COMPREHENSIVE AGREEMENT

Between

The Historic Triangle Recreational Facility Authority

And

MEB General Contractors, Inc.

For

Design and Construction

Of

Regional Sports and Events Facilities

Date: ______ March 8_, 2024

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COMPREHENSIVE AGREEMENT

THIS COMPREHENSIVE AGREEMENT (this "Agreement") is dated and effective as of March's , 2024, between THE HISTORIC TRIANGLE RECREATIONAL FACILITIES AUTHORITY ("HTRFA", "the Owner" or "the Authority"), a political subdivision of the Commonwealth of Virginia, and MEB GENERAL CONTRACTORS, INC. ("Design-Builder"). The Authority and Design-Builder are referred to individually as a "Party" and collectively as "the Parties".

Recitals

- 1. Virginia's Historic Triangle area is located in Coastal Virginia between the James and York rivers and is composed of all of the City of Williamsburg and the Counties of James City and York (together, the "Localities").
- 2. HTRFA was created as a political subdivision of the Commonwealth of Virginia by concurrent resolutions adopted in 2021 by the Williamsburg City Council and the Boards of Supervisors of James City County and York County pursuant to the Public Recreational Facilities Authorities Act, Virginia Code § 15.2-5600 (the "Act").
- 3. HTRFA's purpose is to acquire, construct and operate one or more public recreational facilities to not only serve the citizens of the Localities, but also to promote and enhance recreation, sports and tourism activities in the geographic area of the Localities.
 - 4. HTRFA held its inaugural meeting on January 12, 2022.
- 5. On February 9, 2022, HTRFA adopted Guidelines for Implementation of the Public-Private Education Facilities and Infrastructure Act of 2002 (the "PPEA Guidelines"), establishing procedures for the development of public facilities through public-private partnerships, which procedures satisfy the requirements of the Public-Private Education Facilities and Infrastructure Act of 2002, Virginia Code § 56-575.1 et. seq. (the "PPEA").
- 6. HTRFA received and accepted two unsolicited proposals for the construction of regional indoor sports and event facilities to be undertaken in various phases (the "Regional Sports and Events Facilities") located on the property at 100 Visitor Center Drive in the City of Williamsburg, Virginia (the "Site1").
 - 7. The non-confidential portions of the proposals were posted on HTRFA's website.
- 8. In accordance with HTRFA's PPEA Guidelines, HTRFA publicly advertised for and invited interested private entities to submit competing conceptual phase proposals for the Regional Sports and Events Facilities with the requirement that the proposals provide for an initial phase of the Regional Sports and Events Facilities to be at least 160,000 square feet and

¹ See also General Conditions Section 1.2.5.

include 12 basketball courts that can be converted to 24 volleyball courts and 36 pickleball courts (the "Initial Project").

- 9. No viable bids resulted from the solicitation process.
- 10. HTRFA created a review advisory panel composed of regional stakeholders in the banking, tourism, and economic development industries to review and provide analysis and advice to HTRFA regarding the proposals.
- 11. Following the review and analysis of the proposals, HTRFA selected Design-Builder for negotiation of an Interim Agreement for preliminary design of the Initial Project (the "Interim Agreement").
- 12. HTRFA determined that, among other considerations, it would be advantageous to proceed with the Initial Project pursuant to Design-Builder's proposal (the "Proposal") using procedures for competitive negotiation, rather than using sealed, competitive bids, given the probable scope, complexity and urgency of the Initial Project; the merits of risk-sharing and the potential for added value; and the economic benefit from the Initial Project that might otherwise not be available.
- 13. The Parties negotiated and entered into the Interim Agreement relating to the Initial Project consistent with the PPEA, other applicable law, the PPEA Guidelines, the Proposal, and discussions between representatives of HTRFA and Design-Builder.
- 14. The Parties have presented site plans and other information to appropriate City of Williamsburg agencies and reviewed the same with the governing bodies of the Localities.
- 15. HTRFA, concluding that the design and construction of the Initial Project (for purposes of this Agreement, the "Project") is feasible, has selected Design-Builder for the negotiation of this Comprehensive Agreement (the "Agreement") under the PPEA to address the completion of design, construction and commissioning of the Project without further procurement.
- 16. The Parties have negotiated this Agreement consistent with the PPEA, other applicable law, the PPEA Guidelines, Design-Builder's proposals, and discussions between representatives of HTRFA and Design-Builder.
- 17. The Parties acknowledge and agree that this Agreement, including the General and Supplemental Conditions (as defined below), will function as the design-build contract for the Project.
- 18. Having considered this Agreement and other information, HTRFA has determined that the Project to be designed and constructed pursuant to this Agreement serves the public purpose of the PPEA under the criteria of Virginia Code § 56-575.4(C).

- 19. This Agreement was posted for public inspection in accordance with the PPEA and the PPEA Guidelines.
- 20. On March 8, 2024, in accordance with Virginia Code § 56-575.16(5) and HTRFA's PPEA Guideline and following its review of this Agreement, the Board of the Authority approved this Comprehensive Agreement and authorized its execution by the Chairperson of the Board.

AGREEMENTS

NOW THEREFORE, for and in consideration of the mutual promises, conditions and covenants herein set forth, the Parties agree as follows:

1. Incorporation of Recitals.

The foregoing recitals are true and correct and are incorporated herein by reference.

2. Contract Documents.

The Contract Documents are comprised of the following:

- a. All written modifications, amendments, change directives and change orders to this Agreement issued in accordance with the General Conditions;
- b. This Agreement, including all exhibits, attachments, and documents expressly incorporated herein;
- c. The General Conditions, including all exhibits, attachments, and documents expressly incorporated therein;
- d. The Supplemental Conditions, including all exhibits, attachments, and documents expressly incorporated therein; and
- e. Construction Documents prepared and approved in accordance with General Conditions Section 2.4.

3. **Definitions.**

The following definitions apply to this Agreement.

- a. "Construction Documents" means the documents as defined in General Conditions Section 1.2.3 and as referenced in Section 2.4 of the General Conditions.
- b. "Contract Documents" means those documents listed in Article 2 above.
- c. "Contract Price" means the amount that the Authority will be obligated to pay the Design-Builder as stated at Article 6 of this Agreement and is subject to upward or downward

adjustment pursuant only to the Agreement.

- d. "Contract Time" has the meaning ascribed by Article 8 hereof, as may be adjusted pursuant to the Contract Documents.
- e. "Date of Commencement" means the date the Comprehensive Agreement is executed on behalf of the Authority.
- f. "Design-Build Contract" means this Agreement and the exhibits attached hereto, including the General and Supplemental Conditions.
- g. "Final Completion of the Work", "Final Completion" or "final completion" means completion of all of the Work as defined in General Conditions 1.2.19 and in conformance with the Construction Documents as described in General Conditions Section 2.4.2, and other Contract Documents, including without limitation, punch list items, but not including warranty items.
- h. "General Conditions" means *Design-Build Institute of America* Document No. 535, "Standard Form of General Conditions of Contract between the Authority and Design-Builder", as modified by agreement of the Authority and Design-Builder, which is attached hereto as Exhibit 2.
- i. "Owner's Representative" means MBP.
- j. "Project" means the design and construction of the improvements of the Initial Project as contemplated by the Contract Documents. "Project" includes both the entirety of the Project or a part thereof.
- k. "Project Schedule" means that schedule defined in General Conditions Section 1.3.7 and attached as Exhibit 1-4 Project Schedule.
- "Site" means the land on which the Project will be constructed as depicted at Exhibit 1-5 Site Logistics and Utilization Plan.
- m. "Substantial Completion of the Work," "Substantial Completion," or "substantial completion," with respect to the Project, shall have the meaning as defined in General Conditions Section 1.2.18.
- n. "Supplemental Conditions" means the Supplemental Conditions of Contract between the Authority and Design-Builder, attached hereto as Exhibit 3.
- 4. General Scope of Work; Interpretation; Intent and Incorporation.
 - a. General Scope.

Design-Builder shall perform, provide or cause to be provided all design and construction

services, and provide or cause to be provided all material, equipment, services and labor, necessary to complete the Work described in the Contract Documents. The Design-Builder's Scope of Work is more specifically described in the Comprehensive Agreement Pricing Submission submitted by the Design-Builder at the 35% Design Development Phase to the Authority on November 30, 2023, attached as Exhibit 1 ("35% Design Development Submission"). Design-Builder shall be responsible for the professional quality, technical accuracy and the coordination of all designs, drawings, plans, specifications, and other services and/or materials furnished by Design-Builder under this Agreement.

- b. The Contract Documents are intended to permit the Parties to complete the Work and all obligations required by the Contract Documents within the Contract Time(s) for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event of any inconsistency, conflict, or ambiguity between or among the Contract Documents, the order of precedence among Contract Documents shall be as provided in Article 25 hereof.
- c. Terms, words and phrases used in the Contract Documents, including this Agreement, shall have the meanings given them in this Agreement and the General and Supplemental Conditions.
- d. In accordance with Article 25 hereof and as more fully provided thereby, the Contract Documents form the entire agreement between Owner and Design-Builder. No oral representations or other agreements have been made by the Parties except as specifically stated in the Contract Documents.

5. Ownership of Work Product.

- a. Work Product is defined as unique elements of designs contained in the Drawings and Specifications, including electronic copy of them, furnished by Design-Builder to Owner under this Agreement and the copyrights thereto ("Work Product"). Such Work Product shall become the property of Owner upon payment for such item(s) and all amounts due hereunder for the Work. Design-Builder, Designer, and Prime Construction Contractor shall have the right to use Work Product except as a reuse of the same design on another Owner's project.
- b. Owner may use the Work Product only in connection with Owner's occupancy and use of the Project, including for maintenance and repairs, future renovations, and expansions, and for any other purpose Owner deems appropriate. Such Work Product is not intended or expected to be suitable for use on other projects, or by other contractors or designers, except for the uses listed in the previous sentence. Owner shall not provide Work product to any other entity for use on other projects, subject to State law, except for renovations or expansions to this project. Use of Work Product by Owner for any purpose other than that described above, or any use of the Work Product by other persons to whom Owner

has furnished such Work Product shall be at the user's sole risk of liability and without liability or legal exposure to Design-Builder, Designer, Prime Construction Contractor, or any of their subcontractors and consultants, or any of their officers or employees.

- c. Design-Builder shall include in its contract with its Designer and have included in contracts with any design professionals providing any services for this Project provisions that require all design professionals providing any services for the Project to agree to this Article 5, and Design-Builder shall indemnify, and hold harmless Owner and its agents, employees, architects, engineers, consultants and contractors from any claim of copyright infringement by any Person based upon Owner's use of the Work Product for this Project pursuant to this Article 5.
- d. Nothing in this Article 5 shall be deemed to relieve Design-Builder or any Designers providing services through Design-Builder of their obligation under this Agreement that all design and design services provided for this Project shall conform to the applicable standard of care defined herein for the Designer providing such design or services.
- e. If Owner terminates the Agreement for its convenience as set forth in Article 14 hereof, or if Design-Builder elects to terminate the Agreement in accordance with Article 13 hereof, Designer and Design-Builder shall, upon Owner's payment in full of the amounts due Design-Builder under the Contract Documents, grant Owner a limited license to use the Work Product to complete the Project and subsequently use the Project, conditioned on the following:
 - i. Use of the Work Product is at Owner's sole risk without liability or legal exposure to Design-Builder, including Designer and Design Consultants at any tier; and
 - ii. Owner agrees to pay Design-Builder all design and consultant fees due at the time of termination as compensation for the right to use the Work Product in accordance with this Article 5 if Owner resumes the Project through its employees, agents, or third parties.
- f. If the Agreement is terminated due to Design-Builder's default pursuant to Article 13 hereof, and (i) it is determined that Design-Builder was in default, and (ii) Owner has fully satisfied all of its obligations under the Contract Documents, the Work Product shall become the property of Owner upon payment for such item(s) and all amounts due hereunder for the Work. Use of the Work Product is conditioned on Owner's express understanding that its use of the Work Product is at Owner's sole risk and without liability or legal exposure to Design-Builder.

6. Contract Price.

a. A Contract Price has been agreed to by the parties the amount of which is SEVENTY-NINE MILLION, NINE HUNDRED EIGHTY-ONE THOUSAND DOLLARS (\$79,981,000.00). Unless

otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer, and other taxes imposed by law or any governmental authority.

- b. Owner shall pay Design-Builder in accordance with Article 7 hereof, subject to adjustment in accordance with the General Conditions.
- c. For Changes to the Work requested by the Owner in writing after Owner's approval of the 60% Contract Documents, if such changes add to the Scope of Work, Design-Builder shall, upon the written request of the Owner, make the necessary design drawing and specification revisions; prepare and issue requests for proposal describing the modifications; prepare estimates, drawings and specifications as required; evaluate proposals and make recommendations to the Owner. To the extent that a contract time extension and amounts payable by Owner for Change under this paragraph are warranted, such extension and amounts payable will be negotiated, and based upon the a reasonable amount of time to complete such Change.
- d. No payment shall be made to Design-Builder in excess of the Contract Price except as adjusted for any Changes made in accordance with this Agreement. Design-Builder shall be wholly responsible to complete the Project at no compensation above the Contract Price as adjusted for any Changes made in accordance with this Agreement, and the Owner shall have no obligation to pay the Design-Builder such excess amount or any portion thereof, SUBJECT TO DESIGN-BUILDER'S CLAIM AND DISPUTE RESOLUTION RIGHTS.
- e. Upon request of the Owner, Design-Builder agrees to provide sufficient financial information demonstrating the amount of profit realized by Design-Builder as a result of this Agreement.

7. Payment.

a. Progress Payments

Design-Builder shall submit to Owner's Representative on the twenty-fifth (25th) day of each month, beginning with the first month after the Date of Commencement, Design-Builder's Application for Payment (as such term is used in the General Conditions) for that month in accordance with General Conditions Article 6. Owner shall make payment within thirty (30) days after approval by the Owner's Representative of each properly submitted and accurate Application for Payment in accordance with General Conditions Article 6, but in each case less the total of payments previously made, and less amounts properly withheld under General Conditions Section 6.3.

b. Retainage on Progress Payments

i) Owner will retain five percent (5%) of the progress payments earned on the Reimbursable Costs of the construction portion of the Work and Contractor's fixed

fee through Substantial Completion. Design-Builder shall include or cause to be included retainage provisions in all subcontracts at the rate set forth herein.

ii) Upon Substantial Completion of the entire Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to 200% of the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

c. Final Payment

Design-Builder shall submit its Final Application for Payment to Owner in accordance with General Conditions Section 6.7. If the sum of all progress payments and the final invoice is greater than the Contract Price, as modified by Change Orders, the final invoice shall be adjusted so that the sum of all progress payments and the final payment is not greater than the Contract Price. If the Design-Builder's claim to amounts payable under the Comprehensive Agreement has been assigned, with consent of Owner, as provided in the General Conditions, a release may also be required of the assignee. Owner shall make payment on Design-Builder's properly submitted and accurate Final Application for Payment, provided that Design-Builder has satisfied the requirements for final payment set forth in General Conditions Section 6.7.2.

d. Interest

Payments due and unpaid by Owner to Design-Builder, whether progress payments or final payment, shall bear interest on all amounts properly due commencing thirty (30) days after the receipt of Design-Builder's properly submitted and accurate invoice, at the rate of one (1) percent per month.

8. Contract Time.

a. Date of Commencement.

The Work shall commence upon Notice to Proceed from Owner ("Date of Commencement") unless the Parties mutually agree otherwise in writing. The Chair of the Authority shall execute the Agreement on behalf of the Authority upon approval hereof by the Authority. Some Work (preliminary sitework, demolition, shop drawings, fabrication, general conditions work, etc.) may have to be performed prior to the full commencement of construction. The time stated for completion of each phase includes cleanup of the site.

b. Substantial Completion and Final Completion.

 Substantial Completion of all Work and Final Completion shall be achieved no later than the dates in the Project Schedule in Exhibit 1-4 ("Scheduled Substantial Completion Date" and "Final Completion of the Work"). On a monthly basis after the Date of Commencement, Design-Builder shall consult with the Owner's Representative with regard to the likely Substantial Completion date of each phase and earlier occupancy dates so as to allow the Owner to plan its move.

- ii. Final Completion of the Work or identified portions of the Work shall be achieved as expeditiously as reasonably practicable, not later than sixty (60) calendar days after Substantial Completion and within the time specified in the Project Schedule.
- iii. All of the dates set forth in this Article 8 shall be subject to adjustment in accordance with the General Conditions.

c. Liquidated Damages.

Owner and Design-Builder recognize that TIME IS OF THE ESSENCE in the completion of the Work and that Owner may suffer loss or damages if the Work is not completed within the period of time stipulated, plus any extensions thereof allowed in accordance with the Agreement. The parties also recognize the delays, expense, and difficulties involved in proving the actual loss or damages suffered by Owner if the Work is not completed on time. Accordingly, if Substantial Completion is not attained by thirty (30) days after the Scheduled Substantial Completion Date, e.g., the date established for Substantial Completion (the "LD Date"), Design-Builder agrees it shall owe to and pay to Owner as liquidated damages for loss of Owner's use or occupancy of the Work, but not as a penalty, the sum of \$2,000.00 as step one liquidated damages for each and every consecutive calendar day of unexcused delay after the LD Date. Beginning on the 46th day after the LD Date, if Substantial Completion has not yet been attained, Design-Builder agrees it shall owe to and pay to Owner as liquidated damages for loss of Owner's use or occupancy of the Work, but not as a penalty, the sum of \$500.00 for each and every consecutive calendar day of unexcused delay after the LD Date, in addition to the step one liquidated damages, for a total of \$2,500.00 per day. Beginning on the 76th day after the LD Date, if Substantial Completion has not yet been attained, Design-Builder agrees it shall owe to and pay to Owner as liquidated damages for loss of Owner's use or occupancy of the Work, but not as a penalty, the sum of \$1,000.00 for each and every consecutive calendar day of unexcused delay after the LD Date, for a total of \$3,000.00 per day.

Once the Work is Substantially Complete, the accrual of step one liquidated damages shall stop and Design-Builder shall have sixty (60) calendar days in which to achieve Final Completion of the Work. If Final Completion of the Work is not achieved by the sixtieth (60th) day after Substantial Completion has been achieved, and if no extension of such time period has been granted by the Owner as required by this Agreement, then Design-Builder shall owe the Owner the additional amount of step 2 liquidated damages of THREE HUNDRED DOLLARS (\$300.00) for each and every consecutive calendar day thereafter that Final Completion of the Work is not achieved.

- Design-Builder further agrees that any liquidated damages Owner assesses against Design-Builder may also be withheld by Owner from any retainage or other sums Owner may otherwise owe to Design-Builder. Design-Builder hereby waives any defense as to the validity of any liquidated damages on the grounds such liquidated damages could be void as penalties or are not reasonably related to actual damages except as to whether Design-Builder is not responsible for delays.
- iii. The liquidated damages provided herein shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages, whether special or consequential, and of whatsoever nature incurred by Owner which are occasioned by any delay in achieving Substantial Completion.

d. Consequential Damages²

- i. NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 8.d.ii BELOW), NEITHER DESIGN-BUILDER, DESIGNER, CONTRACTOR OR PRIME CONSTRUCTION CONTRACTOR, NOR OWNER SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING, BUT NOT LIMITED TO OR NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.
- ii. The consequential damages limitation set forth in Section 8.d.i above is not intended to affect the payment of liquidated damages set forth in this Article 8 of the Agreement, which both parties recognize has been established, in part, to reimburse Owner or reward Design-Builder for some damages that might otherwise be deemed to be consequential. Unless expressly provided otherwise herein, the rights and remedies of the parties provided for under this Agreement are in addition to any other rights and remedies provided by law.

9. **Project Schedule.**

- a. The Project Schedule includes dates for Substantial and Final Completion of Work of the Project. TIME IS OF THE ESSENCE in achieving the Substantial Completion and Final Completion of Work dates for the Project.
- b. The Authority and Design-Builder shall use their best efforts to maintain the Project Schedule, which can be modified by mutual written agreement of the Parties as circumstances warrant and consistent with the Agreement as set forth in General Conditions Section 10.1.1, keeping in mind the importance of achieving the Substantial Completion dates for the Project. Design-Builder shall include in the Project Schedule sufficient allowance of time for permitting, reviews, and approvals as it takes in the

² Language for 8.d. adapted from DBIA Document No 535, Article 10.

normal course in the Authority for an expedited project.

10. Plan of Finance.

The Authority will arrange to finance the costs of the Project in a manner that results in the availability of funds in the amounts and at the times required to meet the projected needs for the Project, subject to annual appropriation. The Authority will include in its budget amounts reasonably necessary to finance the entire Project. HTRFA will provide evidence of funding for the Project prior to Approval of the 100% Design.

11. Construction Documents Submittal Phase.

Construction Document submissions shall be made as outlined below:

a. 60% Construction Documents Submission

Following receipt of Owner's approval of the 35% Design Development Submission, the Design-Builder shall prepare a 60% Construction Documents submission. Design-Builder shall submit the 60% Construction Documents submission to the Owner for review and approval in accordance with the Project Schedule. The Owner review period will be in accordance with the Project Schedule.

b. 85% Construction Documents Submission

Following receipt of Owner's approval of the 60% Construction Documents submission, the Design-Builder shall prepare an 85% Construction Documents submission. Design-Builder shall submit the 85% Construction Documents submission to the Owner for review and approval in accordance with the Project Schedule.

c. 100% Construction Documents Submission

Following receipt of Owner's approval of the 85% Construction Documents submission, the Design-Builder shall prepare a 100% Construction Documents submission. Design-Builder shall submit the 100% Construction Documents submission to the Owner for review and approval in accordance with the Project Schedule. On an exception basis, intermediate submissions may be provided for the design of sitework, foundations, structural steel and other items or systems requiring either advance procurement or construction start prior to the completion of the overall design in accordance with the approved schedule. The Owner review period will be in accordance with the Project schedule shown.

12. Construction Phase.

Construction services to be provided or caused to be provided by Design-Builder for the Project shall be performed pursuant to the Contract Documents. With Owner's prior agreement in writing, construction may commence in accordance with the Project Schedule prior to the

Owner's approval of all of the Construction Documents. Where phased/fast track construction is proposed prior to overall final approval, Plans and Specifications covering the system or components covered by that phase must be approved by the Owner prior to the start of construction of that phase.

13. Stop Work and Termination for Cause.

a. Authority's Right to Stop Work.

- i. The Authority may, without cause and for its convenience, order Design-Builder in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.
- ii. Design-Builder is entitled to seek an adjustment of the Contract Price and/or Contract Time(s) if its cost to perform and/or time to achieve Substantial Completion of the Work have been significantly impacted by any suspension or stoppage of Work by the Authority.

b. Authority's Right to Perform and Terminate for Cause.

- i. If Design-Builder persistently fails to (i) provide or cause to be provided a sufficient number of design professionals or skilled workers; or (ii) supply the materials or equipment required by the Agreement; or (iii) comply with applicable Legal Requirements; or (iv) timely pay, without cause, Designer, Design Consultants or Subcontractors; or (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted; or (vi) perform material obligations under the Contract Documents, or if Design-Builder (i) becomes insolvent; or (ii) makes a general assignment for the benefit of its creditors; or (iii) commences or consents to any action seeking reorganization, liquidation or dissolution under any law relating to bankruptcy or relief of debtors; or (iv) commences or consents to any action seeking appointment of a receiver or trustee for itself or its assets, then the Authority, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Sections 13.b.ii and 13.b.iii below.
- ii. Upon the occurrence of an event set forth in Section 13.b.i above, the Authority may provide written notice to Design-Builder that it intends to terminate the Agreement, in whole or in part, unless the problem cited is cured, or reasonably commenced to be cured, within fifteen (15) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then the Authority may give a second written notice to Design-Builder of its intent to terminate within an additional fifteen (15) day period. If Design-Builder, within such second fifteen (15) day period, fails to cure, or reasonably commence to cure, such problem, then the Authority may declare the Agreement terminated for default by providing

written notice to Design-Builder of such declaration.

- iii. Upon declaring the Agreement terminated pursuant to Section 13.b.ii above, the Authority may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to the Authority for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by the Authority in completing the Work, such excess shall be paid by the Authority to Design-Builder. If the Authority's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to the Authority. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by the Authority in connection with the reprocurement and defense of claims arising from Design-Builder's default, subject to the waiver of consequential damages set forth in General Conditions Section 2.9.3.
- iv. If the Authority improperly terminates the Agreement for cause, the termination for cause will be converted to a termination for convenience in accordance with the provisions of Article 14 hereof and the Authority will reimburse Design-Builder for such costs and expenses incurred in connection with the improper termination as provided in Article 14.

c. Design-Builder's Right to Stop Work.

- i. Design-Builder may, in addition to any other rights afforded under the Contract Documents or at law, stop work upon the Owner's failure to pay amounts properly due pursuant to Section 7(a) above and General Conditions Article 6.
- ii. Should the event set forth in Section 13.c.i above occur, Design-Builder has the right to provide the Authority with written notice that Design-Builder will stop work unless said event is cured within fifteen (15) days from the Authority's receipt of Design-Builder's notice. If the Authority does not cure the problem within such fifteen (15) day period, Design-Builder may stop work. In such case, Design-Builder shall be entitled to make a claim for adjustment to the Contract Price and Contract Time(s) to the extent it has been adversely impacted by such stoppage.

d. Design-Builder's Right to Terminate for Cause.

Design-Builder, in addition to any other rights and remedies provided in the Contract

- Documents or by law, may terminate the Agreement for cause for the following reasons specified in clauses i. through iii. below:
- i. The Work has been stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, because of an order by a court or any government authority having jurisdiction over the Work, or orders by the Authority under Section 13.a.i hereof, provided that such stoppages are not due to the acts or omissions of Design-Builder or anyone for whose acts Design-Builder may be responsible.
- ii. The Authority's failure to provide Design-Builder with any information, permits or approvals that are the Authority's responsibility under the Contract Documents which result in the Work being stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, even though the Authority has not ordered Design-Builder in writing to stop and suspend the Work pursuant to Section 13.a.i. hereof.
- iii. Upon the occurrence of an event set forth in Section 13.d.i above, Design-Builder may provide written notice to the Authority that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within fifteen (15) days of the Authority's receipt of such notice. If the Authority fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to the Authority of its intent to terminate within an additional fifteen (15) day period. If the Authority, within such second fifteen (15) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to the Authority of such declaration. In such case, Design-Builder shall be entitled to recover in the same manner as if the Authority had terminated the Agreement for its convenience under Article 14 of the Agreement.

e. Bankruptcy of Authority or Design-Builder.

- i. If either the Authority or Design-Builder institutes or has instituted against it a case under the United States Bankruptcy Code (such Party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:
- ii. the Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and
- iii. the Bankrupt Party shall file an appropriate action within the bankruptcy court to seek

- assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.
- iv. If the Bankrupt Party fails to comply with the foregoing obligations listed in clauses ii. and iii. above, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Section 13.
- v. The rights and remedies under Section 13.e.i above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code or the right of Design-Builder to stop Work under any applicable provision of the Contract Documents.

14. Termination for Convenience.

Upon fourteen (14) days written notice to Design-Builder, the Owner may, for its convenience and without cause, elect to terminate the Agreement, in whole or in part, by giving the Design-Builder a Notice of Termination.

- a. In such event, the Authority shall pay Design-Builder for the following:
 - i. All Work executed in connection with the Agreement (including general conditions and fixed fee associated with the Work completed).
 - ii. Fees earned for Work performed in accordance with the Agreement prior to the date the Notice of Termination is effective.
- iii. Any fees earned for Work not terminated, but not lost profits for the portions of the Agreement which were terminated.
- iv. The reasonable costs and expenses attributable to such Termination, including demobilization costs. Demobilization costs include:
 - 1. costs of equipment and materials procured prior to the date of Termination which cannot be returned or cancelled; and
 - 2. amounts due pursuant to settlements with Subcontractors and Design Consultants so long as such settlements are limited to payments for Work and fees as described in this section 14.a.
- v. The Authority shall not be obligated to pay Design-Builder for any additional compensation including but not limited to loss of revenue, income, or profit on Work not performed as a result of such termination.

- b. Upon receipt of a Notice of Termination, unless otherwise directed by the Owner's Representative, the Design-Builder must take the following actions:
 - i. Stop Work to the extent specified in the notice.
 - ii. Place no further orders or subcontracts for materials, services, or facilities except as may be necessary for completion of the non-terminated Work.
 - iii. Terminate all design, orders and subcontracts to the extent that they relate to the Work terminated.
- iv. Settle all outstanding liabilities and claims arising out of the termination of orders and subcontracts.
- v. Transfer title to the Owner and deliver as directed by the Owner's Representative:
 - 1. Work in process, completed Work, and other material produced as a part of or acquired for the Work terminated; and
 - 2. The completed or partially completed (in both hard copy and electronic format) plans, drawings, information, and other property that, if the Agreement had been completed, would have been furnished to the Owner.
 - vi. Use its best efforts to sell, as directed by the Owner's Representative, any property of the types referred to in Paragraph v above, provided that the Design-Builder may acquire property under the conditions prescribed and at prices approved by the Owner's Representative, and the proceeds of any such transfer will be applied in reduction of any payments to be made by the Owner to Design-Builder, or be credited to the price or cost of the Work covered by this Agreement, or be paid in any manner directed by the Owner's Representative. Complete performance of the Work not terminated.
 - vii. Take any action that may be necessary, or that the Owner's Representative may direct, for protecting and preserving any property related to this Agreement that is in the possession of the Design-Builder and in which the Owner has or may acquire an interest.
- c. At any time, Design-Builder may submit to the Owner's Representative a list, certified as to quantity and quality, of termination inventory not previously disposed of, and may request the Owner to remove inventory items or enter into a storage agreement covering them. Not later than fifteen (15) calendar days after receiving this request, the Owner will accept title to the items and remove them or enter into a storage agreement. The list will be subject to verification by the Owner's Representative upon removal of the items or, if the items are stored, within forty-five (45) days after submission of the list.

- d. After termination, Design-Builder must submit to the Owner's Representative a termination claim in the form and with the certification prescribed by the Owner's Representative. The claim must be submitted promptly, but in no event more than ninety (90) days after the effective date of termination, unless an extension in writing is granted by the Owner's Representative. However, if the Owner's Representative determines that the facts justify such action, any termination claim may be received and acted upon at any time after the 90-day period. Upon failure of Design-Builder to submit a termination claim within the time allowed, the Owner's Representative may determine, on the basis of the information available, the amount, if any, due Design-Builder by reason of the termination which amount Owner shall pay. The termination claim may include costs incurred in its preparation for Design-Builder and its subcontractors.
- e. If Design-Builder and the Owner's Representative fail to agree on the amount to be paid to Design-Builder by reason of the termination, the Owner will only pay Design-Builder the amount payable based on the progress obtained on the Project at the time of the termination, including Reimbursable Costs and Fixed Fees only to that point. In no event shall Design-Builder be paid for any Work not actually and properly provided to and approved by Owner and no claim for lost profits or overhead shall be allowed for any time after termination.
- f. The total sum to be paid to Design-Builder may not exceed the total Contract Price as reduced by the payments made and as further reduced by the Contract Price of Work not terminated plus the termination claim. Except for normal spoilage, and except to the extent that the Owner expressly assumed the risk of loss, there will be excluded from the amounts payable to Design-Builder under Paragraph e above, the fair value, as reasonably determined by the Owner's Representative, of property destroyed, lost, stolen, or damaged so as to become undeliverable to the Owner, or to a buyer.
- g. Design-Builder has the right of review under the "Resolution of Disputes, Claims and Other Matters" clause of any determination made by the Owner's Representative under paragraphs d, e and f above, except that, if the Design-Builder has failed to submit its termination claim within the time provided in paragraph d above and has failed to request an extension of time, there may be no right of review.
- h. In arriving at the amount due the Design-Builder, there may be deducted:
 - i. Any valid claim that the Owner may have against the Design-Builder under this Agreement or otherwise; and
 - ii. The agreed price for or the proceeds of sale of materials, supplies, or other things kept by Design-Builder or sold and not recovered by or credited to the Owner.
- i. If the termination is partial, Design-Builder must file with the Owner's Representative a request in writing for an equitable adjustment of the price and time specified in the Agreement relating to the continued portion of the Agreement.

15. Payment Bonds, Performance Bonds, and Other Security.

- a. Design-Builder shall furnish prior to notice to proceed with or commencement of any construction, whichever occurs first, separate performance and payment bonds in the amount of one hundred percent (100%) of the costs of construction. All bonds shall be executed by a corporate surety or corporate sureties that are reasonably acceptable to the Authority, and duly authorized to do business in the Commonwealth of Virginia, that meet the requirements of Virginia Code § 2.2-4337 and are executed in a form acceptable to the Authority. Design-Builder shall cooperate with the Authority to fulfill any reasonable requirements in connection with the financing for the Project with respect to the form of performance and payment bonds provided hereunder.
- b. Design-Builder shall also furnish any cash escrow, funds, cashier's checks, certified checks, or letters of credit required for the Authority's issuance of any earth-disturbing or other permit and any bonds or security required by VDOT or any other governmental authority.

16. Insurance.

- a. Design-Builder shall obtain, maintain and comply with the terms and conditions of, and shall pay all premiums with respect thereto as the same become due and payable, the following insurance with companies that are reasonably satisfactory to the Authority with at least an A (financial strength) and a XIV (size) or greater rating by A.M. Best:
 - i. Worker's Compensation insurance in the amount statutorily required;
 - ii. Commercial General Liability insurance (on an occurrence basis) for a combined single limit for bodily injury and property damage of not less than \$5,000,000, with coverage, at a minimum, for (i) blanket contractual liability; (ii) products liability and completed operations; and (iii) broad form property damage coverage:
 - iii. Business Automobile Liability insurance for a combined single limit for bodily injury and property damage of not less than \$1,000,000. Auto liability should be written with a symbol "I" which will provide owned, non-owned, and hired auto liability coverage.
 - iv. Umbrella or Excess Liability insurance for a minimum single limit of \$4,000,000 supplementing the Commercial General Liability policy and Business Automobile Liability policy.
 - v. Professional Liability insurance, on a claims made basis, in an amount not less than \$5,000,000 per occurrence and not less than \$5,000,000 in the aggregate, covering damages resulting from negligent professional errors, omissions or wrongful acts or services performed by a certified, licensed or registered architect or professional engineer, as required by applicable law.
 - vi. Design-Builder may satisfy the minimum liability limits required above for Commercial General Liability and Business Automobile Liability under an Umbrella or Excess

Liability policy.

- vii. Design-Builder shall be responsible for the filing and settling of claims and liaison with insurance adjusters.
- viii. Design-Builder shall send a copy of all policies and certificates of coverage to the Authority, which shall be deemed to have approved of such policies unless, within thirty (30) days after receipt thereof, the Authority shall by notice in writing advise Design-Builder to the contrary.
- ix. The Commercial General Liability and Business Automobile Liability insurance policies shall name the Authority, and the security trustees, if any, as part of any financing, if any, as Additional Insureds. Design-Builder shall provide a policy endorsement in the form as follows:

Additional Insured - Authority, Lessees or Contractors (Form B)

This endorsement conditions insurance provided under the following policy:

COMMERCIAL GENERAL LIABILITY COVERAGE PART SCHEDULE

Name of Design-Builder as named insured, Project Name or Number, and Article II is amended to include as an insured the person or organization shown in the Schedule (Authority), but only with respect to liability arising out of "your work" for that insured by or for you. Design-Builder also agrees to endorse the Authority as "Additional Insureds" on the Umbrella or Excess Liability, unless the Certificate of Insurance states the Umbrella or Excess Liability provides coverage on a pure "True Follow-Form" basis. The Design-Builder further agrees to endorse the Authority as an Additional Insured and Loss Payee, on the Builder's Risk Insurance.

- b. The Authority reserves the right, but not the obligation, to review and revise any insurance requirement, not limited to limits, sub-limits, deductibles, self-insured retentions, coverages and endorsements based upon any material adverse change in insurance market conditions after the date of this Agreement affecting the availability or affordability of coverage, or changes in the scope of work/specifications affecting the applicability of coverage, and the costs of any such change shall be an adjustment to the compensation payable to Design-Builder. Additionally, the Authority reserves the right, but not the obligation, to review and reject any insurance policies failing to meet the criteria stated herein and to reject any insurer providing coverage due to its poor financial condition or failure to operate legally.
- c. Design-Builder agrees to provide, or cause to be provided to, the Authority Certificates of Insurance evidencing that all coverages, limits and endorsements required herein are maintained and are in full force and effect. The Certificates of Insurance shall clearly indicate the <u>project name</u> and <u>project number</u>. Said Certificates of Insurance shall include

a minimum thirty (30) day endeavor to notify due to cancellation or non-renewal of coverage. The Certificate Holder address shall read:

Andrew Omer Trivette, Chair Historic Triangle Recreational Facilities Authority 401 Layfette Street Williamsburg, Virginia 23185 atrivette@williamsburgva.gov

- d. Design-Builder, prior to notice to proceed with or commencement of any construction, whichever occurs first, will cause Builder's Risk insurance to be provided and maintained that names the Authority as named insured by means of an endorsement to the policy and gives coverage to protect the interests of the Authority and Design-Builder, its Subcontractors and its Design Consultants. The Builder's Risk coverage shall include property in transit, on or off-premises, which will become part of the Work, and for "acts of terrorism" coverage under the Terrorism Risk Insurance Act of 2002. Design-Builder shall procure and maintain, or cause to be procured and maintained, the Builder's Risk insurance policy on an "all risk", 100% replacement cost basis, until completion of the Project and final payment to Design-Builder under the Agreement. The Design-Builder agrees to have the policy endorsed with a manuscript endorsement eliminating the automatic termination of coverage in the event the building is occupied in whole or in part, or put to its intended use, or partially accepted by the Authority. The manuscript endorsement shall amend the automatic termination clause to only terminate coverage if the policy expires, is cancelled, the Authority's interest in the building ceases, or the building is accepted and insured by the Authority. Cessation of the Builder's Risk coverage shall be affirmatively coordinated with the Authority's property insurer, as identified by the Authority. Copies of required endorsements shall be received prior to commencement of the Project.
 - i. Property Coverage Installation Floater (and Rigger's Form, if applicable) will be required for the installation of contents or equipment, coverage will begin with supplier and continue until equipment/contents has been fully installed. Floater will be valued for the replacement cost value of equipment/contents including all costs. The Design-Builder shall provide coverage for portions of the Work stored off-site after written approval of the Owner at the value established in the approval and for portions of the Work in transit. Riggers Form extension to the General Liability coverage may be on the Design-Builder's insurance coverage, or may be a certificate from the crane company supplying this coverage and listing the Authority, its officers, agents, volunteers, and employees, and the Design-Builder and the subcontractors as additional insureds.
 - ii. Special Hazards In the event special hazards are required by the Contract Documents, the Design-Builder shall obtain and maintain during the life of the Agreement a rider to the policy or policies required, in an amount not less than that

stipulated under the above paragraphs. Should any unexpected special hazards be encountered during the performance of this Agreement, the Design-Builder shall, prior to performing any Work involving the special hazard, immediately obtain this insurance as instructed by the Owner. In the event the special hazard requiring the additional coverage was not included in the Scope of Work and Contract Price, the expense of such insurance shall be reimbursed to the Design-Builder by the Owner, otherwise the Design-Builder shall assume full responsibility for the purchase with no charge back to the Owner.

- e. Authority's Liability & Property Insurance. Owner shall procure and maintain from insurance companies authorized to do business in Virginia such liability insurance to protect the Authority from claims which may arise from the performance of the Authority's obligations under the Agreement or the Authority's conduct during the course of the Project. The liability insurance obtained by the Authority shall include as additional named insureds the interests of the Authority and Design-Builder. Upon Substantial Completion of construction, the Owner shall either: (i) continue the Builder's Risk and Property insurance coverage provided under paragraph 16.d above, or (ii) procure and maintain in effect until Final Completion of construction, property insurance providing coverage for the full cost of the Project equivalent to the Builder's Risk and Property insurance required of Design-Builder above. Design-Builder shall be named as an additional insured on such Property Insurance. Risk of loss passes to Owner in accordance with insurance provisions effective as of Substantial Completion.
- f. The Authority and Design-Builder may agree to waive all rights against each other for all losses and damages caused by any of the perils covered by the policies of insurance provided and also to waive all such rights against the Design-Builder, Subcontractors, Sub-Subcontractors, Design Consultants and all other parties named as insured in such policies for losses and damages so caused. If the Authority and Design-Builder agree to waiver of subrogation, then such insurance policies of the Authority and Design-Builder shall be endorsed to provide for this waiver of subrogation, pursuant to the Agreement. None of the above waivers shall extend to the rights that any of the insured parties may have to the proceeds of insurance held by the Authority or Design-Builder as trustee or otherwise payable under any policy so issued.

17. Representations and Warranties.

Design-Builder represents and warrants that it has legal authority to enter into this Agreement and perform all of its obligations herein (including necessary state construction and design licenses and obligations required by Virginia Code § 56-575.8) and that the execution of this Agreement by it has been duly and properly authorized. The Authority represents and warrants that it has legal authority to enter into this Agreement and perform all its obligations herein and that the execution of this Agreement by it has been duly and properly authorized, including approval by the Board of Directors of the Authority's entry into this Agreement.

18. Resolution of Disputes, Claims and Other Matters.

Disputes, claims and other matters in question between the Parties under the Agreement shall only be resolved as follows:

- a. Notice shall be provided pursuant to General Conditions Article 10.
- b. The Parties shall first endeavor to resolve any disputes, claims or other matters in question between them pursuant to General Conditions Section 10.1.1 and through direct negotiations, and if such direct negotiations fail, by non-binding mediation, with the site of the mediation being Williamsburg, Virginia, which is agreed to be the sole and exclusive venue. Should the dispute, claim, or other matter in question remain unresolved for the shorter of (i) following negotiation and mediation, or (ii) more than ninety (90) days after mediation is requested by a Party, either Party may proceed in accordance with Section 18.b below.
- b. If the procedures of Section 18.a have been followed, but more than ninety (90) days have passed since a Party has requested mediation, and the dispute, claim or matter in question remains unresolved, then either Party may institute a lawsuit or chancery action, as appropriate, in the Circuit Court of the City of Williamsburg, Virginia and may pursue all available appeals in Virginia state courts, to the extent they have jurisdiction. Design-Builder hereby consents to jurisdiction and venue in Circuit Court of the City of Williamsburg, Virginia.
- c. Nothing in paragraphs a. or b. shall prevent a Party from seeking temporary injunctive or other temporary equitable relief in the Circuit Court of the City of Williamsburg, Virginia if circumstances so warrant.
- d. In the event of any dispute, claim, or other matter in question arising, Design-Builder shall continue its performance diligently during its pendency as if no dispute, claim or other matter in question had arisen. During the pendency of any dispute in connection with the payment of moneys, Design-Builder shall be entitled to receive payments for non-disputed items and amounts.
- e. No claim by Design-Builder will be allowed if first asserted after final payment under this Agreement, except as expressly provided herein.

19. Notices.

All notices and demands by any party to any other shall be given in writing and sent by a nationally recognized overnight courier or by United States certified mail, postage prepaid, return receipt requested, and addressed as follows:

Notices to HTRFA shall be sent to:

Andrew Omer Trivette, Chair Historic Triangle Recreational Facilities Authority 401 Layfette Street Williamsburg, Virginia 23185 atrivette@williamsburgva.gov

With a copy to:

Daniel M. Siegel, Esq. Robyn H. Hansen, Esq. Sands Anderson, P.C. P.O. Box 1998 Richmond, VA 23218-1998 dsiegel@sandsanderson.com rhansen@sandsanderson.com

Notices to Design-Builder shall be sent to:

Mark Olmstead, Executive Vice President MEB General Contractors, Inc. 4016 Holland Boulevard Chesapeake, Virginia 23323 molmstead@meb.group

With a Copy to:

Trip Smith, Project Executive MEB General Contractors, Inc. 4016 Holland Boulevard Chesapeake, Virginia 23323 tsmith@meb.group

Any party may, upon prior notice to the others, specify a different address for the giving of notice. Notices shall be effective one (1) day after sending if sent by overnight courier or three (3) days after sending if sent by certified mail, return receipt requested.

20. Successors and Assigns.

Except as expressly otherwise provided, all of the terms, covenants and conditions hereof shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and assigns. The Agreement may not be assigned without the prior written consent of the Parties to this Agreement.

21. Time of the Essence.

The time to complete construction of the Project is of the essence of the Agreement. The Design-Builder shall proceed expeditiously with adequate forces and make diligent efforts to keep the Project on schedule, and the Design-Builder shall achieve for the Project Substantial Completion of the Work and Final Completion of the Work within the completion times specified in this Agreement. The Authority will cooperate reasonably with Design-Builder's efforts to keep the Project on schedule.

22. Independent Contractor.

It is expressly understood and agreed by the Parties hereto that Design-Builder, in performing its obligations under the Agreement, shall be deemed an independent contractor and not an agent, employee or partner of the Authority.

23. No Waiver.

The failure of the Authority or Design-Builder to insist upon the strict performance of any provisions of the Agreement, the failure of the Authority or Design-Builder to exercise any right, option or remedy hereby reserved, or the existence of any course of performance hereunder shall not be construed as a waiver of any provision hereof or of any such right, option or remedy or as a waiver for the future of any such provision, right, option or remedy or as a waiver of a subsequent breach thereof. The consent or approval by the Authority of any act by Design-Builder requiring the Authority's consent or approval shall not be construed to waive or render unnecessary the requirement for the Authority's consent or approval of any subsequent similar act by Design-Builder. No provision of the Agreement shall be deemed to have been waived unless such waiver shall be in writing signed by the Party to be charged.

24. Counterparts.

This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but both of such counterparts together shall be deemed to be one and the same instrument. It shall not be necessary in making proof of this Agreement or any counterpart hereof to produce or account for the other counterpart.

25. Entire Agreement and Order of Precedence.

This Agreement, including any other Contract Documents, and the Exhibits attached hereto and forming a part hereof set forth all the covenants, promises, agreements, conditions and understandings between Design-Builder and the Authority concerning the Project, and there are no covenants, promises, agreements, conditions or understandings, either oral or written, between them other than are herein set forth. No alteration, amendment, change or addition to the Agreement shall be binding upon Design-Builder or the Authority unless reduced to writing in a formal amendment signed by each Party. The applicable portions of the Interim Agreement Deliverables are incorporated herein as Exhibit 1 for purposes of providing details concerning the requirements of this agreement. In the event of any conflict or inconsistency between or among the meaning of any provision of the Contract Documents, such meaning, and the Contract

Documents, shall be interpreted in the following order of precedence: this Agreement, including any exhibits (but specifically excluding **Exhibit 2** (the General Conditions)) and attachments hereto as well as any modifications and amendments thereto; the General Conditions, including any modifications, amendments or change orders thereto; and the Construction Documents prepared and approved in accordance with General Conditions Section 2.4.

Exhibit 1 is not intended to contradict this Agreement, and in the event of any inconsistencies or conflicts, this Agreement shall prevail.

26. **Governing Law.**

This Agreement shall be governed by, and construed in accordance with, the laws of the Commonwealth of Virginia without regard to its principles of conflicts of law. The provisions of this Agreement shall not be construed in favor of or against either Party but shall be construed according to their fair meaning as if both Parties jointly prepared this Agreement.

27. Auditor of Public Accounts.

Within thirty (30) days after the date of this Agreement, the Authority shall submit a copy of this Agreement to the Auditor of Public Accounts, to the extent required by Virginia Code § 56-575.9(F).

28. Financial Statements.

Design-Builder agrees to provide the Authority with copies of complete and current financial statements for the Design-Builder on an annual basis. The financial statements provided need not be audited, but if Design-Builder does have the financial statements audited, they shall supplement their initial submission of unaudited financial statements for the year concerned with copies of audited statements within thirty (30) days after they become available. The Design-Builder hereby designates such financial statements as confidential proprietary information exempt from release under the Virginia Freedom of Information Act.

29. Conditions Precedent to Agreement's Effectiveness.

It shall be a condition precedent to this Agreement's effectiveness that it first be approved by Authority Board of Directors as evidenced by the signature of the Chairperson of the Authority Board of Directors on behalf of the Authority on the signature pages hereof.

30. Exhibits.

The following exhibits are hereby deemed to be part of this Agreement:

Exhibit 1	Comprehensive Agreement Pricing Submission (November 30, 2023)	
Exhibit 1-1	Qualifications and Clarifications	
Exhibit 1-1a	MBP Review Comments February 9, 2024	
Exhibit 1-2	Summary of Allowances	
Exhibit 1-3	Responsibility Matrix	
Exhibit 1-4	Project Schedule	
Exhibit 1-5	Site Logistics and Utilization Plan	
Exhibit 1-6	List of Documents	
Exhibit 1-6a	Outline Specifications	
Exhibit 1-6b	35% CA Documents Complete	
Exhibit 1-6c	Beynon Turf Drawing	
Exhibit 1-6d	Civil Design Narrative	
Exhibit 1-6e	Geotech Report	
Exhibit 2	General Conditions of Contract (DBIA Form 535, as revised)	
Exhibit 3	Supplemental Conditions	
Exhibit A	Draw Schedule	
Exhibit B	Payment Application	
Exhibit C	Private Entity Certification	
Exhibit D	Sample Performance Bond, Payment Bond	

IN WITNESS WHEREOF, the Parties have executed this Comprehensive Agreement as of the day and year first above written.

HISTORIC TRIANGLE RECREATIONAL FACILITIES AUTHORITY

	4.	
By: _	1 / V De 10	· V

Andrew Omer Trivette, Chair

MEB GENERAL/CONTRACTORS, INC

ву: ///

Mark Olmstead, Executive Vice President



Comprehensive Agreement Pricing Submission Williamsburg Sports & Events Center

11.30.2023

Mr. Andrew Omer Trivette, Chair Historic Triangle Recreational Facilities Authority 401 Lafayette Street Williamsburg, Virginia 23185

Dear Mr. Trivette,

We understand how important the Williamsburg Sports and Events Center project is to the HTRFA to build a premier destination for sports and event tourism, further improving the local communities in the City of Williamsburg, James City County, and York County. Our Design-Build team of experts is well versed in sports and event tourism facility construction, ensuring HTRFA a team of individuals with the experience necessary to address and anticipate challenges on the project before the arise, saving the project valuable time.

We are pleased to submit our Design-Build Lump Sum price of **Seventy Nine Million Nine Hundred Eighty One Thousand Dollars (\$79,981,000.00)** for the Williamsburg Sports and Events Center project Comprehensive Agreement. The Lump Sum price has been developed utilizing the information, details, and documents established cooperatively with HTRFA and the Design Review Committee throughout the Interim Agreement and as summarized in the following exhibits attached hereto:

- I. Exhibit 1 Qualifications and Clarifications
- II. Exhibit 2 Summary of Allowances
- III. Exhibit 3 Design-Builder and Owner Responsibility Matrix
- IV. Exhibit 4 Project Schedule
- V. Exhibit 5 Site Logistics and Site Utilization Plan
- VI. Exhibit 6 List of Documents

We thank the HTRFA for the opportunity to be a part of this transformative project and we look forward to continuing design to meet the proposed Q1 2024 start of construction. If you have any questions or require additional information, please contact me directly at 757.487.5858 or molmstead@meb.group.

Thank you,

MEB General Contractors, Inc.

Mark F. Olmstead
Executive Vice President

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www.uidp.dtonb



11.30.2023

Qualifications and Clarifications Williamsburg Sports & Events Center

GENERAL CLARIFICATIONS

- 1. Our pricing is based on the documents included in the 35% Comprehensive Agreement Documents as listed in Exhibit 6 and attached, dated October 10, 2023, and November 28, 2023, the following qualifications and clarifications, the following Exhibits attached hereto, and mutually agreeable contractual terms:
 - a. Exhibit 2 Summary of Allowances
 - b. Exhibit 3 Design-Builder and Owner Responsibility Matrix
 - c. Exhibit 4 Project Schedule
 - d. Exhibit 5 Site Logistics and Utilization Plan
- 2. As of the date of this submission the Architectural Review Board has not provided formal approval of building materials, as such the proposal is based on the 35% Comprehensive Agreement Documents dated November 28,2023. Additional changes to the documents required by the ARB may be at additional cost (additional brick work, roof screening of roof top equipment, etc.).
- 3. The proposal includes all site and civil work as indicated in Timmons design documents dated October 20, 2023, and City of Williamsburg Planning and Codes Department's site review comments dated November 27, 2023, with the following exceptions:
 - a. The proposal does not include any design or construction outside of the project's limits of disturbance, including but not limited to, any design or work at the Cascades Outfall.
 - b. Our proposal does not include any cost for cleaning, removal, and replacement of the existing sanitary sewer and storm lines owned by Colonial Williamsburg Foundation or the City of Williamsburg as our initial investigations indicate that there are lengths of piping that have been abandoned and/or compromised.
 - c. Our schedule is contingent upon approval by the City of Williamsburg for an early land disturbance and erosion and sediment control plan to begin construction in the first quarter of 2024.
 - d. Scope increases in addition to the October 20, 2023 Civil Documents and the November 27, 2023 City of Williamsburg review comments as directed by further site plan reviews will be at additional cost to the Owner.
- 4. Schedule: Proposal is based on MEB being able to perform the work without restriction on normal hours, off-hours, or Saturdays. This proposal is based on a construction schedule of twenty-six (26) months. Our schedule is contingent upon approval by the City of Williamsburg for an early land disturbance and erosion and sediment control plan to begin construction in the first quarter of 2024.
- 5. We clarify our intent to use the permanent mechanical, electrical, and plumbing equipment for temporary conditioning purposes during construction. No temporary conditioning outside the use of this equipment is included.

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- 6. We clarify our intent to use the permanent power generation equipment for temporary use during construction.
- 7. We exclude restoration, clean-up, or work of any kind within the existing to remain trees, woods, vegetative buffers, parking facilities, roads, structures.
- 8. We will assist the Client in securing permanent utilities. We exclude expenses associated with any delay created by the utility company's inability to provide service in conformance with project schedule requirements; including relocation work by private or public utilities in conflict with the design.
- 9. We exclude remediation, removal, and/or encapsulation of any hazardous or contaminated materials including soil, water, and man-made debris or unidentified obstructions encountered in any excavation (mass or utility).
- 10. We exclude removal of abandoned utilities (these will be capped and abandoned in place).
- 11. We exclude tree relocation work.

DIVISION 01—GENERAL REQUIREMENTS

- 1. We include general conditions and site staffing.
- 2. We include Design Fees for Architectural, Structural, Mechanical, Electrical, Plumbing, Civil, and Landscaping.
- 3. We include Geotechnical Engineering Fees.
- 4. We include surveying and Layout.
- 5. We include 3rd Party Material Testing and Inspections.

DIVISION 03 – CONCRETE

- 1. We include 6" slab-on-grade, reinforced with 6x6-W2.9xW2.9, over 6" porous fill to accommodate forklift traffic load limits.
- 2. We include shallow foundation system with cast-in-place reinforced concrete footings.

DIVISION 04—MASONRY

1. We include ground face CMU based on York Building Products, Gemstone – Parchment, includes integral water repellent.

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2. We include primary brick based on General Shale – Jefferson Wade Tudor Oversize and accent brick based on General Shale – Morning Smoke Oversize.

DIVISION 05—METALS

- 1. We include 2" composite floor deck based on galvanized G60 steel conforming to ASTM A653.
- 2. We include 1.5" roof deck base on galvanized G90 steel conforming to ASTM A653.
- 3. We include interior railings based on painted cable rail or multi-line picket style railings.
- 4. We include exterior railings at the porch/balcony based on painted cable rail or multi-line picket style railings.
- 5. We exclude acoustical metal decking.
- 6. We exclude all ornamental metals.
- 7. We include stairs as concrete filled metal pan.
- 8. We include the Mezzanine and Hub spaces as framed with structural steel beams, columns and wind girts supported by shallow, reinforced concrete footings.
- 9. We include the roofs of the Mezzanine and Hub areas as open-web steel joists supporting steel decking.
- 10. We include pre-engineered metal building roof as Butler MR 24 roof panels.

DIVISION 06—WOOD, PLASTICS, COMPOSITES

- 1. We include exterior wood look cladding and soffits as Longboard composite metal panels based on aluminum woodgrain; 6" tongue and groove w/ trim and extrusions as required, standard color per the 35% Comprehensive Agreement Documents.
- 2. We include solid surface material based on Meganite Mr. Jade & Mt. Grigio.
- 3. We include plastic laminate as Wilsonart Matte Finish, standard colors.

DIVISION 07—THERMAL AND MOISTURE PROTECTION

- 1. We include insulated metal panels as 2" thick Kingspan panels based on KS Microrib; Colors: IP1 Driftwood, Smooth, 29%, IP2 Dove Gray, Smooth, 54%, IP3 Zinc Gray, Smooth, 17%.
- 2. We include Aluminum Composite Metal Panels and banding based on Alucobond Gray & Tricorn Black, 4mm FR core, 2 or 3 coat standard paint.

clients first, family by choice, safety matters,



- 3. We include roofing membrane as 60 mil TPO, fully adhered, from GAF or Carlisle.
- 4. We include Hanover roof pavers and pedestals at the mezzanine balcony area over top of fleece backed EPDM membrane.
- 5. We include Henry WP 200 36" full sheet applied waterproofing at elevator pit.
- 6. We include 2" closed cell spray foam behind brick veneer and ACM wall panels.
- 7. Thermal barrier/protective coating assumed behind ACM wall panels to maintain NFPA-285 fire rating of the wall.
- 8. Henry 789 damp proofing applied to the foundation walls and top of footing.

DIVISION 08—OPENINGS

- 1. We include Aluminum window wall/storefront system based on YKK YWW-60TU and TWW-45TU (exterior) and YKK YES-45FI (interior).
- 2. We include exterior glass is 1" bronze tint tempered with Low-E for the vision glass and bronze tint tempered spandrel for the spandrel locations and interior storefront glazing as ¼" tempered.
- 3. We include exterior aluminum storefront doors based on YKK 35D medium stile, non-thermal with 10" bottom rails and are glazed with 1" glazing to match the exterior window walls. Doors include standard non-electric hardware.
- 4. We include interior aluminum storefront doors based on YKK 35D medium stile with 10" bottom rails and are glazed with 1/4" clear tempered glazing. Doors include standard non-electric hardware.
- 5. We include hollow metal frames as Curries.
- 6. We include metal doors as Ceco and wood doors as Masonite.
- 7. We include overhead doors as motor-operated and able to resist up to a 30 PSF wind load. R:8.0 at exterior, non-insulated at interior. Includes 4 standard color choices.

DIVISION 09—FINISHES

- 1. We include G&S Acoustics 2" fabric-wrapped fiberglass baffles hung from the Hub Space Ceiling.
- 2. We include the wood athletic flooring based on Robbins anchored system, 25/32"x2 ¼" wide, 2nd and better grade Northern hard maple over factory assembled panels.

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- 3. We include exposed structure and MEP at court space to be painted white. Outside of court space, structure will be exposed prime painted steel and exposed decking.
- 4. We include carpet based on Mohawk Art Style Collection 12"x26".
- 5. We include LVT as Mohawk Living Local.
- 6. We include Restroom floor tile as Daltile Rekindle 12"x24".
- 7. We include Restroom wall tile as Synchronic 12"x24".
- 8. We include Restroom base tile as Portfolio 12"x24".
- 9. We include Kitchen quarry tile as Daltile Quarry Textures 6"x6".
- 10. We include up to 20 access panels at drop or finished ceiling locations.

DIVISION 10—SPECIALTIES

- 1. We include a \$25,000 allowance for enhanced interior building signage, a \$50,000 allowance for exterior building signage, and a \$20,000 allowance for exterior site wayfinding signage.
- 2. We exclude non-code required interior way finding signage.
- 3. We include operable partitions at the Multipurpose Event Space as Kwik-Wall Model 3030, STC 56 sound rating.
- 4. We include toilet partitions as floor-mounted, overhead-braced. All in black core phenolic, color TBD.
- 5. We include toilet accessories as ASI products.

DIVISION 11—EQUIPMENT

- 1. We include athletic equipment (ceiling hung, folding basketball goals, overhead Volleyball systems, divider curtains) as Draper.
- 2. We include scoreboards as Nevco with vertical lift system by Draper.
- 3. We include Fold-up divider curtains with electric winches.
- 4. We include the motorized conversion rollout turf system as an on-grade system, with turf winch columns located at each winch location, below grade galvanized steel duct system, and all controls by Beynon.
- 5. We include (48) 3 row x 15' long Tip n Roll portable bleachers.

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DIVISION 13 - SPECIAL CONSTRUCTION

- 1. 133419 Metal Building Systems See Division 05 clarifications.
- 2. Balance of Division 13 Not Included.

DIVISION 14—CONVEYING SYSTEMS

- 1. We include the elevator as a machine room-less, Otis 2 stop, 3,500lbs traction Gen 3 MRL single cab with standard interior finishes and LVT flooring.
- 2. We include battery powered lowering of elevator cab by Otis.

DIVISION 21—FIRE SUPPRESSION

- 1. Fire Suppression design based on NFPA 13 for light hazard occupancy.
- 2. We include a wet type fire suppression system in the conditioned areas of the building.
- 3. We include chrome pendant sprinkler heads in areas with finished ceilings and brass upright sprinkler heads in areas without finished ceilings.
- 4. We clarify that a fire pump is not required due to the existing hydrant flow test data provided by the City of Williamsburg, therefore we exclude a fire pump.

DIVISION 22—PLUMBING

- 1. We clarify that a domestic water booster pump is not required due to hydrant flow test data provided by the City of Williamsburg, therefore we exclude a domestic water booster pump.
- 2. We include toilets, urinals, sinks, and faucets per the plumbing drawings, or equivalent.
- 3. We include mop sinks per the plumbing drawings, or equivalent.
- 4. We include shower heads and controls per the plumbing drawings, or equivalent.
- 5. We include water fountains and bottle filling stations per the plumbing drawings, or equivalent.
- 6. We include domestic hot water services by combination of tank style natural gas and tankless electric.
- 7. We include the grease interceptor as Schier Model GB-250, or equivalent.

DIVISION 23—HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

1. We exclude integration between lighting controls and the BMS system.

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- 2. We include HVAC units as Trane.
- 3. We exclude refrigeration leak detection and monitoring equipment.
- 4. We include equipment manufacturers startup and testing.
- 5. We exclude 3rd party commissioning.
- 6. We include the below grade duct system for the conversion turf as galvanized metal duct.
- 7. We include duct socks in the Gym, Hub Space, and Feature Gyms.

DIVISION 26—ELECTRICAL

- 1. We include light fixtures per electrical drawings, or equivalent.
- 2. We exclude generator, UPS, backup, and emergency power. We include code required battery backup for egress lighting.
- 3. We exclude standalone phone and laptop charging stations. We include up to 50 USB Charging Wall outlets
- 4. We include up to 25 television/monitor locations including inwall blocking, power, and rough-in for low voltage. Excludes the television/monitor, wall boxes, wall mounts, and video boards.
- 5. We exclude electrical vehicle charging stations.
- 6. We include raceways, boxes, and grounding for Division 27 and 28. All wiring, peripheral devices, head end equipment, design, engineering, technical labor, startup, programming and training for Division 27 and 28 systems shall be furnished and installed by the Owner. This excludes fire alarm and BDA systems which shall be furnished and installed complete by electrical.
- 7. We include the Dominion Transformer will be located within 50 linear feet of the main electrical room. Secondary conduits shall be furnished and installed by electrical. Secondary wiring shall be furnished and installed by Dominion Power.
- 8. We clarify that metal-clad cable shall be used for electrical wiring where concealed in ceilings and walls and for whips between light fixtures, wiring devices, and other permissible applications. Metal-clad cable shall be used only where no subject to physical damage, including in high, open ceilings. All homeruns shall be installed in full conduit systems.

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- 9. CCTV, WAP, and other low voltage control systems shall be stubbed down from device locations to first (highest) structural girt. Cabling for these systems shall be loose laid (by Owner's Vendor) in structural girts. Structural girts shall act as a cable tray.
- 10. Lighting control wiring shall be installed free-air where it can reasonably be concealed.
- 11. We include site lighting at new parking lots and building service road only.

