

CONTRACT No. DOL-ETA-16-C-0043

EXTERIOR FAÇADE WALL BRACING GULFPORT JOB CORPS CENTER GULFPORT, MISSISSIPPI



SEPTEMBER 2016

PREPARED FOR: U.S. DEPARTMENT OF LABOR



PREPARED BY:



LAIRD + SMITHERS, INC.
Engineers and Consultants





September 30, 2016

Maria J. Pizarro, CPCM CFCM
Branch Chief, Contracting Officer
U.S. Department of Labor
200 Constitution Avenue, NW
Room N-4643
Washington DC 20210

REFERENCE: CONTRACT NO. DOL-ETA-16-C-0043
ARCHITECTURAL AND ENGINEERING SERVICES FOR THE STRUCTURAL
FORENSIC ENGINEERING ANALYSIS REPORT AT THE GULFPORT JOB
CORPS CENTER LOCATED IN GULFPORT, MISSISSIPPI

ADDITIONAL SERVICES – EXTERIOR FAÇADE WALL BRACING

Dear Ms. Pizarro,

In accordance with the scope of Contract No. DOL-ETA-16-C-0043, Modification 003, Laird + Smithers, Inc. has provided herein a final report of our investigation, analysis and preliminary design to brace the existing south and west walls of the Main Building and the south walls of the Gymnasium at the Gulfport Job Corp Center in Gulfport, MS.

In the original scope of work, the existing structure was measured to determine the as-found construction of the structure, and the condition of the existing structure was assessed based on field evaluations. Based on those findings, proposed new bracing structures for the walls mentioned above is described in the report. The new bracing structures were analyzed for the capacity to support the wind loads required by the current governing building code, 2012 Edition of the International Building Code. An opinion of probable cost for the wall bracing structures is also provided.

We appreciate the opportunity to work with you on this project. If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,

LAIRD + SMITHERS, INC.

H. Jefferson Laird III, P.E., LEED AP BD+C

Charles A. Smithers, P.E., LEED AP BD+C

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1.0 EXECUTIVE SUMMARY

The three existing structures comprise a total of approximately 60,000 gross square feet: 35,000 square foot Main Building (Building 1), 18,000 square foot Gymnasium (Building 2) and 7,000 square foot Cafeteria (Building 5). The buildings were constructed in the early 1950's and opened in 1954 as the 33rd Avenue High School under the "separate yet equal" doctrine of school segregation practiced at the time. The Mississippi State Historic Preservation Office, MDAH, made the structures eligible for historic preservation through its designation in 2011.

The intention of this scope of work is to provide a suitable method of bracing the exterior walls along the south and west of the Main Building and along the south of the Gymnasium. The bracing of the south wall of the Gymnasium includes the south wall of the building and the high wall between the gym area and the stage area. This bracing will maintain the existing exterior façades of the original buildings while providing room on the site for the Job Corps to construct new buildings behind the façades, including in the space made available by the demolition of the remainder of the existing Main Building and Gymnasium. Two options for bracing of the exterior walls mentioned above were investigated for each building: 1) an independent bracing system and 2) bracing to a new building structure located behind the existing façade.

The new bracing system is constructed of structural steel members spaced in a grid, backing the existing façade. The intent of the bracing system is to support the exterior walls in the same locations where they are currently supported by the existing floor and roof structures. The bracing system is spaced in a way to minimize the interference with the windows of the existing façades which face the street, in order to retain the historic fabric of the existing façade.

This report is provided as an addendum to the *Structural Forensic Engineering Analysis Report* provided by Laird + Smithers, Inc. in August 2016. Additional information regarding the original construction and existing condition of the structures can be found in the aforementioned report. The following sections of this report provide a more detailed description of the analysis and preliminary/conceptual design of the bracing systems provided to preserve the existing façades mentioned above. The total estimated cost to brace the existing west and south walls of the Main Building and the south walls of the Gymnasium using an independent bracing system is \$2,069,862. Since it is recommended that the Gymnasium be braced using an independent bracing system and not braced to a new building structure, the total estimated cost to brace the existing west and south walls of the Main Building to a new building structure and to brace the south walls of the Gymnasium using an independent bracing system is \$1,446,001, thus a savings of over \$600,000 compared to using an independent bracing system to brace the façades of both buildings. Detailed opinions of probable costs for each building and bracing system is shown in Appendix A.

2.0 FIELD OBSERVATION AND MEASUREMENT PROCESS

During the work performed to complete the *Structural Forensic Engineering Analysis Report* provided by Laird + Smithers, Inc. in August 2016, several visits to the Gulfport Job Corps Center were made to determine the existing construction of the exterior walls. At numerous locations in each building, interior finishes were demolished in order to access the existing structure. A local contractor assisted in the demolition process in order to expedite the schedule. A more detailed description of the field observations and measurement process can be seen in the *Structural Forensic Engineering Analysis Report* provided by Laird + Smithers, Inc. in August 2016.

For the Main Building, the column size and spacing along the west wall was measured. The beams at the second floor and roof were also measured. The wall heights, locations and thicknesses for the west and south walls were measured. The joists comprising the eyebrow overhangs at the second floor and roof were measured. The existing construction of the Main Building at the exterior walls to be braced can be seen in the pictures presented in Appendix B

For the Gymnasium, the construction of the south walls of the Stage Area and Main Area were measured to determine the height, thickness and location of each wall. The size and locations of the brick clad columns spaced at regular intervals along the exterior face of the south wall were also measured. The construction of the Gymnasium at the exterior walls to be braced can be seen in the pictures presented in Appendix B.

3.0 ANALYSIS AND REPAIR GUIDELINES

The new wall bracing systems are designed to withstand wind loads induced on the exterior building façades remain, the south and west walls of the Main Building and the south walls of the Gymnasium. The existing façades will remain as-is and new beams and bracing systems will be provided to support the walls. The existing façades are assumed to span in the same direction as originally intended and currently constructed, with the new bracing system added to brace the walls in the current locations of wall supports, since the remainder of the building will be demolished.

The original construction of the building would have required the exterior walls to withstand pressures due to wind for that of an enclosed building. Currently, the building is semi-open with some windows and portions of the roof open. In the final condition with only select façades remaining, the remaining exterior walls will experience pressures similar to that of a free-standing wall or sign, which is larger than that of an enclosed building. However, the proposed solution does not incorporate a solution to strengthen the façades, but provides a solution to brace the façades at locations intended in the original construction. According to *ACI 530 – Building Code Requirements and Specification for Masonry Structures*, the walls are allowed to be empirically designed as long as the walls do not span greater than 18 times the thickness of the walls. The total thickness of the walls, including the clay tiles and the exterior brick façade, is approximately 1'-0". All spans of the exterior walls to remain are less than 18 times the thickness of the walls; thus the exterior façades are sufficient, utilizing the empirical design method outlined in *ACI 530*.

The governing building code for the City of Gulfport is the 2012 Edition of the *International Building Code*. The 2012 Edition of the *International Building Code* references *ASCE 7-10 – Minimum Design Loads for Buildings and Other Structures*. The design of the bracing systems is based upon the wind loads induced on Solid Freestanding Wall as outlined in Section 29.4-1 of *ASCE 7*. The wall is assumed to be a Risk Category II as outlined in Table 1.5-1 of *ASCE 7*, with a wind speed of 160 miles per hour as shown in Figure 26.5-1A of *ASCE 7* applied to the façades. The bracing systems are capable of supporting the previously mentioned loads assuming a solid surface with windows intact and no openings in the wall. If the windows are allowed to be removed, it is possible that a small cost savings could be recognized with the reductions of thicknesses of some of the steel sections, thus reducing the tonnage of steel. However, the geometry of the bracing and overall sizes would likely remain the same for connection purposes.

Consideration was taken regarding the spacing of the bracing to not interfere with the existing façade. The new bracing is spaced to minimize the appearance of the bracing through the existing façade. Additionally, in an exterior environment steel tube columns and beams are desirable because they minimize the surfaces available for water to sit and the locations for birds and other creatures to make nests, thus all new steel members are constructed of steel tubes with the exception of channels which are needed for attachment to the clay tile walls. All

tube to tube connections will be welded to minimize protrusions and uneven surfaces exposed to the weather.

Construction of the bracing systems will require careful sequencing to demolish the remainder of the existing buildings, while preserving the previously mentioned walls. Temporary shoring or support of the walls will be required during demolition of the remainder of the building to provide short term bracing for the remaining walls while the permanent bracing systems are constructed. This temporary shoring will be the responsibility of the contractor tasked with construction of the permanent bracing. A cost for the temporary wall shoring is provided in the opinion of probable cost provided in Appendix A.

4.0 BUILDING 1 – MAIN BUILDING

Building 1, referred to as the Main Building, is an approximately 324 feet long by 71 feet wide rectangular-shaped, two story building. The existing structure is comprised of three separate structures with expansion joints between each building at the vertical steps in the building. The existing second floor is constructed of concrete supported by steel bar joists and steel beams and columns. The roof is constructed of either tectum or Cemesto roofing, depending on the location, supported by steel bar joists and steel beams and columns. A more detailed description of the existing construction can be found in the *Structural Forensic Engineering Analysis Report* provided by Laird + Smithers, Inc. in August 2016. The scope of this analysis involves bracing to preserve the south and west walls of the Main Building. Pictures of the existing wall elevations to be braced and existing construction related to these walls of the Main Building are shown in Appendix B.

For the preservation of the exterior façades of the south and west walls of the Main Building, roofing and soffits must be repaired. Given that the eyebrow profile at the second floor and roof levels are an integral part of the exterior façade, the roof and soffit for these areas must be replaced. The new roof will be comprised of Creteplank, or equal, as outlined in the *Structural Forensic Engineering Analysis Report*. The new roofing will be a membrane material. The soffit will be constructed of plywood, similar to the current construction.

The first option of wall bracing, which was investigated for the Main Building, is an independent bracing system. The independent bracing system will include steel frames behind the existing exterior walls. The new bracing will be provided at approximately every other existing steel column, so the new bracing will not be located at the existing columns which are located in the window mullions. This spacing will provide less visibility of the bracing through the existing façade to best preserve the historic fabric of the building.

Since the second floor and roof joists will be removed as part of the building demolition, except the exterior joists at the eyebrow, a new beam will be provided along the exterior walls at the second floor and roof levels between the new braced frames. This new HSS 10x10 beams will support the wind load induced on the façade and the eccentricity induced by the gravity load of the eyebrow structure. The vertical load of the wall will remain supported by the existing steel beam at the second floor level and the existing concrete foundation below the wall.

The braced frames will consist of steel tube beams, columns and braces, which will transfer the wind loads from the new HSS 10x10 beams backing the façade to the new foundation. The braced frames will include a single diagonal strut at each level in order to minimize the deflection of the new steel braced frames. In the longitudinal direction, knee braces will be provided at each level from the columns to the longitudinal HSS 10x10 beams which span

between the columns, in order to provide lateral stability to the braced frames in the longitudinal direction. A new deep foundation system for the new braced frames will be required to withstand the lateral and overturning loads of the frames due to wind loads. In our opinion, an augercast pile foundation, with an approximate depth of 50 feet, is suitable for this situation, but a geotechnical engineer should provide final foundation design recommendations. Schematic drawings and details of the proposed bracing system for the south and west walls of the Main Building are shown in Appendix C.

Our opinion of probable cost for recommended bracing, using an independent bracing system, to preserve the south and west walls of the Main Building is \$1,535,993. This includes the cost of the temporary shoring, roof and soffit, proposed steel frame bracing system, attachment of the new steel beams to the existing steel structure and foundation elements for the bracing system. A detailed cost breakdown is shown in Appendix A.

