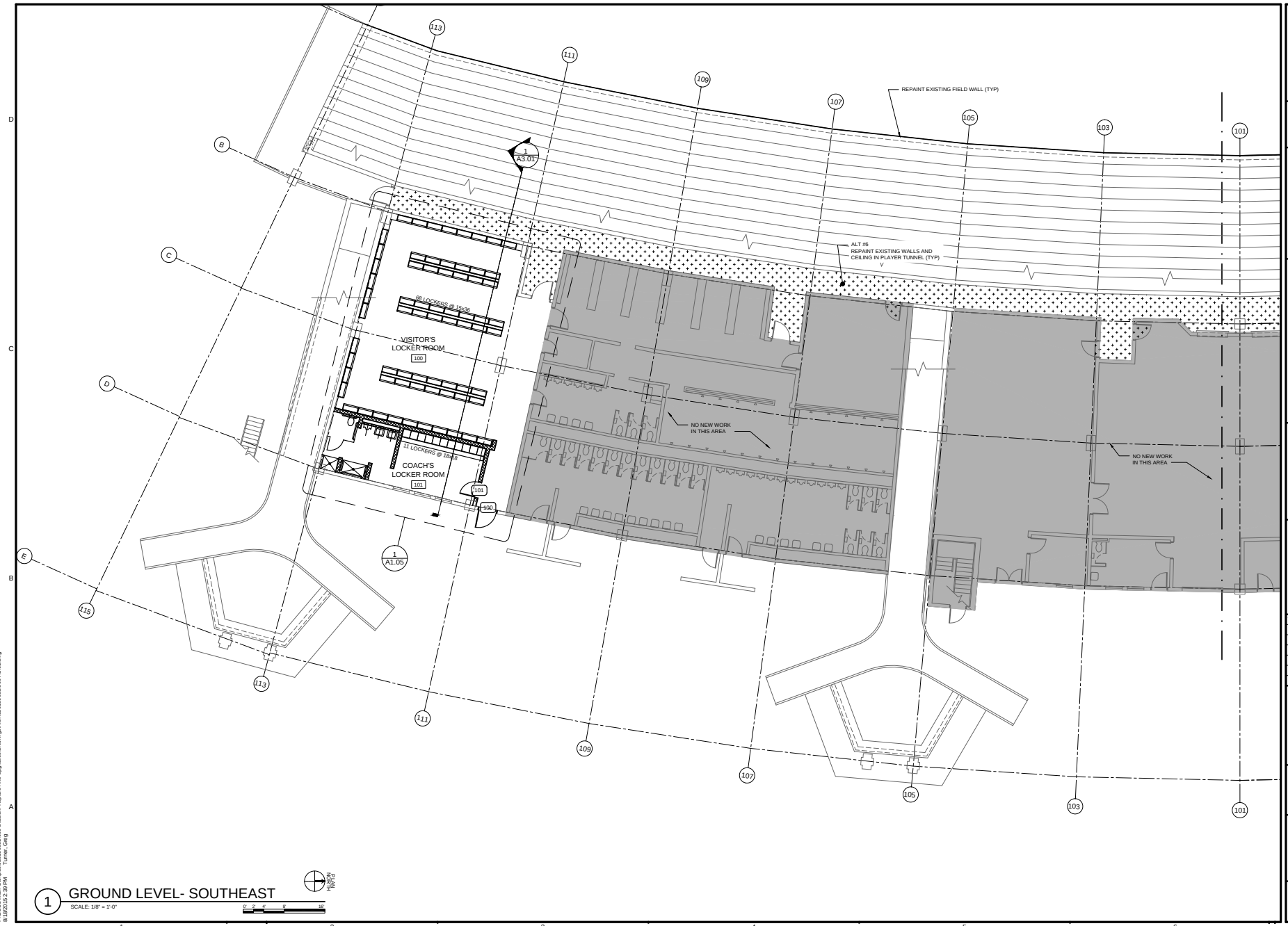
AD1.01



1 GROUND LEVEL- SOUTHEAST

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

0 2 4 8 16

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GROUND PLAN- SOUTHEAST

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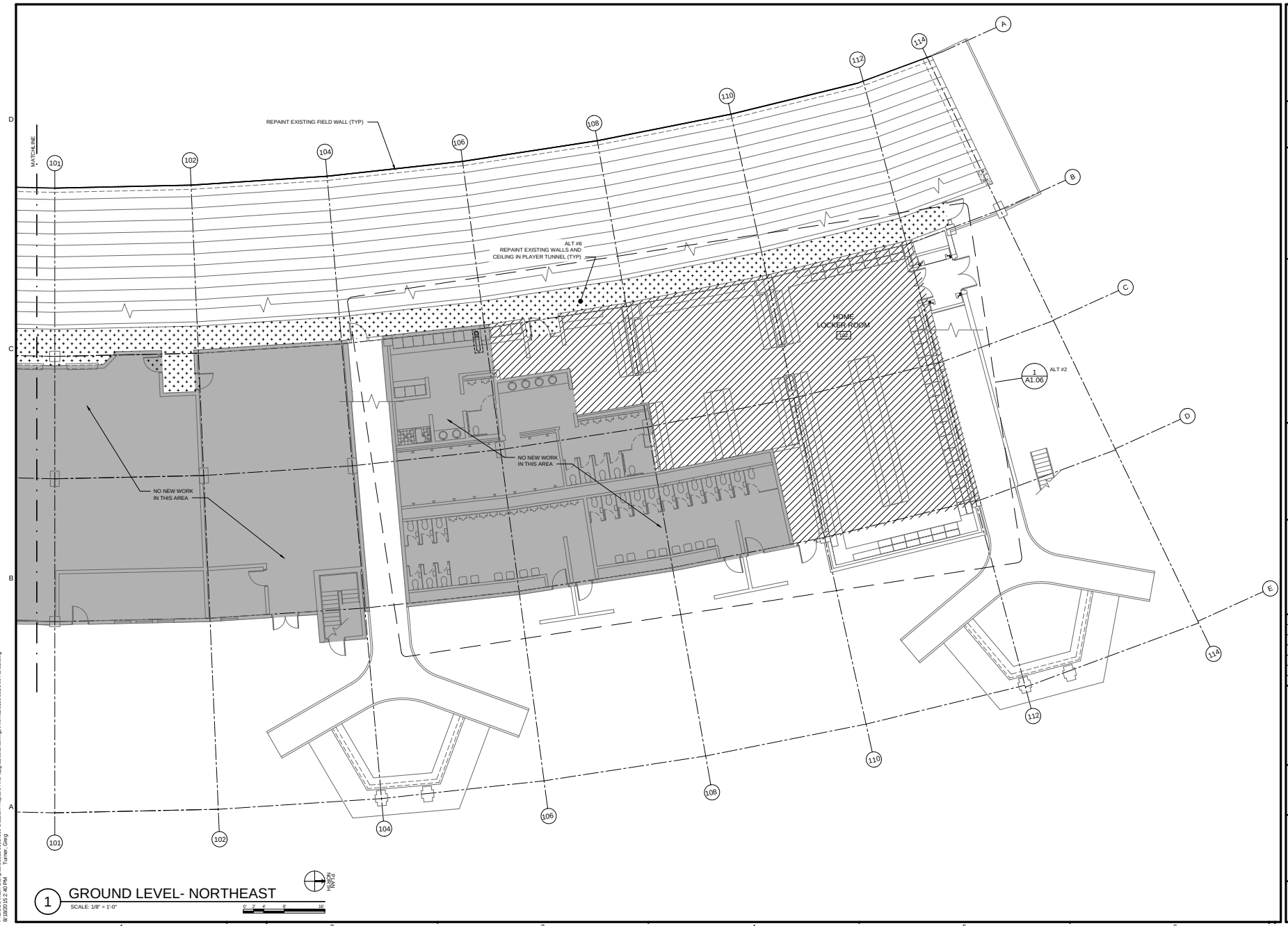

1 GROUND LEVEL- NORTHEAST

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

0' 2' 4' 8' 16'

TRUE NORTH

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GROUND PLAN- NORTHEAST

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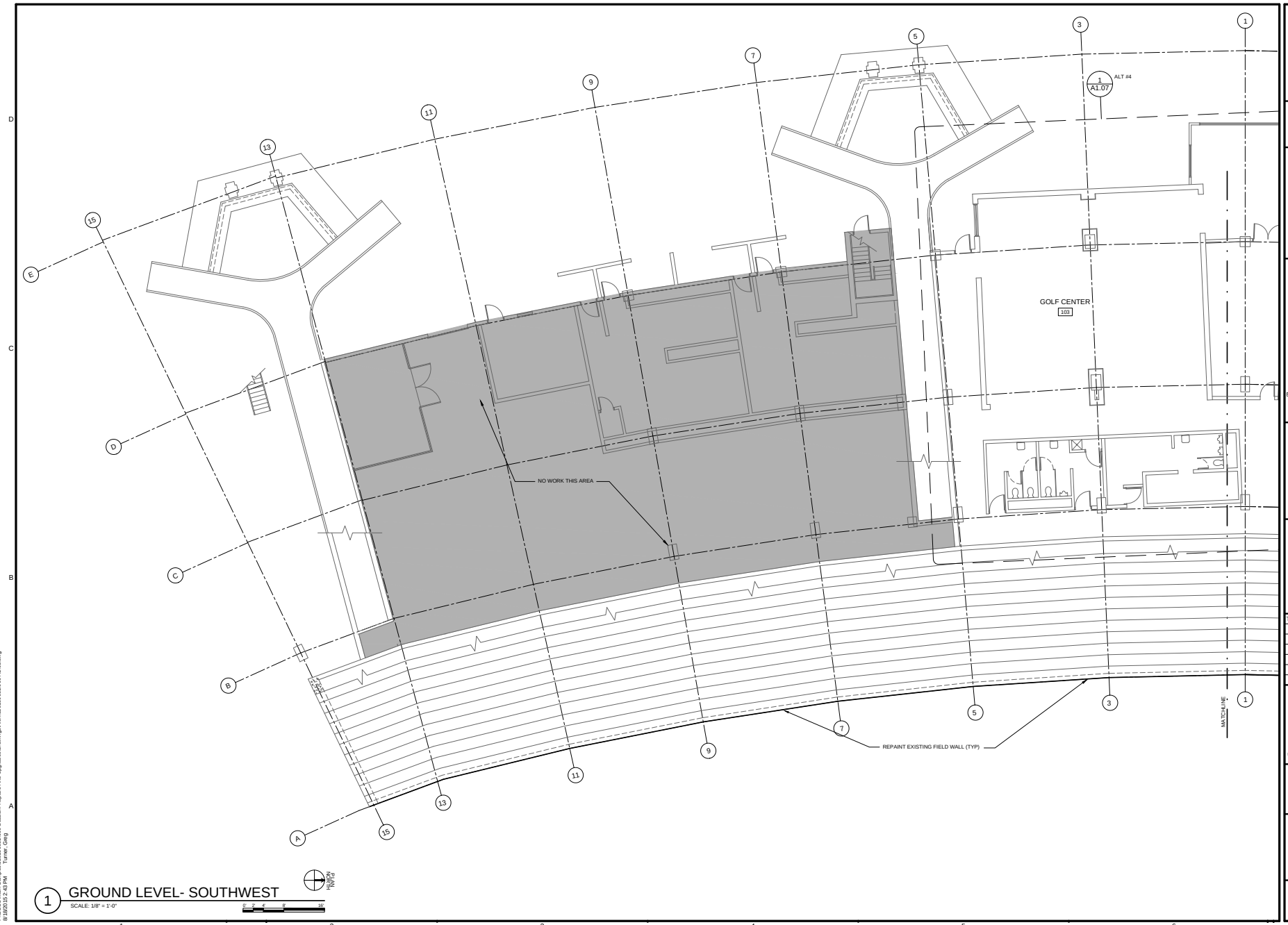

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GROUND PLAN- SOUTHWEST

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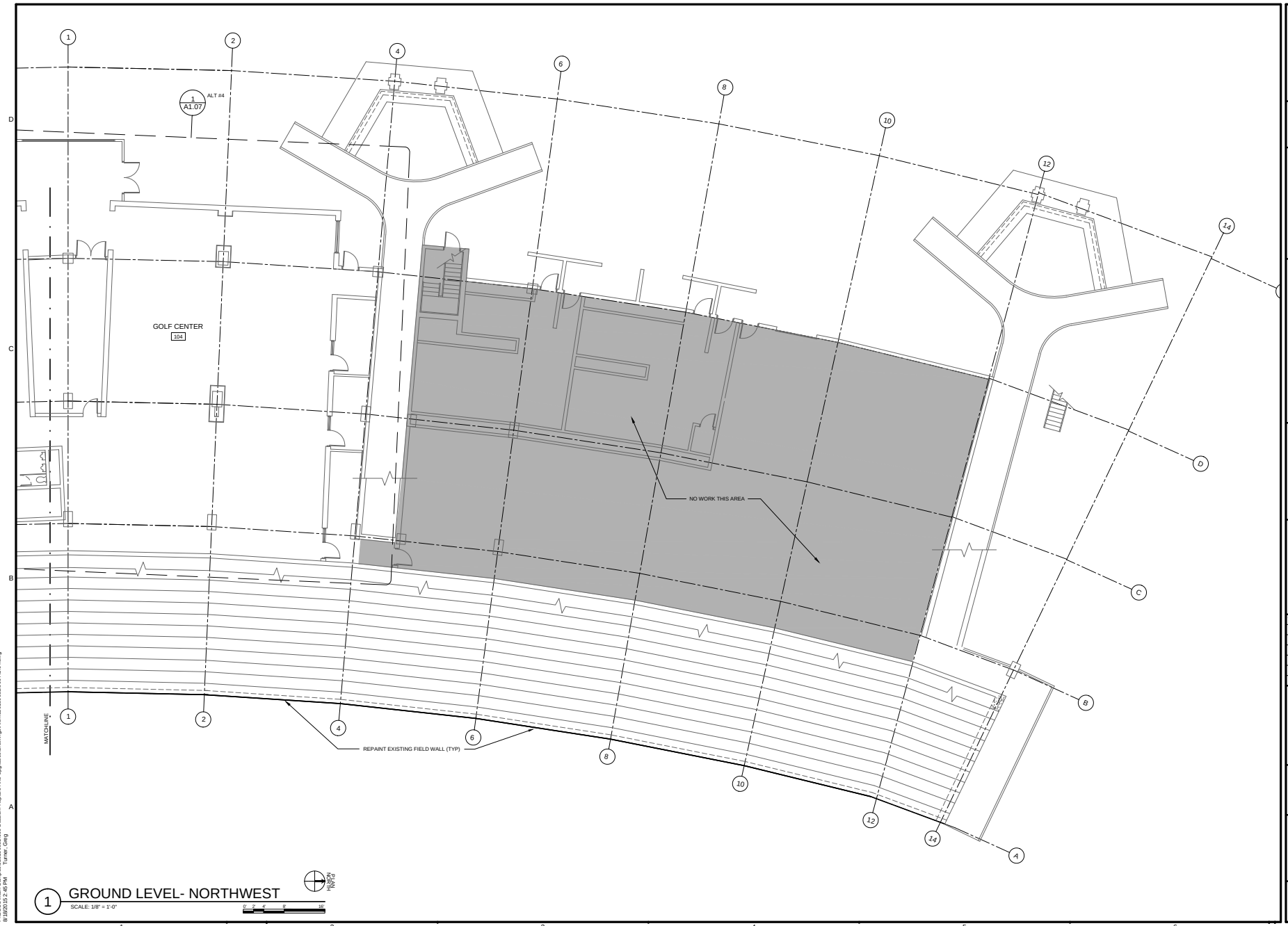

1 GROUND LEVEL- NORTHWEST

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

0 2 4 8 16

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GROUND PLAN- NORTHWEST

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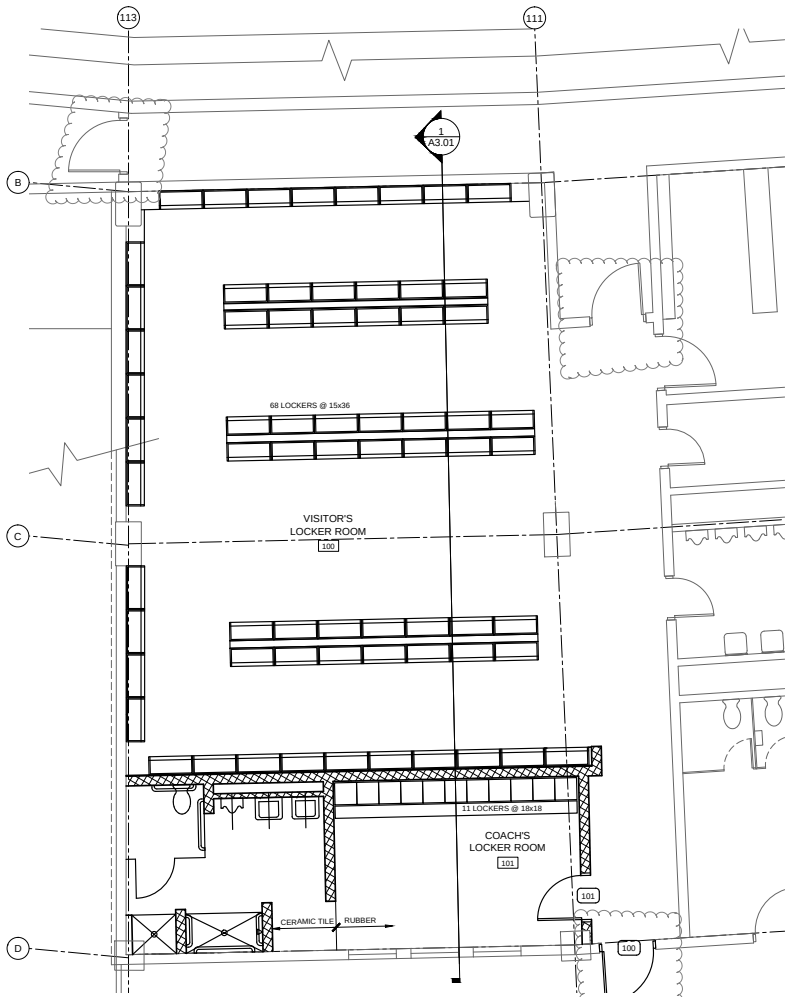
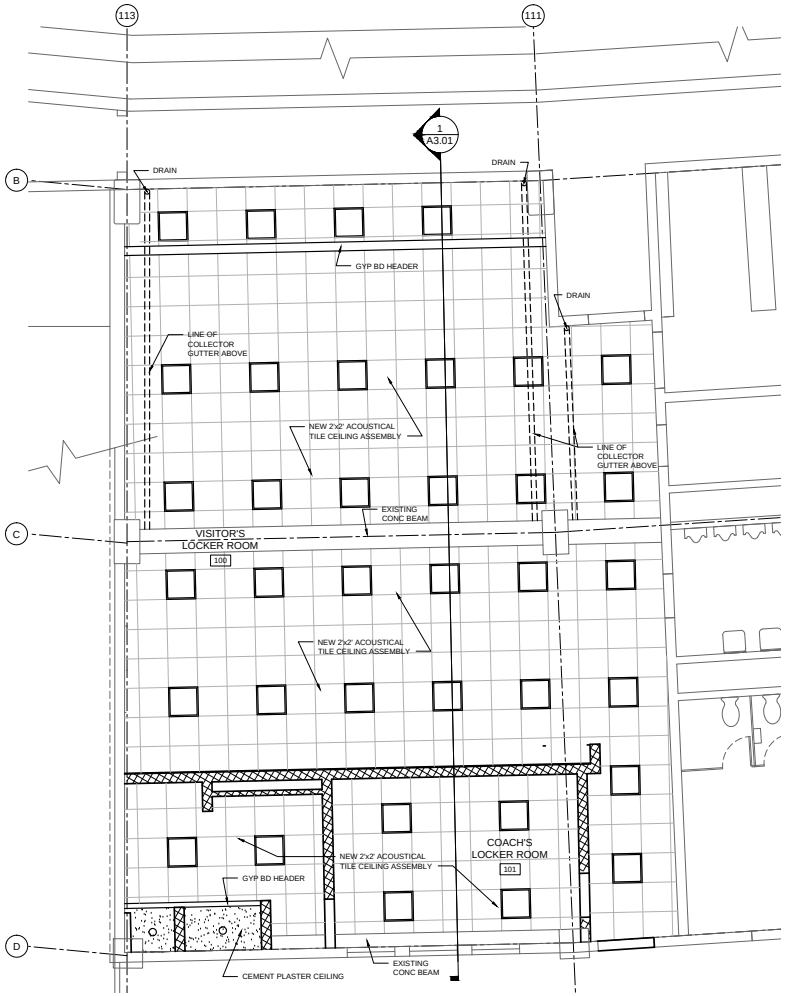


1 ENLARGED VISITOR'S LOCKER ROOM FLOOR PLAN

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



2 VISITOR'S LOCKER ROOM REFLECTED CEILING PLAN

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

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CHECKED BY CHK
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ENLARGED VISITOR'S LOCKER ROOM FLOOR & REFLECTED CEILING PLAN

DRAWING NO.

A1.05

ALT #2
HOME LOCKER ROOM REFLECTED CEILING PLAN

1

SCALE: 3/16" = 1'-0"

PLAN NORTH

0 4' 8' 12'

KEYNOTES - ALT #2

1. EXISTING SUSPENDED GYP BD CEILING TO REMAIN
2. REMOVE EXISTING ACOUSTIC TILE PANELS AND REPLACE WITH NEW
3. EXISTING GYP BD SOFFIT TO REMIAN- PAINT
4. PATCH AND REPAIR GYP BD SOFFIT TO MATCH EXISTING
5. LINE OF NEW COLLECTOR GUTTER ABOVE

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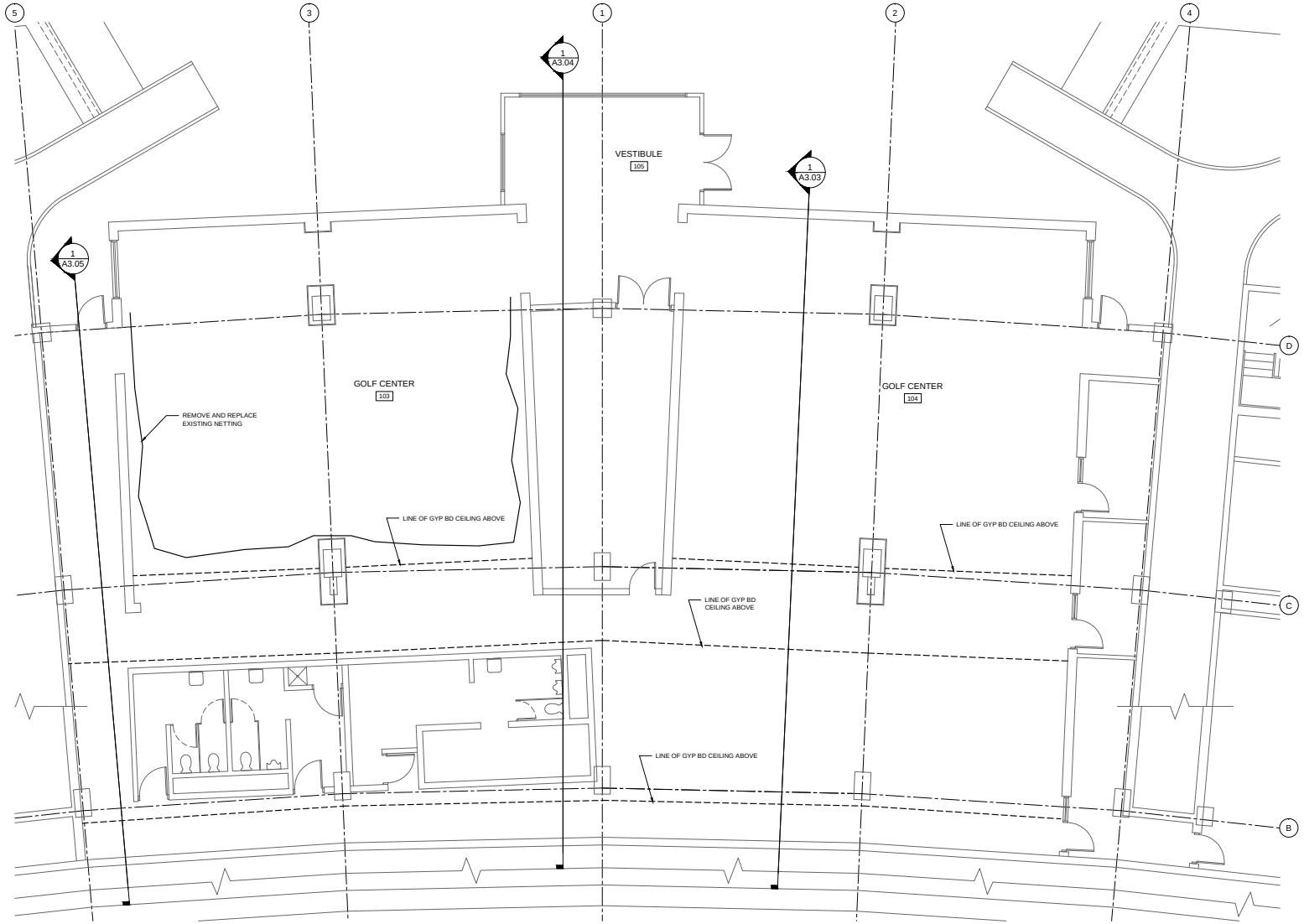
HOME LOCKER ROOM REFLECTED CEILING PLAN ALT#2

DRAWING NO.

A1.06



ALT #4

1 ENLARGED GOLF CENTER FLOOR PLAN

SCALE: 3/16" = 1'-0"

PLAN NORTH

0 4' 8' 12'

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ENLARGED GOLF CENTER FLOOR PLAN ALT #4

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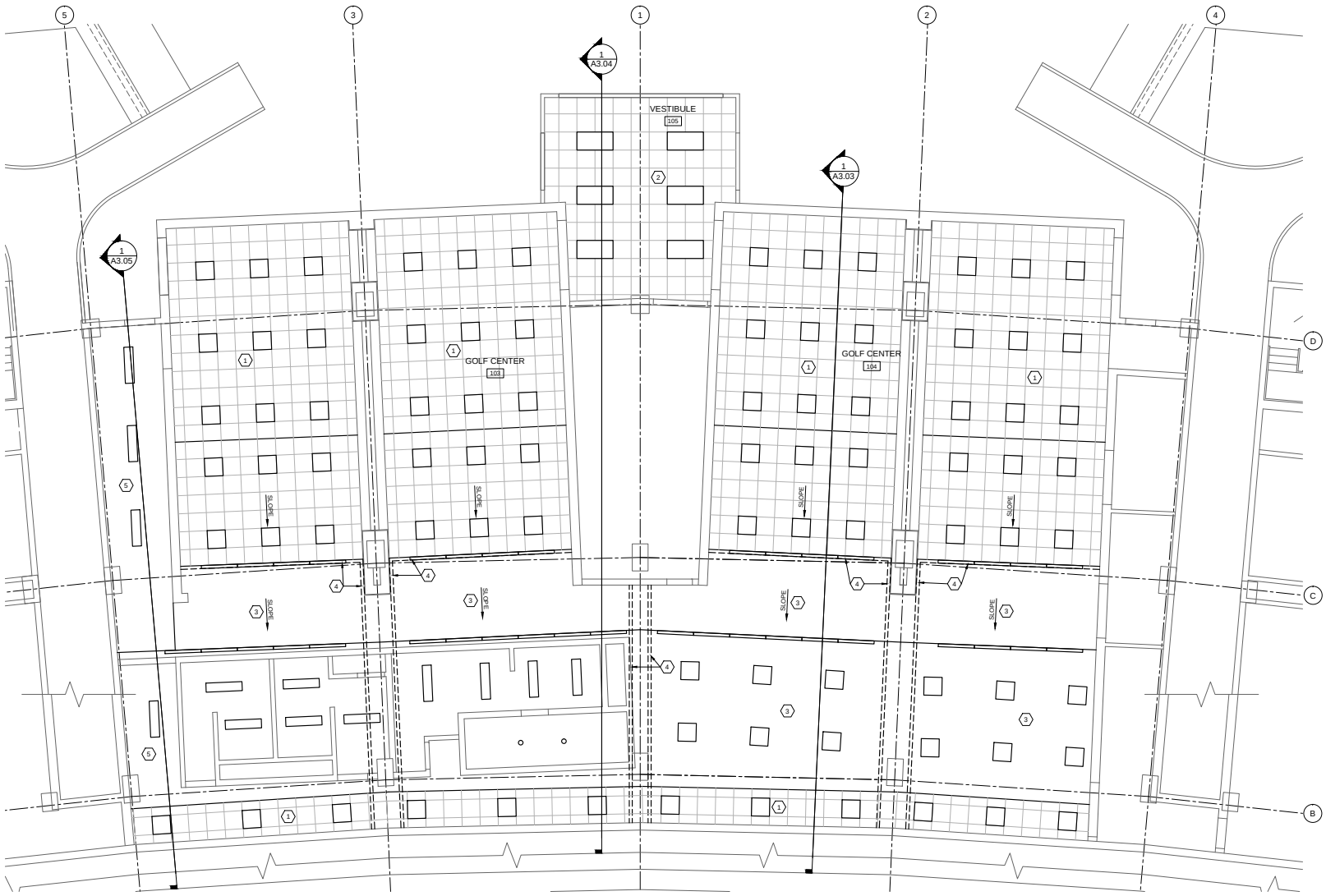

KEY NOTES: ALT #4

1. REMOVE EXISTING SUSPENDED GYP BD CEILING AND REPLACE WITH NEW 2'x2' ACOUSTIC TILE CEILING ASSEMBLY
2. REMOVE EXISTING ACOUSTIC TILE PANELS AND REPLACE WITH NEW
3. PATCH AND REPAIR GYP BD CEILING TO MATCH EXISTING
4. LINE OF NEW COLLECTOR GUTTER ABOVE
5. EXPOSED STRUCTURE, PAINTED

ALT #4

1 ENLARGED GOLF CENTER REFLECTED CEILING PLAN

SCALE: 3/16" = 1'-0"

PLAN NORTH

0 4' 8' 12'

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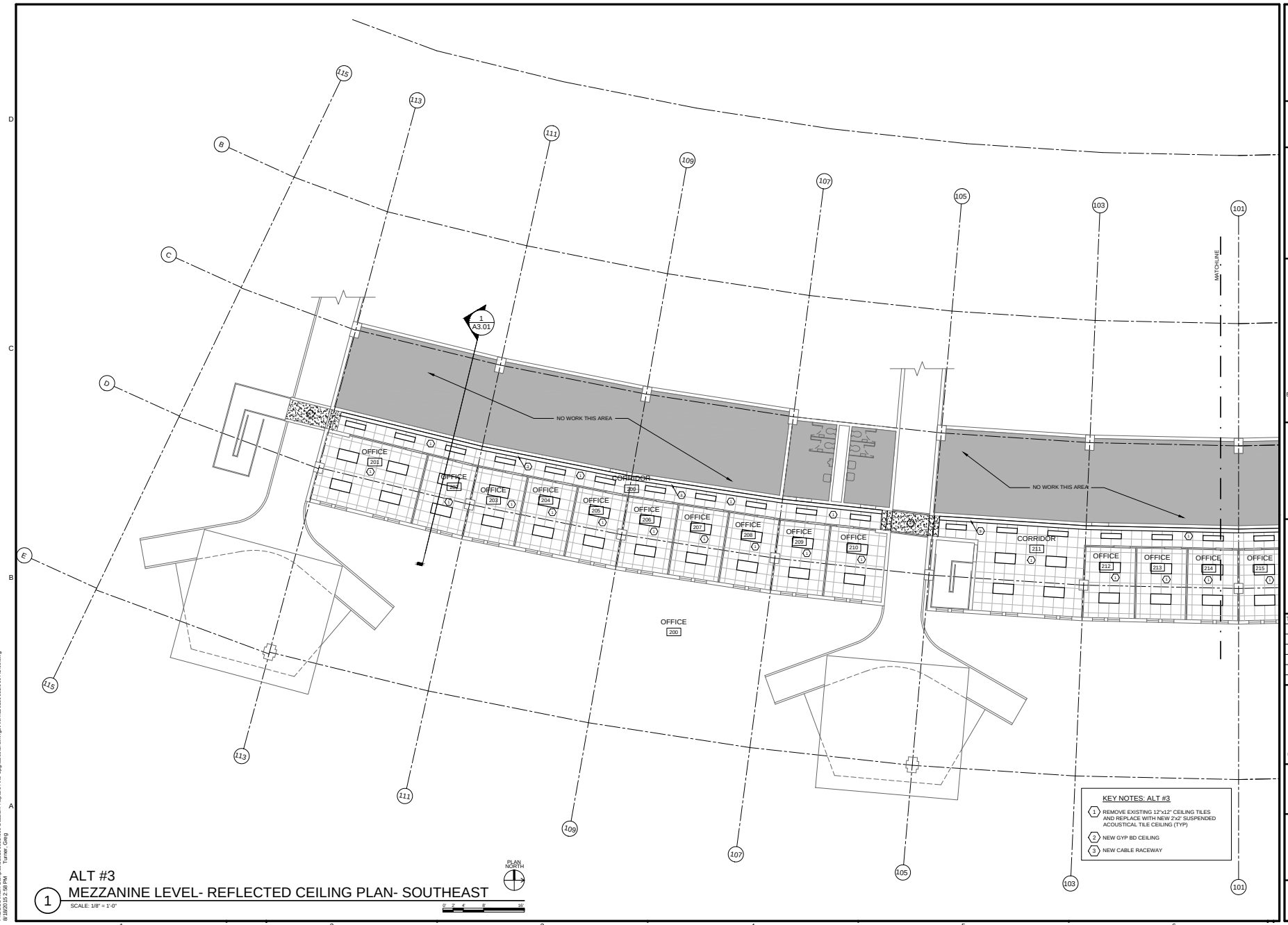
ENLARGED GOLF CENTER REFLECTED CEILING PLAN ALT #4

DRAWING NO.