DIVISION 27—COMMUNICATIONS

- 1. We exclude all communications, IT, AV, and associated appurtenances as this is assumed to be by Owner.
- 2. We exclude Direct Antenna System (DAS) and all associated pathway and power connections.

DIVISION 28—ELECTRONIC SAFETY AND SECURITY

- 1. We include fire alarm system.
- 2. We include fire alarm wiring in full conduit where exposed and within walls.
- 3. We exclude access control and security systems and all associated cabling, wiring, devices, cameras, and equipment as this is assumed to be by Owner.
- 4. We include rough-in for up to 30 access control doors, to include pathway, junction boxes, and pull sting. Design, furnish, and install of devices and cabling is excluded.

DIVISION 32—EXTERIOR IMPROVEMENTS

- 1. Site design includes parking spaces as indicated on the Civil drawings dated October 20,2023.
- 2. We include demolition for sitework within the project footprint.
- 3. We clarify site walkways to be standard brushed concrete.
- 4. We include black asphalt.
- 5. We include water supply coming from Bypass Road. All other utilities are included as coming from interior of the campus property.
- 6. The proposal includes all site and civil work as indicated in Timmons design dated October 20, 2023, and City of Williamsburg Planning and Codes Department's site review comments dated November 27, 2023, with the following exceptions:

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- a. The proposal does not include any design or construction outside of the project's limits of disturbance, including but not limited to, and design or work at the Cascades Outfall.
- b. Our proposal does not include any cost for cleaning, removal, and replacement of the existing sanitary sewer and storm lines owned by Colonial Williamsburg Foundation or the City of Williamsburg as our initial investigations indicate that there are lengths of piping that have been abandoned and/or compromised.
- 7. We include sanitary sewer, storm, and gas services are readily available in front of or behind the building location.
- 8. We exclude unidentified man-made obstructions.
- 9. Site Utilities pricing is based on sufficient in situ material, suitable for fill under paving and building slab, being available within the building site. We exclude over-excavation of unsuitable materials and replacement with suitable materials or subgrades failing to meet compaction ratios / pressures. We include sumping surface water. We exclude dewatering subsurface water. We exclude remediation, removal, and/or encapsulation of any hazardous or contaminated materials including soil, water, and debris.
- 10. We exclude removal of unforeseen abandoned utilities.
- 11. We exclude restoration, clearing, and clean-up of existing stormwater outfalls outside of the limits of construction.
- 12. We exclude relocation of any existing dry utilities.

General Exclusions:

We exclude the following items:

- a. LEED certification or sustainable design and construction certifications
- b. Demolition and abatement of Landscape Building, Landscape Maintenance Shop, Cascades Motel, Commonwealth Hall, Restroom Building, Group Arrivals, or other buildings/structures.
- c. Monument Sign see summary of allowances
- d. Hazardous material testing, removal, abatement, and/or disposal
- e. Vending and concessions equipment above and beyond the kitchen equipment allowance
- f. Owner's Field Office/Trailer
- g. Security services or site security guards
- h. Parking fees for construction employees
- i. Removal and replacement of unsuitable soils
- j. Generator, Uninterruptible Power Supply, Emergency/back-up power
- k. Electrical floor boxes within courts area
- I. 3rd Party Commissioning

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- m. IT/AV cabling, wiring, and equipment including but not limited to data, fiber, audiovisual equipment, monitors, racks, and/or associated appurtenances
- n. Furniture, fixtures, and equipment (FF&E)
- o. Wi-Fi Equipment, Internet access points, boosting devices, cabling and wiring, etc
- p. Security devices, equipment, cameras, and head end units, cabling and wiring, etc
- q. Electrical Vehicle charging stations
- r. VDOT streetlight, ROW, temporary or permanent entrance fees or designs
- s. Utility fees, including tap and connection fees, deposits, account establishment, or permanent service/design/hook-up fees, etc. We include an allowance of \$112,000 for these fees as outlined in our List of Allowances, below.
- t. Bonds required by jurisdictional agencies for work in public areas or on-site
- u. Easements, Right of Ways or Private/Public Utilities relocation fees, agreements, or easements
- v. Archeologist / archeological studies
- w. Acoustician and any acoustical testing
- x. Davis-Bacon wage scale
- y. Routine maintenance and maintenance contracts for building systems and equipment
- z. Escalation
- aa. Owner contingency

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Williamsburg Sports & Events Center 35% Documents 12/14/2023 - MBP Review Comments

EXHIBIT 1

General Clarifications

Item 3d, "Scope increases in addition to the October 20, 2023 Civil Documents and the November 27, 2023 City of Williamsburg review comments as directed by HTRFA or requested beyond the City's standard design requirements based on further site plan reviews will be at additional cost to the Owner."

Scope increases in addition to the October 20, 2023 Civil Documents, the November 27 and 28, 2023
 City of Williamsburg site plan review comments, and the Architectural Review Board approval dated
 December 12, 2023 as directed by HTRFA or requested beyond industry standard design requirements
 will be at additional cost to the Owner.

Item 5, "We clarify our intent to use the permanent mechanical, electrical, and plumbing equipment for temporary conditions purposes during construction. No temporary conditioning outside the sue of this equipment is included. MEB will protect permanent equipment that is used for temporary conditioning, including proper filtration. Warranties will start at substantial completion."

- OK.

Division 8 - Openings

Item 3, "We include exterior aluminum storefront doors based on YKK 35D medium stile, non-thermal with 10" bottom rails and are glazed with 1" glazing to match the exterior window walls. Doors include standard non-electric hardware."—Some of these doors should have electrical hardware where required for door access control.

 We have not included cost for electrical hardware or access control devices as this should be provided by Owner's security and access control vender. Per Exhibit 1, Division 28 – Electronic Safety and Security line item #4, we did include rough-in for up to 30 access control doors, to include pathway, junction boxes, and pull string.

Item 4, "We include interior aluminum storefront doors based on YKK 35D medium stile with 10" bottom rails and are glazed with 1/4" clear tempered glazing. Doors include standard non-electric hardware."-Some of these doors should have electrical hardware where required for door access control.

 We have not included cost for electrical hardware or access control devices as this should be provided by Owner's security and access control vender. Per Exhibit 1, Division 28 – Electronic Safety and Security line item #4, we did include rough-in for up to 30 access control doors, to include pathway, junction boxes, and pull string.

Division 21 - Fire Suppression

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Item 3, "We included chrome pendant sprinkler heads in areas with finished ceilings and brass upright sprinkler heads in areas without finished ceilings". Should protective guards be provided for sprinkler heads in the gym areas to protect from impact and accidental water discharge onto wood athletic floor below?

- OK

Division 26 - Electrical

Item 8, "We clarify that metal-clad cable shall be used for electrical wiring where concealed in ceilings and walls and for whips between light fixtures, wiring devices, and other permissible applications. Metal-clad cable shall be used only where no subject to physical damage, including in high, opening ceilings. All homeruns shall be installed in full conduit systems." Suggest further clarification as to what is meant by "high, open ceilings". Will metal-clad cable be exposed to view in high visible spaces like the gyms and main lobby?

 Yes, MC cable will be exposed to view in high open ceilings to include the gym and lobby. The MC cable will be suspended and supported as required by code utilizing the steel flanges of the structure as a cable tray.

Division 32 - Exterior Improvements

Item 9, "Site Utilities pricing is based on sufficient in situ material, suitable for fill under paving and building slab, being available with the building site. This assumption appears to be out of step with the findings of the geotechnical report. See our comment under Exhibit 6e below. We exclude over-excavation of unsuitable materials and replacement with suitable materials or subgrades failing to meet compaction ratios / pressures. We include sumping surface water. We exclude dewatering subsurface water. It is not typical to exclude dewatering for utility work. Groundwater conditions should be known based on geotechnical report and design depths as determined by MEB's design. We exclude remediation, removal, and/or encapsulation of any hazardous or contaminated materials including soil, water, and debris."

- We have accounted for the Geotech findings to the best of our knowledge and ability while keeping in mind the budgetary constraints of the project.
- Division 32 bullet 9 Site Utilities pricing is based on sufficient in situ material, suitable for fill under paving and building slab, being available within the building site. We exclude over-excavation of unsuitable materials and replacement with suitable materials or subgrades failing to meet compaction ratios / pressures. We include sumping surface water. We exclude remediation, removal, and/or encapsulation of any hazardous or contaminated materials including soil, water, and debris.

General Exclusions

Item f, "Owner's Field Office/Trailer". Can Owner trailer or office space be added - approximately 100 square feet with HVAC, light, power outlets, internet, and secured doors/windows?

- Ok

Item t, "Bonds required by jurisdictional agencies for work in public areas or on site." It is typical for contractor to have to purchase bonds such as E&S, landscaping, and right-of-way. These costs should be incorporated into the price, however, per discussion with City of Williamsburg, they may waive some of them.

We exclude VDOT and public space bonds and permits.

Item z, "Escalation." MEB's price should include escalation between current pricing and pricing when they buy out their subcontractors and vendors.

- We include escalation in accordance with our submitted Exhibit 4 Project Schedule and assuming 60% Design is complete and approved by HTRFA by June 2, 2024.

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EXHIBIT 2

Item 7, "Unsuitable Soil - Undercut and Replace \$99,000". We suggest unit prices and agreed upon method for measurement be included.

- We include a \$99,000 allowance for undercut. Allowance funds can be increased if directed by the Owner.
- 1) Remove and replace undercut with Select Fill = \$75/cubic yard.
- 2) Remove and replace with #21 Stone = \$145/cubic yard.
- Unit rate measurements to be based on in place field measurements by the Geotechnical engineer.

EXHIBIT 3

Environmental, flagpole shown as provided by HTRFA. Verify if MEB should provide flagpole(s)

- We do not have cost included for flagpole(s). We have confirmed with the Design Team that there are areas available at the Entrance Plaza for flag poles.

EXHIBIT 4

Schedule has 7 day review time for HTRFA review and approval of progress sets. Suggest HTRFA confirmation that this is feasible.

- MEB has included a seven (7) day review time.

Schedule has early land disturbance approval to allow for erosion and sediment control and clearing, before the site plan is approved. Suggest City of Williamsburg confirmation that this is feasible.

 City of Williamsburg Planning Department has confirmed that early land disturbance approval is acceptable.

EXHIBIT 6b

The two feature gyms have columns in the middle of them. Suggest HTRFA confirm this is acceptable.

The two (2) columns within the middle of the feature gyms at column line intersections 'GG/25' and 'GG/23' will be removed as requested.

Interim Agreement, Exhibit 1, item 2, spoke of changing rooms, restrooms, and equipment storage for sole use of athletes. We could not identify these spaces in the 35% drawings. Suggest further confirmation with HTRFA that these spaces are no longer desired as part of the program.

- Market research and studies have confirmed these spaces are not needed in tourism based or locally used sports programs.

Mechanical system is based on a VRF system. These types of systems typically require specialized maintenance capabilities. There may also be increased chances of system refrigerant leakage, particularly if not installed correctly. Suggest HTRFA confirm awareness of unique aspects associated with VRF system.

We have included VRF mechanical system in accordance with the recommendations from our Mechanical Engineer of Record.

EXHIBIT 6e

The geotechnical report does not paint a particularly positive picture of the site soil conditions, from stating that undercut will be required at footings, that it may be required at the slab, and that most soils are not adequate to use as structural fill. We suggest further discussion between MEB and HTRFA to align expectations related to risks and potential added costs, associated with the soils conditions at the site.

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We have accounted for the Geotech findings to the best of our knowledge and ability while keeping in mind the budgetary constraints of the project.

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Summary of Allowances Williamsburg Sports & Events Center

Allowances include the cost for material, labor, equipment, and mark-up.

1. Building Permit Fee	\$12,000
2. Water Meter (2" meter)	\$32,000
3. Sewer Meter (2" meter)	\$19,000
4. Fire Service (6" SDCV)	\$12,000
5. HRSD WW Facility Charge	\$35,825
6. Dominion Power Connection Fee	\$17,000
7. Unsuitable Soil – Undercut and Replace	\$99,000
8. Enhanced Interior Building Signage	\$25,000
9. Exterior Building Signage	\$50,000
10. Exterior Site Wayfinding Signage	\$20,000
11. Kitchen, Food and Beverage Equipment	\$865,000
12. Climbing/Rock Wall and Ninja Gym Equipment	\$1,100,000
13. Entry Canopy	\$50,000
14. Speaker System Rough-in	\$20,000
15. PA System Rough-in	\$15,000
16. Fire Lane Permit	Assumed Not Required by City of Williamsburg
17. Plumbing Fixture Fees	Assumed Not Required by City of Williamsburg



Design-Builder and Owner Responsibility Matrix Williamsburg Sports & Events Center

		GENERAL	OWNER/
ITEM	NOTES	CONTRACTOR	OPERATOR

BUILDING SYSTEMS AND UTILITIES

BUILDING STSTEIVIS AND UTILITIES			
	Coordination by GC. Utility fees, tap		
	fees, account establishment,		
	permanent service design/hook-up		
Dominion Power	fees by Owner.		X
	Coordination by GC. Utility fees, tap		
	fees, account establishment,		
	permanent service design/hook-up		
Virginia Natural Gas	fees by Owner.		X
Building Automation / Building Management			
System		X	
	Coordination, rough-in, pullstring by		
	GC. Cabling, devices, and accounts by		
Remote access/monitoring - internet	Owner.		X
Lighting Controls		Х	
Fire Alarm System, FACP, Devices		Х	
	Coordination, rough-in, pullstring by		
	GC. Cabling, devices, and account by		
remote access/monitoring - internet	Owner.		X
	Coordination, rough-in, pullstring by		
	GC. Cabling devices, and account by		
FACP two (2) dedicated phone lines	Owner.		X
	Central Station and Monitoring vendor		
	engagement, setup, contract by		
Central Station and Monitoring	Owner.		X
Elevator		Χ	
	Coordination, rough-in, pullstring by		
Dedicated elevator phoneline	GC. Cabling and account by Owner.		X
· · · · · · · · · · · · · · · · · · ·	Coordination by GC. Utility fees, tap		
	fees, account establishment,		
	permanent service design/hook-up		
Cox Communications	fees by Owner.		X
	Coordination, back box, rough-in,		
	pullstring by GC. Cabling, device, and		
Telephones	account by Owner.		X
	Coordination, back box, rough-in,		
	pullstring per 35% drawings by GC.		
Data, Internet, Wi-Fi, LAN, Audio Visual,	Cabling, racks, switches, routers, &		
Telecom	devices by Owner.		X

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X	
_	X

SECURITY

	Coordination by GC. Design, furnish, and install of system and devices by		
Physical and Electronic Security Systems	Owner.		X
DFHW Final Keying, Cylinders, Cores		X	
	Coordination, back box, rough-in, pullstring for up to 30 doors by GC. Design, furnish, and install of system		
DFHW Electrified and Security Hardware	and devices by Owner.		X
Intercoms, video cameras, head end controls	Coordination, back box, rough-in, pullstring by GC. Cabling & device by Owner		x
Coul coors readons	Coordination, back box, rough-in, pullstring for up to 30 doors by GC. Design, furnish, and install of system		x
Card access readers	and devices by Owner.		
Power to security devices		X	
	Coordination, back box, rough-in, pullstring by GC. Cabling & device by		
low voltage power	Owner		X

CASEWORK

CASEWORK			
	Restroom vanities, reception desk,		
	ticket booth and box office counters,		
	first aid casework per 35%		
	Comprehensive Agreement		
Built-in/Fixed	Documents dated 11.28.23	X	
	Coordination by GC. Design and install		
Office or Equipment Storage Shelving or FFE	by Owner.		Х

ENVIRONMENTAL

Fixed water fountains and bottle fillers		Х	
Building cleaning solution dispensers			Х
Mop racks		X	
Trash cans inside and outside			Х
Compactors and Dumpsters			Х
Power		X	
Controls	Coordination and power by GC, device by Owner.		x
Dumpster rails / floor guides			Х
Dock Leveler, load-in/out equipment			Х
Site Benches, amenities, flagpole		:	х
Site Light Poles		X	

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Bollards		X	
	Code required signage per GC.		
	Enhanced/Wayfinding interior signage		
	as included within allowance value by		
Interior Signage	GC.	X	
	As included within allowance value by		
Exterior Building Signage, Monument Signage	GC.	X	
	Wayfinding interior signage as		
	included within allowance value by		
Exterior Site Wayfinding Signage	GC.	Х	

TOILET ACCESSORIES

Grab Bars	X
Non recessed paper towel dispensers	X
Toilet Paper Holders	X
Hand soap dispenser	X
Toilet seat cover	X
Baby Changing Stations	X
Wall Mounted Mirrors	X
Coat Hooks	X

LOCKERS

Referee Lockers	X	

FURNISHINGS

Chalkboards Whiteboards		X
Window Treatments		Х
Office Furnishings (chairs/desks/ lamps/files etc.)	Coordination by GC. Design, furnish, and install by Owner.	x
Office Equipment (printers/copiers/fax etc.)	Coordination by GC. Design, furnish, and install by Owner.	x
Gathering and Circulation Furnishings (Chairs, tables, couches, etc.)	Coordination by GC. Design, furnish, and install by Owner.	x
Multipurpose Event Space Furnishings (Chairs, tables, stage, Podium, etc.)	Coordination by GC. Design, furnish, and install by Owner.	x
Ticket Booth and Box Office Furnishings	Coordination by GC. Design, furnish, and install by Owner.	x
Appliances for Breakrooms, Offices, or Spaces Outside of Kitchen and Servery	Coordination by GC. Design, furnish, and install by Owner.	x
Clocks - wired, battery, plug in		х
Computers		х

ATHLETIC EQUIPMENT

24 ea. Basketball goals	X	

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24 ea. Volleyball net system w/ Referee Stand		x	
Portable Basketball goals, portable Volleyball			
nets, pickleball nets, portable athletic		:	
equipment, miscellaneous athletic accessories			
and appurtenances			Х
Rollout Turf System, controls, winches, fans,			
below grade ductwork		X	
Athletic Equipment and Turf System			
Maintenance Contract			X
Court striping for basketball, volleyball, and			
pickle ball		X	
Turf Field striping for soccer, boy's lacrosse,			
girl's lacrosse, and U-12 small sided soccer		X	
Turf Striping equipment and materials			Х
Turf cleaning and maintenance equipment and			
materials			X
18 total Volleyball and basketball court divider			
netting		X	
Turf Perimeter Wall and Spectator Protection			
Netting			Х
Portable athletic perimeter protection			Х
Column / Wall Padding			Х
Portable pads and equipment			X
Portable Sport Flooring			Х
	(48) 3 row x 15' long Tip n Roll		
Portable seating systems and tip & roll seating	portable bleachers by GC.	X	
Control System, software, power for ceiling			
mounted equipment		X	
24 each Basketball, Volleyball LED scoreboards			
with ceiling mount	·	X	
Turf scoreboard and ceiling mount			X
Rock Climbing Feature Wall	As included within allowance value.	X	
Ninja-Warrior Feature Equipment	As included within allowance value.	X	
Lockers for Feature Gyms			X
Ticketing and check-in systems for Feature			
Gyms			X

AUDIO VISUAL

	Coordination, back box, rough-in,	
	pullstring within allowance value by	
	GC. Design, furnish, install of cabling	
PA system	and devices by Owner	X



	Coordination, back box, rough-in, pullstring within allowance value by	
Court speakers	GC. Design, furnish, install of cabling and devices by Owner	х
Speakers in circulation areas, dining, rooms and other	Coordination, back box, rough-in, pullstring within allowance value by GC. Design, furnish, install of cabling and devices by Owner	x
Televisions, Monitors, Projectors	Coordination, power wiring only, back box, rough-in, pullstring for up to 25 TV locations by GC. Televisions, monitors, projectors, low voltage cabling by Owner.	х
TV, Monitor, Projector mounting brackets and rough-in		х
Projector Screens		X
Large scoreboard or jumbotron		X
Electronic informational signage, displays, or monitors		x

KITCHEN / SERVERY / BAR EQUIPMENT			
Kitchen, Servery and Bar Equipment	As included within allowance value.	X	
Appliances	As included within allowance value.	<u> </u>	
Range Hood Systems	As included within allowance value.	X	
Fire Suppression	As included within allowance value.	X	
Exhaust Fans	As included within allowance value.	X	
Make up air	As included within allowance value.	Х	
Kitchen Prep Tables, Worktops	As included within allowance value.	X	
Fryers, Griddle, Ovens, Warmers	As included within allowance value.	Χ	
Coffee Pots, Beverages	As included within allowance value.	Х	
Coolers, Refrigerators, Freezers, Grab and Go			
Heated and Refrigerated	As included within allowance value.	X	
Walk in coolers, refrigerator, freezers	As included within allowance value.	X	
Ice Machines	As included within allowance value.	X	
Dishwasher	As included within allowance value.	X	
Mop Sink	As included within allowance value.	X	
Triple Compartment Sinks, Floor Supported			
Sinks	As included within allowance value.	X	
Kitchen Wall Mounted Sinks, Hand Sinks	As included within allowance value.	X	
Shelving and Storage	As included within allowance value.	X	
	Coordination, back box, rough-in,		
	pullstring by GC. Cabling & device by		x
Point of Sale	Owner.		
Chemical Storage			X
Trash cans, trash carts, and Trash Systems			<u> </u>







### ArmSung Sports & Events Center #### ArmSung Sports Sports & Events Center #### ArmSung Sports Sports & Events Center #### ArmSung Sports Sports Center #### ArmSung Sports Sports Center ##### ArmSung Sports Sports Center #### ArmSung Sports Sports Center #### ArmSung Sports Sports Center ##### ArmSung Sports Sports Center ##### ArmSung Sports Sports Center ##### ArmSung Sports Sports Center ###### ArmSung Sports Sports Center ###################################	Calendar Days	Durations are in Calendar Days	ign	Interim Agreement 35% Design	Int	7 . 1		Milestone Critical Milestones	• •
### Approved Services Services	11-30-23	Data Date	S					Actual Work	
Part		•		Williamsburg Sports and				Remaining Work Critical Remaining Work	
### Transple Recreational Facilities Authority Transple Recreational Process Transple Recreational Process Transple Recreational Process Transple Recreational Representation Process Transple Recreational Representation			eview and Approve E&S Plan #3	City Ru	03-01-24	02-17-24	14		SD7
Amisburg Sports & Events Center amisburg Sports & Events Center oric Triangle Recreational Facilities Authority stories Subrit 35% Comprehensive Agreement Negotiations and Property of the National Property of the Nati			and Submit E&S Plan #3	Prepare	02-16-24	02-06-24	⇉		SD6
### Approved Signary December			and Submit Site Plan Submission #3 (Per Planning Dept Schedule)	Prepare	02-16-24	02-06-24	===		SD5
## Approved Services Center ## Approved Services Servic			MSite Plan #2	City Review	02-05-24	01-16-24	21		SD4
### Approved Secretarional Facilities Authority ### Approved and Notice to Proceed **Comprehensive Agreement Notice Proceed **Comprehensive Agreement Notice Procede **Comprehensive Agreement Notice Agreement Notice Procede **Comprehensive Agreement Notice Agreement Notice Procede **Comprehensive Agreement Notice Procede **Comprehensive Agreement Notice Procede **Comprehensive Agreement Notice			w E&S Plan #2	City Review	02-05-24	01-16-24	21		SD3
Per			Submit Site Plan Submission #2	Prepare and S	01-15-24	12-19-23	28		SD2
amisburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Suntil 35% Comprehensive Agreement Nocuments and Price Comprehensive Agreement Noceand Comprehensive			Submit E&S Plan #2	Prepare and S	01-15-24	12-19-23	28		SD1
amrisburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Subma 35% Comprehensive Agreement Documents and Prica Comprehensive Agreement Negotiations Ending Approved and Notes to Proceed Comprehensive Agreement Approved Construction Start Substantial Completion Funding Approved Construction Start Substantial Completion Funding Perint Early Foundations Perint Butting Perint Early Foundations Perint Elevatical Perint Elevatical Perint Elevatical Perint Elevation								e Design	Site
### Recipital Permit Facilities Authority			Submit Building Permit		07-03-24	06-27-24	7		BD9
amnsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Negotiations Eurothal Approved and Noise to Proceed Comprehensive Agreement Approved Comprehensive Agreement Approved Construction Start Substantial Completion Early Foundations Permit Early Foundations Documents Nectural Permit Early Foundations P		ints	HTRFA Review and Approve 100% Construction Docume		06-26-24	06-20-24	7		BD8
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stores Subma 35% Comprehensive Agreement Negolations Funding Approved and Notes to Proceed Construction Start Comprehensive Agreement Approved Construction Start Comprehensive Agreement Negolations Comprehensive Agre			P		06-19-24	04-21-24	60		BD5
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Subra 35% Comprehensive Agreement Documents and Prica Correlensive Agreement Negotations Funding Approved and Notice to Proceed Correlensive Agreement Negotations First Completion First Com			HTRFA Rev	L.	04-20-24	04-14-24	7		BD4
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Comprehensive Agreement Approved Construction Start Substantial Completion Frail Completion Frail Completion Comprehensive Agreement Negotiations Comprehensive Agreement Approved Construction Start Comprehensive Agreement Negotiations Comprehensive Agreement N				Į.	04-19-24	03-30-24	21		BD7
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Construction Start Substantial Completion Final Completion Final Completion Inits Leaft Foundations Permit Early Foundations Permit Early Foundations Permit Early Foundation Permit Electranal Permit Electranal Permit Fire Protection Pocuments Fi			repare and		04-13-24	02-29-24	45		BD3
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Construction Start Substantial Completion Fall Completion ints Land Disturbance Permit Each Pan Approval Each Permit Nechanical Permit Nechanical Permit Nechanical Permit Each Permit Each Permit Each Permit Each Permit Each Pan Approve 60% Construction Documents 7 02-22-24 02-28-22 Inter Protection Documents 7 02-22-24 02-28-22 Inter Prove and Approve 60% Construction Documents 7 02-22-24 02-28-22 Inter Provision Surface Permit Purpove and Submit 60% Construction Documents 7 02-22-24 02-28-22 Inter Provision Surface Permit Purpove 60% Construction Documents 7 02-22-24 02-28-22 Inter Provision Surface Permit Purpove and Submit 60% Construction Documents 7 02-22-24 02-28-22 Inter Provision Surface Permit Purpove 60% Construction Documents 7 02-22-24 02-28-22 Inter Provision Surface Permit Purpove 60% Construction Documents 8 12-19-23 02-21-24 Inter Provision Surface Permit Purpove 60% Construction Documents 9 12-04-23 Inter Provision Surface Permit Purpove 60% Construction Documents 1 12-04-23 Inter Provision Surface Permit Purpove 60% Construction Documents 1 12-04-23 Inter Provision Surface Permit Purpove 60% Construction Documents 1 12-04-23 Inter Provision Surface Permit Purpove 60% Construction Documents 1 12-04-23 Inter Provision Surface Permit Purpove 60% Construction Documents 1 12-04-23 Inter Provision Surface Permit Purpove 60% Construction Documents			repare and Submit Early Foundations Package	/d	03-29-24	02-29-24	30		BD6
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Construction Start Substantia Completion Comprehensive Agreement Approved Construction Start Substantia Completion Final			A Review and Approve 60% Construction Decuments	_	02-28-24	02-22-24	7		BD2
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Construction Start Substantial Completion Frial Frial Frial April Mary Juni [Aur] [Au			and Submit 60% Construction Documents	→ Pepare	02-21-24	12-19-23	6 5	1 Prepare and Submit 60% Construction Documents	B 2
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Approved and Notice to Proceed Construction Start Substantial Completion Final Disturbance Permit Early Foundations Permit Early Foundations Permit Early Foundations Permit Early Foundation Permit Fire Protection Permit Fire				The state of the s	:			ilding Design	Buil
Triangle Recreational Facilities Authority Triangle Recreational Facilities Triangle Recr	-							sign	Des
Image Imag					06-27-24		0	Fire Protection Permit	- P8
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority Stones Subrit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Construction Start Substantial Completion Final Completio			◆Electrical Permit		06-27-24		0	Electrical Permit	P7
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Amsburg Sports & Events Center Amsburg Sports & Events Stones Stones Stones Stones Stones Stones Stones Stones Stones Stones Stones Stones S			Mechanical Permit		06-27-24		0	Mechanical Permit	PS
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Construction Start Substantial Completion Final Completion Intis Land Disturbance Permit Early Foundations Permit Site Plan Approved Dur Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Jan Feb May Jun Jul Aug Sep Oct Nov Jan Fe			-Building Permit		06-27-24		0	Building Permit	P 4
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Sunnit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Construction Start Substantial Completion Final Completion Final Completion Land Disturbance Permit Dur Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Involved Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Involved Sep Oct N			-		05-09-24		0		끊
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Construction Start Substantial Completion Final Completion That Substantial Compl			Farly Foundations Permit	1	04-19-24		0		23
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Construction Start Substantial Completion Final Completion Dur Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Into Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Into Dec Jan Feb Mar Apr May Jun Jul Aug Se				3	03-01-24		0	Land Disturbance Permit	모
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Construction Start Construction Start Substantial Completion Substantial Completion Dur Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec I Sub Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec I Sub Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec I Sub		теритеритеритеритеритеритеритеритеритери						mits	Peri
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amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Construction Start Dur Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	◆ Substant				03-30-26*		0	Substantial Completion	6
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Comprehensive Agreement Approved Comprehensive Agreement Approved 0 12-19-23 12-19-23 Comprehensive Agreement Approved 15 12-19-23 Comprehensive Agreement Approved 15 12-19-23 Comprehensive Agreement Approved Comprehensive Agreement Approved			ruction Start	_ Const		03-02-24*	0	Construction Start	5
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Negotiations Comprehensive Agreement Negotiations Funding Approved and Notice to Proceed Out Vov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Jul Aug Jun Jul Aug Jul Aug Jul Aug Jul Aug Jul Aug Jul Aug Jul			greement Approved	◆ Comprehensive A _C	12-19-23*		0	Comprehensive Agreement Approved	4
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Negotiations Dur Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Nov Dec Jan Feb Mar Apr Mar				U.		12-19-23	0	Funding Approved and Notice to Proceed	ω
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority stones Submit 35% Comprehensive Agreement Documents and Price oric 12-04-23*			reement Negotiations			12-04-23	15	Comprehensive Agreement Negotiations	N
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority						12-04-23*	0	Submit 35% Comprehensive Agreement Documents and Price	
amsburg Sports & Events Center oric Triangle Recreational Facilities Authority								estones	Mile
amsburg Sports & Events Center		00000 (A)	**************************************		-			toric Triangle Recreational Facilities Authority	Hist
Dur Vov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec				A44 \.				liamsburg Sports & Events Center	Willi
	Jan Feb Mar Apr May	Jun Jul Aug Sep Oct Nov Dec	pr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May	w Dec Jan Feb Mar Ap	- Tille	961	D C	Tourist I	

Activity ID	Activity	9	Start	Finish		2025	2026
3	L	2		Nov Dec	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec	Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Ju	eb Mar Apr May
SD8	8 City Review Site Plan #3 (Per Planning Dept Schedule)	31	02-17-24	03-18-24	City Review Site Plan #3 (Per Planning Dept Schedule)	nedule)	
SD9	9 Site Plan Review Committee Meetings (Per Planning Dept Schedule)	2	03-19-24	03-20-24	Site Plan Review Committee Meetings (Per Planning Dept Schedule)	nning Dept Schedule)	
SD10		9	03-21-24	03-29-24	Prepare and Submit Final Site Plan (Per Planning Dept Schedule)	ing Dept Schedule)	
SD11		18	03-30-24	04-16-24	City Final Review Site Plan Submission #3 (Per Planning Dept Schedule)	(Per Planning Dept Schedule)	
SD12		 .	04-17-24 04-17-24	04-17-24	Planning Commission Meeting (Per Planning Dept Schedule)	ng Dept Schedule)	
SD13			05-09-24*	05-09-24	City Council Meeting		
S S	Construction						
Bui	Building Construction						al to differ
BC1	1 Building Foundations	150	05-18-24	10-14-24	Building Foundations	Indations	
BC2	2 Erect Building Steel and Structure	265	10-15-24	07-06-25		Erect Building Steel and Structure	••••
ВСЗ	3 Install Building Envelope, Facade, and Dry-in	150	06-27-25	11-23-25		Install Build	Install Building Envelope, Facade,
BC4	4 Install Interior Finishes, Gym Athletic Equipment, and Turf System	133	11-03-25	03-15-26			install interio
BC5		15	03-16-26	03-30-26			Final Inspec
BC6	6 Punchlist	70	03-16-26	05-24-26			
Site	Site Construction			-	THE PROPERTY OF THE PROPERTY O		
SC1	1 Install E&S	22	03-02-24	03-23-24	Install E&S		
SC2	2 Clear and Grub and Site Demo	47	03-24-24 05-09-24	05-09-24	Clear and Grub and Site Demo		
SC6	6 Site Utilities, Earthwork, and Grading	128	05-10-24 09-14-24	09-14-24	Site Utilities, Earthwork, and Grading	nwork, and Grading	
SC3	3 Storm, Sanitary, Water Install and Connections	4	10-25-25 12-07-25	12-07-25		Storm, S	Storm, Sanitary, Water Install an
SC4	4 Fine Grading, Paving, Striping, Landscaping, and Stabilization	67	12-08-25	02-12-26			Fine Grading, Paving
SC5	5 CCTV Storm, Sanitary, and Final Site Inspections	15	02-13-26	02-27-26			CCTV Storm, Sar

Critical Remaining Work
Critical Remaining Work
Actual Work

MilestoneCritical Milestones



Williamsburg Sports and Entertainment Complex

Interim Agreement 35% Design

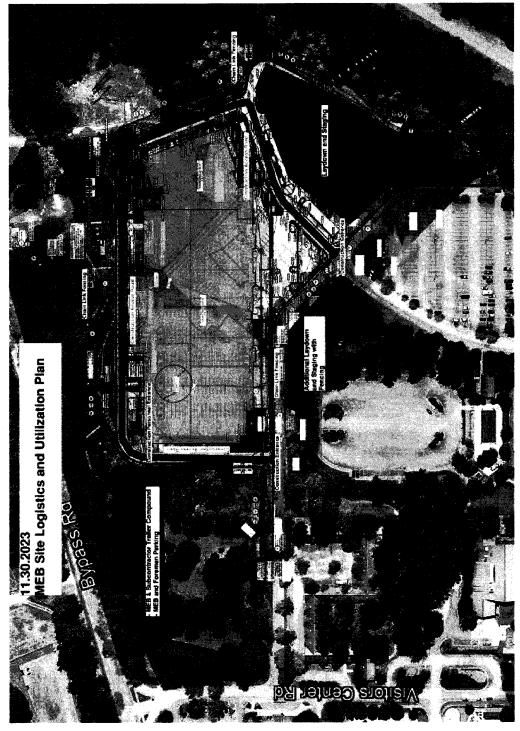


Data Date 11-30-23

Durations are in Calendar Days



Site Logistics and Utilization Plan Williamsburg Sports & Events Center



clients first. family by choice. safety matters.



Williamsburg Sports & Events Center

	Drawing			
Discipline	Number	Title/Description	Date	Drawing Set
Specifications		35% Comprehensive Agreement Documents Outline Specifications	11.28.2023	35% Comprehensive Agreement Documents
General	G-001	Cover Sheet	11.28.2023	35% Comprehensive Agreement Documents
General	GI001	Sheet Index And General Project Symbology	11.28.2023	35% Comprehensive Agreement Documents
General	GI101	First Floor Life Safety Plan	11.28.2023	35% Comprehensive Agreement Documents
General	GI102	Mezzanine Life Safety Plan	11.28.2023	35% Comprehensive Agreement Documents
Structural	S-001	Structural Notes, Legend And Abbreviations	11.28.2023	35% Comprehensive Agreement Documents
Structural	S-002	Structural Notes	11.28.2023	35% Comprehensive Agreement Documents
Structural	SB101	Overall Foundation Plan	11.28.2023	35% Comprehensive Agreement Documents
Structural	SB102	Foundation Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Structural	SB103	Foundation Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Structural	SB104	Foundation Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents

clients first, family by choice, safety matters.



				35% Comprehensive Agreement
Structural	SB105	Foundation Plan - Area D	11.28.2023	Documents
Structural	SB106	Foundation Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
				35% Comprehensive Agreement
Structural	SB107	Foundation Plan - Area F	11.28.2023	Documents
Structural	SB108	Foundation Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Structural	SB109	Foundation Plan - Area H	11.28.2023	35% Comprehensive Agreement Documents
				35% Comprehensive Agreement
Structural	SB501	Typical Foundation Details	11.28.2023	Documents
Structural	SB502	Typical Foundation Details	11.28.2023	35% Comprehensive Agreement Documents
				35% Comprehensive
Structural	SB503	Typical Foundation Details	11.28.2023	Agreement Documents
				35% Comprehensive Agreement
Structural	SB601	Typical Slab-On-Grade Details	11.28.2023	Documents
Structural	SF101	Overall Framing Plans	11.28.2023	35% Comprehensive Agreement Documents
				35% Comprehensive Agreement
Structural	SF102	Mezzanine Framing Plan - Area A	11.28.2023	Documents
Show a translation of the state	55103	Managina Francisco Diam. Augo D	11 20 2022	35% Comprehensive Agreement
Structural	SF103	Mezzanine Framing Plan - Area B	11.28.2023	Documents
Structural	SF104	Mezzanine Framing Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Jeractural	31 104	Mezzamie Franing Flatt - Alea C	11.20.2023	35% Comprehensive
				Agreement
Structural	SF105	Mezzanine Framing Plan - Area D	11.28.2023	Documents



				35% Comprehensive
			44.00.000	Agreement
Structural	SF106	Mezzanine Framing Plan - Area E	11.28.2023	Documents
				35% Comprehensive
Structural	SF107	Mezzanine Framing Plan - Area F	11.28.2023	Agreement Documents
Structural	31107	Wiezzannie Franning Flan - Arca i	11.20.2023	35% Comprehensive
				Agreement
Structural	SF108	Mezzanine Framing Plan - Area G	11.28.2023	Documents
				35% Comprehensive
				Agreement
Structural	SF109	Mezzanine Framing Plan - Area H	11.28.2023	Documents
				35% Comprehensive
			44.00.000	Agreement
Structural	SF110	Girt Framing Plan - Area A	11.28.2023	Documents
				35% Comprehensive
Structural	SF111	Girt Framing Plan - Area C	11.28.2023	Agreement Documents
Structurar	3,111	Girtraning rian Area c	11.20.2023	35% Comprehensive
				Agreement
Structural	SF112	Girt Framing Plan - Area E	11.28.2023	Documents
				35% Comprehensive
				Agreement
Structural	SF113	Girt Framing Plan - Area G	11.28.2023	Documents
				35% Comprehensive
.	65444	D (5) DI A A	44 20 2022	Agreement
Structural	SF114	Roof Framing Plan - Area A	11.28.2023	Documents
				35% Comprehensive Agreement
Structural	SF115	Roof Framing Plan - Area B	11.28.2023	Documents
	0.22			35% Comprehensive
				Agreement
Structural	SF116	Roof Framing Plan - Area C	11.28.2023	Documents
				35% Comprehensive
				Agreement
Structural	SF117	Roof Framing Plan - Area D	11.28.2023	Documents
				35% Comprehensive
Ctructural	CE110	Poof Framing Plan Area F	11 20 2022	Agreement
Structural	SF118	Roof Framing Plan - Area E	11.28.2023	Documents
				35% Comprehensive Agreement
Structural	SF119	Roof Framing Plan - Area F	11.28.2023	Documents
	1		1	



				35% Comprehensive
			44 20 2022	Agreement
Structural	SF120	Roof Framing Plan - Area G	11.28.2023	Documents 25% Comments
				35% Comprehensive Agreement
Structural	SF121	Roof Framing Plan - Area H	11.28.2023	Documents
Structural	31121	Root Framing Fram - Area in	11.20.2023	35% Comprehensive
				Agreement
Structural	SF201	Braced Frame Elevations	11.28.2023	Documents
				35% Comprehensive
				Agreement
Structural	SF202	Braced Frame Elevations	11.28.2023	Documents
				35% Comprehensive
				Agreement
Structural	SF301	Framing Sections	11.28.2023	Documents
				35% Comprehensive
				Agreement
Structural	SF401	Enlarged Framing Plans	11.28.2023	Documents
				35% Comprehensive
			44.00.000	Agreement
Structural	SF501	Typical Framing Details	11.28.2023	Documents
				35% Comprehensive
	65500	T : I Supplies Dataile	11.28.2023	Agreement Documents
Structural	SF502	Typical Framing Details	11.28.2023	
				35% Comprehensive Agreement
Structural	SF503	Typical Framing Details	11.28.2023	Documents
Structural	35303	Typical Fraiting Details	11.20.2023	35% Comprehensive
	İ			Agreement
Structural	SF601	Typical Masonry Details	11.28.2023	Documents
Structurur	0.002	Typica. Massing Science		35% Comprehensive
				Agreement
Structural	SF602	Typical Masonry Details	11.28.2023	Documents
				35% Comprehensive
		Architectural Legend, Notes and		Agreement
Architectural	A-001	Abbreviations	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE101	Overall Floor Plans	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE102	Level 1 Floor Plan - Area A	11.28.2023	Documents



				35% Comprehensive
Architectural	AE103	Level 1 Floor Plan - Area B	11.28.2023	Agreement Documents
Architectural	AE103	Level 1 Floor Flatt - Area B	11.28.2023	35% Comprehensive
				Agreement
Architectural	AE104	Level 1 Floor Plan - Area C	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE105	Level 1 Floor Plan - Area D	11.28.2023	Documents
				35% Comprehensive
Architectural	AE106	Level 1 Floor Plan - Area E	11.28.2023	Agreement Documents
Arcintectural	ALIOO	ECVEL THOOF FAIT AFEA E	11.20.2023	35% Comprehensive
				Agreement
Architectural	AE107	Level 1 Floor Plan - Area F	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE108	Level 1 Floor Plan - Area G	11.28.2023	Documents
				35% Comprehensive
Architectural	AE109	Level 1 Floor Plan - Area H	11.28.2023	Agreement Documents
711011111111111111111111111111111111111	/	Level 1 Wood Flatt - Area H	11.20.2020	35% Comprehensive
				Agreement
Architectural	AE110	Mezzanine Floor Plan - Area A	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE111	Mezzanine Floor Plan - Area C	11.28.2023	Documents
				35% Comprehensive
Architectural	AE112	Mezzanine Floor Plan - Area E	11.28.2023	Agreement Documents
				35% Comprehensive
				Agreement
Architectural	AE113	Mezzanine Floor Plan - Area G	11.28.2023	Documents
				35% Comprehensive
A nalata a - 4 · · · - 1	A E 1 3 1	Output Deficient of Calling Shape	11 22 222	Agreement
Architectural	AE121	Overall Reflected Ceiling Plans	11.28.2023	Documents 250/ Communication
				35% Comprehensive Agreement
Architectural	AE122	Level 1 Reflected Ceiling Plan - Area A	11.28.2023	Documents
-				35% Comprehensive
				Agreement
Architectural	AE123	Level 1 Reflected Ceiling Plan - Area B	11.28.2023	Documents



	1			35% Comprehensive Agreement
Architectural	AE124	Level 1 Reflected Ceiling Plan - Area C	11.28.2023	Documents
Architectural	AE125	Level 1 Reflected Ceiling Plan - Area D	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE126	Level 1 Reflected Ceiling Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE127	Level 1 Reflected Ceiling Plan - Area F	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE128	Level 1 Reflected Ceiling Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE129	Level 1 Reflected Ceiling Plan - Area H	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE130	Mezzanine Reflected Ceiling Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE131	Mezzanine Reflected Ceiling Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE132	Mezzanine Reflected Ceiling Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE133	Mezzanine Reflected Ceiling Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE134	Mezzanine Reflected Ceiling Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE141	Overall Roof Plan	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE142	Roof Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE143	Roof Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents



				35% Comprehensive
Architectural	AE144	Roof Plan - Area C	11.28.2023	Agreement Documents
				35% Comprehensive
				Agreement
Architectural	AE145	Roof Plan - Area D	11.28.2023	Documents
				35% Comprehensive
Architectural	AE146	Roof Plan - Area E	11.28.2023	Agreement Documents
7 ii dinecatarar	710210	Noor Francisco	11.20.2025	35% Comprehensive
				Agreement
Architectural	AE147	Roof Plan - Area F	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE148	Roof Plan - Area G	11.28.2023	Documents
				35% Comprehensive
Architectural	AE149	Roof Plan - Area H	11.28.2023	Agreement Documents
Alcintectural	ALI49	NOOI FIAIT - ATEA TI	11.28.2023	
				35% Comprehensive Agreement
Architectural	AE201	Overall Exterior Elevations	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE202	Exterior Elevations	11.28.2023	Documents
				35% Comprehensive
Architectural	AE203	Exterior Elevations	11 20 2022	Agreement
Architectural	AEZUS	exterior elevations	11.28.2023	Documents
				35% Comprehensive Agreement
Architectural	AE204	Exterior Elevations	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE301	Building Sections	11.28.2023	Documents
				35% Comprehensive
Architectural	AE302	Building Sections	11 20 2022	Agreement
Architectural	AESUZ	Building Sections	11.28.2023	Documents
				35% Comprehensive Agreement
Architectural	AE303	Building Sections	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE311	Exterior Wall Sections	11.28.2023	Documents



				35% Comprehensive
Architectural	AE312	Exterior Wall Sections	11.28.2023	Agreement Documents
				35% Comprehensive
Architectural	AE313	Exterior Wall Sections	11.28.2023	Agreement Documents
Architectural	ALSIS	Exterior wan sections	11.20.2023	35% Comprehensive
				Agreement
Architectural	AE314	Exterior Wall Sections	11.28.2023	Documents
				35% Comprehensive
Architectural	AE315	Interior Wall Sections	11.28.2023	Agreement Documents
Architectural	ALSIS	michiol Wall Sections	11.20.2020	35% Comprehensive
				Agreement
Architectural	AE316	Interior Wall Sections	11.28.2023	Documents
				35% Comprehensive
Architectural	AE401	Specialties and Plumbing Fixtures - Mounting Heights and Clearances	11.28.2023	Agreement Documents
7 ii cincectarai	7.102	Wednesday and Greatures		35% Comprehensive
				Agreement
Architectural	AE402	Enlarged Plans - Toilet Rooms	11.28.2023	Documents
				35% Comprehensive
Architectural	AE403	Enlarged Plans - Toilet Rooms	11.28.2023	Agreement Documents
7.11.01111000101101	7.2.00			35% Comprehensive
				Agreement
Architectural	AE404	Enlarged Plans - Toilet Rooms	11.28.2023	Documents
				35% Comprehensive Agreement
Architectural	AE411	Enlarged Plans - Stair and Elevator	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE412	Enlarged Plans - Stair	11.28.2023	Documents
				35% Comprehensive Agreement
Architectural	AE413	Sections - Stair and Elevator	11.28.2023	Documents
				35% Comprehensive
				Agreement
Architectural	AE414	Sections - Stair	11.28.2023	Documents
				35% Comprehensive Agreement
Architectural	AE421	Interior Elevations	11.28.2023	Documents



				35% Comprehensive Agreement
Architectural	AE422	Interior Elevations	11.28.2023	Documents
Architectural	AE423	Interior Elevations	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE501	Partition Types and Details	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE511	Exterior Section Details	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE512	Exterior Sections Details	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE513	Exterior Section Details	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE514	Exterior Details	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE515	Interior Section Details	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE601	Door Schedule and Door/Frame Types	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE701	Storefront and Curtainwall Elevations - Interior	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE7012	Storefront and Curtainwall Elevations - Exterior	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE701	Storefront and Curtainwall Elevations - Exterior	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE801	Casework Elevations	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE802	Casework Details	11.28.2023	35% Comprehensive Agreement Documents



Architectural	AE901	Perspective Views	11.28.2023	35% Comprehensive Agreement Documents
Architectural	AE902	Interior Perspective Views	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IF101	Level 1 Overall Furniture Plan	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IF102	Mezzanine Overall Furniture Plan	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IG101	Level 1 Overall Signage Plan	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IG102	Mezzanine Overall Signage Plan	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IG501	Signage Details	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN101	Overall Finish Plans	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN102	Level 1 Finish Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN103	Level 1 Finish Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN104	Level 1 Finish Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN105	Level 1 Finish Plan - Area D	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN106	Level 1 Finish Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN107	Level 1 Finish Plan - Area F	11.28.2023	35% Comprehensive Agreement Documents



Interiors	IN108	Level 1 Finish Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN109	Level 1 Finish Plan - Area H	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN110	Mezzanine Finish Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN111	Mezzanine Finish Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN112	Mezzanine Finish Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN113	Mezzanine Finish Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Interiors	IN601	Finish Schedule, Legend, & Notes	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	F-001	Fire Protection Legend	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP101	Level 1 Fire Protection Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP102	Level 1 Fire Protection Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP103	Level 1 Fire Protection Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP104	Level 1 Fire Protection Plan - Area D	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP105	Level 1 Fire Protection Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP106	Level 1 Fire Protection Plan - Area F	11.28.2023	35% Comprehensive Agreement Documents



Fire				35% Comprehensive Agreement
Protection	FP107	Level 1 Fire Protection Plan - Area G	11.28.2023	Documents
Fire Protection	FP108	Level 1 Fire Protection Plan - Area H	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP109	Mezzanine Fire Protection Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP110	Mezzanine Fire Protection Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP111	Mezzanine Fire Protection Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Fire Protection	FP112	Mezzanine Fire Protection Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
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Plumbing	P-001	Plumbing Legend	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	P-401	Enlarged	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	P-402	Enlarged	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	P-501	Details	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	P-601	Schedules	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	P-701	Piping Diagrams	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	P-702	Piping Diagrams	11.28.2023	35% Comprehensive Agreement Documents
				35% Comprehensive Agreement
Plumbing	P-703	Piping Diagrams	11.28.2023	Documents



				35% Comprehensive Agreement
Plumbing	PF101	Foundation Plan - Area A	11.28.2023	Documents
Plumbing	PF102	Foundation Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PF103	Foundation Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PF104	Foundation Plan - Area D	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PF105	Foundation Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PF106	Foundation Plan - Area F	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PF107	Foundation Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PF108	Foundation Plan - Area H	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PL101	Level 1 Floor Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PL102	Level 1 Floor Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PL103	Level 1 Floor Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PL104	Level 1 Floor Plan - Area D	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PL105	Level 1 Floor Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Plumbing	PL106	Level 1 Floor Plan - Area F	11.28.2023	35% Comprehensive Agreement Documents



Sharahin -	DI 107	Local 4 Floor Plan Area C	44.20.2022	35% Comprehensive Agreement
Plumbing	PL107	Level 1 Floor Plan - Area G	11.28.2023	Documents
				35% Comprehensive Agreement
Plumbing	PL108	Level 1 Floor Plan - Area H	11.28.2023	Documents
	1			35% Comprehensive
				Agreement
Plumbing	PL109	Mezzanine Floor Plan - Area A	11.28.2023	Documents
				35% Comprehensive
		l		Agreement
Plumbing	PL110	Mezzanine Floor Plan - Area B	11.28.2023	Documents
				35% Comprehensive
Plumbing	PL111	Mezzanine Floor Plan - Area C	11.28.2023	Agreement Documents
	† -			35% Comprehensive
				Agreement
Plumbing	PL112	Mezzanine Floor Plan - Area E	11.28.2023	Documents
				35% Comprehensive
				Agreement
Plumbing	PL113	Mezzanine Floor Plan - Area G	11.28.2023	Documents
				350/ 6 1 :
				35% Comprehensive Agreement
Mechanical	M001	Mechanical Legend	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	M301	Section	11.28.2023	Documents
				35% Comprehensive
No about and	14501	Calcadada	44 20 2022	Agreement
Mechanical	M601	Schedule	11.28.2023	Documents
				35% Comprehensive Agreement
Mechanical	M602	Schedule	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	M603	Schedule	11.28.2023	Documents
				35% Comprehensive
Machanias	NA701	Diagram	11 20 2022	Agreement
Mechanical	M701	Diagram	11.28.2023	Documents
				35% Comprehensive Agreement
Mechanical	MH101	Overall Ductwork Plans	11.28.2023	Documents
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				35% Comprehensive
				Agreement
Mechanical	MH102	Level 1 Ductwork Floor Plan - Area A	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH103	Level 1 Ductwork Floor Plan - Area B	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH104	Level 1 Ductwork Floor Plan - Area C	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH105	Level 1 Ductwork Floor Plan - Area D	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH106	Level 1 Ductwork Floor Plan - Area E	11.28.2023	Documents
				35% Comprehensive
	,			Agreement
Mechanical	MH107	Level 1 Ductwork Floor Plan - Area F	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH108	Level 1 Ductwork Floor Plan - Area G	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH109	Level 1 Ductwork Floor Plan - Area H	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH110	Mezzanine Ductwork Floor Plan - Area A	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH111	Mezzanine Ductwork Floor Plan - Area B	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH112	Mezzanine Ductwork Floor Plan - Area C	11.28.2023	Documents
				35% Comprehensive
				Agreement
Mechanical	MH113	Mezzanine Ductwork Floor Plan - Area D	11.28.2023	Documents
				35% Comprehensive
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Mechanical	MH114	Mezzanine Ductwork Floor Plan - Area E	11.28.2023	Documents
				35% Comprehensive
Name Landon	1 11445			Agreement
Mechanical	MH115	Mezzanine Ductwork Floor Plan - Area F	11.28.2023	Documents



				35% Comprehensive
Mechanical	MH116	Mezzanine Ductwork Floor Plan - Area G	11.28.2023	Agreement Documents
Mechanical	MH117	Mezzanine Ductwork Floor Plan - Area H	11.28.2023	35% Comprehensive Agreement Documents
Mechanical	MH118	Roof Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Mechanical	MH119	Roof Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Mechanical	MH120	Roof Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Mechanical	MH121	Roof Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Mechanical	MH122	Roof Plan - Area G	11.28.2023	35% Comprehensive Agreement Documents
Electrical	E-001	Electrical Legend, Notes and Abbreviations	11.28.2023	35% Comprehensive Agreement Documents
Electrical	EL101	Level 1 Lighting Plan - Area A	11.28.2023	35% Comprehensive Agreement Documents
Electrical	EL102	Level 1 Lighting Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Electrical	EL103	Level 1 Lighting Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
Electrical	EL104	Level 1 Lighting Plan - Area D	11.28.2023	35% Comprehensive Agreement Documents
Electrical	EL105	Level 1 Lighting Plan - Area E	11.28.2023	35% Comprehensive Agreement Documents
Electrical	EL106	Level 1 Lighting Plan - Area F	11.28.2023	35% Comprehensive Agreement Documents



				35% Comprehensive
				Agreement
Electrical	EL107	Level 1 Lighting Plan - Area G	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EL108	Level 1 Lighting Plan - Area H	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EL109	Mezzanine Lighting Plan - Area A	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EL110	Mezzanine Lighting Plan - Area C	11.28.2023	Documents
				35% Comprehensive
5 1	51444		44.00.000	Agreement
Electrical	EL111	Mezzanine Lighting Plan - Area E	11.28.2023	Documents
				35% Comprehensive
Electrical	FI 112	Magnanina Lighting Plan. Avec C	11 20 2022	Agreement
Electrical	EL112	Mezzanine Lighting Plan - Area G	11.28.2023	Documents
				35% Comprehensive
Electrical	EL601	Lighting Fixture Schedule	11.28.2023	Agreement Documents
Liectifeat	ELOUI	Lighting Fixture Schedule	11.26.2023	
				35% Comprehensive Agreement
Electrical	EP101	Level 1 Power Plan - Area A	11.28.2023	Documents
			1212012020	35% Comprehensive
				Agreement
Electrical	EP102	Level 1 Power Plan - Area B	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP103	Level 1 Power Plan - Area C	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP104	Level 1 Power Plan - Area D	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP105	Level 1 Power Plan - Area E	11.28.2023	Documents
				35% Comprehensive
Fl	ED406			Agreement
Electrical	EP106	Level 1 Power Plan - Area F	11.28.2023	Documents
				35% Comprehensive
Electrical	ED107	Loyal 1 Payer Blam Area C	11 20 2022	Agreement
Electrical	EP107	Level 1 Power Plan - Area G	11.28.2023	Documents



				35% Comprehensive
				Agreement
Electrical	EP108	Level 1 Power Plan - Area H	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP109	Mezzanine Power Plan - Area A	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP110	Mezzanine Power Plan - Area C	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP111	Mezzanine Power Plan - Area E	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP112	Mezzanine Power Plan - Area G	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP113	Roof Power Plan	11.28.2023	Documents
				35% Comprehensive
	:			Agreement
Electrical	EP401	Enlarged Power Plans	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP402	Enlarged Power Plans	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP601	Equipment Connection Schedule	11.28.2023	Documents
,				35% Comprehensive
				Agreement
Electrical	EP602	Panelboard Schedules	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP603	Panelboard Schedules	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP604	Panelboard Schedules	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP605	Panelboard Schedules	11.28.2023	Documents
				35% Comprehensive
				Agreement
Electrical	EP701	Power Riser Diagram	11.28.2023	Documents
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Telecom	T-001	Telecom Legend, Notes and Abbreviations	11.28.2023	35% Comprehensive Agreement Documents
		releasing Legeria, Notes and Nasicalations	11.20.2025	35% Comprehensive
				Agreement
Telecom	TT101	Level 1 Telecom Plan - Area A	11.28.2023	Documents
Telecom	TT102	Level 1 Telecom Plan - Area B	11.28.2023	35% Comprehensive Agreement Documents
Telecom	TT103	Level 1 Telecom Plan - Area C	11.28.2023	35% Comprehensive Agreement Documents
10.00011	11103	Level 2 Telecont Flan Area e	11.20.2023	35% Comprehensive
Telecom	TT104	Level 1 Telecom Plan - Area D	11.28.2023	Agreement Documents
				35% Comprehensive
Telecom	TT105	Level 1 Telecom Plan - Area E	11.28.2023	Agreement Documents
				35% Comprehensive
Telecom	TT106	Level 1 Telecom Plan - Area F	11 20 2022	Agreement
relecom	11100	Level 1 Telecom Plan - Area P	11.28.2023	Documents
			:	35% Comprehensive Agreement
Telecom	TT107	Level 1 Telecom Plan - Area G	11.28.2023	Documents
				35% Comprehensive
Telecom	TT108	Level 1 Telecom Plan - Area H	11 20 2022	Agreement
relecom	11108	Level 1 Telecom Plan - Area H	11.28.2023	Documents
				35% Comprehensive Agreement
Telecom	TT109	Mezzanine Telecom Plan - Area A	11.28.2023	Documents
				35% Comprehensive
Telecom	TT110	Mezzanine Telecom Plan - Area C	11 20 2022	Agreement
relecom	11110	Wiezzanine Telecom Plan - Area C	11.28.2023	Documents 25% Comments
				35% Comprehensive Agreement
Telecom	TT111	Mezzanine Telecom Plan - Area E	11.28.2023	Documents
				35% Comprehensive
Telecom	TT112	Mezzanine Telecom Plan - Area G	11.28.2023	Agreement
relectifi	11112	Mezzannie Telecom Flan - Afea G	11.28.2023	Documents 35% Comprehensive
				35% Comprehensive Agreement
Telecom	TT701	Telecom Riser Diagram	11.28.2023	Documents



Civil	C-0.0	Cover Sheet	10.20.2023	Erosion and Sediment Control Plan
Civil	C-0.2	Key Plan	10.20.2023	Erosion and Sediment
Civil	C-1.1	Existing Conditions	10.20.2023	Erosion and Sediment
CIVII	<u> </u>	Existing Conditions	10.20.2023	Erosion and Sediment
Civil	C-1.2	Existing Conditions	10.20.2023	Control Plan
Civil	C-2.1	Demolition Plan	10.20.2023	Erosion and Sediment Control Plan
Civil	C-2.2	Demolition Plan	10.20.2023	Erosion and Sediment Control Plan
Civil	C-3.1	Erosion and Sediment Control Plan Phase	10.20.2023	Erosion and Sediment
Civil	C-3.2	Erosion and Sediment Control Plan Phase	10.20.2023	Erosion and Sediment Control Plan
Civil	C-3.3	Erosion and Sediment Control Plan Phase 1B	10.20.2023	Erosion and Sediment Control Plan
Civil	C-3.4	Erosion and Sediment Control Plan Phase 1B	10.20.2023	Erosion and Sediment Control Plan
Civil	C-3.7	Erosion and Sediment Control Narrative and Notes	10.20.2023	Erosion and Sediment Control Plan
Civil	C-3.8	Erosion and Sediment Control Details	10.20.2023	Erosion and Sediment Control Plan
Civil	C-3.9	Erosion and Sediment Control Details	10.20.2023	Erosion and Sediment Control Plan
Civil	C-8.0	Drainage Details	10.20.2023	Erosion and Sediment Control Plan
Civil	C-8.1	Drainage Details	10.20.2023	Erosion and Sediment Control Plan
Civil	C-8.2	Drainage Details	10.20.2023	Erosion and Sediment Control Plan
Civil	C-9.0	Utility Details	10.20.2023	Erosion and Sediment Control Plan
Civil	C-9.1	Utility Details	10.20.2023	Erosion and Sediment Control Plan
6' '				
Civil	C-0.0	Cover Sheet	10.20.2023	Civil Site Plan
Civil	C-0.1	General Notes	10.20.2023	Civil Site Plan
Civil	C-0.2	Key Plan	10.20.2023	Civil Site Plan
Civil	C-1.1	Existing Conditions	10.20.2023	Civil Site Plan
Civil	C-1.2	Existing Conditions	10.20.2023	Civil Site Plan
Civil	C-2.1	Demolition Plan	10.20.2023	Civil Site Plan



Civil	C2.2	Demolition Plan	10.20.2023	Civil Site Plan
		Erosion and Sediment Control Plan Phase		
Civil	C-3.1	1A	10.20.2023	Civil Site Plan
		Erosion and Sediment Control Plan Phase		
Civil	C-3.2	1A	10.20.2023	Civil Site Plan
		Erosion and Sediment Control Plan Phase		
Civil	C-3.3	1B	10.20.2023	Civil Site Plan
		Erosion and Sediment Control Plan Phase		
Civil	C-3.4	1B	10.20.2023	Civil Site Plan
Civil	C-3.5	Erosion and Sediment Control Plan Phase 2	10.20.2023	Civil Site Plan
Civil	C-3.6	Erosion and Sediment Control Plan Phase 2	10.20.2023	Civil Site Plan
		Erosion and Sediment Control Narrative		
Civil	C-3.7	and Notes	10.20.2023	Civil Site Plan
Civil	C-3.8	Erosion & Sediment Control Details	10.20.2023	Civil Site Plan
Civil	C-3.9	Erosion & Sediment Control Details	10.20.2023	Civil Site Plan
Civil	C-4.1	Site Plan	10.20.2023	Civil Site Plan
Civil	C-4.2	Site Plan	10.20.2023	Civil Site Plan
Civil	C-5.1	Grading Plan	10.20.2023	Civil Site Plan
Civil	C-5.2	Grading Plan	10.20.2023	Civil Site Plan
Civil	C-5.3	Drainage Plan	10.20.2023	Civil Site Plan
Civil	C-5.4	Drainage Plan	10.20.2023	Civil Site Plan
Civil	C-5.5	Storm Drain Profiles	10.20.2023	Civil Site Plan
Civil	C-5.6	Storm Drain Profiles	10.20.2023	Civil Site Plan
Civil	C-6.1	Utility Plan	10.20.2023	Civil Site Plan
Civil	C-6.3	Utility Profiles	10.20.2023	Civil Site Plan
Civil	C-6.4	Utility Profiles	10.20.2023	Civil Site Plan
Civil	C-7.0	Site Details	10.20.2023	Civil Site Plan
Civil	C-7.1	Site Details	10.20.2023	Civil Site Plan
Civil	C-8.0	Drainage Details	10.20.2023	Civil Site Plan
Civil	C-8.1	Drainage Details	10.20.2023	Civil Site Plan
Civil	C-8.2	Drainage Details	10.20.2023	Civil Site Plan
Civil	C-9.0	Utility Details	10.20.2023	Civil Site Plan
Civil	C-9.1	Utility Details	10.20.2023	Civil Site Plan
Civil	L1.1	Landscape Plan	10.20.2023	Civil Site Plan
Civil	L1.2	Landscape Plan	10.20.2023	Civil Site Plan
Civil	L2.0	Plan Schedule, Notes and Details	10.20.2023	Civil Site Plan
Civil	PH-1.0	Photometric Plan	10.20.2023	Civil Site Plan
Civil	PH-1.1	Photometric Specifications	10.20.2023	Civil Site Plan
Civil	PH-1.2	Photometric Specifications	10.20.2023	Civil Site Plan
Civil	PH-1.3	Photometric Specifications	10.20.2023	Civil Site Plan
Civil		Project Narrative and Calculations	10.20.2023	Civil Site Submission



	Subsurface Exploration and Geotechnical		
Geotech	Engineering Report	10.30.2023	Geotech Report
	Beynon/Field Turf Williamsburg Sports and		
Turf	Event Center Field Layout	11.16.2023	Turf Plan

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November 28, 2023 CN#10038



CLARKNEXSEN

4525 Main Street, Suite 1400 Virginia Beach, Virginia 23462

DIVISION 03 – CONCRETE

031000 Concrete Forming and Accessories

General building and structural applications; concrete formwork and waterstops.