The second option of wall bracing includes bracing the existing façades of the Main Building to a new building structure located behind the existing façades. This bracing system will be very similar to the independent bracing system regarding the attachment to the existing façade. The locations of attachments to the new building structure will be at the same locations and spacing mentioned previously, at every other existing column. The HSS 10x10 beams mentioned above will be similar, but the beam will attach to a new cantilevered beam attached to the new building structure and designed by the new building designer. The cantilevered beam will support the HSS 10x10 vertically and serve as a strut for wind load transferred from the existing façade to the lateral load resisting system of the new building.

Our opinion of probable cost for recommended bracing to a new building structure located behind the existing façades to preserve the south and west walls of the Main Building is \$912,132. This includes the cost of the temporary shoring, roof and soffit, proposed steel frame bracing system to the extent that the bracing attaches to the new steel beam extending from the new building structure. A detailed cost breakdown is shown in Appendix A.

5.0 BUILDING 2 – GYMNASIUM

Building 2, referred to as the Gymnasium, is an approximately 126 feet by 112 feet, one-story structure constructed of steel frames, joists, trusses and purlins with exterior, load-bearing, structural clay tile block walls. A more detailed description of the existing construction can be found in the *Structural Forensic Engineering Analysis Report* provided by Laird + Smithers, Inc. in August 2016. The scope of this analysis involves bracing to preserve the south wall of the stage area and the elevated façade wall south of the gym area of the building, which separates the gym area from the stage area. Pictures of these existing wall elevations and existing construction related to these walls of the Gymnasium are shown in Appendix B.

In order to brace the exterior walls, a new steel bracing system will be provided behind the existing exterior walls. The braced frames will be provided at the locations of the brick clad columns along the south wall of the stage area, in order to minimize the visibility of the frames in the windows of the existing façade.

The roof structure of the stage and gym areas currently provide lateral support to the top of the façades to remain. Because these roof structures will be demolished, a continuous channel will be attached to the existing clay tile walls to transfer the wind loads to the new braced frames. The vertical load of the wall will remain supported by the existing concrete foundation below the wall.

The new bracing system will consist of steel tube beams, columns and braces, which will transfer the wind loads from the continuous 12" channels attached to and backing the existing façade to the foundation. The braced frames will include a single diagonal strut at each level in order to provide lateral stability to the bracing system in the longitudinal direction. In the longitudinal direction, a brace will be provided, in order to provide lateral stability to the bracing system in the longitudinal direction. A new deep foundation system will be required in order to withstand the lateral and overturning loads of the new steel frames due to wind loads. In our opinion, an augercast pile foundation, with an approximately depth of 50 feet, will be suitable for this situation, but a geotechnical engineer should provide final foundation design recommendations. Schematic drawings and details of the proposed bracing system for the south walls of the Gymnasium are shown in Appendix C.

Our opinion of probable cost for recommended bracing to preserve the south walls of the Gymnasium is \$533,869. This includes the cost of temporary shoring, the proposed steel frame bracing system, attachment of the new steel beams to the existing walls and foundation elements for the bracing system. A detailed cost breakdown of the independent bracing system for the Gymnasium is shown in Appendix A.

Bracing of the existing Gymnasium building walls to a new building structure located behind the tall elevated façade wall located between the gym and stage area of the Gymnasium is not a cost-effective solution for bracing of the existing south walls of the Gymnasium. A bracing system similar to the one provided for the independent bracing system must be provided for the south wall of the building, regardless if the tall wall is braced to a new building structure. Using an independent bracing system, these braces can also be utilized to brace the tall wall located between the gym and the stage area of the Gymnasium without interfering with space used for future buildings. We recommend using the independent bracing system shown in Appendix C to brace the south walls of the Gymnasium, and not attaching to a new building structure.

6.0 CONCLUSION

Field measurements, on-site observations and structural analysis have been performed to determine the adequacy of the existing façades to withstand wind loads. Using the empirical design method in ACI-530, the existing façades are structurally sufficient. However, the exterior walls to remain at the south and west of the Main Building and the south walls of the Gymnasium will require a new bracing system since the remainder of the building, which currently provides lateral stability to the existing walls, will be demolished.

Two options are provided for the bracing of the Main Building walls: 1) an independent bracing system and 2) bracing to a new building structure located behind the existing façade. Only the independent bracing system is recommended for the Gymnasium due to the layout of the two south walls to be braced. Schematic drawings and details of the proposed bracing systems for the Main Building and Gymnasium are shown in Appendix C.

The opinion of probable cost for the construction of the wall bracing is \$1,535,993 for the independent bracing system for the Main Building, \$912,132 for bracing to a new building structure for the Main Building, and \$533,869 for the independent bracing system for the Gymnasium. Thus, the total estimated cost to brace the existing west and south walls of the Main Building and the south walls of the Gymnasium using an independent bracing system is \$2,069,862. The total estimated cost to brace the existing west and south walls of the Main Building to a new building structure and to brace the south walls of the Gymnasium using an independent bracing system is \$1,446,001, thus a savings of over \$600,000 compared to using an independent bracing system to brace the façades of both buildings.

Demolition any existing building structure is not included in our opinions of probable cost. It should be noted that the overall estimated costs provided in this report only include temporary shoring, new roofing and soffit of the Main Building, proposed steel bracing systems, their attachment to the existing façades to remain and new foundation elements. The costs of the bracing systems for the façades do not include any costs associated with construction of new structures which will be constructed behind the preserved façades. This includes any additional new building wall bracing or framing required to transfer loads between the steel members of the proposed façade bracing system and the new building structure.

Appendix A

Opinion of Probable Cost

**OPINION OF PROBABLE BRACING COST
BUILDING 1 – MAIN BUILDING**

OPTION 1 – INDEPENDENT BRACING SYSTEM

TASK	QUANTITY	UNIT	UNIT PRICE	TOTAL
FOUNDATION REPAIRS				
AUGERCAST PILES	54	EACH	\$3,800	\$205,200
GRADE BEAMS/PILE CAPS	46.8	CUBIC YARDS	\$475	\$22,230
STRUCTURAL STEEL FRAMES				
COLUMNS	9.1	TONS	\$4,500	\$40,950
BEAMS ATTACHING TO EXISTING STRUCTURE	22.9	TONS	\$4,500	\$103,050
FRAME BEAMS	16.3	TONS	\$4,500	\$73,350
BRACES	6.9	TONS	\$4,500	\$31,050
JOIST/EYEBROW PLATE ATTACHMENTS	1.5	TONS	\$10,000	\$15,000
ROOF DECK	4,000	SQ FEET	\$15.40	\$61,600
ROOFING	4,000	SQ FEET	\$40.00	\$160,000
SOFFIT	4,000	SQ FEET	\$13.40	\$53,600
TEMPORARY SHORING	1	LUMP SUM	\$122,000	\$122,000
MASONRY CLEANING AND REHABILITATION	6,000	SQ FEET	\$4.75	\$28,500
SUPERVISION AND TEMPORARY FACILITIES	1	LUMP SUM	\$60,950	\$87,100
SUBTOTAL				\$1,003,630
OVERHEAD (10%)				\$100,363
SUBTOTAL				\$1,103,993
PROFIT (10%)				\$110,400
SUBTOTAL				\$1,214,393
PAYMENT AND PERFORMANCE BOND PREMIUM (1.4%)				\$17,000
SALES TAX (3.5%)				\$42,504
BUILDING PERMIT FEES				\$6,096
SUBTOTAL				\$1,279,993
CONTINGENCY (20%)				\$256,000
TOTAL CONSTRUCTION COST				\$1,535,993

**OPINION OF PROBABLE BRACING COST
BUILDING 1 – MAIN BUILDING**

OPTION 2 – BRACING TO NEW BUILDING STRUCTURE

TASK	QUANTITY	UNIT	UNIT PRICE	TOTAL
STRUCTURAL STEEL FRAMES				
BEAMS ATTACHING TO EXISTING STRUCTURE	22.9	TONS	\$4,500	\$103,050
JOIST/EYEBROW PLATE ATTACHMENTS	1.5	TONS	\$10,000	\$15,000
ROOF DECK	4,000	SQ FEET	\$15.40	\$61,600
ROOFING	4,000	SQ FEET	\$40.00	\$160,000
SOFFIT	4,000	SQ FEET	\$13.40	\$53,600
TEMPORARY SHORING	1	LUMP SUM	\$122,000	\$122,000
MASONRY CLEANING AND REHABILITATION	6,000	SQ FEET	\$4.75	\$28,500
SUPERVISION AND TEMPORARY FACILITIES	1	LUMP SUM	\$51,600	\$51,600
SUBTOTAL				\$595,350
OVERHEAD (10%)				\$59,535
SUBTOTAL				\$654,885
PROFIT (10%)				\$65,489
SUBTOTAL				\$720,374
PAYMENT AND PERFORMANCE BOND PREMIUM (1.4%)				\$10,085
SALES TAX (3.5%)				\$25,213
BUILDING PERMIT FEES				\$4,438
SUBTOTAL				\$760,110
CONTINGENCY (20%)				\$152,022
				\$912,132

TOTAL CONSTRUCTION COST \$912,132

**OPINION OF PROBABLE BRACING COST
BUILDING 2 – GYMNASIUM**

OPTION 1 – INDEPENDENT BRACING SYSTEM

TASK	QUANTITY	UNIT	UNIT PRICE	TOTAL
FOUNDATION REPAIRS				
AUGERCAST PILES	24	EACH	\$3,800	\$91,200
GRADE BEAMS	58	CUBIC YARDS	\$475	\$27,550
STRUCTURAL STEEL FRAMES				
COLUMNS	11.0	TONS	\$4,500	\$49,500
BEAMS ATTACHING TO EXISTING WALLS	10.7	TONS	\$4,500	\$48,150
FRAME BEAMS	7.6	TONS	\$4,500	\$34,200
BRACES	3.2	TONS	\$4,500	\$14,400
TEMPORARY SHORING	1	LUMP SUM	\$36,000	\$36,000
MASONRY CLEANING AND REHABILITATION	3,500	SQ FEET	\$4.75	\$16,625
SUPERVISION AND TEMPORARY FACILITIES	1	LUMP SUM	\$30,174	\$30,174
SUBTOTAL				\$347,799
OVERHEAD (10%)				\$34,780
SUBTOTAL				\$382,579
PROFIT (10%)				\$38,258
SUBTOTAL				\$420,837
PAYMENT AND PERFORMANCE BOND PREMIUM (1.4%)				\$5,892
SALES TAX (3.5%)				\$14,729
BUILDING PERMIT FEES				\$3,433
SUBTOTAL				\$444,891
CONTINGENCY (20%)				\$88,978
TOTAL CONSTRUCTION COST				\$533,869

Appendix B

Pictures of Existing Conditions



Picture No. 1 – Plan View of Site



Picture No. 2 – Exterior Elevation of Building 1 – Main Building, South Elevation (Building A)



Picture No. 3 – Exterior Elevation of Building 1 – Main Building, West Elevation (Building A)



Picture No. 4 – Exterior Elevation of Building 1 – Main Building, West Elevation (Building B)



Picture No. 5 – Exterior Elevation of Building 1 – Main Building, West Elevation (Building C)



Picture No. 6 – Cantilever Roof Joist, Typical Eyebrow Structure at Second Floor and Roof



Picture No. 7 – Interior View of Joist Connection to Exterior Wide Flange Beam at Second Floor Level



Picture No. 8 – Exterior View of Joist Connection to Exterior Channel Beam at Roof Level