A1.08



ALT #3

1 MEZZANINE LEVEL- REFLECTED CEILING PLAN- SOUTHEAST

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

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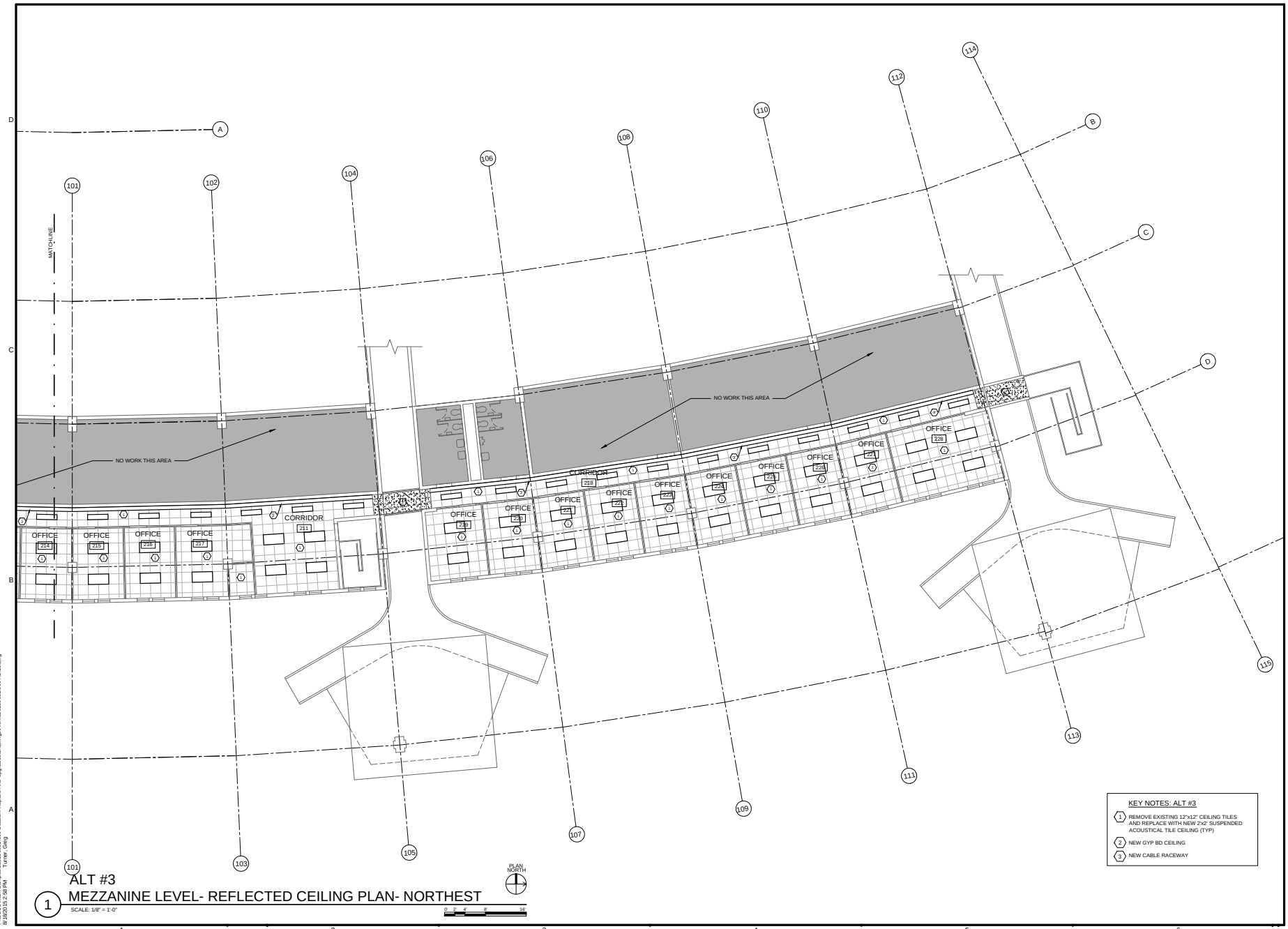
MEZZANINE REFLECTED CEILING PLAN SOUTHEAST ALT #3

DRAWING NO.

A1.09



1 ALT #3
MEZZANINE LEVEL- REFLECTED CEILING PLAN- NORTHEAST
SCALE: 1/8" = 1'-0"

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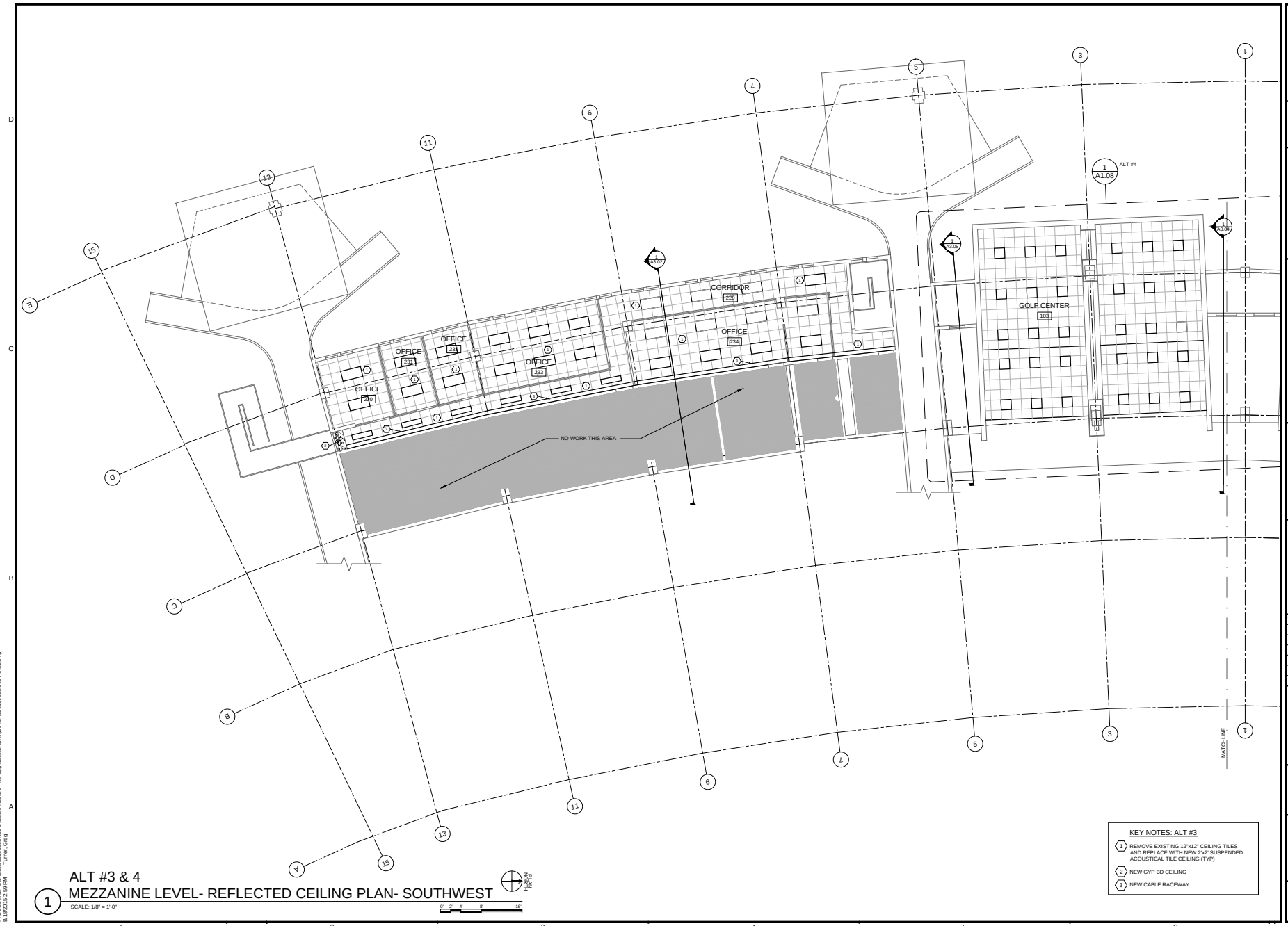
MEZZANINE REFLECTED CEILING PLAN NORTHEAST ALT #3

DRAWING NO.
A1.10



ALT #3 & 4

1 MEZZANINE LEVEL- REFLECTED CEILING PLAN- SOUTHWEST

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

PLAN NORTH

KEY NOTES: ALT #3

1. REMOVE EXISTING 12"x12" CEILING TILES AND REPLACE WITH NEW 2'x2' SUSPENDED ACOUSTICAL TILE CEILING (TYP)
2. NEW GYP BD CEILING
3. NEW CABLE RACEWAY

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MEZZANINE REFLECTED CEILING PLAN SOUTHWEST ALT #3 & 4

DRAWING NO.

A1.11

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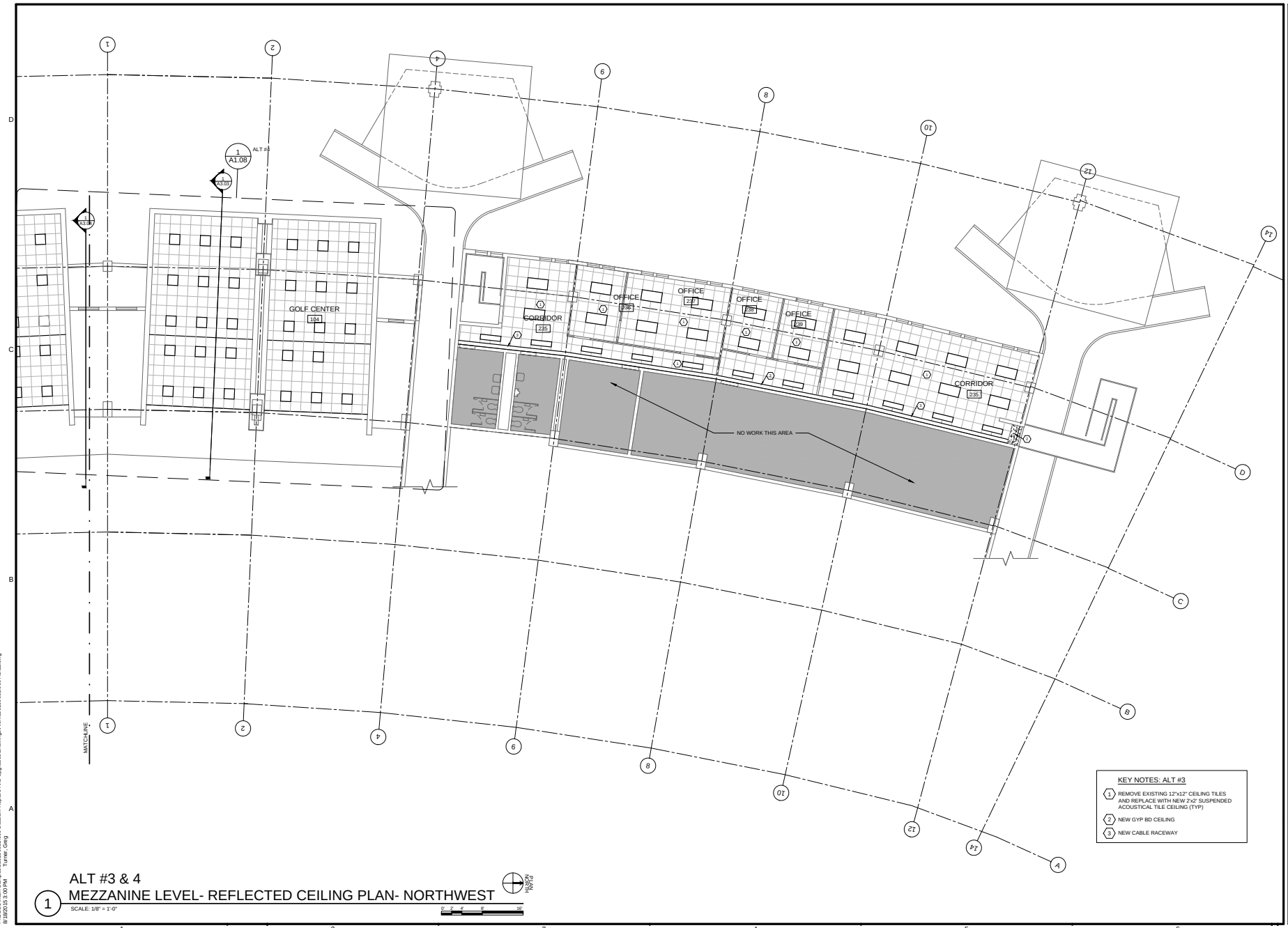

ALT #3 & 4

1 MEZZANINE LEVEL- REFLECTED CEILING PLAN- NORTHWEST

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

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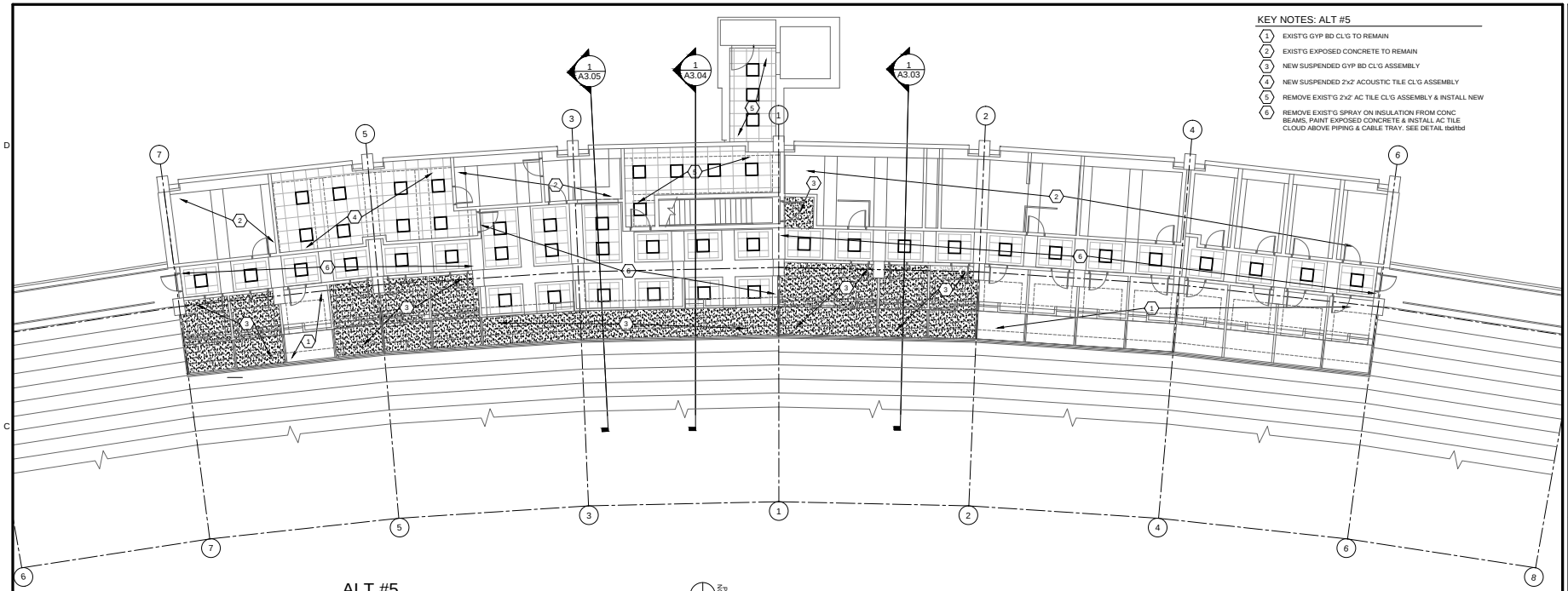
MEZZANINE REFLECTED CEILING PLAN NORTHWEST ALT #3 & 4

DRAWING NO.

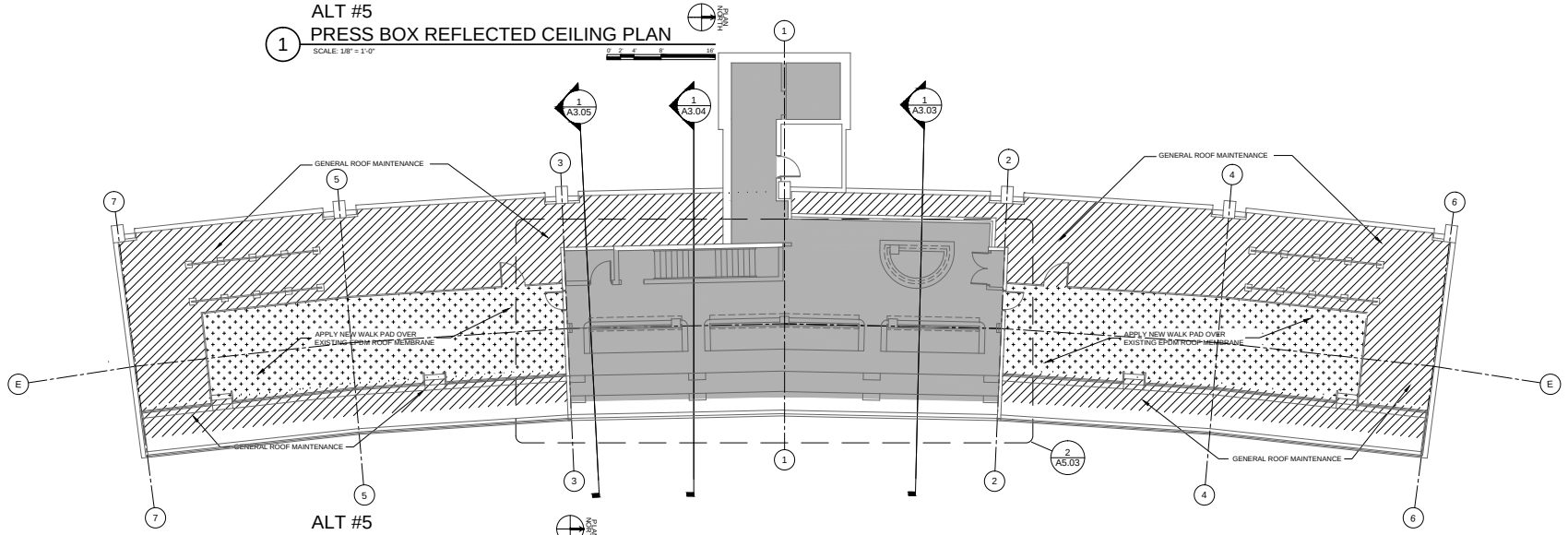
A1.12

KEY NOTES: ALT #5

1. EXIST'G GYP BD CL'G TO REMAIN
2. EXIST'G EXPOSED CONCRETE TO REMAIN
3. NEW SUSPENDED GYP BD CL'G ASSEMBLY
4. NEW SUSPENDED 2'x2' ACOUSTIC TILE CL'G ASSEMBLY
5. REMOVE EXIST'G 2'x2' AC TILE CL'G ASSEMBLY & INSTALL NEW
6. REMOVE EXIST'G SPRAY ON INSULATION FROM CONC BEAMS, PAINT EXPOSED CONCRETE & INSTALL AC TILE CLOUD ABOVE PIPING & CABLE TRAY. SEE DETAIL tbd/tbd



ALT #5
1 PRESS BOX REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"



ALT #5
2 PRESS BOX ROOF PLAN
SCALE: 1/8" = 1'-0"

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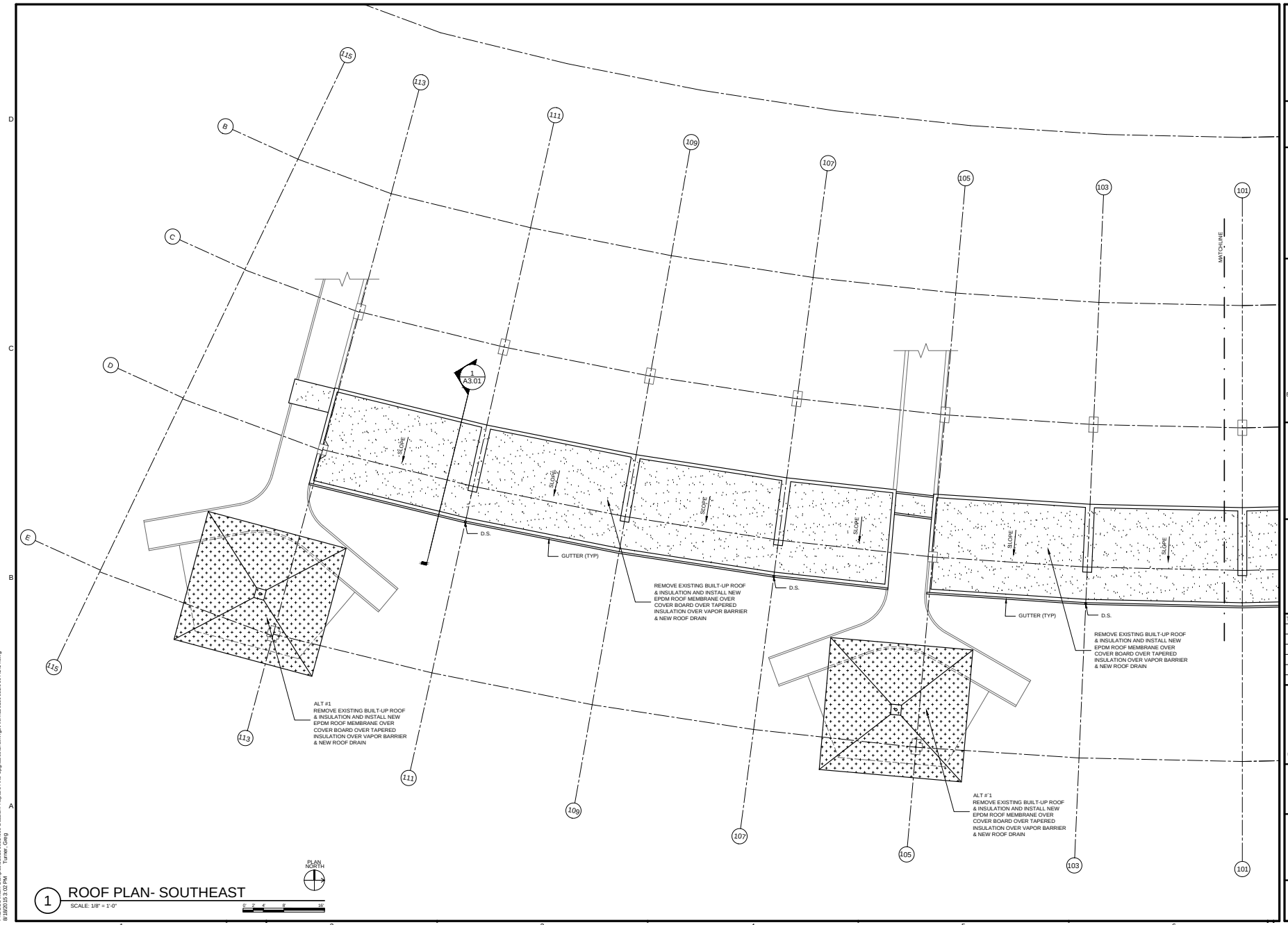
PRESS BOX REFLECTED CEILING AND ROOF PLAN ALT #5

DRAWING NO.
A1.13



1 ROOF PLAN- SOUTHEAST

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

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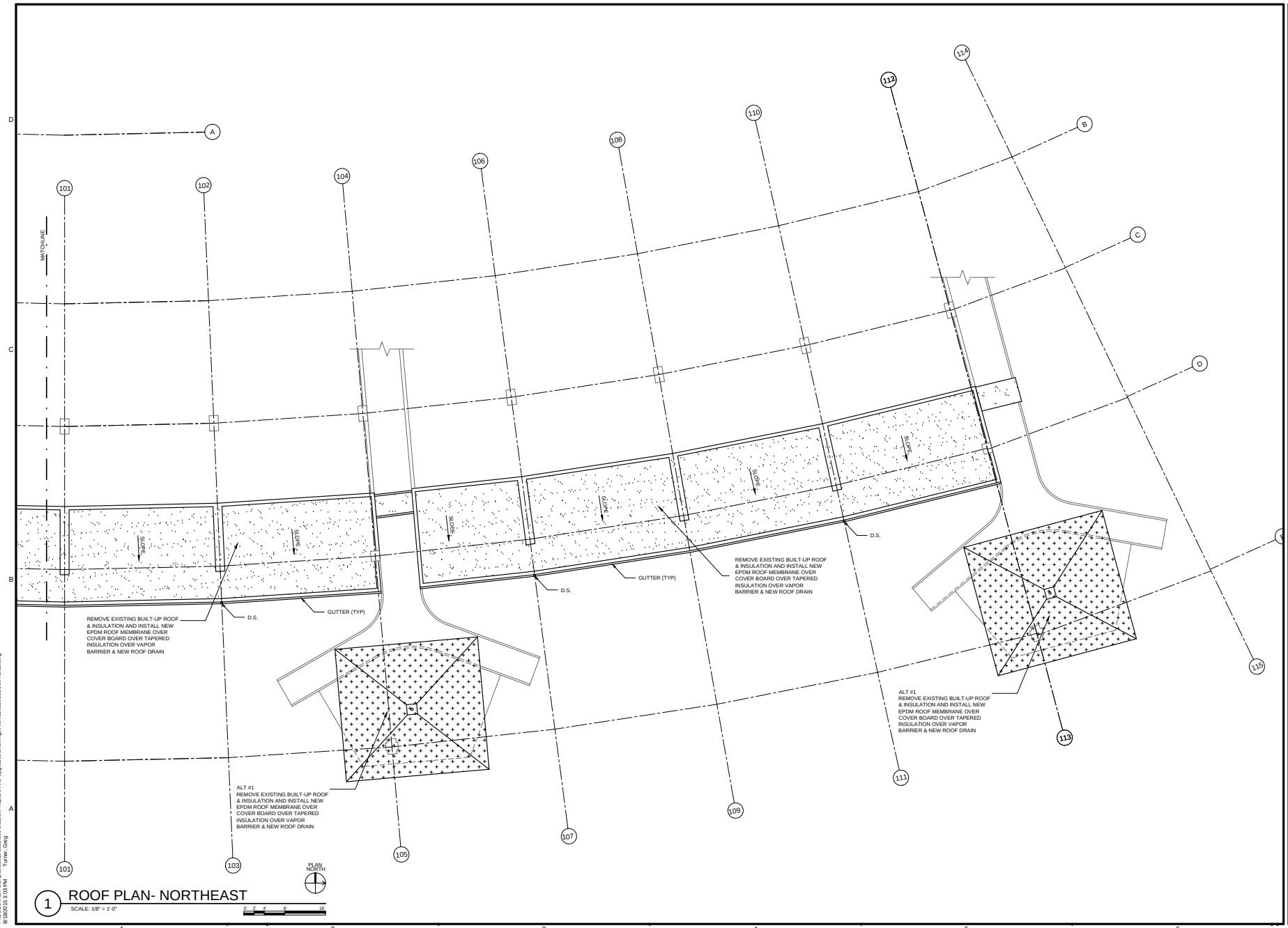
ROOF PLAN- SOUTHEAST

DRAWING NO.