032000 Concrete Reinforcing

General building and structural applications; concrete reinforcing.

033000 Cast-In-Place Concrete

General building and structural applications; concrete mixtures, finishing, and curing.

033543 Polished Concrete Finishing

Ground and polished floor slabs, including stained and polished concrete.

DIVISION 04 – MASONRY

042000 Unit Masonry CMU, brick.

042613 Masonry Veneer

Brick veneer over metal-stud backup.

DIVISION 05 - METALS

051200 Structural Steel Framing

Structural steel framing for buildings.

052100 Steel Joist Framing

Standard manufactured open-web units, including steel joists, long-span steel joists, and joist girders.

053100 Steel Decking

Roof, floor, and form steel deck.

054000 Cold-Formed Metal Framing

Load-bearing and exterior non-load-bearing wall studs; floor, ceiling, and roof joists; and rafters.

055000 Metal Fabrications

Metal items (not sheet metal) made from iron and steel shapes, stainless steel, and non-ferrous metals.

055113 Metal Pan Stairs

Steel stairs with concrete treads.

057300 Decorative Metal Railings

Ornamental metal railings assembled from either standard or custom components and shapes.

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

61600 Sheathing

Roof and wall gypsum sheathing.

062013 Exterior Finish Carpentry

Exposed and nonstructural.

064023 Interior Architectural Woodwork

Trim, cabinets, and tops.

066400 Plastic Paneling

Plastic paneling for utilitarian applications.

DIVISION 07- THERMAL AND MOISTURE PROTECTION

071113 Bituminous Dampproofing

Cold-applied, cut-back- (solvent-based) and emulsified-(water-based) asphaltic dampproofing.

071326 Self-Adhering Sheet Waterproofing

Self-adhering, positive-side sheet waterproofing; drainage panels; pedestal-supported concrete pavers.

072119 Foamed-In-Place Insulation

Spray-applied polyurethane foam insulation

074116 Insulated Metal Roof Panels

Panels with foamed-insulation cores.

074213.19 Insulated Metal Wall Panels

Panels with foamed-insulation, laminated-insulation, and honeycomb cores.

074213.23 Metal Composite Material Wall Panels

Panels with metal facings and thin plastic cores secured to buildings with specialized attachment systems.

075423 Thermoplastic-Polyolefin (TPO) Roofing

Adhered, TPO systems.

0749293 Soffit Panels

Concealed-fastner, lap-seam, simulated wood metal panels.

076200 Sheet Metal Flashing and Trim

Custom Fabricated copings, roof edge flashings, drainage systems, and counter flashings.

077129 Manufactured Roof expansion joints

Factory-Fabricated bellows type, and aluminum roof expansion joint assemblies

077253 Snow Guards

Seam mounted snow guards

07760 Pedestal Paver Systems

Pedestal paving system for elevated slabs.

078443 Joint Firestopping

Systems installed in or between fire rated construction, at exterior curtain wall/floor intersections, and in smoke barriers.

079200 Joint Sealants

Elastomeric joint sealants including, silicone, urethane, STPE, polysulfide, butyl, and latex.

079513.13 Interior Expansion Joint Cover Assemblies

Interior expansion joint cover assemblies for floors, walls and ceilings.

DIVISION 08 – OPENINGS

081113 Hollow Metal Doors and Frames Hollow-metal doors and frames.

084213 Aluminum-Framed Entrances Aluminum entrance doors and hardware.

084313 Aluminum-Framed Storefronts

Aluminum storefront systems; also used for window walls, ribbon walls, strip windows, and punched openings.

087100 Door Hardware By Contractor.

088000 Glazing

Plain, laminated, and insulating glass.

088300 Glazing

Unframed silver flat glass mirrors including annealed monolithic, film-backed, and tempered.

089116 Fixed Louvers Fixed metal wall louvers.

DIVISION 09 – FINISHES

092116.23 Gypsum Board Shaft Wall Assemblies

Fire resistance rated vertical shaft and horizontal enclosures, including metal framing.

092216 Non-structural Metal Framing

Steel framing for gypsum board partitions and ceilings.

092900 Gypsum Board

Interior gypsum board, exterior gypsum board for ceilings and soffits, and tile backer boards.

093013 Ceramic Tiling

Ceramic, porcelain, and glazed wall tile.

095113 Acoustical Panel Ceilings

Mineral-base, with exposed suspension systems.

096466 Wood Athletic Flooring

Fixed type wood flooring and shock-absorbing subfloor assemblies.

096513 Resilient Base and Accessories

Resilient base, stair accessories, and molding accessories.

096516 Resilient Sheet Flooring

Vinyl and rubber sheet floor coverings.

096519 Resilient Tile Flooring

Solid vinyl, rubber, vinyl composition.

096813 Tile Carpeting Modular carpet tile for commercial applications.

097200 Wall Coverings Vinyl.

098436 Sound-Absorbing Ceiling Units Suspended Shop-fabricated sound -absorbing baffle panels.

099124 Interior Painting (MPI Standards)
Interior painting specified by referencing MPI standard painting systems and approved products.

DIVISION 10 - SPECIALTIES

101423 Panel Signage Panel signs.

102113.17 Phenolic-Core Toilet Compartments Phenolic-core toilet enclosures, entrance screens, and urinal screens.

104416 Fire Extinguishers
Portable fire extinguishers and metal cabinets

104300 Emergency Equipment Life-safety equipment

DIVISION 11 – EQUIPMENT

114000 Food Service Equipment Commercial Food Service Equipment

116653 Gymnasium Dividers Gymnasium Divider Curtains.

DIVISION 12 – FURNISHINGS

123623.13 Plastic-Laminate-Clad Countertops Plastic-laminate countertops.

123661.16 Solid Surfacing Countertops Solid surface countertops and sinks.

DIVISION 13 – SPECIAL CONSTRUCTION

133419 Metal Building Systems

Systems consisting of structural framing, roofing and siding panels, and standard components

DIVISION 14 – CONVEYING EQUIPMENT

142123.16 Machine Room-Less Electric Traction Passenger Elevator 3500#, 100 FPM.

DIVISION 21 – FIRE SUPPRESSION

210523 General-Duty Valves for Water-Based Fire-Suppression Piping Valves common to most fire-protection piping.

210529 Hangers and Supports for Fire-Suppression Piping and Equipment Single and multiple hangers, framing systems, and stands and supports.

211000 Water-Based Fire-Suppression Systems

Piping specialties, valves, and sprinklers for wet pipe, dry pipe, and preaction sprinkler systems.

DIVISION 22 – PLUMBING

220500 Common Work Results for Plumbing

Content includes common motor requirements, expansion fittings and loops, sleeve and sleeve seals, and escutcheons, for plumbing systems.

220523 General-Duty Valves for Plumbing Piping

Ball valves, butterfly valves, check valves, and gate valves common to multiple systems 220529 Hangers and Supports for Plumbing Piping and Equipment Single and multiple hangers, framing systems, and stands and supports.

220553 Identification for Plumbing Piping and Equipment

Labels, stencils, and tags.

220719 Plumbing Piping Insulation

Insulation materials, jackets, and installation accessories for plumbing piping.

221116 Domestic Water Piping

Potable-water distribution within the building.

221119 Domestic Water Piping Specialties

Specialties, valves, and fittings for domestic water piping.

221123.21 Inline, Domestic-Water Pumps

In-line separately coupled, close-coupled, centrifugal pumps.

221316 Sanitary Waste and Vent Piping

Soil, waste, and vent piping within the building.

221319 Sanitary Waste Piping Specialties

Backwater and air admittance valves, cleanouts, sanitary assemblies, FOG systems, and sanitary drainage specialties.

221319.13 Sanitary Drains

Floor and trench drains, and channel drain systems.

221323 Sanitary Waste Interceptors

Grease, oil, and sand interceptors for sewerage systems outside the building.

221414 Storm Drainage Piping

Stormwater piping within the building

221423 Storm Drainage Piping Specialties

Roof drains, cleanouts, trench drains, channel drains, and piping specialties.

221429 Sump Pumps

Submersible, wet-pit volute, and package drainage-pump units; basins and covers.

223300 Electric, Domestic-Water Heaters

Household and commercial; tankless, instantaneous, and storage types.

223400 Fuel-Fired, Domestic-Water Heaters

Household and commercial; gas and oil fired; instantaneous and storage types.

224200 Commercial Plumbing Fixtures

Commercial water closets, urinals, sinks, showers, and wash fountains; supports, flushometer valves, supplies, faucets, and traps

224716 Pressure Water Coolers

Freestanding, wall mounted, and wheelchair accessible.

DIVISION 23 – HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)

230500 Common Work Results for HVAC

Content includes common motor requirements, expansion fittings and loops, sleeve and sleeve seals, and escutcheons, for HVAC systems.

230529 Hangers and Supports for HVAC Piping and Equipment

Single and multiple hangers, framing systems, and stands and supports.

230546 Coatings for HVAC

Coating systems on internal HVAC components and external equipment surfaces.

230553 Identification for HVAC Piping and Equipment

Labels, stencils, and tags.

230593 Testing, Adjusting, and Balancing for HVAC

Air distribution and hydronic systems.

230713 Duct Insulation

Insulation materials, jackets, and installation accessories for HVAC ducts.

230716 HVAC Equipment Insulation

Insulation materials, jackets, and installation accessories for HVAC equipment.

230719 HVAC Piping Insulation

Insulation materials, jackets, and installation accessories for HVAC piping.

230800 Commissioning of HVAC

Requirements and procedures for commissioning HVAC systems.

230923 Direct Digital Control (DDC) System for HVAC

Direct digital control system for monitoring and controlling HVAC systems.

230923.14 Flow Instruments

Airflow and liquid flow sensors, switches and transmitters, and water meters that connect to direct digital control systems.

230923.16 Gas Instruments

Carbon dioxide, oxygen, and VOC gas detection instruments and control devices that connect to direct digital control systems.

230923.18 Leak Detection Instruments

Leak detection switches (point type) and leak detector switches (cable type) that connect to direct digital control systems.

230923.19 Moisture Instruments

Humidity and moisture sensors and transmitters that connect to direct digital control systems.

230923.23 Pressure Instruments

Air and liquid pressure sensors, switches, and transmitters that connect to direct digital control systems.

230923.27 Temperature Instruments

Air, liquid, and steam temperature sensors, switches, transmitters and thermostats that connect to direct digital control systems.

230923.43 Weather Stations

Weather stations that connect to direct digital control systems.

230993.11 Sequence of Operations for HVAC DDC

Direct digital control sequences for HVAC systems.

231123 Facility Natural-Gas Piping

Natural gas piping and specialties.

232300 Refrigerant Piping

Piping, specialties, and refrigerant.

233113 Metal Ducts

Rectangular and round, single- and double-wall ducts, including hangers and supports.

233119.16 Manufactured HVAC Casings

Factory-fabricated, double-wall casings used as equipment enclosures and plenums.

233300 Air Duct Accessories

Volume dampers, fire and smoke dampers, vanes, duct silencers, and hardware.

233346 Flexible Ducts

Non-insulated and insulated flexible ducts and flexible duct connectors.

233433.13 Commercial Air Curtains

Commercial air curtain fans over entranceways, with and without heating.

233439 High-Volume, Low-Speed Fans

Large diameter, high-volume, low-speed ceiling fans.

233533 Listed Kitchen Ventilation System Exhaust Ducts

Listed grease ducts.

233713.13 Air Diffusers

Round, rectangular, perforated, and linear diffusers.

233713.23 Registers and Grilles

Fixed and adjustable registers and grilles.

233716 Fabric Air-Distribution Devices

Continuous tubular fabric air diffusers, connectors, and accessories.

233813 Commercial-Kitchen Hoods

Type I and Type II, Standard and Listed hoods.

235123 Gas Vents

Listed double-wall vents.

237213 Heat Wheel Air-To-Air Energy Recovery Units

Rotary heat wheel, sensible-only or total heat transfer heat exchangers.

237223.23 Packaged, Outdoor, Heat Wheel Energy Recovery Units

Heat wheel in outdoor packaged, sensible heat and total heat, energy-recovery units.

237343.16 Outdoor, Semi-Custom Air-Handling Units

Units consisting of fans, coils, dampers, filters, control devices, and accessories.

237416.11 Packaged, Small-Capacity, Rooftop Air-Conditioning Units

Packaged, air-cooled, rooftop HVAC, 6 tons and smaller.

237416.13 Packaged, Large-Capacity, Rooftop Air-Conditioning Units

Packaged, air-cooled, rooftop HVAC 7.5 tons and greater.

237433 Dedicated Outdoor-Air Units

Units capable of 100 percent outdoor air with heating and cooling.

238126 Split-System Air-Conditioners

Air-distribution equipment separate from refrigeration equipment; cabinet suitable for exposed installa-

238129 Variable-Refrigerant-Flow HVAC Systems

Variable-refrigerant-flow HVAC systems, components, and operations, including delegated design.

238413.19 Atomizing Humidifiers

Water-pressure or compress-air types.

DIVISION 26 – ELECTRICAL

260519 Low-Voltage Electrical Power Conductors and Cables

Building wires, cables, connectors, splices, and terminations rated 2000 V and less.

260526 Grounding and Bonding for Electrical Systems

Methods and materials for grounding systems and equipment.

260529 Hangers and Supports for Electrical Systems Hangers, supports, and concrete bases.

260533.13 Conduits for Electrical Systems Duct raceways, elbows, and fittings

260533.16 Boxes and Covers for Electrical Systems
Outlet and device boxes, junction and pull boxes, cover plates, and hoods.

260536 Cable Trays for Electrical Systems Ladder, trough, and single-rail types; steel, aluminum, stainless steel, and fiberglass.

260543 Underground Ducts and Raceways for Electrical Systems Manholes, handholes, and underground ducts.

260544 Sleeves and Sleeve Seals for Electrical Raceways and Cabling Round sleeves, rectangular sleeves, sleeve seal systems, sleeve seal fittings, grout, and sealants.

260553 Identification for Electrical Systems Labels, markers, tags, ties, tape, bands, and signs.

260573.13 Short-Circuit Studies
Fault-current and protective device short-circuit studies.

260573.16 Coordination Studies Fault-current and protective device coordination studies.

260573.19 Arc-Flash Hazard Analysis Fault-current and protective device arc-flash studies.

260923 Lighting Control Devices
Time switches, photoelectric relays, occupancy sensors, and multipole lighting controls.

260943.23 Relay-Based Lighting Controls Panels using relays for switching; panels networked BAS.

262213 Low-Voltage Distribution Transformers
Single- and three-phase distribution dry-type rated 600 V or less and up to 1500 Kva.

262413 Switchboards Service and distribution switchboards, 600 V and less.

262416 Panelboards
Distribution, branch circuit, and surge-suppression panel boards and load centers.
262726 Wiring Devices

Basic Section with selected work results extracted from lower-level supplementary Sections.

Cartridge type (600 V and less); plug type (125 V and less); fuse adapters; spare-fuse cabinet.

262816 Enclosed Switches and Circuit Breakers

Fusible, nonfusible, receptacle, shunt trip, and molded-case switches; molded-case circuit breakers; enclosures.

264313 Surge Protective Devices for Low-Voltage Electrical Power Circuits Field-mounted surge protective devices (SPDs) 1000-V and less.

265000 Lighting

Includes interior and exterior luminaires and fittings, special-purpose luminaires, extra-low voltage lighting, lumainaries and fittings for use in hazardous locations, emergency and exit lighting, office furnishing lighting, food service lighting, electr

DIVISION 27 – COMMUNICATIONS

270528 Pathways for Communications Systems

Conduits, wireways, surface pathways, boxes and enclosures, and handholes and boxes.

DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

284621.11 Addressable Fire-Alarm Systems

Systems with addressable initiating devices and conventional notification appliances.

END OF OUTLINE SPECIFICATIONS

WILLIAMSBURG SPORTS AND EVENTS CENTER

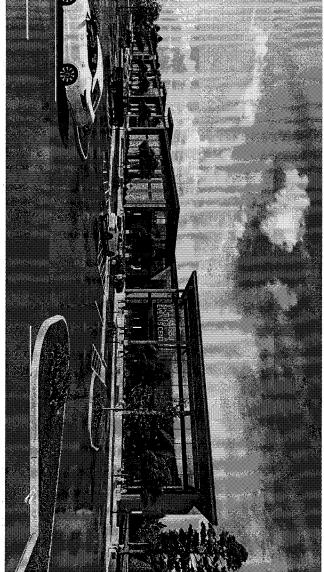
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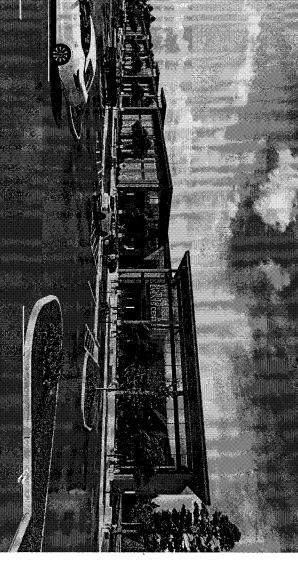
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HISTORIC TRIANGLE REC. FACILITIES AUTHORITY

102 VISITOR CENTER DRIVE WILLIAMSBURG, VA 23185

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VICINITY MAP

SITE MAP

ARCHITECT

PROJECT TEAM

HISTORIC TRIANGLE RECREATIONAL
FACILITES AUTHORITY
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WILLIAMSBURG, VA 23188
CONTACT ANDREW TRIVETTE
E ATRIVETTE@WILLIAMSBURGVA.GOV

TIMMONS GROUP 2901 S. LYNNHAVEN ROAD, SUITE 200 VIRGINIA BEACH, VA 23452 T. 757.213.6679 F: 757.340.1415 CIVIL ENGINEER AND LANDSCAPE ARCHITECT

ARCHITECT (CONSULTANT) GUERNSEY TINGLE 4350 NEW TOWN AVENUE, SUITE 201 WILLIAMSBURG, VA 23188

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MEB
4016 HOLLAND BOULEVARD
CHECAPEAKE, VA 23223
T: 757 497.5858

CLARK NEXSEN 4525 MAIN STREET, SUITE 1400 4525 MAIN STREET, SUITE 1400 VIRGINIA BEACH, VA 23462 TI, 757, 455,5800 F: 757,455,5638 STRUCTURAL ENGINEER

CLARK NEXSEN 4525 MAIN STREET, SUITE 1400 VIRGINIA BEACH, VA 23462 T: 757.455.5600 F: 757.455.5638 MECHANICAL, PLUMBING, ELECTRICAL AND FIRE PROTECTION ENGINEER

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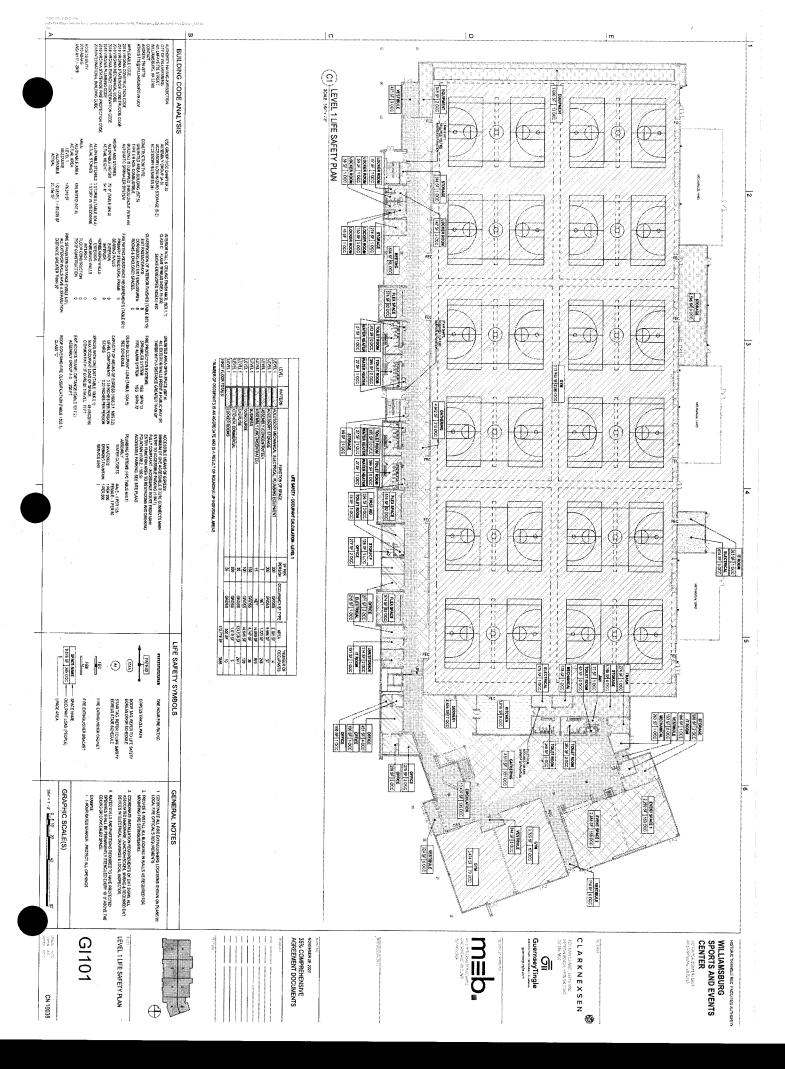
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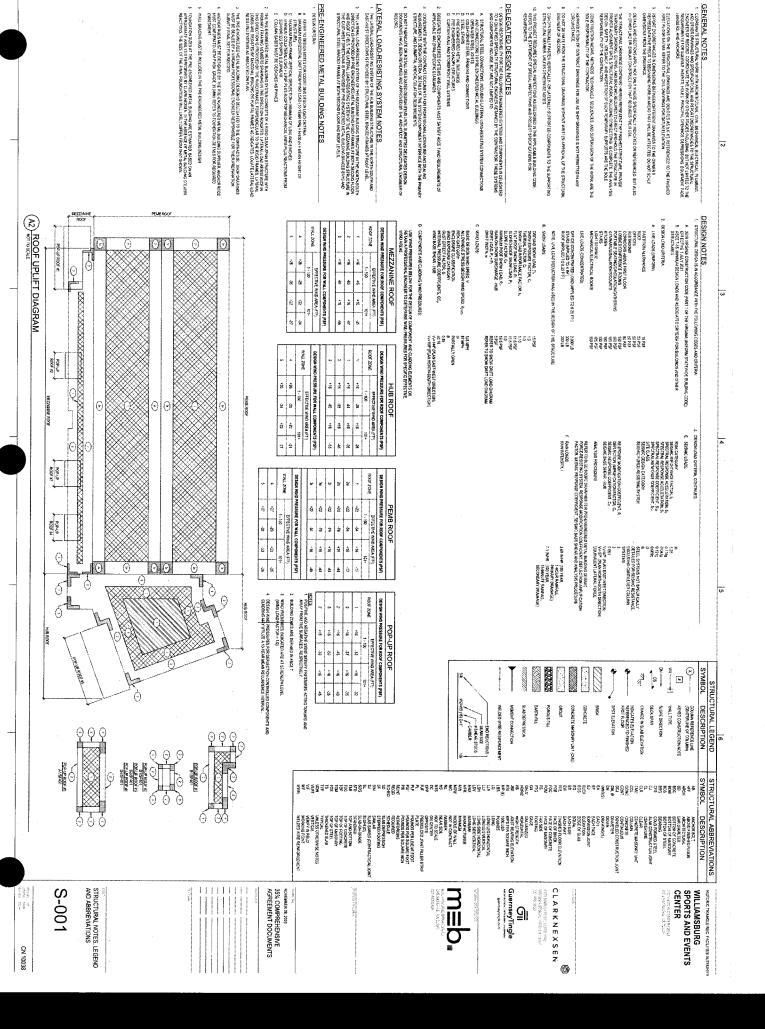
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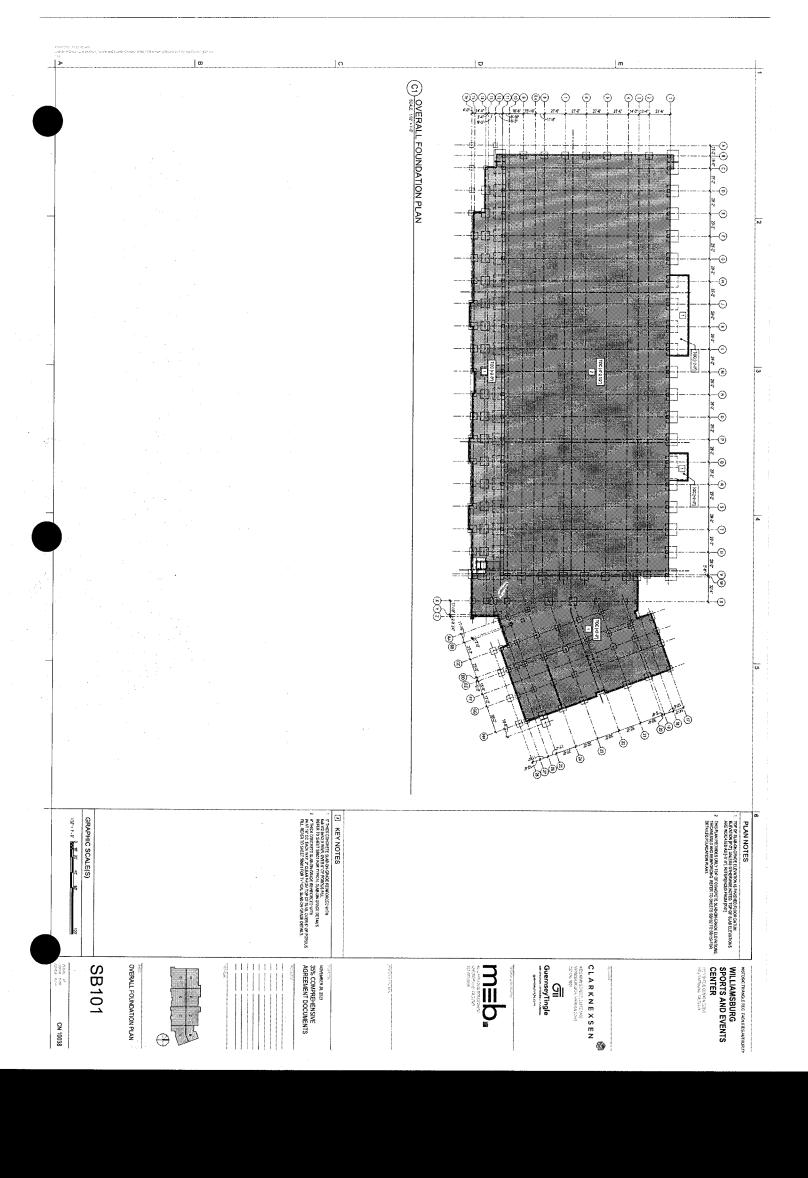
COVER SHEET

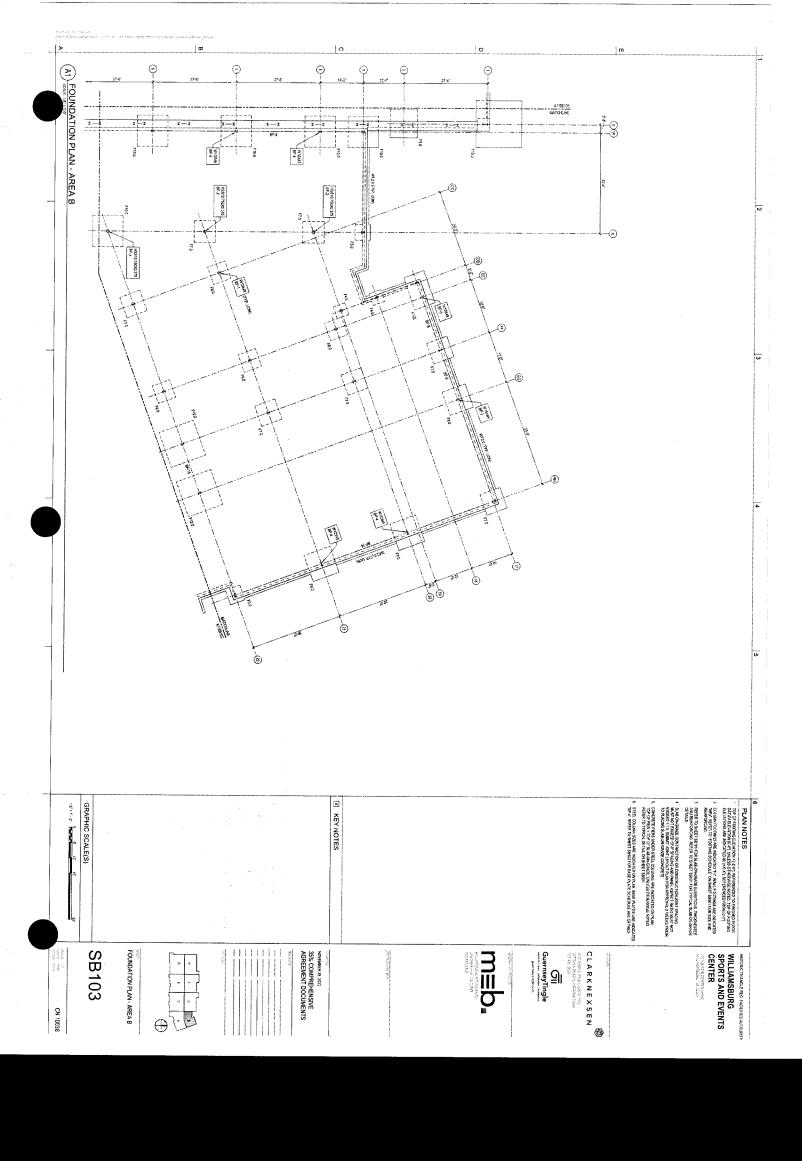
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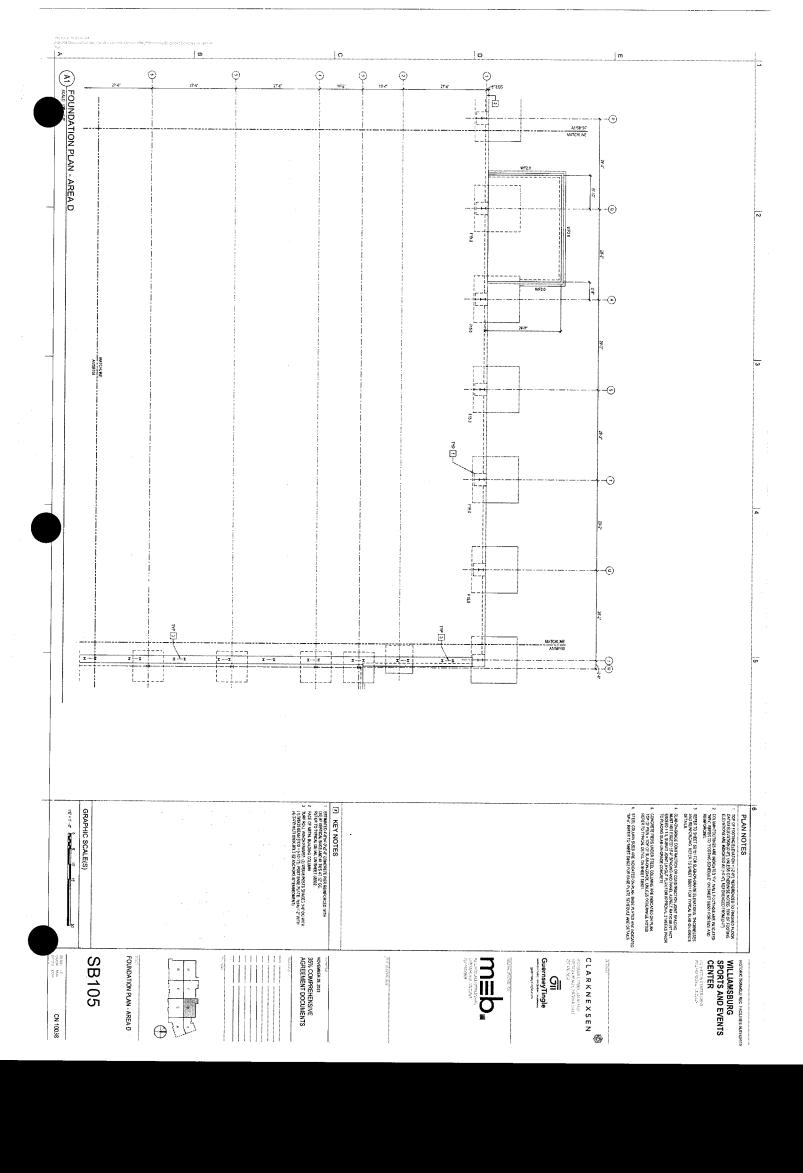
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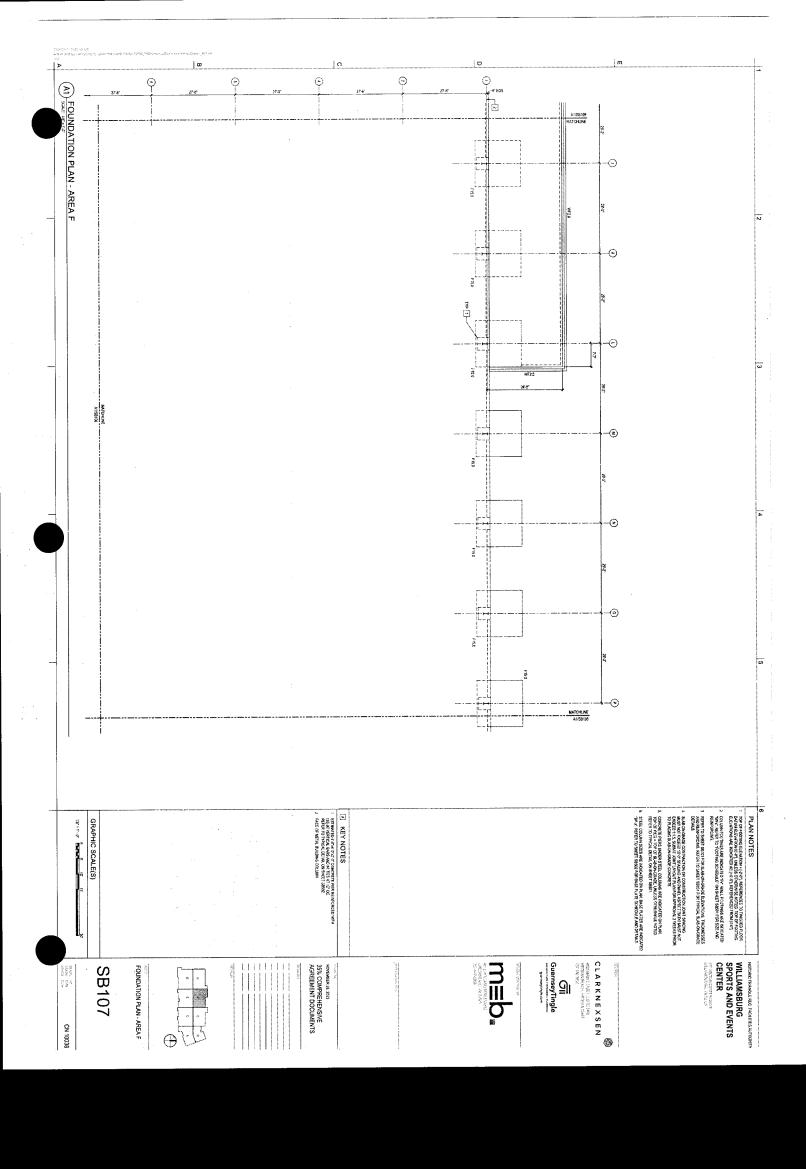


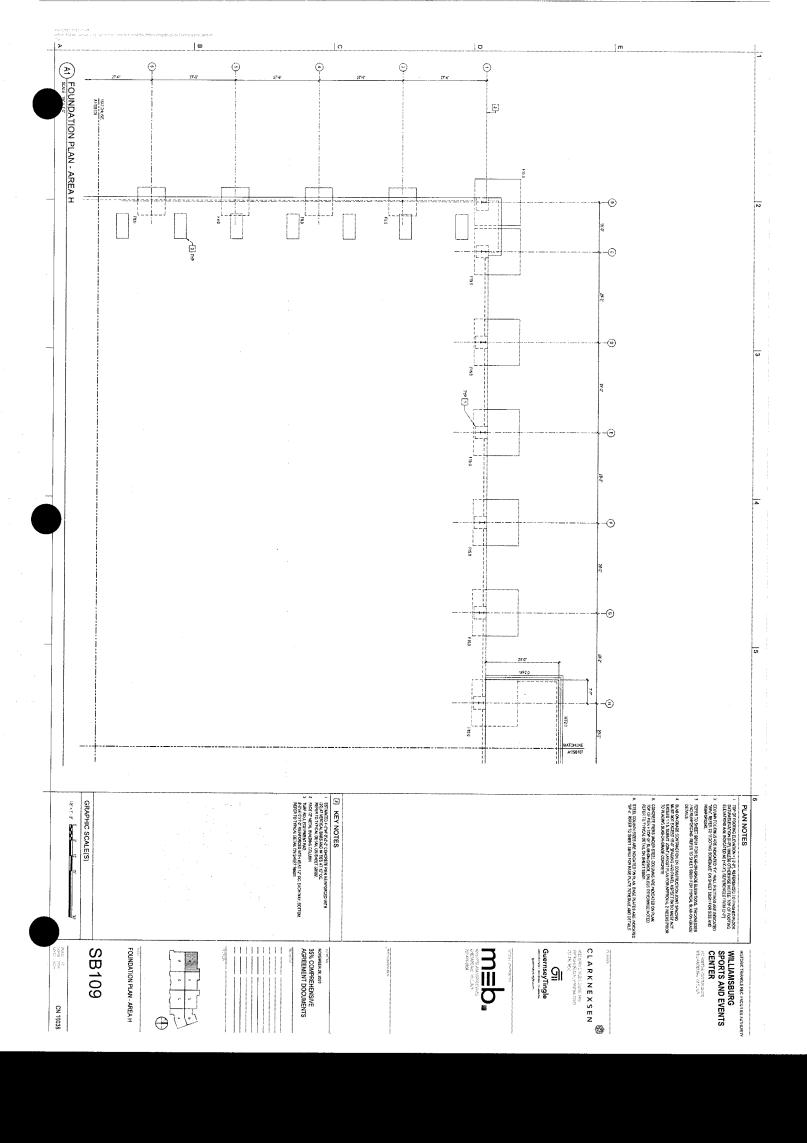


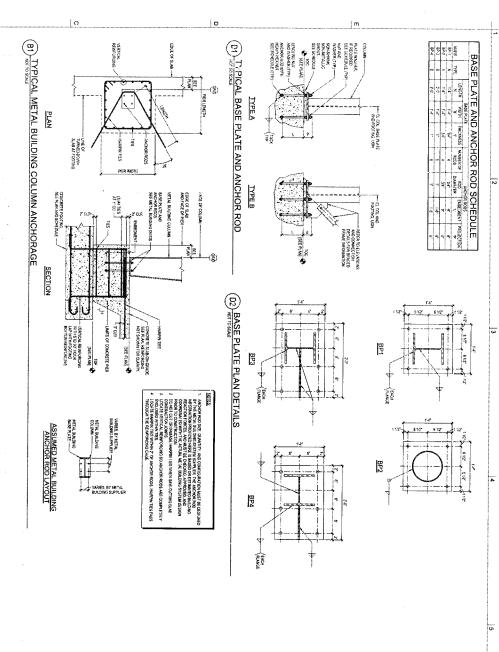












TYPICAL FOUNDATION DETAILS

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NOVEMBER 28, 2023

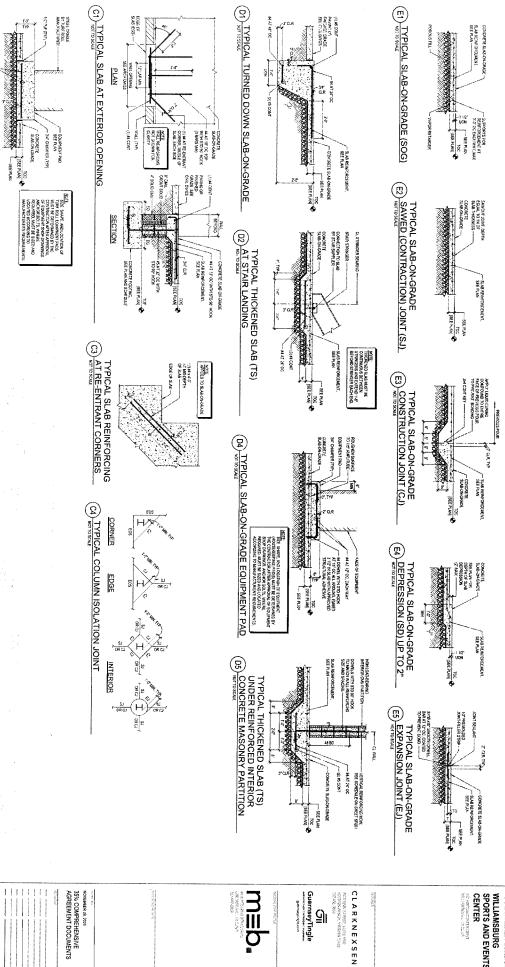
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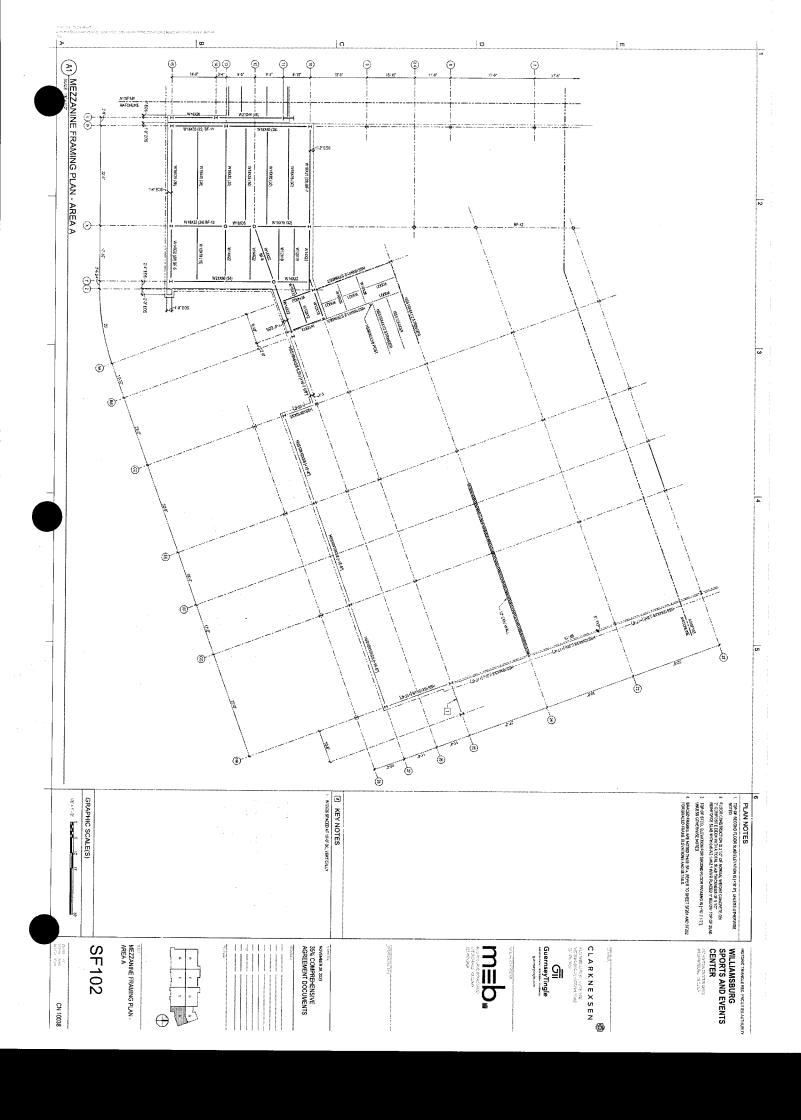
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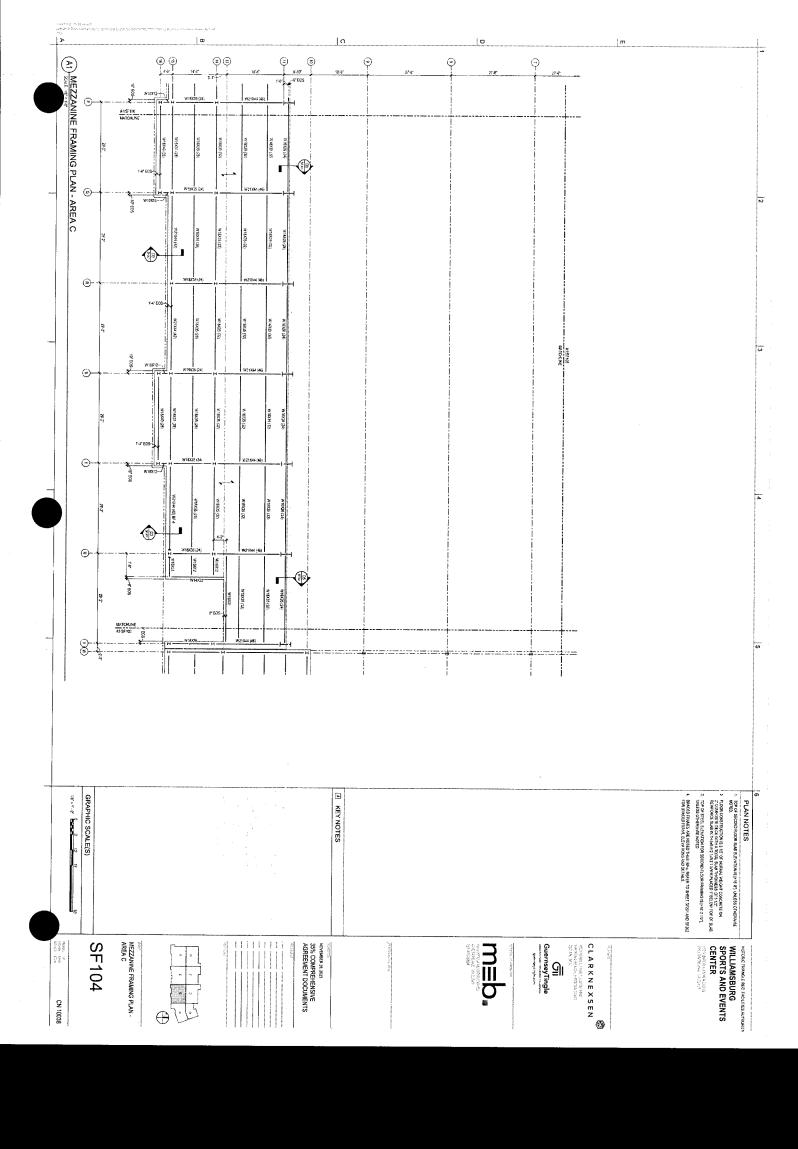
(B) TYPICAL CONCRETE TURF ROLL EQUIPMENT PAD

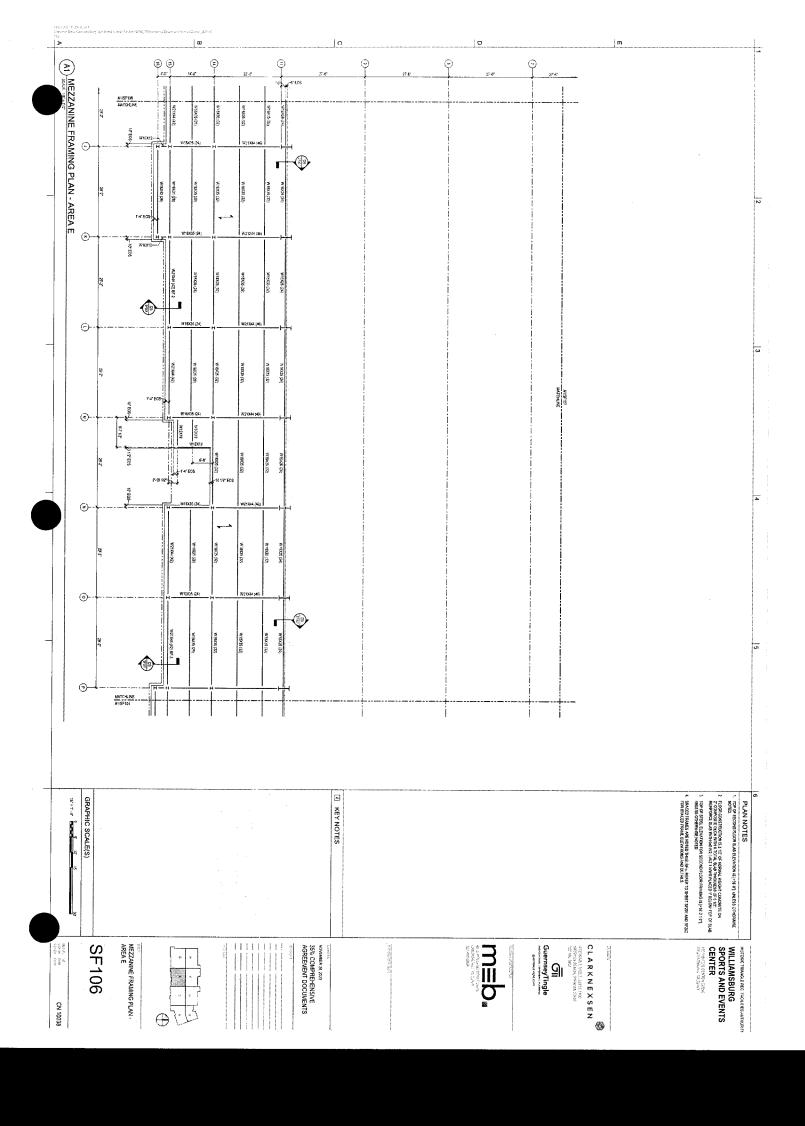
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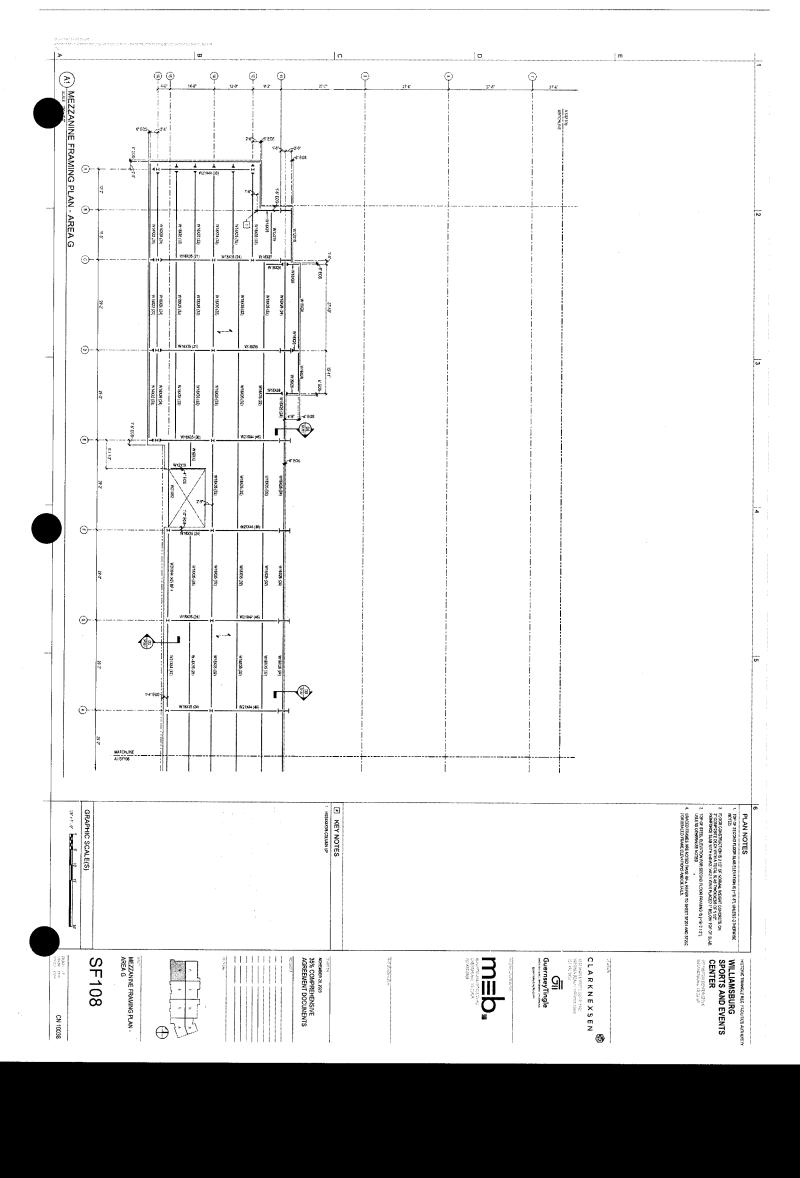
TYPICAL SLAB-ON-GRADE DETAILS

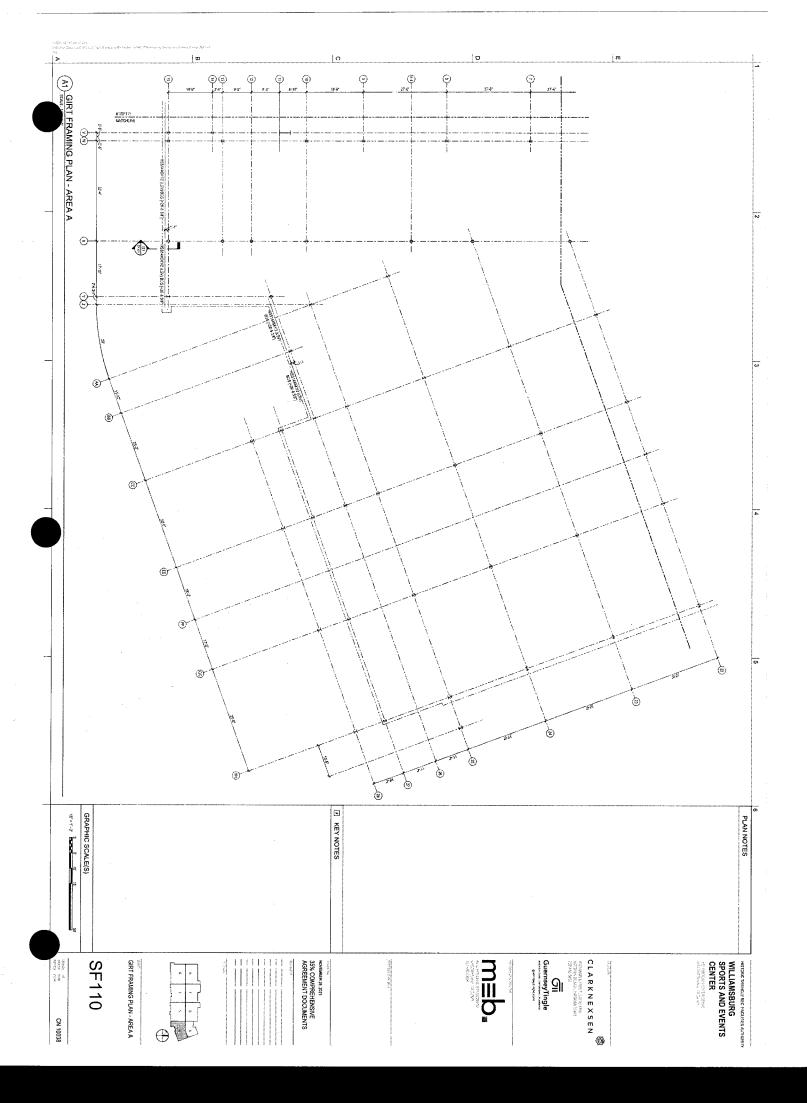
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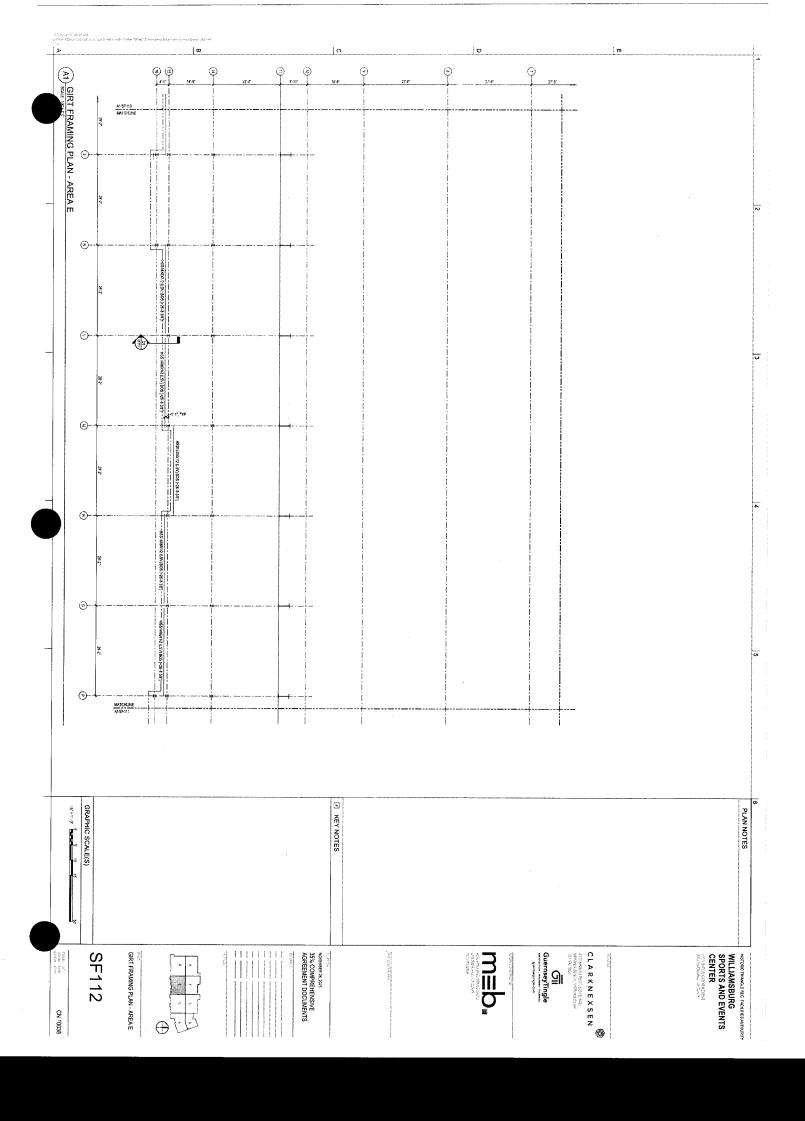




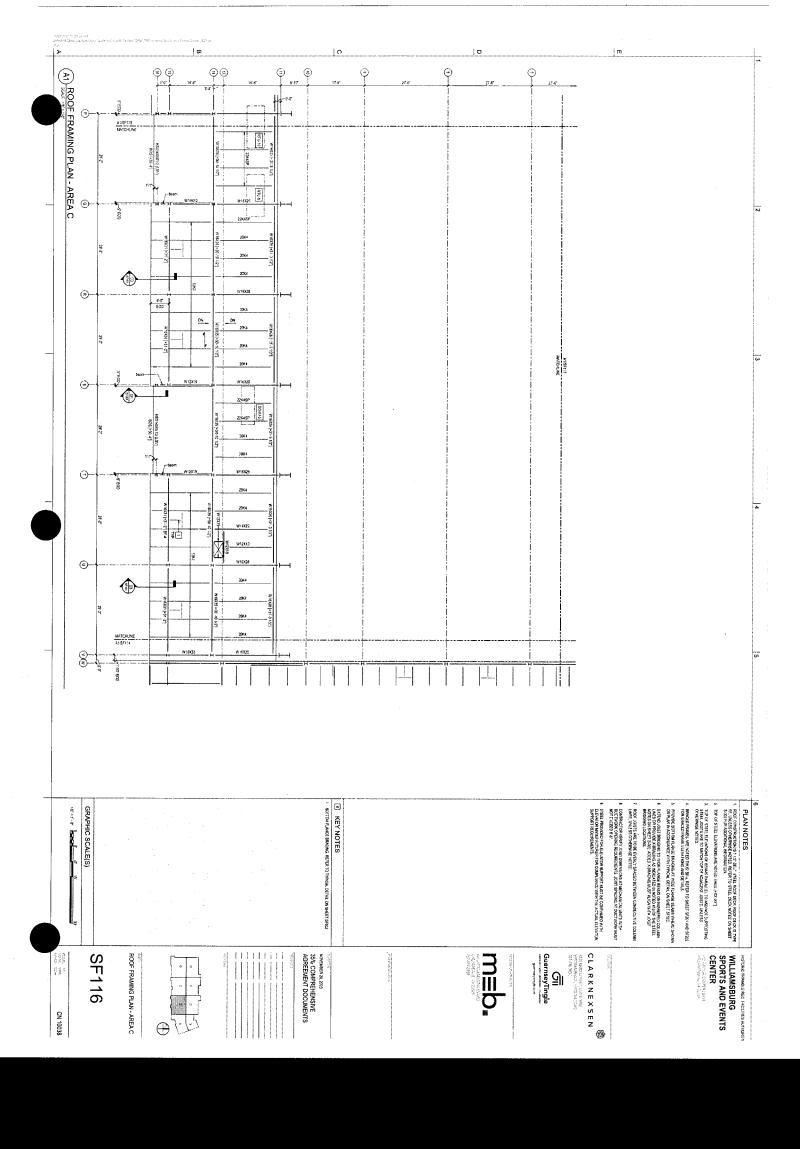


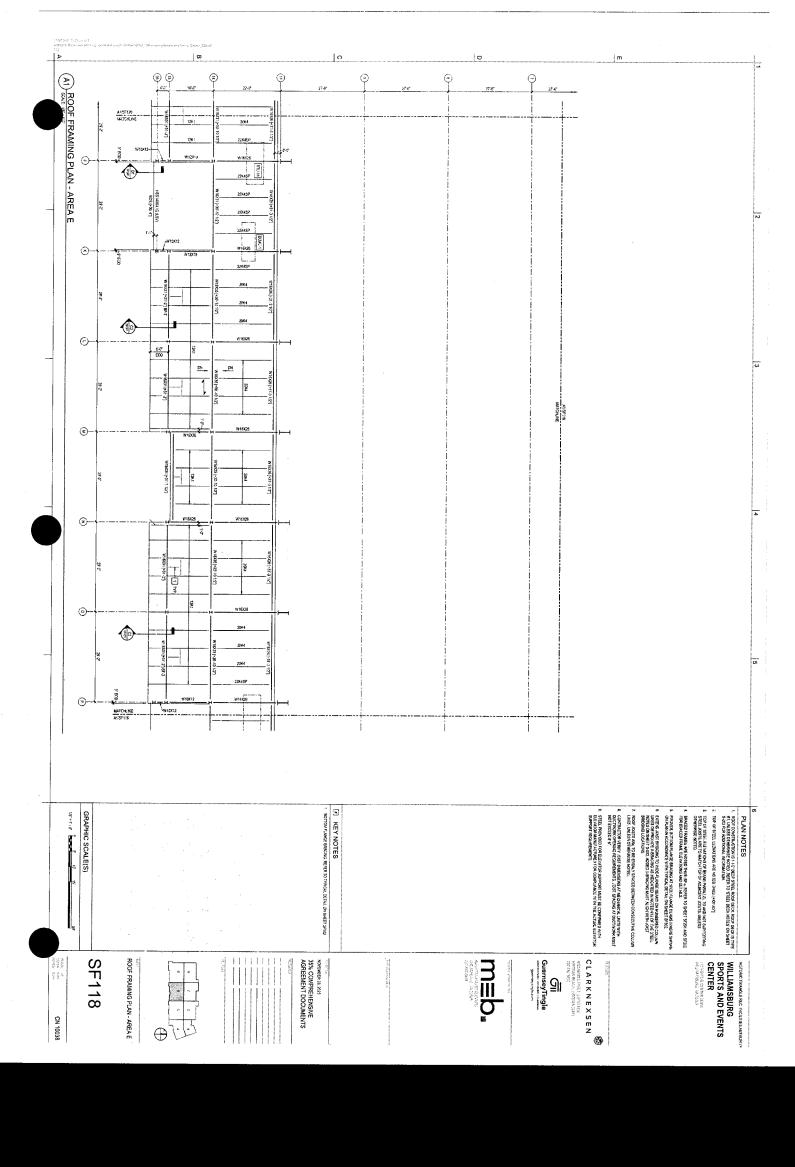


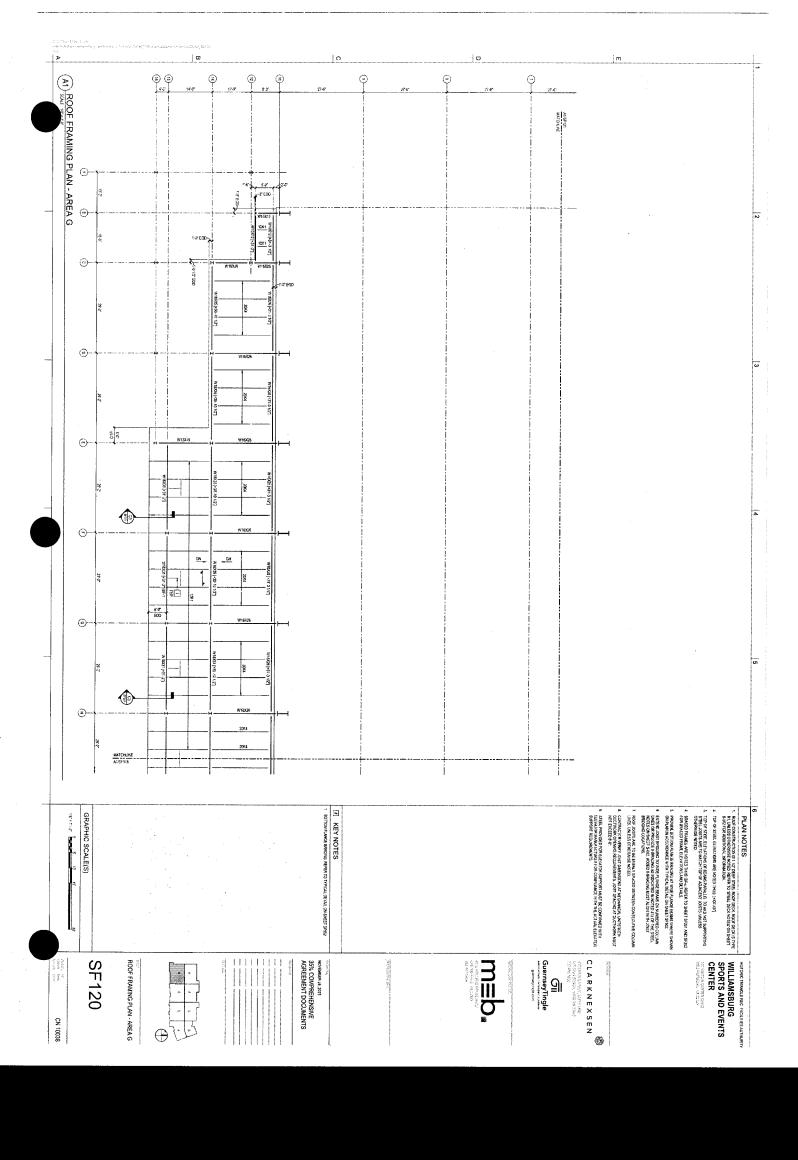


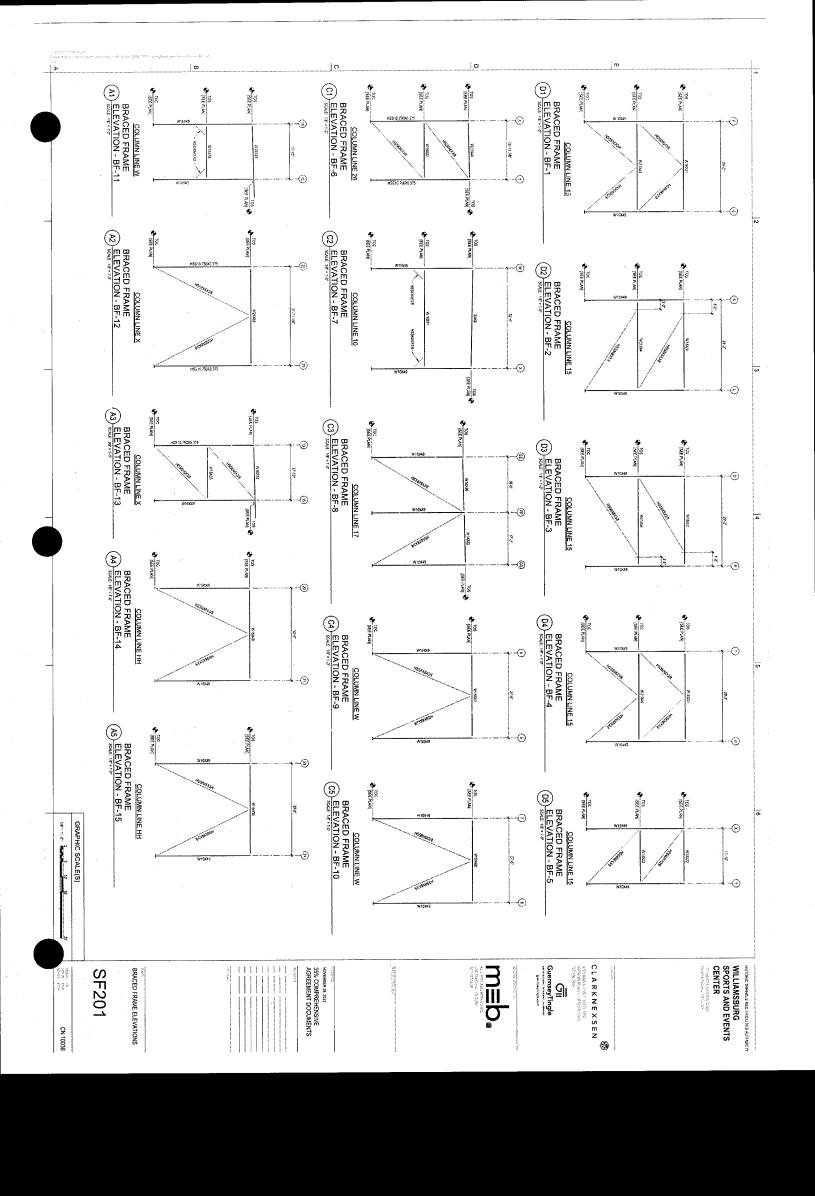












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SF301

FRAMING SECTIONS

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SECTION D3 SECTION
SME Party AT COLUMN D5 SECTION SCALE 17-14 AT BEAM

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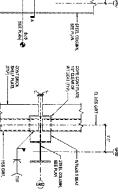
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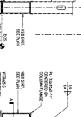
DETAIL 'A-A' SEE ANCH DWGS STEEL FLOOR DECK



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CT SECTION
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D1) SECTION
SOLE 1-1-1-1













TYPICAL FRAMING DETAILS

(B1) TYPICAL CONSTRUCTION JOINTS IN COMPOSITE DECK

SECTION 'B-B'

TYPICAL COMPOSITE BEAM-TO-GIRDER CONNECTION AND SLAB REINFORCING

LANE 3

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SECTION 'A-A'

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COMPOSITE FLOOR CONSTRUCTION NOTES

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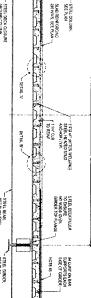
DOUBLE-ROW LAYOUT DECK RISS PERPENDICULAR 2 DAT HER.