Picture No. 9 – Exterior Elevation of Building 2 – Gymnasium, South Elevation



Picture No. 10 – Interior Elevation of Building 2 – Gymnasium, South Elevation
South Wall Between Main Area and Stage Area



Picture No. 11 – Opening in Wall between Main Area and Stage Area



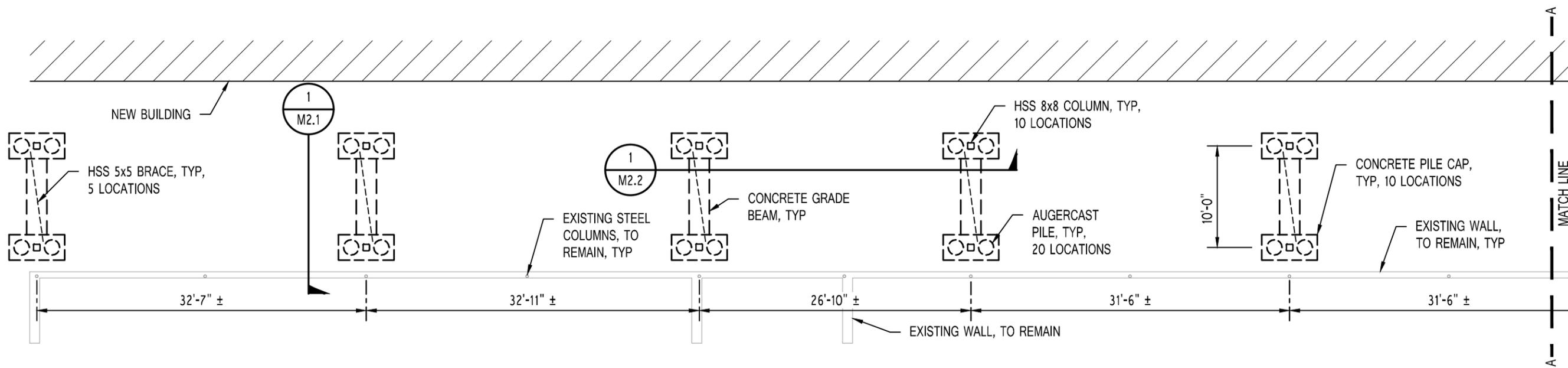
Picture No. 12 – Overview of Stage Area



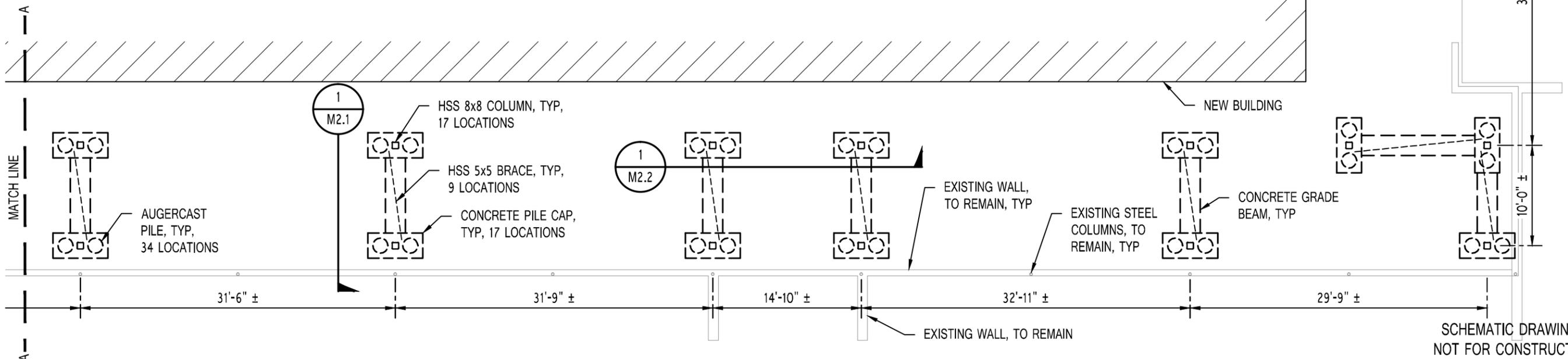
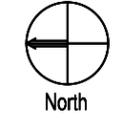
Picture No. 13 – Typical Connection of Roof Joists to Clay Tile Wall in Stage Area

Appendix C

Schematic Drawings of Proposed Wall Bracing



MAIN BUILDING - FOUNDATION WALL BRACING PLAN
 OPTION 1 - INDEPENDENT BRACING SYSTEM
 SCALE: 3/32" = 1'-0"



SCHEMATIC DRAWINGS
 NOT FOR CONSTRUCTION

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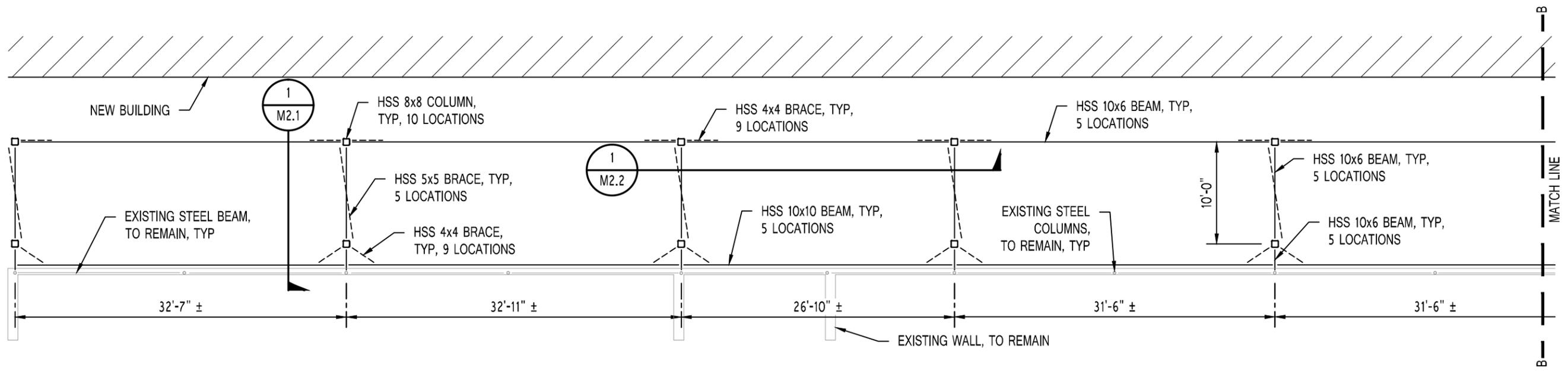
LAIRD + SMITHERS, INC.
 Engineers and Consultants



Contract No. DOL-ETA-16-C-0043
 Gulfport Job Corps Center

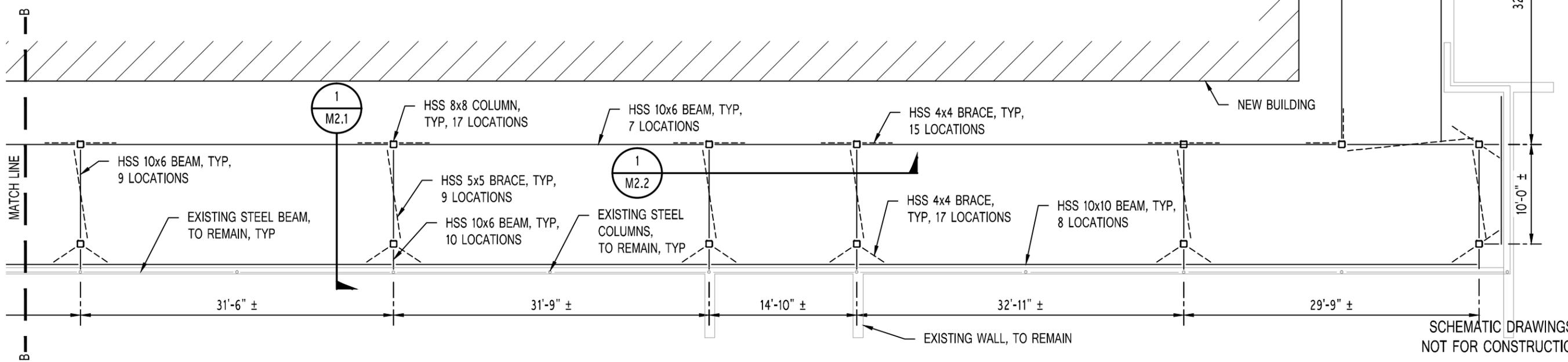
Project No: 16020
 Date: SEPT 28, 2016
 Drawn By: SLH
 Checked: CAS
 Revision:

M1.1



MAIN BUILDING - SECOND FLOOR WALL BRACING PLAN
 OPTION 1 - INDEPENDENT BRACING SYSTEM

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



SCHEMATIC DRAWINGS
 NOT FOR CONSTRUCTION

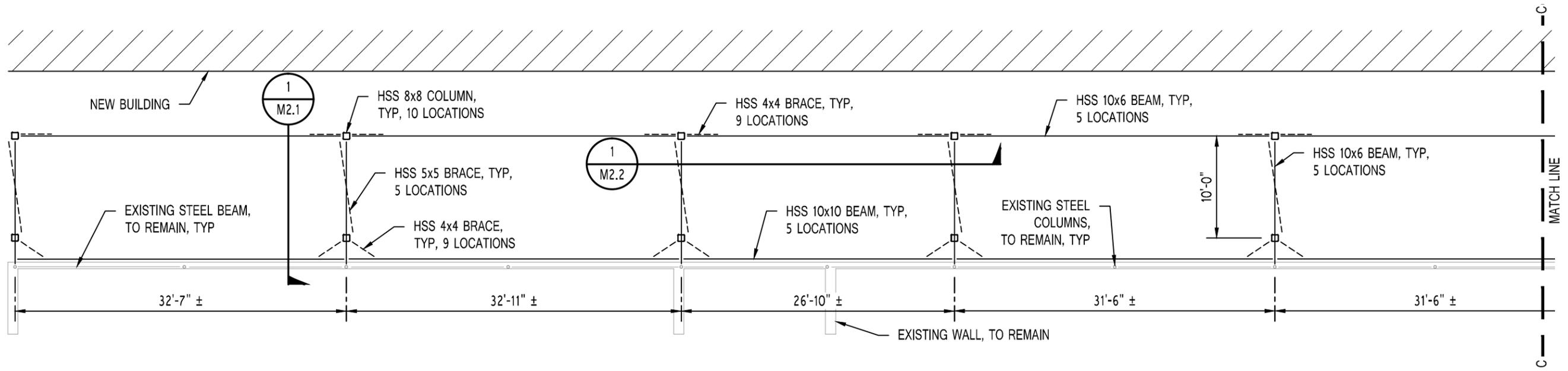
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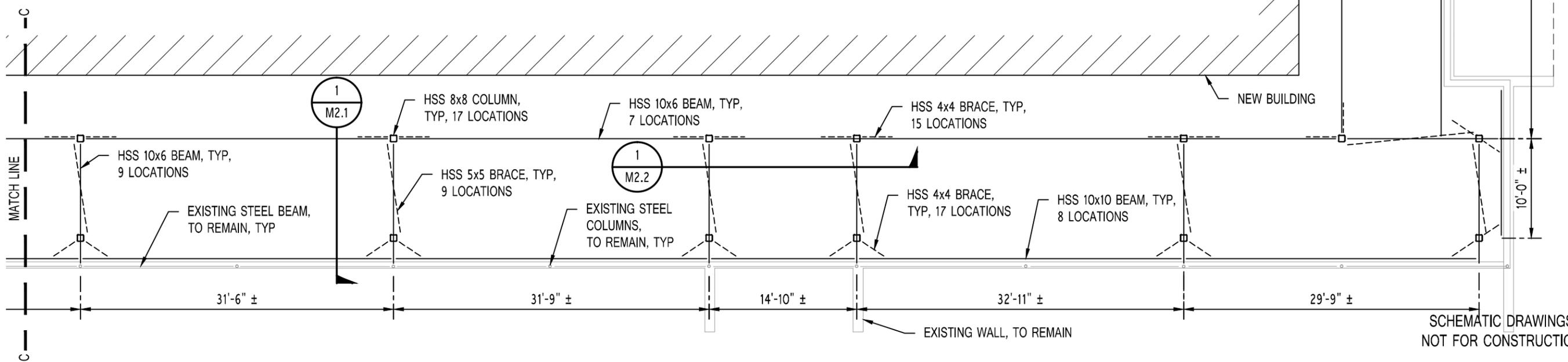
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 Gulfport Job Corps Center