A1.14



1 ROOF PLAN- NORTHEAST

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

0' 2' 4' 8' 16'

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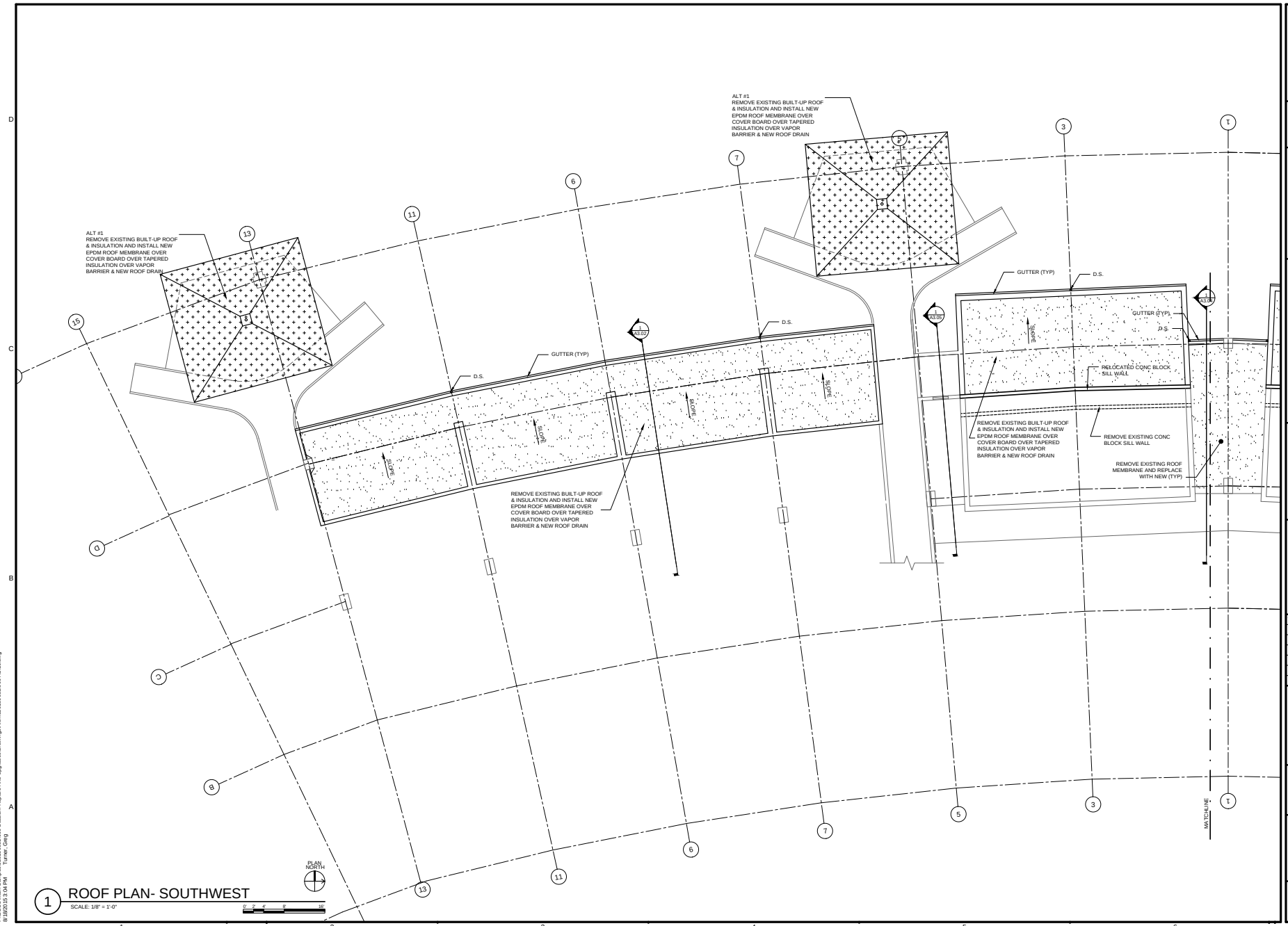
ROOF PLAN- NORTHEAST

DRAWING NO.

A1.15



1 ROOF PLAN- SOUTHWEST

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

0' 2' 4' 8' 16'

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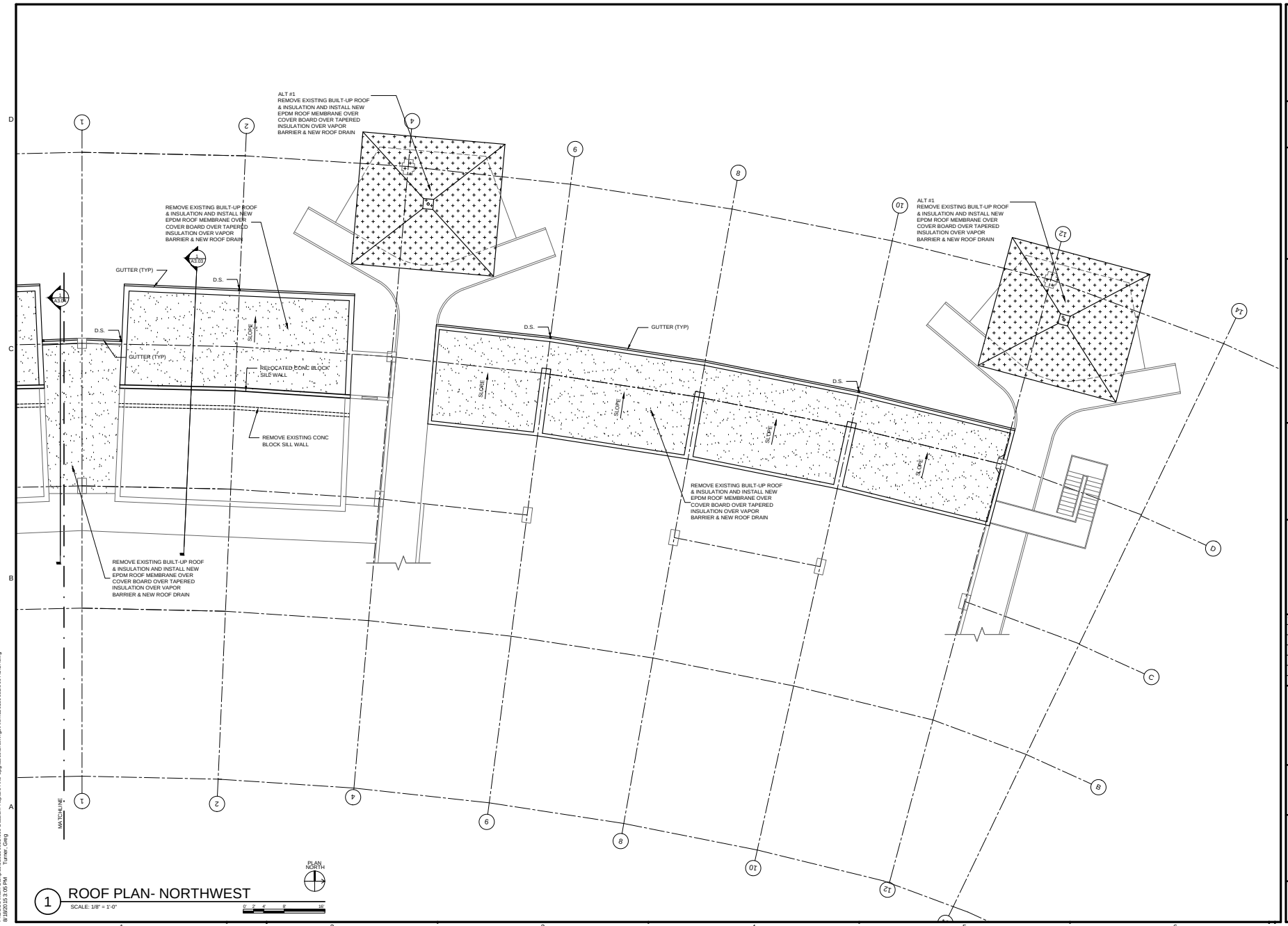
ROOF PLAN- SOUTHWEST

DRAWING NO.

A1.16



1 ROOF PLAN- NORTHWEST

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

0 2' 4' 8' 16'

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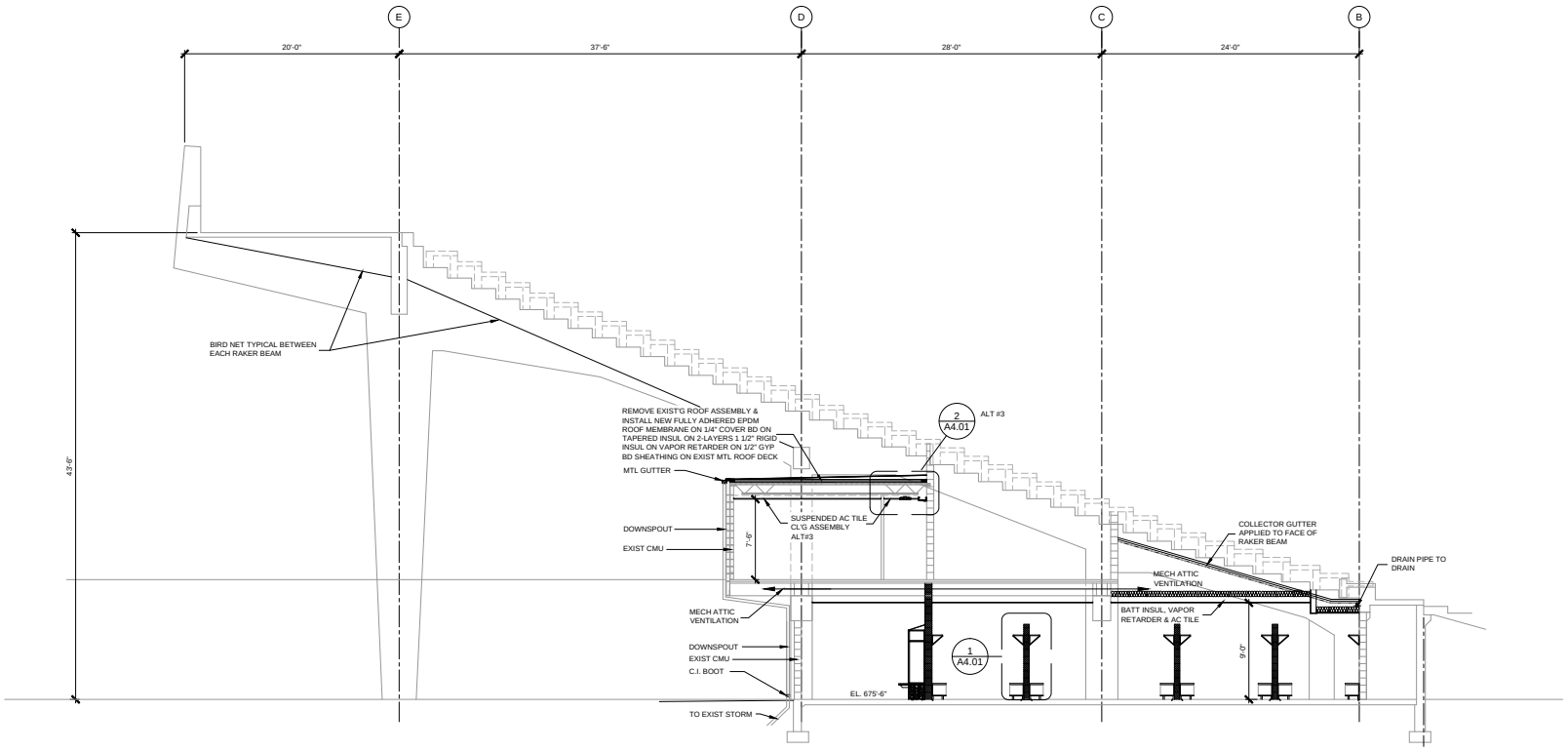
ROOF PLAN- NORTHWEST

DRAWING NO.

A1.17



1 VISITOR'S LOCKER ROOM SECTION

SCALE: 3/16" = 1'-0"

0 4' 8' 12'

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PARTIAL BUILDING SECTIONS

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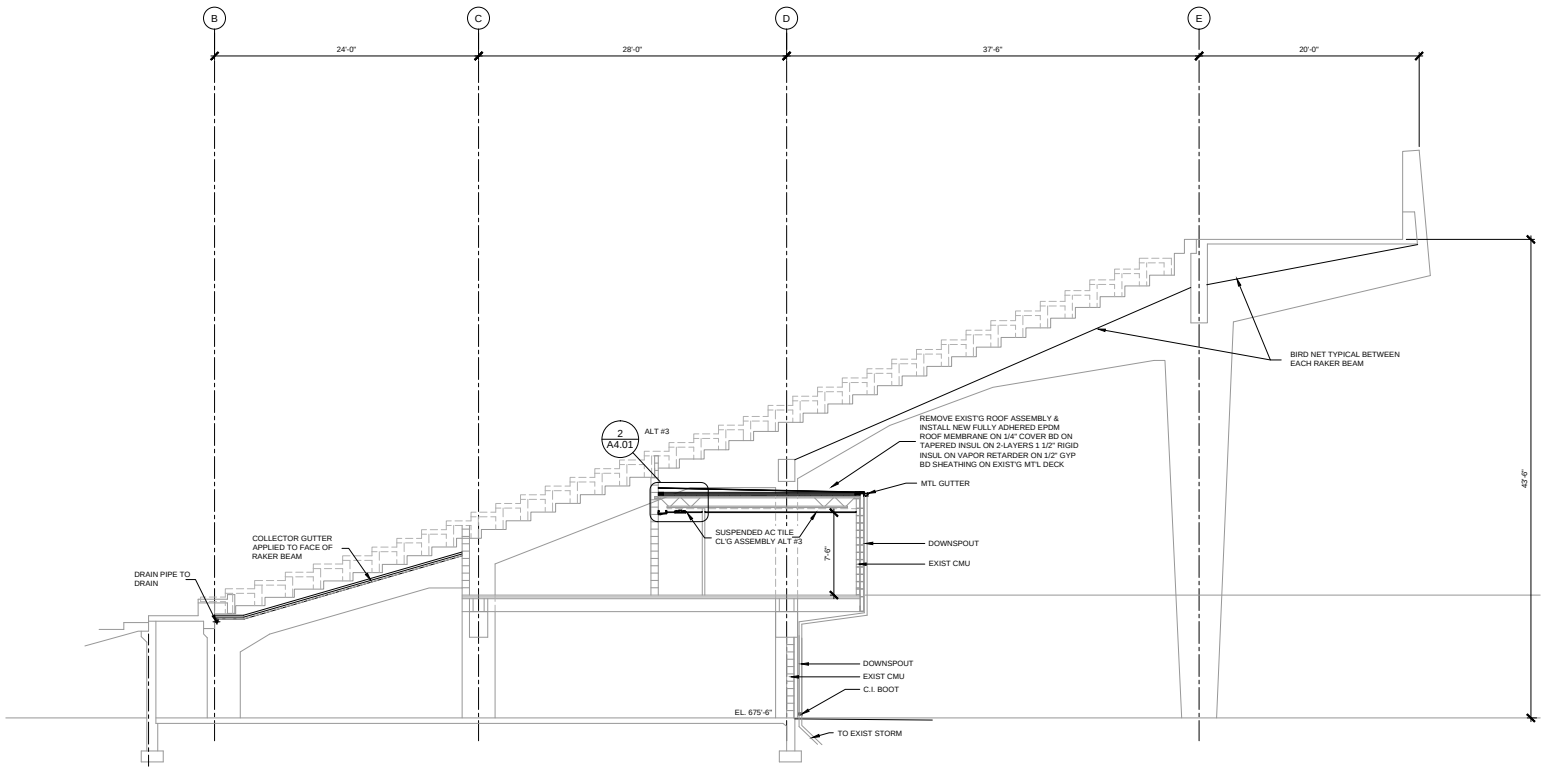

1 MEZZANINE LEVEL SECTION

SCALE: 3/16" = 1'-0"

0 4' 8' 12'

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PARTIAL BUILDING SECTIONS

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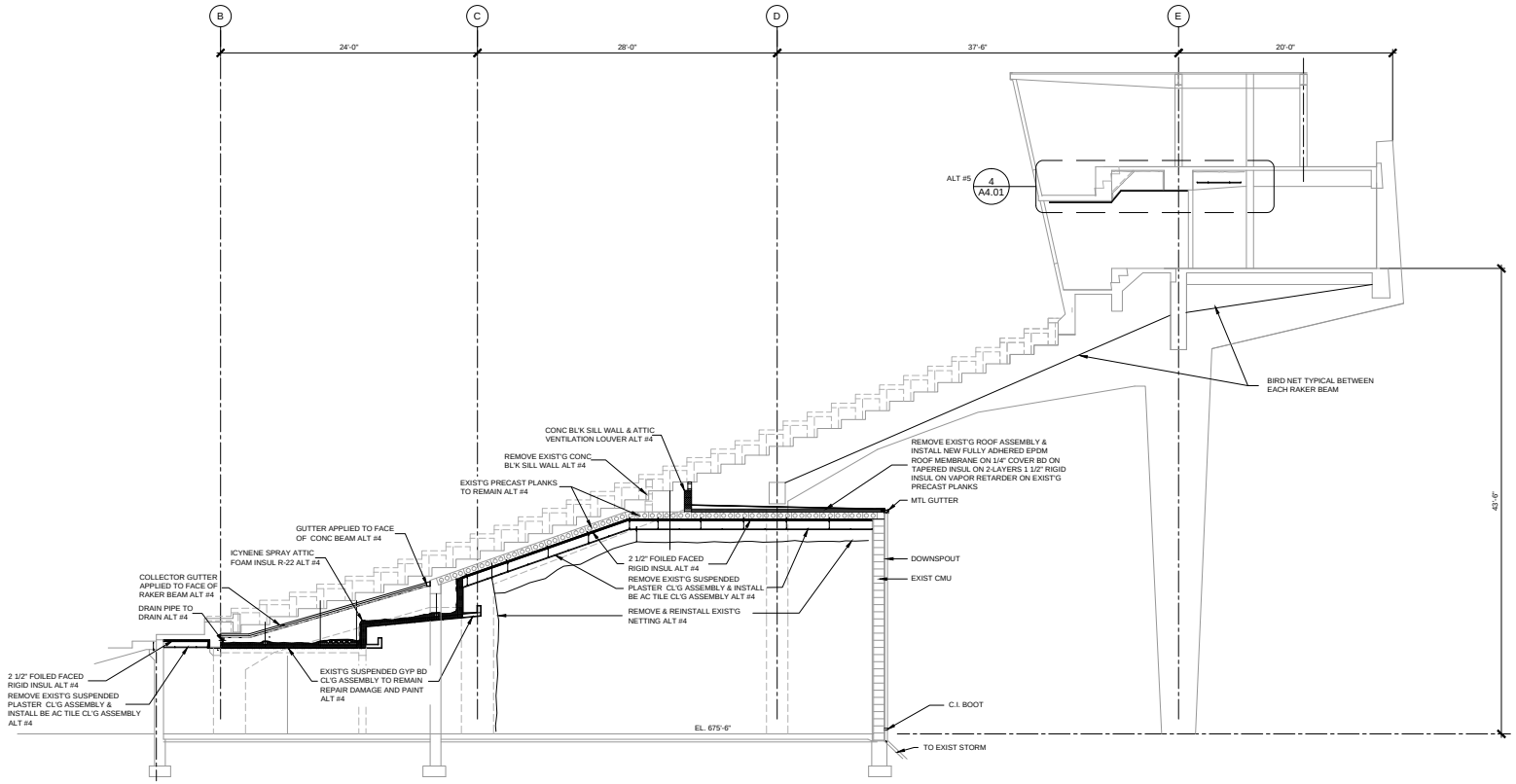

1 GOLF CENTER SECTION

SCALE: 3/16" = 1'-0"

0 4' 8' 12'

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PARTIAL BUILDING SECTIONS

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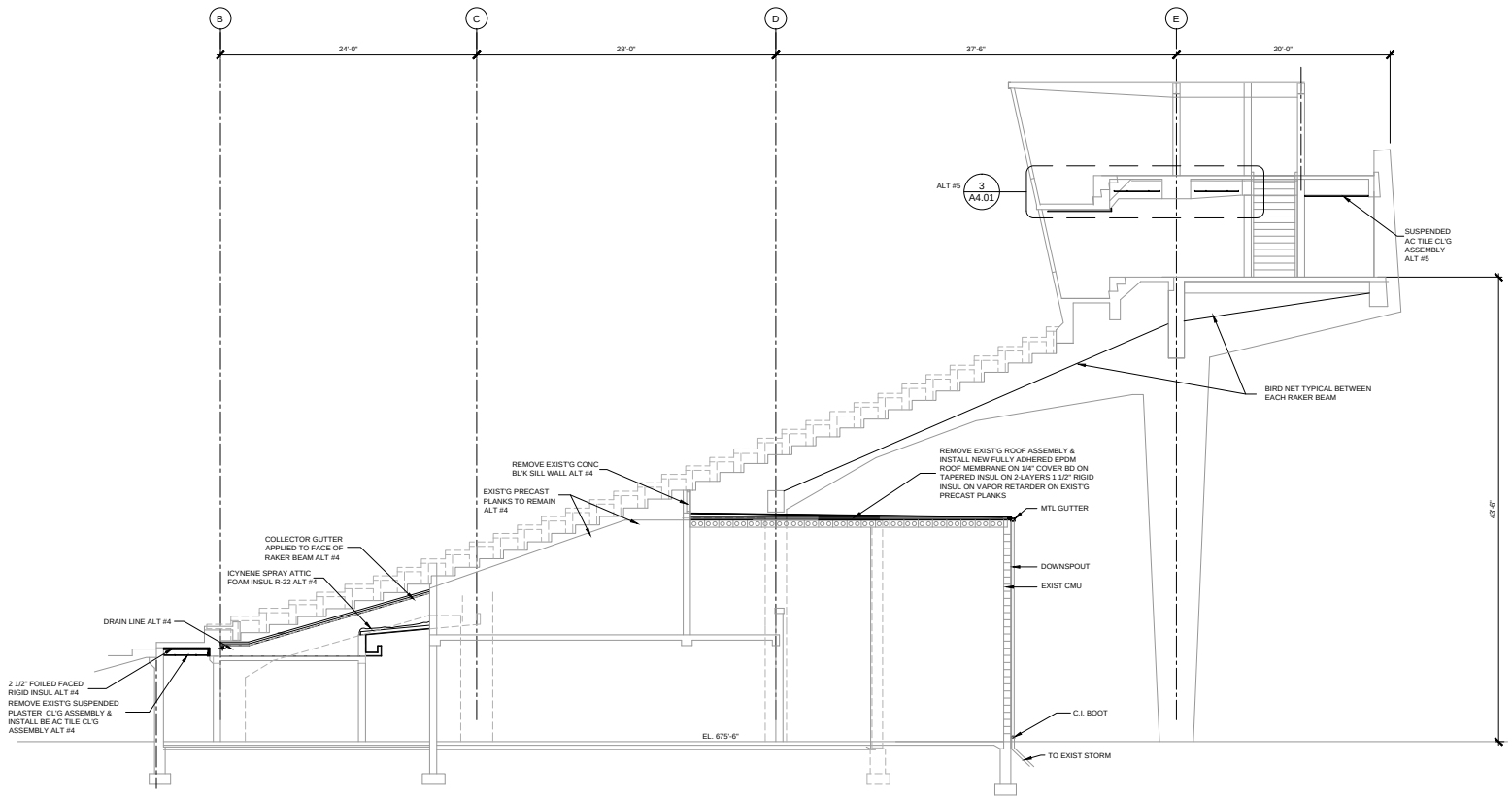

1 GOLF CENTER SECTION

SCALE: 3/16" = 1'-0"

0 4' 8' 12'

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PARTIAL BUILDING SECTIONS

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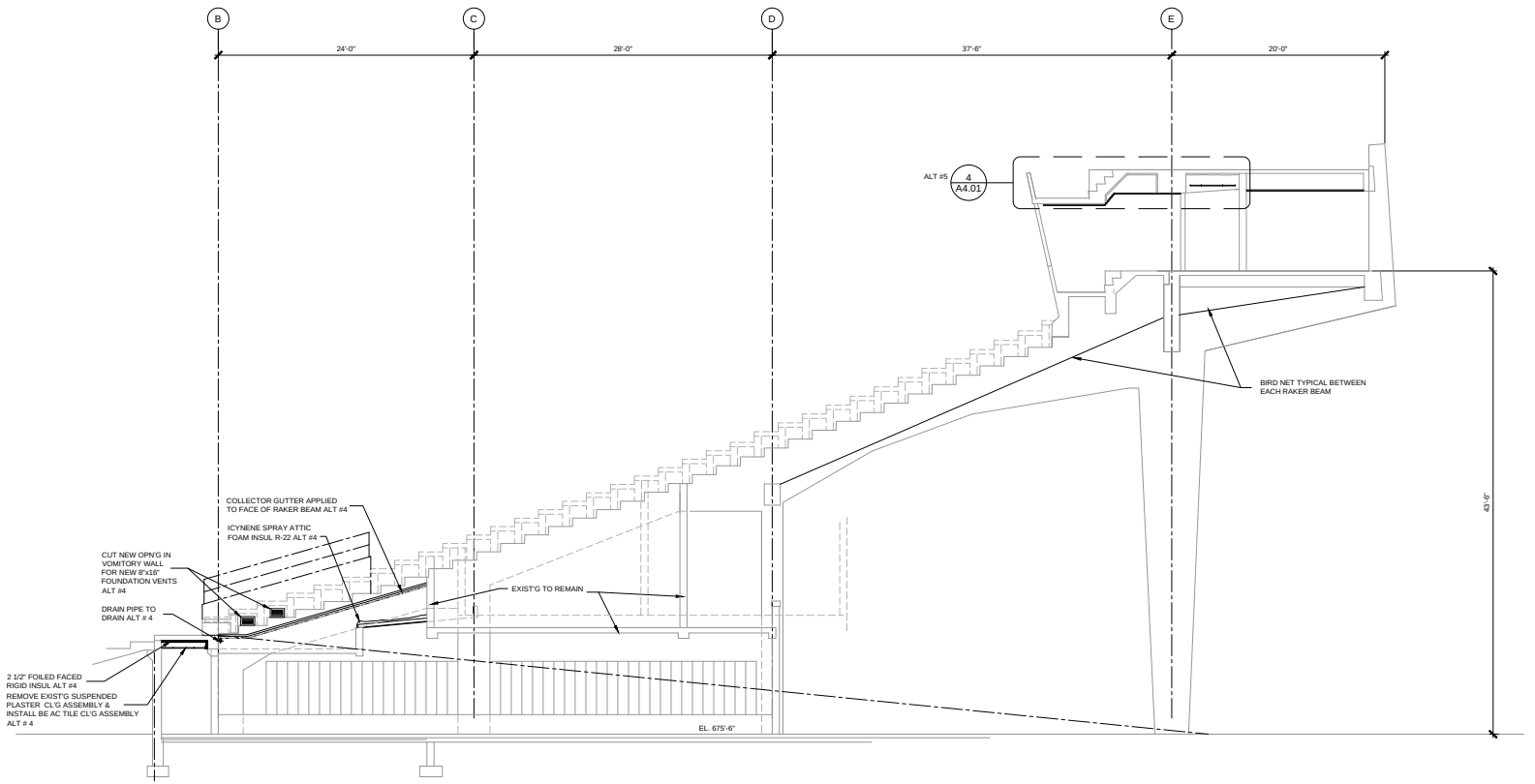

1 GOLF CENTER SECTION

SCALE: 3/16" = 1'-0"

0 4' 8' 12'