STEEL HEADED STRONG POSITION

Dt) TYPICAL COMPOSITE SLAB DETAIL

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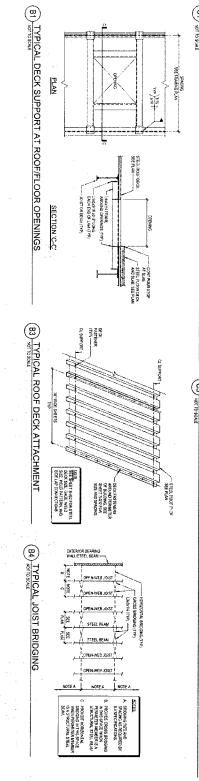
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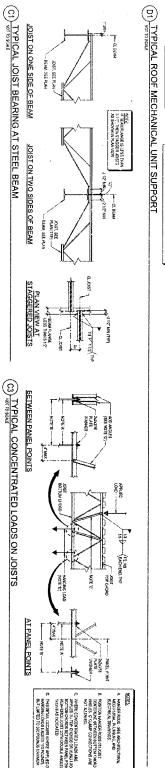
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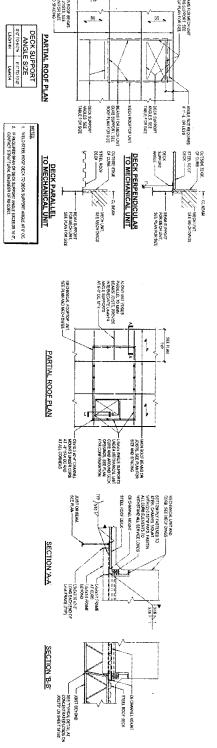
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TYPICAL MASONRY DETAILS

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m<u></u>b.

TYPICAL JOIST BEARING

AT CMU WALL

(D1) TYPICAL NON-BEARING CMU WALL BRACING PARTITIONS TO UNDERSIDE OF DECK PARTITIONS STOPPING BELOW JOIST

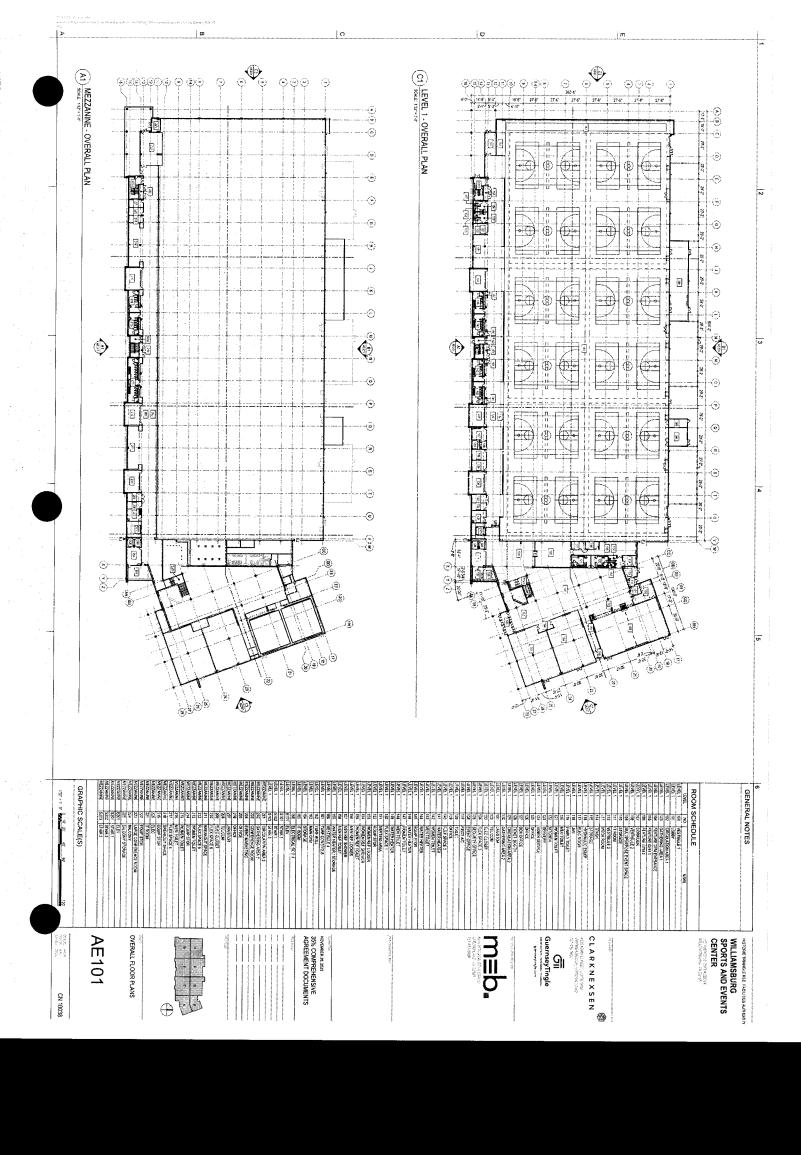
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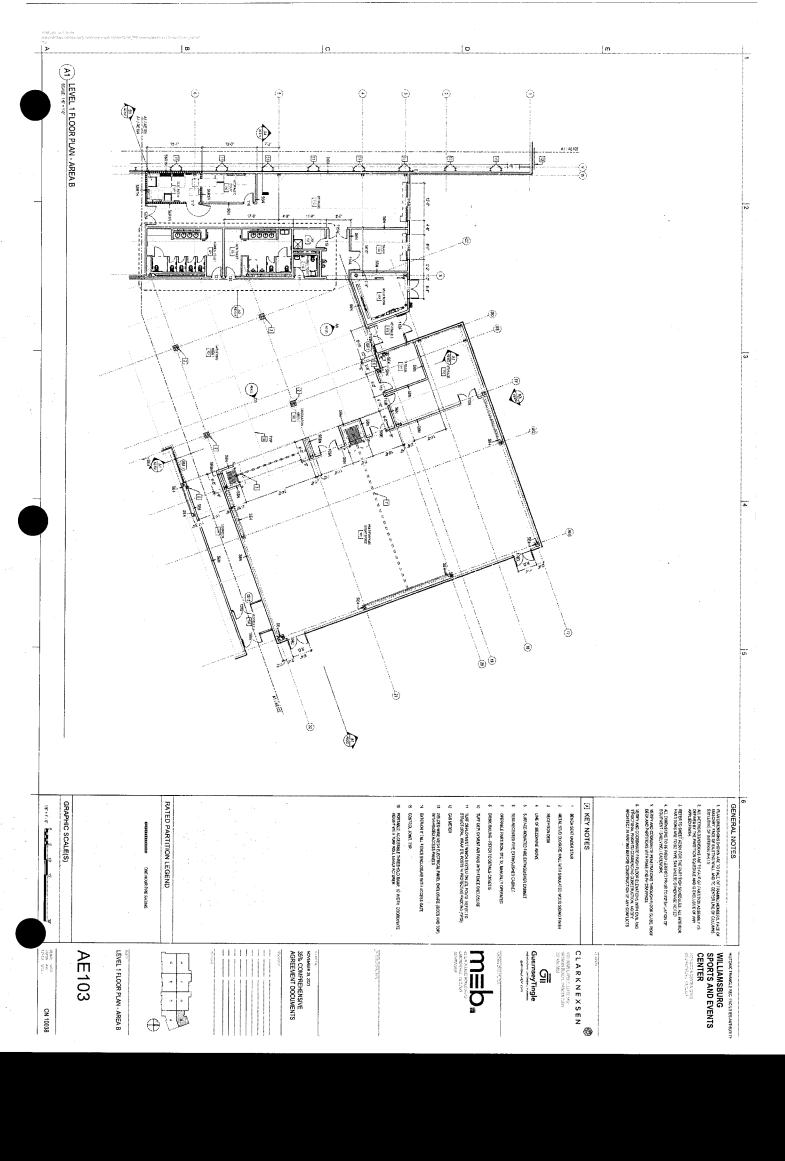
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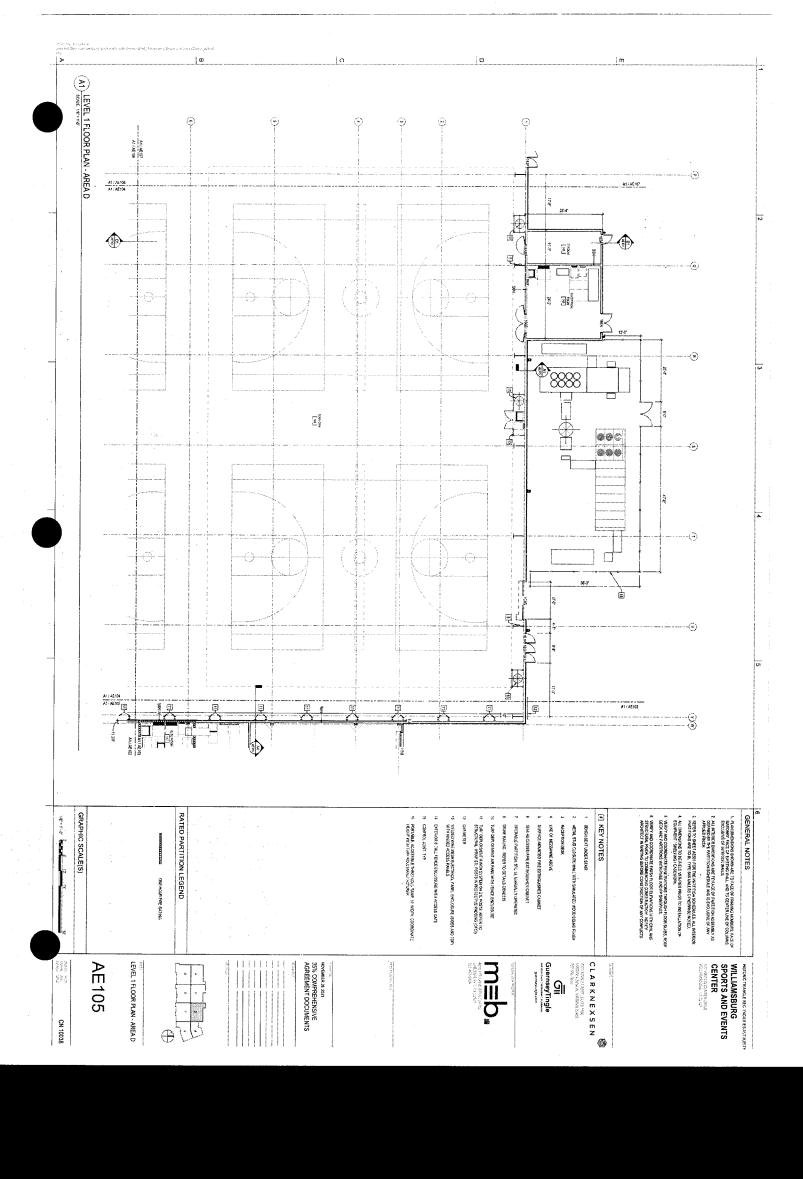
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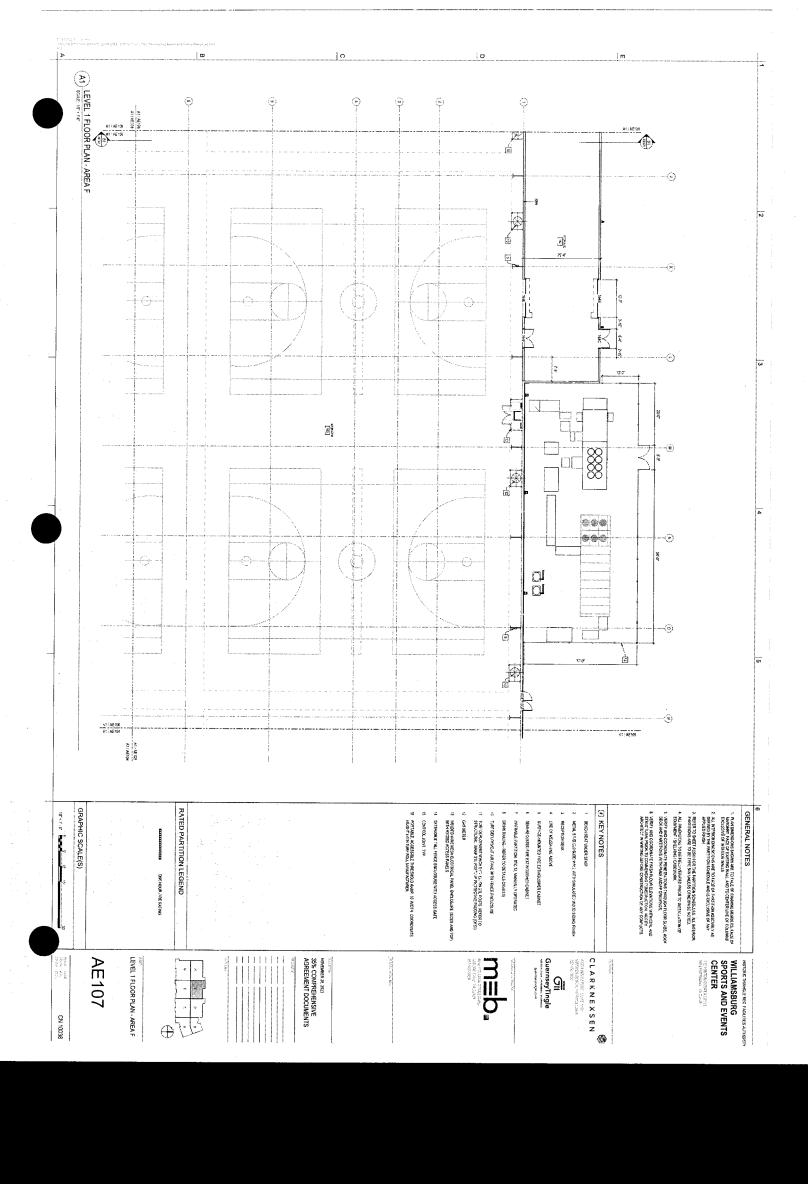
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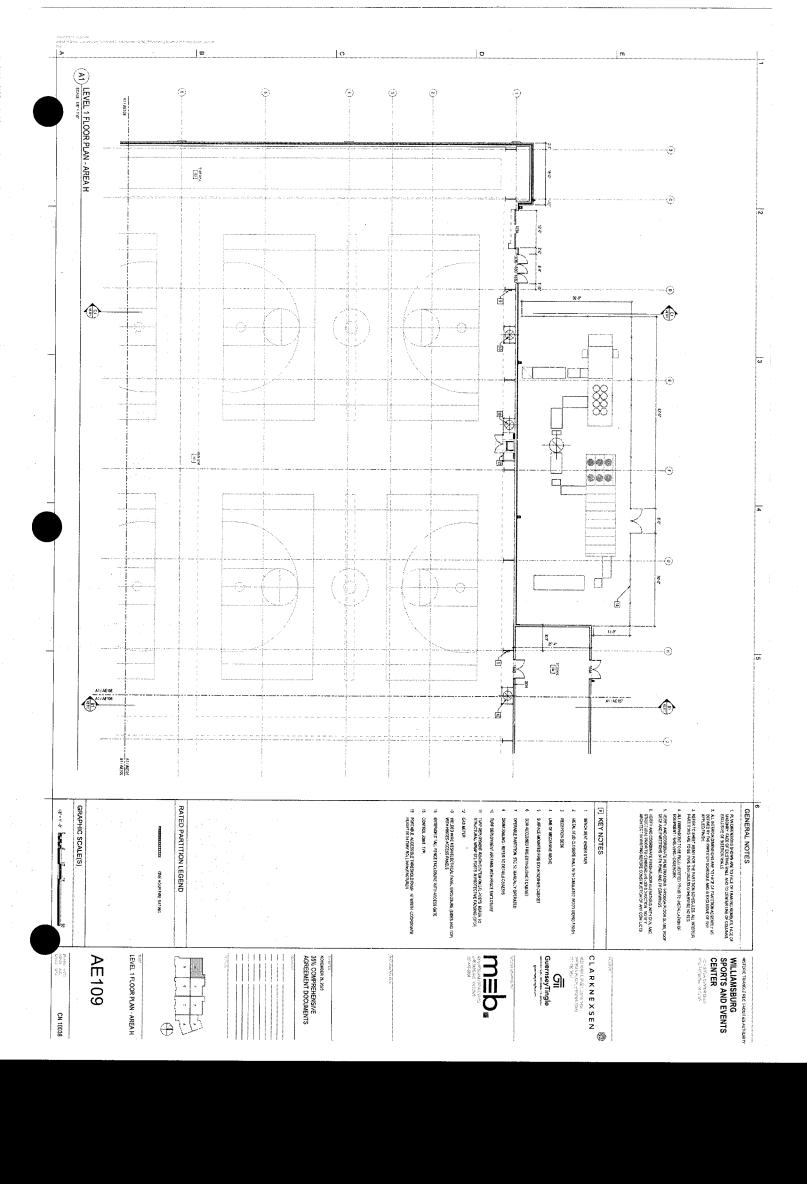
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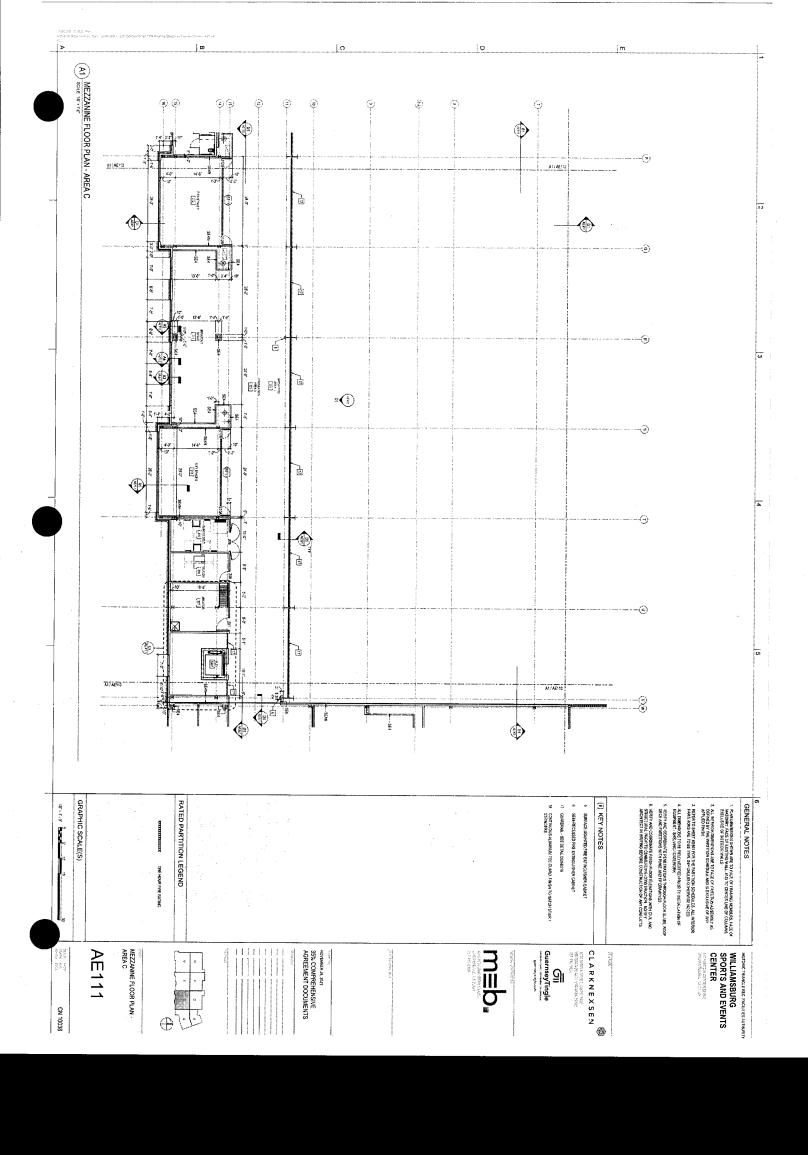