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 Drawn By: SLH
 Checked: CAS
 Revision:

M1.2



MAIN BUILDING - ROOF WALL BRACING PLAN
 OPTION 1 - INDEPENDENT BRACING SYSTEM
 SCALE: 3/32" = 1'-0"



SCHEMATIC DRAWINGS
 NOT FOR CONSTRUCTION

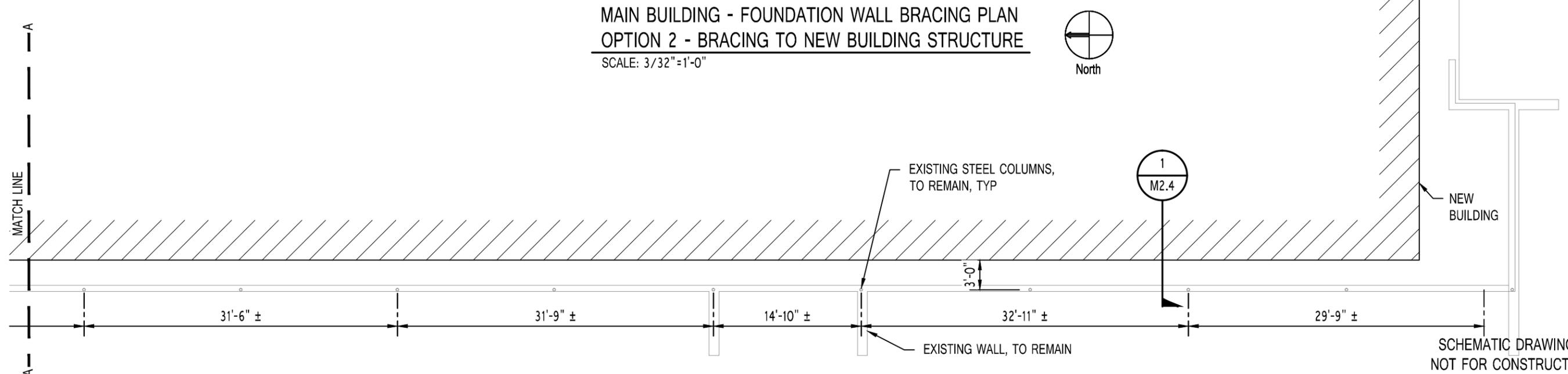
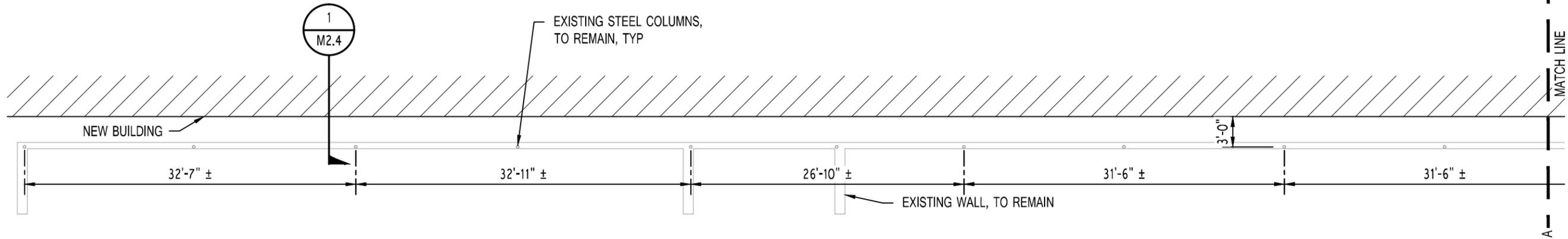
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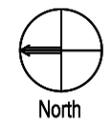
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 Gulfport Job Corps Center

Project No: 16020
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 Checked: CAS
 Revision:

M1.3



**MAIN BUILDING - FOUNDATION WALL BRACING PLAN
OPTION 2 - BRACING TO NEW BUILDING STRUCTURE**
SCALE: 3/32" = 1'-0"



1
M2.4

1
M2.4

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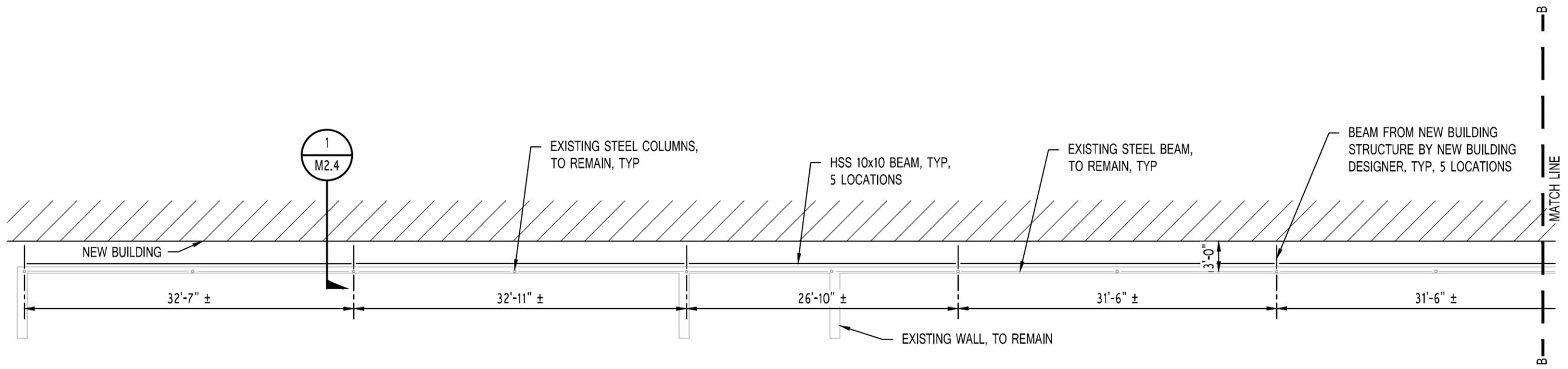
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P.O. Box 568, Jackson, MS 39205
Phone 601.514.1547
Fax 601.352.0288
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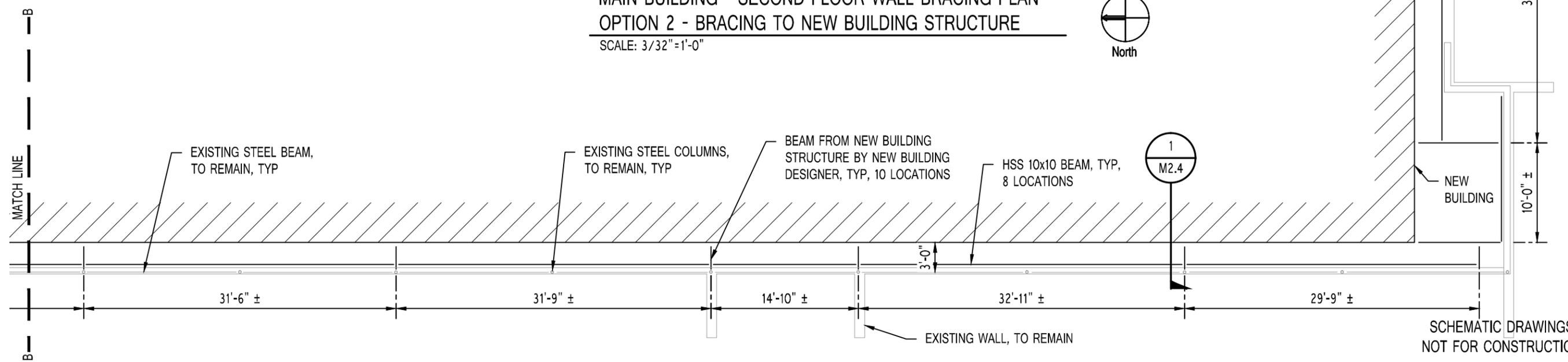
Contract No. DOL-ETA-16-C-0043
Gulfport Job Corps Center

Project No: 16020
Date: SEPT 28, 2016
Drawn By: SLH
Checked: CAS
Revision:

M1.4



**MAIN BUILDING - SECOND FLOOR WALL BRACING PLAN
OPTION 2 - BRACING TO NEW BUILDING STRUCTURE**
SCALE: 3/32" = 1'-0"



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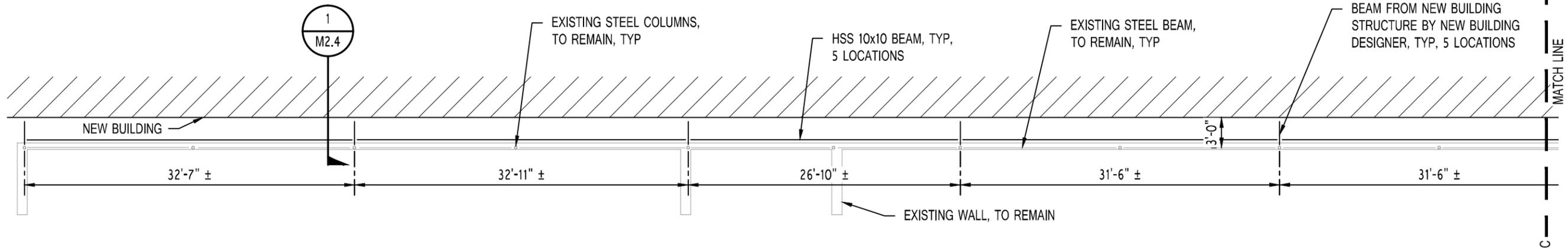
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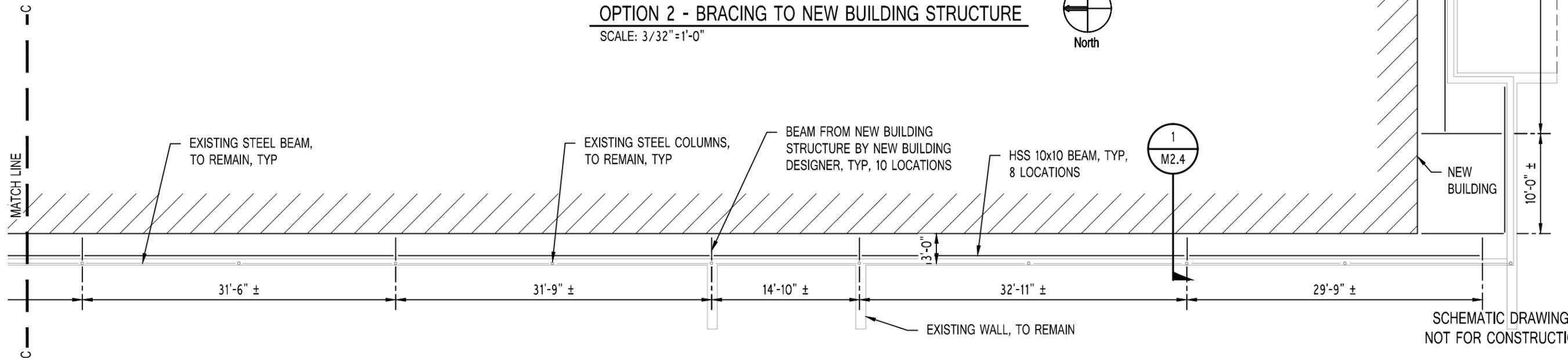
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Gulfport Job Corps Center