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PARTIAL BUILDING SECTIONS

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A3.05

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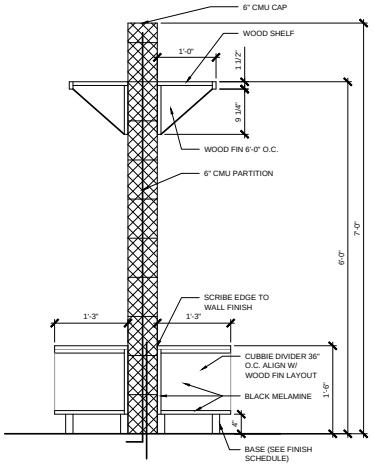
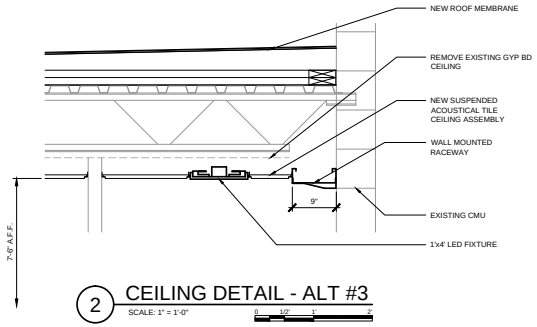
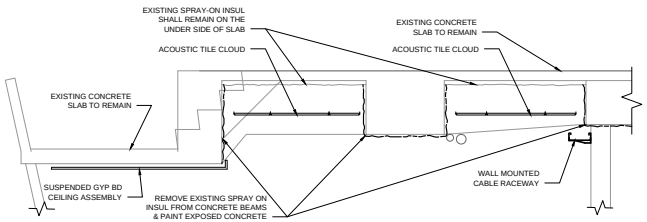


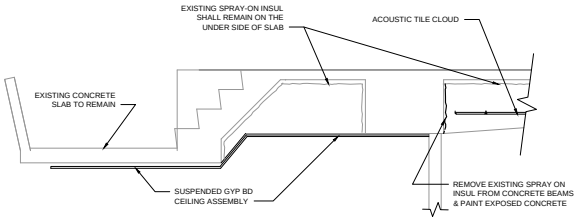
1 LOCKER CUBBIE
SCALE: 1" = 1'-0"



2 CEILING DETAIL - ALT #3
SCALE: 1" = 1'-0"



3 PRESS BOX CEILING DETAIL ALT #5
SCALE: 1/2" = 1'-0"



4 PRESS BOX CEILING DETAIL ALT #5
SCALE: 1/2" = 1'-0"

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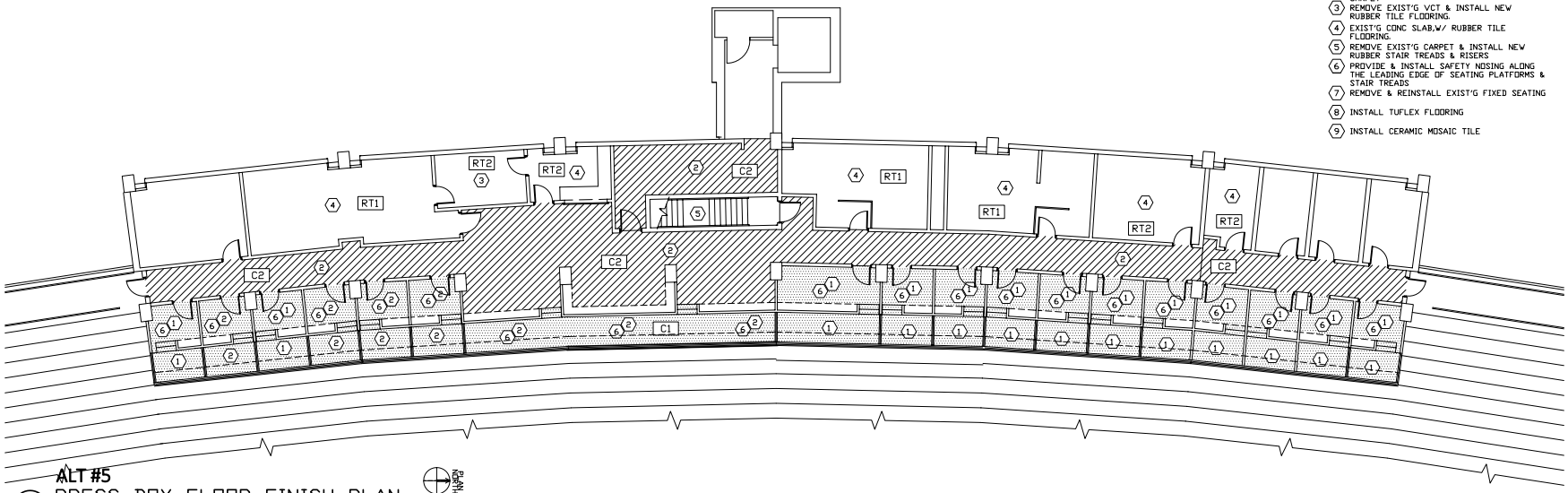
DETAILS

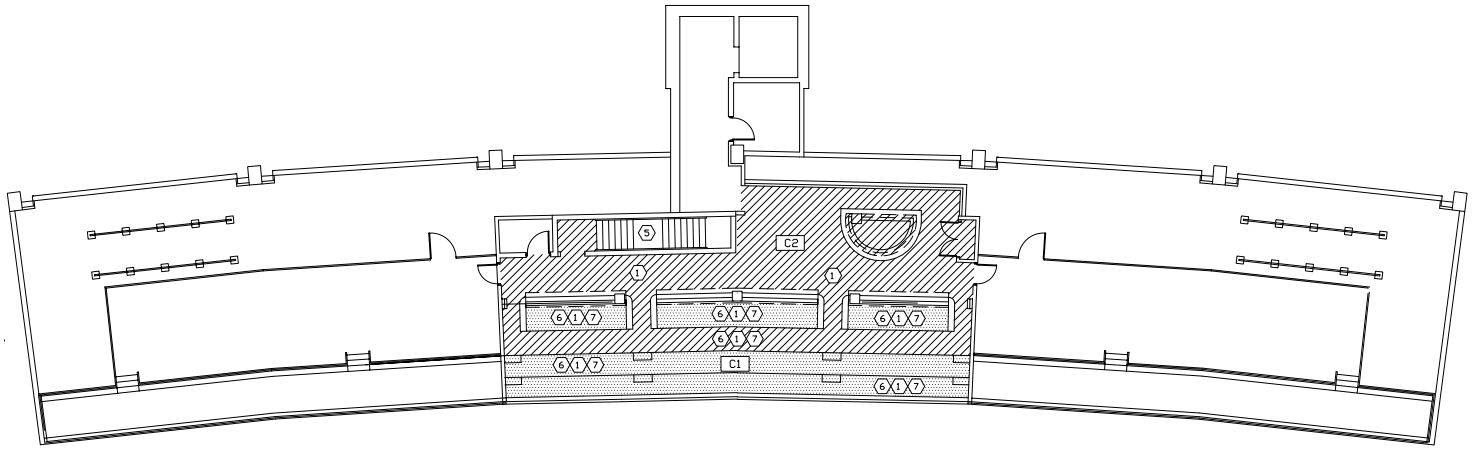
DRAWING NO.
A4.01

KEY NOTES: ALT #5

1. REMOVE EXIST'G CARPET & INSTALL NEW
2. EXIST'G VAT/VCT TO REMAIN, INSTALL NEW CARPET
3. REMOVE EXIST'G VCT & INSTALL NEW RUBBER TILE FLOORING.
4. EXIST'G CONC SLAB,W/ RUBBER TILE FLOORING.
5. REMOVE EXIST'G CARPET & INSTALL NEW RUBBER STAIR TREADS & RISERS
6. PROVIDE & INSTALL SAFETY NOSING ALONG THE LEADING EDGE OF SEATING PLATFORMS & STAIR TREADS
7. REMOVE & REINSTALL EXIST'G FIXED SEATING
8. INSTALL TUFLEX FLOORING
9. INSTALL CERAMIC MOSAIC TILE



ALT #5
1 PRESS BOX FLOOR FINISH PLAN
SCALE: 1/8" = 1'-0"



ALT #5
2 STADIUM CLUB FLOOR FINISH PLAN
SCALE: 1/8" = 1'-0"

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FINISH PLANS
ALT #5

DRAWING NO.
503

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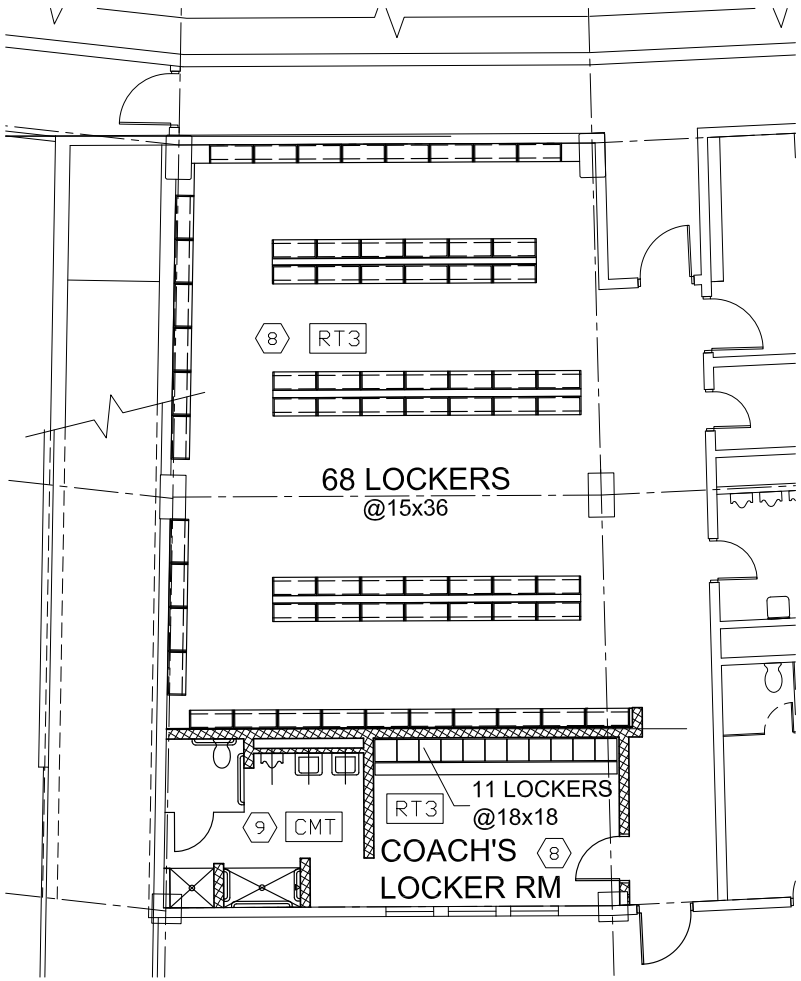
Administrator



LEGEND OF MATERIALS

FIN TAG	DESCRIPTION	MFGR	STYLE PATTERN	COLOR	REMARKS
FLOORS					
C1	BROADLOOM CARPET	MOHAWK	BROCATELLE II	COLOR: TBD	12' WIDTH
C2	MODULAR CARPET	MOHAWK	HEXAGONAL INFUSION	COLOR: TBD	12"X36"
RT1	RUBBER TILE	FLEXCO	EVOLVING STYLES WOOD ELEMENTS	COLOR: TBD	SIZE TBD TO BE USED ON STAIR LANDINGS
RT2	RUBBER TILE	FLEXCO	TUFLEX FORCE	COLOR: TBD	27"X27" - 3/8" GAUGE
RT3	RUBBER TILE	FLEXCO	REPEL - SMOOTH	COLOR: TBD	18"X18" - 1/8" GAUGE
CMT	CERAMIC MOSAIC TILE	DALTILE	1"X1" - KEYSTONE	COLOR: TBD	
WALL BASE & ACCESSORIES					
RB1	RUBBER BASE	FLEXCO	TP BASE 2000	COLOR: TBD	4" COVE
ST	STAIR TREAD	FLEXCO	170 SMOOTH RUBBER	COLOR: TBD	2" SAFETY STRIP
SN	STAIR NOSING	JOHNSONITE	VCD-XX	COLOR: TBD	TO BE USED WITH C1
CEILINGS					
ACT1	ACOUSTICAL CLG TILE & GRID	ARMSTRONG	DUNE 2'X2' TEGULAR	COLOR: WHITE	24"X24" SQUARE LAY-IN, 15/16" GRID PRESS BOX AND STADIUM CLUB
ACT2	ACOUSTICAL CLG TILE & GRID	ARMSTRONG	CERAMAGUARD 605	COLOR: WHITE	24"X48" SQUARE LAY-IN, 15/16" GRID LOCKER ROOM

IMAGE OF C2

KEY NOTES

1. REMOVE EXIST'G CARPET & INSTALL NEW
2. EXIST'G VAT/VCT TO REMAIN, INSTALL NEW CARPET
3. REMOVE EXIST'G VCT & INSTALL NEW RUBBER TILE FLOORING.
4. EXIST'G CONC SLAB,W/ RUBBER TILE FLOORING.
5. REMOVE EXIST'G CARPET & INSTALL NEW RUBBER STAIR TREADS & RISERS
6. PROVIDE & INSTALL SAFETY NOSING ALONG THE LEADING EDGE OF SEATING PLATFORMS & STAIR TREADS
7. REMOVE & REINSTALL EXIST'G FIXED SEATING
8. INSTALL TUFLEX FLOORING
9. INSTALL CERAMIC MOSAIC TILE

1 LOCKER_ROOM_FINISH_PLAN

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

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FINISH PLANS
FINISH LEGEND

DRAWING NO.
504

BUILDING DESIGN CRITERIA

PER OHIO BASIC BUILDING CODE (OBC-2011)

OCCUPANCY CATEGORY: III

BUILDING USE GROUP: A5

CONSTRUCTION TYPE: 2B

FLOOR LIVE LOADS:
- ELEVATED SLAB ---------- 100 PSF

LIVE LOAD REDUCTION ---------- N.A.

ROOF LIVE LOAD ---------- N.A.

SNOW LOAD:
- GROUND SNOW LOAD, Pg: ---------- 30 PSF
- EXPOSURE CATEGORY: ---------- N.A.
- SNOW EXPOSURE: ---------- N.A.
- SNOW EXPOSURE FACTOR, Ce: ---------- N.A.
- THERMAL FACTOR, Ct: ---------- N.A.
- SNOW IMPORTANCE FACTOR ---------- N.A.
- FLAT ROOF SNOW LOAD, Pf: ---------- N.A.
- SNOW DRIFT: ---------- N.A.

WIND LOAD:
- BASIC WIND SPEED: ---------- 90 MPH
- EXPOSURE CATEGORY ---------- N.A.
- ROOF FACTOR ---------- N.A.
- ADJUSTMENT FACTOR FOR HEIGHT & EXPOSURE---------- N.A.
- IMPORTANCE FACTOR ---------- N.A.
- INTERNAL PRESSURE COEFFICIENT---------- N.A.
- WIND PRESSURES ---------- N.A.

GENERAL NOTES:

1. SEE SPECIFICATIONS FOR QUALITY OF CONSTRUCTION REQUIRED, WORKMANSHIP, MANUFACTURING AND INDUSTRY STANDARDS, PHYSICAL PROPERTIES OF MATERIALS, CONFORMANCE TO CODES AND REGULATIONS, GUARANTEE AND WARRANTY REQUIREMENTS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS RELATED TO EXISTING CONSTRUCTION, EXISTING SERVICES, AND THE SITE BEFORE BEGINNING WORK.
3. CONSTRUCTION LOADS SHALL NOT EXCEED DESIGN LIVE LOADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DESIGN AND ANALYSIS REQUIRED TO SUPPORT CONSTRUCTION EQUIPMENT USED IN CONSTRUCTING THIS PROJECT.
4. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE FOLLOWING ITEMS THAT WILL NOT BE REVIEWED BY THE OWNER, OR ENGINEER.
   - A. DIMENSIONS, ELEVATIONS AND CONDITIONS TO BE CONFIRMED AND CORRELATED AT THE SITE.
   - B. FABRICATION PROCESS INFORMATION.
   - C. MEANS, METHODS, TECHNIQUES, PROCEDURES OF CONSTRUCTION AND CONSTRUCTION SAFETY.
   - D. COORDINATION OF THE WORK OF ALL TRADES.
   - E. QUALITY ASSURANCE SUBMITTALS.
5. SEAT DECK WORK, ALSO INCLUDES THE REMOVAL AND REINSTALLATION OF EXISTING SEAT BENCHES AND INDIVIDUAL SEATS.
6. REMOVE AND REINSTALL CONDUITS, PIPING, DRAINS, ETC AS NEEDED TO PERFORM CONCRETE AND JOINT REPAIRS.
7. CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF HVAC AIR INTAKES, STORM DRAINS, ETC FROM DUST AND DEBRIS.

CAST IN PLACE CONCRETE:

1. CAST-IN-PLACE CONCRETE WORK SHALL CONFORM TO ACI 318-11 AND TO THE LATEST ACI STANDARDS IN EFFECT AT BID DATE.
2. ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE IN 28 DAYS: 5000 PSI
3. REINFORCING BARS: ASTM 615, GRADE 60 (U.N.O.) WELDING OR TACK WELDING A615 BARS SHALL NOT BE PERMITTED.
4. REINFORCING BAR LAP SPLICES AND TENSION DEVELOPMENT LENGTHS SHALL CONFORM WITH TABLES SHOWN ON THIS SHEET.
5. BEND ALL HORIZONTAL WALL AND BEAM BARS AROUND ALL CORNERS, UNLESS OTHERWISE NOTED.
6. REINFORCING BARS REQUIRED FOR PROPER SUPPORT OF PRINCIPAL REINFORCING SHALL BE DETAILED AND SUPPLIED BY THE CONTRACTOR WHETHER OR NOT THEY ARE INDICATED ON THE DRAWINGS. THE MINIMUM BAR SIZE SHALL BE #4 AND THE MAXIMUM BAR SUPPORT SPACING SHALL BE 36" ON CENTER. WELDED WIRE FABRIC SHALL NOT BE USED FOR THE SUPPORT OF PRINCIPAL REINFORCING.
7. NO CONCRETE SHALL BE PLACED UNTIL THE PROPOSED CONCRETE MIX AND TEST HAVE BEEN SUBMITTED AND AFTER THE CONTRACTOR HAS RECEIVED WRITTEN ACKNOWLEDGEMENT.
8. ALL CEMENT SHALL BE TYPE I OR TYPE III, BLENDED CEMENTS SHALL NOT BE USED.
9. CONCRETE SHALL BE DISCHARGED AT THE SITE WITHIN 1 1/2 HOURS AFTER WATER HAS BEEN ADDED TO THE CEMENT AND AGGREGATES, ADDITION OF WATER TO THE MIX AT THE PROJECT SITE WILL NOT BE PERMITTED. ALL WATER MUST BE ADDED AT THE BATCH PLANT. SLUMP MAY BE ADJUSTED ONLY THROUGH THE USE OF ADDITIONAL WATER REDUCING ADMIXTURE OR HIGH RANGE WATER REDUCING ADMIXTURE.
10. ALL CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE CONFORMING TO ASTM C494, TYPE A, F OR G.
11. CALCIUM CHLORIDE SHALL NOT BE PERMITTED NOR SHALL ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE BE PERMITTED.
12. ALL CONCRETE SHALL CONTAIN AN AIR-ENTRAINED ADMIXTURE CONFORMING TO ASTM C260. THE AMOUNT OF ENTRAINED AIR SHALL BE 6% ±1.5%.
13. PROVIDE CONSTRUCTION JOINTS IN ACCORDANCE WITH ACI 318 SEC. 6.4.
14. 3/4" CHAMFER FOR EXPOSED EDGES OF CONCRETE, UNLESS OTHERWISE NOTED.

REINFORCING BAR CLEARANCE TABLE

LOCATION	CLEARANCE (±1/4")
WALLS EXTERIOR FACE #5 AND SMALLER	1 1/2"
WALLS EXTERIOR FACE #6 AND LARGER	2"
CURBS	1 1/2"
TREADS AND RISERS	1"

REINFORCING LAP LENGTH SCHEDULES

F'c = 5000 P.S.I. NORMAL WEIGHT

BAR SIZE	TOP BAR LENGTH (IN.) CATEGORY						OTHER BAR LENGTH (IN.) CATEGORY					
	1	2	3	4	5	6	1	2	3	4	5	6
3	16	16	16	16	16	16	16	16	16	16	16	16
4	23	22	22	22	22	22	18	17	17	17	17	17
5	36	29	27	27	27	27	28	22	21	21	21	21
6	51	41	38	33	33	33	39	31	27	25	25	25
7	69	55	48	39	38	38	53	43	37	30	29	29
8	91	73	64	51	46	43	70	56	49	39	35	33
9	115	92	81	65	58	49	89	71	62	50	44	38
10	146	117	102	82	73	59	112	90	79	63	56	45
11	179	143	126	101	90	72	138	110	97	77	69	55

CATEGORY DETERMINATION TABLE FOR SCHEDULES ABOVE

CONCRETE COVER	CENTER TO CENTER BAR SPACING ≤ 3d	> 3d < 4d	≥ 4d < 6d	≥ 6d	STRUCTURAL ELEMENTS
< d	1	3	5	6	LONGITUDINAL BARS IN BEAMS, COLUMNS, INNER LAYER OF WALLS AND SLABS
> d, < 2d	1	3	3	4	ALL OTHER REINFORCING BARS
> 2d	1	3	5	6	ALL OTHER REINFORCING BARS

d = NOMINAL BAR DIAMETER.

ZINC RICH GALVANIZED COATING:

1. COAT DAMAGED GALVANIZED SURFACES WHERE NOTED WITH A ZINC RICH GALVANIZING PAINT THAT MEETS REQUIREMENTS OF ASTM 780. ACCEPTABLE PRODUCT IS ZRC WORLDWIDE INC. "ZRC GALVITE GALVANIZING REPAIR COMPOUND", OR APPROVED EQUAL.

SEALANT:

1. ALL COVE, CONSTRUCTION AND CONTROL JOINT SEALANT SHALL BE 'SIKAFLEX-2C NS-TG' (OR APPROVED EQUAL). PREPARE SURFACE AND CURE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

EXPANSION JOINTS:

1. THE BASE BID EXPANSION JOINT SHALL BE MM SYSTEMS EBS EXPANSION JOINT
2. ASSUME A TOTAL OF 800 FEET OF EXPANSION JOINT MUST BE REPLACED.

TRAFFIC COATING:

1. THE SURFACE AREA TO BE COATED WITH A TRAFFIC COATING ON A-DECK TOTALS APPROXIMATELY 65,000 SF
2. THE EXISTING INADEQUATELY BONDED MEMBRANE (TOP COAT AND PRIMER) MUST BE REMOVED FROM ALL SURFACES TO RECEIVE NEW TRAFFIC COATING. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE METHODS AND MEANS TO REMOVE THE EXISTING MEMBRANE. EXISTING MEMBRANE MATERIALS THAT RESIST BEING REMOVED MUST UNDERGO A BOND TEST AS NOTED IN SPECIFICATIONS.
3. CONTRACTOR SHALL CLEAN AND PREPARE ALL SURFACES TO RECEIVE A TRAFFIC COATING IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
4. THE BASE BID TRAFFIC COATING SHALL BE NEOGARD SOLVENT-BASE "PEDA-GARD" 40 MIL 5 YEAR JOINT AND SEVERAL WARRANTY SYSTEM.
5. CONTRACTOR MUST PROTECT EXISTING SEAT ANCHORS DURING PREPARATION WORK AND ALSO DURING APPLICATION OF TRAFFIC COATING.
6. REFER TO THE SPECIFICATIONS FOR ADDITIONAL TRAFFIC COATING INFORMATION.

UNIT PRICE REPAIRS:

1. THE FOLLOWING BASE BID REPAIR QUANTITY TABLE INCLUDES THE BASE BID QUANTITIES TO BE USED BY THE CONTRACTOR IN DEVELOPING THEIR BID. THE ACTUAL REPAIR QUANTITIES WILL LIKELY DEVIATE UP OR DOWN FROM THOSE SHOWN BASED ON THE ACTUAL FIELD CONDITIONS. THESE REPAIRS ARE LOCATED IN VARIOUS LOCATIONS THROUGHOUT THE STADIUM. THE CONTRACTOR MUST ASSUME ACCESS RESTRICTIONS THAT MAY EXIST FOR SOME OF THE REPAIR WORK. THEREFORE, THE CONTRACTOR MUST ASSUME THE USE OF HIGH LIFT EQUIPMENT TO ACCESS SELECTED REPAIR AREAS.
2. SEE SHEET ??? FOR UNIT PRICE REPAIR TYPE DESCRIPTIONS.

BASE BID REPAIR QUANTITY TABLE

REPAIR DESCRIPTION	REPAIR TYPE	UNIT	BASE BID QUANTITY
OVERHEAD AND VERTICAL PATCHING	A	SF	1,400
HORIZONTAL PATCHING	B	SF	35
NON-STRUCTURAL CRACK REPAIR	C	LF	550
STRUCTURAL CRACK REPAIR	D	LF	215
GUARDRAIL POST REPAIR	E	EA	25
COVE SEALANT REPLACEMENT	F	LF	1,000
CONTROL JOINT REPLACEMENT	G	LF	320
BACKER ROD AND SEALANT REPLACEMENT	H	LF	42,500
STEP REPLACEMENT	I	EA	-
FULL-DEPTH SLAB REPLACEMENT	J	SF	70
FULL-DEPTH WALL REPLACEMENT	K	SF	195
GRINDING OF CONCRETE	L	LF	15
WELD INSTALLATION	M	IN.	780
SHIM REPAIR	N	EA	1,835
SHIM ANGLE INSTALLATION	O	EA	60
GUARDRAIL REPLACEMENT	P	LF	70

ALTERNATIVES:

1. ALL WORK SHOWN ON THE DRAWINGS IS CONSIDERED AS BASE BID SCOPE UNLESS NOTED AS AN "ALTERNATE".
2. BIDDER SHALL PROVIDE A SEPARATE COST IN THEIR BID FOR EACH "ALTERNATE".
3. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION ON "ALTERNATE" ITEMS.
4. THE FOLLOWING IS A DESCRIPTION OF THE "ALTERNATE" ITEMS ASSOCIATED WITH THE PROJECT.

ALTERNATE G-1:

1. ??????

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STRUCTURAL GENERAL NOTES

DRAWING NO.
S-001

STRUCTURAL REPAIR DESCRIPTIONS:

REPAIR TYPE A
OVERHEAD AND VERTICAL PATCHING (SF)
THIS REPAIR INCLUDES THE PATCHING OF SPALLED, CRACKED OR DELAMINATED CONCRETE ON OVERHEAD OR VERTICAL SURFACES.
1. SOUND ADJACENT CONCRETE TO IDENTIFY LIMITS OF DETERIORATION.
2. SHORE THE SURROUNDING AREAS AS NEEDED PRIOR TO BEGINNING THE SAWCUTTING AND DEMOLITION WORK.
3. REMOVE DETERIORATED CONCRETE WITHOUT DAMAGING EXISTING REINFORCING STEEL.
4. PREPARE REPAIR AREA IN ACCORDANCE WITH ICRI'S PUBLISHED STANDARD DETAILS ON SHEETS S-501 AND S-502.
5. PROVIDE STAINLESS STEEL HOOKED DOWELS (PINS) AS A MEANS TO MECHANICALLY ANCHOR THE PATCH MATERIAL TO EXISTING SUBSTRATE UNLESS THE DEPTH OF REPAIR IS AT LEAST 3/4" BELOW DEPTH OF UNDERSIDE OF EXISTING REINFORCING STEEL.
6. PLACE REPAIR MATERIAL AND CURE IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS.

REPAIR TYPE B
HORIZONTAL PATCHING (SF)
THIS REPAIR INCLUDES THE PATCHING OF SPALLED, CRACKED OR DELAMINATED CONCRETE ON HORIZONTAL SURFACES.
1. SOUND ADJACENT CONCRETE TO IDENTIFY LIMITS OF DETERIORATION.
2. REMOVE DETERIORATED CONCRETE WITHOUT DAMAGING EXISTING REINFORCING STEEL.
3. PREPARE REPAIR AREA IN ACCORDANCE WITH ICRI'S PUBLISHED STANDARD DETAILS ON SHEETS S-501 AND S-502.
4. PROVIDE STAINLESS STEEL HOOKED DOWELS (PINS) AS A MEANS TO MECHANICALLY ANCHOR THE PATCH MATERIAL TO EXISTING SUBSTRATE UNLESS THE DEPTH OF REPAIR IS AT LEAST 3/4" BELOW DEPTH OF UNDERSIDE OF EXISTING REINFORCING STEEL.
5. PLACE REPAIR MATERIAL AND CURE IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS.

REPAIR TYPE C
NON-STRUCTURAL CRACK REPAIR (LF)
THIS REPAIR INCLUDES THE REMOVAL AND REPLACEMENT OF SEALANT IN RANDOM CRACKS AND ALSO CONTROL JOINTS.
1. COORDINATE WITH THE ENGINEER TO IDENTIFY "NON-STRUCTURAL CRACKS".
2. DEPENDING ON THE JOINT TYPE: EITHER ROUTE RANDOM CRACK TO THE RECOMMENDED DEPTH/WIDTH OF THE SEALANT MANUFACTURER; OR REMOVE EXISTING SEALANT FROM CONTROL JOINT AND PREPARE SIDES OF JOINT. SEE DETAIL ON SHEET S-502.
3. PLACE SEALANT IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

REPAIR TYPE D
STRUCTURAL CRACK REPAIR (LF)
THIS REPAIR INCLUDES THE INSTALLATION OF AN EPOXY GROUT MATERIAL INTO A RANDOM CRACK.
1. COORDINATE WITH ENGINEER TO IDENTIFY "STRUCTURAL CRACKS".
2. PREPARE CRACK AND PLACE EPOXY MATERIAL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

REPAIR TYPE E
GUARD POST REPAIR (EA)
THIS REPAIR INCLUDES THE ANCHORING OF THE GUARDRAIL BASE PLATE AT THE BASE OF A GUARDRAIL POST.
1. REMOVE EXISTING CONCRETE ANCHORS.
2. EVALUATE AND REMOVE THE BASE PLATE IF DETERIORATED. IF NECESSARY, REPLACE BASE PLATE TO MATCH SIZE AND THICKNESS OF ORIGINAL PLATE. WELD TO EXISTING POST WITH 1/8" FILLET WELD.
3. INSTALL (4) 3/16" STAINLESS STEEL ANCHOR BOLTS WITH A 2" EMBEDMENT.
4. PREPARE SURFACE OF POST AND APPLY A ZINC-RICH GALVANIZED COAT TO THE AFFECTED AREA OF THE POST.
5. APPLY EXTERIOR-GRADE PRIMER AND TOP COAT TO ALL EXPOSED AND REPAIRED SURFACES AT THE BASE OF THE POST. COLOR TO MATCH EXISTING.