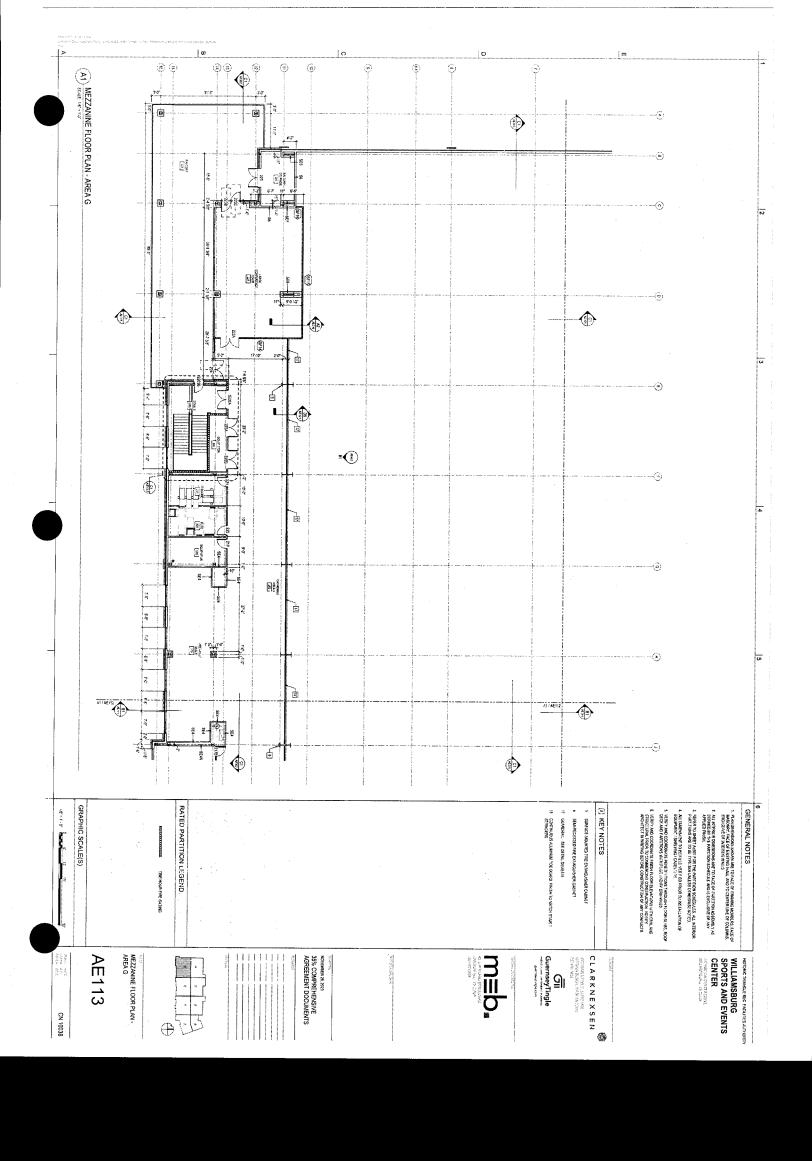


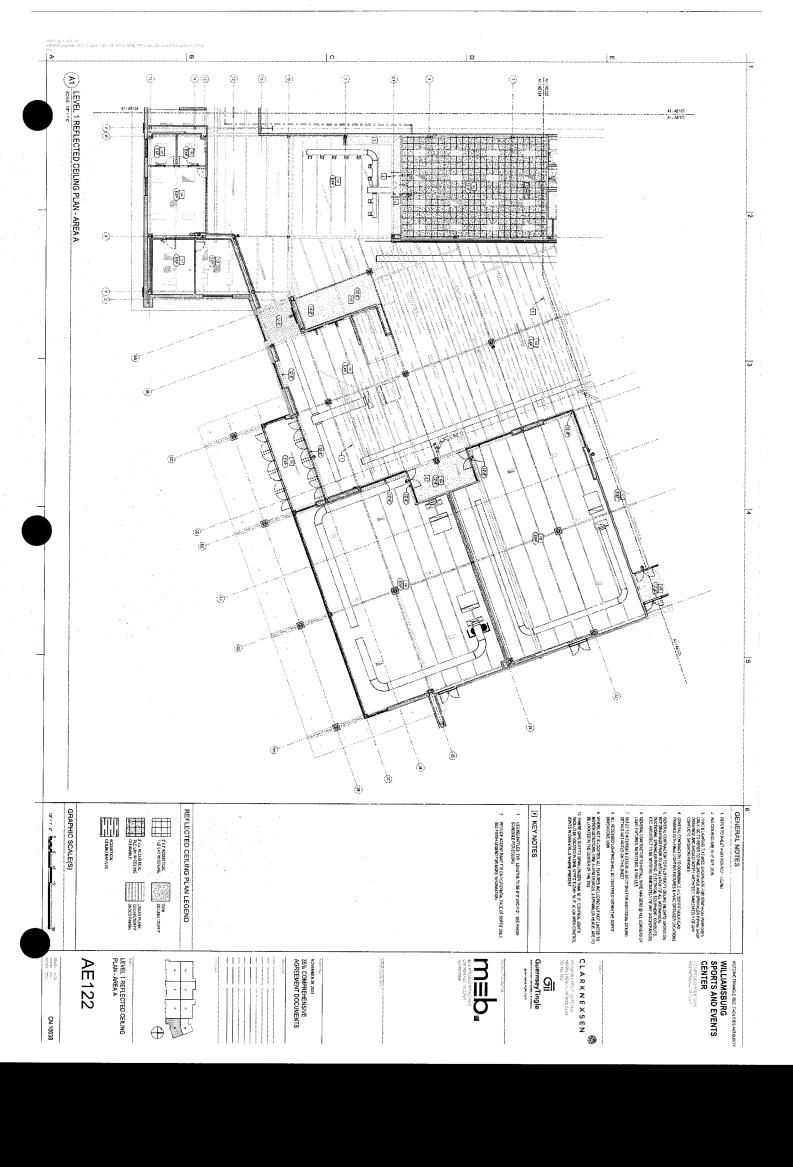


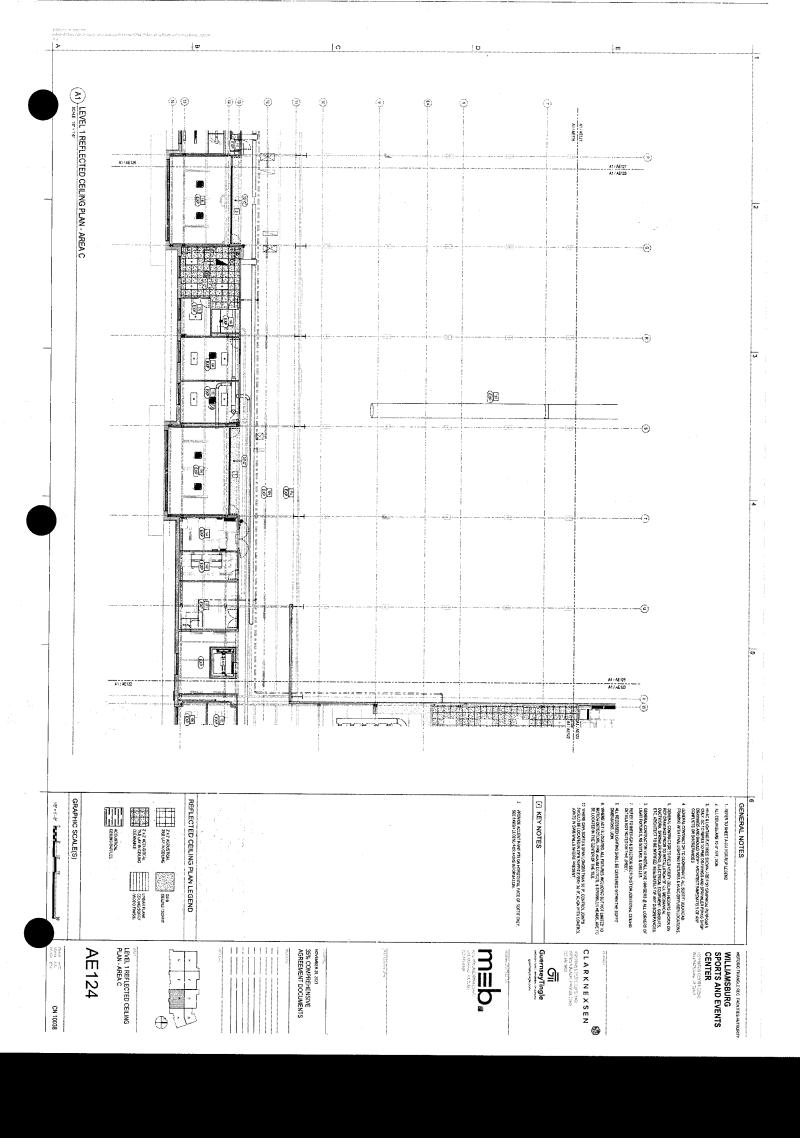


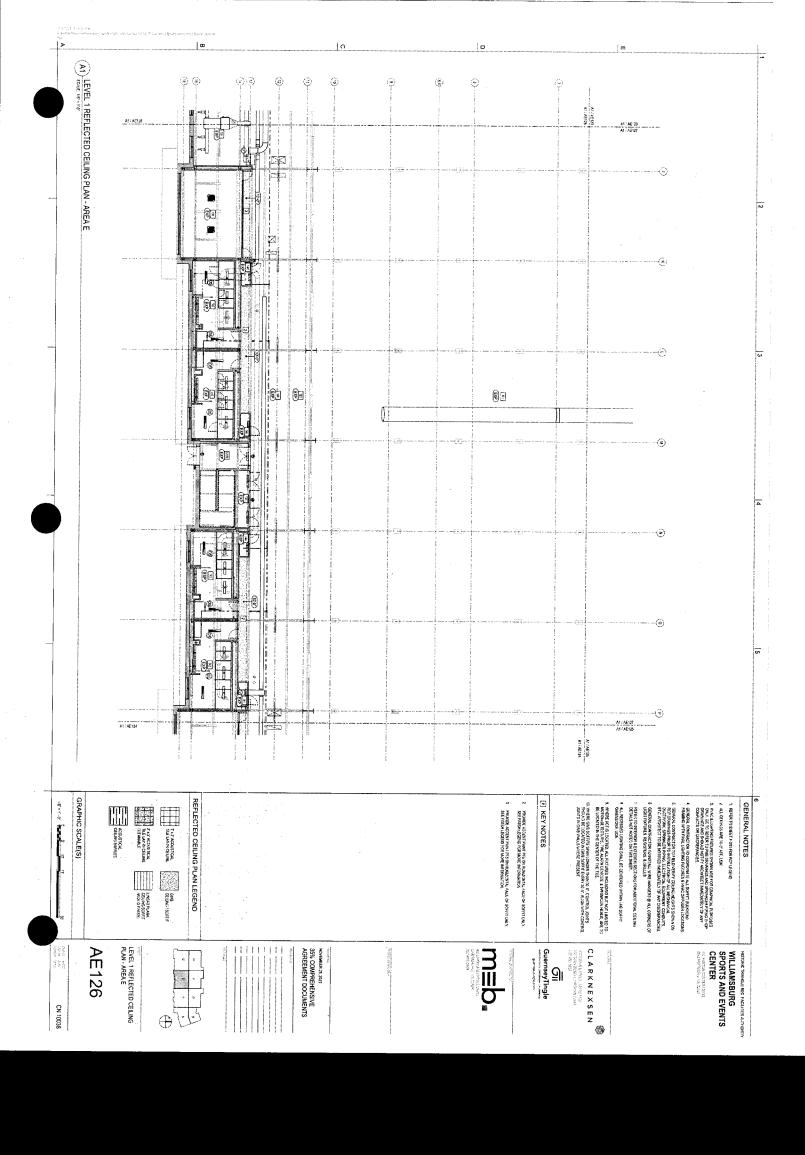


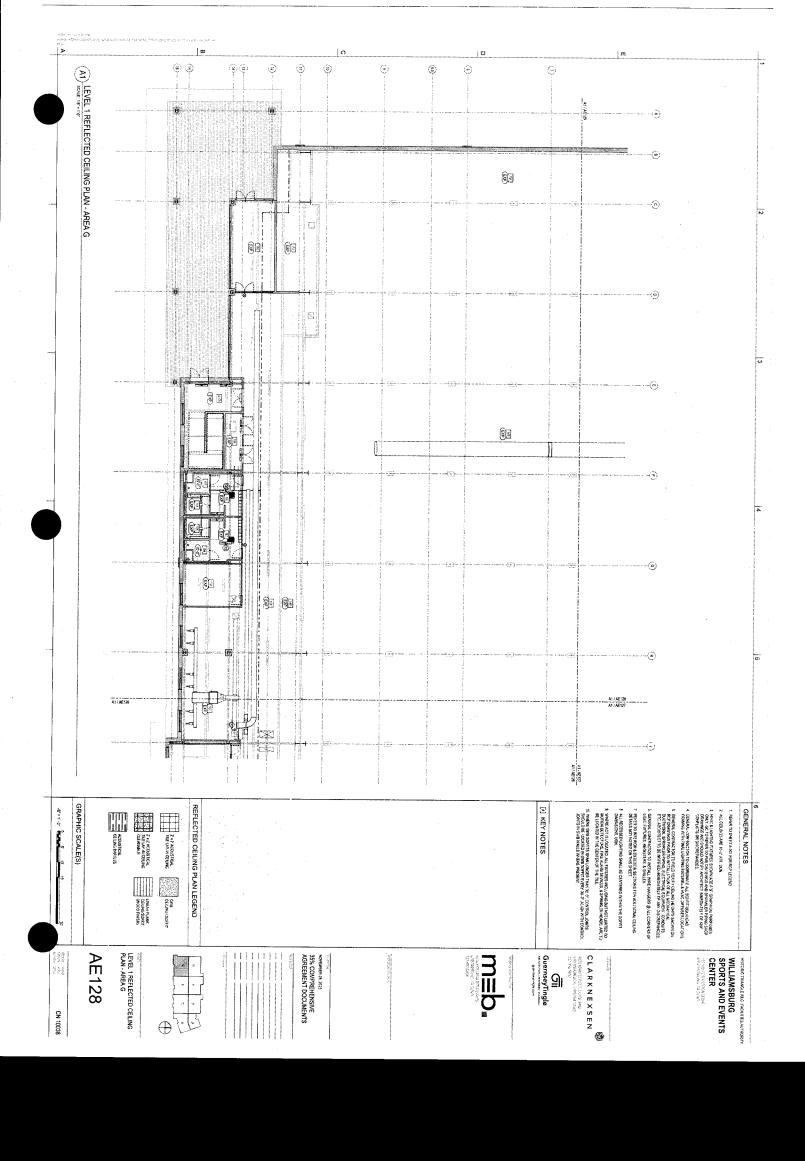


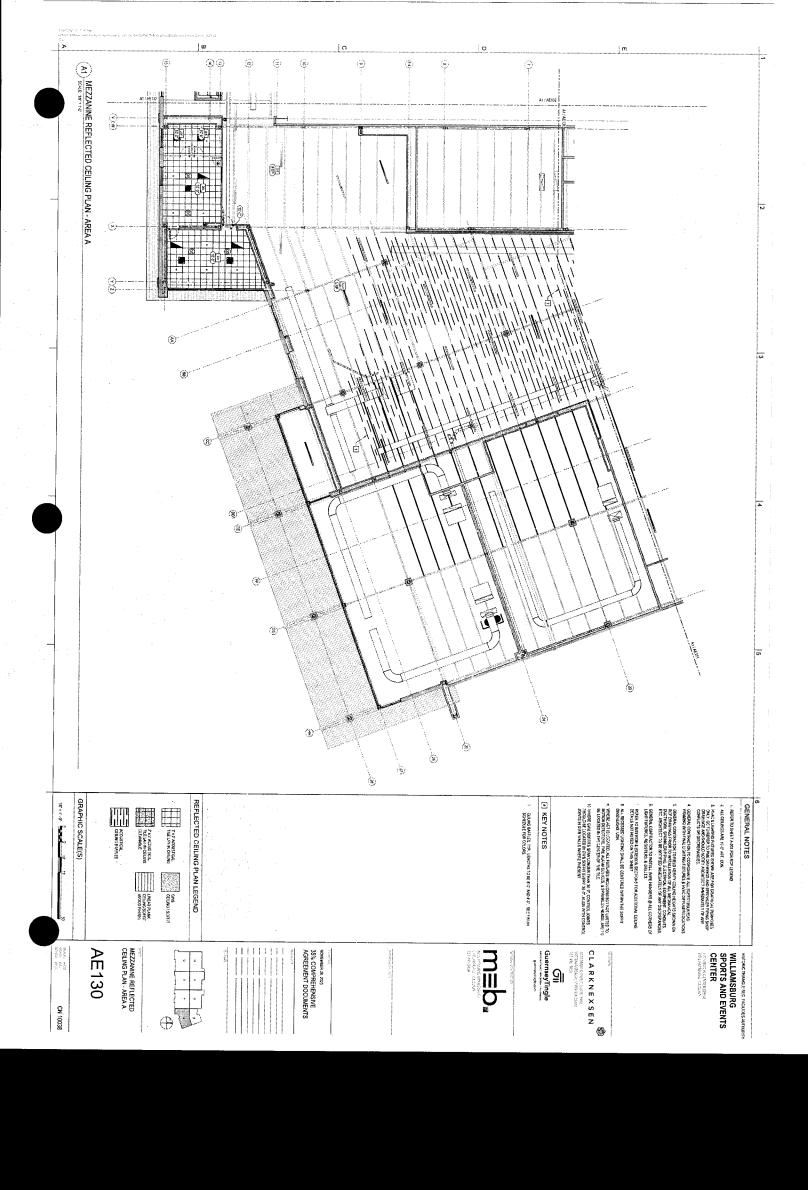


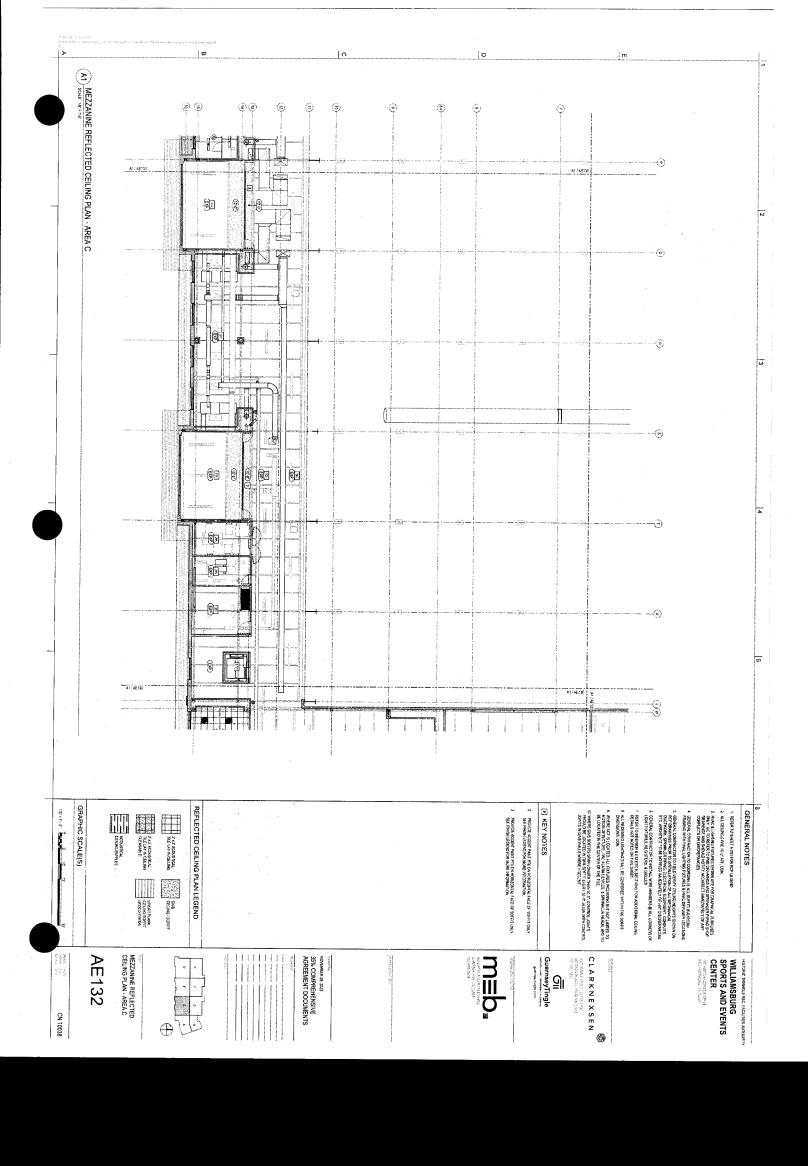


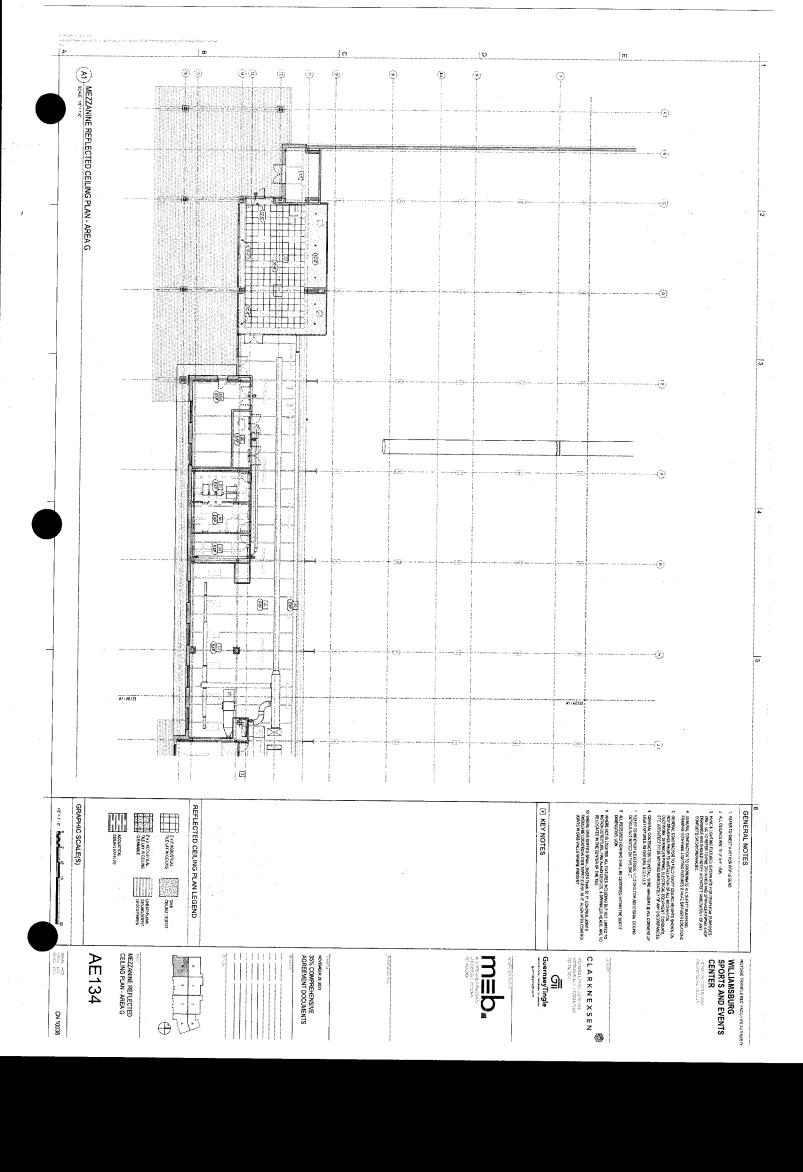


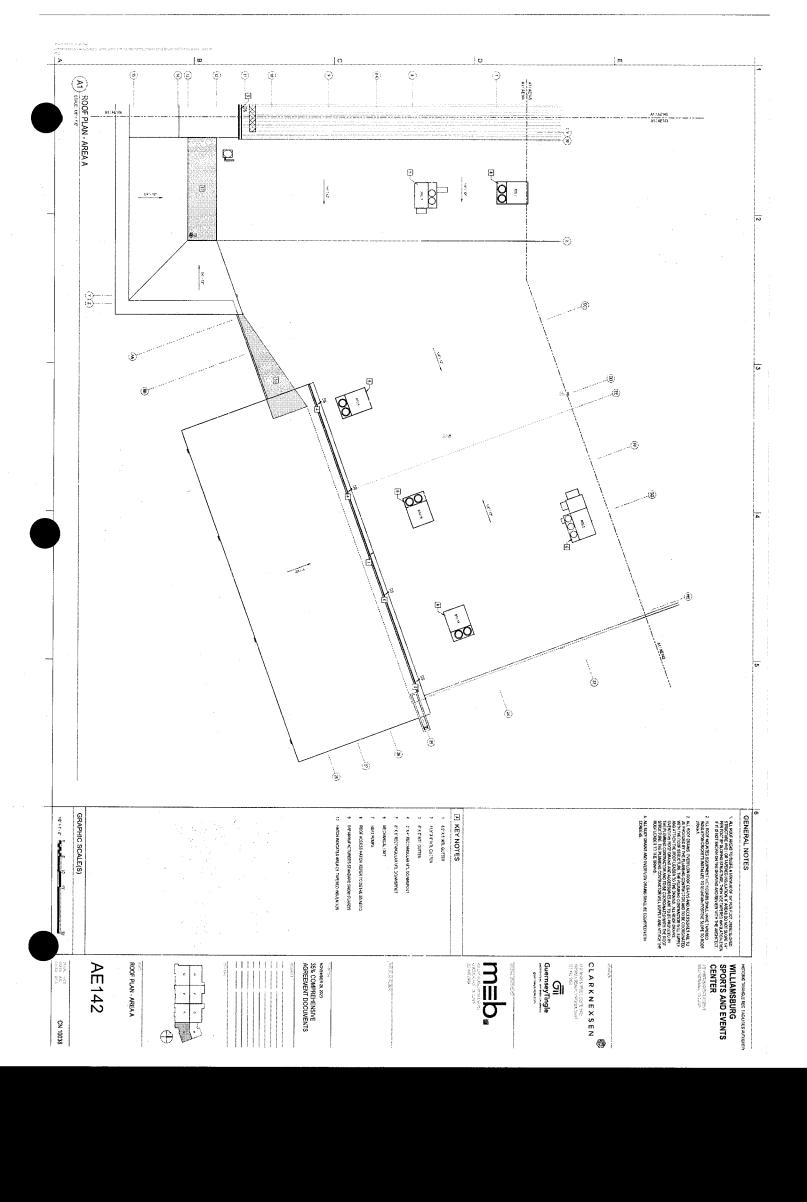


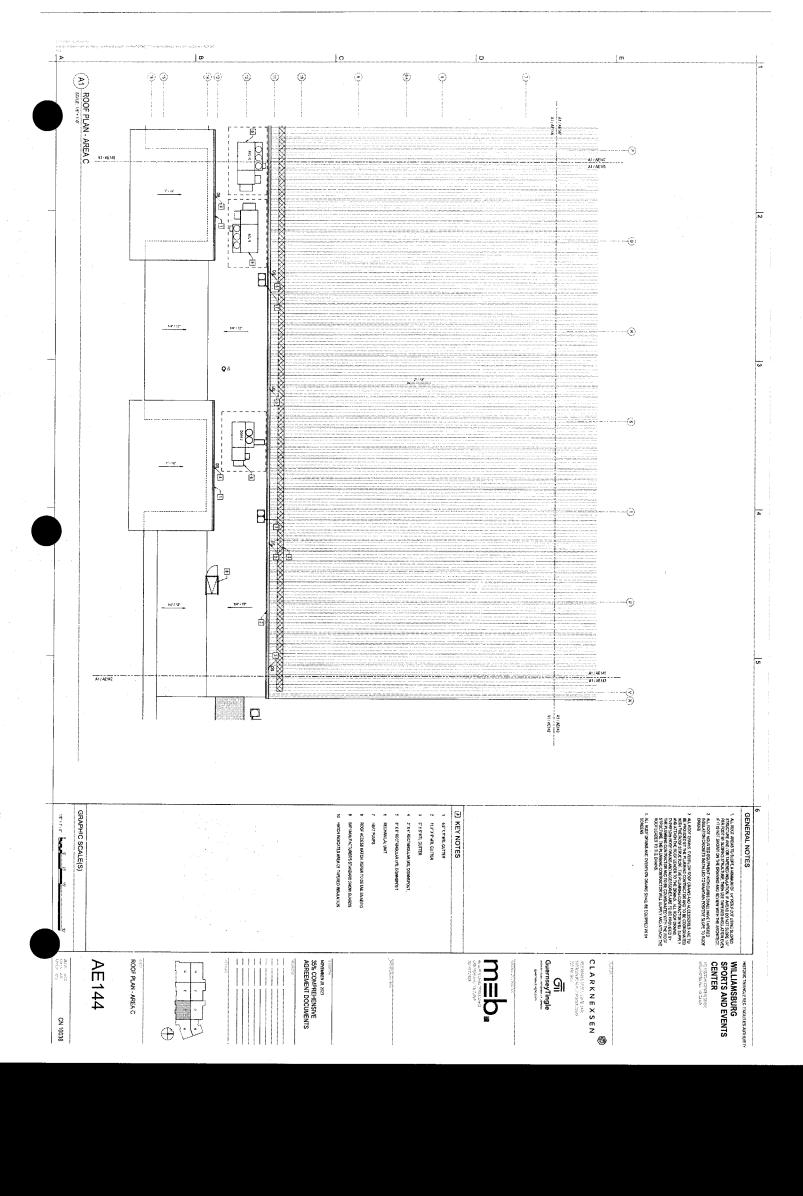


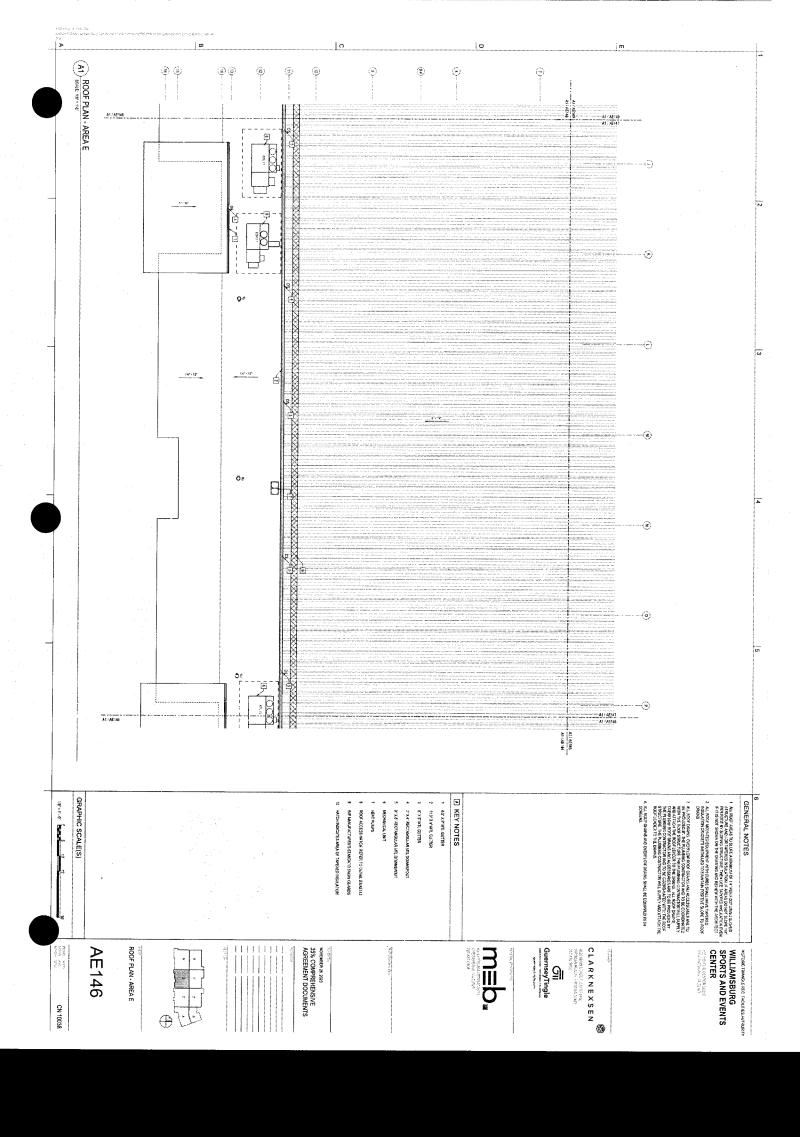


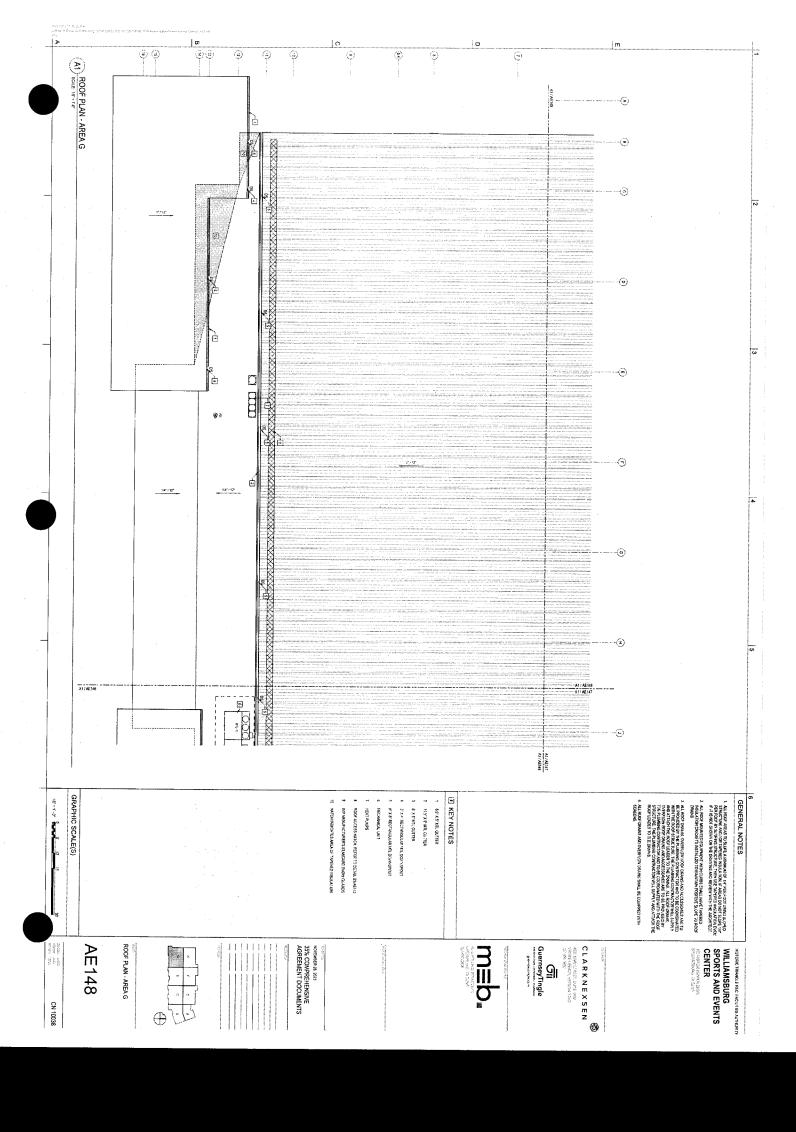


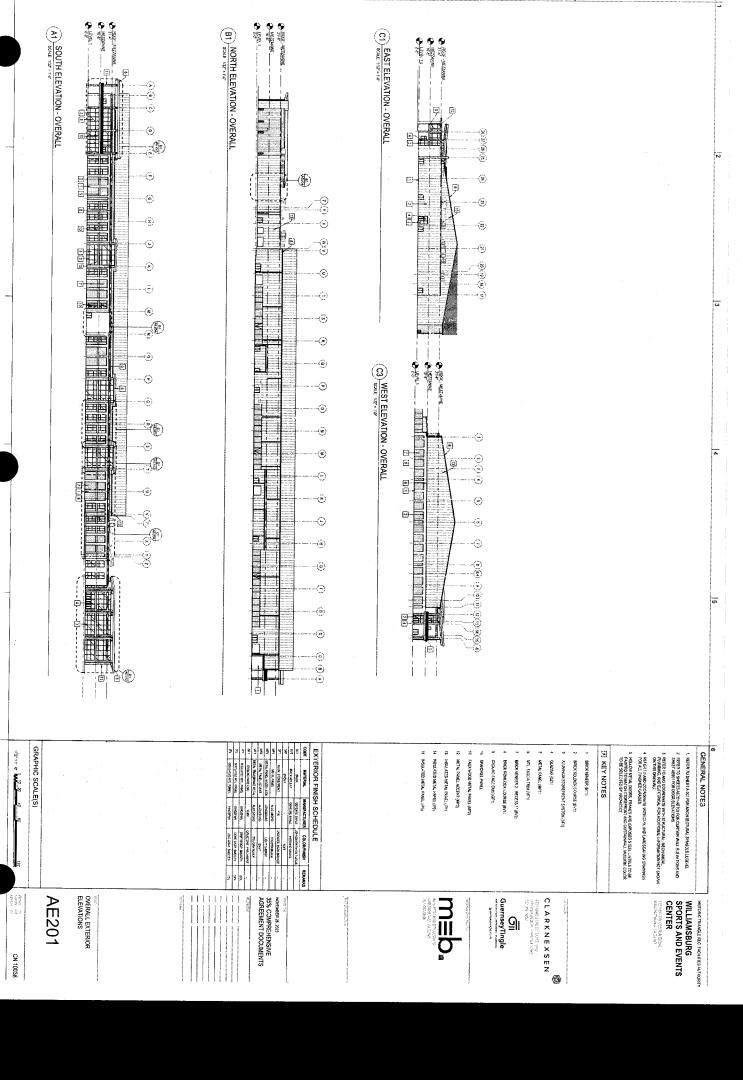


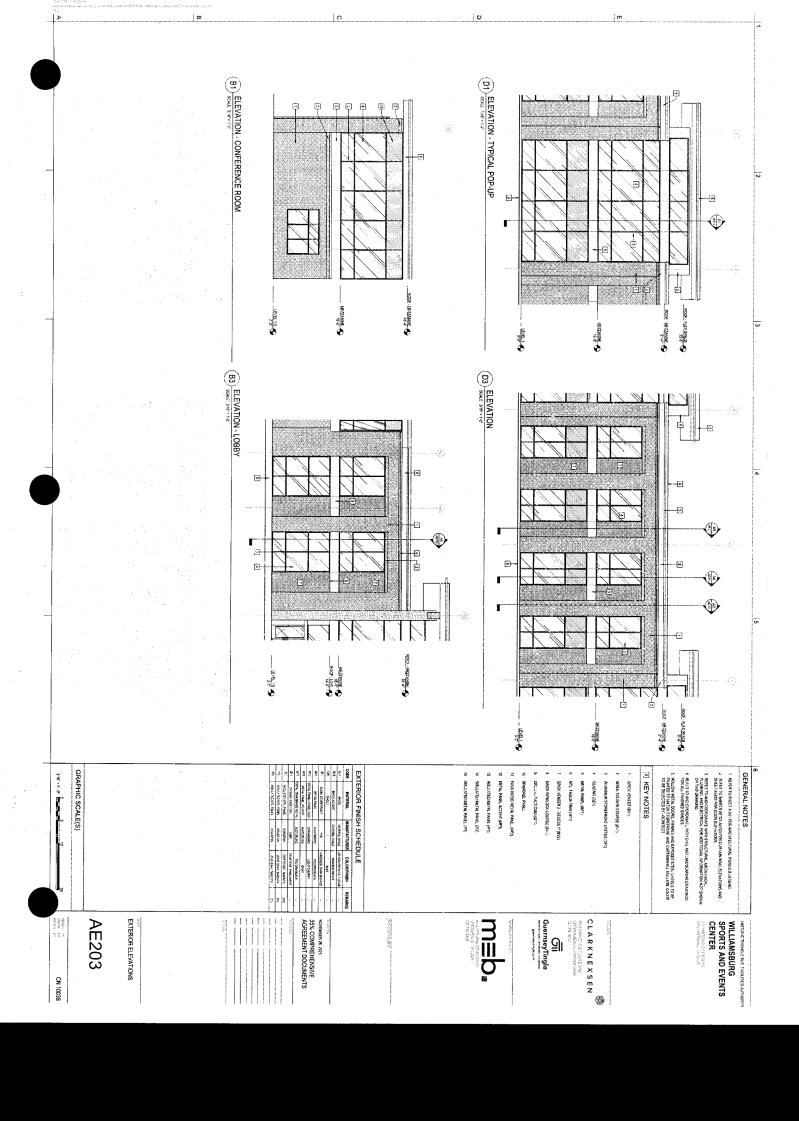


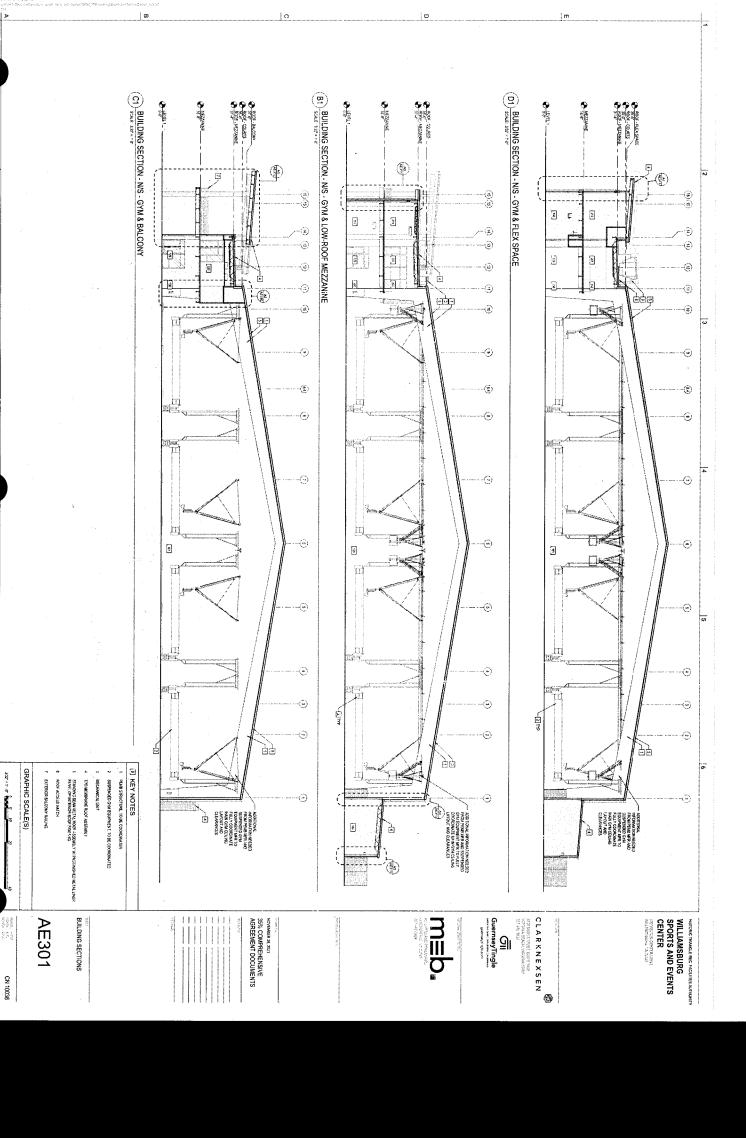


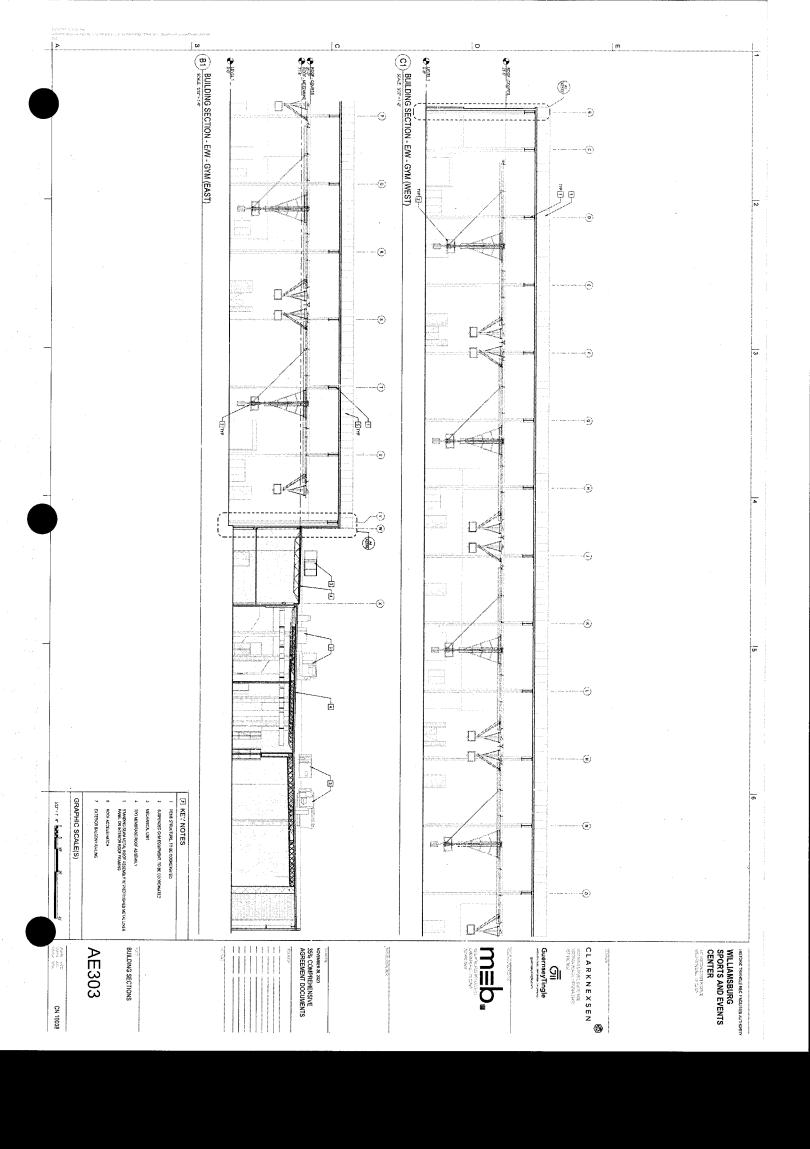


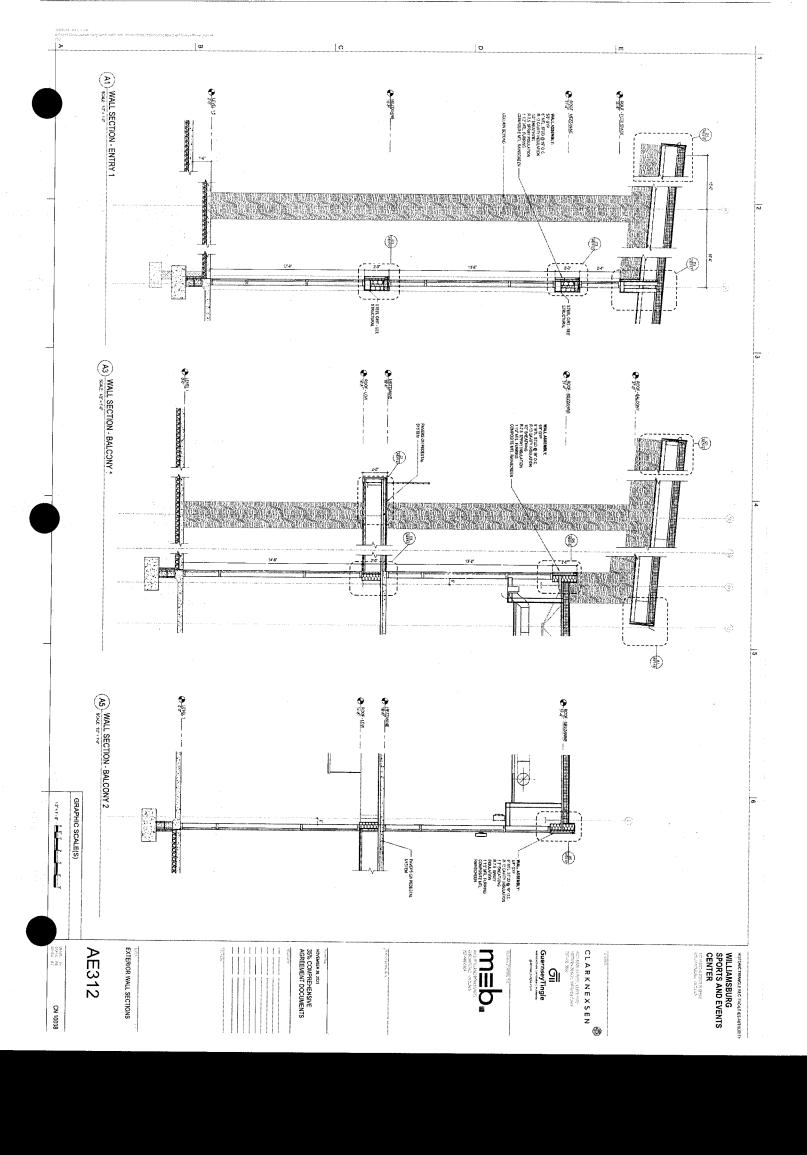


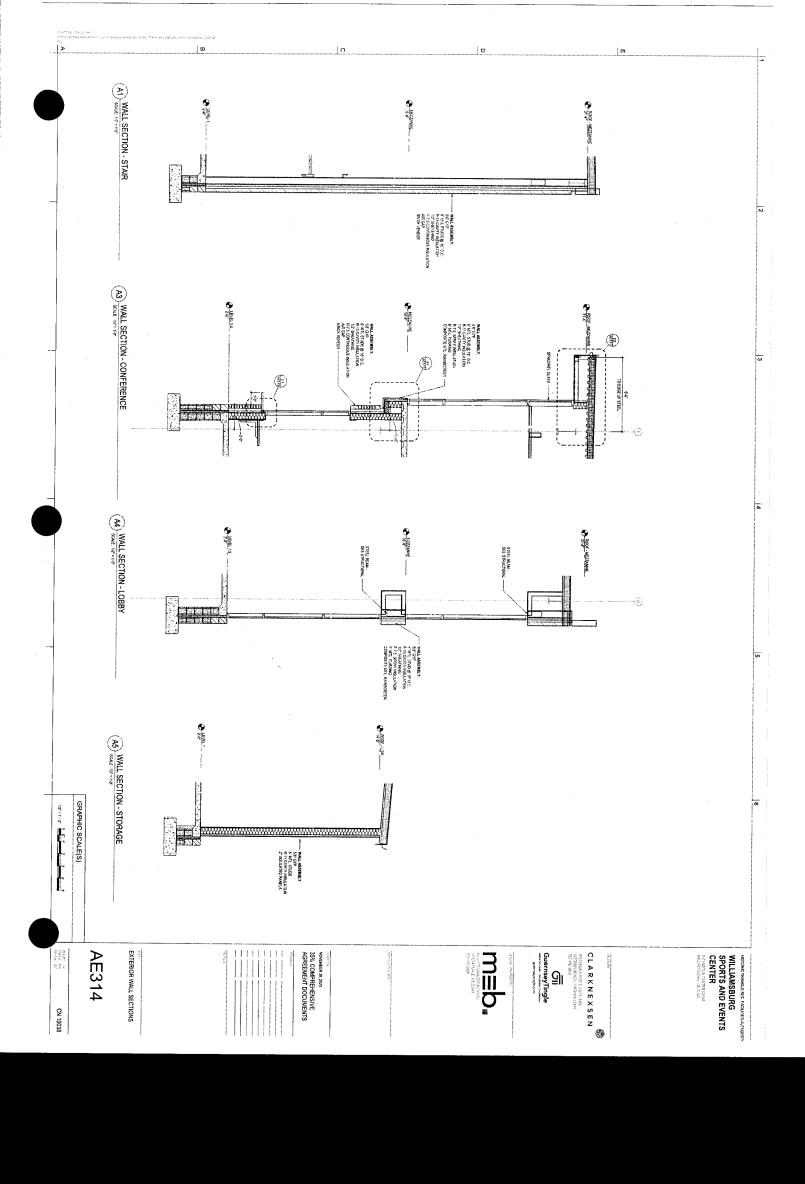


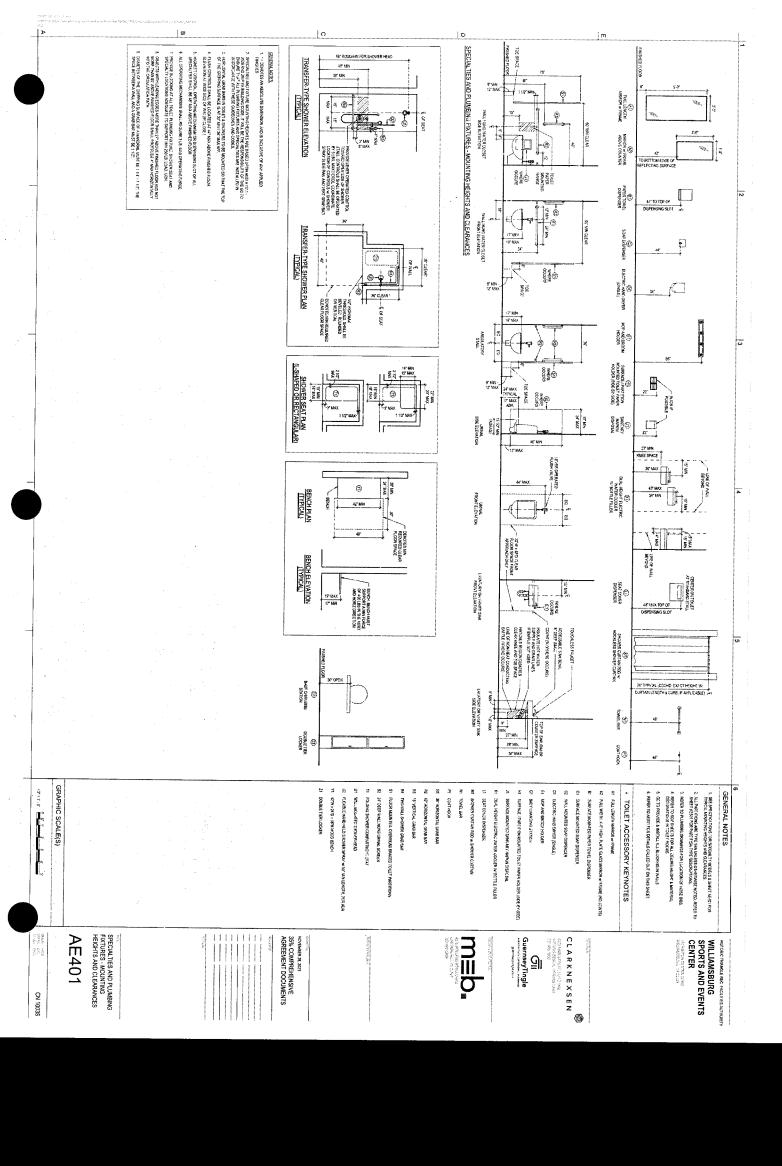


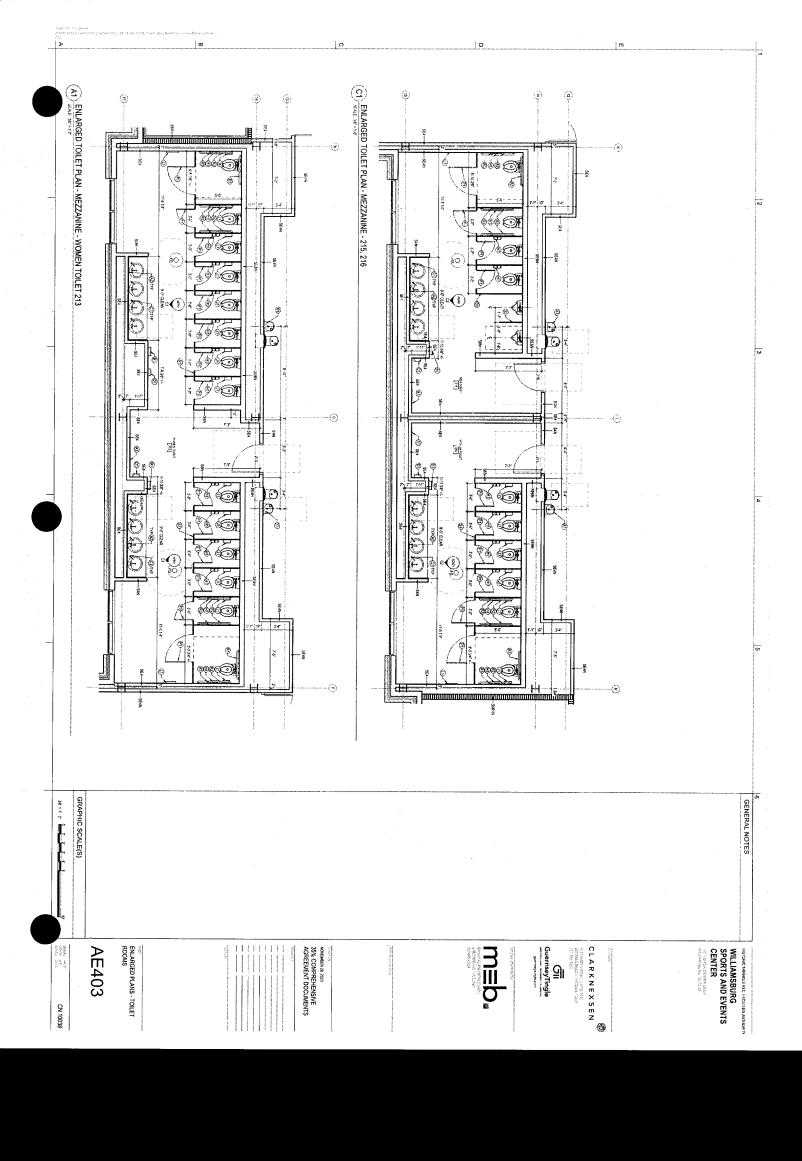


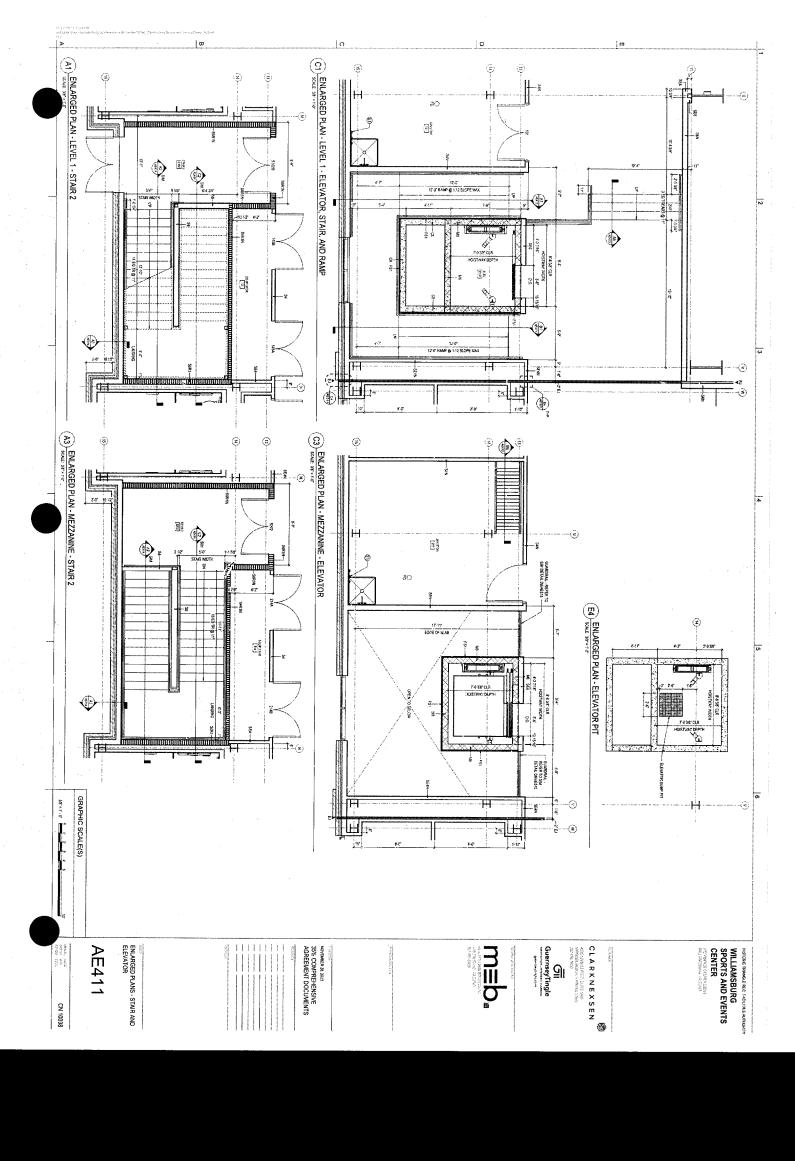


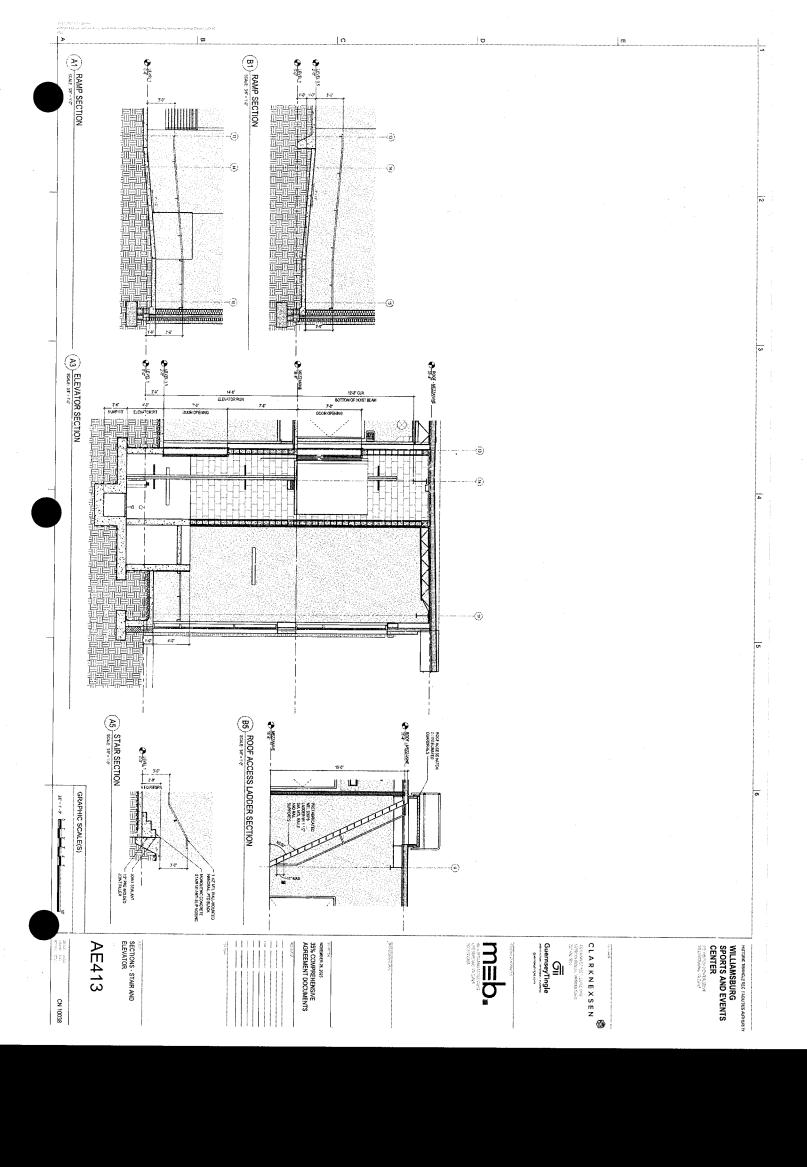


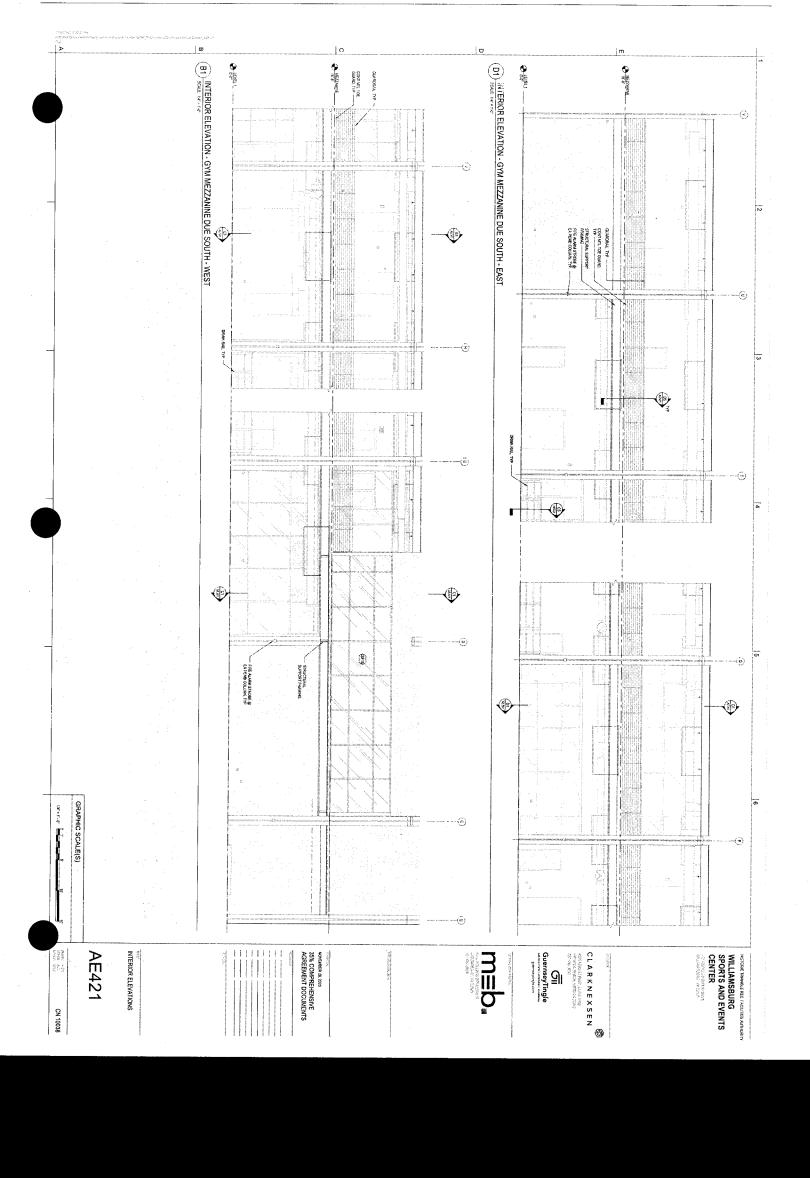


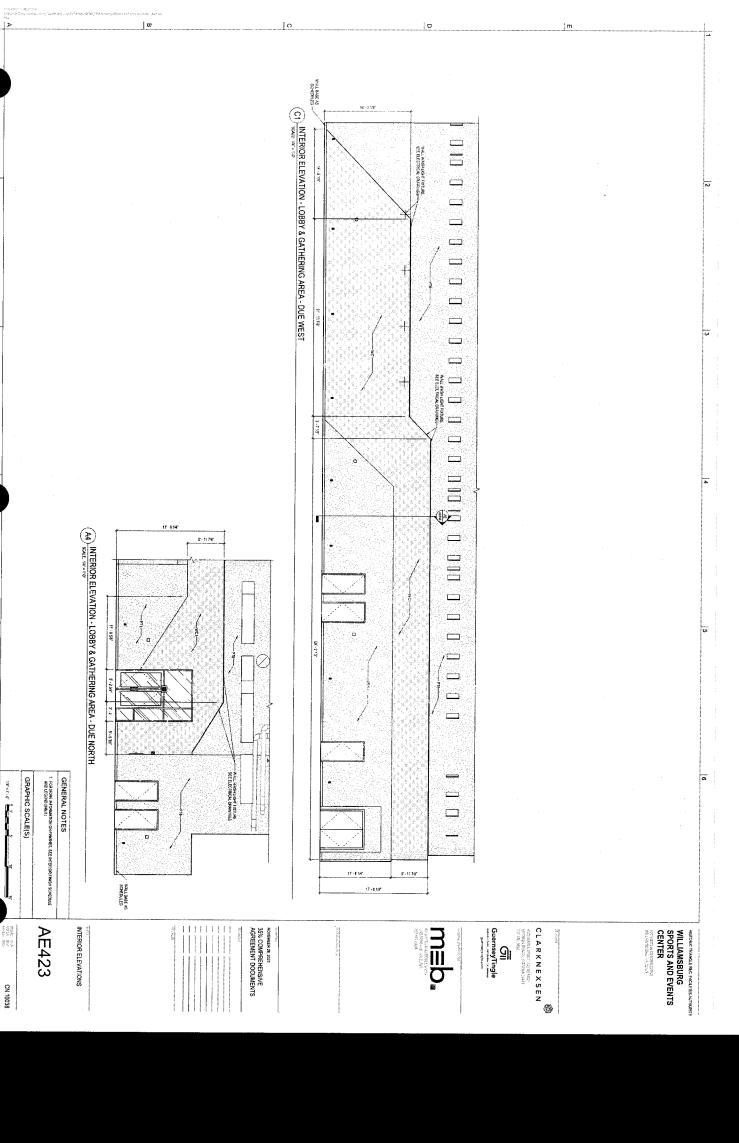


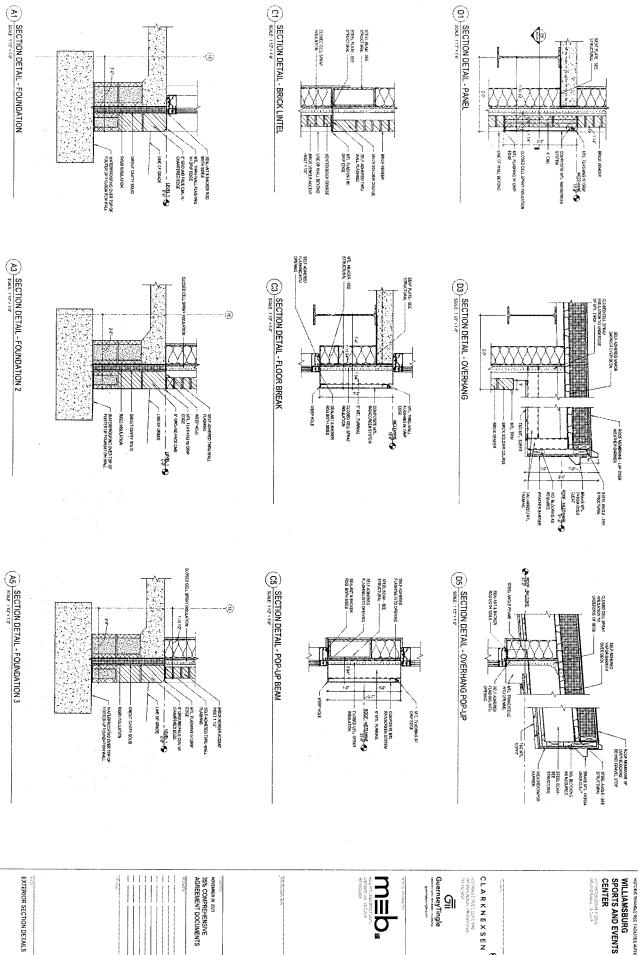












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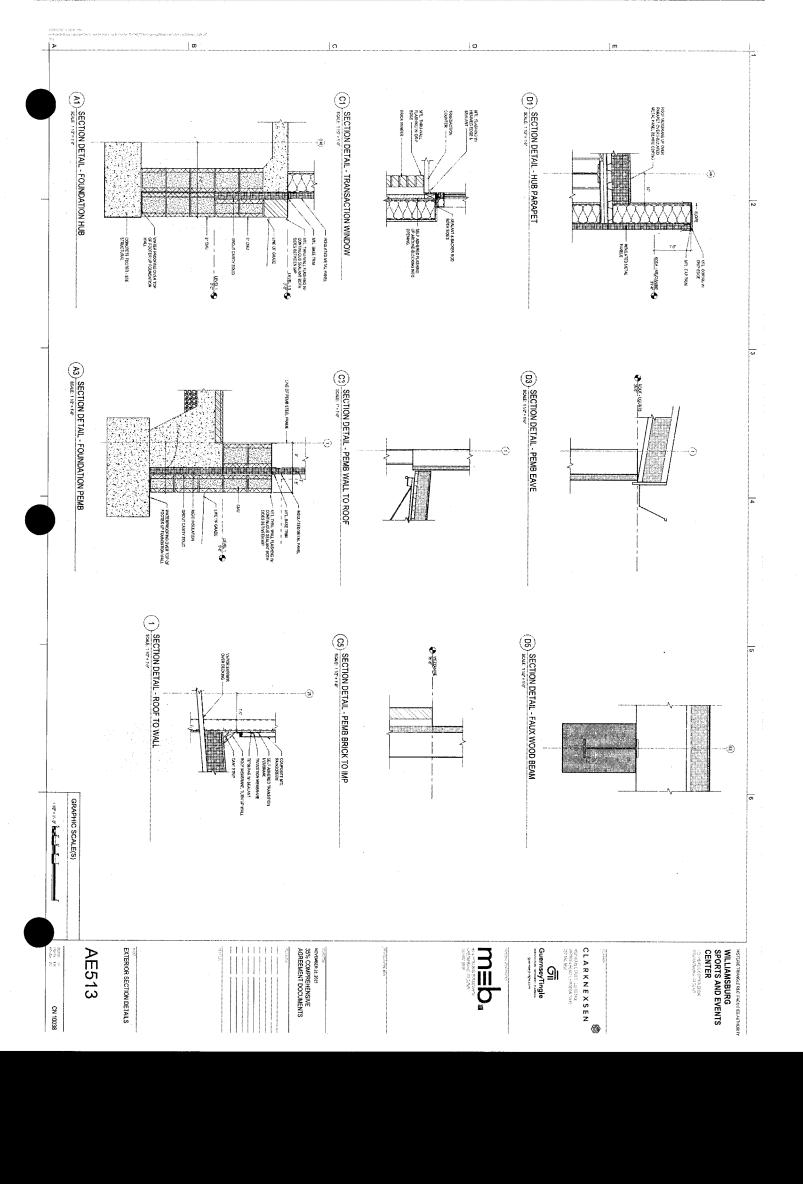
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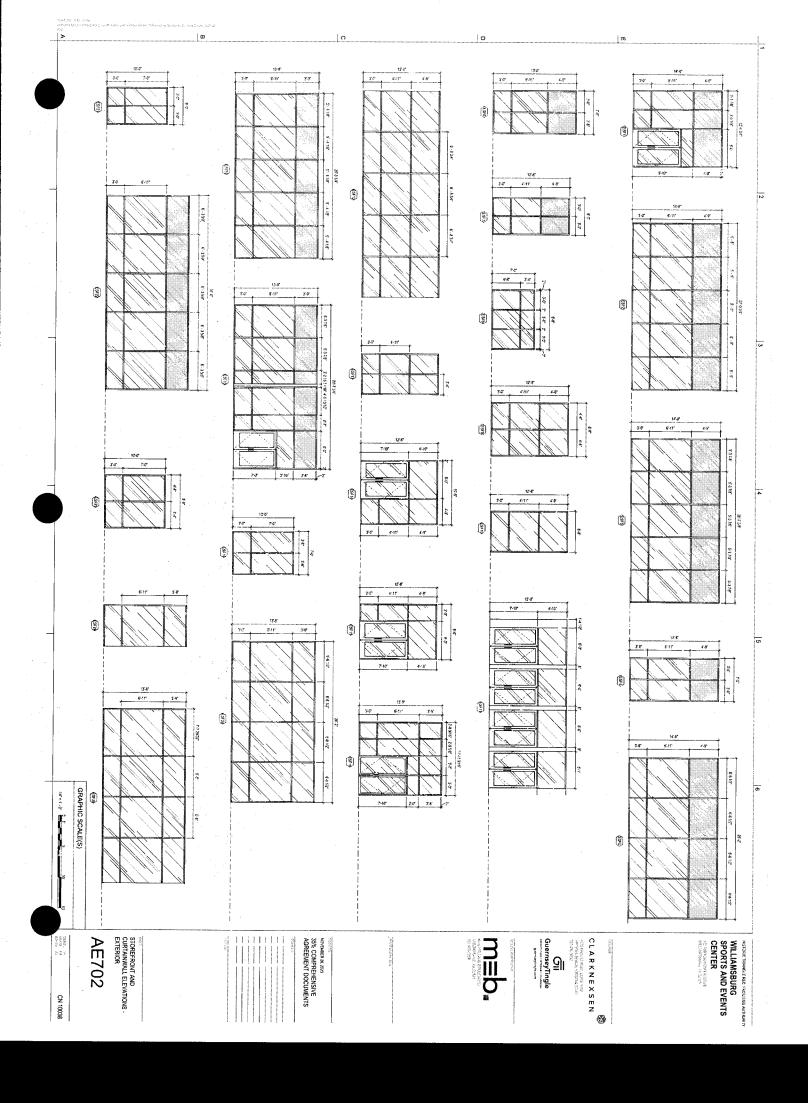
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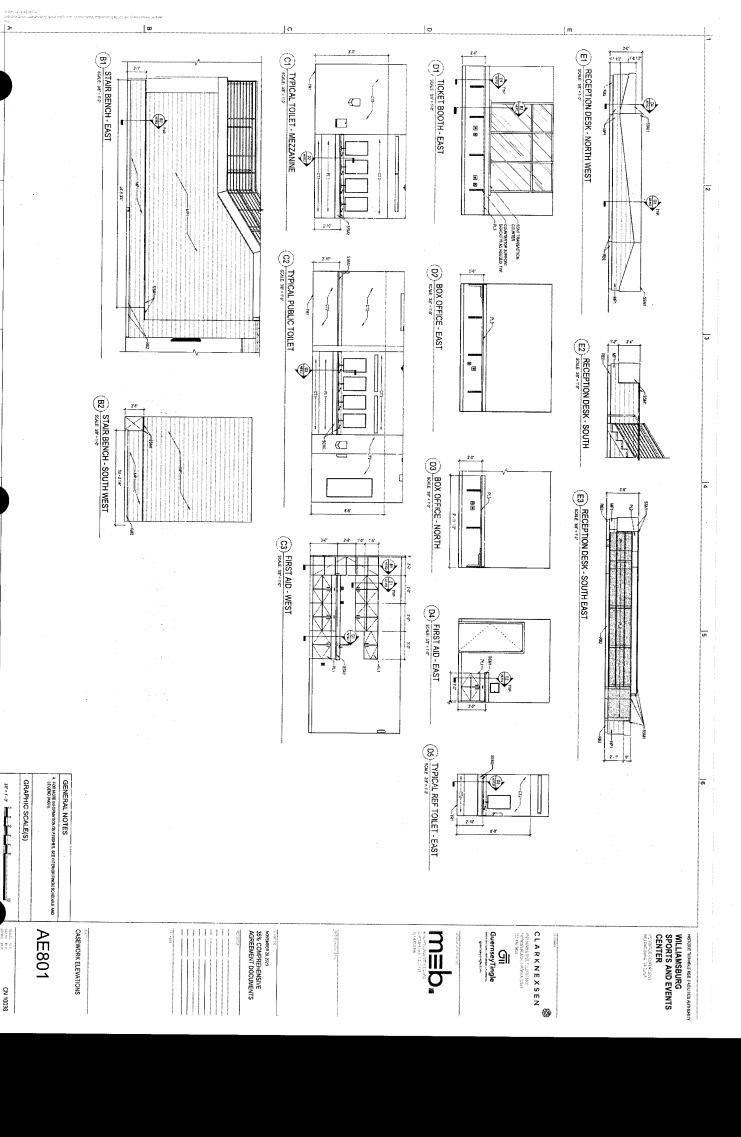
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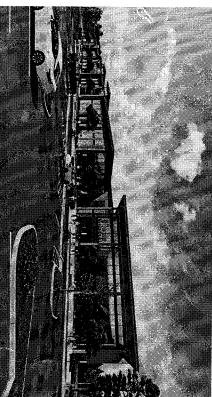
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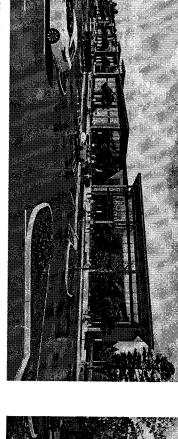
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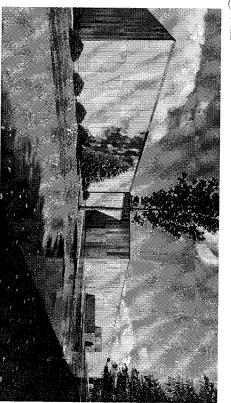




C1) RENDERING VIEW - SE CORNER @ MAIN ENTRANCE

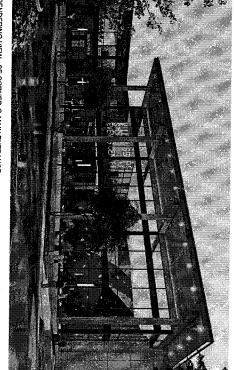


C4) RENDERING VIEW - SE CORNER @ MAIN ENTRANCE



(A4) RENDERING VIEW - NE CORNER @ REAR FACILITIES

A1) RENDERING VIEW - SW CORNER @ BALCONY



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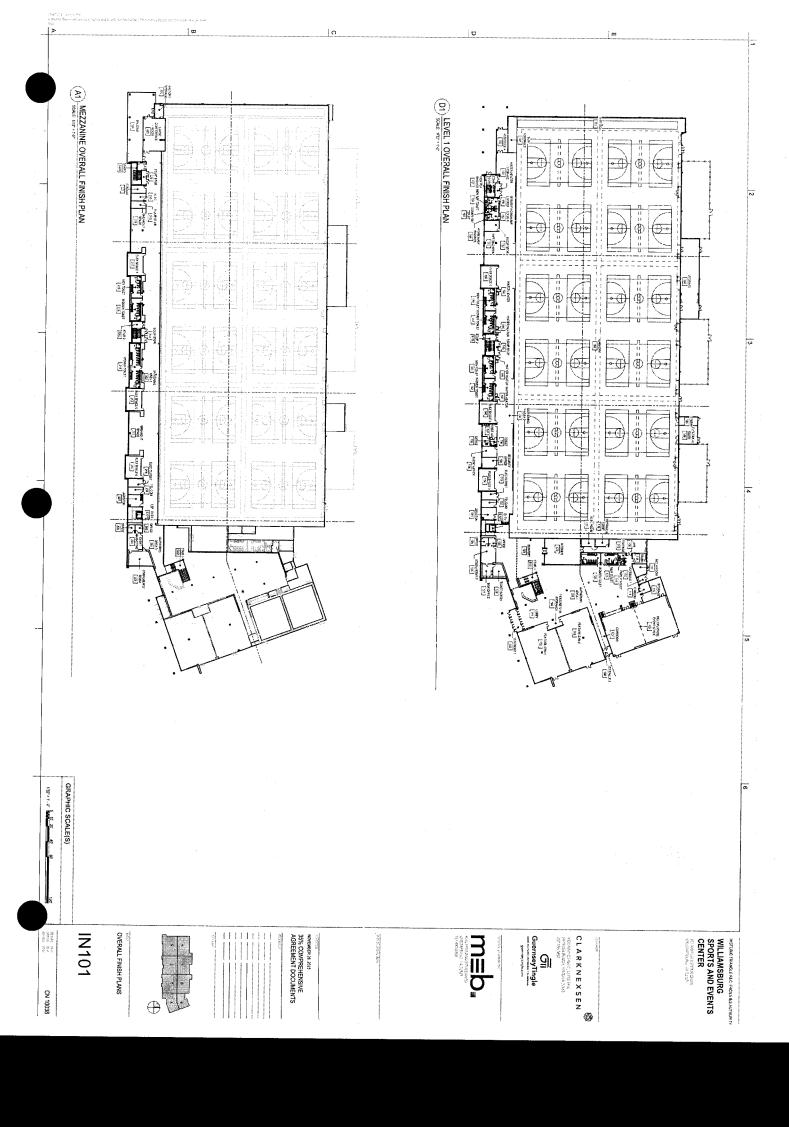
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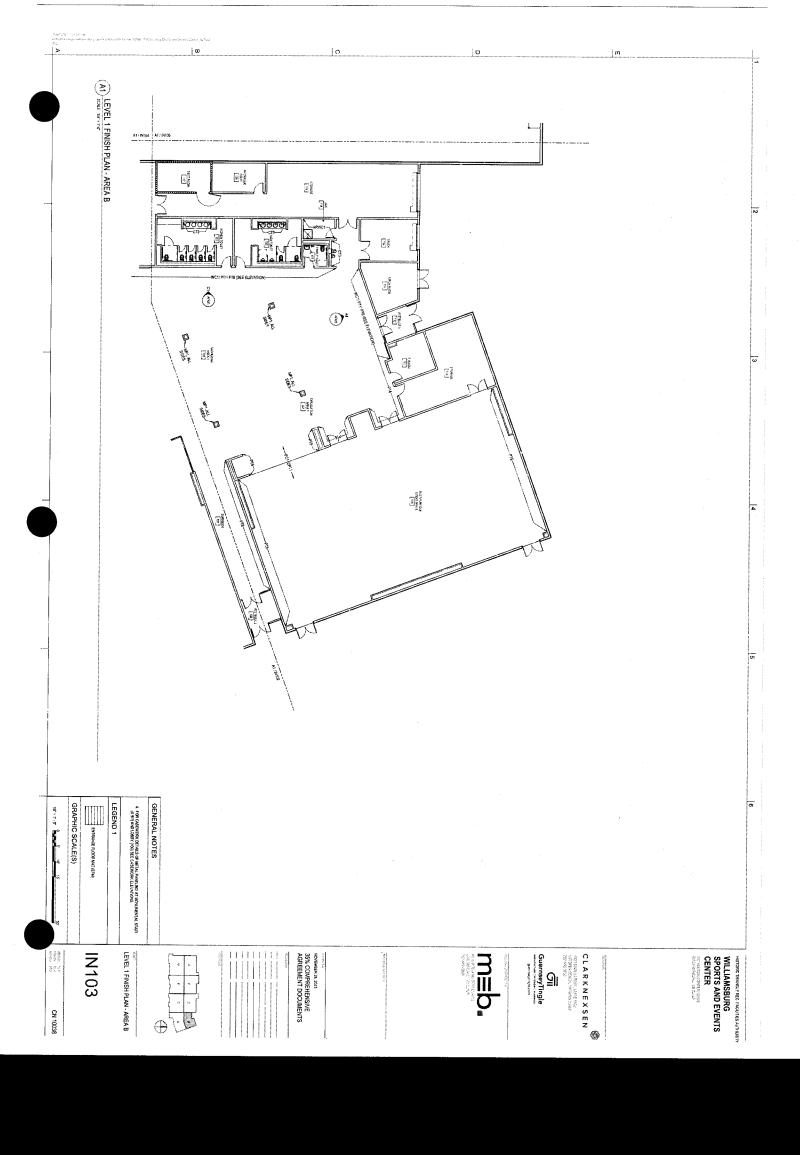
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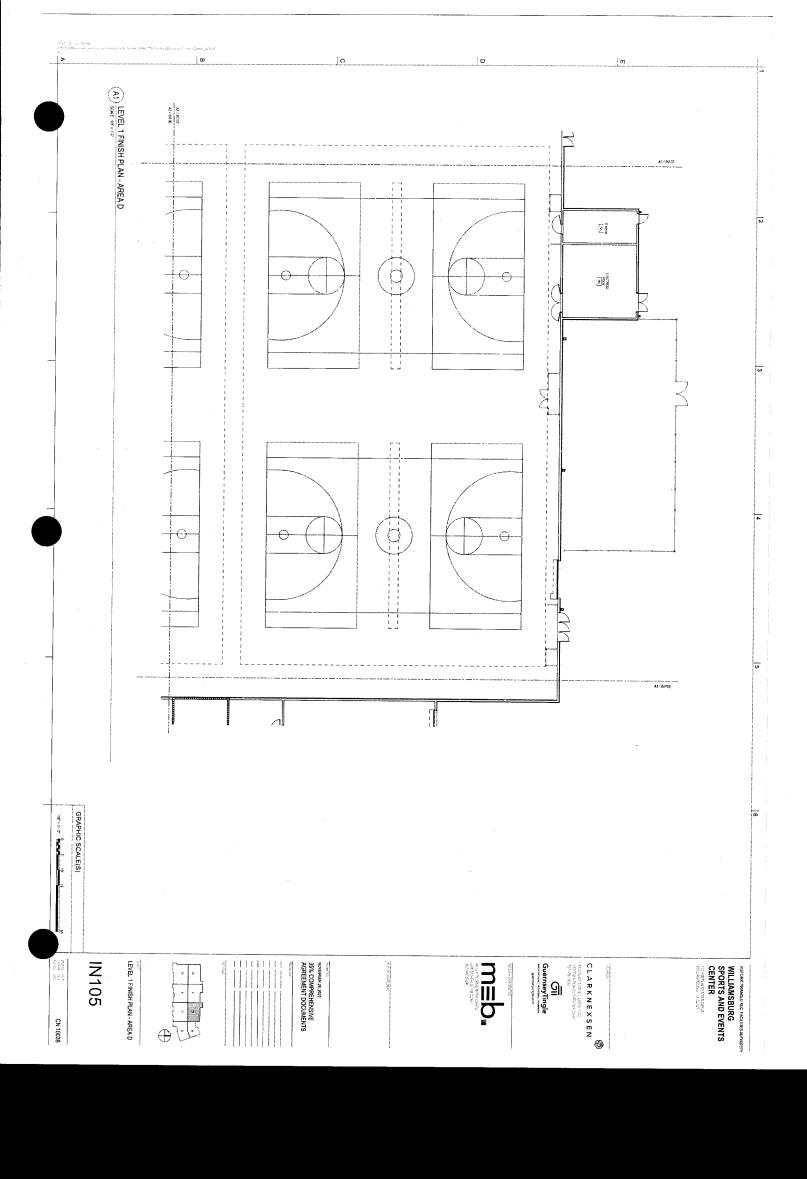
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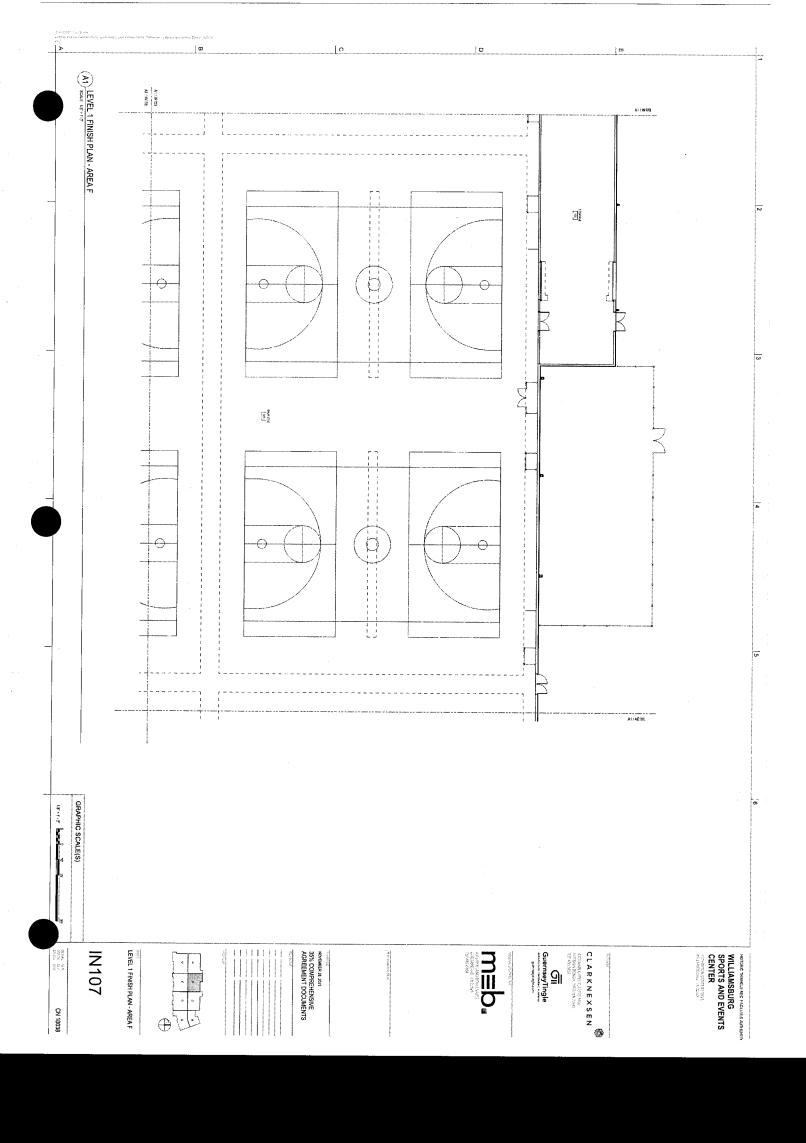
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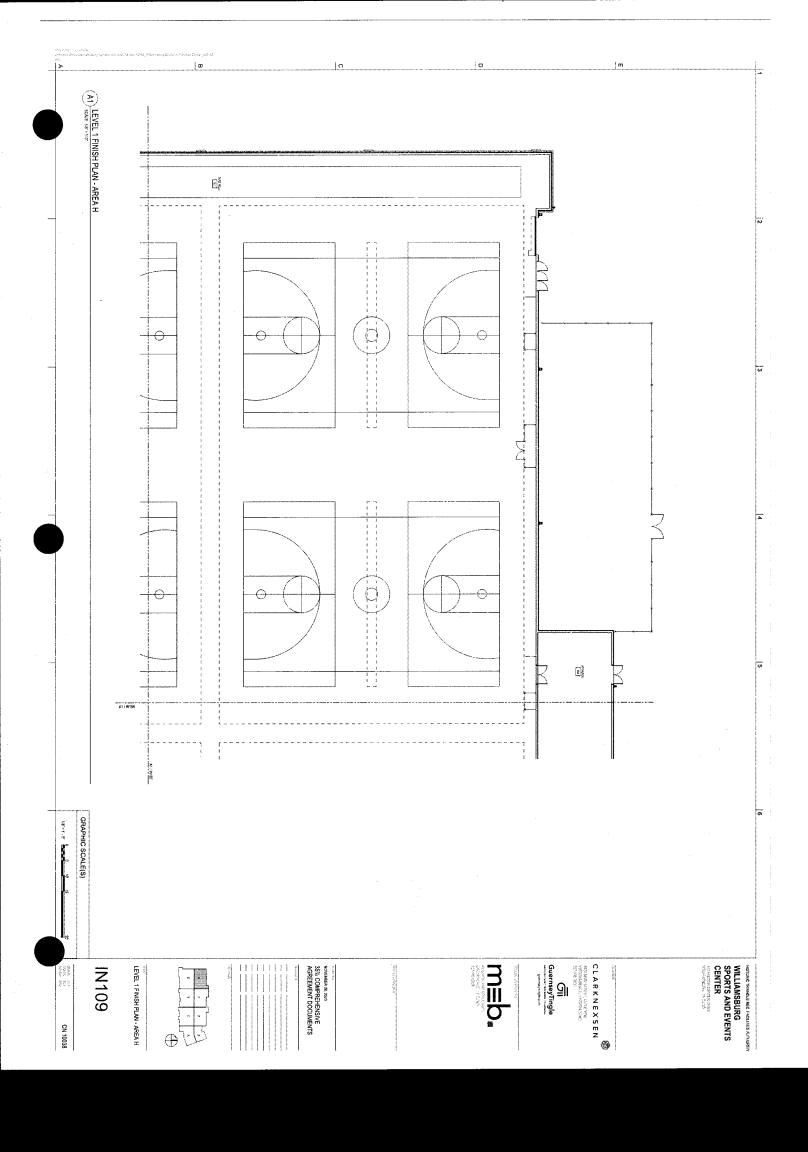
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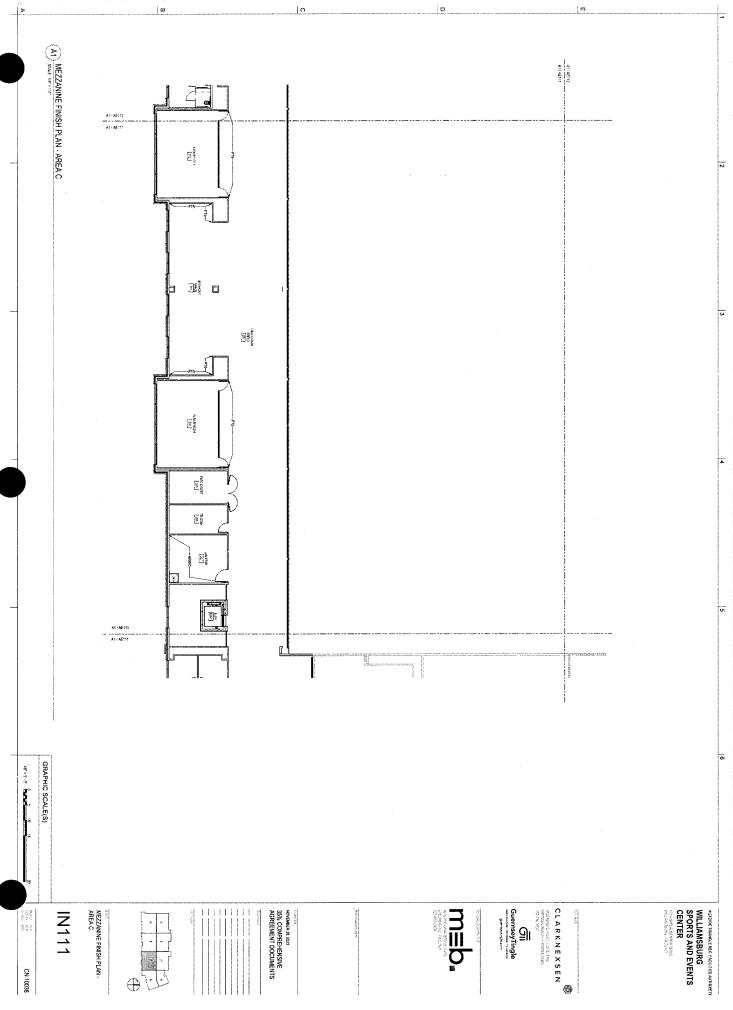