Project No: 16020
Date: SEPT 28, 2016
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Revision:

M1.5



MAIN BUILDING - ROOF WALL BRACING PLAN
 OPTION 2 - BRACING TO NEW BUILDING STRUCTURE
 SCALE: 3/32"=1'-0"



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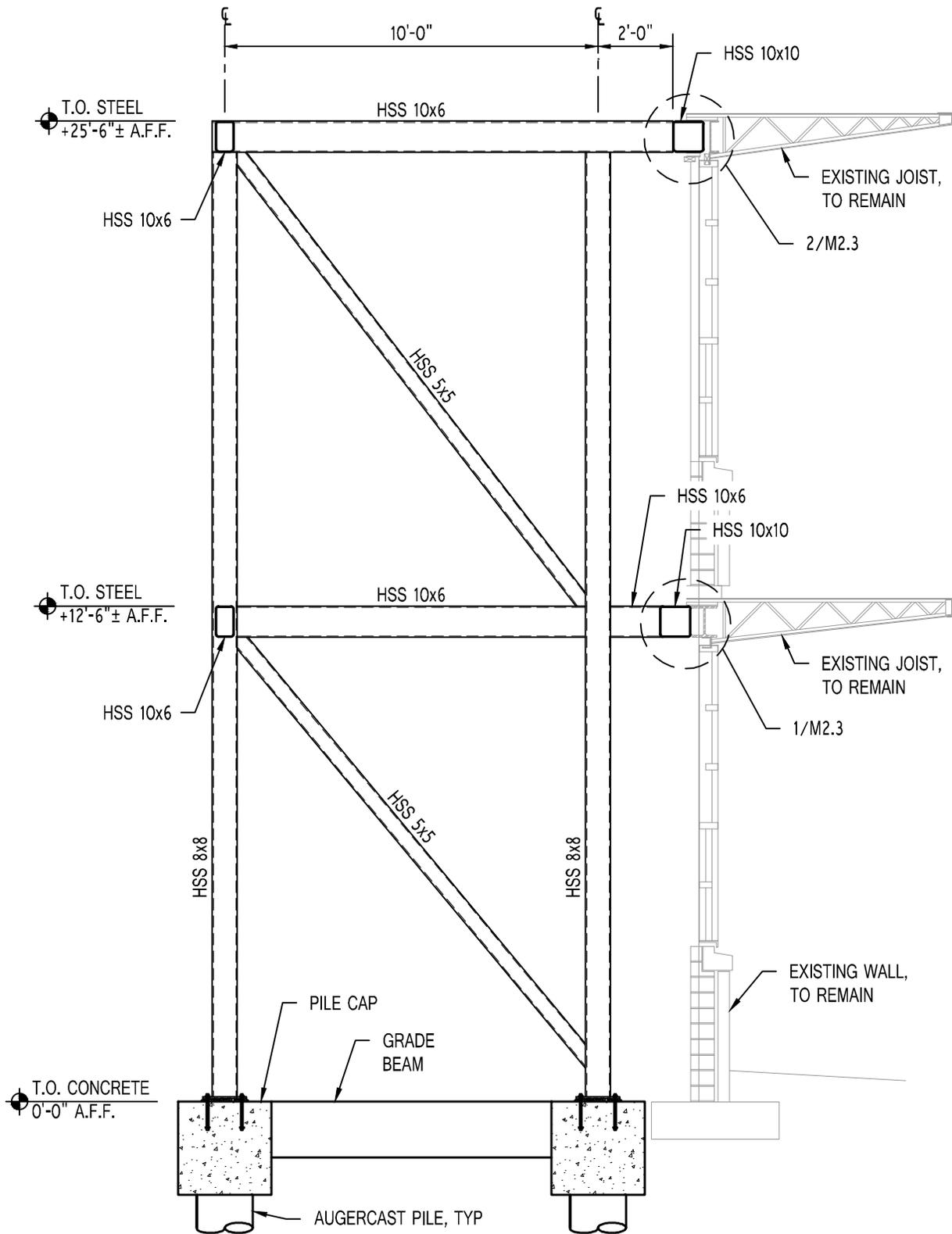
LAIRD + SMITHERS, INC.
 Engineers and Consultants



Contract No. DOL-ETA-16-C-0043
 Gulfport Job Corps Center

Project No: 16020
 Date: SEPT 28, 2016
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M1.6



1 SECTION
M2.1 SCALE: 1/4" = 1'-0"

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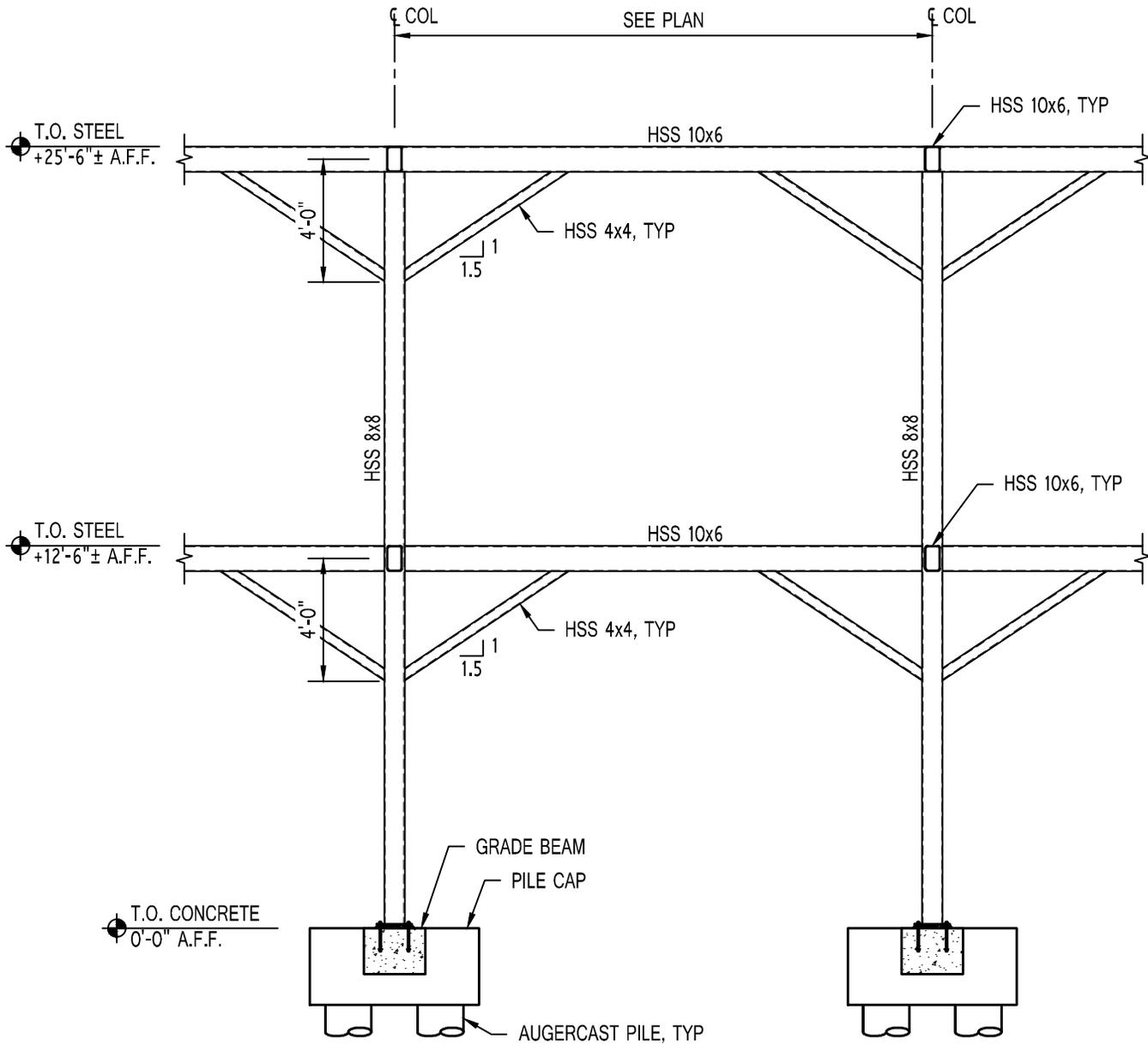
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M2.1



1 SECTION
 M2.2 SCALE: 3/16" = 1'-0"

SCHEMATIC DRAWINGS
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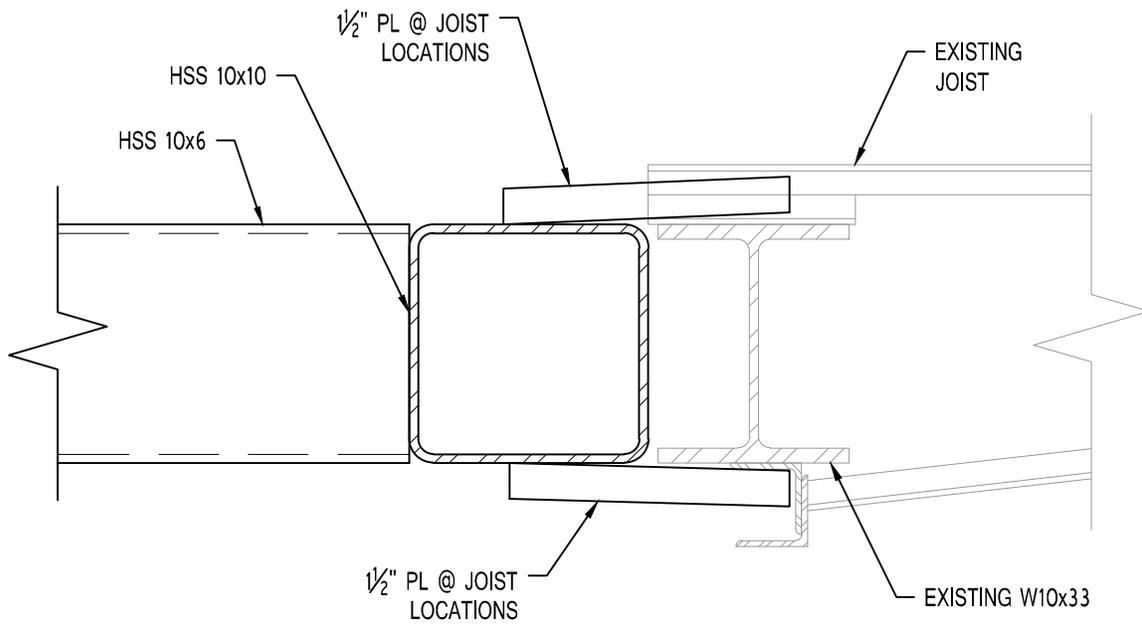


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 Gulfport Job Corps Center
 Gulfport, MS