REPAIR TYPE H
BACKER ROD / SEALANT REPAIR (LF)
THIS REPAIR INCLUDES THE REMOVAL AND REPLACEMENT OF SEALANT AT THE BASE OF WALLS, HORIZONTAL JOINT IN ALL SEAT DECK RISERS, ETC.
1. REMOVE EXISTING SEALANT AND BACKER ROD FROM JOINT OPENING.
2. PLACE BACKER ROD AND SEALANT MATERIAL IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

REPAIR TYPE I
STEP REPLACEMENT (EA)
THIS REPAIR INCLUDES THE REMOVAL AND REPLACEMENT OF A SEAT DECK AISLE STEP.
1. REMOVE EXISTING STEP WITHOUT DAMAGING ADJACENT CONCRETE.
2. PLACE NEW REINFORCING AND CONCRETE IN ACCORDANCE WITH THE DETAIL ON SHEET S-502.

REPAIR TYPE J
FULL DEPTH SLAB REPLACEMENT (SF)
THIS REPAIR INCLUDES THE REMOVAL AND REPLACEMENT OF UP TO AN 6" THICK ELEVATED SLAB WHERE SHOWN.
1. SHORE THE SURROUNDING AREAS OF SLAB AS NEEDED PRIOR TO BEGINNING THE SAWCUTTING AND DEMOLITION WORK.
2. PROTECT EXISTING FINISHES AND CONSTRUCTION BELOW THE REPAIR AREA.
3. SAWCUT THE PERIMETER OF THE WORK AREA TO A FULL DEPTH TO PREVENT SPALLING OF THE UNDERSIDE SURFACE.
4. REMOVE DETERIORATED SECTION OF CONCRETE WITHIN SAWCUT PERIMETER WITHOUT DAMAGING ADJACENT SLAB AREAS TO REMAIN.
5. PLACE SLAB REINFORCING AND CONCRETE IN ACCORDANCE WITH THE DETAIL ON SHEET S-502.
6. FINISH SURFACE OF NEW CONCRETE TO MATCH ADJACENT FINISH.

REPAIR TYPE K
FULL DEPTH WALL REPLACEMENT (SF)
THIS REPAIR INCLUDES THE REMOVAL AND REPLACEMENT OF UP TO A 8" THICK CONCRETE WALL WHERE SHOWN.
1. PROTECT EXISTING FINISHES AND CONSTRUCTION IN THE VICINITY OF THE REPAIR AREA.
2. SAWCUT THE PERIMETER OF THE WORK AREA TO A DEPTH OF UP TO 1" ON BOTH SIDES OF WALL WITHOUT DAMAGING EXISTING REINFORCING STEEL.
3. REMOVE DETERIORATED SECTION OF CONCRETE WITHIN THE SAWCUT PERIMETER WITHOUT DAMAGING THE EXISTING REINFORCING STEEL.
4. PLACE NEW REINFORCING STEEL AND CONCRETE IN ACCORDANCE WITH THE DETAIL ON SHEET S-502.
5. FINISH THE SURFACE OF NEW CONCRETE TO MATCH ADJACENT FINISH.

REPAIR TYPE L
GRINDING OF CONCRETE (LF)
THIS REPAIR INCLUDES THE GRINDING OF CONCRETE TO ELIMINATE A TRIP HAZARD.
1. GRIND SURFACE OF CONCRETE TO ELIMINATE ANY ELEVATION DIFFERENTIAL ACROSS THE JOINT. THE WIDTH OF THE GRINDING MUST EXTEND AWAY FROM THE JOINT TO PROVIDE A MAXIMUM SLOP OF 5% (I.E. A 1/2" VERTICAL OFFSET REQUIRES A GRINDED SURFACE WITH OF 10").

REPAIR TYPE M
WELD INSTALLATION (LF)
THIS REPAIR INCLUDES THE INSTALLATION OF WELDS AT SHIM PLATES LOCATED BELOW THE SEAT DECK RISER BEARING CONNECTION.
1. SEE NOTE 4 WITHIN THE SHIM PLATE CONNECTION REPAIR PROCEDURE ON SHEET S-201 FOR ADDITIONAL INFORMATION.

REPAIR TYPE N
SHIM REPAIR (EA)
THIS REPAIR INCLUDES RESTORATION OF SHIM PLATE LOCATED BELOW THE SEAT DECK RISER BEARING CONNECTION .
1. SEE NOTES 1, 2, 3 AND 6 WITHIN THE SHIM PLATE CONNECTION REPAIR PROCEDURE ON SHEET S-201 FOR ADDITIONAL INFORMATION.

REPAIR TYPE O
SHIM ANGLE INSTALLATION (EA)
THIS REPAIR INCLUDES INSTALLATION OF A SUPPLEMENTAL ANGLE LOCATED BELOW THE SEAT DECK RISER BEARING CONNECTION.
1. SEE NOTE 5 WITHIN THE SHIM PLATE CONNECTION REPAIR PROCEDURE ON SHEET S-201 FOR ADDITIONAL INFORMATION.

REPAIR TYPE P
GUARDRAIL REPLACEMENT (LF)
THIS REPAIR REPLACEMENT OF THE GUARDRAIL ASSEMBLY WHERE INDICATED ON THE DRAWINGS.
1. ERECT BARRIERS AND IMPLEMENT OTHER SAFETY MEASURES AS NECESSARY IN THE VICINITY OF THE WORK PRIOR TO COMMENCING REMOVAL OF EXISTING GUARDRAIL ASSEMBLY.
2. SAWCUT A CLEAN EDGE ON THE GUARDRAIL AT THE LIMIT OF GUARDRAIL SECTION TO BE REPLACED.
3. REMOVE GUARDRAIL ASSEMBLY INCLUDING BASE PLATE AND CONCRETE ANCHORS.
4. INSTALL NEW GUARDRAIL ASSEMBLY TO MATCH THE MATERIAL, SIZE, AND APPEARANCE OF THE ADJACENT REMAINING GUARDRAIL SECTIONS. PROVIDE A COUPLING AS NEEDED TO SECURE NEW GUARDRAIL TO EXISTING.
6. PROVIDE A NEW BASE PLATE TO MATCH SIZE AND THICKNESS OF ORIGINAL PLATE.
7. INSTALL (4) 3/16" STAINLESS STEEL ANCHOR BOLTS WITH A 2" EMBEDMENT.
8. APPLY EXTERIOR-GRADE PRIMER AND TOP COAT TO ALL EXPOSED SURFACES OF BOTH NEW GUARDRAIL ASSEMBLY; AND ALSO AREAS OF THE EXISTING GUARDRAIL ASSEMBLY AFFECTED BY THE WORK. COLOR TO MATCH EXISTING.

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B	DD REVIEW	8-17-15

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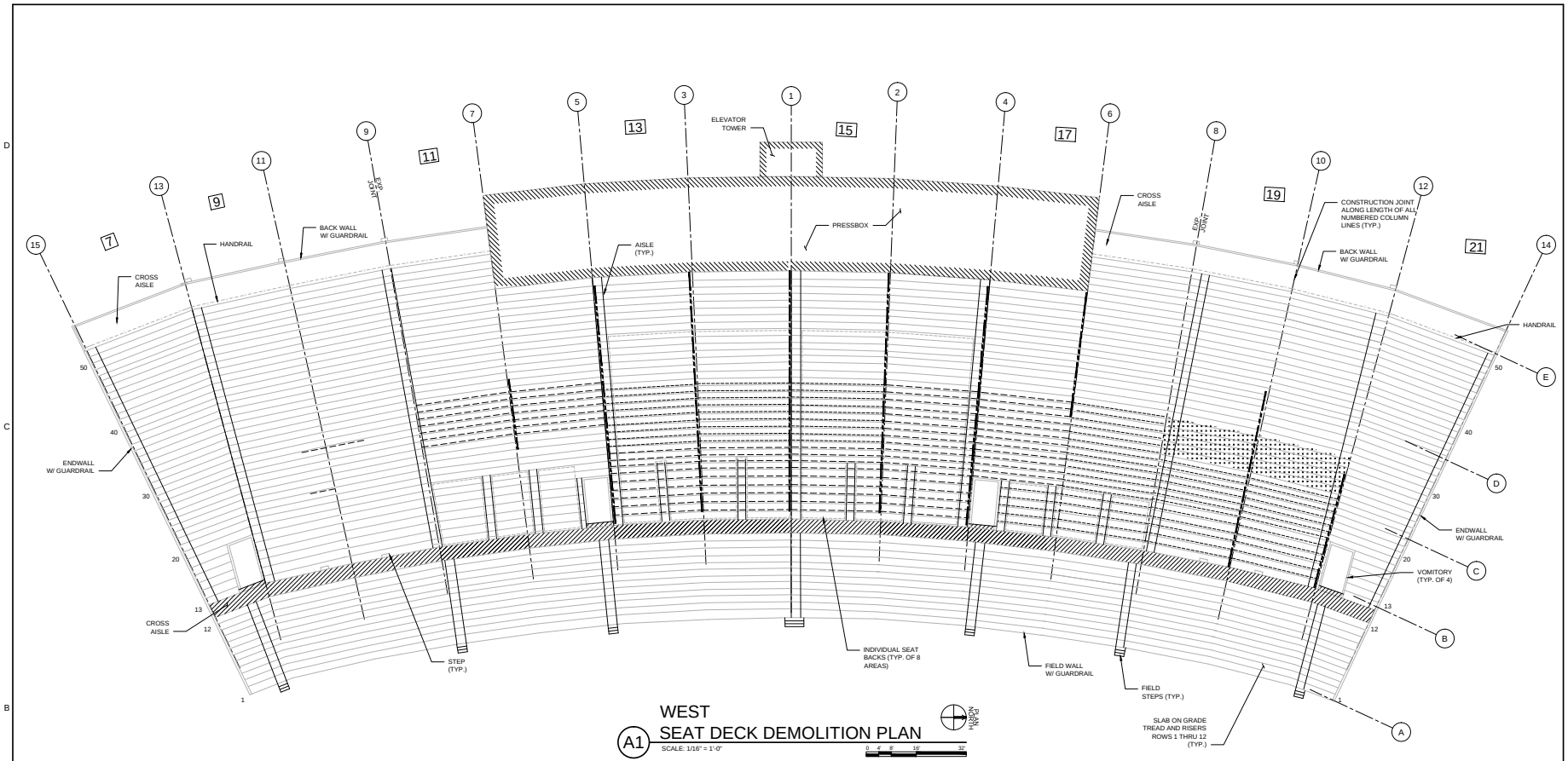
OSBORN PROJ. NO. J20150051.000

STRUCTURAL GENERAL NOTES

DRAWING NO.
S-002



WEST SEAT DECK DEMOLITION PLAN

A1 SCALE: 1/16" = 1'-0"

DEMOLITION PLAN NOTES:

1. REMOVE EXISTING CHECKERED PLATE COVER AT BOTH EXPANSION JOINTS. RE-INSTALL PLATE AFTER DECK REPAIRS ARE COMPLETED.
2. REMOVE JOINT MATERIALS WITHIN BOTH EXPANSION JOINT OPENINGS FROM ROW 1 THRU UPPER CROSS-AISLE.
3. REMOVE EXISTING RUBBER MEMBRANE AT CONSTRUCTION JOINTS (SEE PLAN).
4. REMOVE EXISTING BACKER ROD AND SEALANT FROM ALL CONSTRUCTION JOINTS FROM ROW 1 UP TO BACK WALL.
5. REMOVE EXISTING BACKER ROD AND SEALANT FROM HORIZONTAL JOINTS ON EVERY RISER.
6. REMOVE, STORE AND REINSTALL ALL SEAT BENCHES AND INDIVIDUAL SEATS. LABEL ITEMS AS NEEDED TO ENSURE THEY ARE REINSTALLED IN THE PROPER LOCATION.

LEGEND:

- XX - SEAT SECTION NUMBER
- EX. TRAFFIC COATING ON TREAD AND RISER
- EX. TRAFFIC COATING ON RISER ONLY
- EX. RUBBER MEMBRANE ON TREAD AND RISER
- EX. RUBBER MEMBRANE ON RISER ONLY
- EX. RUBBER MEMBRANE ON CONSTRUCTION JOINTS

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WEST SEAT DECK DEMOLITION PLAN

DRAWING NO.
SD-101

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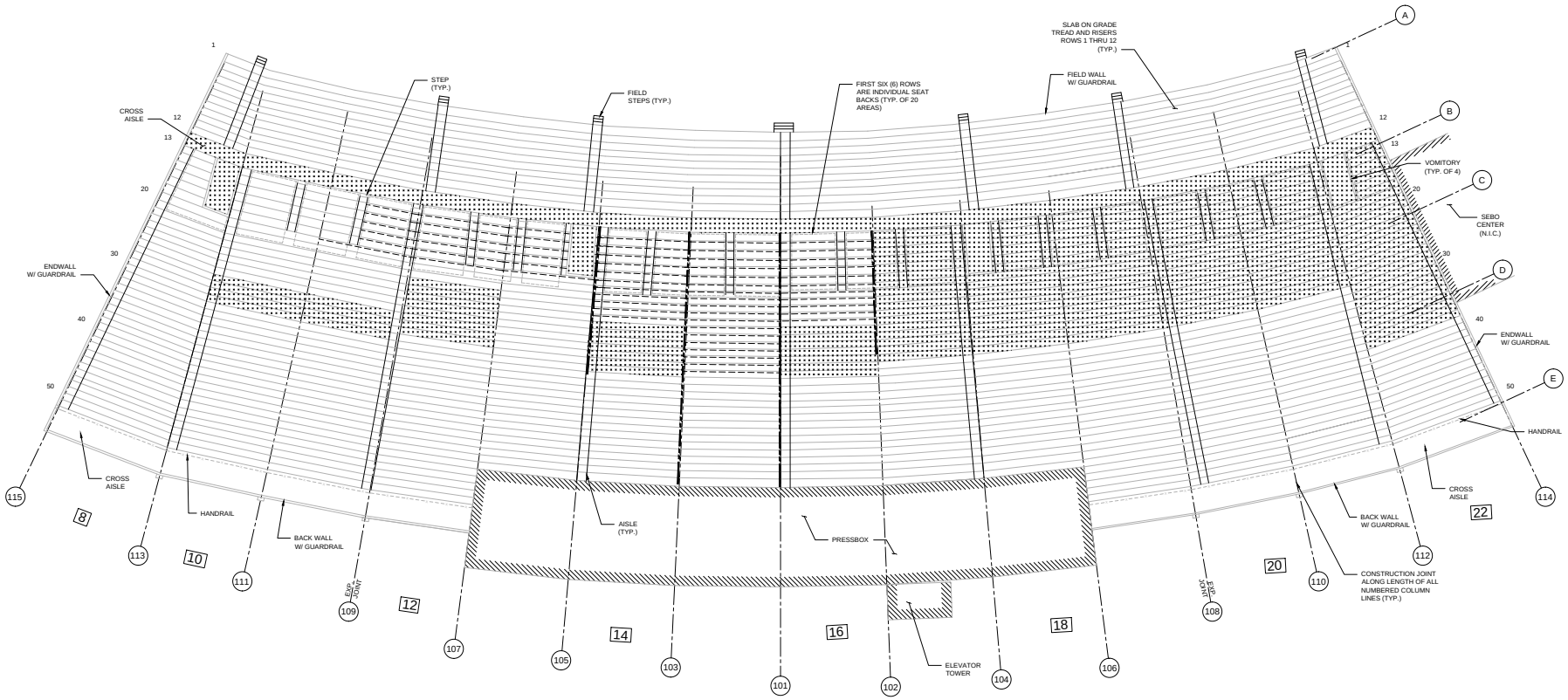

EAST SEAT DECK DEMOLITION PLAN

A1 SCALE: 1/16" = 1'-0"

HASKIN NORTH

0 4' 8' 16' 32'

DEMOLITION PLAN NOTES:

1. REMOVE EXISTING CHECKERED PLATE COVER AT BOTH EXPANSION JOINTS. RE-INSTALL PLATE AFTER DECK REPAIRS ARE COMPLETED.
2. REMOVE JOINT MATERIALS WITHIN BOTH EXPANSION JOINT OPENINGS FROM ROW 1 THRU UPPER CROSS-AISLE.
3. REMOVE EXISTING RUBBER MEMBRANE AT CONSTRUCTION JOINTS (SEE PLAN).
4. REMOVE EXISTING BACKER ROD AND SEALANT FROM ALL CONSTRUCTION JOINTS FROM ROW 1 UP TO BACK WALL.
5. REMOVE EXISTING BACKER ROD AND SEALANT FROM HORIZONTAL JOINTS ON EVERY RISER.
6. REMOVE, STORE AND REINSTALL ALL SEAT BENCHES AND INDIVIDUAL SEATS. LABEL ITEMS AS NEEDED TO ENSURE THEY ARE REINSTALLED IN THE PROPER LOCATION.

LEGEND:

- XX - SEAT SECTION NUMBER
- EX. TRAFFIC COATING ON TREAD AND RISER
- EX. TRAFFIC COATING ON RISER ONLY
- EX. RUBBER MEMBRANE ON TREAD AND RISER
- EX. RUBBER MEMBRANE ON RISER ONLY
- EX. RUBBER MEMBRANE ON CONSTRUCTION JOINTS

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EAST SEAT DECK DEMOLITION PLAN

DRAWING NO.

SD-102

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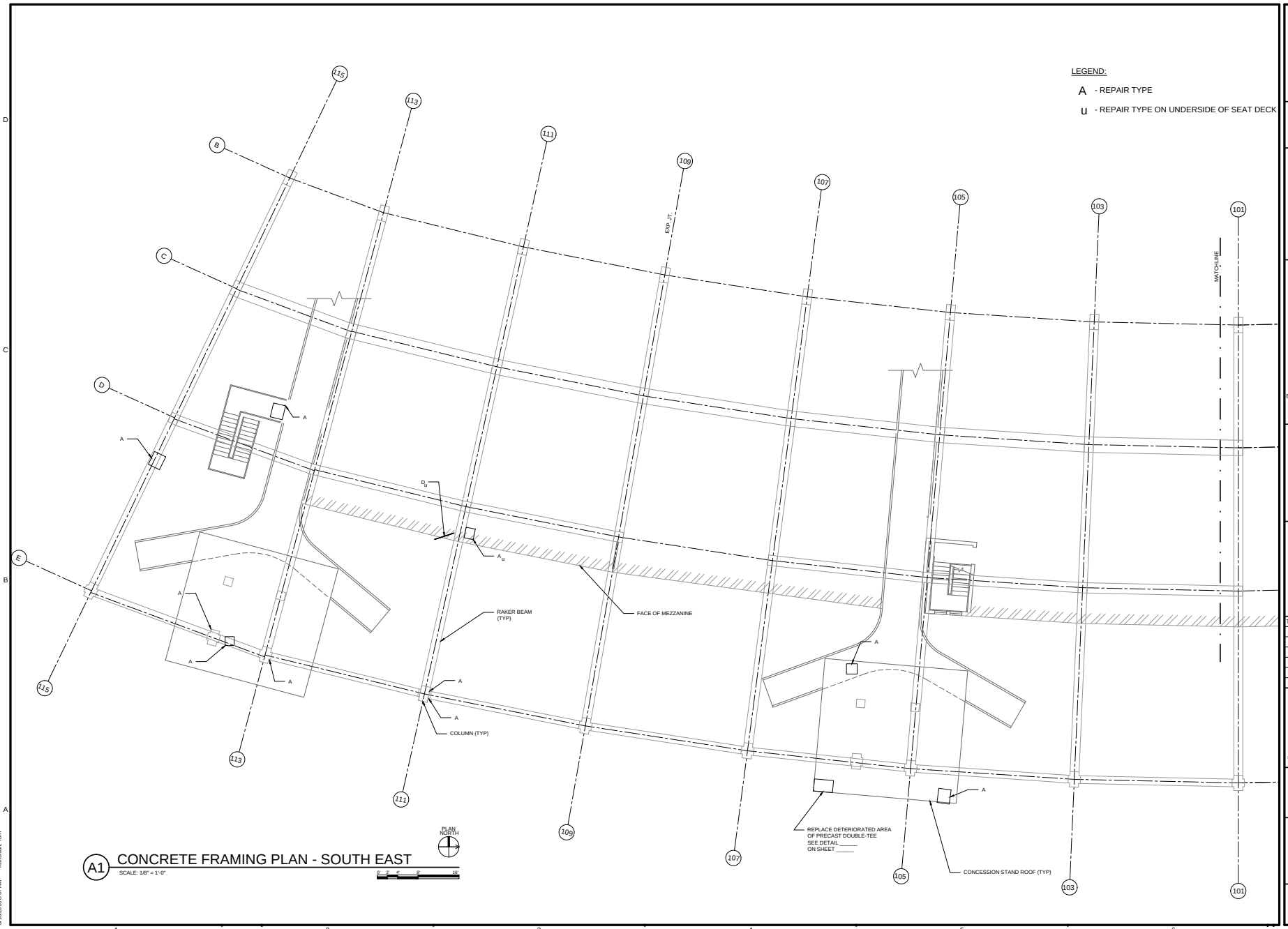
8/10/2015 8:11 AM Kunsman, Tom



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CONCRETE FRAMING PLAN SOUTH EAST

DRAWING NO.
S-101

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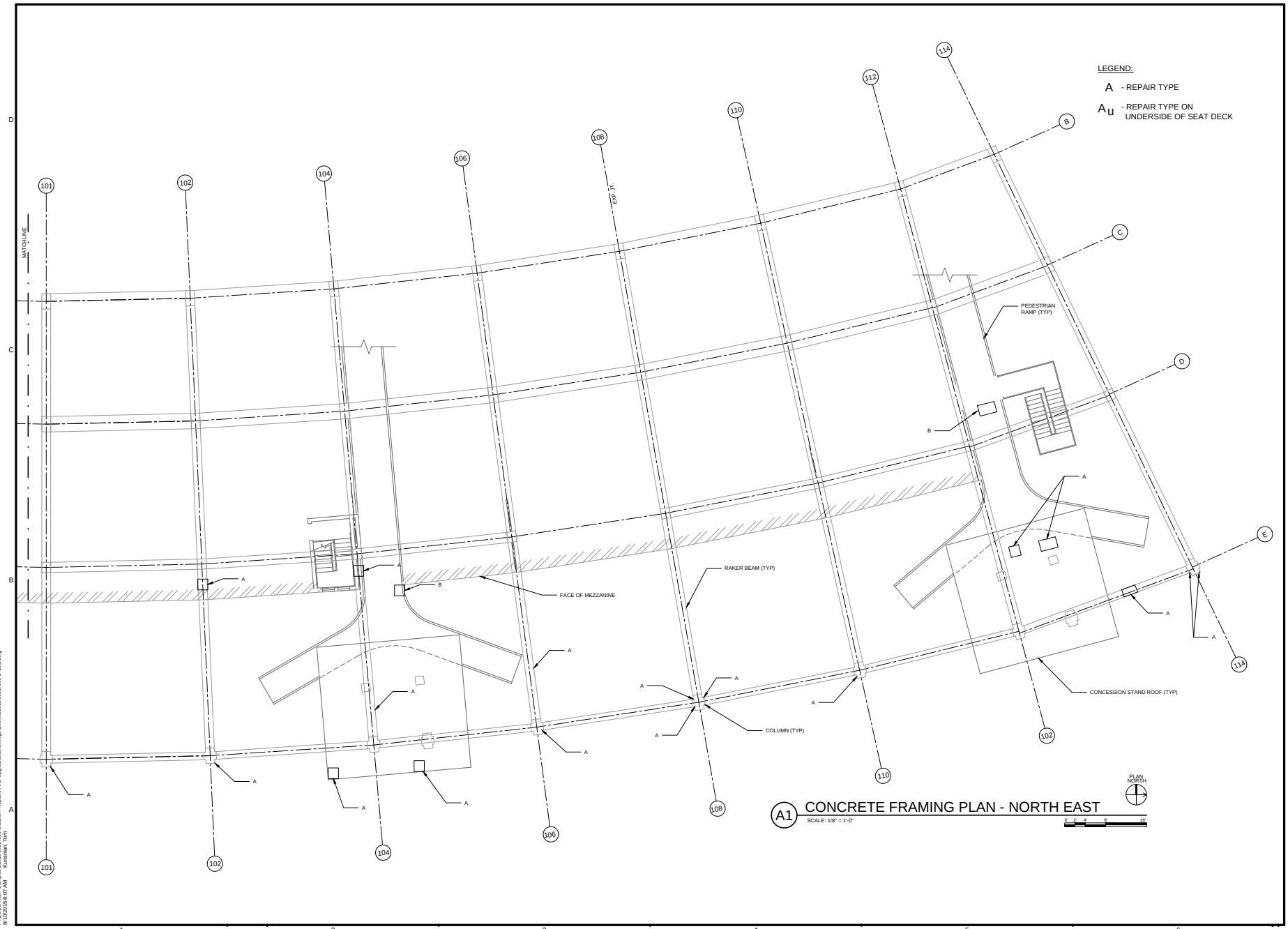
8/10/2015 8:07 AM Kunsman, Tom



A1 CONCRETE FRAMING PLAN - NORTH EAST

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

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CONCRETE FRAMING PLAN NORTH EAST

DRAWING NO.