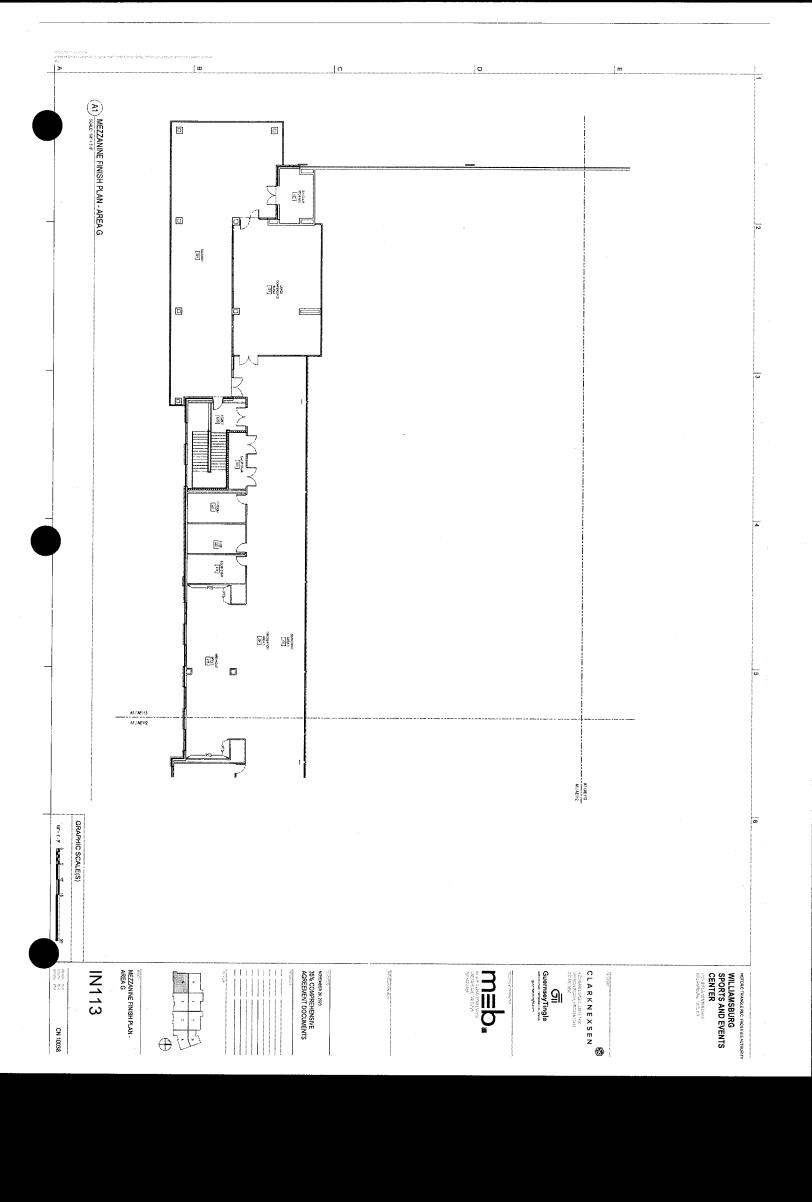


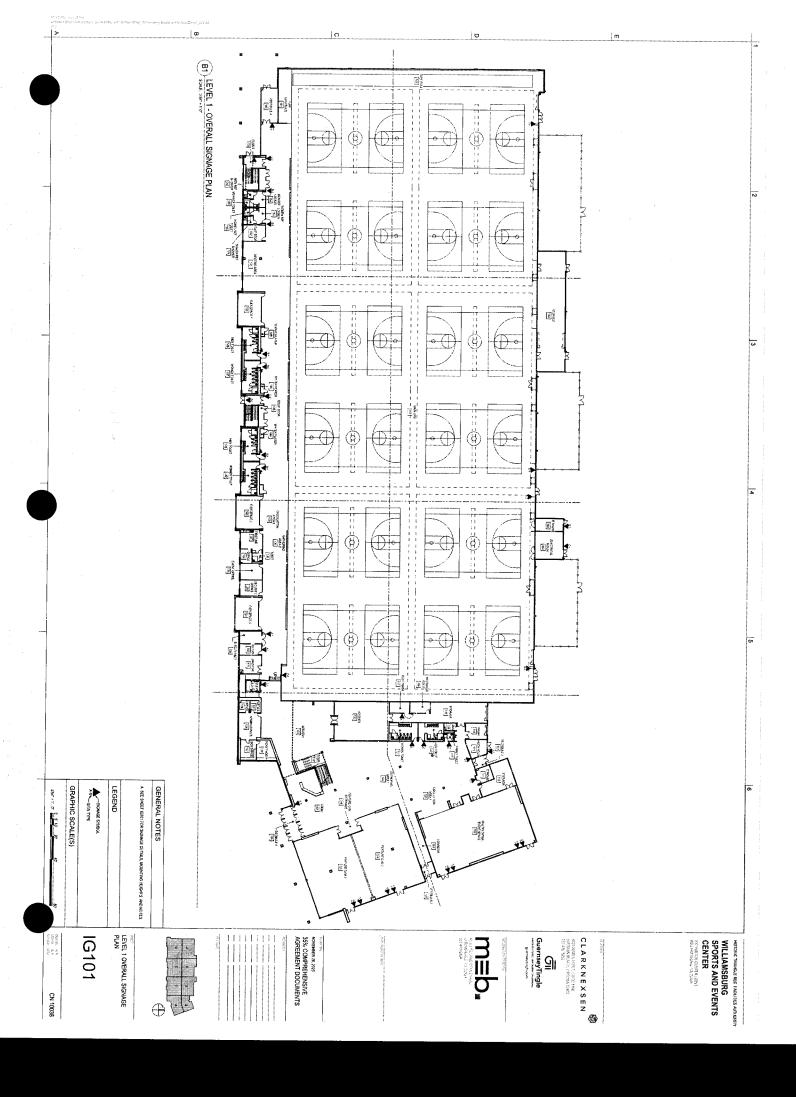


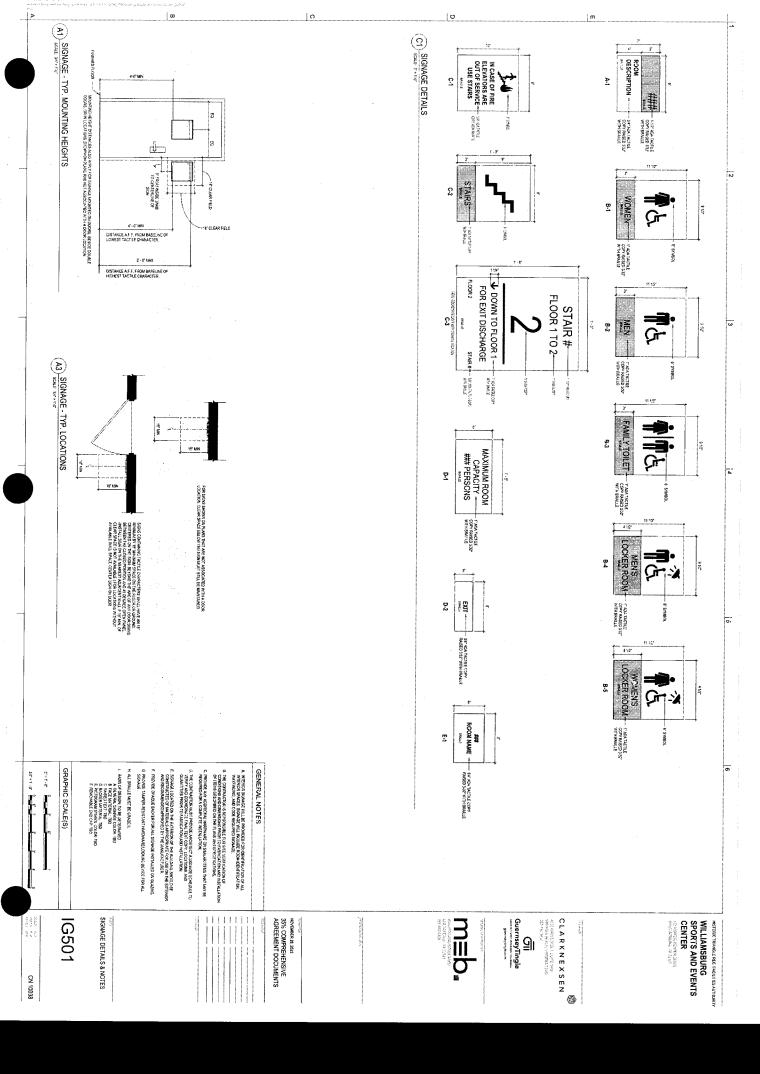


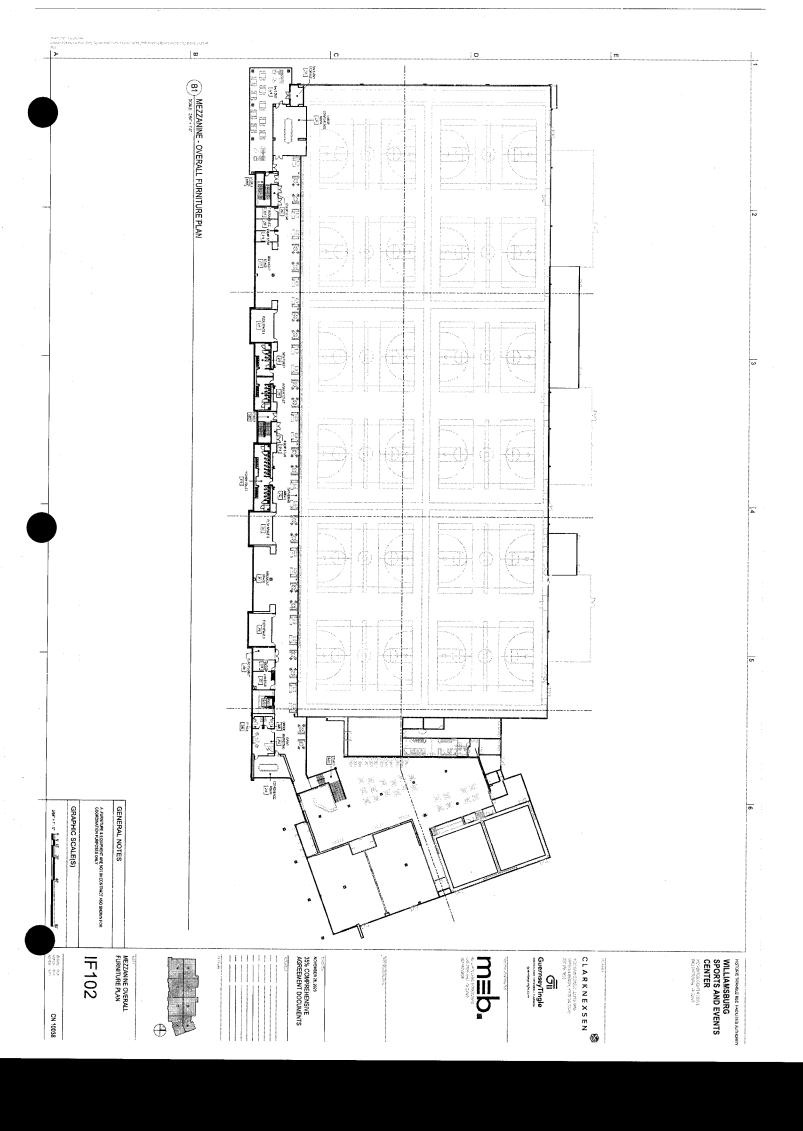


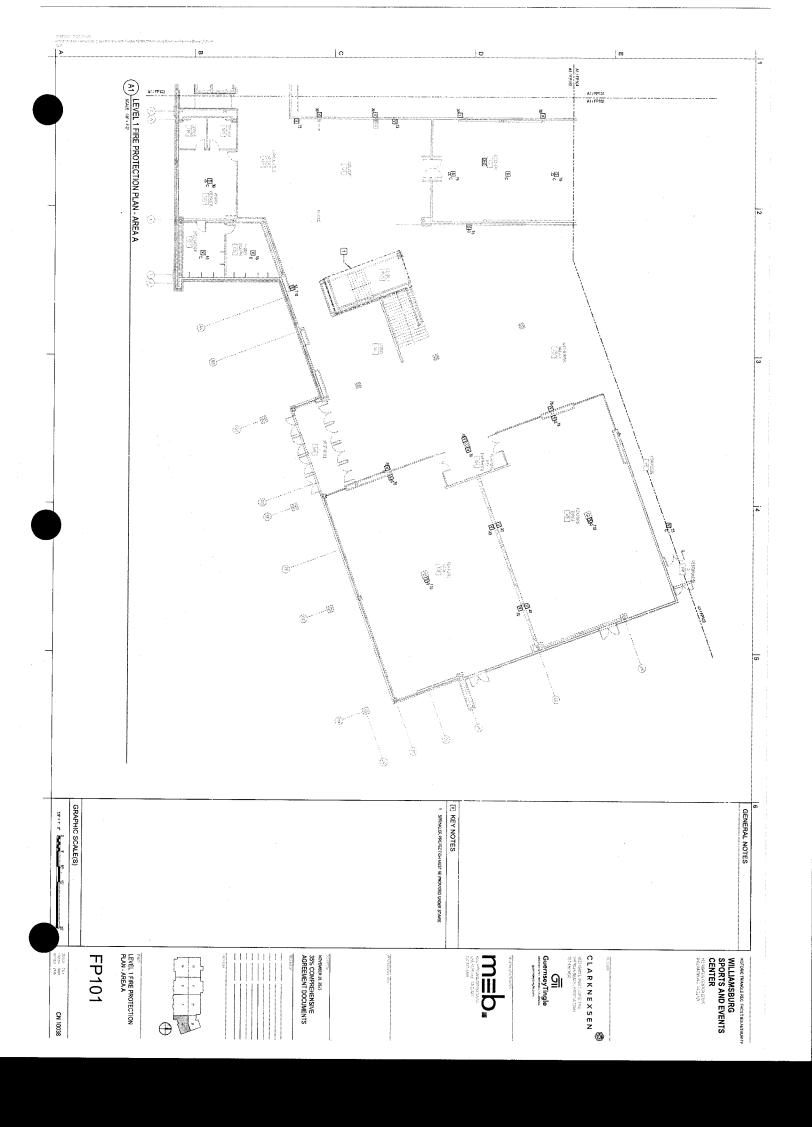


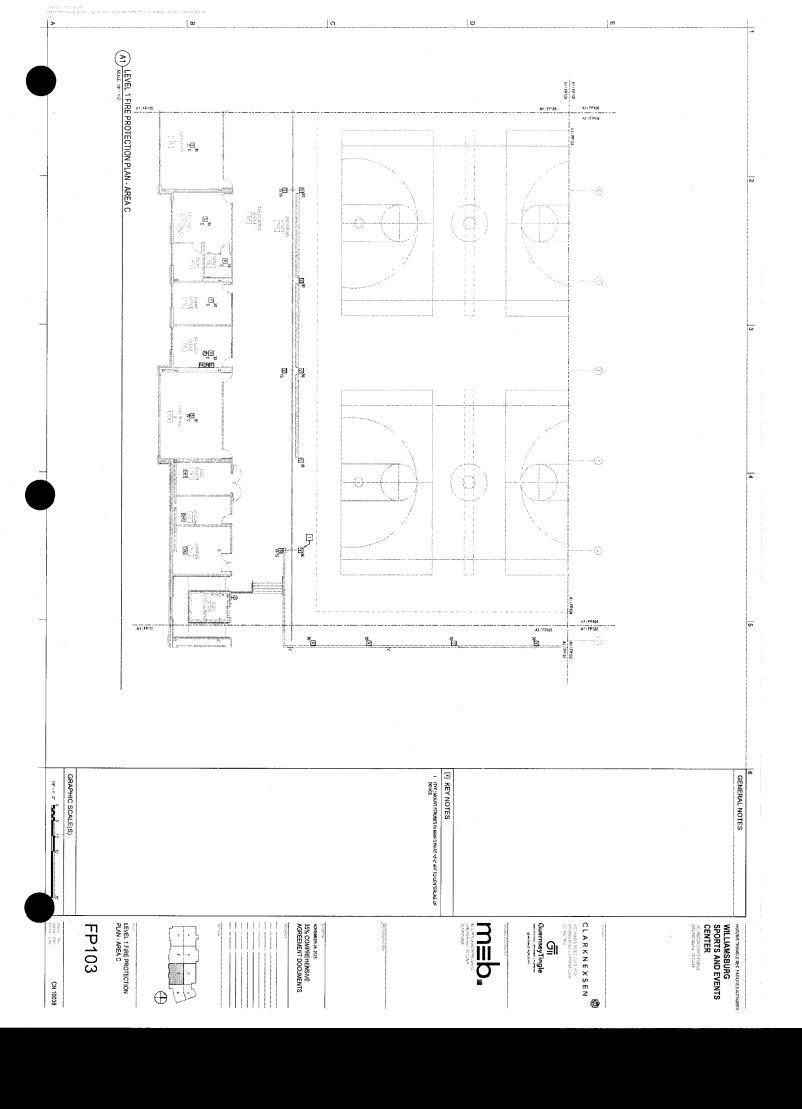


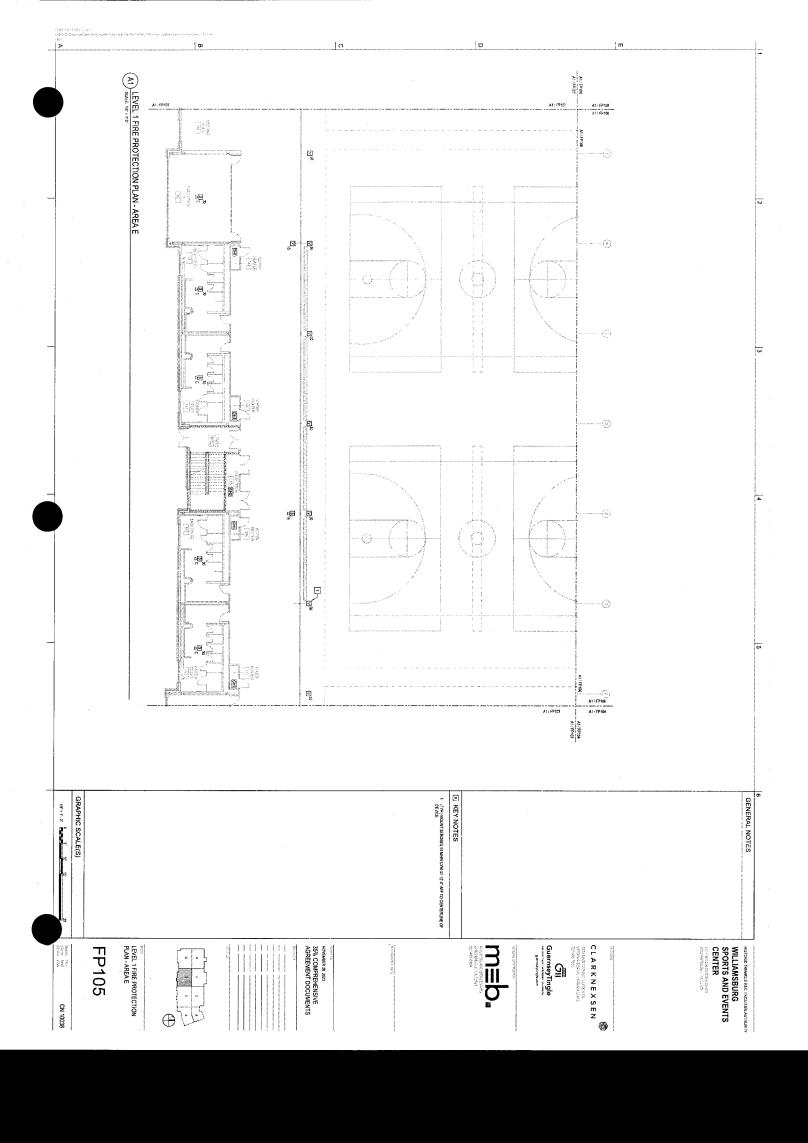


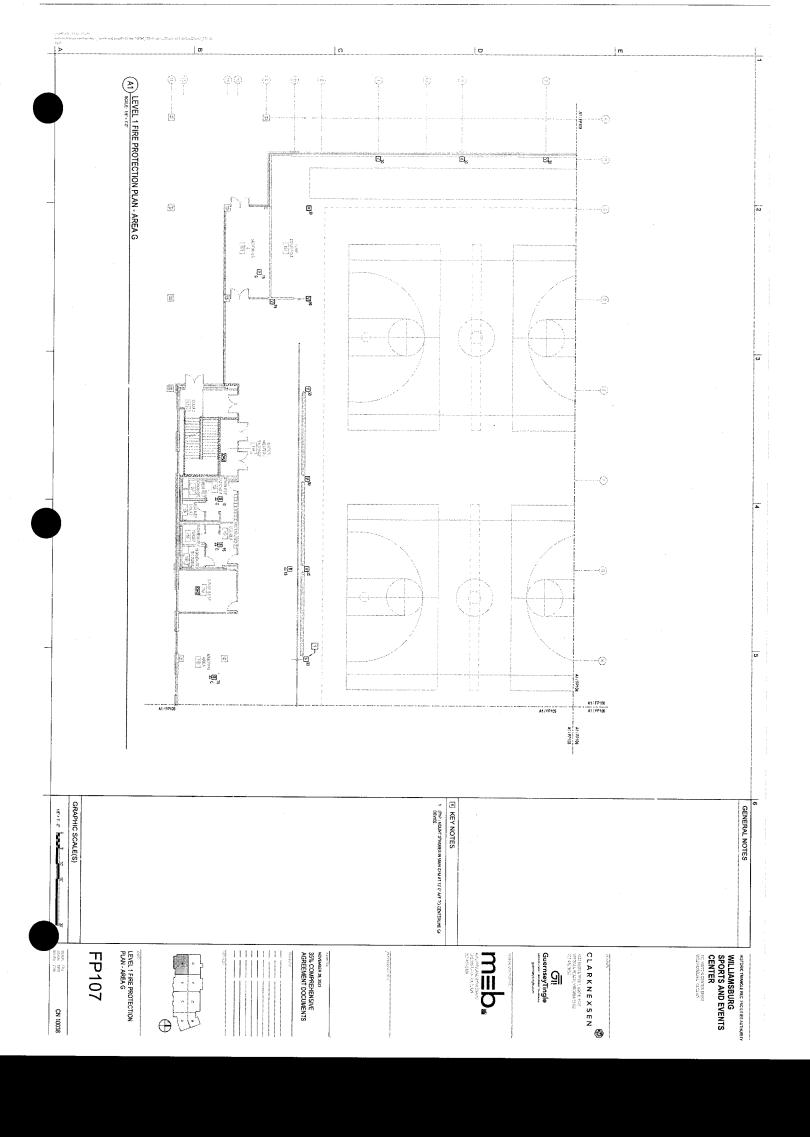


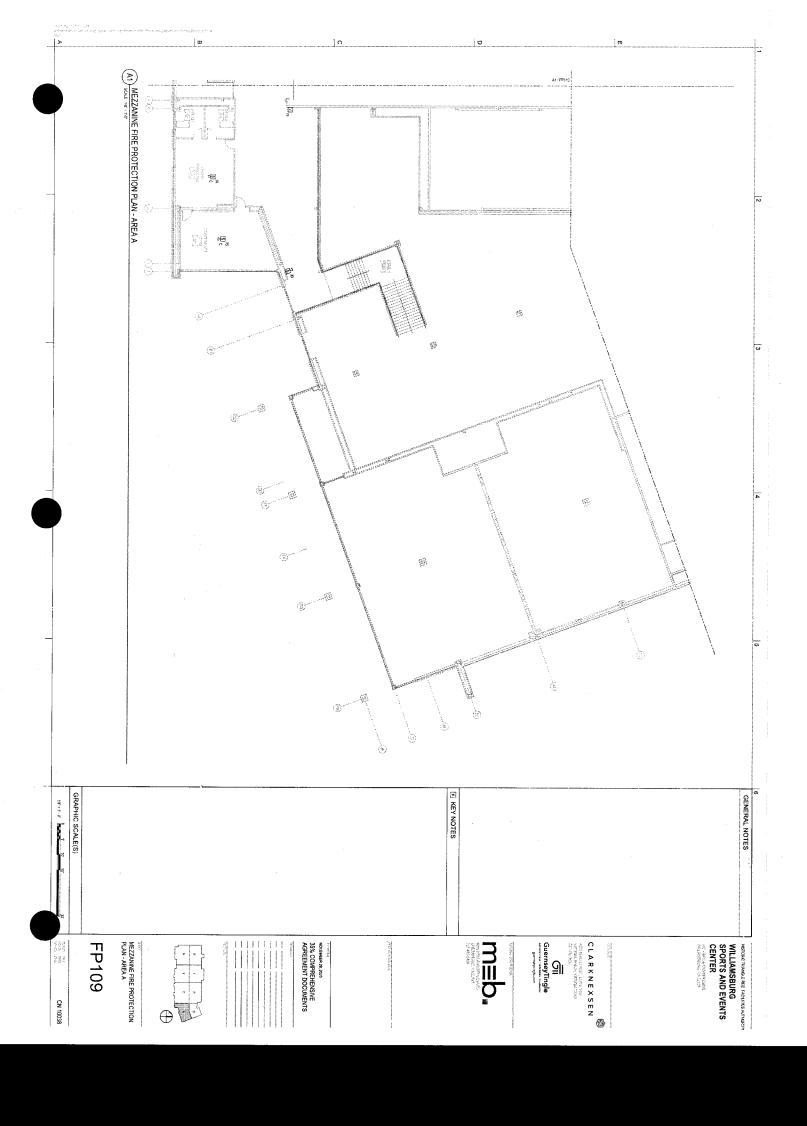


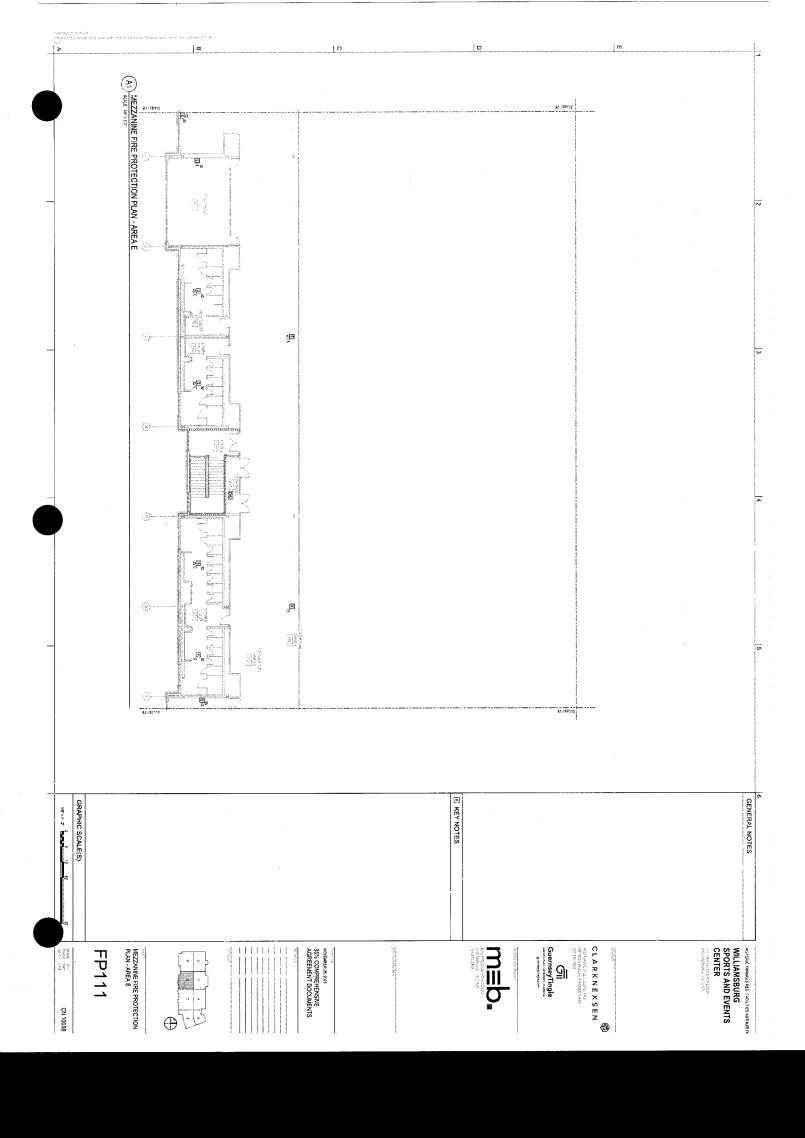












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GENERAL NOTES

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4025 MAIN SITREET, SUITE 1400 VIRGINIA BEACH, VIRGINIA 23482 757-455-5800

35% COMPREHENSIVE AGREEMENT DOCUMENTS NOVEMBER 25, 2023

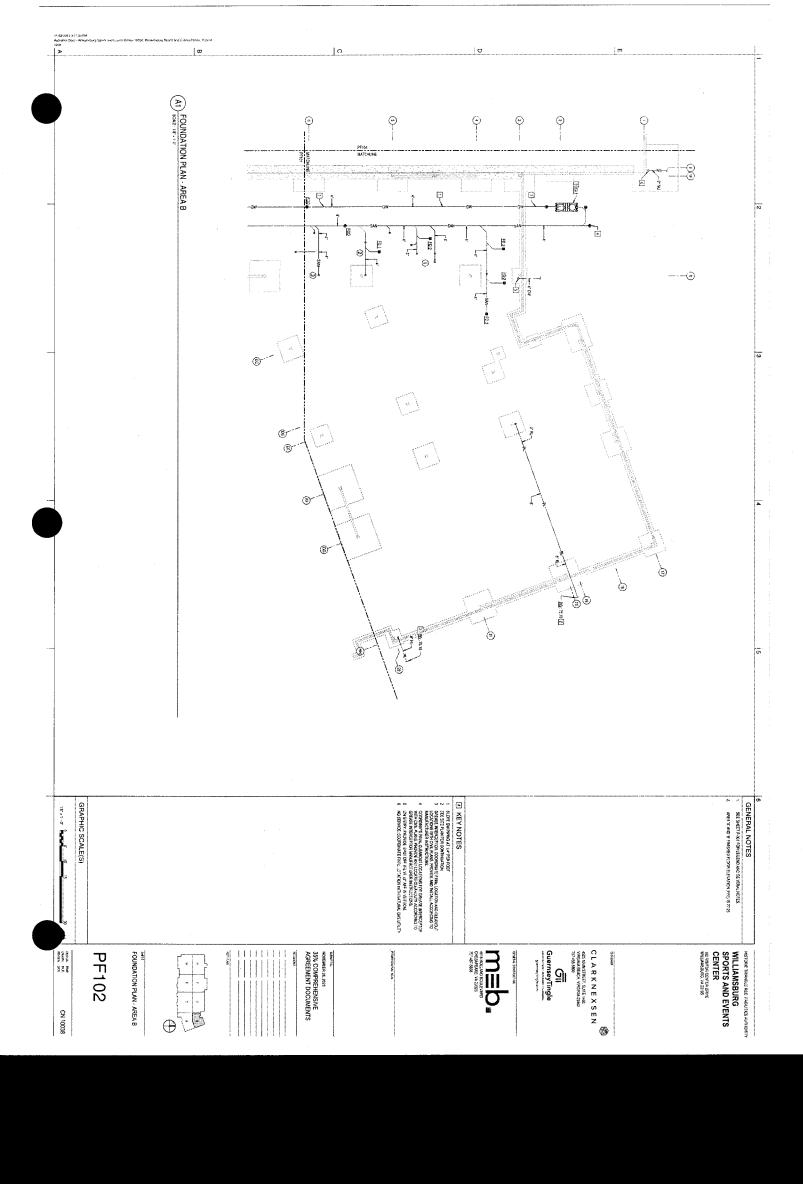
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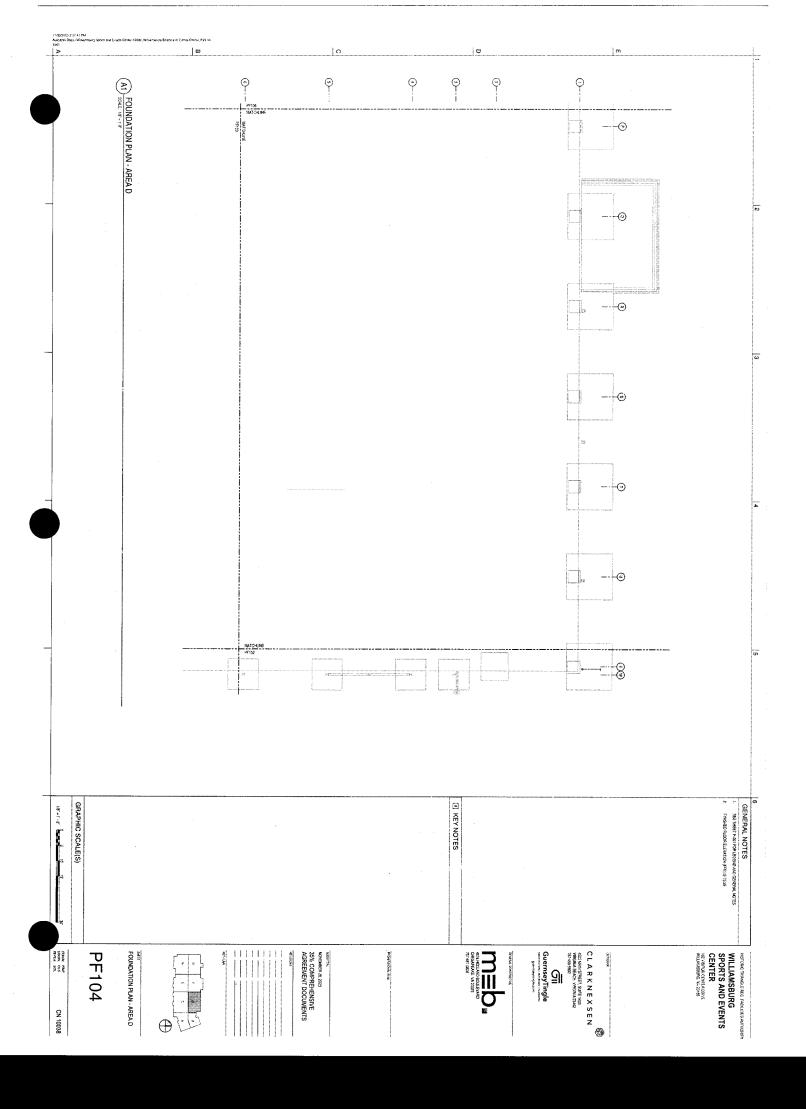
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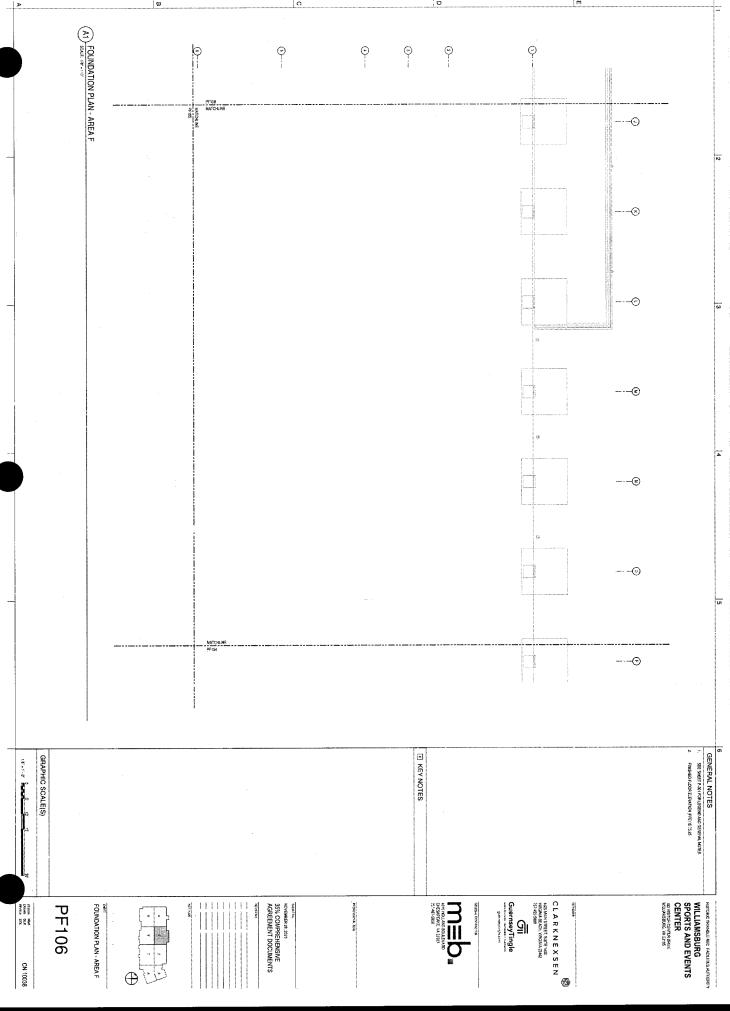
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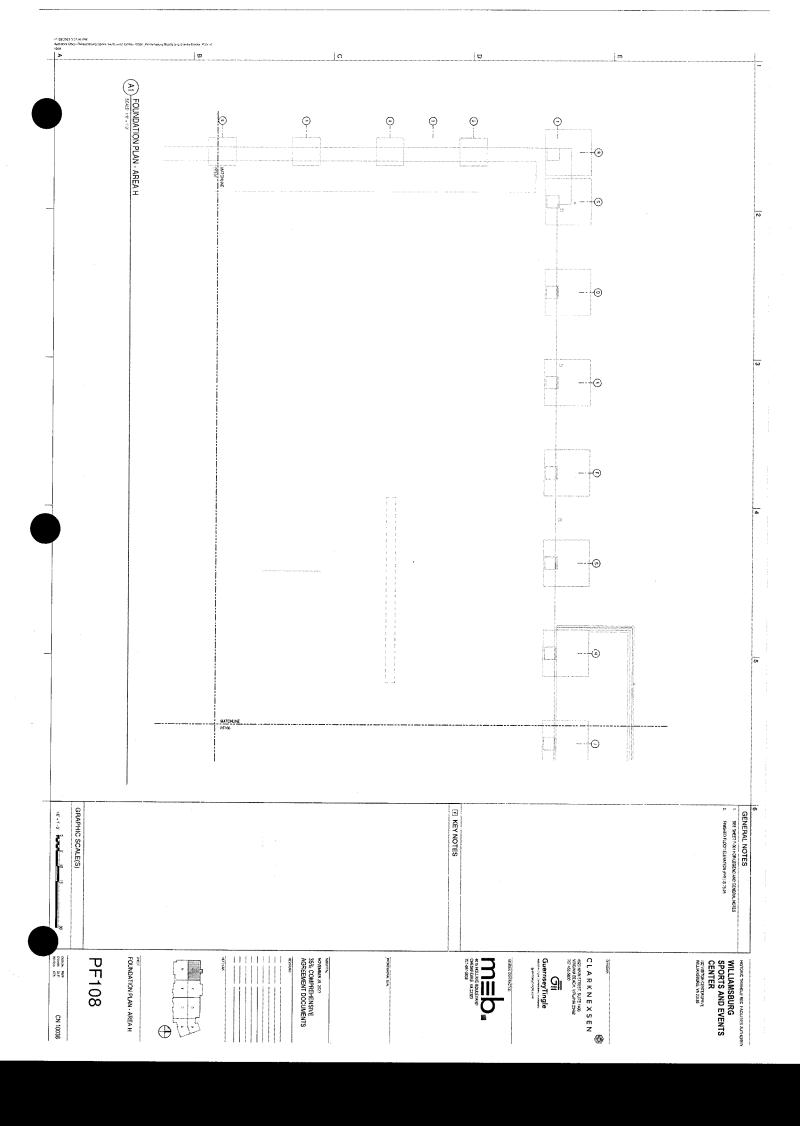
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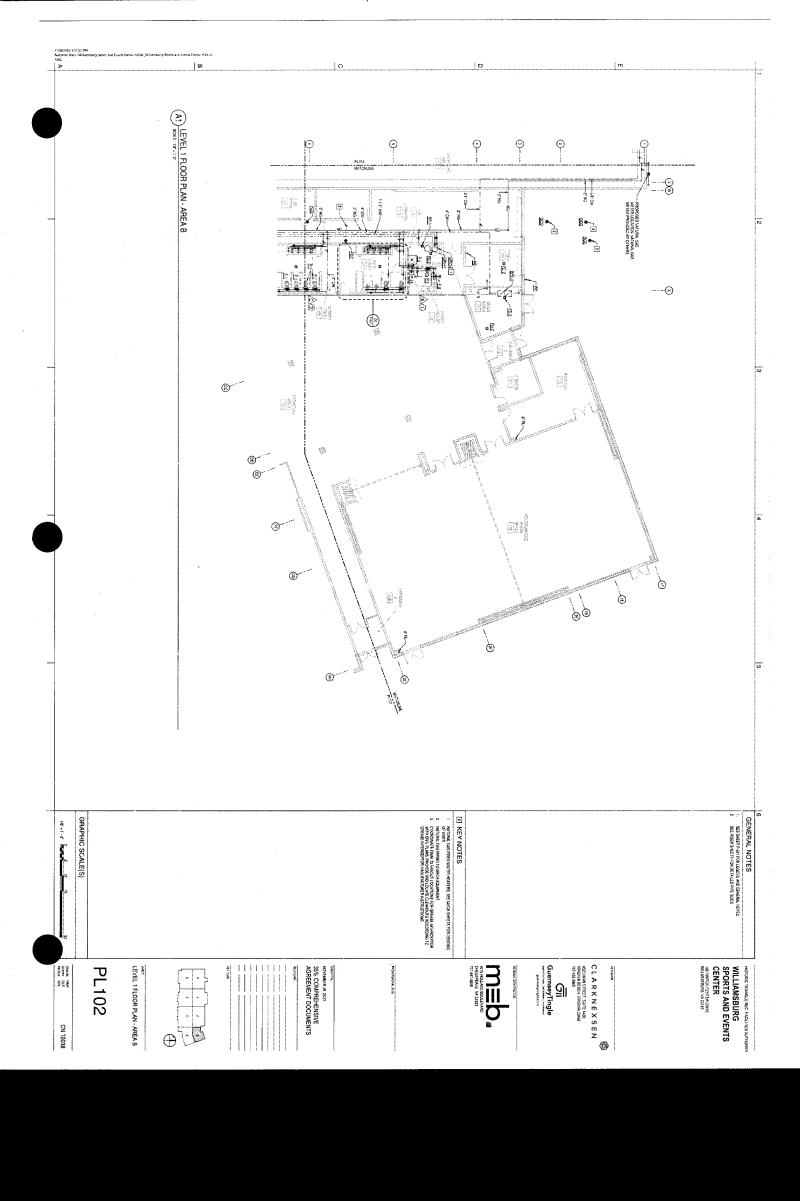
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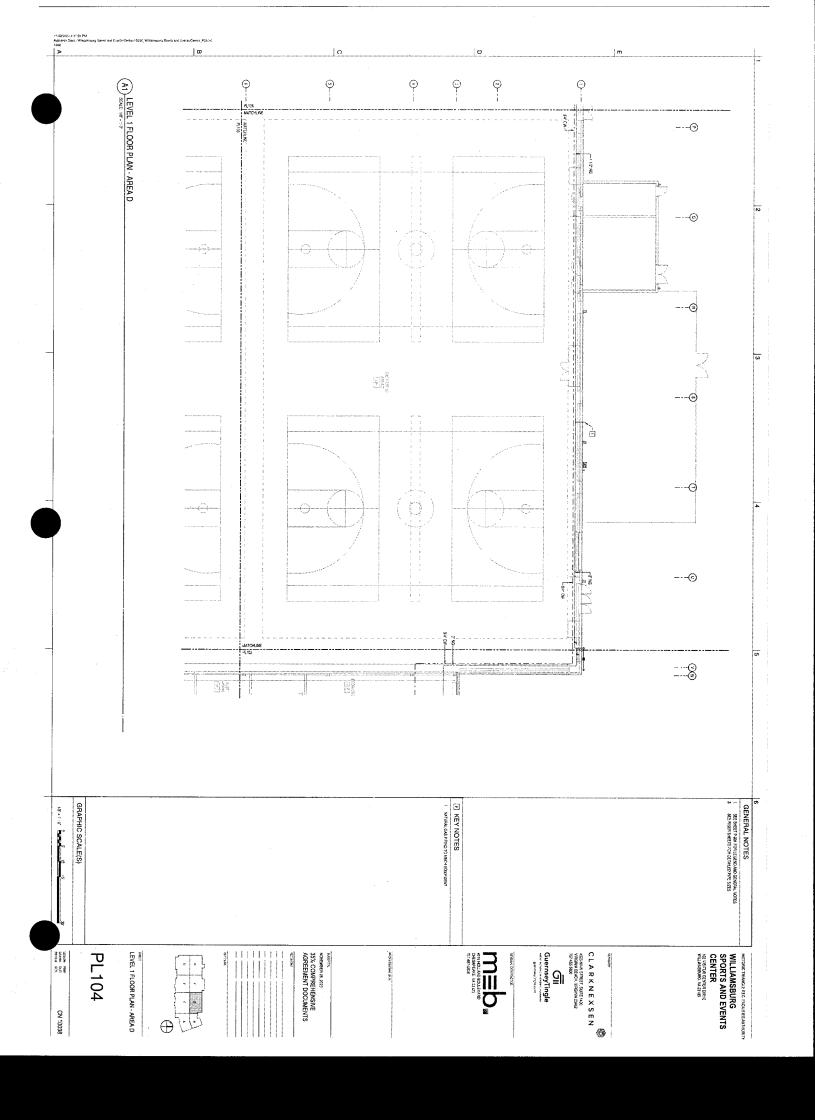


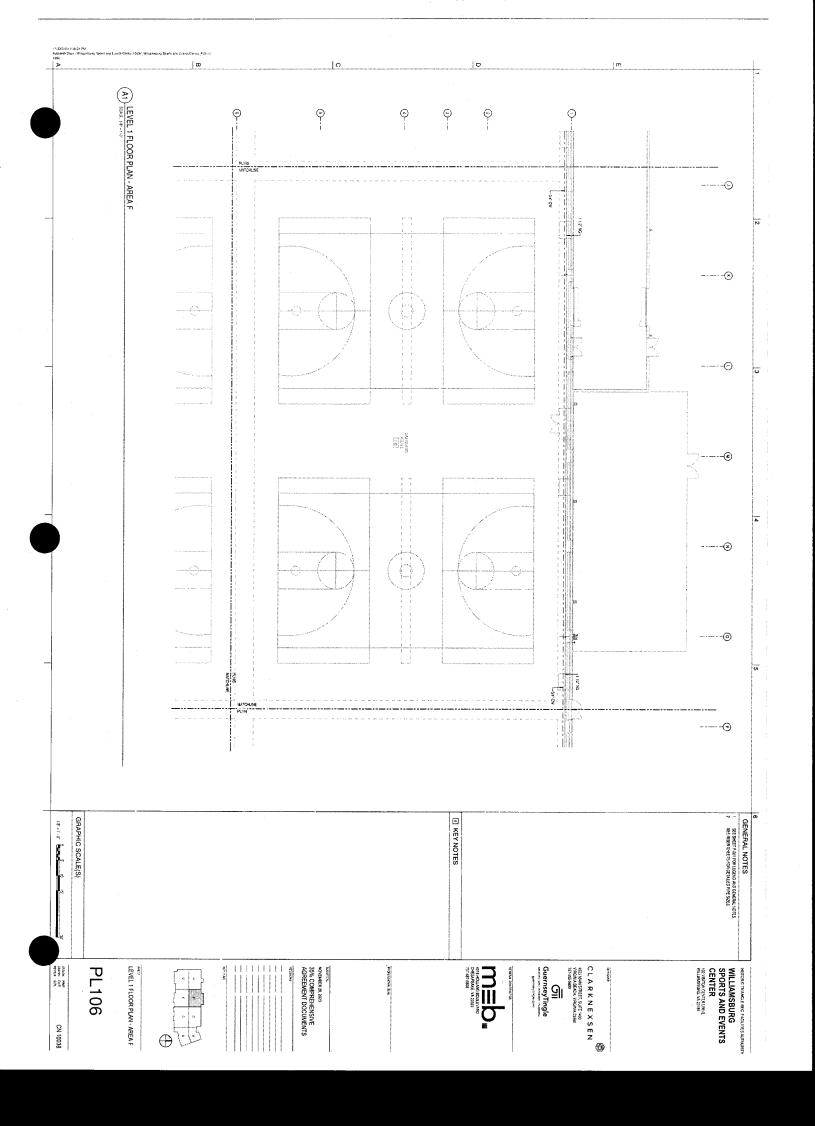


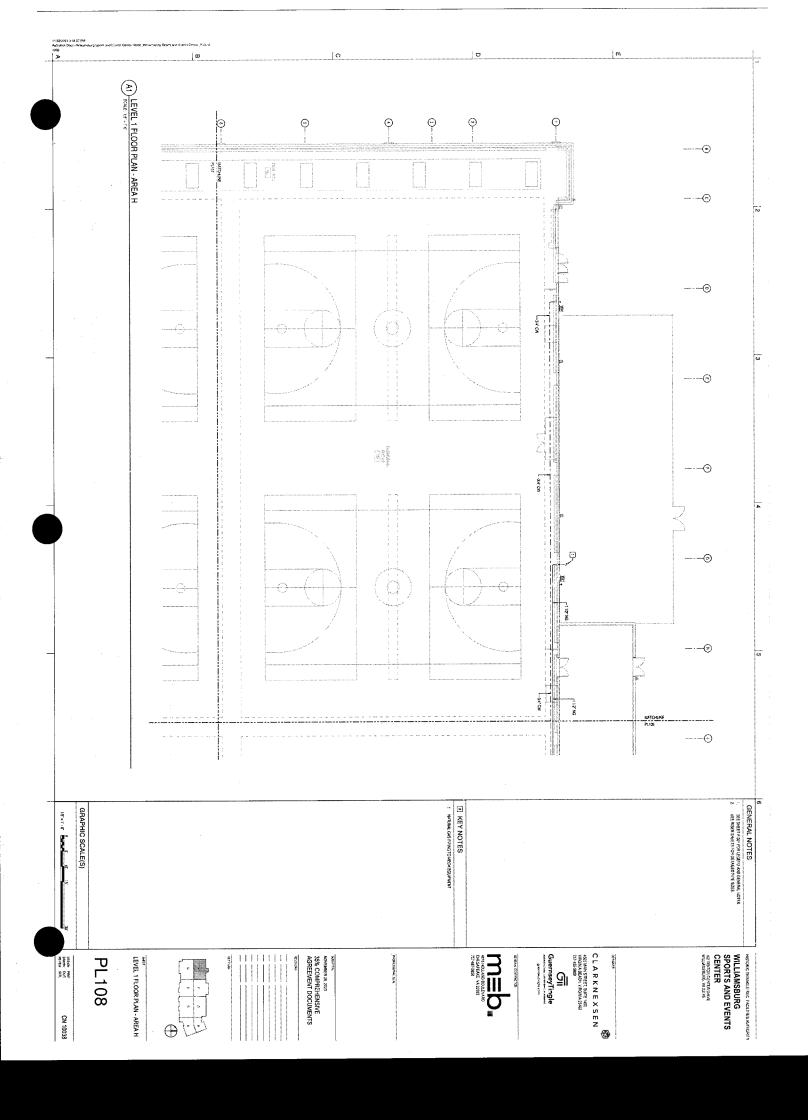


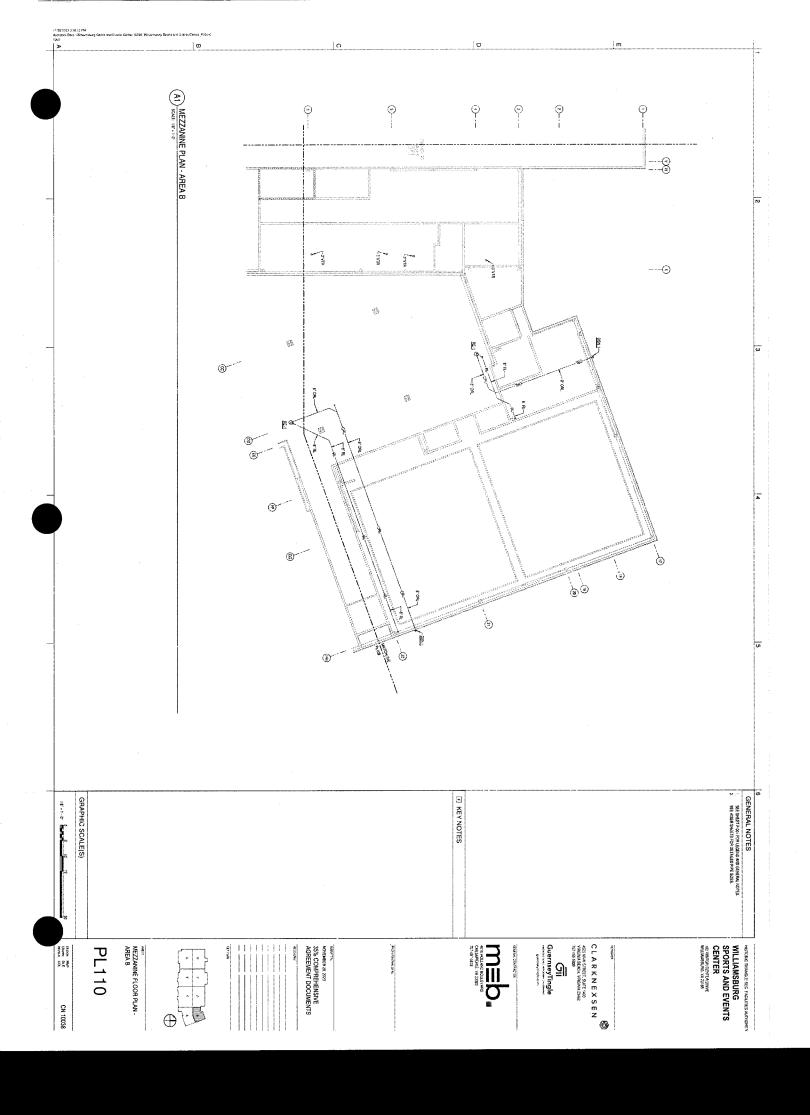


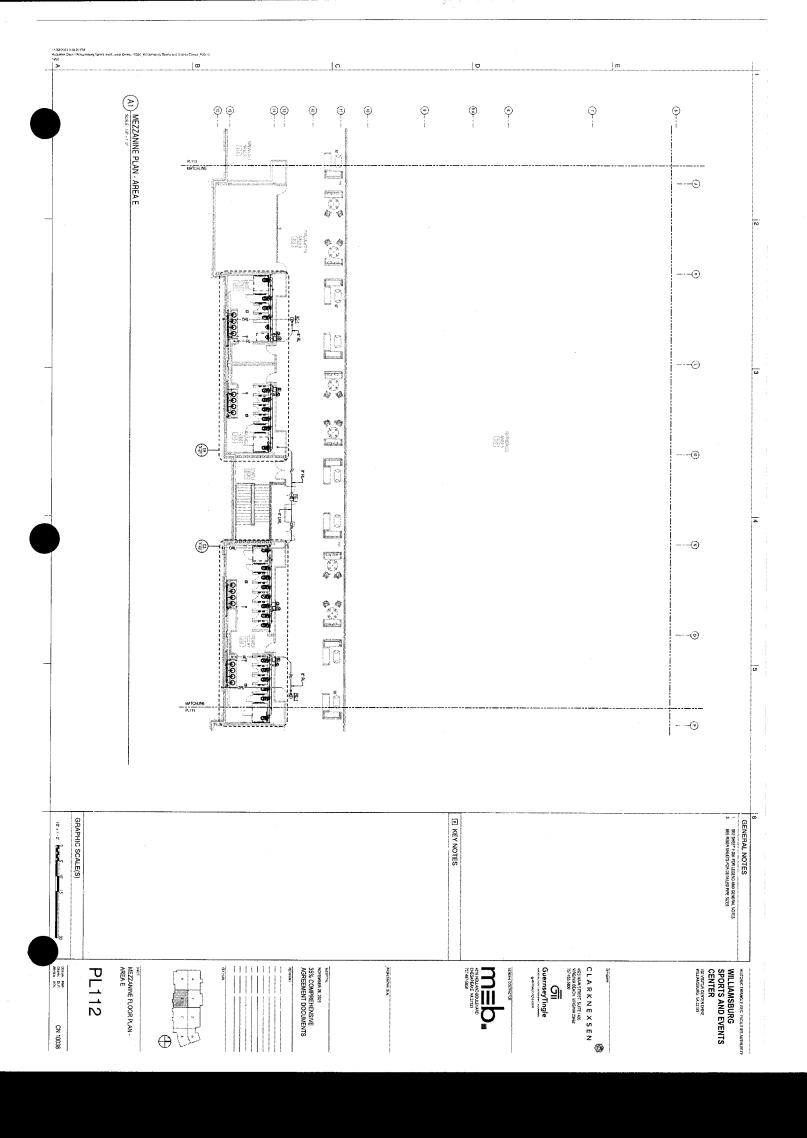


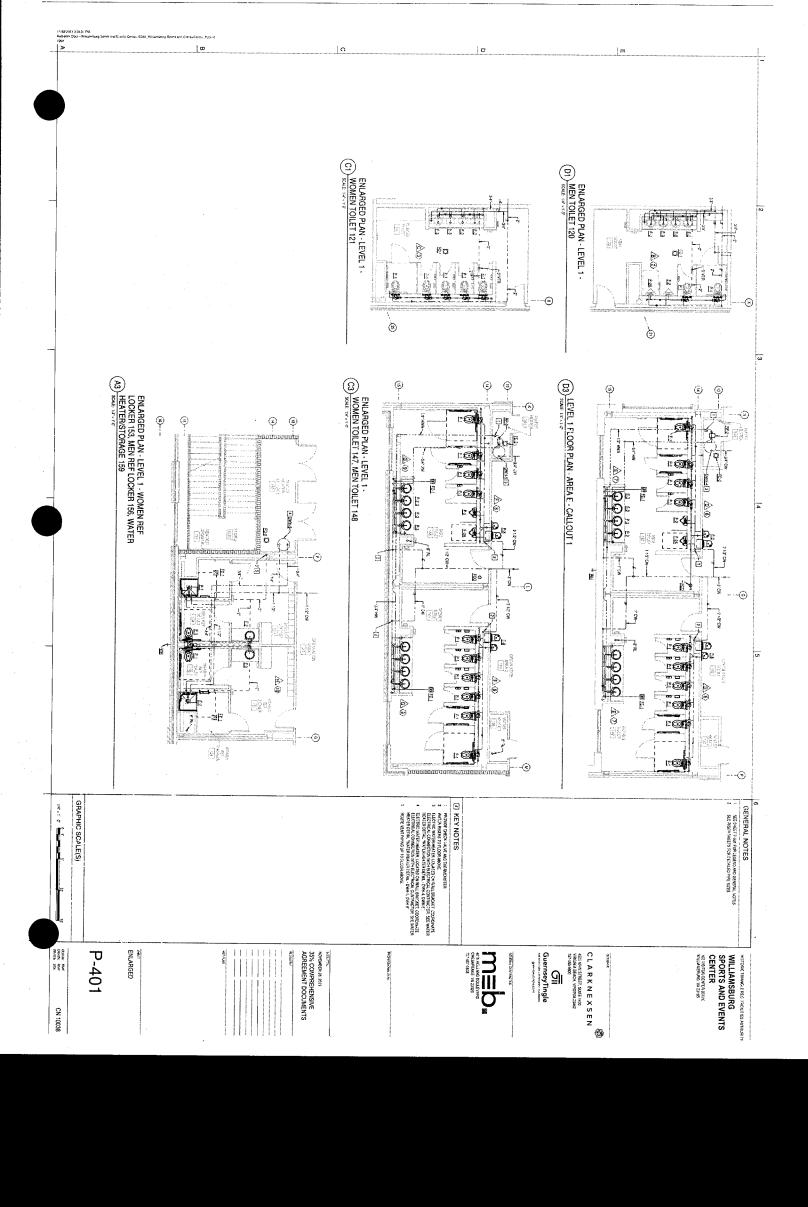


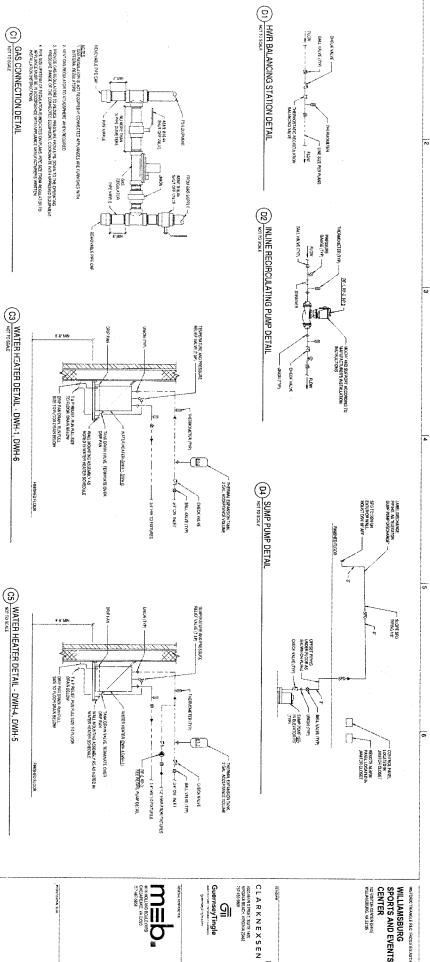












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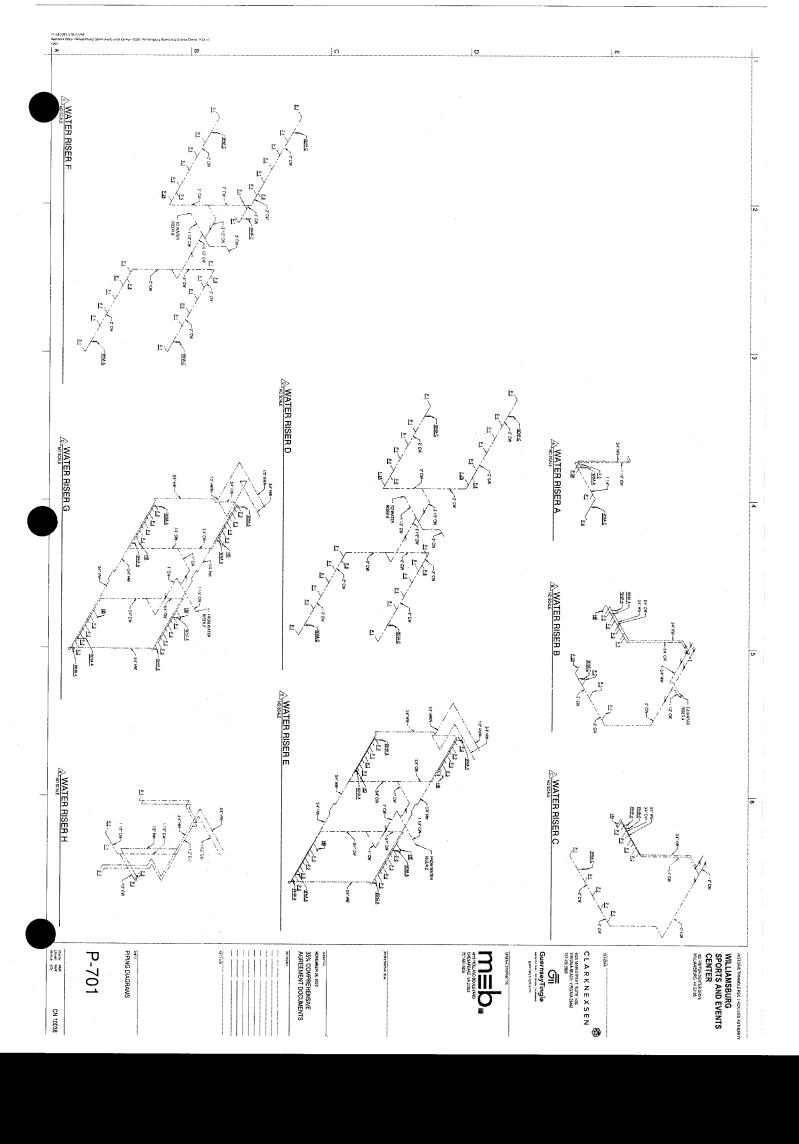
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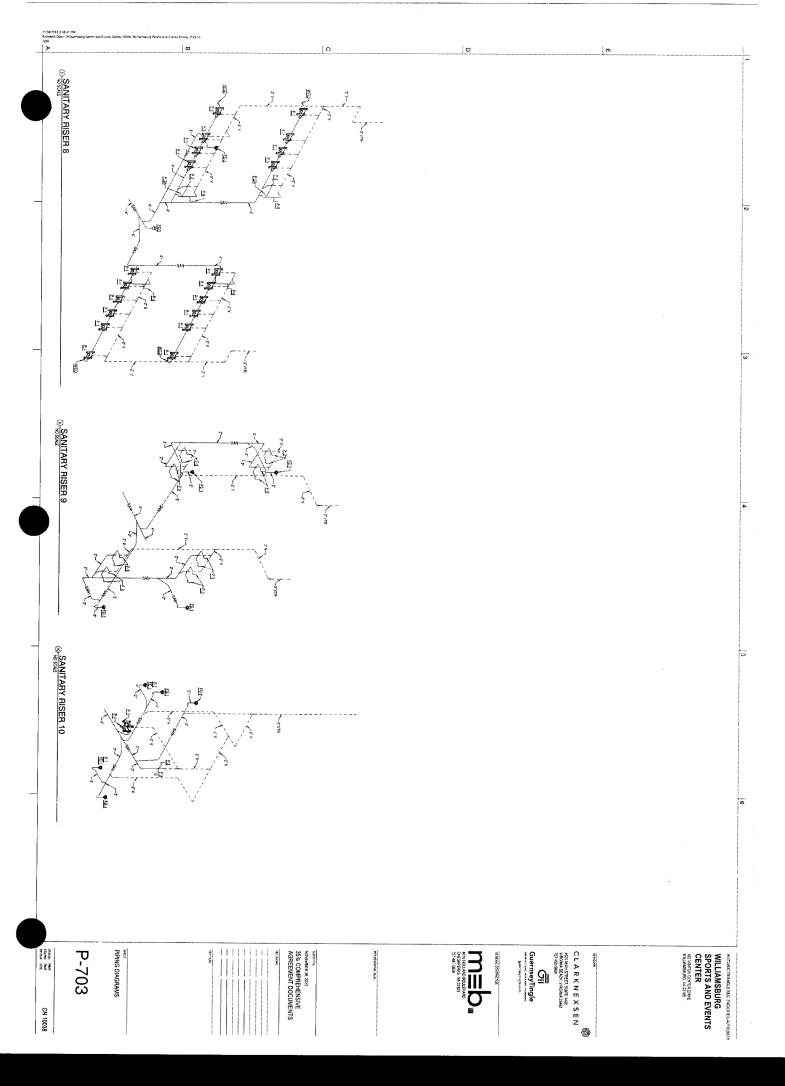
NOVEMBER 28, 2023
35% COMPREHENSIVE
AGREEMENT DOCUMENTS