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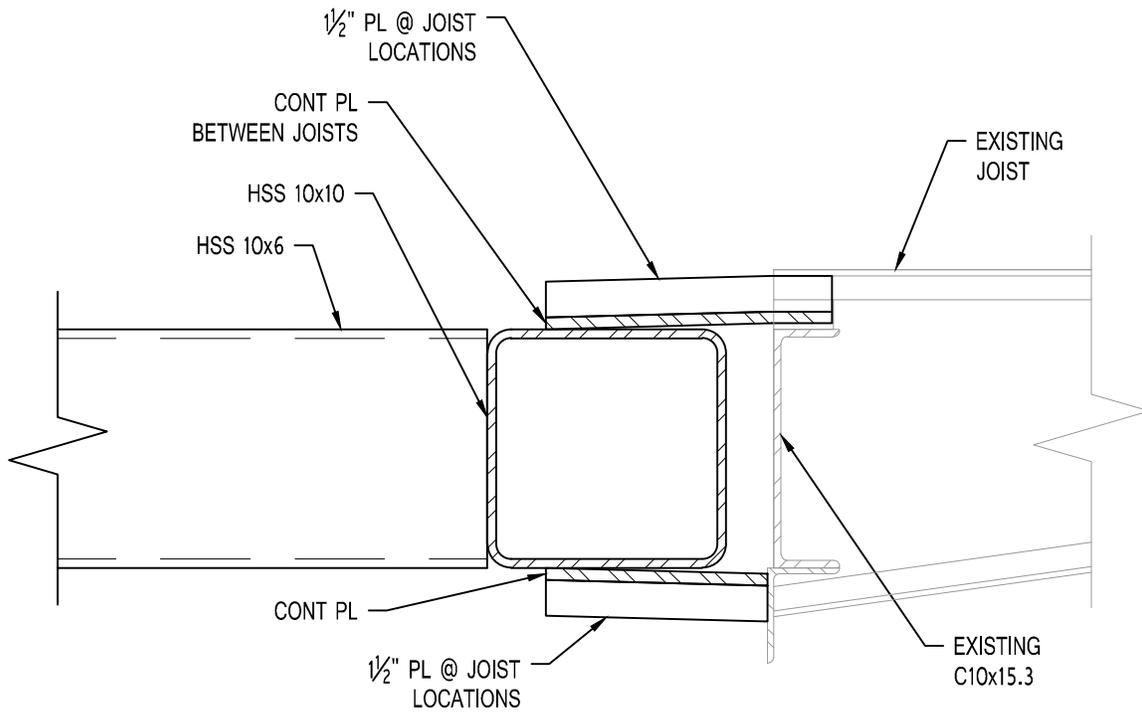
M2.2



1
M2.3

DETAIL

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



2
M2.3

DETAIL

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

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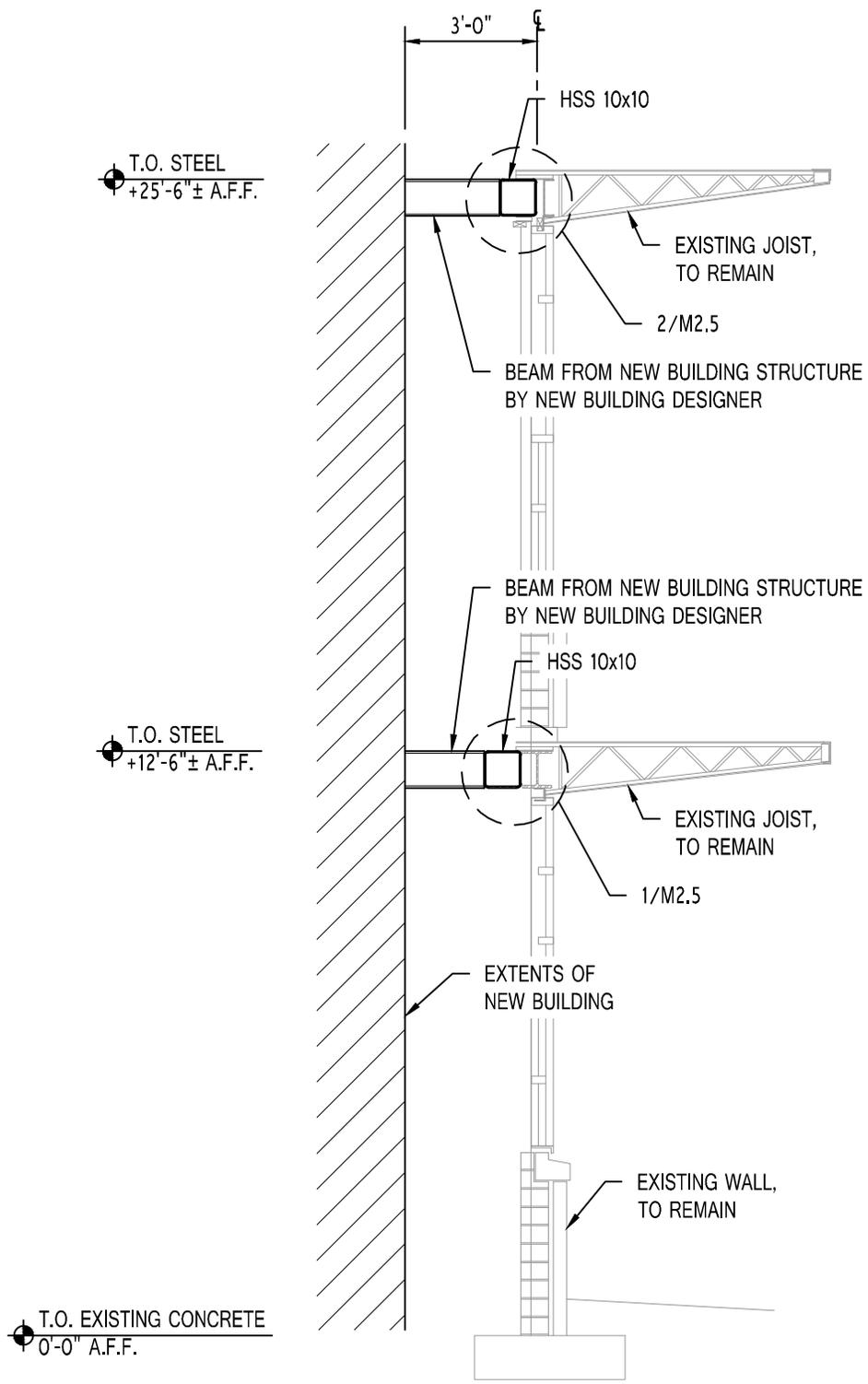
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M2.3



1 SECTION
 M2.4 SCALE: 1/4" = 1'-0"

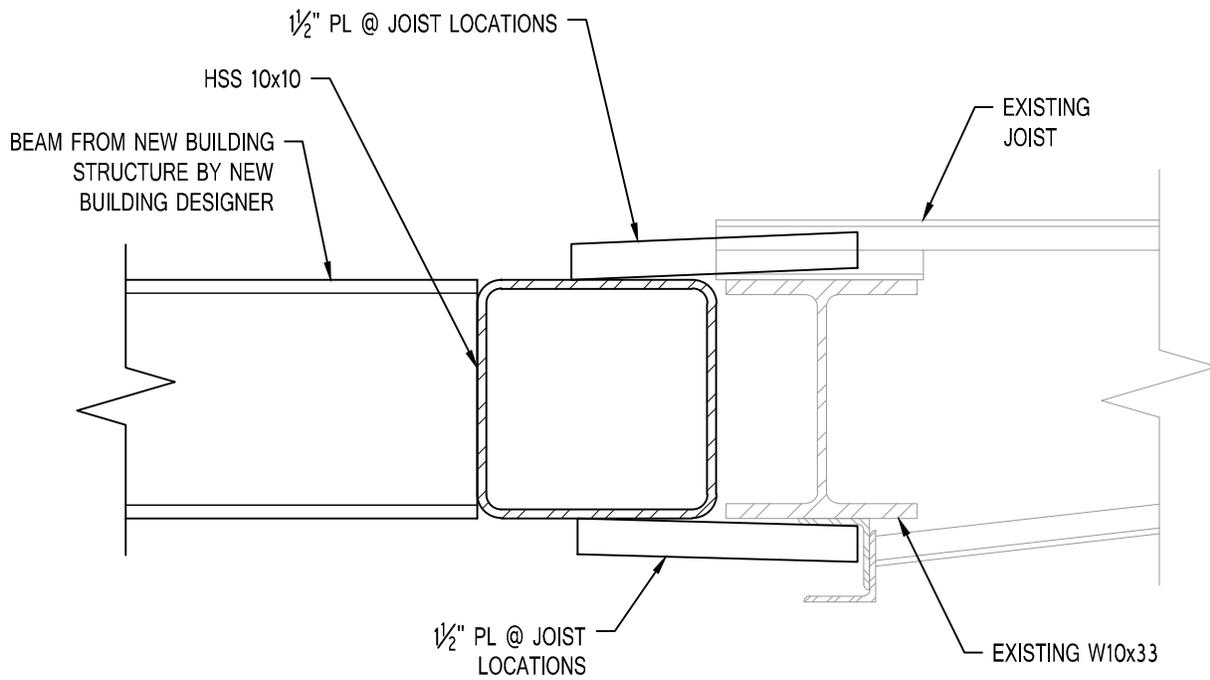
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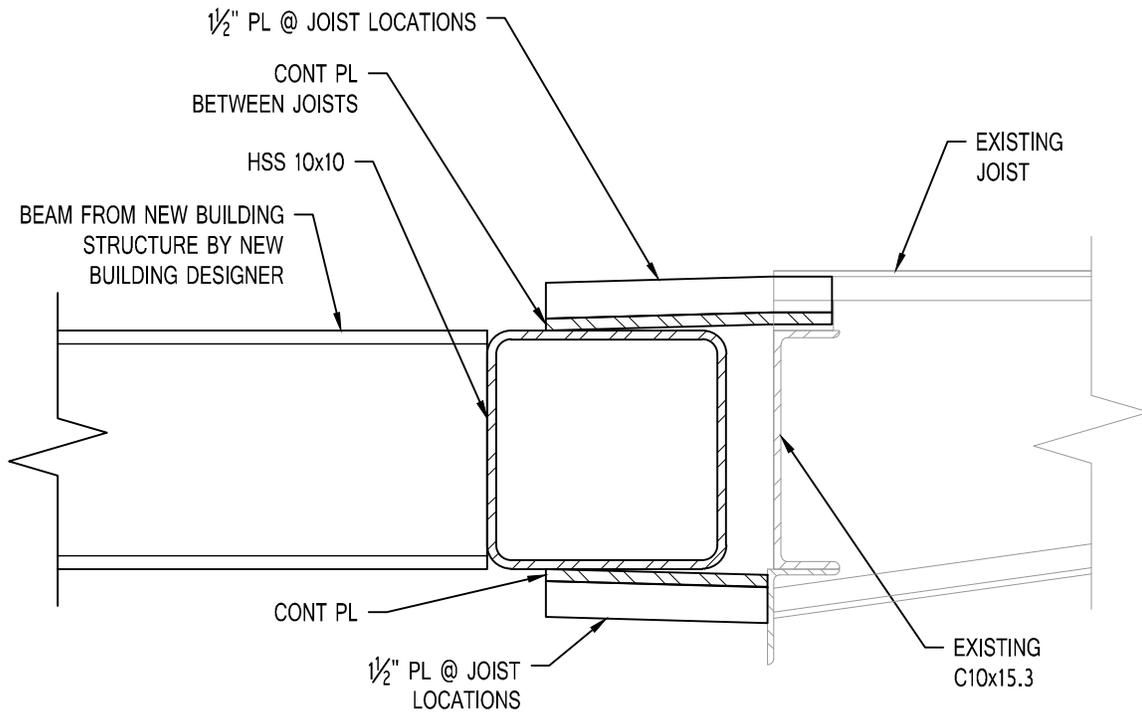
M2.4