S-102

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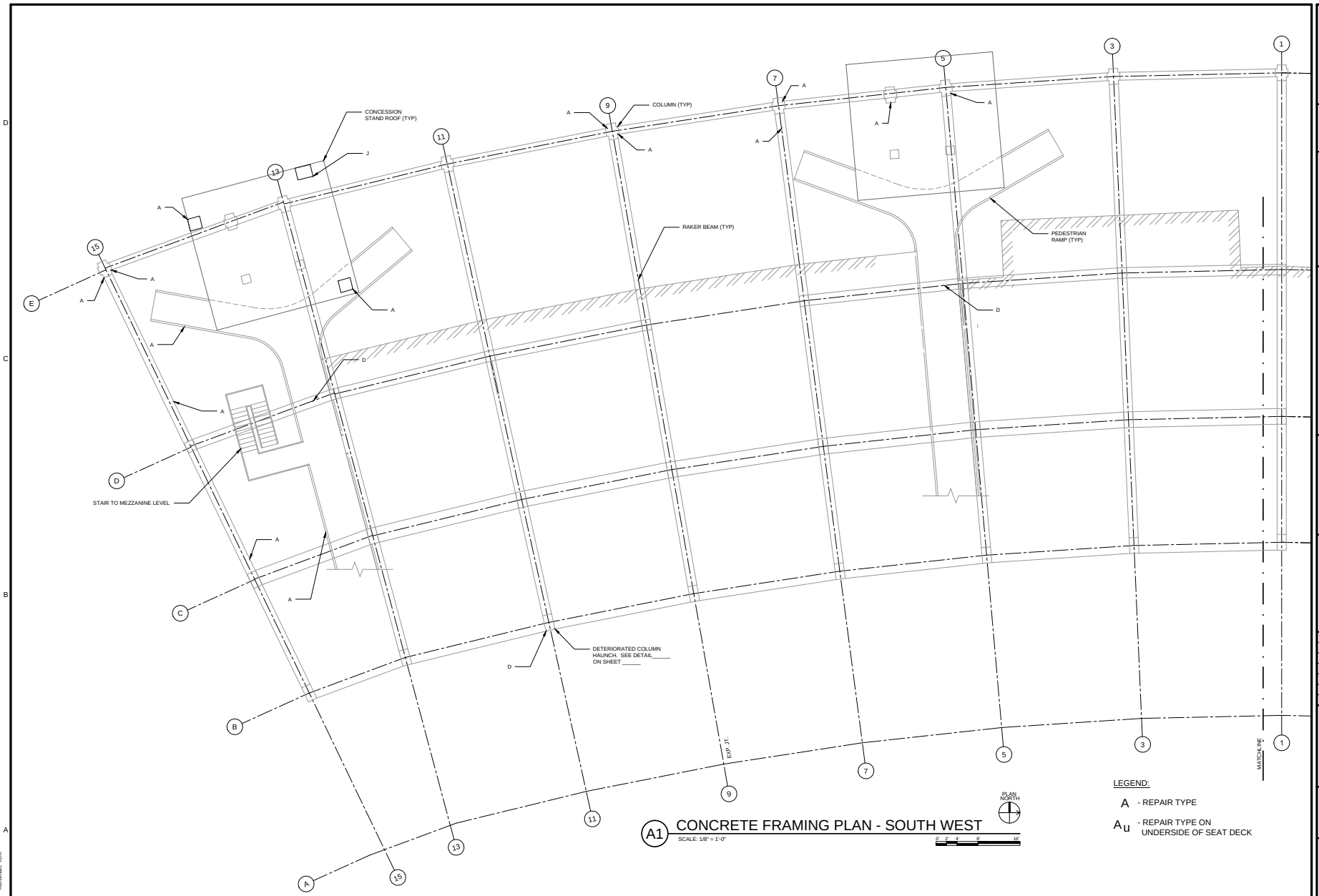
8/10/2015 8:07 AM Kunsman, Tom



A1 CONCRETE FRAMING PLAN - SOUTH WEST
SCALE: 1/8" = 1'-0"

LEGEND:

A - REPAIR TYPE

A_u - REPAIR TYPE ON UNDERSIDE OF SEAT DECK

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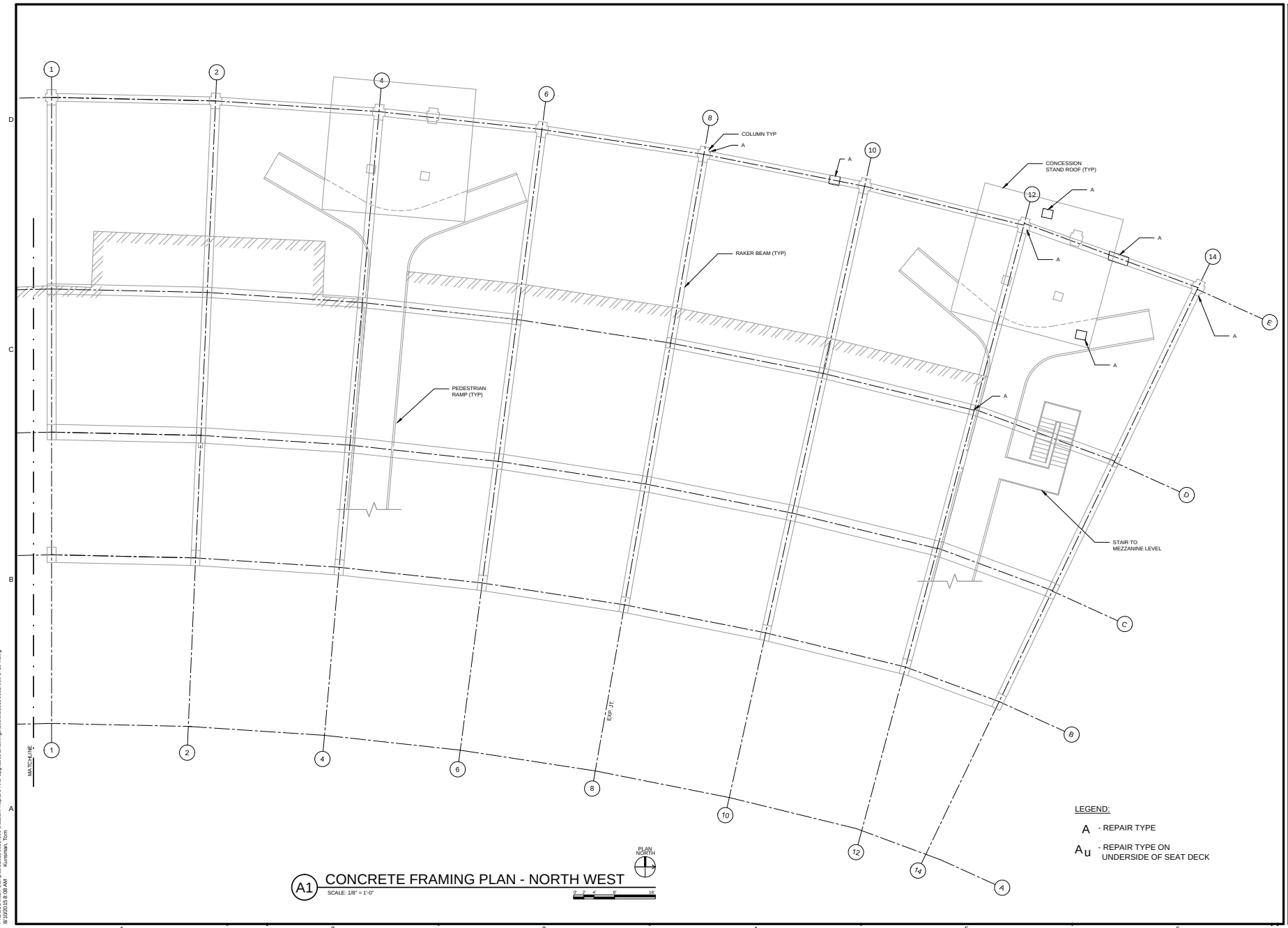
CONCRETE FRAMEING PLAN SOUTHWEST

DRAWING NO.
S-103



A1 CONCRETE FRAMING PLAN - NORTH WEST

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

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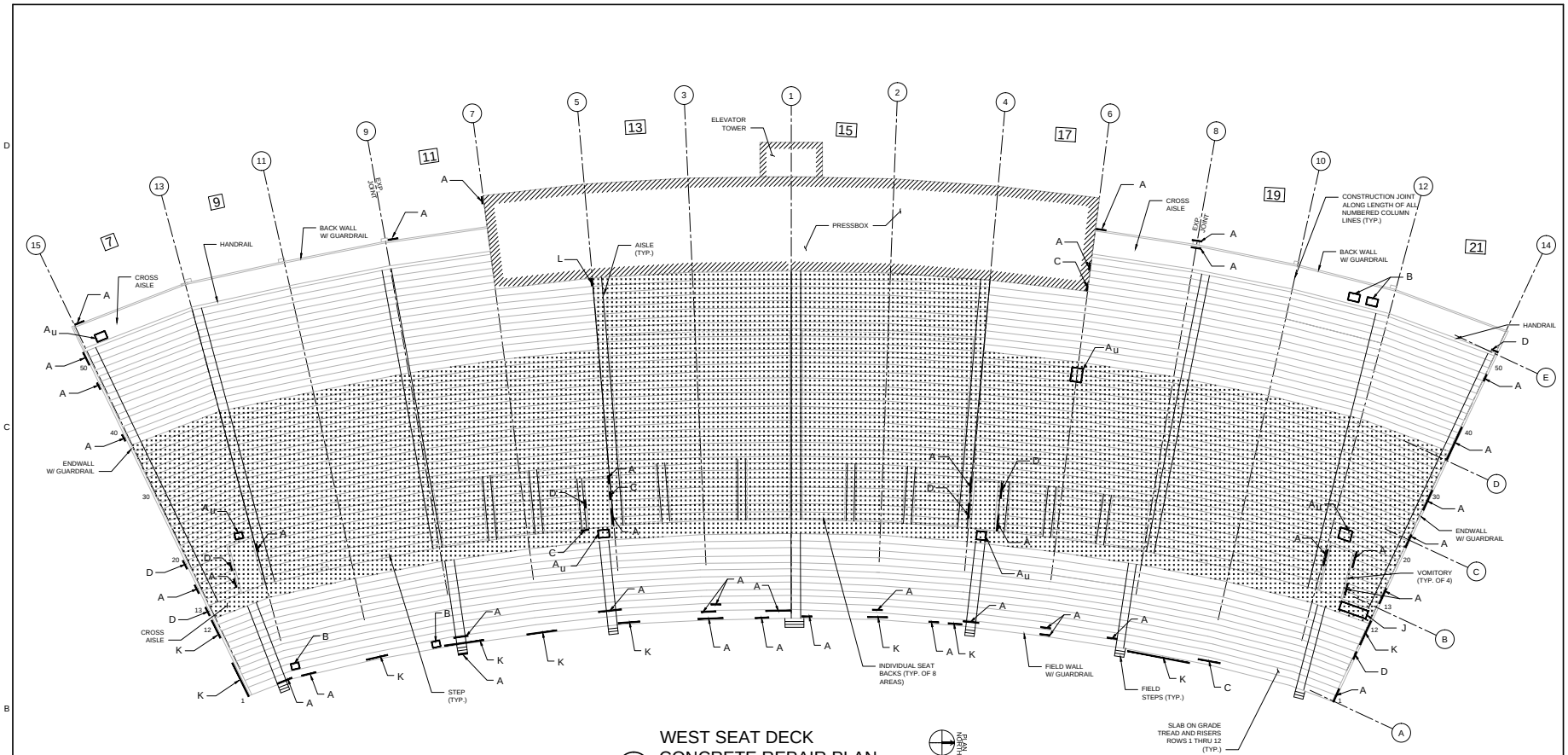
CONCRETE FRAMING-NORTHWEST

DRAWING NO.

S-104



A1 WEST SEAT DECK CONCRETE REPAIR PLAN

SCALE: 1/16" = 1'-0"

NORTH PLAN

CONCRETE REPAIR PLAN NOTES:

1. INSTALL NEW EXPANSION JOINT MATERIAL IN BOTH EXPANSION JOINT OPENINGS FROM ROW 1 THRU UPPER CROSS-AISLE.
2. INSTALL BACKER ROD AND SEALANT IN ALL CONSTRUCTION JOINTS FROM ROW 1 UP TO BACK WALL.
3. INSTALL BACKER ROD AND SEALANT IN HORIZONTAL JOINT OPENING ON EVERY RISER.
4. PLACE TRAFFIC MEMBRANE ON ALL TREADS AND RISERS, STEPS, CROSS-AISLE, VOMITORY SLABS, AND 6" UP ADJACENT WALL SURFACE FROM ROW 12 THRU ROW 38 UNLESS NOTED OTHERWISE ON PLAN.

LEGEND:

- XX - SEAT SECTION NUMBER
- A - REPAIR TYPE
- A_u - REPAIR TYPE ON UNDERSIDE OF SEAT DECK
- NEW TRAFFIC MEMBRANE

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WEST SEAT DECK CONCRETE REPAIR PLAN

DRAWING NO.

S-110

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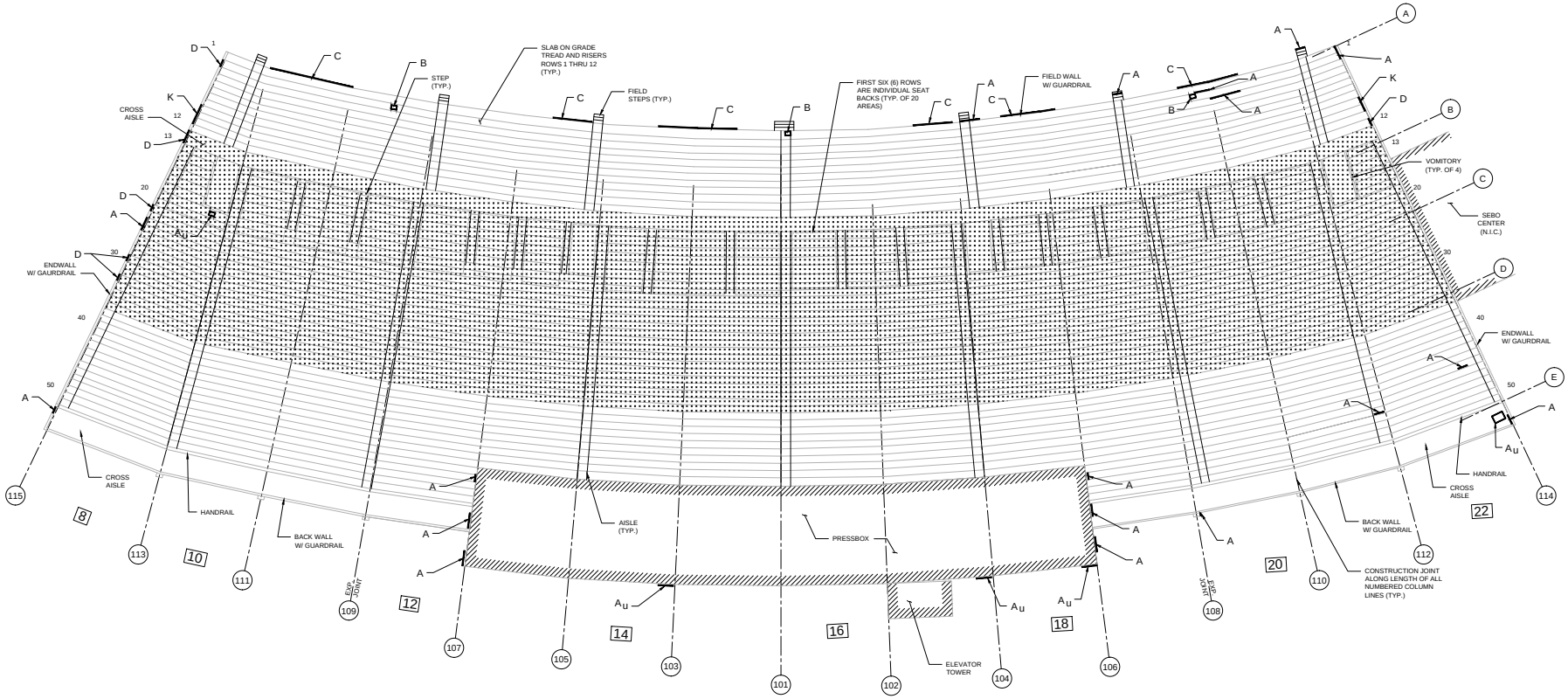
8/10/2015 8:08 AM Kunsman, Tom



EAST SEAT DECK CONCRETE REPAIR PLAN

A1 — SCALE: 1/16" = 1'-0"

CONCRETE REPAIR PLAN NOTES:

1. INSTALL NEW EXPANSION JOINT MATERIAL IN BOTH EXPANSION JOINT OPENINGS FROM ROW 1 THRU UPPER CROSS-AISLE.
2. INSTALL BACKER ROD AND SEALANT IN ALL CONSTRUCTION JOINTS FROM ROW 1 UP TO BACK WALL.
3. INSTALL BACKER ROD AND SEALANT IN HORIZONTAL JOINT OPENING ON EVERY RISER.
4. PLACE TRAFFIC MEMBRANE ON ALL TREADS AND RISERS, STEPS, CROSS-AISLE, VOMITORY SLABS, AND 6" UP ADJACENT WALL SURFACE FROM ROW 12 THRU ROW 38 UNLESS NOTED OTHERWISE ON PLAN.

LEGEND:

- XX - SEAT SECTION NUMBER
- A - REPAIR TYPE
- A_u - REPAIR TYPE ON UNDERSIDE OF SEAT DECK
- NEW TRAFFIC MEMBRANE

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EAST SEAT DECK CONCRETE REPAIR PLAN

DRAWING NO.
S-111

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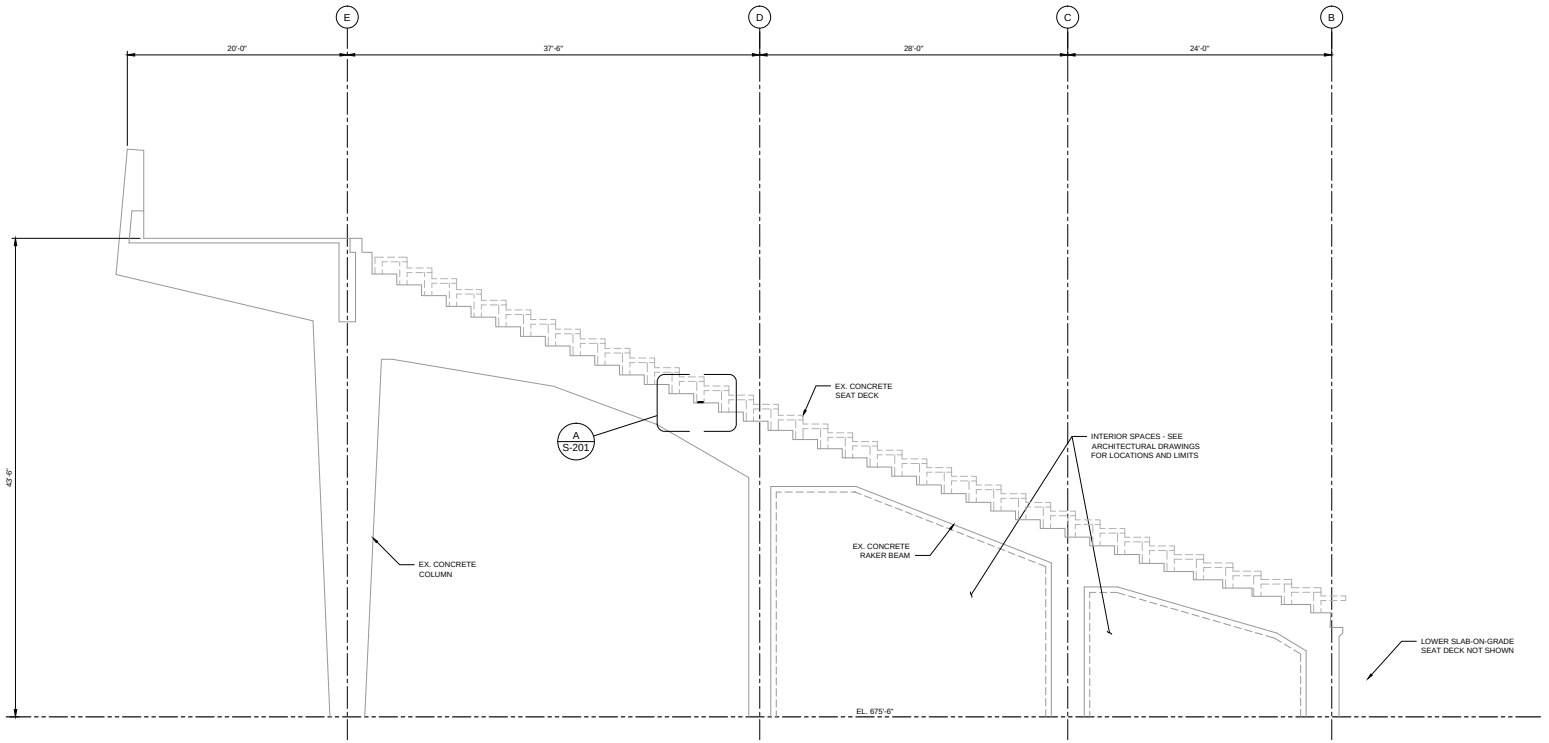
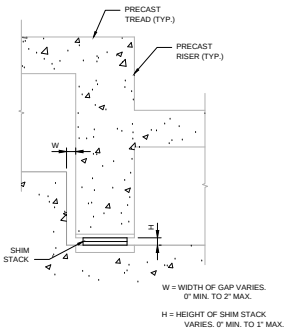
8/10/2015 8:09 AM Kunsman, Tom



A1 TYPICAL RAKER BEAM ELEVATION

SCALE: 3/16" = 1'-0"



A SHIM PLATE REPAIR DETAIL

NOT TO SCALE

B CONNECTION REINFORCEMENT DETAIL

NOT TO SCALE

SHIM PLATE CONNECTION REPAIR PROCEDURE:

1. CONTRACTOR SHALL RESTORE ALL SHIM PLATE CONNECTIONS LOCATED ON EXTERIOR OF THE STADIUM BELOW THE SEAT DECK. SEE DETAIL 'A' THIS SHEET FOR ADDITIONAL INFORMATION. SEVERAL ADDITIONAL SHIM PLATES MUST BE RESTORED WITHIN ENCLOSED SPACES SUCH AS GROUNDS CREW ROOM, ETC. SEE SHEET S-112 FOR THE LOCATION OF THOSE SHIMS TO BE RESTORED WITHIN ENCLOSED AREAS. THE CONTRACTOR'S BASE BID SHOULD ASSUME THE NEED FOR (1,700) SHIMS TO BE REPAIRED ON THIS PROJECT.
2. ACCESS TO SOME SHIM PLATE CONNECTIONS IS LIMITED. CONTRACTOR MUST PROVIDE NECESSARY MEANS TO ACCESS EACH SHIM PLATE CONNECTION.\
3. REMOVE ALL DIRT, LOOSE RUST, PIGEON FECES, ETC. FROM TOP OF RAKER BEAM AND ALSO THE STEEL SURFACES OF THE SHIM PLATE CONNECTION. CLEANING AND STEEL SURFACE PREPARATION MUST BE DONE WITH A MINIMUM OF A 7,000 PSI WATER BLAST OF ALL SURFACES. ACCESS TO ALL STEEL SURFACES AT THE CONNECTION IS LIMITED. CONTRACTOR MUST MAKE GOOD FAITH EFFORT TO CLEAN AS MUCH OF THE STEEL SURFACES AS POSSIBLE. DO NOT DAMAGE CONCRETE DURING CLEANING PROCESS. PROTECT ALL SURFACES BELOW FROM DEBRIS AND WATER BLAST SPRAY.
4. INSTALL A 3" LONG WELD WHERE ORIGINAL WELD IS FRACTURED OR MISSING ON CONNECTIONS IDENTIFIED AS "FIXED". THE CONTRACTOR'S BASE BID SHOULD ASSUME THE NEED FOR (200) 3" LONG WELDS ON THE PROJECT. DO NOT WELD ANY CONNECTIONS IDENTIFIED AS "FREE". COORDINATE SPECIFIC LOCATIONS WITH ENGINEER.
5. ADD SUPPLEMENTAL ANGLE TO CONNECTIONS THAT CANNOT BE WELDED. SEE DETAIL 'B' THIS SHEET FOR ADDITIONAL INFORMATION. THE CONTRACTOR'S BASE BID SHOULD ASSUME THE NEED FOR (40) ANCHORS TO BE INSTALLED. COORDINATE SPECIFIC LOCATIONS WITH ENGINEER.
6. APPLY A HIGH PERFORMANCE COATING TO ALL PROPERLY PREPARED CONCRETE SURFACES. ACCESS FOR PAINTING WORK IS LIMITED, THEREFORE THE CONTRACTOR MUST USE APPROPRIATE MEANS TO REACH AS MUCH OF THE STEEL AS POSSIBLE. THE BASIS OF BID HIGH PERFORMANCE COATING IS A SINGLE COAT OF "SHERWIN WILLIAMS – MACROPOXY 920 PRE-PRIME" PENETRATING EPOXY PRE-PRIMER, AND AN INTERMEDIATE AND TOP COAT USING "SHERWIN WILLIAMS – MACROPOXY 646-100" FAST CURING EPOXY (OR APPROVED EQUAL). ALL COATING MATERIALS MUST BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

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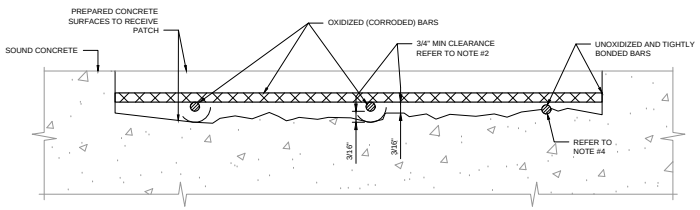
RAKER BEAM ELEVATION AND SHIM REPAIR DETAILS

DRAWING NO.
S-201



SECTION THROUGH CONCRETE MEMBER

APPLICABLE TO HYDRODEMOLITION, HYDROMILLING, AND PNEUMATIC, HYDRAULIC, AND ELECTRIC BREAKERS

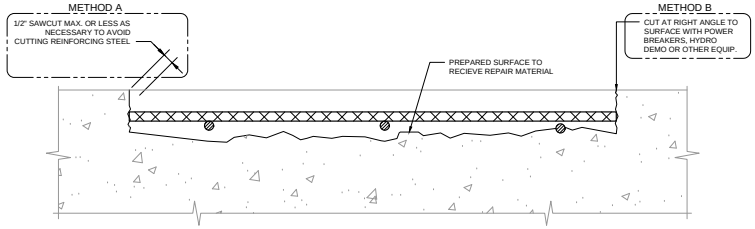
CAUTION! BEFORE STARTING REMOVALS, REVIEW EFFECT OF REMOVALS ON STRUCTURAL INTEGRITY. PROVIDE SHORING OF MEMBER AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTIONS TO COLUMNS.

1. REMOVE LOOSE OR DELAMINATED CONCRETE ABOVE OXIDIZED REINFORCING STEEL. ONCE INITIAL REMOVALS ARE MADE, PROCEED WITH THE UNDERCUTTING OF ALL EXPOSED OXIDIZED (CORRODED) BARS. UNDERCUTTING WILL PROVIDE CLEARANCE FOR UNDER BAR CLEANING, FULL BAR CIRCUMFERENCE BONDING TO SURROUNDING CONCRETE, AND WILL SECURE THE PATCH STRUCTURALLY.
2. PROVIDE MINIMUM 3/4" CLEARANCE BETWEEN EXPOSED REBARS AND SURROUNDING CONCRETE OR 1/4" LARGER THAN THE LARGEST AGGREGATE IN REPAIR MORTAR, WHICH EVER IS GREATER.
3. CONCRETE REMOVALS SHALL EXTEND ALONG THE BARS TO LOCATIONS ALONG THE BAR FREE OF BOND INHIBITING CORROSION, AND WHERE THE BAR IS WELL BONDED TO SURROUNDING CONCRETE.
4. IF UNOXIDIZED REINFORCING STEEL IS EXPOSED DURING THE UNDERCUTTING PROCESS, CARE SHALL BE TAKEN NOT TO DAMAGE THE BAR'S BOND TO SURROUNDING CONCRETE. IF BOND BETWEEN BAR AND CONCRETE IS BROKEN, UNDERCUTTING OF THE BAR WILL BE REQUIRED.
5. ANY REINFORCEMENT WHICH IS LOOSE SHALL BE SECURED IN PLACE BY TYING TO OTHER SECURED BARS OR BY OTHER APPROVED METHODS.

TYPICAL EXPOSING AND UNDERCUTTING REINFORCING STEEL DETAIL

NOT TO SCALE

APPLICABLE TO VERTICAL AND OVERHEAD LOCATIONS



SECTION THROUGH CONCRETE MEMBER

APPLICABLE TO HYDRODEMOLITION, HYDROMILLING, AND PNEUMATIC, HYDRAULIC, AND ELECTRIC BREAKERS

CAUTION! BEFORE STARTING REMOVALS, REVIEW EFFECT OF REMOVALS ON STRUCTURAL INTEGRITY. PROVIDE SHORING OF MEMBER AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTIONS TO COLUMNS.

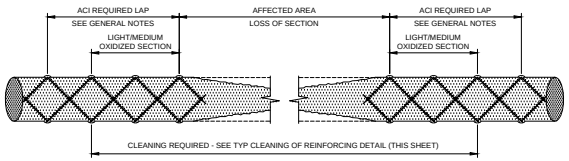
1. REMOVE DELAMINATED CONCRETE, UNDERCUT REINFORCING STEEL (REFER TO REINFORCING STEEL UNDERCUTTING GUIDELINE), REMOVAL ADDITIONAL CONCRETE AS REQUIRED TO PROVIDE MINIMUM REQUIRED THICKNESS OF REPAIR MATERIAL.
2. AT EDGE LOCATIONS PROVIDE EITHER METHOD A OR METHOD B RIGHT ANGLE CUTS. AVOID FEATHER EDGES. FOR SHOTCRETE REPAIRS REFER TO ACI 506 EDGE PREPARATION GUIDELINES. PATCH CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE. FOR EXAMPLE:

3. AFTER REMOVALS AND EDGE CONDITIONING ARE COMPLETE, REMOVE BOND INHIBITING MATERIALS (DIRT, CONCRETE SLURRY, LOOSELY BONDED AGGREGATES) BY ABRASIVE BLASTING OR HIGH PRESSURE WATERBLASTING WITH OR WITHOUT ABRASIVE. CHECK THE SURFACES AFTER CLEANING TO INSURE THAT SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE, OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
4. IF HYDRODEMOLITION IS USED, CEMENT AND PARTICULATE SLURRY MUST BE REMOVED FROM THE PREPARED SURFACES BEFORE SLURRY HARDENS.

EDGE AND SURFACE CONDITIONING - TYPE I REPAIR

NOT TO SCALE

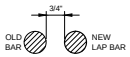
APPLICABLE TO VERTICAL AND OVERHEAD LOCATIONS



IF REBAR HAS LOST MORE THAN 25% OF ITS CROSS SECTION (20% IF 2 OR MORE CONSECUTIVE PARALLEL BARS ARE EFFECTED) CONSULT THE ENGINEER.

IF REPAIRS ARE REQUIRED TO THE REINFORCING STEEL ONE OF THE FOLLOWING REPAIR METHODS SHOULD BE USED:

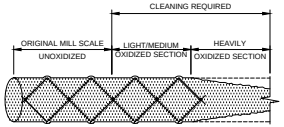
1. COMPLETE BAR REPLACEMENT ADDITION OF SUPPLEMENTAL BAR OVER AFFECTED SECTION.
2. NEW BAR MAY BE MECHANICALLY SPLICED TO OLD BAR OR PLACED PARALLEL TO AND APPROXIMATELY 3/4" FROM EXISTING BAR.
3. LAP LENGTH SHALL BE DETERMINED IN ACCORDANCE WITH ACI 318, AND STRUCTURAL GENERAL NOTES



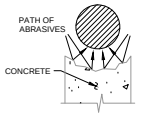
RECOMMENDED CLEARANCE

REPAIR OF REINFORCING STEEL DUE TO LOSS OF SECTION

NOT TO SCALE



ALL HEAVY OXIDES AND SCALE SHOULD BE REMOVED FROM THE BAR AS NECESSARY TO PROMOTE MAXIMUM BOND OF REPLACEMENT MATERIAL. OIL FREE ABRASIVE BLAST IS THE PREFERRED METHOD. A TIGHTLY BONDED LIGHT OXIDE BUILD-UP ON THE SURFACE MAY RESULT FROM HIGH-PRESSURE WATERBLASTING, WITH OR WITHOUT ABRASIVE. THIS IS USUALLY NOT DETRIMENTAL TO BOND, UNLESS A PROTECTIVE COATING IS BEING APPLIED TO THE BAR SURFACE, IN WHICH CASE THE COATING MANUFACTURER'S RECOMMENDATIONS FOR SURFACE PREPARATION SHOULD BE FOLLOWED.



CLEANING UNDERSIDE OF BAR

CLEANING OF REINFORCING STEEL

NOT TO SCALE

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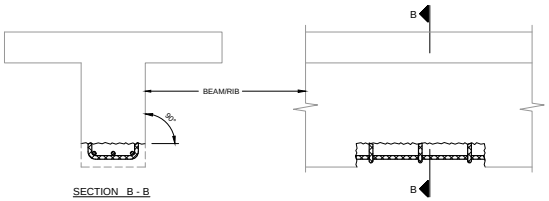
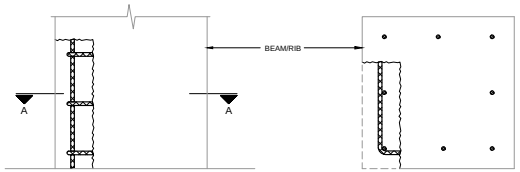
TYPICAL CONCRETE REPAIR DETAILS

DRAWING NO.