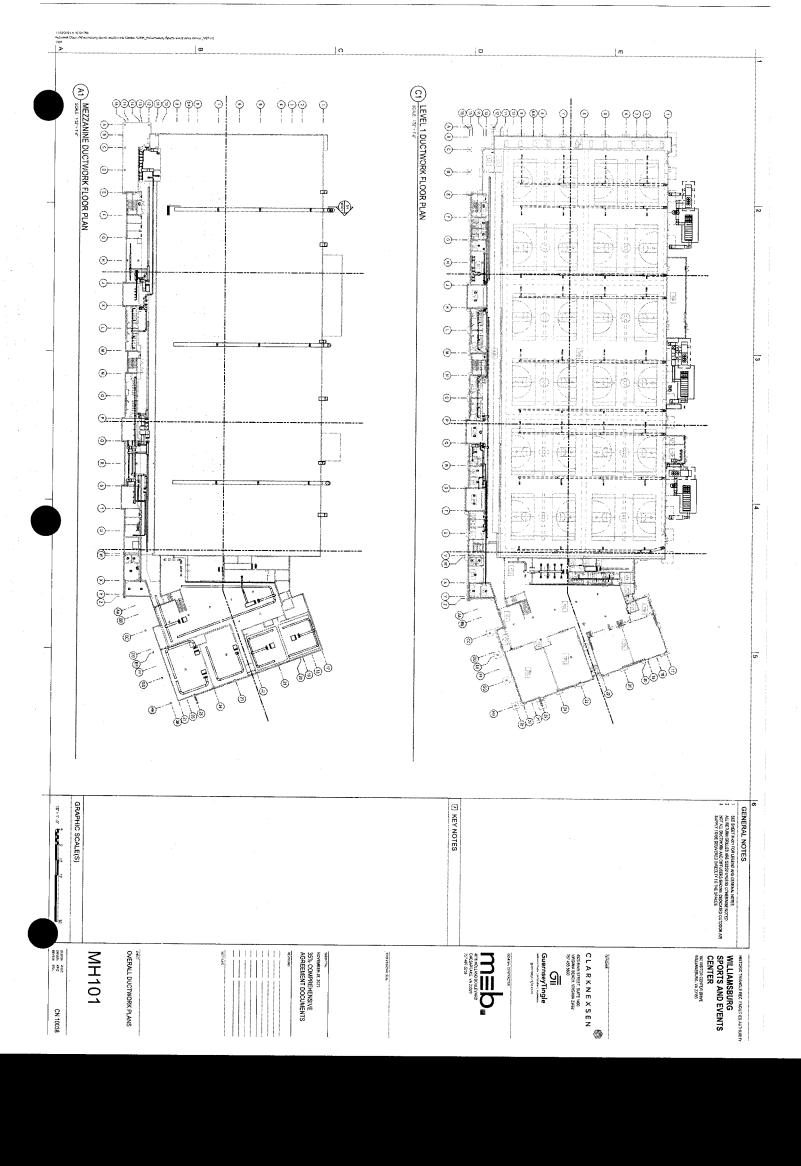
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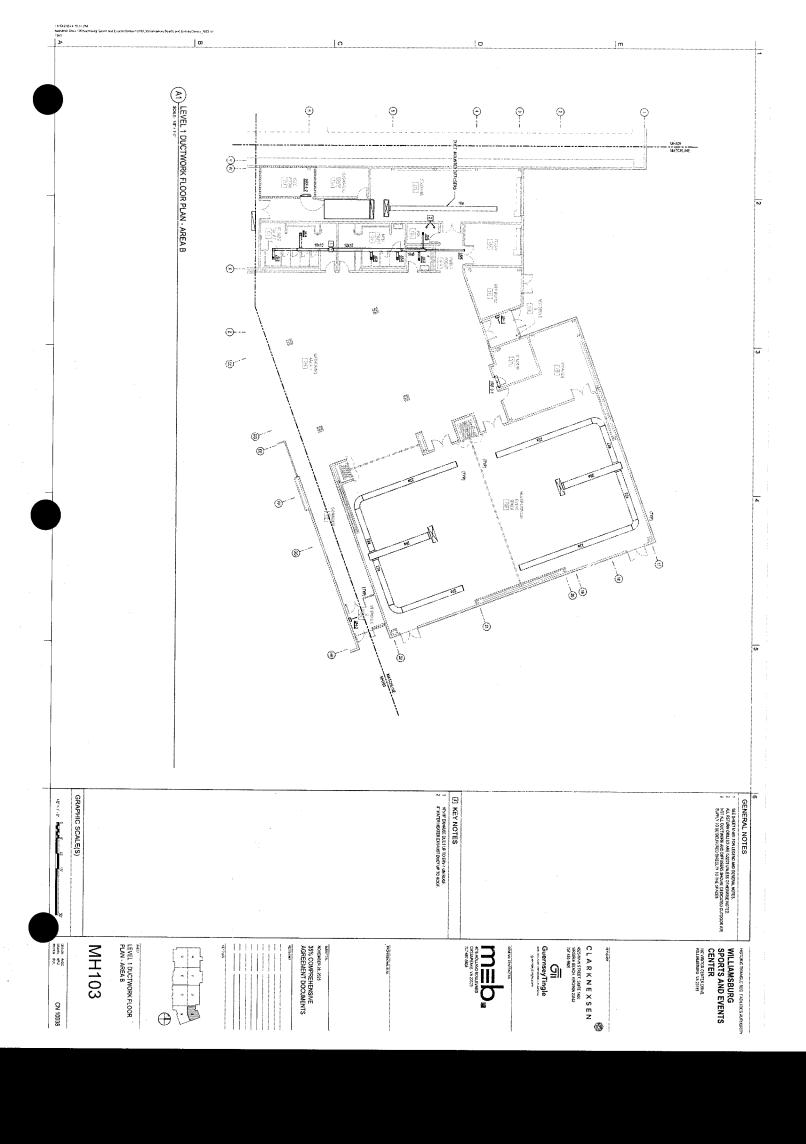
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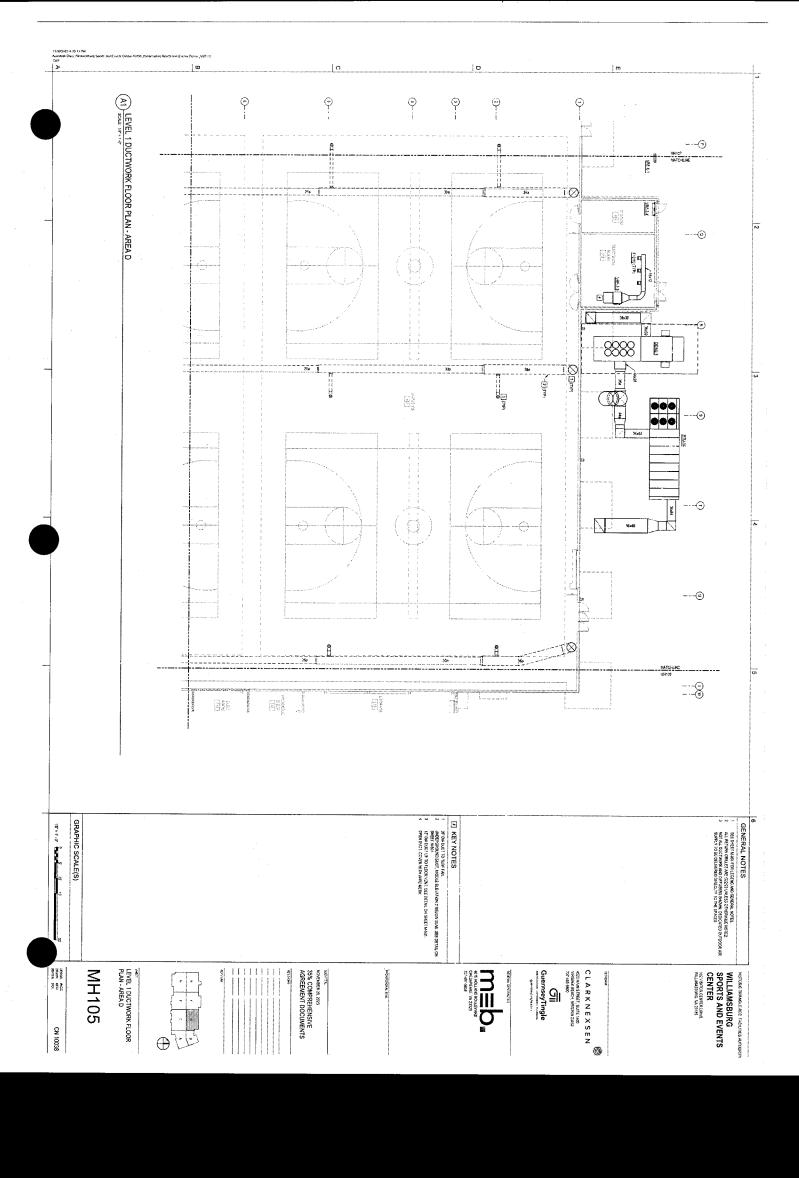
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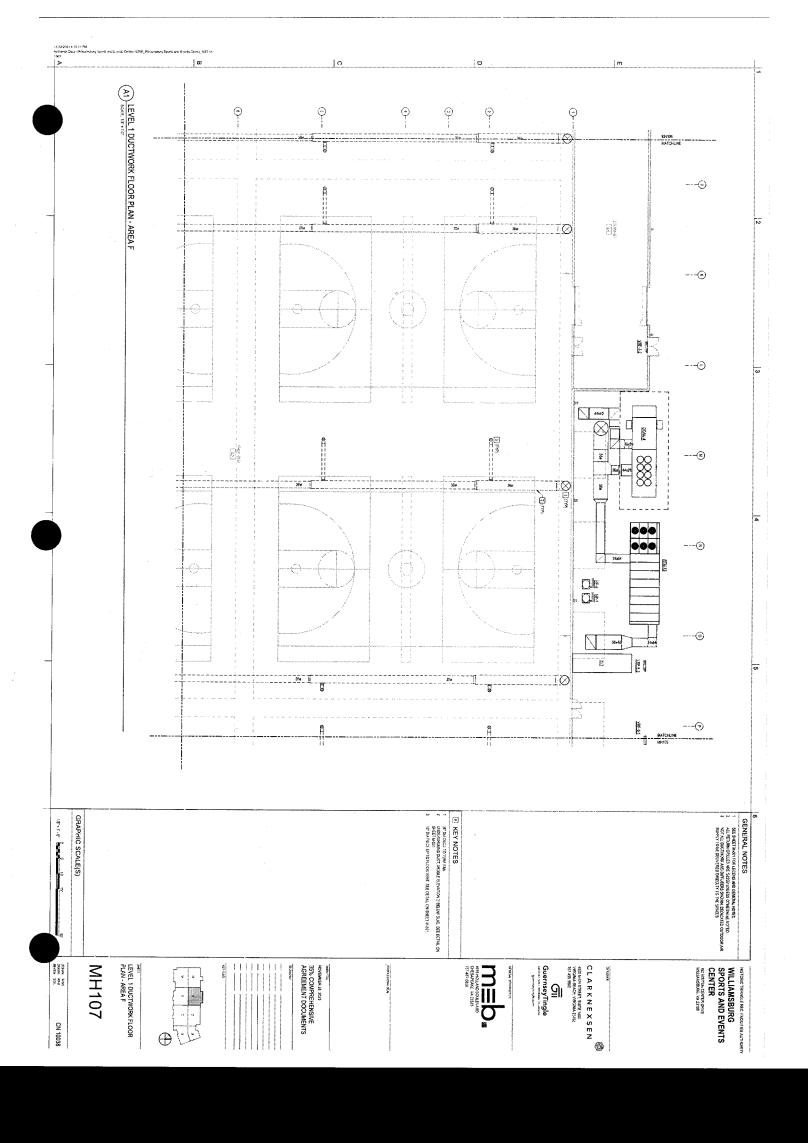


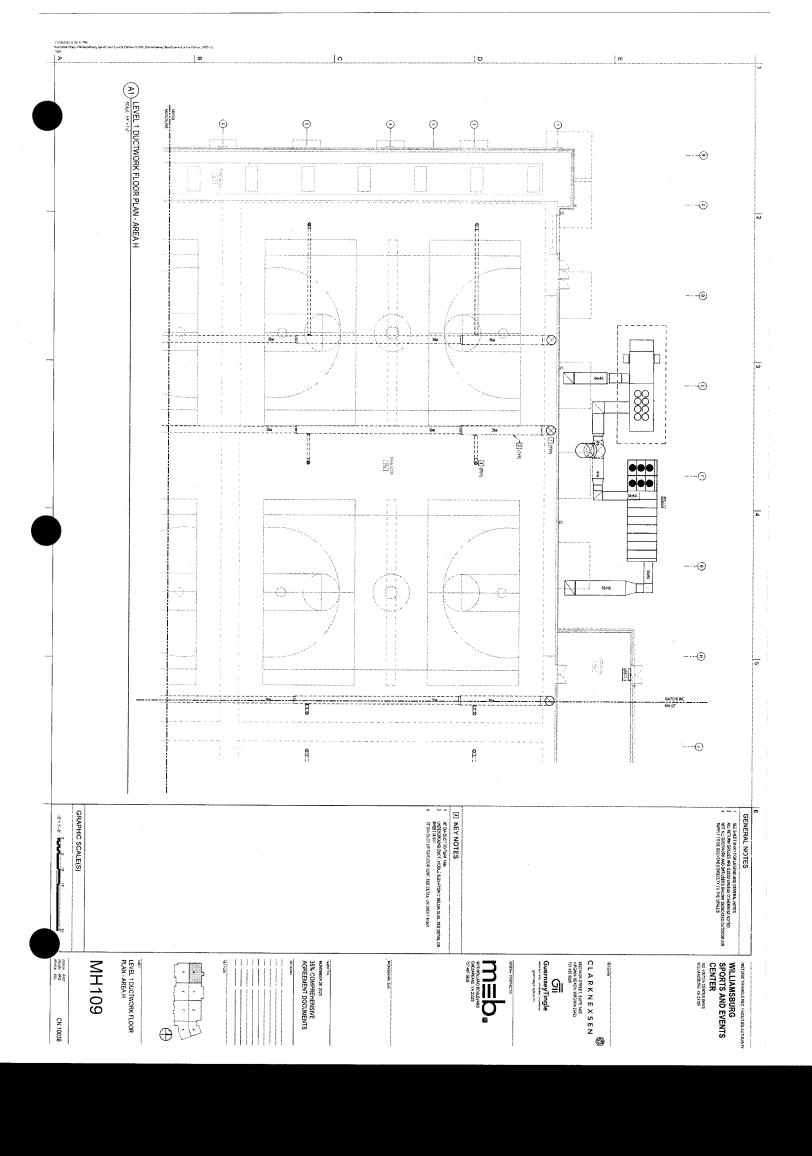


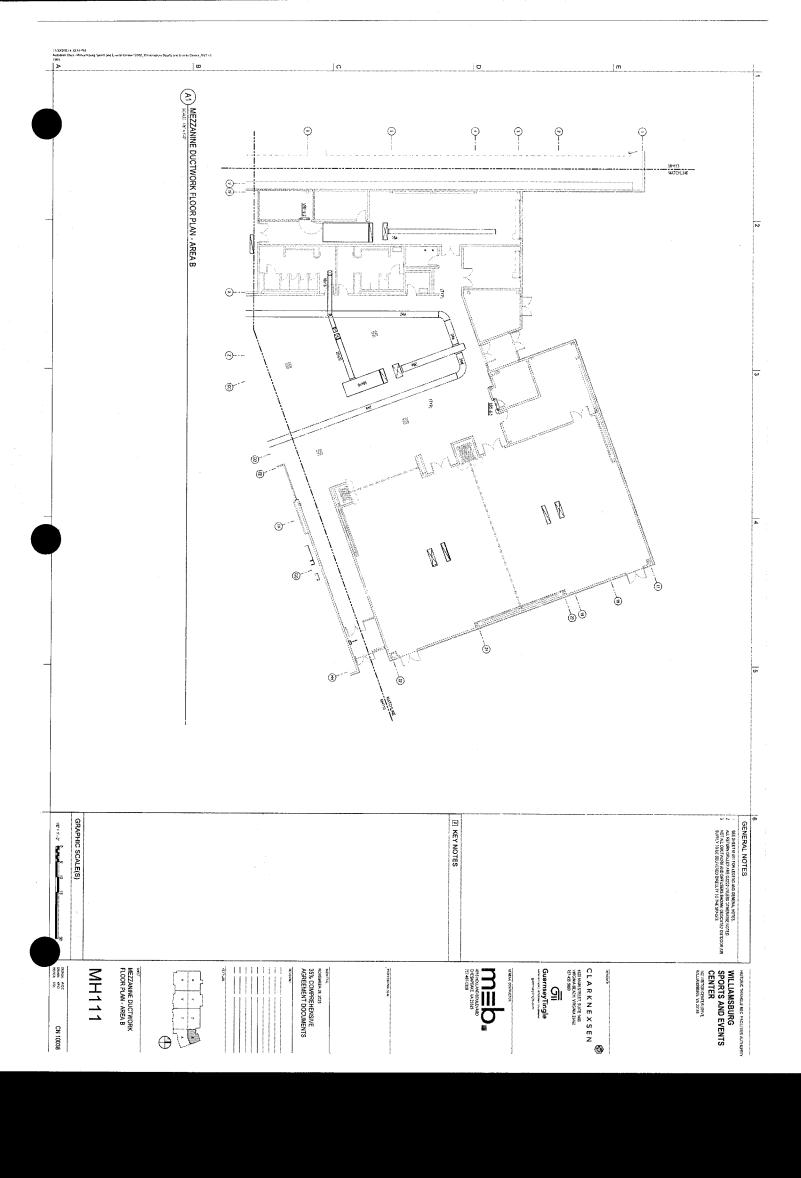


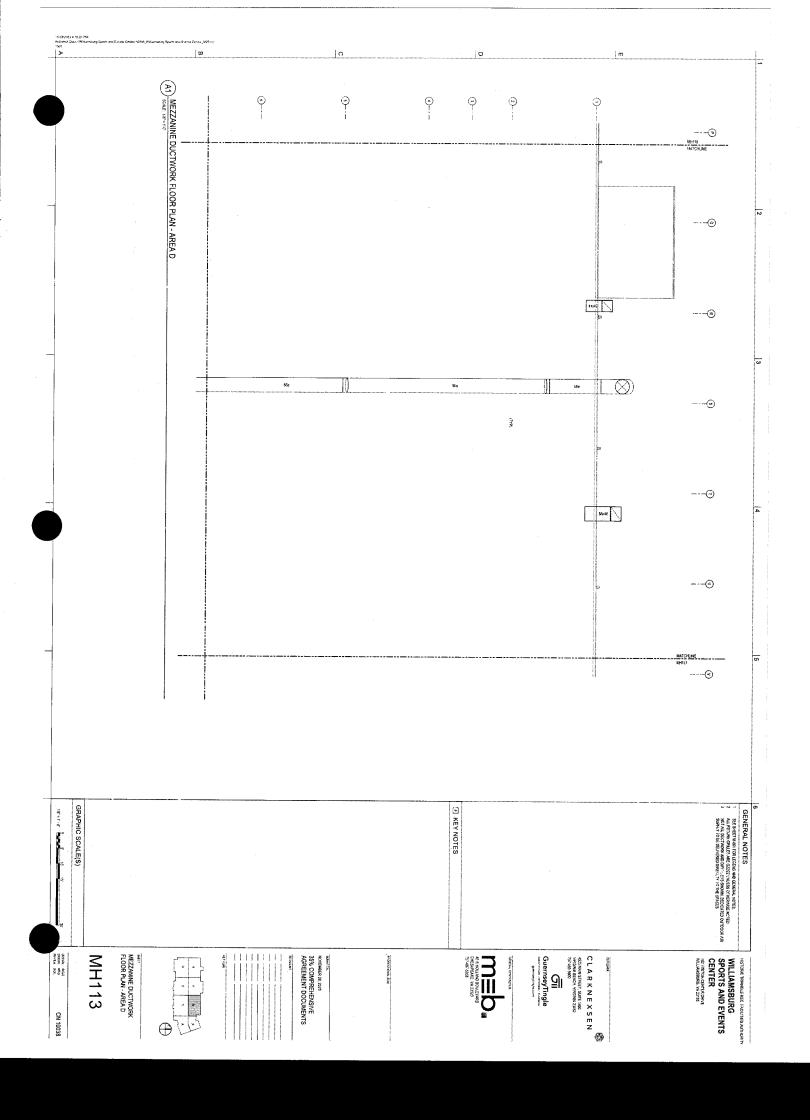


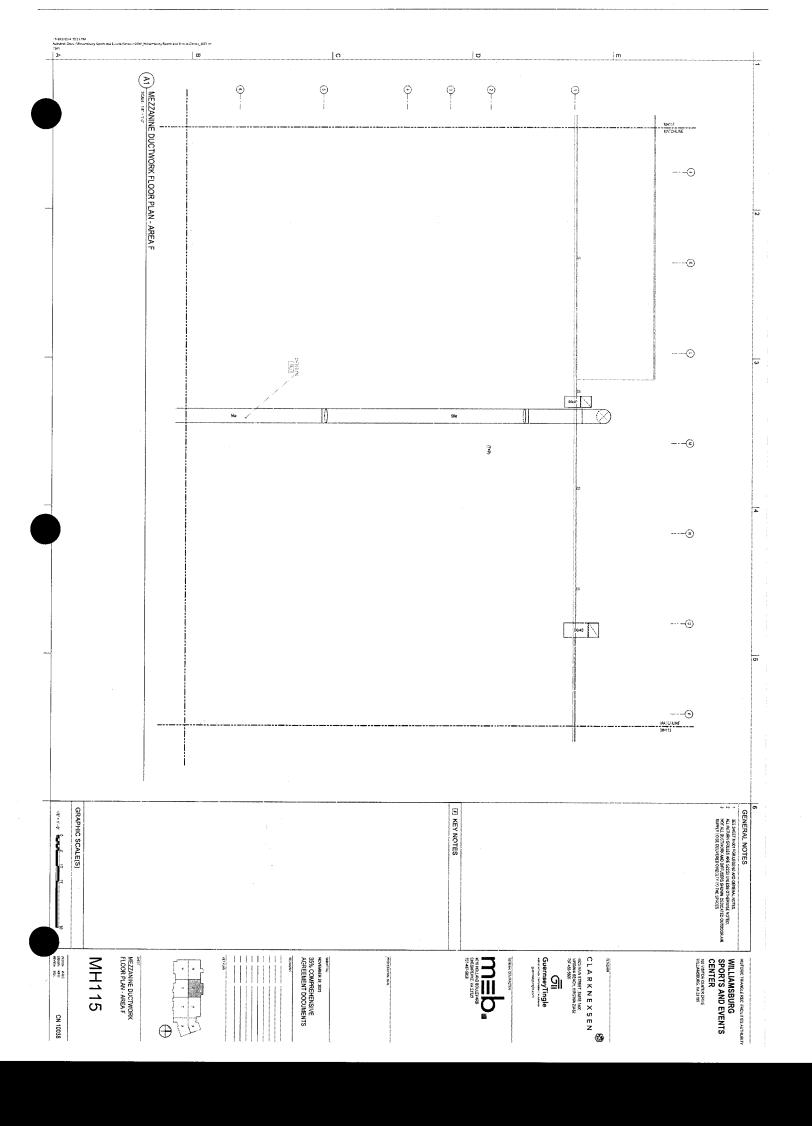


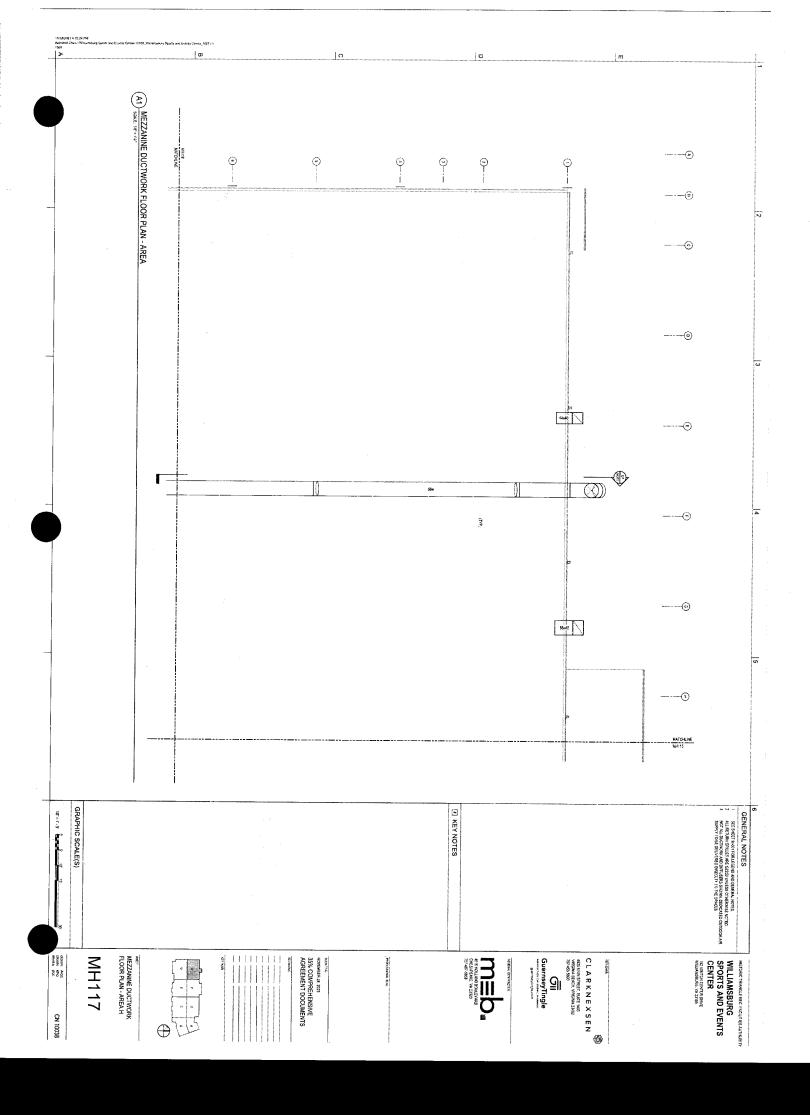




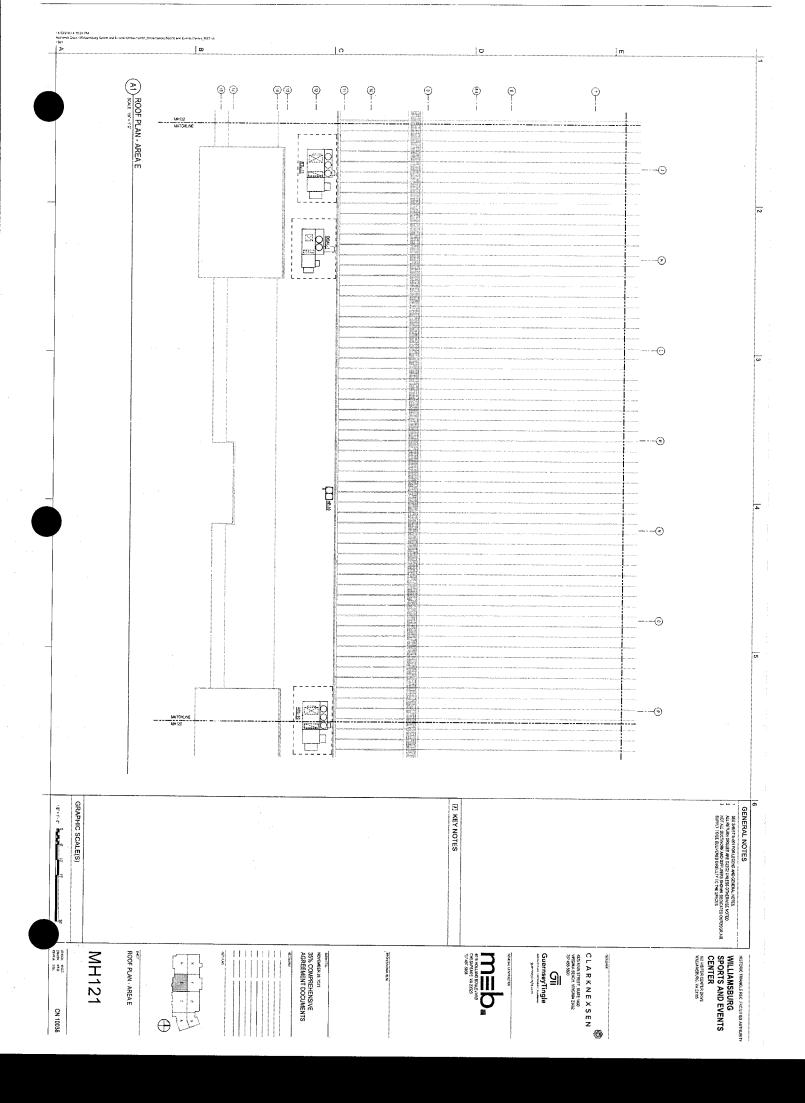


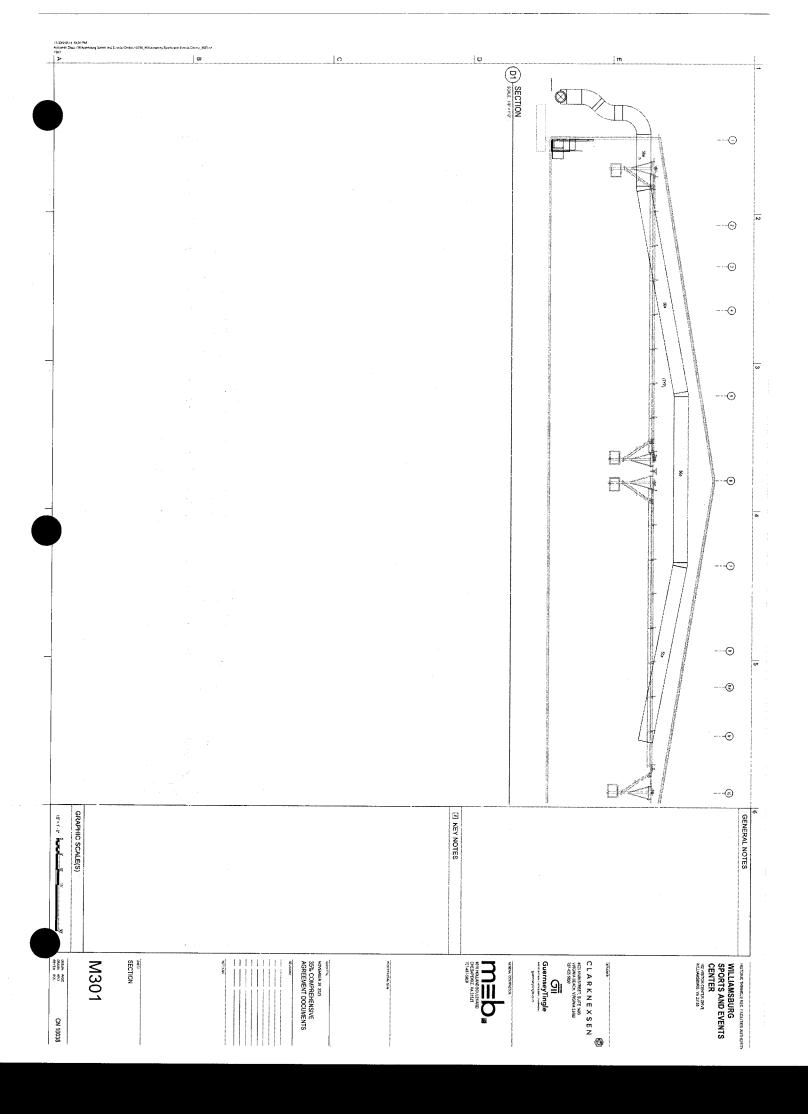












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NOVEMBER 28 2223
35% COMPREHENSIVE
AGREEMENT DOCUMENTS

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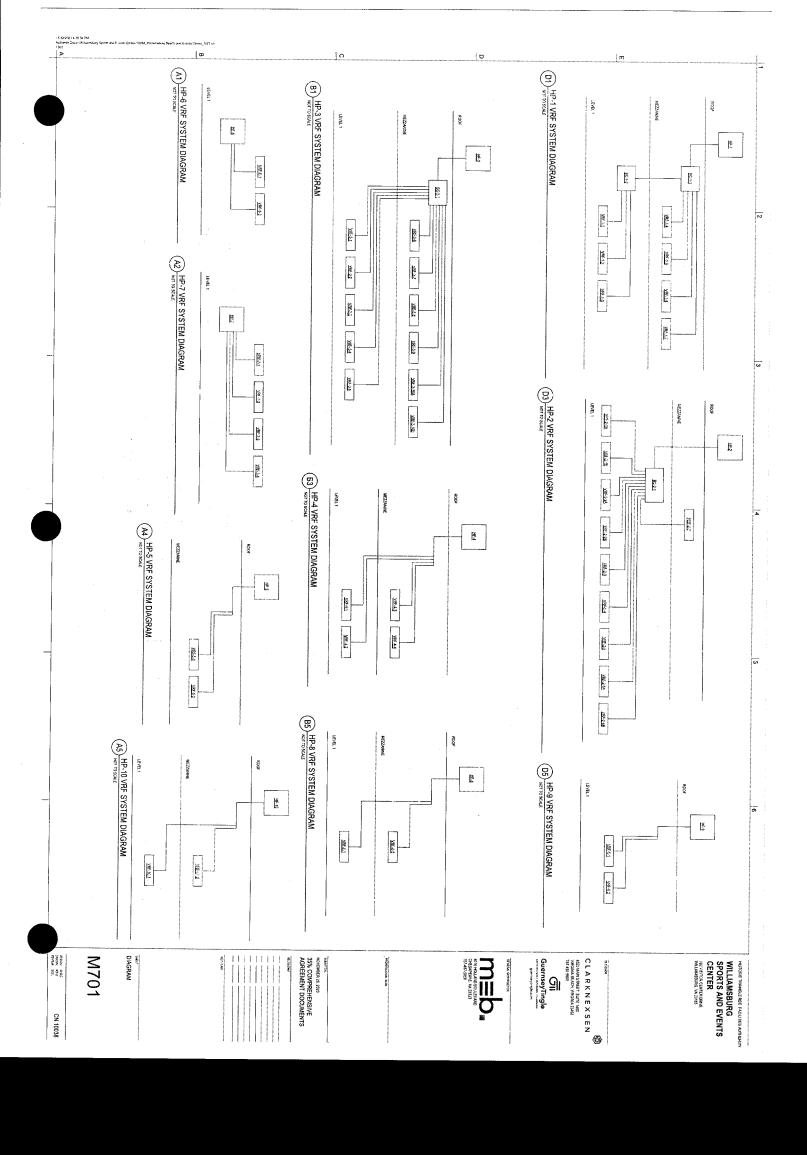
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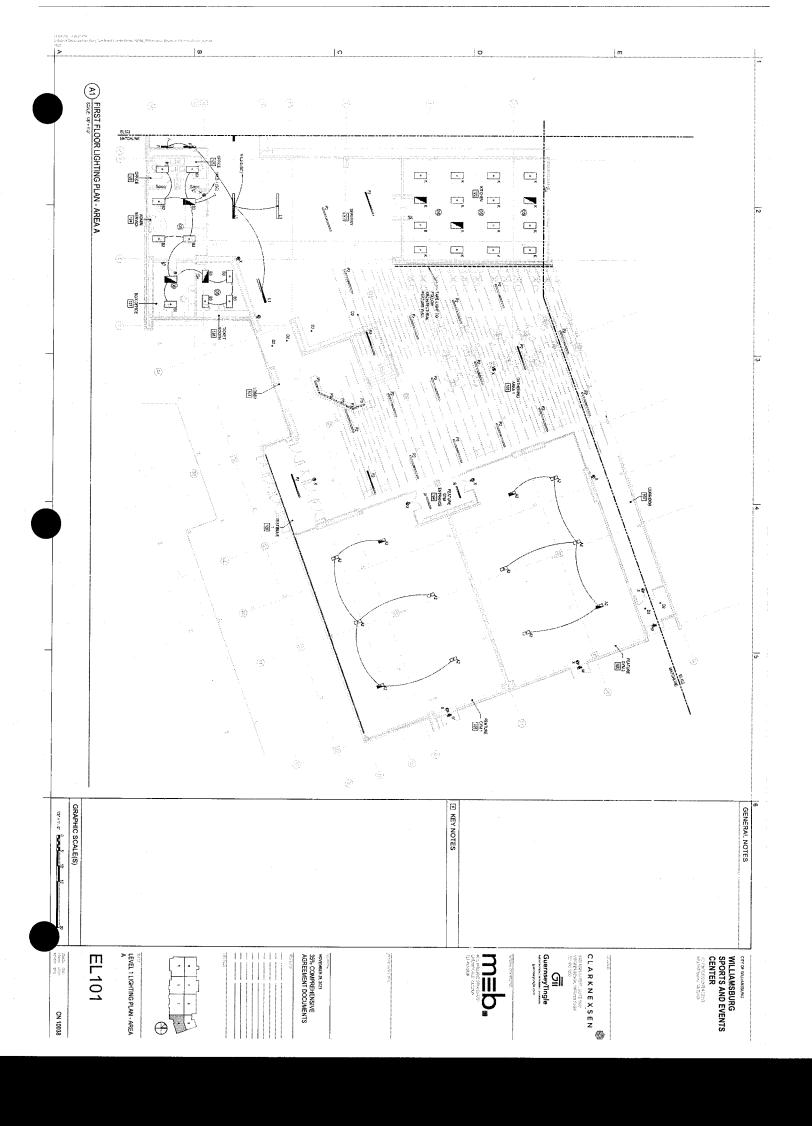
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SPORTS AND EVENTS
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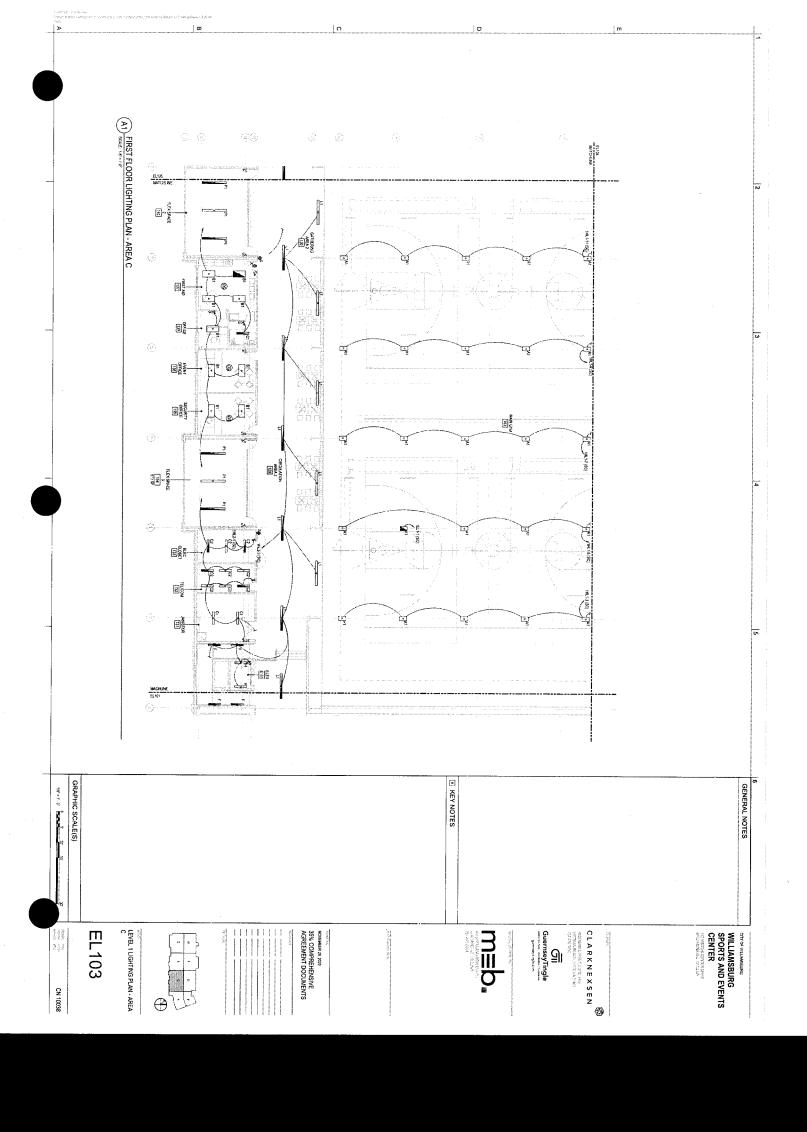
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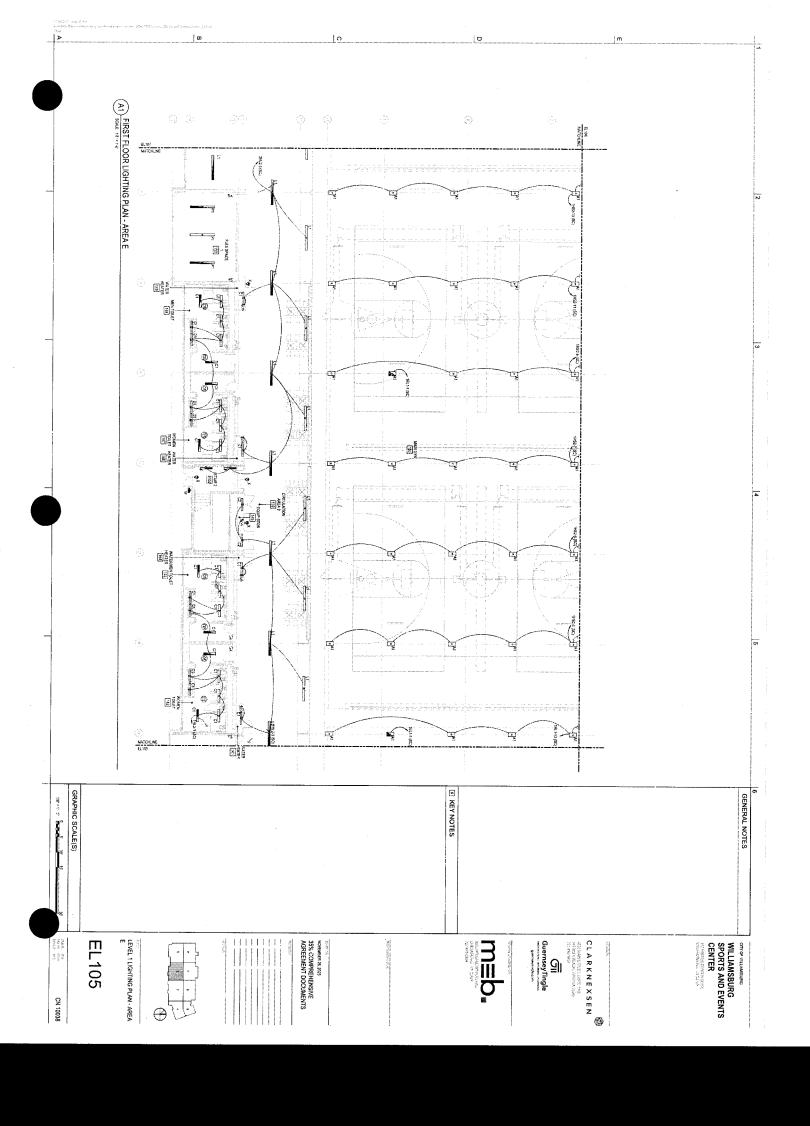
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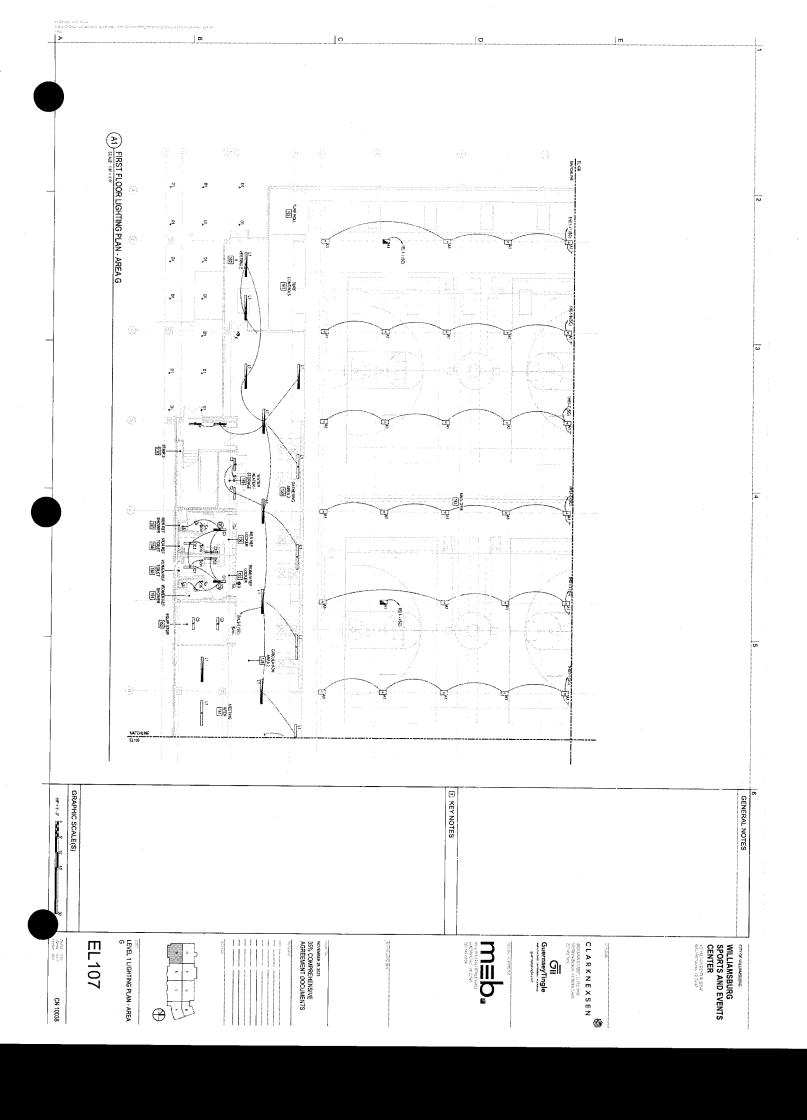
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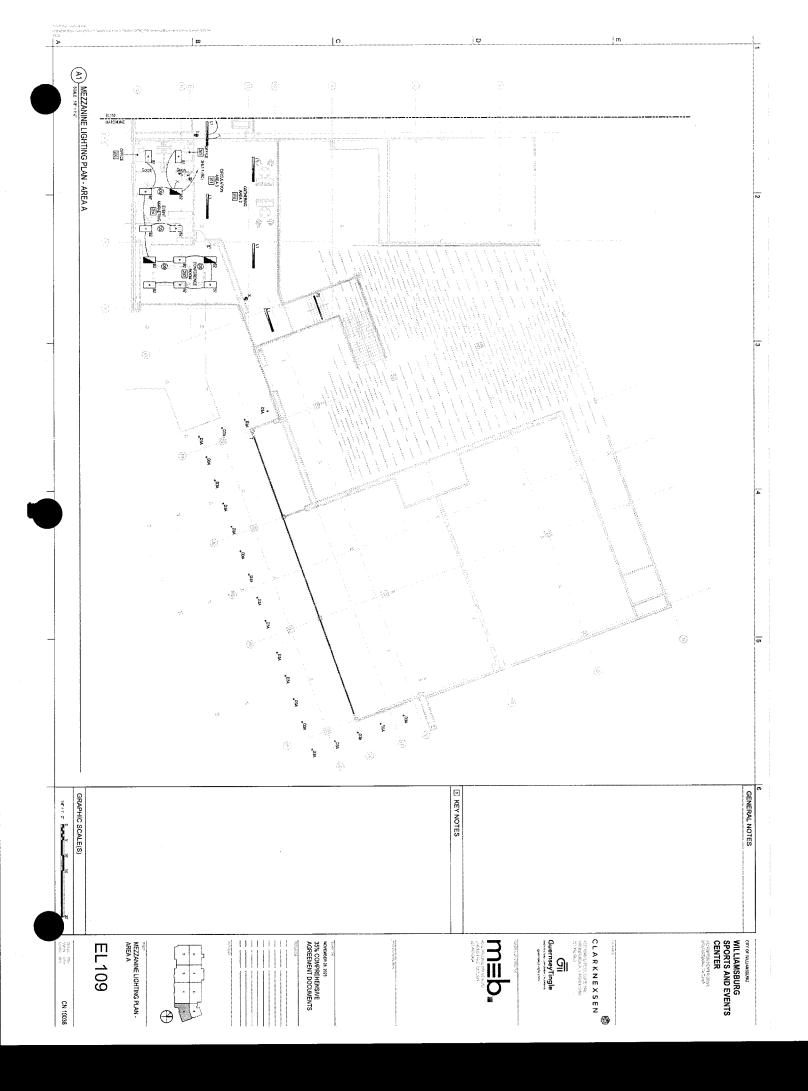


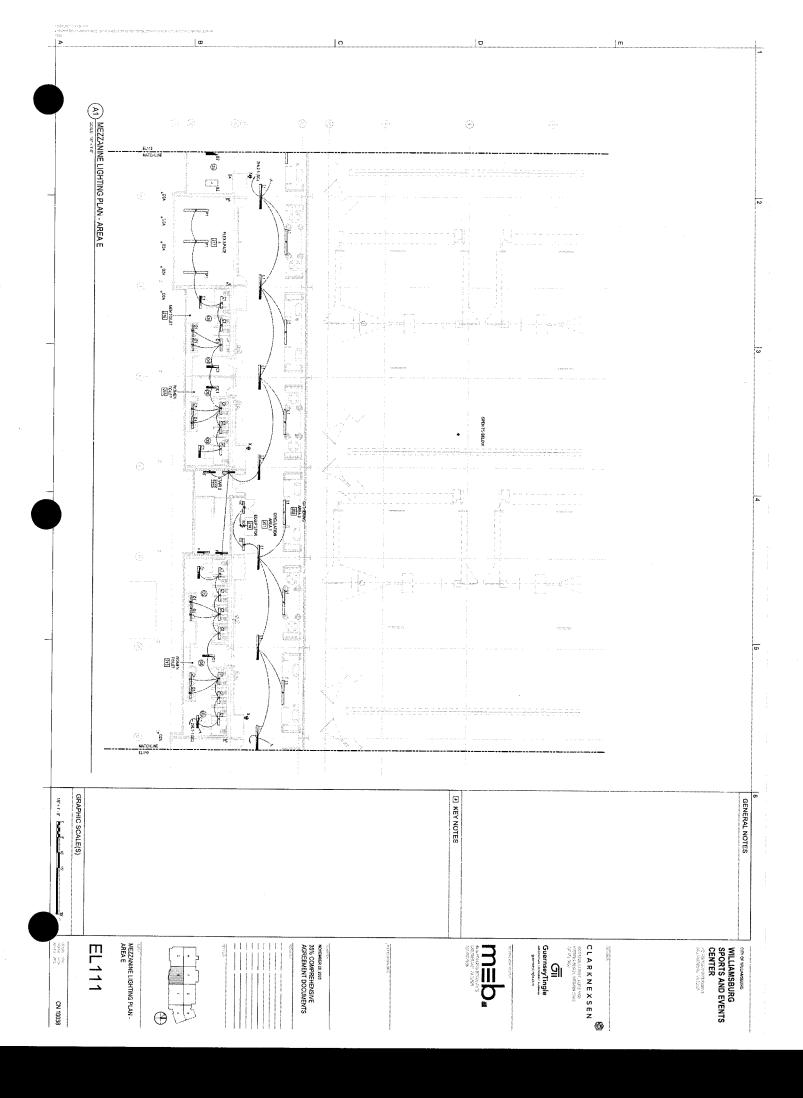












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AGREEMENT DOCUMENTS

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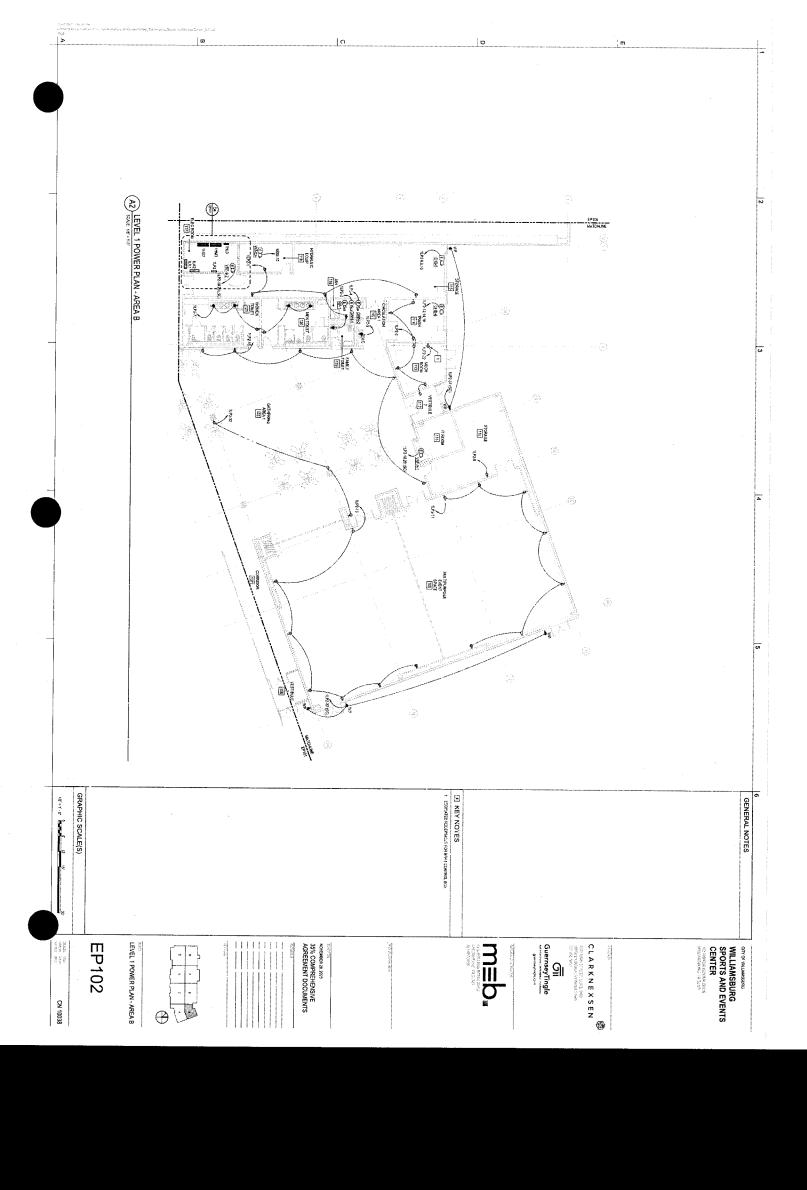
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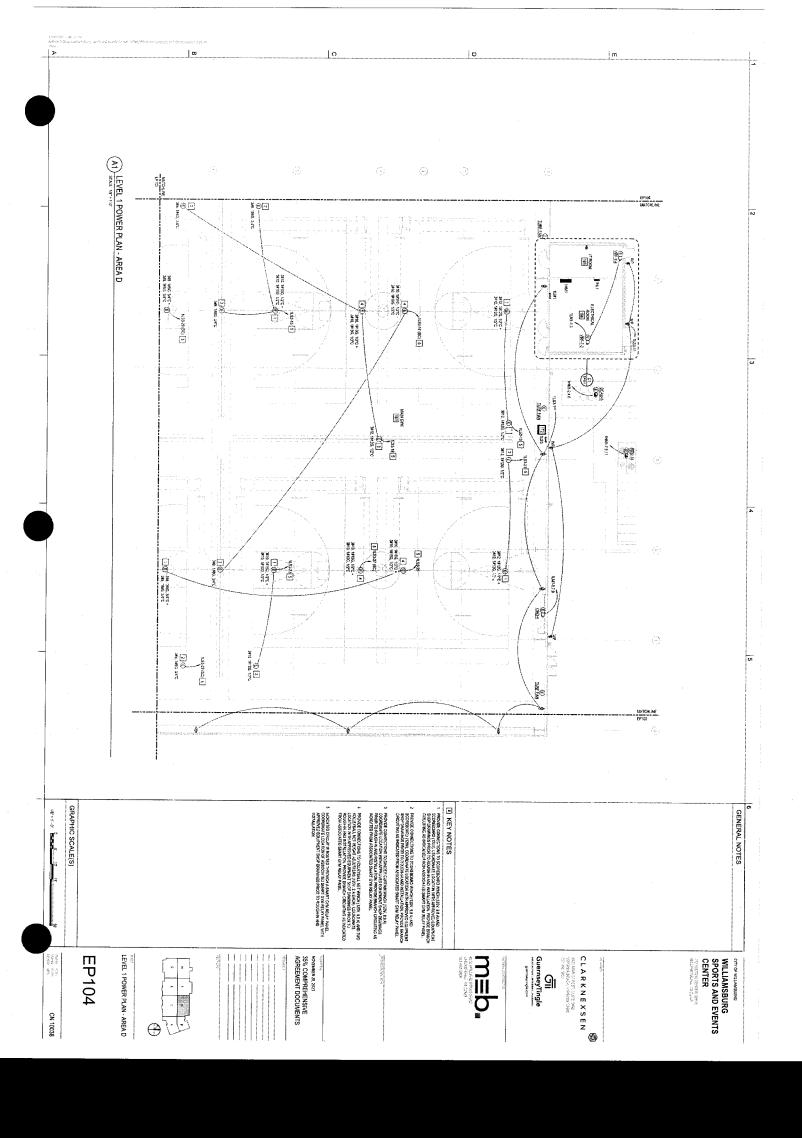
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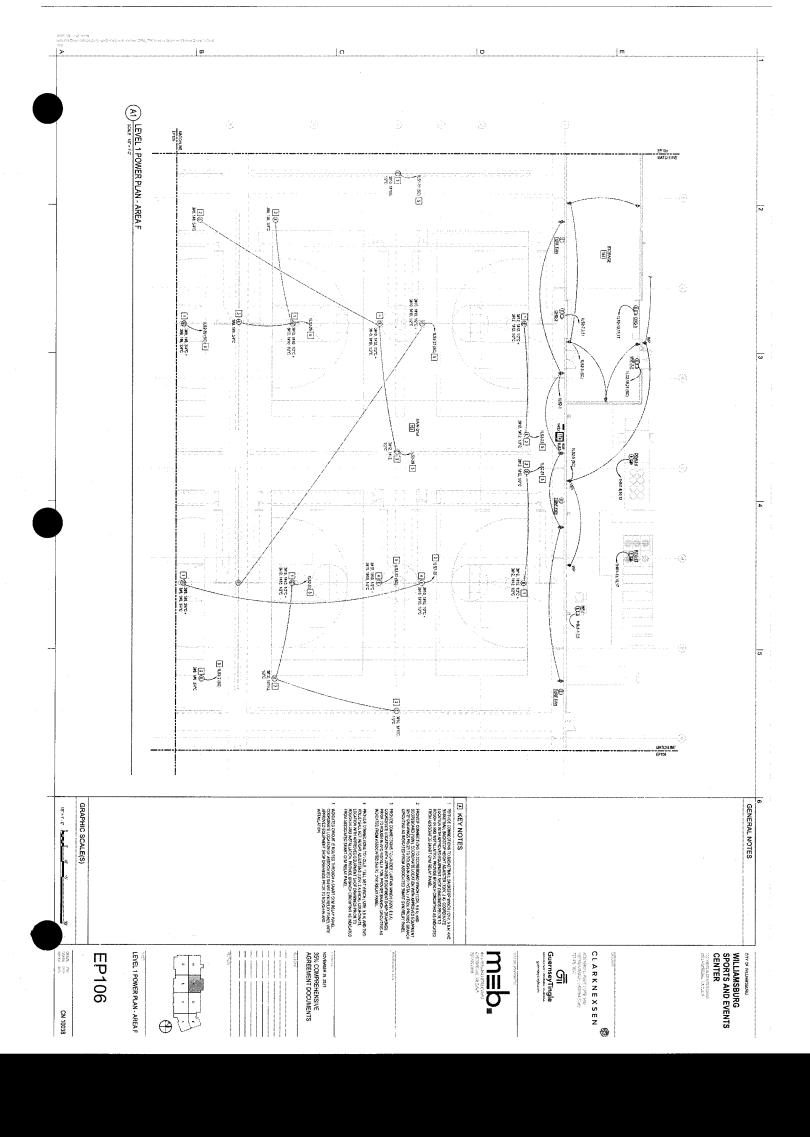
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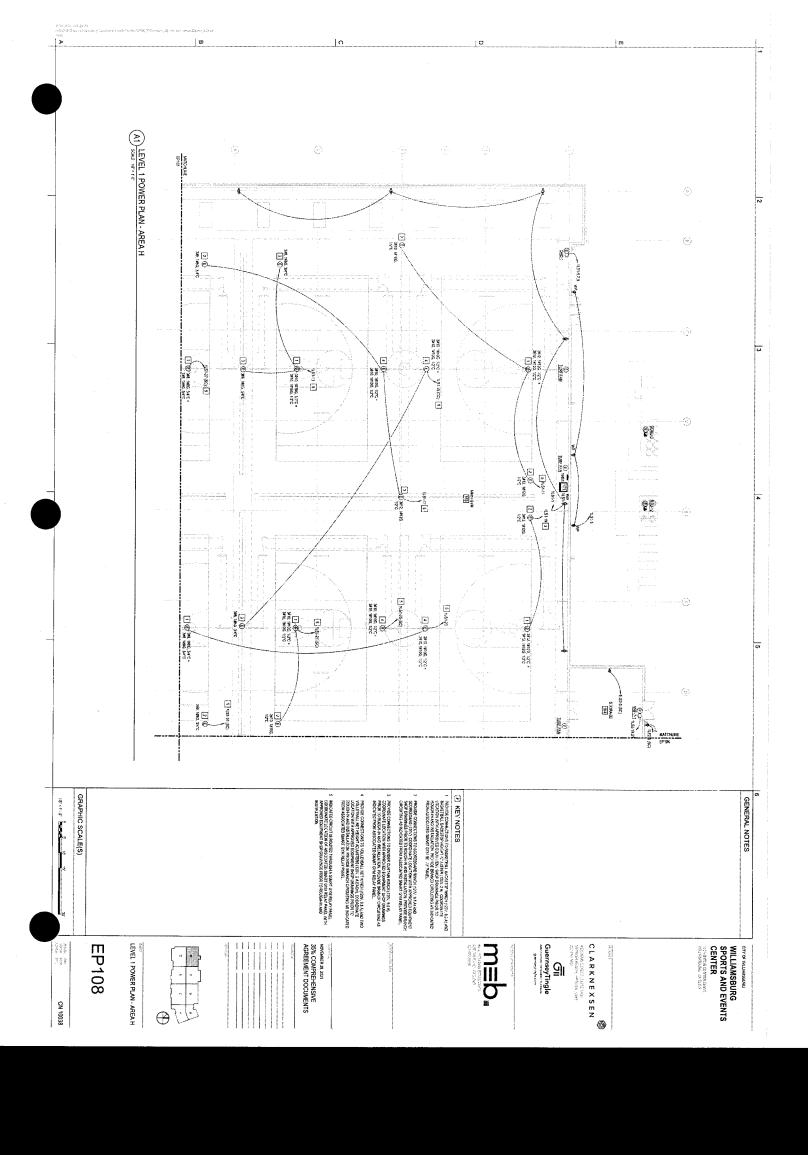
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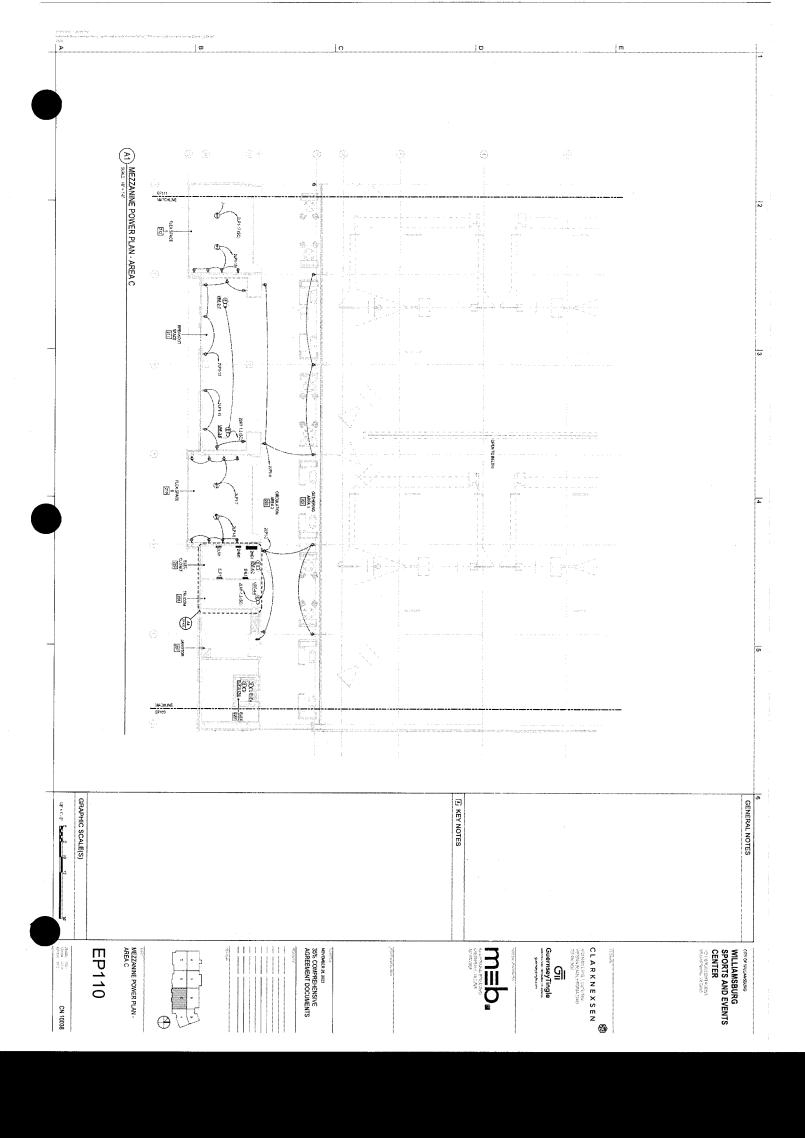
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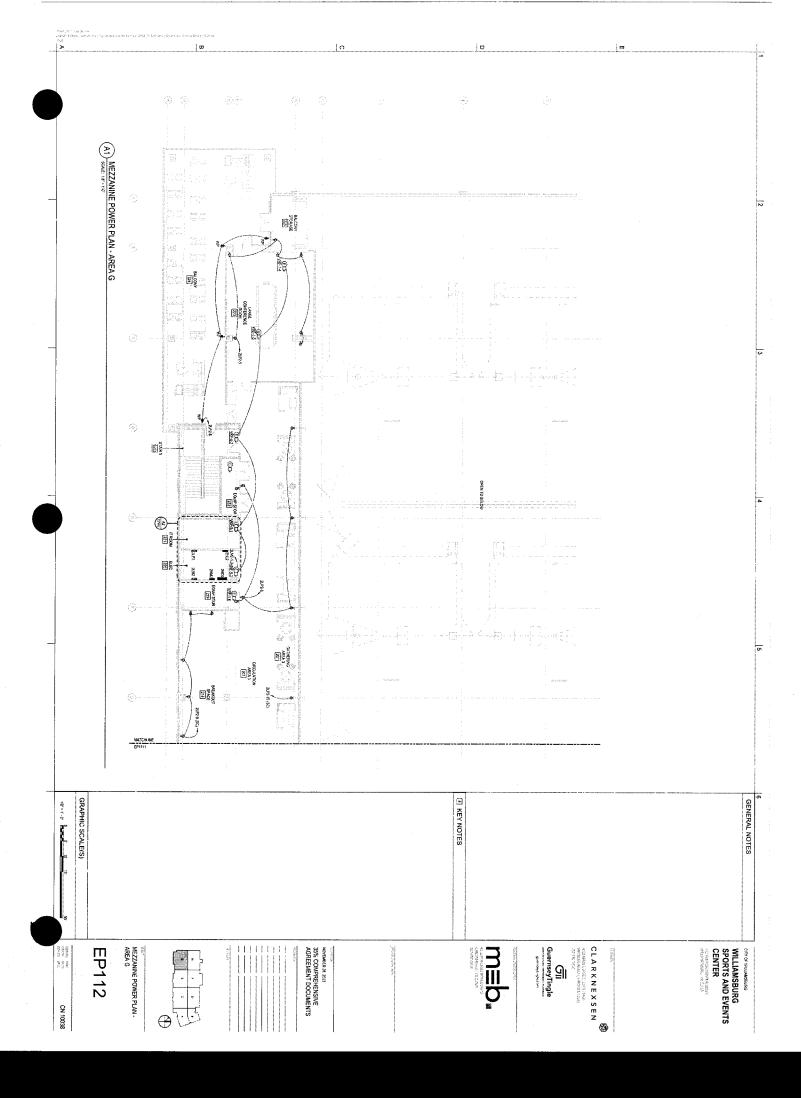