1
M2.5

DETAIL

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



2
M2.5

DETAIL

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

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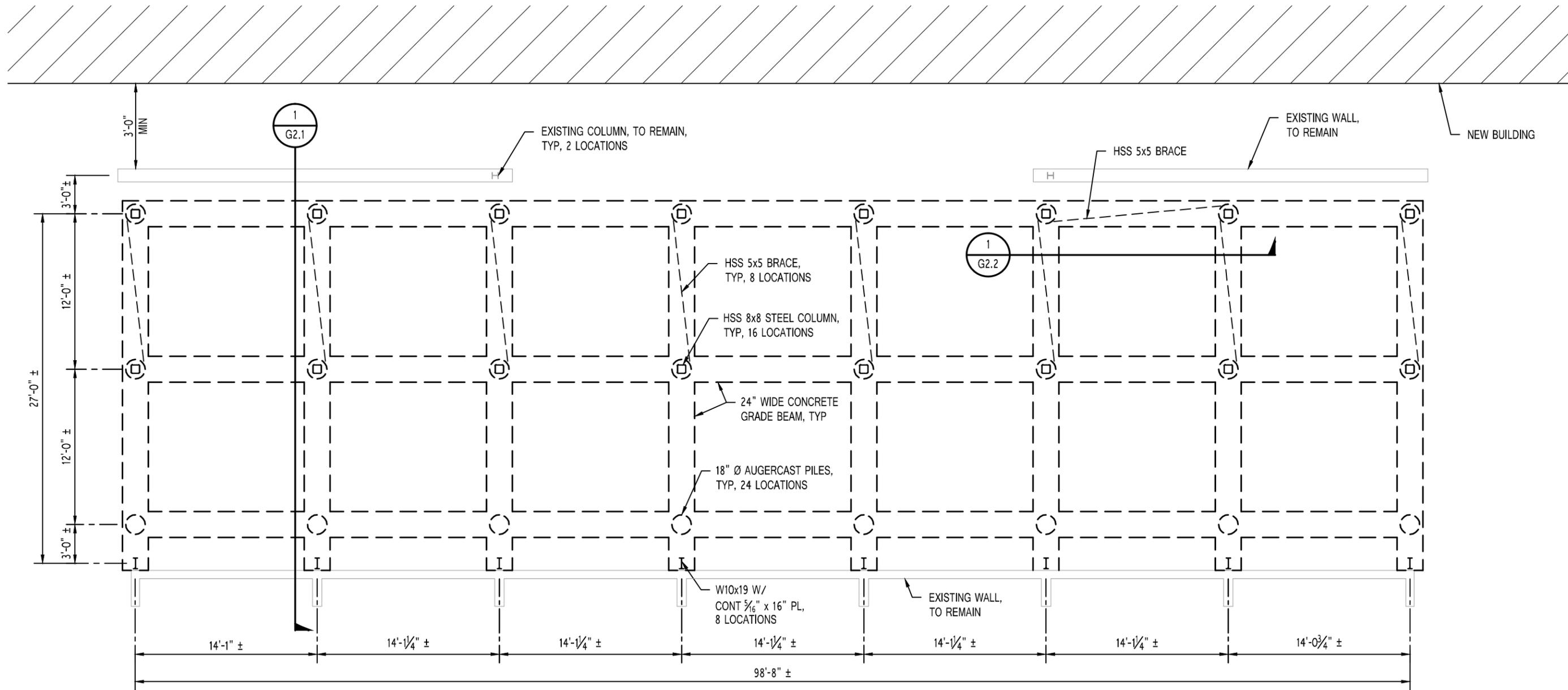
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M2.5



GYMNASIUM - FOUNDATION WALL BRACING PLAN
SCALE: NOT TO SCALE

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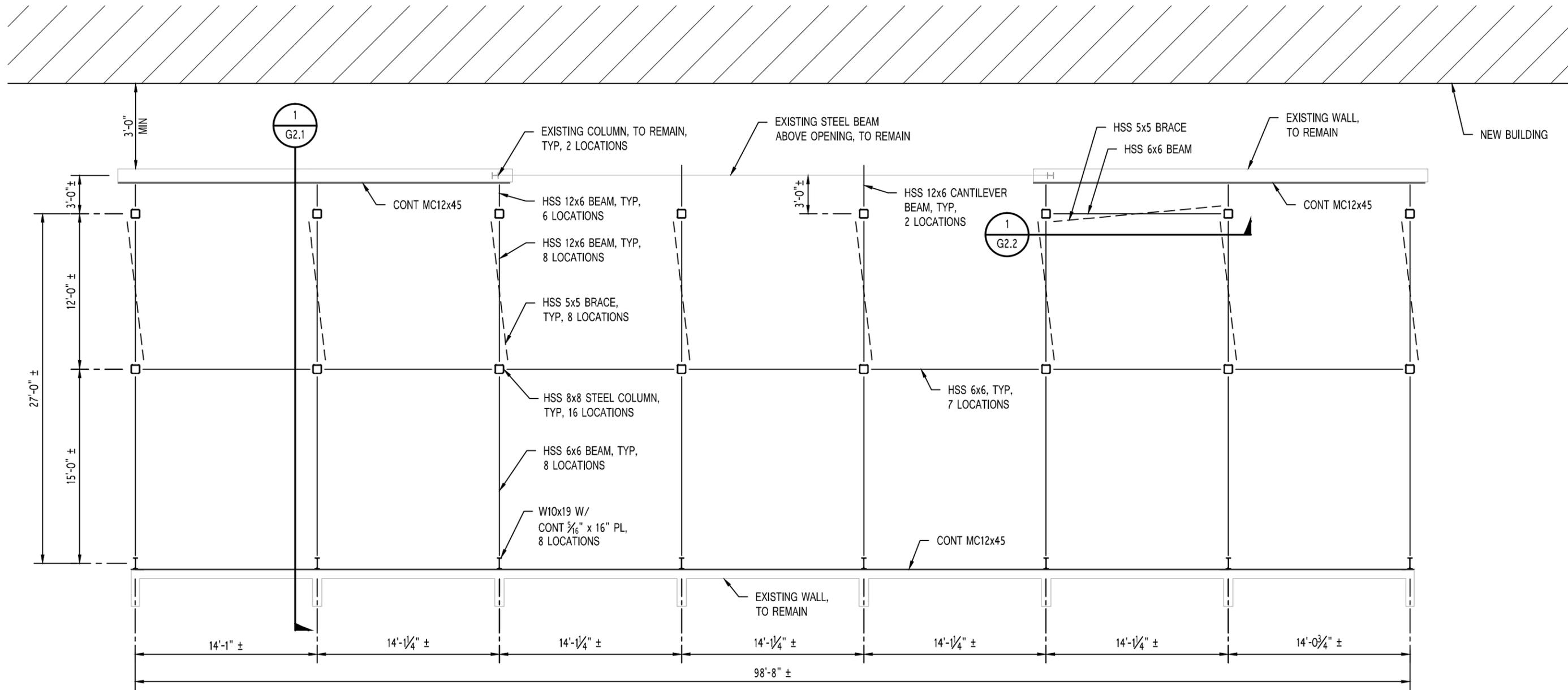


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G1.1

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GYMNASIUM - WALL BRACING PLAN - ELEVATION +16'-9"± A.F.F.
SCALE: NOT TO SCALE

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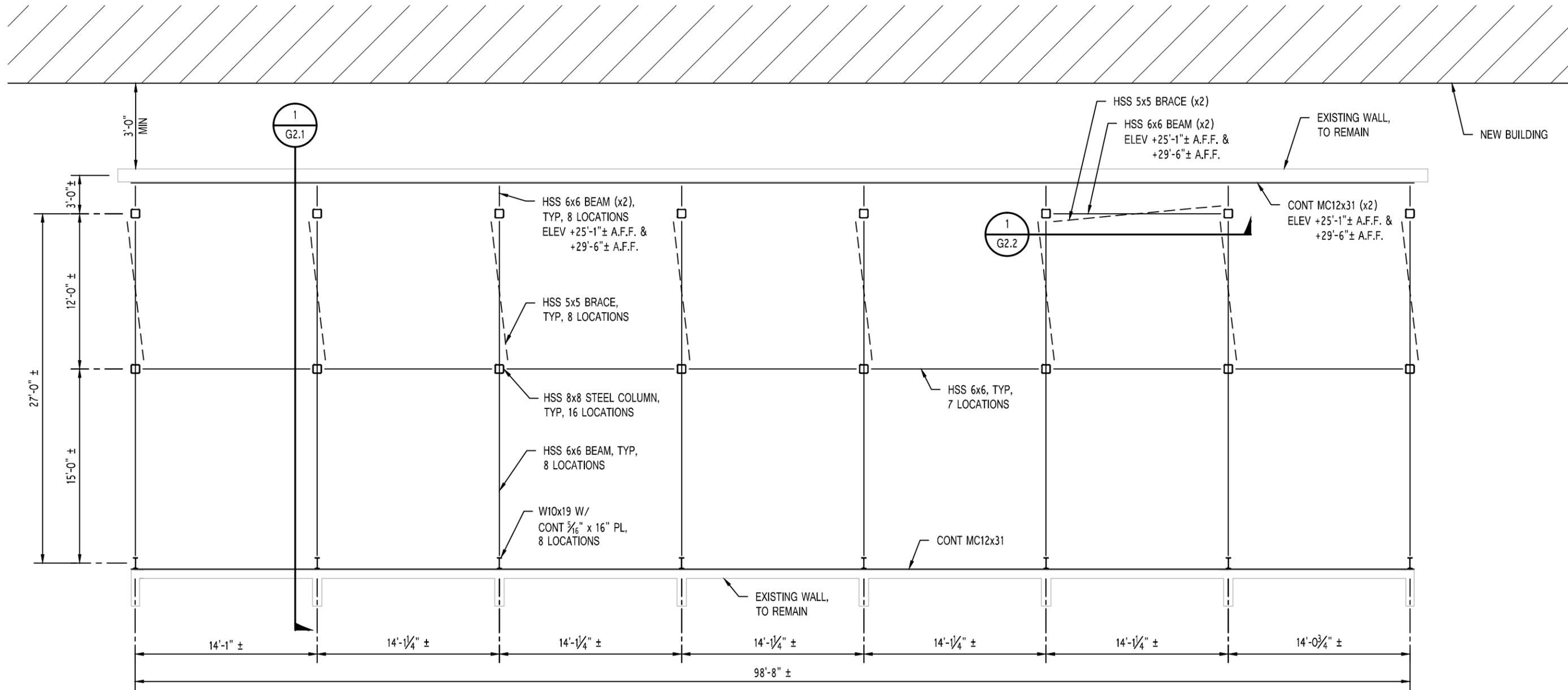


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Gulfport Job Corps Center

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Revision:

G1.2

SCHEMATIC DRAWINGS
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GYMNASIUM - ROOF WALL BRACING PLAN - ELEVATION +25'-1" ± A.F.F., U.N.O.