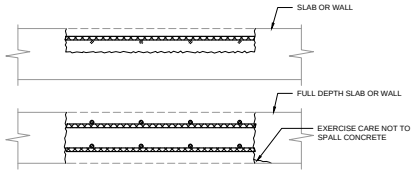
S-501



SECTION B - B



SECTION A - A

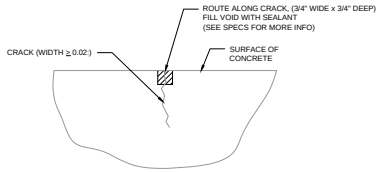


CAUTION! BEFORE STARTING REMOVALS, REVIEW EFFECT OF REMOVALS ON STRUCTURAL INTEGRITY. PROVIDE SHORING OF MEMBER AS NECESSARY. PARTICULAR CARE SHALL BE EXERCISED AT SLAB/BEAM CONNECTIONS TO COLUMNS.

REPAIR TYPE A & B - REMOVAL GEOMETRY
NOT TO SCALE

REPAIR TYPE K - FULL DEPTH WALL REPLACEMENT
NOT TO SCALE

REPAIR TYPE J - FULL DEPTH SLAB REPLACEMENT
NOT TO SCALE



REPAIR TYPE C - NON-STRUCTURAL CRACKS
NOT TO SCALE

REPAIR TYPE I - STEP PLACEMENT
NOT TO SCALE

REPAIR TYPE P - GUARDRAIL REPLACEMENT
NOT TO SCALE

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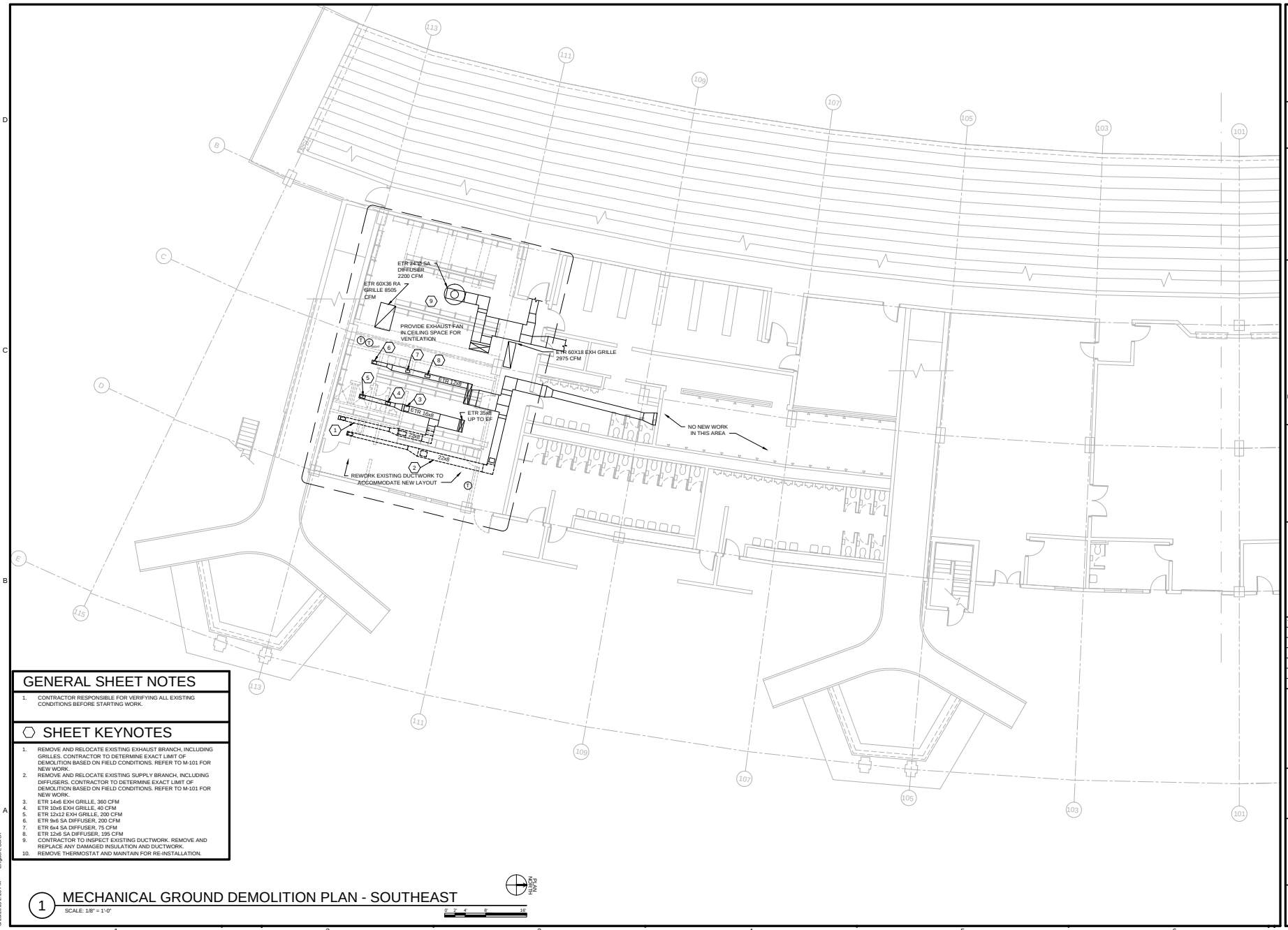
CONCRETE REPAIR DETAILS

DRAWING NO.
S-502



GENERAL SHEET NOTES

1. CONTRACTOR RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS BEFORE STARTING WORK.

SHEET KEYNOTES

1. REMOVE AND RELOCATE EXISTING EXHAUST BRANCH, INCLUDING GRILLES. CONTRACTOR TO DETERMINE EXACT LIMIT OF DEMOLITION BASED ON FIELD CONDITIONS. REFER TO M-101 FOR NEW WORK.
2. REMOVE AND RELOCATE EXISTING SUPPLY BRANCH, INCLUDING DIFFUSERS. CONTRACTOR TO DETERMINE EXACT LIMIT OF DEMOLITION BASED ON FIELD CONDITIONS. REFER TO M-101 FOR NEW WORK.
3. ETR 14x6 EXH GRILLE, 360 CFM
4. ETR 10x6 EXH GRILLE, 40 CFM
5. ETR 12x12 EXH GRILLE, 200 CFM
6. ETR 9x6 SA DIFFUSER, 200 CFM
7. ETR 6x4 SA DIFFUSER, 75 CFM
8. ETR 12x6 SA DIFFUSER, 195 CFM
9. CONTRACTOR TO INSPECT EXISTING DUCTWORK. REMOVE AND REPLACE ANY DAMAGED INSULATION AND DUCTWORK.
10. REMOVE THERMOSTAT AND MAINTAIN FOR RE-INSTALLATION.

1 MECHANICAL GROUND DEMOLITION PLAN - SOUTHEAST

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

NORTH

0' 2' 4' 8' 16'

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BOWLING GREEN, OH
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TAG	ISSUED	DATE
A	SD REVIEW	6-22-15
B	DD REVIEW	8-17-15

DRAWN BY	SPE
CHECKED BY	BGK
CLIENT PROJ. NO.	95060008
OSBORN PROJ. NO.	J20150051.000

MECHANICAL GROUND DEMOLITION PLAN- SOUTHEAST

DRAWING NO.

MD1.01

DRAFT REPORT 04/11/13

Figure 1- Panoramic View of Doyt Perry Stadium looking Northwest

EXECUTIVE SUMMARY:

ROSSETTI was retained to provide a Facility Conditions Assessment for Bowling Green State University, related specifically to Architectural and Structural areas. The structural review + testing requirements follows the architectural review starting on page 13.

The architectural review concentrated on the following areas;

- Team Facilities and Spectator Facilities Spaces
- Stadium Bowl Seating: Condition and function of the existing seating.
- Accessibility Study: Review the existing Stadium's general accessibility features
- Building Envelope: Condition and function of the existing architectural wall systems.

The objective of the assessment is to evaluate the existing condition and expected remaining service life of the Stadium's systems and infrastructure.

On March 8th, 2013 ROSSETTI made a site visit to observe the existing conditions of the facility. It should be noted that no testing, instruments or destructive investigation methods were applied; this was an observational evaluation only.
We reviewed example rooms of each type within the facility related to the scope of work, performed multiple walks around the exterior of the facility and on roof portions of the Suite and Media areas. The assessment provides recommendations based on the observations. We utilize photographs to help describe the existing conditions as much as possible. The existing Sebo Center Facility was not fully reviewed as part of this assessment as this is the most recent addition to the Stadium.

Generally speaking the facility has issues that could fall into overall categories, short term and future:

Short Term (within 1 year)

- Accessibility issues throughout, including ramped walkway
- Lower Bowl Aisle Railing- We recommend that lower bowl railings be added
- Testing of Precast Riser clip angle connectors- see testing requirements
- Testing of Precast Riser steel end bearing plates- see testing requirements
- Repair Precast Riser spalling concrete
- Prepare Precast for installing traffic coating over full stadia
- Repair of steel beams encased in concrete at upper boxes
- Testing Beam Support Corbel- see testing requirements
- Lower Bowl Seating and Retaining Walls repair/replace
- Remove loose steel decking under walkway ramps
- Grouting of Sport Light pole bases
- Replace slabs within concession stands
- Replace Egress Stair at East side Elevator bridge
- Test all guardrails- see testing requirements
- Replace joint sealant at all wall/ramps intersections
- Clean and seal all exterior cmu walls
- Test Precast Wall panel connection- see testing requirements
- Test Spray Insulation in press box – see testing requirements
- Test/Inspect Roof Membrane to determine repairs

- Implement repair program on Precast Riser clip angle connectors
- Implement repair program on Precast Riser steel end bearing plates
- Implement repair on Beam Support Corbel
- Replace Precast Riser joint sealant throughout
- Repair Concrete Main load bearing frames minor spalling
- Repair Concrete Slabs at top of stadia
- Repair Cracking in Precast panels
- Clean and repair steel stairs at Mezzanine ends
- Repair or Replace all steel guardrails
- Repair cracks in cmu walls and seal
- Replace Sealant in exterior windows/ doors
- Repair Roof leaks or Replace roofing
- MEP systems- Not reviewed but assumed to be near end of service life based on observations
- Seating + Supports

FACILITY BACKGROUND:

Doyt Perry Stadium is a stadium in Bowling Green, Ohio, United States. It is primarily used for college football, and is the home field of the Bowling Green State University Falcons. The stadium was designed by Osborn-Papesh Architects of Cleveland, Ohio in 1965.

Constructed in 1966 for approximately $3 million as a replacement for the 43-year-old University Stadium, Doyt Perry Stadium had a capacity of 23,272 until bleacher seats were installed in both end zones in 1982 (those bleachers have since been removed, to give way for the Sebo Athletic Center and Falcon Club Boosters, giving BGSU the 24,000 current capacity).

On October 1, 1966, the stadium opened with a 13-0 win over Dayton. The stadium was named for Doyt L. Perry, a highly successful coach and athletic director at the school. Through 46 seasons, the Bowling Green Falcons have enjoyed an impressive record at Doyt Perry Stadium. Since that time, the Falcons have won over 66 percent of their home games, compiling a 140-68-6 record in the 214 games played at Doyt Perry Stadium.

On Oct. 8, 1983, a huge crowd of 33,527 packed into Perry Stadium for the annual Northwest Ohio rivalry between Bowling Green and Toledo, establishing a school and MAC record for single-game attendance. The Falcons went on to set a season record, breaking the six-digit figure for five games with a total draw of 100,021. It marked the first time in history that Bowling Green averaged more than 20,000 fans for five home football games.

That figure was topped in 1985, when Bowling Green posted a perfect record (11-0) in the regular season and clinched the MAC Championship by shutting out Toledo at Perry Stadium in November. More than 28,000 fans turned out that day, raising Bowling Green's season attendance to an average of 22,422.

In 1994, BG fans bettered the mark of 1985 as 114,802 fans, an average of 22,960, attended the five home games.

The construction of elevators on both sides of the stadium, completed in early 1998, has made the stadium more accessible for all fans.

In 2001 permanent lighting was installed at the venue.

In 2003, Falcon faithful attended sellout games against Northern Illinois and Toledo as ESPN broadcasted three games live from the facility and brought its weekly college football show, Gameday, to Bowling Green. That year, BGSU averaged more than 21,000 per home game.

For the 2007 football season the stadium received an upgrade. The Sebo Athletic Center encloses the North endzone and houses the band seating, luxury suites, offices, training facilities and new box offices. The traditional grass field was also replaced with a Field Turf artificial surface.

The stadium consists of two bowed sideline grandstands. Over the years the stadium also featured steel grandstands at the north and south ends.

Doyt Perry Stadium is more than just a football facility. The east side of the stadium includes locker rooms, equipment and training rooms, along with the Athletic Department offices. The west side is the home of the BGSU Golf Training Center, filled with a 1,200 square foot putting green, locker rooms and hitting bays.

Sitting atop the press box on the west side of the stadium is the plush Stadium Club. The Stadium Club's 106 theatre-type seats provide loyal BGSU fans with the best view of the game. The President's Box, located at the top of the east side of the stadium, provides luxury seating for the University President and guests, along with other supporters of Falcon football.

ARCHITECTURAL REVIEW:

The Stadium has four primary levels:

- Event/Concourse Level on which the playing field, team locker rooms, operations support spaces, public toilet rooms and concessions are located
- Mezzanine Level (partial on West + East sides)
- Suite Level (East side)
- PressBox Level (West side)
- Stadium Club Level (West side)
- Seating Bowl is made of separate concrete seating sections on the West and East sides
- The Sebo Center located at the North end was not included in this review

EVENT LEVEL: PUBLIC AREAS

TICKET BUILDINGS: There are (4) existing Ticket Buildings that are located outside the facility, they are located on the West and East sides (refer to figure 2).

Figure 2- Ticket Buildings

PUBLIC SIDEWALKS AND PAVING AROUND STADIUM: The existing pavement around the stadium for the concourse appeared generally in good condition on all sides around the facility where the public would have access. While previous replacement and patching of the pavement was visible and evident, the new pavement appeared flush and even with the existing material and posed no immediate hazard to spectators.

PUBLIC CONCOURSE: The exterior paving is effectively the public concourse. The paving was in good condition, no major holes, cracks or steps that would create any on-going issues.

PUBLIC RAMPED WALKWAYS: The seating bowl is primarily accessed from (8) large ramped walkways, with a distinctive "Y" shaped entry into the seating bowl (refer to figure 3). These ramps are at a slope of 1" rise over 10" of run, as indicated on the original drawings, but they contain no landings, it is one constant slope for approx. 9 feet of vertical rise. The slope and the arrangement do not comply with current building and accessibility codes, which would require a maximum slope of 1" rise over 12" of run and a landing for every 30" of rise. In the case of this location, you would be required to provide (4) 5'-0" long level landings and revise the slope of the ramp. This would add almost 40 feet to the overall length of these ramps at each location. Handrails would also be required on each side to comply with the current building codes (refer to figure 4).

Figure 3- View of Ramped Walkway to Seating Bowl

Figure 4- View of Ramped Walkway with Hand Rails

The construction on the top surface appears to be in acceptable condition. There are noticeable chalking and weathering issues with the CMU walls along the sides, but the walking surface has no visible issues.

Figure 5- View of Underside of Ramped Walkway

However, the construction on the bottom side of these ramps is another issue (refer to figure 5). It was evident that the supporting metal deck has serious signs of deterioration and appears to be a safety issue for anyone accessing this space. Per the structural assessment, this is not specifically a structural concern, since this decking was used as a form for the ramp.

CONCESSION STANDS: The existing facility contains (8) freestanding concession stands with canopies located at the base of the ramped walkways (refer to figures 6 and 7). It is unclear how many point of sales (POS) machines are setup for each location, but 2-4 POS per stand seems reasonable. This would mean a total amount of 32 POS, which equates to approx. 1 POS for every 718 spectators. This is a very high ratio for a current college facility. We would recommend that the ratio should be closer to 1:200, which would mean a total amount of 115 POS, or an increase of around 83 POS. The public counter height is 3'-6" and would need to have a lowered portion at 3'-0" max. to comply with the current accessibility codes.

Figure 6- Interior of Concession Stand

Figure 7- View of Concession Stand

PUBLIC TOILETS: The existing facility contains a total of (4) Men's and (4) Women's Toilet Rooms. Generally these spaces were in good condition. The painted, floor mounted toilet partitions were in good condition and the ones tested appeared stable and structurally sound. A few locations showed signs of attempts to provide wheelchair accessible stalls, although it was observed that these did not appear to fully comply. These rooms also lacked the required ambulatory stalls and many of the toilet accessories were mounted higher than allowed (refer to figures 8 and 9). The rooms themselves had more than adequate turning clearances; however the existing entry and exit doorways do not. The quantity of existing toilets is well below the current code requirements and would need to be resolved in any future renovation.

Figure 8- Public Toilets- Toilets + Urinals

Figure 9- Public Toilets- Lavs

WAYFINDING SIGNAGE: Simple and clean wayfinding signage helps spectators navigate a facility. Very little wayfinding signage was visible. We did observe some painted letters at the entry to the ramped walkways. We would suggest this signage be

provided and possibly redesigned at least every ten years to keep the facility current.

BUILDING LIGHTING: The site visit was conducted during the day and as such we were not able to determine if the building/ site lighting was adequate or not. Based on observations of the lighting locations, we have no reason to believe there are problems with the lighting.

FOOTBALL FIELD:

FIELD TURF: The traditional grass field was replaced with Field Turf in 2007. The condition of the Field Turf appears to be in good condition. There were no visible defects or issues with the turf (refer to figure 10).

Figure 10- South End Zone looking North across Field Turf field

FIELD LIGHTING: The field lighting is provided from (4) Musco lightpoles. The site visit was conducted during a non-event time and as such we were not able to determine if the field lighting was adequate or not. Based on observations of the lighting quantity and locations, we have no reason to believe there are problems with field lighting (refer to figure 11).

Figure 11- View of Field Lighting, 4 poles

SCOREBOARD: Located at the South end of the field is the main video scoreboard for the facility. The scoreboard was built by Daktronics, originally installed in 2004, was upgraded for the 2012 season has a 15 mm pixel pitch spacing, and approx. 19' x 35' dimensions. The size of this board is on the smaller size for NCAA Division I football (refer to figure 12).

Figure 12- BGSU Video Scoreboard

EVENT LEVEL: TEAM AREAS

VISITING TEAM LOCKER ROOM: The Visiting Team locker room is located in the SE corner of the facility. The room is very dated and simple, but it does appear to have enough space for the intended use. We assume this room is used for all visiting teams (Football, Track, Soccer, etc...). We did not observe separate training facilities for the Visiting Teams, and all areas including the toilet and shower areas appear to be non-compliant with accessibility guidelines (refer to figure 13).


Figure 13- View of Visiting Team Lockers

FALCON'S TEAM LOCKER ROOMS (Track/Cross Country, and Men's Soccer): The various BGSU teams noted above located within the facility are generally dated and in need of revisions (refer to figures 14 and 15).


Figure 14- View of BGSU Men's Soccer Lockers


Figure 15- View of BGSU Track/Cross Country Lockers

FALCON ATHLETIC EQUIPMENT ROOM: The Athletic Equipment Storage room appears to be well organized and able to support the intended uses. The addition of more space would allow for a higher capacity storage system (refer to figure 16).

Figure 16- View of Athletic Equipment Storage Room

PLAYER'S LOUNGE: The Player's Lounge appears to be very small in size for the number of athletes it should serve. The current layout appears to have four activities, but it would be difficult to accommodate the number of people needed. The room is also dividable into three smaller spaces for multiple meetings. We would recommend that this room be increased in size to allow for more comfort and relaxation for the athletes (refer to figure 17).


Figure 17- View of Player's Lounge

FALCON FOOTBALL COACHES LOCKER ROOM- The Coach's locker room is located directly adjacent to the Football Locker room. The room contains separate toilet and shower areas, is in good condition and appears adequate.

FALCON FOOTBALL TEAM LOCKER ROOM: The Falcons Football Locker Room was recently renovated in 2007 as part of the Sebo Center project. The room appears larger and more spacious than the other locker rooms, with detailed wood lockers. The space appears very modern and comparable to other current major NCAA locker rooms with nicely done signage and graphics (refer to figures 18 and 19).

Figure 18- View of Football Locker Room

Figure 19- View of Football Locker Room cont'd

FALCONS TRAINING ROOM (located in the Sebo Center): The Training Room for the Falcon's is part of the Sebo Center and was constructed in 2007. This room is for all of the various sports located in the facility. The room generally appears adequate for the intended use including treatment and taping tables, and multiple hydro tubs for therapy (refer to figure 20).

Figure 20- View of Sebo Training Room

WEIGHT ROOM (located in the Sebo Center): The Weight Room for all associated BGSU sports is located in the Sebo Center and was also constructed in 2007. The room seems well equipped and in good condition. The issue is that the room is primarily used by the football team and the other sports have limited access for using this space. It would be recommended to either increase the size of the room or to provide a separate room for the other sports to utilize (refer to figure 21).

Figure 21- View of Sebo Weight Room

FALCON GOLF TRAINING CENTER: The west side of the facility is dominated by the home of the BGSU Golf Training Center, filled with a 1,200 square foot putting green, locker rooms and hitting bays. The complex was created within the (4) original handball courts. This complex appears to be a very unique feature that is available to the BGSU golf teams (refer to figure 22 thru 24). The associated locker rooms however, are very small and dated and could have some renovations to improve them but the golf training complex appears in good condition. Within the center, the Men's Cross Country team also appears to have their lockers located, we would recommend in a renovation, that these lockers be relocated.


Figure 22- View of Falcon Golf Training Center


Figure 23- View of Driving Range


Figure 24- View of Putting Green

BOH CORRIDORS: The backs of house corridors along this level were simple and clean and well lit.

MEZZANINE LEVEL:

OFFICE CORRIDOR: The East side Mezzanine Level runs under the full length of the seating. It contains various athletic and coaches offices and some associated conference, storage and related mechanical rooms. The enclosed portions like toilets and conference rooms on the North side have been constructed with a sub-roof system under the precast stadia. Many of these areas show signs of previous water damage over the years. The East office hallway is clean and well lit. Besides the water intrusion issue, the major item of note was the non-accessible hallway with the stairs located at each of the ramped walkways (2 locations within corridor). Actually, although a few offices on this level actually comply with the ADA due to the addition of the elevator in 1998, none of the toilet rooms do. This area would need to be resolved in any proposed renovation (refer to figure 25).


Figure 25- View of East Corridor Steps

The west side Mezzanine Level is much smaller due to the Golf Training Center. The West side is actually two, smaller un-connected buildings without elevator access. The buildings also contain a variety of athletic and coach offices. The portion at the North end also includes the Softball Locker Room. Again, these areas would be required to comply with accessible guidelines if a renovation occurs.

EGRESS STAIR TOWERS: The Mezzanine Levels on both sides of the facility have some interior and exterior egress stairways. Generally these stairs are in need of repair and re-painting to extend their life. The existing steel stairways from the Mezzanine floor and the Elevator access bridge all appear in various states of deterioration. The worst location is the egress stair on the South side of the stadium from the Elevator bridge. This stair is in immediate need or repair, due to the amount of rusting that is visible. This stair should not be used for fear of injuring visitors or spectators.

Figure 26- East Side Elevator Bridge Exit Stair- Corroded Steel

MEZZANINE EXTERIOR WALLS/ WINDOWS:
The Mezzanine Level is enclosed with CMU walls and have small windows for each office area. These offices have separate mechanical units mounted under the windows with an attached louver. Based on the existing drawings, it is not clear if any coating or sealer was installed over the exterior surface. The exterior wall is showing signs of water intrusion, noticeable from the visible staining seen on the walls (refer to figure 27). We would recommend the walls be cleaned and an appropriate sealer or coating be applied to limit water from entering the wall system. The construction of the Mezzanine also has an overhang condition that has the floor slab exposed to the exterior, we would suggest an insulated soffit be constructed to provide a more complete envelope.

Figure 27- Mezzanine Exterior Wall- Staining

The windows appear to be original to the facility and are 3/16" gray tinted single pane units per the drawings. These units should be replaced with insulated glass and associated sealant in order to extend the life of the facility. The insulation of the walls and roof should be increased as well.

SUITE/MEDIA LEVEL:

SELECT SEATS/SUITES (EAST SIDE): Along the East Side of the grandstands, there are (8) Suites and (1) President's Suite contained in a single story structure, it is accessed from the elevator and thru the seating bowl (refer to figure 28). The Suites contain two rows of seating with sloped glass toward the field. The sizes of the suites are very small in comparison to other football facilities. They are dated and lack space to provide much beyond the seats viewing the event. We would recommend a Suite Renovation to start within the next 3-5 years that would create a fresh new look for the Suites and associated spaces. The glass facing the field contains large vertical mullions that block some of the view (refer to figures 29 and 30). The President's Suite, with the associated Lounge area behind, seems appropriate for its use.

Figure 28- View of East Side Select Seats/ Suites

Figure 29- View from the President's Suite @50 Yard Line

Figure 30- View from North East Corner of Level

ROOFING: The single ply roofing above the Suite and Pressbox Levels appears generally in good condition. There are some minor areas that felt spongy when walking over, we would suggest a more formal review of the roofing from the manufacturer to determine the remaining life of the current roofing, we would estimate at least 5-8 years with some minor repairs (refer to figure 31).

Figure 31- View of Roof above PressBox

PRESSBOX (WEST SIDE): The Pressbox Level was similar to the Suite Level on the opposite side except that it includes a second story (refer to figure 32). The spaces in general appeared to be very tight. Some of the spaces on the North side have been revised to Suites. There was a lot of space allowed for Visiting Teams including; Coaches, Radio and Athletic Director. The area allocated for the Working Press seems adequate. The use of the Dark Rooms was not clear today, it would seem possible for these rooms to be re-purposed in a renovation.

Figure 32- View of West Side PressBox

The finishes and overall design of the space feels dated. Most of the amenities seem to be provided, it is just a very compact design without much overflow space. Like the Suites, the egress from this space is out into the seating bowl and down the grandstands. There is no dedicated egress stair towers from these levels.

STADIUM CLUB LEVEL:

STADIUM CLUB: Sitting atop the Pressbox on the West side of the stadium is the plush Stadium Club. The Stadium Club's 106 theatre-type seats provide loyal BGSU fans with the best view of the game (refer to figure 33). The access to the Club is either from the West side elevator up to this level or access to the Pressbox and then up a dedicated stair. Associated with this interior portion, there are two exterior roof decks that are used for more spectators to view the game. There is only a single means of egress from this level, two should be provided to comply with the Building Code.

Figure 33- Stadium Club

VERTICAL CIRCULATION:
PASSENGER ELEVATORS- As noted, two elevators were added in 1998. One elevator is provided for each side. The one on the West side stops at the Pressbox and the Stadium Club. The one on the East side stops at the Mezzanine Level and the Suite Level. The elevators were not used during the site tour but appeared to be typical passenger elevators and were well maintained.

SEATING BOWL:

GENERAL ADMISSION BENCH SEATING:
The main seating bowl consists of aluminum bench seating. This seating allows for approx. 18" of width per person. This is fairly tight by stadium standards today (refer to figure 34).

Figure 34- View of General Admission Bench Seating

CHAIR BOX SEATING: Along both sides of the grandstands there are sections containing (6) rows of chairback "Box" seating. Also, the West side grandstand, within the middle seating sections there are also individual seat modules mounted to the existing aluminum benches (refer to figure 35).

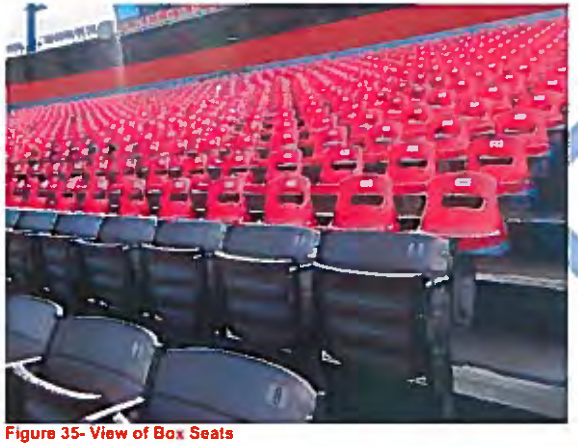

Figure 35- View of Box Seats

ACCESSIBLE SEATING PLATFORMS: In recent years accessible seating platforms have been installed over three existing rows (refer to figure 36). This occurs within the stadium at (4) locations on each side. These platforms appear to provide capacity for roughly 4 wheelchair and 4 companion seats. This would mean the facility has roughly 32 wheelchair and 32 companion total locations. This is less than what is required in the 2010 ADA Guidelines. Per these guidelines, 126 wheelchair and 126 companion seating is required. Also when the elevators were added to the facility, vertical dispersion should likely have been provided as well, this would allow for seating locations at the top of the bowl as well on both sides.

Figure 36- View of Accessible Seating Platform

STADIA: The precast stadia appears to have no coating over most of the seating bowl. There are a number of locations that have a traffic coating applied over occupied areas. This coating appears to have been repaired multiple times over the years, as the water damage underneath is visible. We would recommend a heavy duty coating be applied over all surfaces to help protect the concrete. There are areas of the precast that have been damaged by water penetration and require repair (refer to figure 37). The seating bowl does not have a center aisle railing which has improved safety results and is required by the Building Code. We would recommend adding this missing aisle railing to improve usability to an aging population.

Figure 37- View of Stepped Aisle

RAILING: The painted steel railing installed throughout the facility appears to be non-galvanized steel. The railings show signs of rust and deterioration and should be evaluated for compliance with Building Codes.