SCALE: NOT TO SCALE

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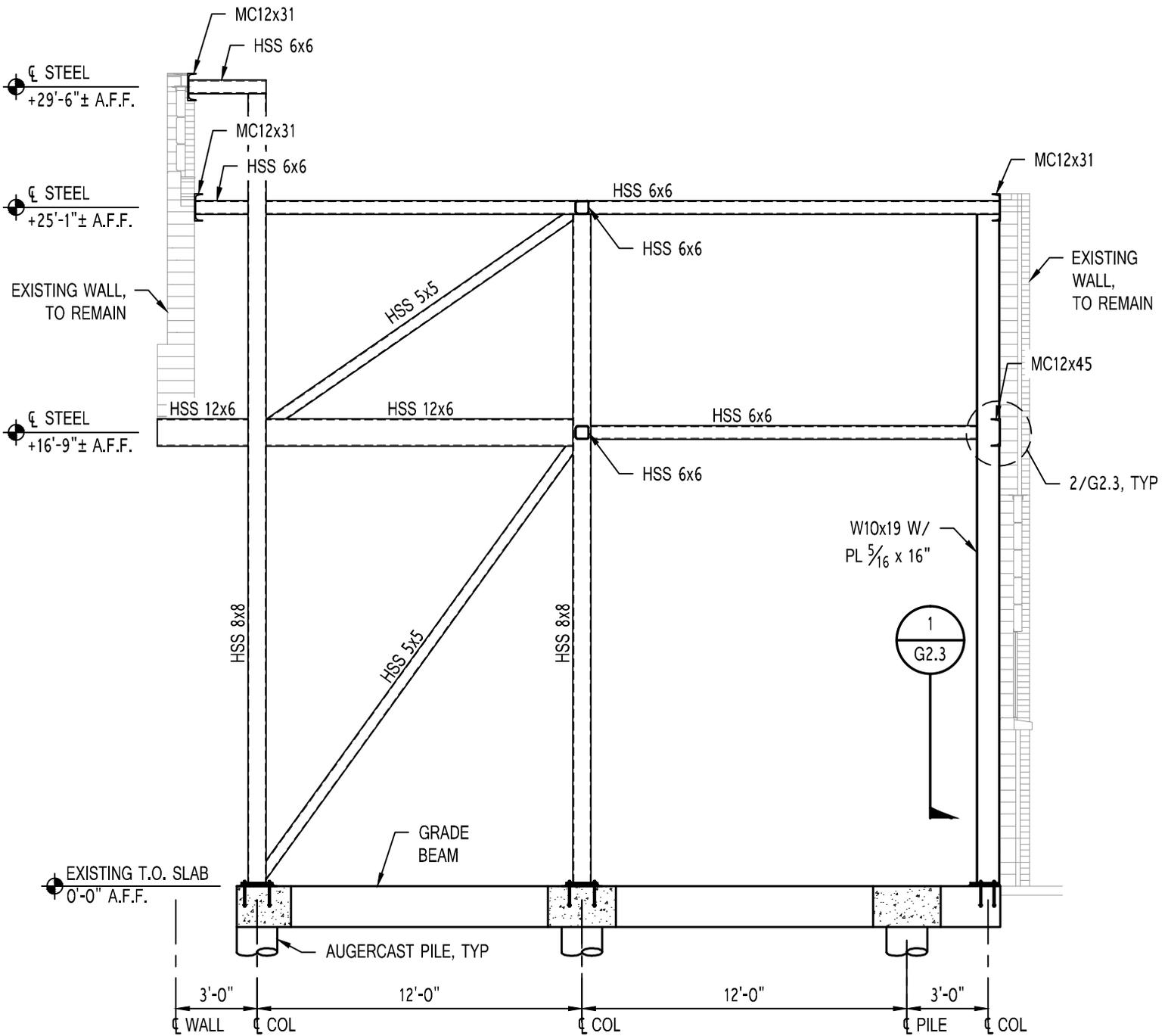


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G1.3

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1 SECTION
 G2.1 SCALE: 3/16"=1'-0"

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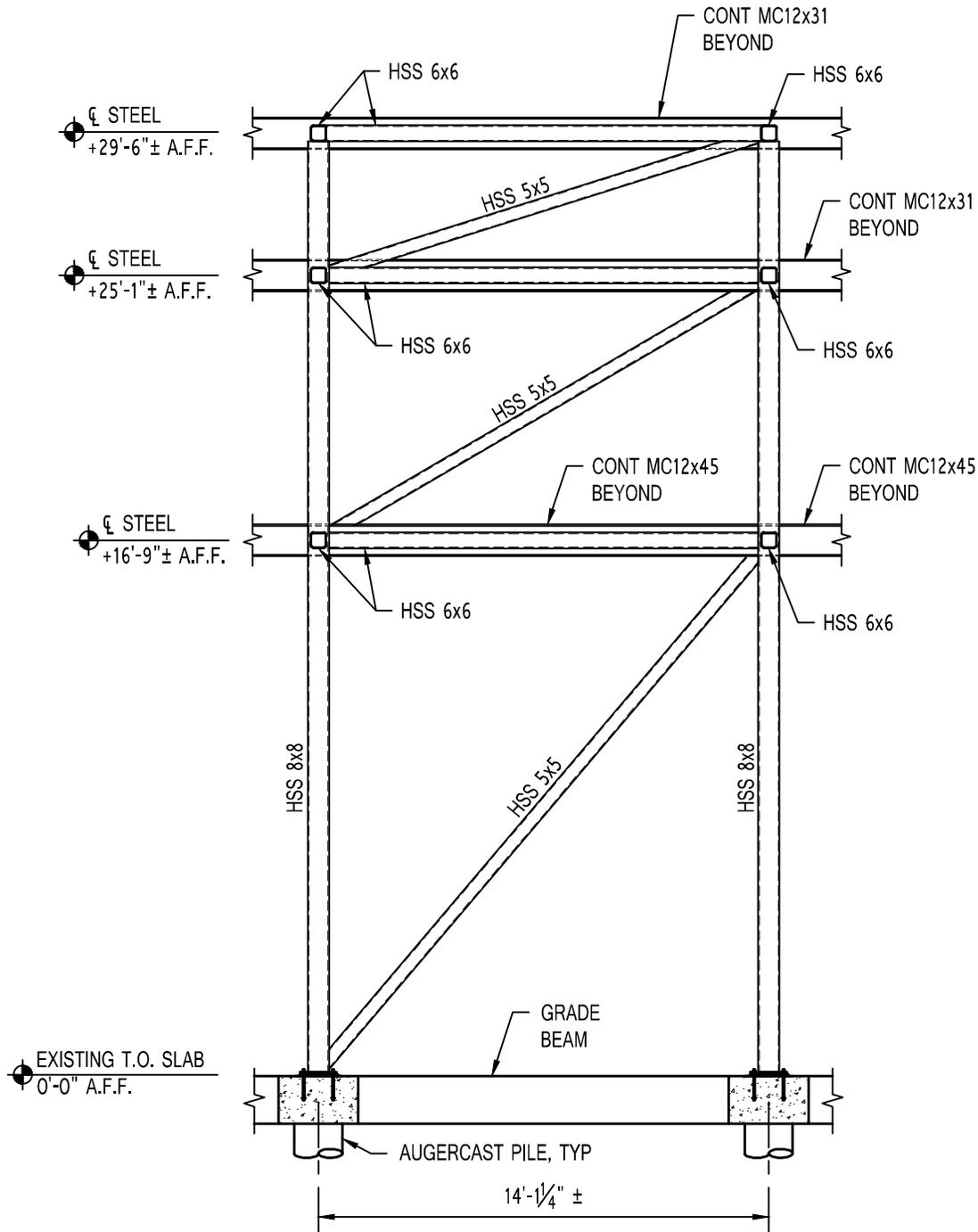
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G2.1



1 SECTION
 G2.2 SCALE: 3/16"=1'-0"

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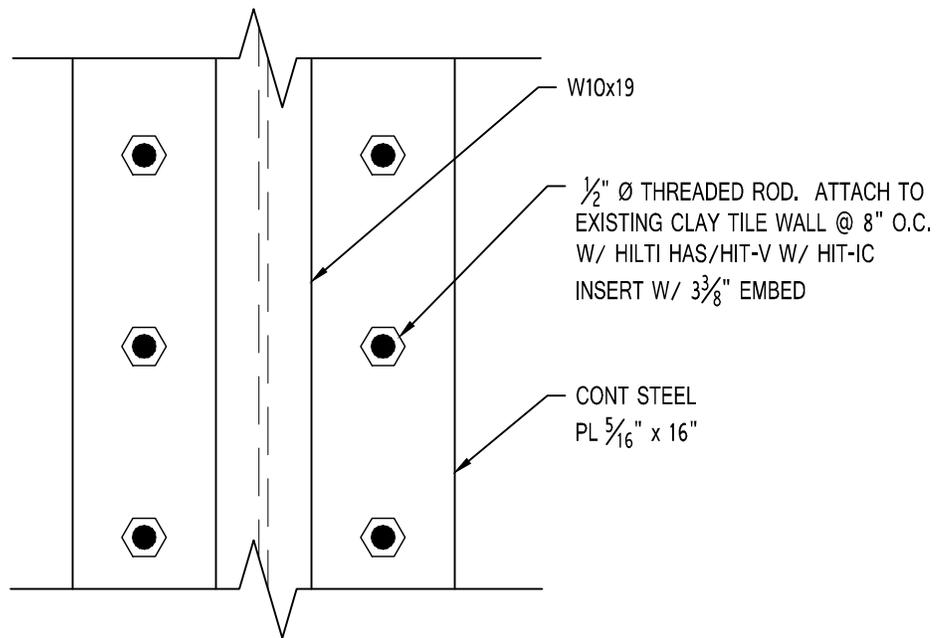
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G2.2

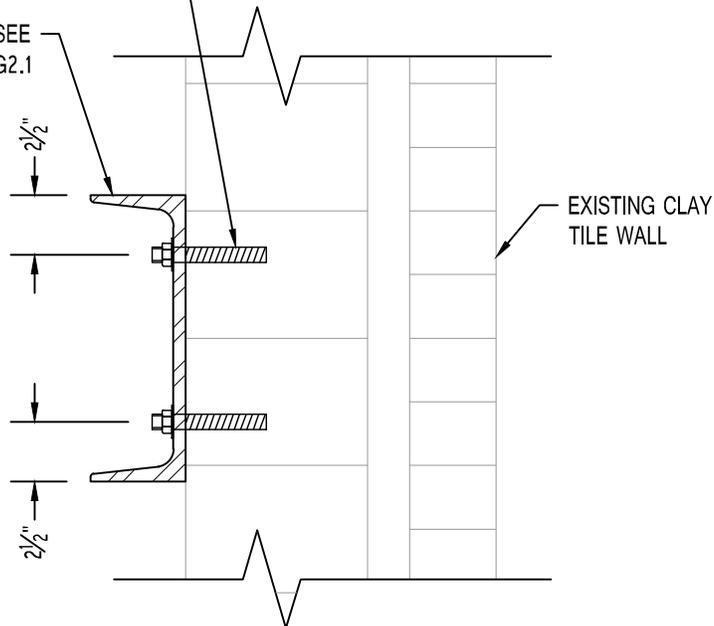


NOTE: EXISTING CLAY TILE PILASTER BEYOND STEEL PL.

1 SECTION
G2.3 SCALE: 1 1/2" = 1'-0"

1/2" Ø THREADED ROD. ATTACH TO EXISTING CLAY TILE WALL @ 8" O.C. W/ HILTI HAS/HIT-V W/ HIT-IC INSERT W/ 3 3/8" EMBED

MC12, SEE PLANS & 1/G2.1



2 SECTION
G2.3 SCALE: 1 1/2" = 1'-0"

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G2.3