SEATING JOINT SEALANT: The sealant installed within the seating bowl is in various states of decline, as part of any major renovation, the sealant should be removed and replaced complete (refer to figure 38).

Figure 38- View of Seating Bowl Sealant/ Joint

FIELD ACCESS STAIRS/ EGRESS TO FIELD: The seating bowl relies on egress into the field in the event of emergency to accommodate all the spectators. These stairs (7) locations per side do not provide the required railings. These railings should be provided (refer to figure 39).

Figure 39- Field Access Stairs

TRAFFIC COATING/ WATERPROOFING: Various methods of waterproofing and traffic coatings have been installed over the occupied areas. In some areas, a membrane has been installed, but it is obvious that water has gotten under the membrane and is trapped between the concrete. This membrane has now delaminated from the concrete. We would recommend that this membrane be removed and the traffic coating be reviewed at all locations (refer to figure 40).

Figure 40- View of Delaminated Membrane

STRUCTURAL REVIEW

BACKGROUND:
Desai/Nasr Consulting Engineers, as part of the ROSSETTI Team were authorized to perform a Phase I Condition Assessment of the Structural Components for the existing Doyt Perry Stadium Facility located at Bowling Green State University (BGSU), Bowling Green, OH.

A walk-through of the captioned property was conducted on Friday March 8th, 2013. The walk-through was conducted by the following individuals:

Mr. Marc Steinhobel, P.E, SECB – Desai/Nasr Consulting Engineers, Inc.
Mr. Greg Sweeney, AIA, LEED AP - ROSSETTI
Mr. Sunghoon Jung, LEED AP BD+C - ROSSETTI

The purpose of the walk-through was to assess the general conditions of the premises. The walk-through inspection was limited to observations of elements that are readily accessible and visible. For many building types, this means that portions of the structure could not be observed because they are concealed by finishes. All reasonably accessible structural components, such as structure above "lay-in" type ceilings were observed.

No destructive or non-destructive testing was performed at this stage. As such, although it is useful for detecting gross issues, it may not detect every issue, especially subtle or hidden conditions.

Environmental issues, such as mold, asbestos, or any other hazardous material are not covered in the Structural Phase I Condition Assessment.

GENERAL BUILDING DESCRIPTION:
The Doyt Perry Stadium was designed by Osborn-Papesh Architects-Engineers in the mid 1960's. The available set of construction documents is dated July 1965.

Per the original drawings, the building is founded on conventional pad foundations bearing on soils with an allowable bearing pressure of 6,000psf at 5ft below grade and 4,000psf at 3ft below grade. The drawings show the foundation typically bear at 4ft to 5ft below the finished grade elevations and extend below the required frost depth.

Figure 41- View of Stadium from West Side

The east and west precast stadium seating is supported by 19 cast-in-place concrete frames that splay outwards from a central axis located at centerfield.

The lowest level of seating is constructed with cast-in-place concrete steps on grade bounded by cast-in-place concrete retaining walls on all sides. The high end retaining wall forms one side of the corridor that runs the length of the stadium on each side.

The remaining stepped seating is constructed with precast-Tee risers that bear on embedded steel plates cast into the supporting frames. The individual steps are tied together with clip angles that are mechanically fastened to steel inserts embedded in the precast.

Stadia seating frames are mechanically fastened to ½" diameter bolt insets embedded in the vertical portion of precast or cast-in-place risers.

To laterally stabilize the concrete frames and transfer lateral forces between the precast risers and the concrete frames, the steel embed plates at the ends of the risers are welded to the steel bearing plates cast in to the concrete frames.

Formed concrete ramps bearing on concrete masonry unit (CMU) walls provide access from the exterior to interior elevated bowl. The lower portion of the ramps are formed, cast-in-place tee shaped sections.

Mezzanines floors are constructed with 8ft wide precast double-tee sections spanning to cast-in-place girders supported by the main building columns.

The upper portions of the stadium, namely the east select seating and west press boxes are cast-in-place concrete with steel framed roof structure cantilevered out from the main column grid.

Two elevator towers were added for vertical transportation to upper levels. The towers are steel framed and clad with precast concrete panels.

The east elevator tower bridges over to the mezzanine office space.

Four steel stairs provide access to the ends of the mezzanine level. One additional steel stair provides access to the bridge linking the east elevator tower to the mezzanine level.

Various waterproofing and traffic coating systems have been applied to many areas of the precast risers in an attempt to prevent water from leaking into the occupied spaces on the ground and mezzanine floors below. In addition to the waterproofing/traffic coating applied to the top side of the precast, steel pan hard ceilings and gutters of various types and effectiveness have been installed on the underside.

The new north building was not included as a part of this condition assessment scope.

DOCUMENT REVIEW:
Prior to carrying out the walk-through, a drawing review was conducted to understand the initial design and construction methodology.

The documents available are:

- Osborn-Papesh Architects – Engineers Drawings, Dated 07/30/65
- Schooley Caldwell Associates – Condition Assessment, Dated March 14, 2012, revised July 24, 2012
- Concrete Microscopy Inc – Petrographic Examination, Dated March 1, 2012

These documents provided valuable insight into the original construction design and details and some indication of issues that have been previously identified.

The Schooley Caldwell Associates and Concrete Microscopy Reports deal with the deterioration of the retaining wall at the low end of the stadia. This cast-in-place concrete wall is discussed in the body of this Report.

STRUCTURAL CONDITION ASSESSMENT:
Visible issues, deterioration and defects discovered during the condition assessment are highlighted with photographic references. These items are prioritized as short term (within 1 year), and future (within 5 years) time span within which the conditions need to be repaired.

Recommendations are made on the need for further destructive or non-destructive testing to determine the cause and extent of significant defects identified. Order of magnitude repair/rehabilitation costs are included for issues identified.

In general, the structure has been well maintained and in overall good condition. However, it is approaching 50 years in service and reaching the end of its original design life. There are a number of issues, related to the construction practices at the time of construction and available materials that are showing signs of significant deterioration and need to be addresses to extend serviceable life. As with all things, maintenance and remedial costs will escalate as the structure ages.

The general observed condition and issues that need to be addressed are detailed below for each building component.

PRECAST CONCRETE RISERS:
In general the precast concrete risers are in good condition showing minor deterioration, some minor cracking and spalling. With the exception of the embedded steel connection plates and load transfers elements. It appears that the embedded steel elements were lightly hot-dip galvanized or coated with a zinc-rich paint.

CLIP ANGLE CONNECTORS – RISER TO RISER:
Few connectors were found to be in near to original condition (refer to figure 42). However, majority of the connectors that connect precast risers together show signs of corrosion.

Figure 42- Steel Connector in Near to Original Condition

This coating over time has been depleted in the sacrificial galvanic reaction process to a beyond its protection, resulting in moderate to severe corrosion of the remaining steel. The extent of corrosion varies from minor to severe with all connectors on the exposed back side showing some signs of corrosion (refer to figure 43).

- ***Comment:** The extent of corrosion does not appear to be affecting the integrity of structure. Left untreated this condition will continue to deteriorate. There are over 8,000 of these clip angles making it a costly and time consuming issue to address (future).*
- ***Testing:** Desai/Nasr recommends removing two to five of these clip angles and their bolts to determine the condition of the bolts and inserts and rate of steel deterioration. Test results to be used to estimate the remaining life and what, if any, remedial measures are required to slow or stop this corrosion (short term).*

Figure 43- Steel Connector Typical Corrosion of Exposed connectors

STEEL END BEARING PLATES:
Steel plates and angle embeds in the ends of the precast risers and concrete frame transfer load from the precast riser to the concrete frame. These plates and angles are welded together to transfer lateral loads between members. The details are clearly illustrated on Osborn-Papesh drawings sheet S-3 (refer to figure 44).

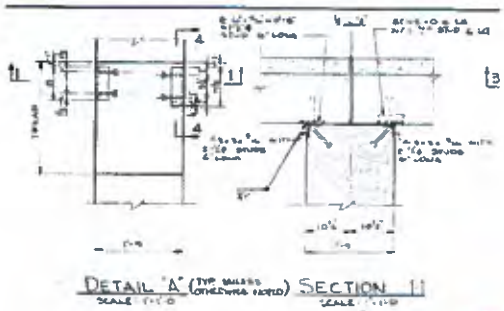

Figure 44- Precast Riser to Cast in Place Frame Typical Connection

During construction, steel shim stacks were used to level the precast risers and make up construction tolerances. These shim packs vary greatly in number and thickness of plates used. In an attempt to comply with the original details, the shim packs were welded together and to the embedded steel inserts. This steel assembly was observed to be moderately to severely corroded. The most severe corrosion was observed where the shim packs are high and/or where the shim plates were thin (refer to figure 45).

Figure 45- Corrosion at Thin Shim Plate – Welded completed Deteriorated

Figure 46- Corrosion of High Shim Stack – Note Rotation of Precast Beam

Rust jacking due to expansion of steel as it corrodes has broken most of the welds required to tie the structure together (refer to figure 46).

This condition occurs at over 2,000 locations.

The only location where no corrosion of the embedded plates was observed was at the expansion joint where the plates were not welded together (refer to figure 47).

Figure 47- No Corrosion at Expansion Joint – No Welds

- ***Comment:*** *Rust jacking due to corroding steel plates is a major issue that needs to be dealt with. This condition is causing joint damage, resulting in increased water leaking through the structure, potential trip hazards as observed on the south east end, as well as compromising the integrity of the structure by leaving the components of the structure un-restrained or attached. Due to the number of locations, this single issue may be cost prohibitive to address. An order of magnitude cost estimate is possible only after the results of testing have been reviewed and possible repair solutions developed (short term).*
- ***Testing:*** *The extent and severity of the corrosion needs to be established to determine the best repair. At least 10 locations need to be tested showing varying states of deterioration. All rusted material should be removed to expose any remaining virgin steel or intact welding. Samples of the steel shim plates should be analyzed for chemical composition (short term).*

PRECAST RISER JOINT SEALANT:

The horizontal and vertical joints between the precast risers are filled with polysulfide base hard sealant, according to the original drawings (refer to figures 48 and 49). The sealant observed in these joints appears to be mainly the original sealant, other than locations where various repairs and patches have been applied below layers of waterproofing and traffic coating.

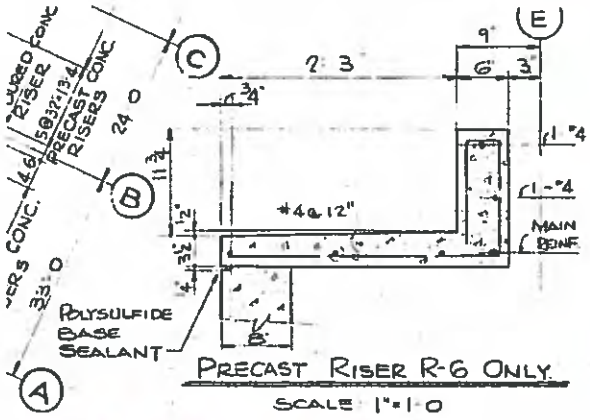

Figure 48- Precast Riser Joint Sealant Details – Horizontal Joint

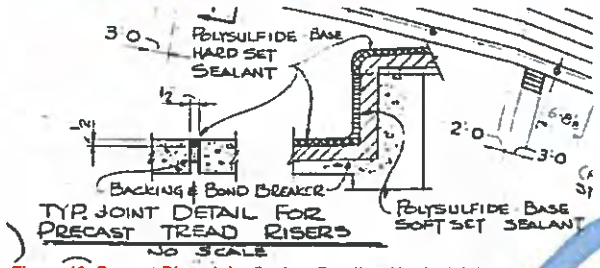

Figure 49- Precast Riser Joint Sealant Details – Vertical Joint

This hard compound can resist limited movement due to expansion and contraction of the structure. The joint, especially the vertical has been damaged by the amount of movement observed due to jacking of the shim stacks allowing water to leak through the joint accelerating the corrosion of the steel embeds and shim stacks below (refer to figures 50 and 51). The joint sealant is beyond is serviceable life and should be removed. There is over 35,000 lf of joint sealant.

Figure 50- Horizontal Joint Sealant – Failure

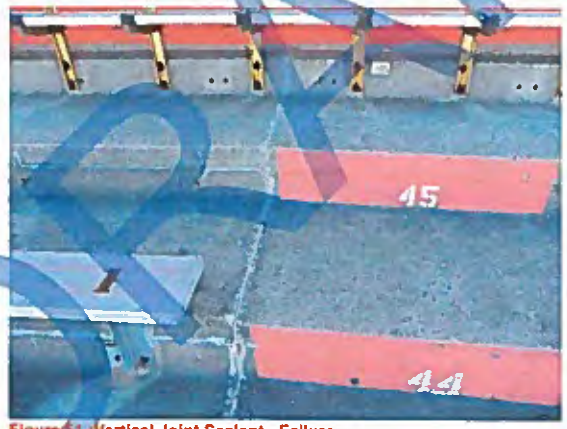

Figure 51- Vertical Joint Sealant - Failure

Comment: *Joint sealant should be removed and replaced with a durable compound that can expand and contract as required. Replacing the joint sealant should only occur after the corrosion of the steel embeds and shim stacks has been addressed (future).*

PRECAST RISER CONCRETE SPALLING:

Small areas of spalled concrete were observed on the top side of the stadia. The majority of spalls were observed in the access aisles that carry most of the foot traffic (refer to figure 52).

Figure 52- Precast Riser – Spalling

Comment: *These spalls are a potential trip hazard and could result in further deterioration of the structural element if not addressed. Removal of loose concrete and cleaning of exposed steel before applying a troweled on mortar patch is recommend for these small areas (short term).*

PRECAST RISER APPLIED WATERPROOFING/TRAFFIC COATING:

To prevent/reduce the amount of water leaking into the occupied spaces below, various waterproofing and traffic coating systems have been applied to the top of the precast risers and over the joints in the precast.

Figure 53- Waterproofing Membrane at Joint – Failure

Delamination, cracking and failure of the waterproofing membranes and applied traffic coating was observed through the structure (refer to figures 53, 54 and 55). In some areas the waterproofing is trapping water under the membrane allowing it to penetrate through the structure.

The area of elevated precast risers is estimated at around 78,000 sf.

Comment: *To reduce the amount of water leaking through the structure into occupied spaces below and corroding the steel connections, a traffic coating is recommended to be applied to the entire top surface of the elevated precast risers and cast-in-place top slab areas. This work should only be carried out after all the other structural issues identified have been addressed (short term/future depending on severity of leaks).*

Figure 54- Waterproofing Membrane at Precast Top - Failure

Figure 55- Applied Traffic Coating – Failure at Joint

CAST-IN-PLACE CONCRETE:
In general the cast-in-place concrete elements are in good condition for their age, with the exception of the lower bowl retaining walls and lower steps which is discussed in detail below.

MAIN LOAD BEARING FRAMES: Minor spalling of concrete due to insufficient cover to shear ties was observed at two elevated beams (refer to figure 56).

Figure 56 – Concrete Spalling at Main Frame Beam

Comment: *Any loose or deteriorated concrete should be removed and exposed reinforcing bars cleaned of all rust. A corrosion inhibiting bonding agent should be applied to steel and concrete under new trowel applied mortar patch to restore adequate concrete cover (future).*

SLABS AT TOP OF STADIA:
The top section of the stadia changes back from precast riser to a flat cast-in-place concrete slab. Cracking parallel to the span was observed consistently along the underside of this slab. The cracks do not appear to be affecting the durability or integrity of the structure at this time (refer to figure 57).

Ponding was observed on the north end of the east stadia. This ponding is penetrating the slab and freeze thaw action is breaking up the concrete slab and edge curb (refer to figure 58).

Comment: *The deterioration of the concrete on the upper flat slab at the north east corner should be addressed (short term).*

Testing: Desai/Nasr recommends petrographic analyses of *two cores through the upper slab on the north east and south east*

corners to determine the condition of the concrete and type and extent of repair required (short term).

Figure 57- Shrinkage Cracking in Concrete

Figure 58- Deterioration of Slab and Curb

EXPOSED FRAME AT EMBEDDED STEEL PLATES:
Along the building expansion joint, the cast-in-place concrete frames column projects through the slab and is topped with an embedded steel plate (refer to figure 59). The probable cause of this concrete deterioration is freeze/thaw cycling in concrete with no entrained air.

Figure 59- Deterioration of Exposed Concrete Column at Embed Plate

***Comment:** The damaged concrete should be removed and patched with a suitable trowel applied mortar.*

STEEL BEAMS ENCASED IN CONCRETE AT UPPER BOXES:
The cantilevered roof framing of the upper boxes is structural steel. This steel is encased in concrete at the perimeter. Spalling of concrete due to in-sufficient cover was noted where the beam bears on the central column (refer to figure 60).

***Comment:** The damaged concrete should be removed, the exposed steel cleaned, a corrosion inhibiting bonding agent applied and area patched with a suitable trowel applied mortar (short term).*

Figure 60- Spalling of Concrete Encasement at Embedded Steel Beam

BEAM SUPPORT CORBEL
In the concessions kitchen area below the west stadia a shear crack was observed in the corbel. This crack is a sign of shear failure (refer to figure 61).

Figure 61- Cracking and Failure of Corbel

***Comment:** This crack is an indication of structural failure and needs to be addresses as soon as possible. The probable cause is improperly located shear reinforcing (short term).*

***Testing:** Pacometer or penetrating Radar testing to determine location, configuration, size and number of reinforcing bars is recommended. This will determine the extent of repair required (short term).*

LOWER BOWL SEATING AND RETAINING WALLS:
The lower bowl retaining wall deterioration (refer to figures 62 and 63) has been previously assessed in the Schooley Caldwell Associates Report and Concrete Microscopy Petrographic Examination. Visual observations and the review of these reports concludes that the wall is deteriorating due to breakdown of concrete due to combination of the effects of alkali-aggregate reactions, freeze/thaw cycles in low air content concrete and high permeability.

Alkali-aggregate reaction is an expansive chemical reaction between certain minerals found in course aggregate and the alkalies in Portland cement resulting in expansion, cracking and facture of the concrete matrix. Standard practice is to entrain air at a rate of approximately 6% for concrete, with ¾ inch nominal aggregate, subjected to severe exposure. Air content was measured at 2% to 3% in the damaged portion of the wall.

Figure 62- Deterioration of Concrete Retaining Wall

Figure 63- Deterioration of Concrete Return Walls

The Schooley Caldwell Associates Report presented four options for repairing the damaged wall. However, the report only addresses the lowest portion of the wall and horizontal slab to the first step.

Damage and deterioration of the concrete was also observed on the second and third riser of the stadia, the side retaining walls and steps down to the field (refer to figures 64 and 65).

Figure 64- Deterioration of Cast-in-Place Concrete Risers

Figure 65- Deterioration of Concrete Stair and Wall

***Comment:** The Schooley Caldwell Associates Report underestimates the extent of the repairs required to address this issue. Future modifications/enhancement of the stadia should consider reworking or re-constructing at least the front and side retaining walls as well as the first four rows of seating if not more of the lower bowl (short term).*

SHRINKAGE CRACKING ON CORRIDOR LID:
Minor shrinkage cracking was observed in the cast-in-place concrete slab over the corridor between expansion joints (refer to figure 66). This cracking has no impact on structural integrity provided, water and de-icing salts do not penetrate into the concrete with the potential for damage due to corroding reinforcing bars.

Figure 66- Shrinkage Cracking in Reinforced Concrete Slab

ACCESS RAMPS:
The sloping cast-in-place concrete access ramps are supported by CMU side walls. To form the slabs during construction light steel corrugated form deck was used (refer to figure 67). Over-time, this form deck has severely corroded and is peeling away from the concrete.

Figure 67- Delaminating steel Form Deck

Comment: *The peeling deck has no structural impact. However, from a safety standpoint the loose and damaged portions should be removed to prevent head injuries to people who access these areas used for storage (short term).*

LIGHT POLE BASES:
Minor deterioration of the grout bed below the light pole base plates was observed. Cracking of the concrete base slab has occurred at one location (refer to figure 68).

Figure 68- Light Pole Support Base Cracking and Grout Deterioration

Comment: *To prevent future damage, the deteriorated grout and damaged concrete should be removed and patched (short term).*

EXTERIOR CONCESSION STRUCTURE:
Six precast concrete concession structures are located on the exterior of the stadia (refer to figure 69).

SLAB ON GRADE:
The slab on grade in all of the concession structures is cracked and showing signs of frost heave, resulting in potential trip hazards inside the area and at the access points.

Comment: *Heaving concrete should be removed, fill below the slab should be replaced with frost resistant material before a new slab is cast (short term).*

Figure 69- Frost Heave at Slab on Grade in Concessions

PRECAST CONCRETE:
In general the precast concrete is in good condition with some minor damage and deterioration due to; corrosion of embedded steel elements used to connect roof double-tees to column tees, cracking and spalling caused by corroding reinforcing (refer to figure 70).

Figure 70- Cracking of Concrete and Corrosion of Steel Embeds

***Comment:** Cracking in the precast and corroding of steel should be addressed to extend the life of these structures and restore their aesthetic (future).*

SEATING CONNECTION:
The design drawing shows steel inserts cast into the precast risers for attaching the vertical seat supports. Although the bolts used are not galvanized they appear to be in acceptable condition considering their age (refer to figure 71). Replacing seats may require a custom connection to take advantage of the existing embeds or the use of expansion or adhesive anchors.

Figure 71- Typical Seat to Precast Connection

STRUCTURAL STEEL STAIRS AND RAILS:

STAIRS:
The original steel stairs accessing the ends of the stadia are constructed of raised lug steel plate floor plate. Considering the age of the structure they are in reasonable condition. Minor steel corrosion and some concrete spalling at steel embedded connectors were observed at these stairs (refer to figure 72).

Figure 72- Minor Corrosion of Checkered Plate Stair

The newer stair on the east side that provides access to the bridge linking the elevator tower to the mezzanine offices is in very poor conditions. The composite metal floor deck is completely destroyed by corrosion. Most if the supporting steel members are showing signs of moderate to severe corrosion (refer to figure 73).

Figure 73- Severe Corrosion of Steel and Deck at Bridge Stair

***Comment:** Cleaning and patching of the original steel stairs and concrete will restore these elements and extend their serviceable life (future).*
The newer stair needs to be removed and re-built to provide safe access to the bridge (short term).

GUARDRAILS:
Original steel guardrails along the north and south ends of the stadia are reaching the ends of their serviceable life. Corrosion of steel pipe rails and post members, joins base connections and welds is moderate to severe (refer to figures 74 and 75).

Figure 74- Split in Guardrail Top Rail

Various repairs and fixes have taken place. Most noticeable are the repairs to the base connections where new plate bracket have been expansion anchored to walls and curbs.

***Comment:** To ensure the guardrails comply with the code required strength to resist a point load of 200lbs or 50plf, we recommend that the guardrails are replaced or repaired (future).*

***Testing:** Horizontal load test should be carried out to all the guardrails to determine the ability of the aging guardrail to rest the code specified loading (short term).*

Figure 75- Corrosion of Embed Plates and Steel Mesh Framing

CONCRETE MASONRY UNIT WALLS (CMU):
In general the CMU walls are in in good condition throughout the structure.

Stepped cracking in two CMU bathroom divider walls were observed (refer to figure 76). The cracking appears to be caused by excessive deflection of the supporting structural members.

Figure 76- Stepped Crack in CMU Wall

Moisture penetrating through the painted CMU wall was observed in the golf practice space (refer to figure 77). Water is leaking into the CMU from damaged or deteriorated control joint sealing along the edges of the concrete ramps supported by the wall. This moisture penetration could be occurring at more locations, but is highlighted here by the peeling paint.

Figure 77- Moisture Penetrating into CMU Wall From Above

***Comment:** Structurally, the cracks are minor and can be filled with a flexible sealant. If they are aesthetically un-acceptable then the tile will need to be removed. Additional vertical control joints cut into the CMU wall, the cracks repaired and wall re-tiled, with proper jointing (future).*

Joint sealant along the sides of the concrete ramps should be ground out and replaced with suitable sealant to limit the amount of moisture penetrating into the supporting CMU walls (short term).

EXTERIOR NON-STRUCTURAL ELEMENTS:

WINDOWS AND WINDOW SEALANT:
The exterior window sealant is beyond serviceable life and is hard, cracked, peeling and non-existing in places (refer to figure 78).

***Comment:** Wall window sealant should be removed and replaced with a suitable flexible sealant (future).*

Figure 78- Window Sealant Joint - Deteriorated

PRECAST PANELS:
The original drawings show the upper precast panels by-passing the exterior face of the cast-in-place concrete support members. Attachment of the panels is provided by short section of L2 ½ x 2 ½ x ¼ angles field welded to embedded steel plates and angles.

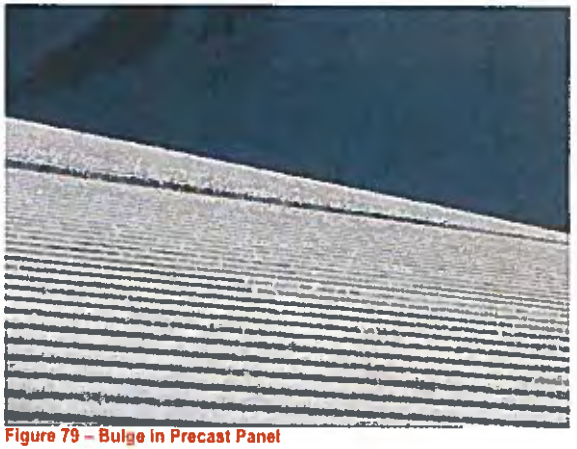

Figure 79 – Bulge in Precast Panel

Previous issues with the precast panel connections resulted in the removal of small exterior decorative panels and installation of new guardrails.

The remaining precast panels, the rear side of the elevated boxes, are in a better condition as the connectors are located inside and protected from corrosion. At one location on the west side a failed connection was observed with signs of the precast panel bulging outwards (refer to figure 79).

Comment: *The attachment of the precast panels to the structure has limited redundancy. Failure of a single connection could result in a panel falling (short term).*

Testing: *Desai/Nasr recommends that all the steel connections attaching the precast panels to the structure be exposed, welds inspected by a qualified welding inspector and damaged or deficient welds or connections should be repaired as required (short term).*

A crack in the precast window surround was observed at one location (refer to figure 80). This crack should be epoxy grouted to prevent further damage or deterioration.

Figure 80- Crack in Precast Window Surround

INTERIOR NON-STRUCTURAL ELEMENTS:

HARD PAN CEILINGS:

In the occupied mezzanine toilets, hard steel ceilings have been provided to protect the space from water leaking through the stadia risers. No insulation is provided above the hard ceiling and it appears that condensation due to a dew point induced by the steel ceiling is causing the paint to peel (refer to figure 81).

Figure 81 - Humidity Corroding Underside of Hard Pan Ceiling

SPRAY ON INSULATION IN PRESS BOXES:

Spray-on thermal or sound insulation has been applied to the roof slab of the upper boxes. Water leaking through the roof into the insulation is causing discoloration and potential mold formation (refer to figure 82).

Comment: *Leaks through the roof need to be fixed (future).*

Testing: *Discolored insulation should be tested for the presence of mold (short term).*

Figure 82 - Mold/Discoloration of Spray on Insulation

STEEL MESH SUN SCREEN:

Minor rusting and corrosion of the plain steel mesh used to construct the sunscreen was observed (refer to figure 83). Regular maintenance and painting should extend its serviceable life.

Figure 83- Corrosion of Steel Mesh Sunscreen

ELEVATOR TOWERS:
The precast panels surrounding the elevator towers appear in good condition (refer to figure 84).


Figure 84- Elevator Tower

ROOFING:
The high roofs above the boxes areas appear to be sound with no signs of cracking, delamination or hardening. There are areas underfoot that appeared soft and/or bulging (refer to figure 85).

Comment: Soft spots in the roofing along with signs of leaking due to discoloration of spray-on material indicate the need for further investigation (future).

Testing: *The membrane roofing should be inspected by a qualified roofing specialist to determine the need for repairs and remaining serviceable life (short term).*


Figure 85- High Roof Membrane

TESTING REQUIREMENTS

Structural Element	Test Type	Location	Number	Remark
Steel Clip Angle and Bolt Connecting Precast Risers	Determine Severity of Steel Corrosion	Underside of precast risers - Both Stadia	5	Remove existing clips and connecting bolts in varing condition, remove all rusted material and measure thickness of remaining virgin steel.
Embedded Steel Elements and Shim Plates at Precast Riser to Cast-in-Place Frame Connection	Determine Severity of Steel Corrosion and composition/quality of steel shim plates.	Ends of precast risers - Both Stadia	10	Remove all corrosion from embed plates and shim plate and measure size and thickness of remaining virgin steel. Take three samples of steel shim plates and determine their chemical composition. These shim plates appear to be corroding at an accelerated rate.
Cast-in-Place Concrete Slab deterioration	Petrographic Analysis of Concrete	Cast-in-place concrete slab at top of Stadia. Take cores through slab at north end south ends of east stadia.	2	
Failing Cast-in-Place Concrete Corbel	Pacometer or Penetrating Radar to determine size and location of shear reinforcing bars.	Corbel in concessions preparation area.	1	
Steel Guard Rail	Horizontal Load Test	Side rails at edges of stadia.	6	Apply incremental loads up to 1.6 times the code specified point load. Stop test if any signs of excessive defleciton or failure is observed. Measure deflection under load and after load has been applied to verify elastic load transfer.
Steel Clip Angles Supporting Elevated Precast Panels	Visual observation of Connection	All elevated original precast panels at upper press boxes - Both Stadia.		Expose and visually observe condition of all steel connections. Report any signs of deterioration, cracking or failure.
Spray on material	Test discoloration of spray on material for signs of dangerous mold.	Underside of slabs at press boxes - Both Stadia	4	
Roof Mebrane	Visual and adhesion test of roofing	High roof areas- Both Stadia	3 Areas	Inspection of roofing material by specialist to determine condition, remianing life and repair work required.

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