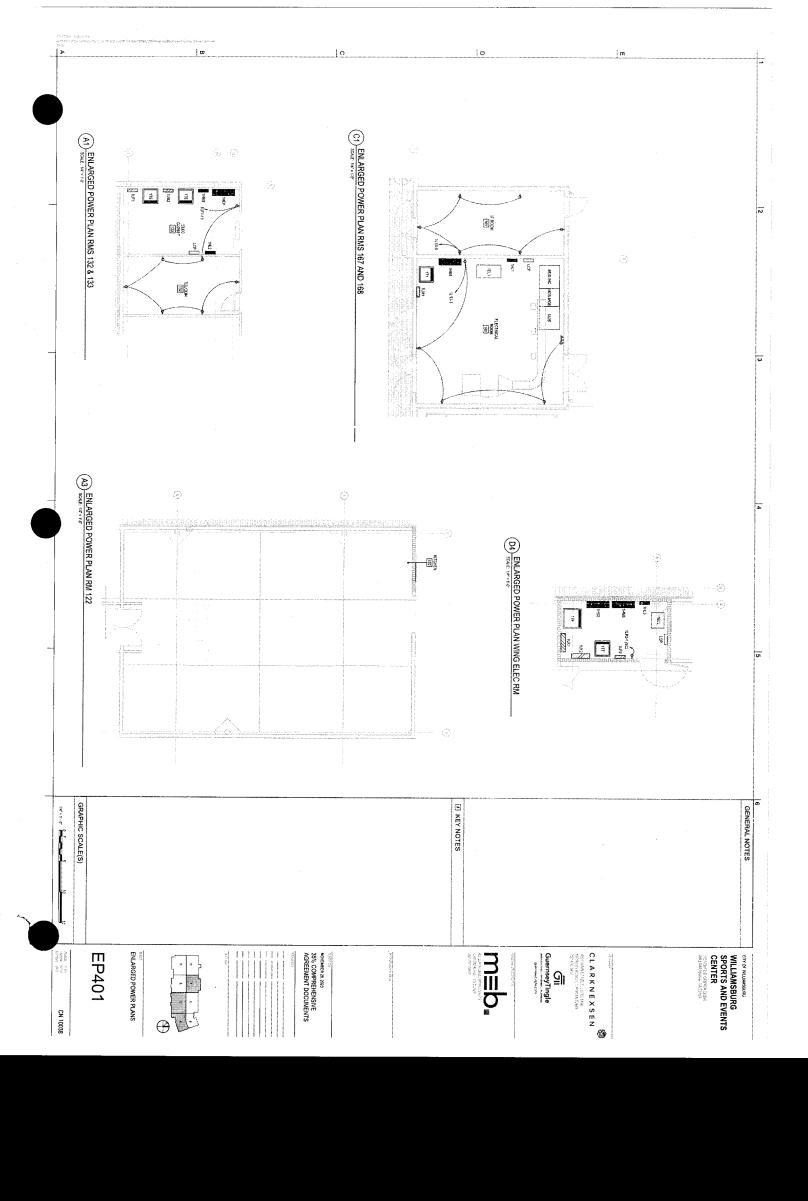












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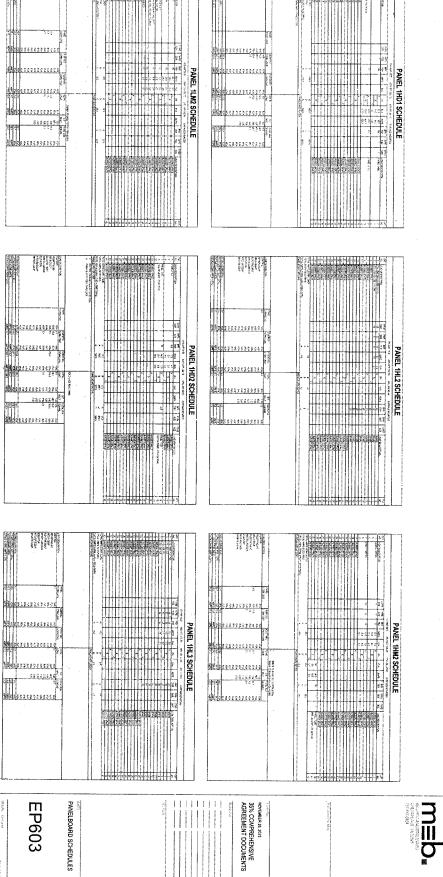
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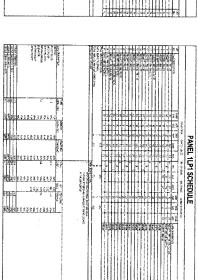
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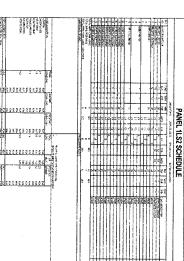


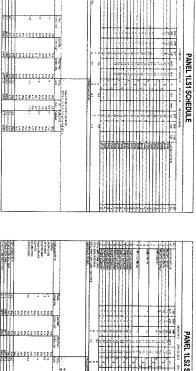


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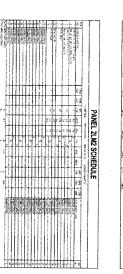


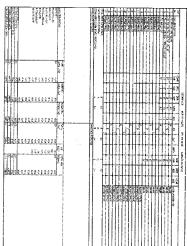
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DUPESS ALARM

DS VOLUMETRIC SENSOR SCASS BREAK SENSOR

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WP INDICATES WEATHER RESISTANT OUTLET ACCESS CONTROL PARKEL

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FIRE ALMRH CONTROL MODULE INTERFACE LOCK POWER SUPPLY

ELECTRIC STRIKE

BALANCED MAGNETIC SWITCH LEVEL 2

CEXTS COMBINATION LOCK

GENERAL NOTES

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COMBINATION POWER / TELECOM / AV DEVICES TELECOMMUNICATION PATHWAYS

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(B) FLUSH POKE-THRU MULTI-DUTLET FLOCIBBOX WITH COMBINATION OF POWER (204, 125VAC), DATA, AND AVIAS RESCATED.

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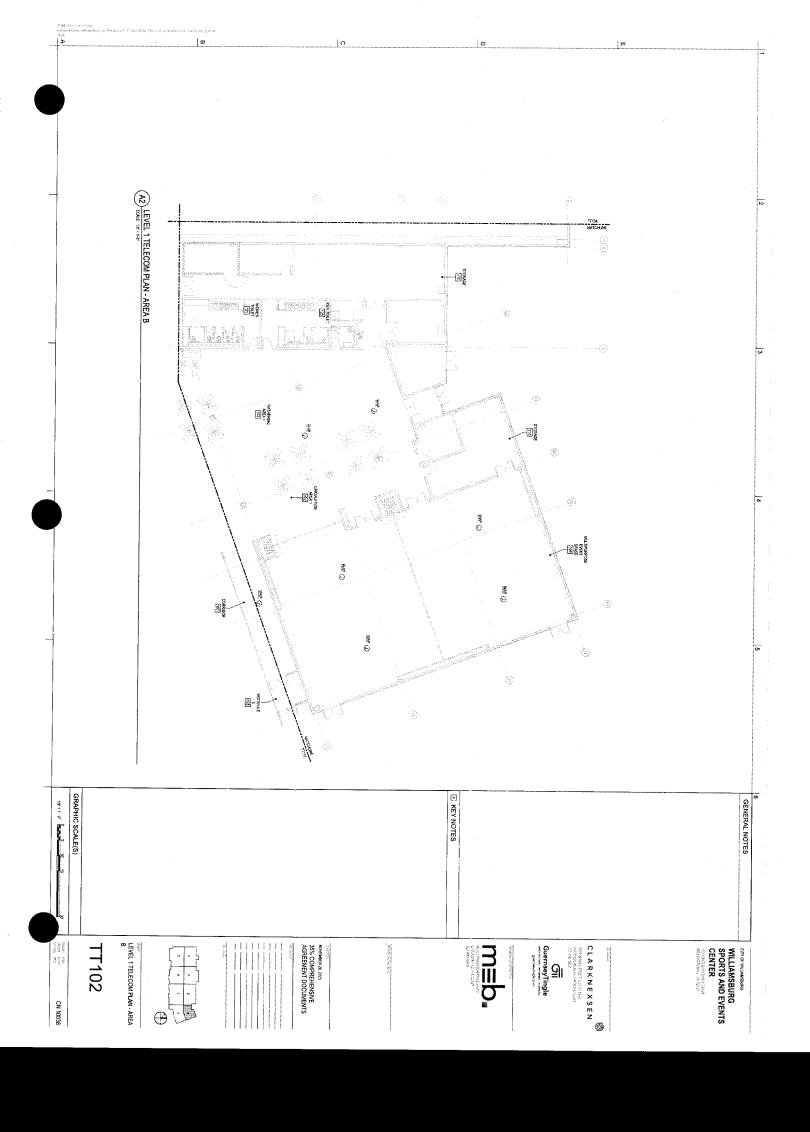
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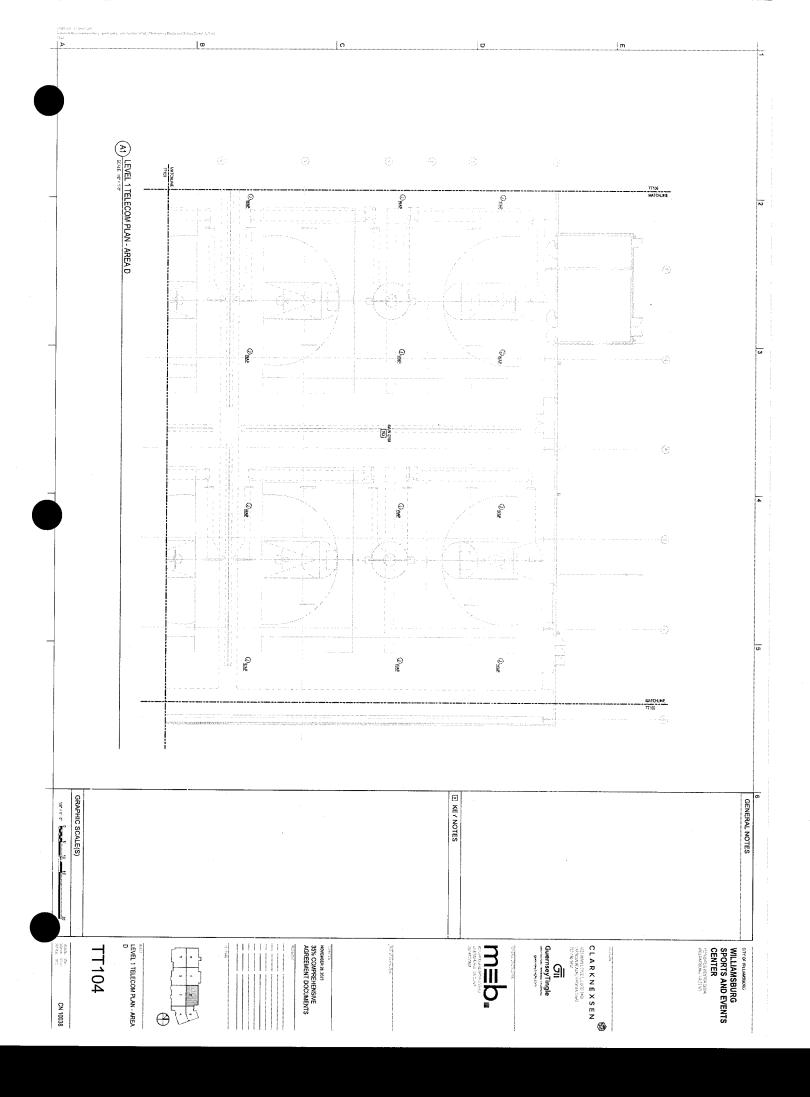
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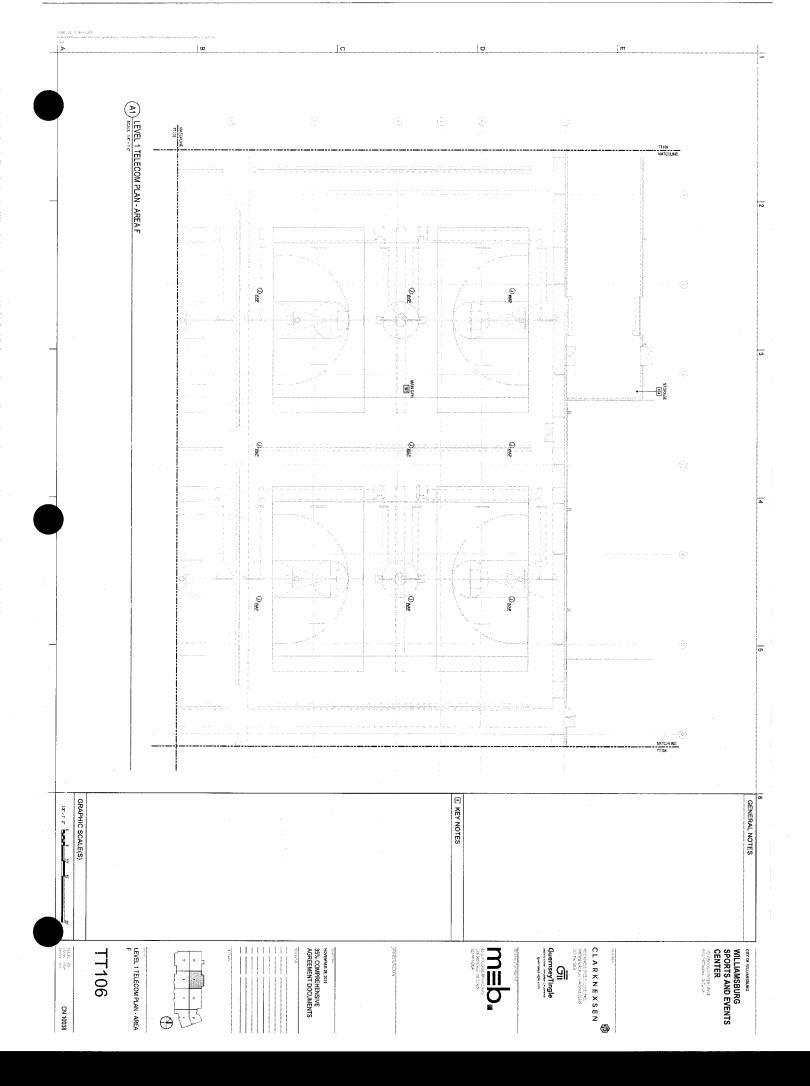
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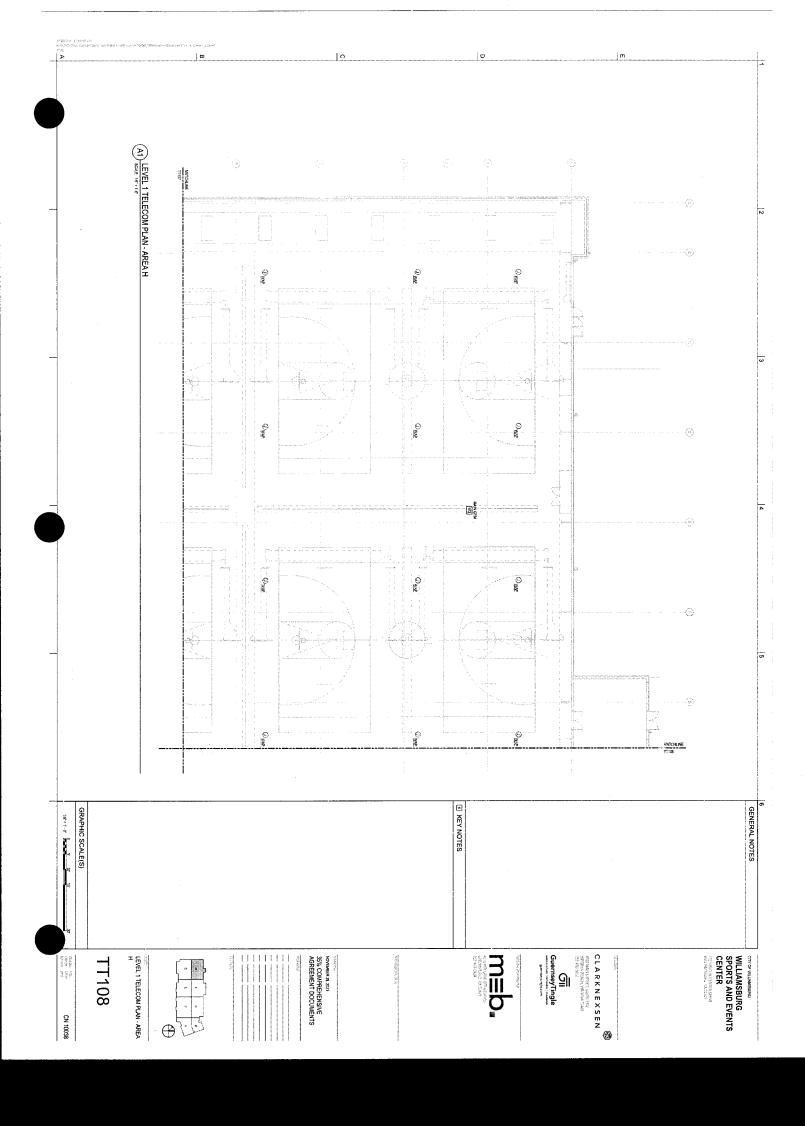
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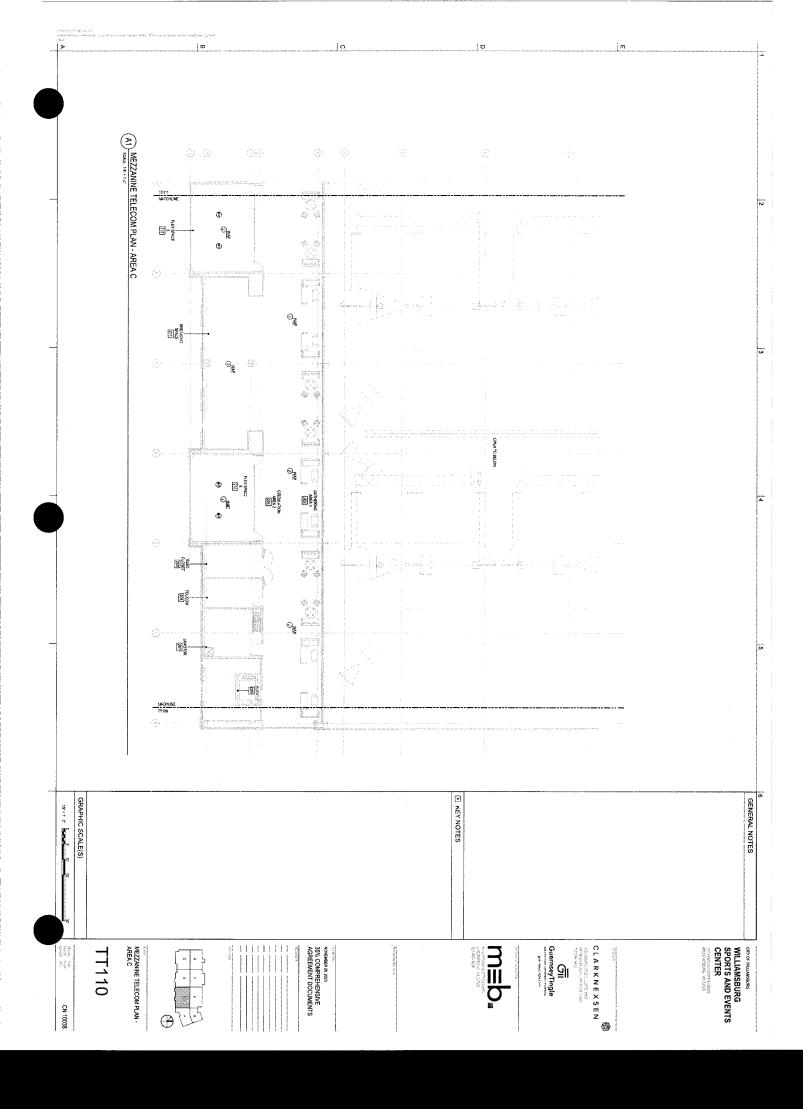
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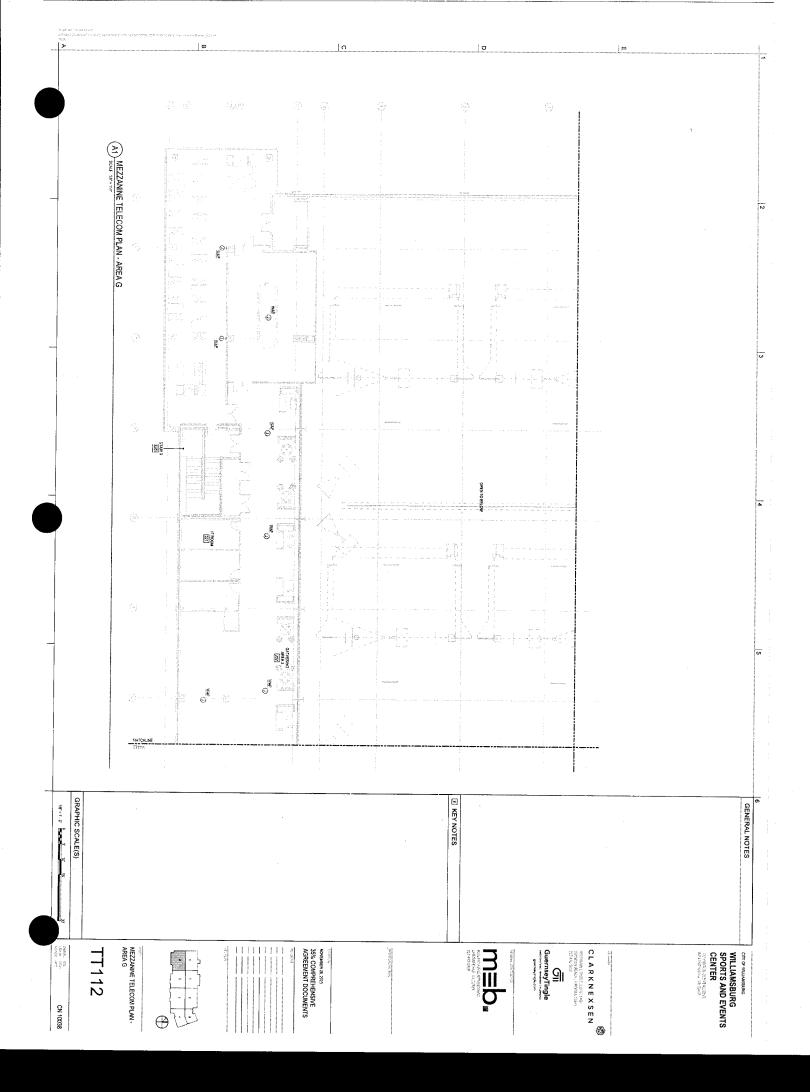


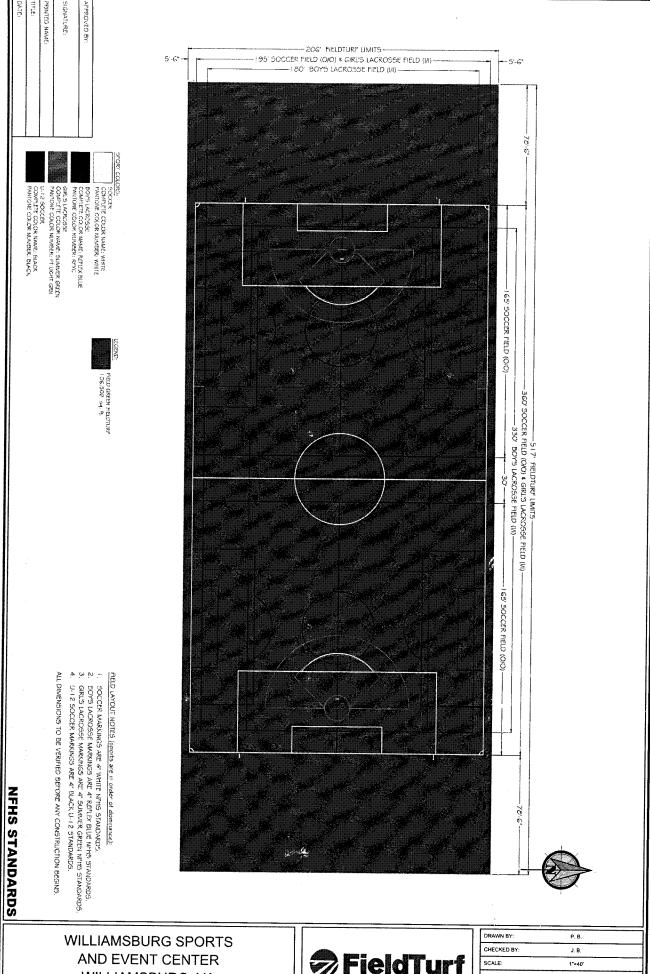












WILLIAMSBURG, VA



DRAWN BY:	P. B.	
CHECKED BY:	J. B.	
SCALE:	1"=40"	
TOTAL FIELD AREA:	106,502 sq. ft.	
PERIMETER:	1,446 In. If.	

DATE: NOVEMBER 16, 2023 ISSUE: PRESENTATION FIELD LAYOUT All Rights Reserved. Confidential Information: No portion of these drawings may be

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Williamsburg Sports Center Williamsburg, VA Project Narrative and Calculations Timmons Project Number: 48463 October 20, 2023

Demolition

Demolition for this project will include tree clearing, parking lot demolition, and utility infrastructure removal and/or abandonment to the extents shown in the site plan.

Permitting

A Land Disturbance and Construction General Permit will be obtained for this site prior to any land disturbing activities.

Erosion and Sediment Control Measures

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be constructed and maintained in accordance with the minimum standards and specifications of the Virginia Erosion and Sediment Control (VESC) Handbook. The minimum standards of the VESC Regulations shall be adhered to unless otherwise waived or approved by a variance.

Structural Practices

- Temporary Construction Entrance Std. & Spec. 3.02
 - Temporary stone construction entrances will be installed at the entrances to the site where the access area intersects with existing paved roadways to avoid transporting mud and sediment onto existing paved roads.
- 1. Silt Fence Std. & Spec. 3.05

Temporary silt fence sediment barriers will be installed around the perimeter of the phased areas to prevent sediment laden runoff from leaving the site.

- 2. Storm Drain Inlet Protection Std. & Spec. 3.07
 - All storm drain inlets within the project disturbed area and immediately downstream of the site shall be protected during construction. Inlet protection shall be installed on all existing inlets to remain and on each proposed inlet immediately after it is constructed.
- 3. Temporary Sediment Trap Std. & Spec. 3.13

One temporary sediment trap will be constructed to intercept sediment-laden runoff from the site and allow sediment to settle-out prior to being discharged into downstream conveyances.

4. Outlet Protection - Std. & Spec. 3.18

Outlet protection will be installed at all pipe outlets and concentrated flow outlets to prevent scour and to minimize downstream erosion.

5. Tree Protection - Std. & Spec. 3.38

Trees to be preserved during construction shall be adequately protected from mechanical or other injury during the land disturbing activities. Protective devices shall be installed around the drip line of these trees to clearly designate the limits of clearing and grading.

Vegetative Practices

1. Surface Roughening - Std. & Spec. 3.29

Surface roughening shall be performed to all slopes 4:1 or greater to aid in vegetative cover establishment.



- left dormant for more than one (1) year. Temporary seeding shall be in compliance with Std. & Spec. 3.31.
- 7. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved and that, in the opinion of the owner or city inspector, is uniform, mature enough to survive, and will inhibit erosion.
- 8. Areas outside the limits of disturbance shall not be disturbed without approval from the City E&S Inspector.
- All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
- 10. Periodic inspections and required maintenance must be provided, especially after each significant storm. The contractor shall be responsible for the installation and maintenance of all erosion and sediment control practices.
- 11. Adequate drainage or other protection shall be provided whenever water seeps from a slope face.
- 12. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
- 13. After adequate stabilization is achieved, the temporary erosion and sediment control measured will be cleaned up and removed.

Maintenance

In general, all erosion and sedimentation control measures shall be checked after each rainfall or weekly, whichever is most frequent, and should be cleaned and repaired according to the following schedule.

- 1. The construction entrance shall be maintained in a condition which will prevent tracking or flow of mud onto adjacent streets and public right-of-way. Periodic top dressing, washing, and rework of stone may be necessary. All materials spilled, dropped, washed, or tracked onto roadways must be remove immediately.
- 2. The silt fence barriers shall be checked regularly for undermining or deterioration of the fabric. Sediment shall be removed when the level of sediment deposition reaches half-way to the top of the barrier.
- 3. The inlet protection will be checked regularly and shall be cleaned when sediment has accumulated to one half of the depth of the device.
- 4. Erosion and Sediment Control measures shall be checked regularly for undermining or deterioration and buildup or clogging with sediment. Corrective action shall be taken immediately.
- 5. All temporary Erosion and Sediment measures shall be disposed of within thirty (30) days after final site stabilization is achieved and vegetation is established. Final site stabilization shall be approved by the City Inspector.
- 6. The seeded areas shall be checked regularly to ensure that a good stand of grass is maintained. Areas shall be fertilized and reseeded as needed.
- 7. Filled filter bags shall be removed from site and disposed of properly.

Virginia Department of Environmental Quality Minimum Standards

The design of this development shall conform to the minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook (VESCH). Included in the Civil Site Plans is the Virginia Department of Environmental Quality (DEQ) checklist for compliance (MS-1 thru MS-19 Checklist).



Williamsburg Sports Center Williamsburg, VA Project Narrative and Calculations Timmons Project Number: 48463 October 20, 2023

is shown to meet capacity requirements in the existing conditions. In total, roughly 4.80 AC of disturbance flows to the culvert. The culvert ultimately drains roughly 7.13 AC of area in the existing conditions.

POA-3:

The third point of analysis required for this project is due to a portion of the existing parking lot that will be modified to sheet flow to the south. This area is mostly paved parking. This point of analysis is included to demonstrate that we meet channel and flood protection at this point of sheet flow by a reduction in overall impervious area.

Stormwater Overview

Stormwater on the site, in the final conditions, will ultimately be controlled by a new ADS Stormtech chamber system. This system allows for the satisfaction of quantity requirements by directing a portion of the drainage away from POA-1 towards POA-2. This increase in the overall area to POA-2 will be dealt with by detaining the excess water within the chamber system and releasing it in a controlled manner via an outlet control structure, allowing us to meet state channel and flood protection requirements while improving HGL's in the existing visitors center drive system.

The chamber system will also utilize the ADS Isolator Row Plus system to achieve a portion of the water quality requirements. As the system does not provide the entirety of the required treatment, nutrient credits will be used to make up the remainder of the required treatment.

Stormwater Quantity

POA-1:

Channel protection:

POA-1 meets channel protection requirements through the energy balance equation. As the system takes drainage outside of the LOD the required reduction in peak flow was calculated based on the difference in disturbed area draining to the point of analysis. For full calculations please see the storm calculations in the Appendix of this narrative. Below is a table summarizing the results of the calculations.

1 Year Storm Pre-Development Peak Flow at POA-1	26.33 cfs
1 Year Storm Post-Development Peak Flow at POA-1	23.58 cfs
Required Reduction in Peak Flow per Energy Balance	0.00 cfs
Reduction in Peak Flow Achieved	2.75 cfs

Flood Protection:

The ultimate condition proposed by the development does show a small increase in peak flow to POA-1 during the 10-year storm, however, represents a major benefit to the system by reducing flooding in the system overall. This improvement is achieved by a reduction in area directed to the existing system.

The existing system holds back a significant amount of water during the 10-year storm as the pipes are over capacity. Directing less area to this system and adding another connection point causes a slight increase in peak flow at POA-1 as the strain on the existing system is reduced and allows the existing pipes combined with the new connection to allow a slightly higher peak flow at POA-1 during the 10-year storm.



Williamsburg Sports Center Williamsburg, VA Project Narrative and Calculations Timmons Project Number: 48463 October 20, 2023

	0000001 20, 2025
2 Year Storm Pre-Development Peak Flow at POA-3	2.12 cfs
2 Year Storm Post-Development Peak Flow at POA-3	2.09 cfs
10 Year Storm Pre-Development Peak Flow at POA-3	3.45 cfs
10 Year Storm Post-Development Peak Flow at POA-3	3.35 cfs

Storm Sewer Design

All proposed pipes have been designed to be below the calculated max flow ratio for the 10-year storm, achieve the minimum pipe flow velocity, and contain the HGL below the flow line elevation for the 10-year storm. For full pipe and HGL calculations please refer to the 10-year overall post development model in the Appendix.

Stormwater Quality

Stormwater quality will be addressed for the site through a combination of the ADS Isolator Row Plus and the purchase of nutrient credits. The VRRM redevelopment spreadsheet was used to calculate the required TP load reduction due to the proposed land cover changes. The required total TP load reduction is 6.63 lb/yr. A portion of the site (DA-C within the VRRM sheet) is directed to the ADS Isolator Row Plus treatment system. Per the VA BMP Clearinghouse this manufactured filtering system achieves a TP removal efficiency of 40%. The Isolator Rows provide 4.34 lb/yr TP removal as designed. The remaining 2.29 lb/yr will be purchased from a local nutrient bank.

Water Service

A public 12" waterline exists within the Route 60 (Bypass Road) Right-of-Way, with a 10" existing line branching into the site. This project intends to use this waterline for its domestic and fire protection needs. The existing 10" line runs through the location of the proposed building footprint. Therefore, the waterline will be rerouted to avoid the building. A new master meter will be relocated for the current buildings that are being serviced via the existing 10" line. The proposed building will tap the relocated public line via a 10" X 6" tee for means of water services. A 6" fire line with a detector check and a PIV will branch to the building with a 6" FCD line leaving the building. A 4" line will branch off the 6" line with a domestic meter. Two additional fire hydrants will be provided to address the fire flow requirements. A 15' utility easement will be placed over all portions of public water line on site.

Water meter calculations were performed based on the AWWA-M22 design criteria. The calculations conclude that the peak flow through the proposed water meter is 90 GPM which warrants a 2" meter.

Fire Flow calculations were performed using the 2015 International Fire Code (IFC) design criteria. The minimum required fire flow for the building, based on a 200,000 ft² building and IIB construction type, is 2,000 GPM.

Water system sizing and fire protection calculations for the fire flow condition can be found in the Appendix.

Sanitary Sewer Service

The proposed sanitary sewer system will tie into an existing 10" sanitary sewer line located along the southern edge property. Sanitary sewer calculations were done using Hampton Roads Regional Technical Standards. The results show that the average design flow is 7,200 GPD, or 10.00 GPM, and the peak design flow is 21,600 GPD, or 30.00 GPM.

Sanitary Sewer flow calculations can be found in the Appendix.





USDA United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for **James City and York** Counties and the City of Williamsburg, Virginia



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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

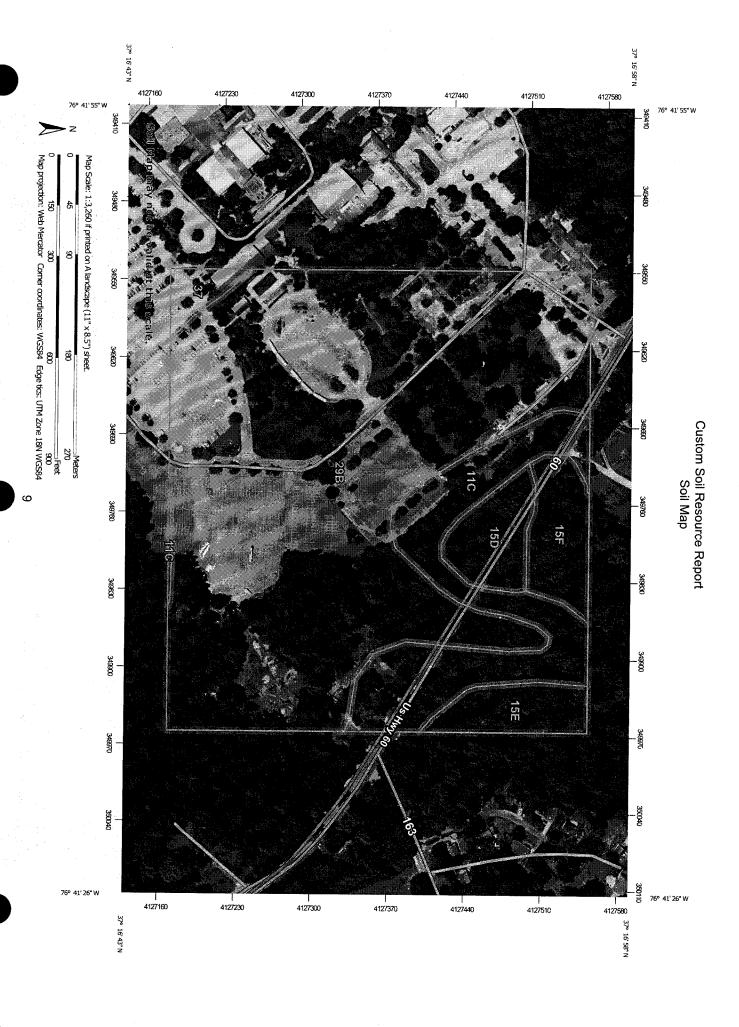
Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.



MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An association is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An undifferentiated group is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Parent material: Marine deposits

Typical profile

H1 - 0 to 24 inches: loamy fine sand H2 - 24 to 56 inches: sandy clay loam H3 - 56 to 65 inches: sandy loam

Properties and qualities

Slope: 6 to 10 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Very low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high

(0.20 to 1.98 in/hr)

Depth to water table: About 42 to 60 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: B Hydric soil rating: No

15D—Emporia complex, 10 to 15 percent slopes

Map Unit Setting

National map unit symbol: 41pw

Elevation: 20 to 150 feet

Mean annual precipitation: 40 to 55 inches

Mean annual air temperature: 57 to 61 degrees F

Frost-free period: 165 to 193 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Emporia and similar soils: 75 percent

Minor components: 5 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Emporia

Setting

Landform: Marine terraces

Landform position (three-dimensional): Riser

Down-slope shape: Convex Across-slope shape: Convex Parent material: Marine deposits

Typical profile

H1 - 0 to 13 inches: fine sandy loam

Down-slope shape: Convex Across-slope shape: Convex Parent material: Marine deposits

Typical profile

H1 - 0 to 13 inches: fine sandy loam

H2 - 13 to 58 inches: loam

H3 - 58 to 75 inches: sandy clay loam

Properties and qualities

Slope: 15 to 25 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high

(0.06 to 1.98 in/hr)

Depth to water table: About 36 to 54 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 6e

Hydrologic Soil Group: B

Ecological site: F153AY030NC - Dry Loamy Rises and Flats, F153BY030NC - Dry

Loamy Rises and Flats Hydric soil rating: No

Minor Components

Johnston

Percent of map unit: 5 percent

Landform: Flood plains

Landform position (three-dimensional): Tread

Down-slope shape: Linear Across-slope shape: Linear

Ecological site: F153AY090NC - Flooded Mineral Soil Floodplains and Terraces,

F153BY090NC - Flooded Mineral Soil Floodplains and Terraces

Hydric soil rating: Yes

15F—Emporia complex, 25 to 50 percent slopes

Map Unit Setting

National map unit symbol: 41py

Elevation: 20 to 150 feet

Mean annual precipitation: 40 to 55 inches Mean annual air temperature: 57 to 61 degrees F

Frost-free period: 165 to 193 days

Farmland classification: Not prime farmland

29B—Slagle fine sandy loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2sgy1

Elevation: 70 to 330 feet

Mean annual precipitation: 32 to 51 inches Mean annual air temperature: 47 to 70 degrees F

Frost-free period: 158 to 206 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Slagle and similar soils: 83 percent *Minor components*: 3 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Slagle

Setting

Landform: Marine terraces

Landform position (two-dimensional): Summit, shoulder Landform position (three-dimensional): Tread, riser, rise

Down-slope shape: Convex Across-slope shape: Convex

Parent material: Loamy marine deposits

Typical profile

Ap - 0 to 8 inches: fine sandy loam
Bt - 8 to 51 inches: sandy clay loam
C - 51 to 70 inches: sandy loam

Properties and qualities

Slope: 2 to 6 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to

moderately high (0.06 to 0.57 in/hr)

Depth to water table: About 18 to 36 inches

Frequency of flooding: None Frequency of ponding: None

Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e

Hydrologic Soil Group: C

Ecological site: F153AY040NC - Moist Loamy Rises and Flats

Hydric soil rating: No

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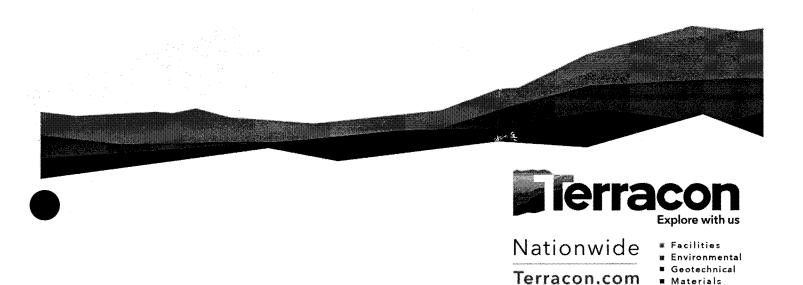
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Williamsburg Sports and **Entertainment Complex** - Phase 1

Subsurface Exploration and Geotechnical **Engineering Report**

Prepared for:

MEB 4016 Holland Boulevard Chesapeake, VA 23323



■ Materials

Williamsburg Sports and Entertainment Complex - Phase 1 | Williamsburg, VA July 24, 2023 | Terracon Project No. K4235044



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Report Summary

Topic ¹	Overview Statement 2
Project Description	The project involves the construction of a Sports and Entertainment Complex.
Geotechnical Characterization	Existing undocumented fill up to 2 feet deep encountered at several boring locations.
	Underlying the surficial materials and/or undocumented fill the soils were predominately comprised of CLAY (CL, CH) and Clayey SAND (SC).
	Groundwater estimated approximately 12.5- to 16.5-ft below grade.
Earthwork	Existing on-site soils are not considered suitable for reuse as structural fill.
	Shallow subsurface soils are sensitive to moisture variation.
Shallow	Shallow foundations are recommended for building support. Allowable bearing pressure = 2,000 psf
Foundations	Expected settlements: < 1-inch total, < ½-inch differential
Stormwater	Infiltration tests conducted indicated a low hydraulic conductivity at a depth of 10 feet below grade.
Management Facility	Groundwater was not encountered within the upper 10 feet below grade.
All Marie Control	With subgrade prepared as noted in Earthwork. Light Duty Parking Bays:
	2" AC Surface Mix over 8" Aggregate Base
in start	Heavy Duty for Drive Lanes with Parking Lot:
Pavements	2" AC Surface Mix over 3" AC Base Mix over 8" Aggregate Base
	Heavy Duty for Service Road:
	2" AC Surface Mix over 4" AC Base Mix over 8" Aggregate Base
	Heavy Duty for Dumpster Pads:
	6" Concrete over 6" Aggregate Base
General Comments	This section contains important information about the limitations of this geotechnical engineering report.

- 1 If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
- 2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Williamsburg Sports and Entertainment Complex - Phase 1 | Williamsburg, VA July 24, 2023 | Terracon Project No. K4235044



Item	Description			
Project Description	The project includes a sports and entertainment complex. This exploration and report pertain to the first phase that will include a building, service road, parking lot, and stormwater management (SWM) facility.			
Proposed Structure	The structure to be constructed within the first phase of the project will include a sports complex building that will house 12 courts and also include space for sports performance and physical therapy.			
Building Construction	The structure will be pre-engineered metal building with slab- on-grade construction.			
Finished Floor Elevation	Boring depths have assumed that finished floor is within about 3 feet of current grades.			
Maximum Loads	Anticipated structural loads were not provided. In the absence of information provided by the design team, we used the following loads in estimating settlement based on our experience with similar projects. Columns: 150 kips Walls: 6 kips per linear foot (klf) Slabs: 150 pounds per square foot (psf)			
Grading/Slopes	In the absence of grading information, we have estimated that cuts and fills required to establish finish grades across the site are limited to about 3 feet or less.			
Stormwater Management Facility	The specific design has not been developed at this time, but it is our understanding that it will likely consist of an underground SWM facility located beneath the proposed parking lot to the west of the sports complex building.			
Pavements	A service road will be constructed along the northside of the sports complex building that will tie into existing pavement areas as well as a new parking lot that is to be constructed along the westside of the sports complex building. The pavement design period is assumed to be 20 years.			
Building Code	2018 IBC			

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

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Model Layer Layer Name	General Description	Depth Range
1 Fill	Silty SAND (SM) with trace fine Gravel	0.5-1.0 to 1.5-2.0
CLAY and Clayey SAND	CLAY (CL, CH) and Clayey SAND (SC) Isolated deposits of Silty SAND (SM) interbedded	0.3-2.0 to 10.0-40.0

The initial surficial materials were comprised of either between 3 to 9 inches of topsoil materials or 1.5 to 5 inches of asphalt pavement underlain by 5 to 10 inches of aggregate base material. The undocumented existing fill materials, which constitute GeoModel layer 1, were observed at borings B-2, B-3, B-8, B-11, B-12, and B-13 as well as two of the pavement borings CBR-1 and CBR-2.

The borings were observed during drilling and at the completion of drilling for the presence of groundwater. Groundwater was encountered approximately 12.5 to 16.5 feet below grade.

It should be recognized that fluctuations of the groundwater table will occur due to seasonal variations in the amount of rainfall, runoff, and other factors not evident at the time the boring was performed. In addition, perched water can develop within higher permeability soils overlying less permeable soils. Therefore, groundwater levels during construction or at other times in the future may be higher or lower than the levels indicated on the boring logs.

Groundwater conditions will vary with environmental variations and seasonal conditions, such as the frequency and magnitude of rainfall patterns, as well as man-made influences, such as existing swales, drainage ponds, underdrains and areas of covered soil (paved parking lots, sidewalks, etc.). Seasonal groundwater fluctuations of \pm 2 feet are common in the project's area; however, greater fluctuations have been documented.

Soil Survey

The soil survey of James City and York Counties and the City of Williamsburg, Virginia (VA695) as prepared by the United States Department of Agriculture (USDA), Soil Conservation Service (SCS; later renamed the Natural Resource Conservation Service – NRCS), dated August 1989, identifies the soil types at the subsite as Slagle fine sand loam (29B) and Craven-Uchee complex (11C). A soils map is included in the **Figures** attachment of this report, depicting the applicable Soil Survey map portion for the subject site.

Williamsburg Sports and Entertainment Complex - Phase 1 | Williamsburg, VA July 24, 2023 | Terracon Project No. K4235044



(near CBR-1) at a depth of 10-ft as directed by the client.

Review of historical site data.

The SPT borings were performed with the use of rotary wash "mud" drilling procedures in general accordance with ASTM D 1586. The tests were performed continuously from the existing ground surface to depths of 10 to 12-feet, and at 5-foot intervals thereafter starting at a depth of 13-feet. The soil samples were obtained with a standard 1.4" I.D., 2" O.D., 30" long split-spoon sampler. The sampler was driven with blows of a 140 lb. hammer falling 30 inches, using an automatic hammer. The number of blows required to drive the sampler each 6-inch increment of penetration was recorded and is shown on the boring logs. The sum of the second and third penetration increments is termed the SPT N-value (uncorrected for automatic hammer). A representative portion of each disturbed split-spoon sample was collected with each SPT, placed in a glass jar, sealed, labeled, and returned to our laboratory for review. For safety purposes, all boreholes were backfilled upon completion with the drilling spoils.

A hand auger was utilized to complete boring BMP-2. The hand auger was advanced to a depth of 15 feet below the existing ground surface. Sampling was performed continuously from the existing ground surface to boring termination. Representative samples were collected while advancing the hand auger generally at 1-ft intervals.

The boring locations were established by MEB and **Terracon** and were approved by MEB prior to mobilization. The boring locations were staked in the field by a representative of **Terracon** with a handheld GPS device and by corroborating the location with easily identifiable landmarks. The approximate boring and groundwater monitoring well locations are shown in the **Figures** attachment of this report.

Field and Laboratory Testing

Soil testing provided by **Terracon** was performed in accordance with American Society for Testing and Materials (ASTM) standards. All soils and materials tests were performed in our AASHTO re:source (formally AMRL) and US Army Corps of Engineers certified Williamsburg, Virginia laboratory.

Soil Classification and Index Testing

Representative portions of all soil samples collected during drilling operations were labeled, preserved, and transferred to our laboratory in accordance with ASTM D4220 for classification and analysis. Soil descriptions on the boring logs are provided using visual-manual methods in general accordance with ASTM D2488 using the Unified Soil Classification System (USCS).

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As sea levels rose during the Pleistocene Epoch of the Quaternary Period, areas within the project limits were filled and overlain by soils of the Windsor Formation, which is composed of fluvial and estuarine deposits. The geologic stratigraphy encountered in our subsurface explorations generally consisted of marine deposited Sands and Clays of this formation.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties observed at the site and as described on the exploration logs and results, our professional opinion is that a **Seismic Site Classification of D** be considered for the project. Subsurface explorations at this site were extended to a maximum depth of 40 feet. The site properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

Infiltration Testing

Constant-Head Borehole Permeameter Infiltration testing was performed at boring locations and depths as directed by the client. The individual test location boreholes were prepared utilizing a planar auger to remove soil cuttings from the base. Permeability testing was then conducted within the vadose zone utilizing a Johnson Permeameter $^{\text{TM}}$ and the following testing procedures:

A support stand was assembled and placed adjacent to the borehole. This stand holds a calibrated reservoir and a cable used to raise and lower the water control unit (WCU). The WCU establishes a constant water head within the borehole during testing by use of a precision valve and float assembly. The WCU was attached to the flow reservoir with a braided PVC hose and then lowered by cable into the borehole to the test depth elevation. As required by the Glover solution, the WCU was suspended approximately 1-to 2-inches above the bottom of the borehole. The shut-off valve was then opened allowing water to pass through the WCU to fill the borehole to the constant water level elevation. The absorption rate slowed as the soil voids became filled and an equilibrium developed as a wetting bulb developed around the borehole. Water was continuously added until the flow rate stabilized. The reservoir was then re-filled in order to begin

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Support of floor slabs and pavements on or above existing undocumented fill materials is discussed in this report. However, even with the recommended construction procedures, an inherent risk remains for the owner that compressible fill or unsuitable material, within or buried by the fill, will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill but can be reduced by following the recommendations contained in this report. To take advantage of the cost benefit of not removing the entire amount of undocumented fill, the owner must be willing to accept the risk of increased differential performance which can result in increased cracking and abrupt differential settlement. Should this risk be acceptable, floor slabs and pavements can be supported above the existing undocumented fill.

The recommendations contained in this report are based upon the results of field and laboratory testing (presented in the **Exploration Results** section), engineering analyses, and our current understanding of the proposed project. The **General Comments** section provides an understanding of the report limitations.

Earthwork

Earthwork is anticipated to include clearing and grubbing, excavations, and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundations, floor slabs, and pavements.

Site Preparation

Prior to placing fill, existing vegetation, topsoil, and root mats should be removed. Complete stripping of the topsoil should be performed in the proposed building and pavement areas. This cut is expected to extend deeper in isolated areas to remove deeper deposits of organic or unsuitable soils, which become evident during the clearing (i.e., removal of root mat associated with existing trees). Based on observations of this project site and similar projects within wooded areas, this cut could extend as deep as 24 inches to remove unstable, organic laden soils and root mat materials. Removing trees will also consist of stump and large root ball removal. These events will likely leave holes that may extend several feet in depth throughout the project site. Surface water may accumulate in these holes leading to subgrade deterioration if not properly addressed.

Tree root systems can remove substantial moisture from surrounding soils. Where trees are removed, the full root ball and all associated dry and desiccated soils should be removed.

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for support of foundation loads and should be removed from the base of all footing excavations where encountered. Support of floor slabs and pavements on or above existing fill soils is discussed in this report. However, even with the recommended construction procedures, inherent risk exists for the owner that compressible fill or unsuitable material, within or buried by the fill will, not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill but can be reduced by following the recommendations contained in this report.

If the owner elects to construct the floor slabs and pavements on the existing fill to reduce initial construction costs in exchange for increased potential longer-term distress, the following protocol should be followed. Several shallow test pits should be excavated within the proposed construction areas. The test pits are considered necessary to determine the thickness and composition of the existing fill and thus the suitability for it to remain in-place (beneath the slabs and pavements). The test pits should be performed under the observation of the Geotechnical Engineer who will evaluate the composition of the recovered soils.

In addition to the test pits, several compaction tests should be performed on the existing fill within the proposed construction areas to further substantiate the suitability of the existing fill to remain beneath the ground supported slabs and pavements. It is possible that some subgrade improvements will be required to provide suitable soils for slab and pavement support. Upon completion of the test pit exploration and once planned grading has been completed, the entire area should be proofrolled with heavy, rubber tire construction equipment, to aid in delineating areas of soft or otherwise unsuitable soil. Once unsuitable materials have been remediated, and the subgrade has passed the proofroll test, backfill to finished subgrade elevation can begin.

Excavation

We anticipate that excavations for the proposed construction can be accomplished with conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures or pavements.

Reuse of On-Site Soil: Nearly all of the excavated on-site soil is likely not suitable for reuse as Structural Fill and should not be placed beneath any structures of pavement areas. Isolated deposits of Silty SAND (SM) were encountered that may be suitable for

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Item	Structural Fill
Maximum Lift Thickness	10 inches or less in loose thickness when heavy, self-propelled compaction equipment is used
	4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Minimum Compaction Requirements	98% of maximum dry density as determined by the Standard Proctor (ASTM D698)
Water Content Range	±2 percentage points of optimum as determined by the Standard Proctor (ASTM D698)

Item	General Fill
Maximum Lift	10 inches or less in loose thickness when heavy, self-propelled compaction equipment is used
Thickness	4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Minimum Compaction Requirements	92% of maximum dry density as determined by the Standard Proctor (ASTM D698)
Water Content Range	As required to achieve minimum compaction requirements

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with structural fill or bedding material in accordance with public works specifications for the utility be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from existing foundations without engineering review of shoring requirements and geotechnical observation during construction.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

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As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Excavations or other activities resulting in ground disturbance have the potential to affect adjoining properties and structures. Our scope of services does not include review of available final grading information or consider potential temporary grading performed by the contractor for potential effects such as ground movement beyond the project limits. A preconstruction/ precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent or near property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,000 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas (minimum 3 tests per lift). Where not specified by local ordinance, one density and water content test should be performed for every 100 linear feet of compacted utility trench backfill and a minimum of one test performed for every 12 vertical inches of compacted backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project

Subsurface Exploration and Geotechnical Engineering Report Williamsburg Sports and Entertainment Complex - Phase 1 | Williamsburg V

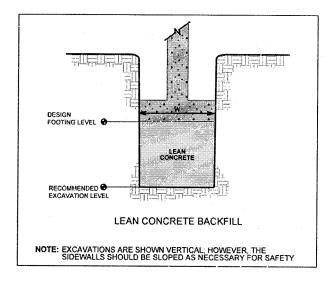
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bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

Sensitive soils exposed at the surface of footing excavations may require surficial compaction with hand-held dynamic compaction equipment prior to placing structural fill, steel, and/or concrete. Should surficial compaction not be adequate, construction of a working surface consisting of either crushed stone or a lean concrete mud mat may be required prior to the placement of reinforcing steel and construction of foundations.

If unsuitable bearing soils or undocumented existing fill are observed at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The lean concrete replacement zone is illustrated on the sketch below.



Floor Slabs

Design parameters for floor slabs assume the requirements for **Earthwork** have been followed. Specific attention should be given to positive drainage away from the structure and positive drainage of the aggregate base beneath the floor slab.

Existing undocumented fill materials were observed at the site to depths of 1.5 to 2 feet below existing grade. As previously described, any existing fill present beneath floor slabs should be further evaluated by the Geotechnical Engineer.

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Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed, and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should observe the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

Storm Water Management Discussion

Initially, the intended location of the stormwater management (SWM) facility was within an area currently wooded along the northern perimeter of the project site and in the vicinity of borings BMP-1 and BMP-2. Upon completion of our soil borings, the client indicated the design concept had changed and this initial location for the SWM facility was abandoned. Currently, the design concept is for the SWM facility to likely consist of an underground type of facility located beneath the proposed parking lot to the west of the proposed sports complex building, and in the vicinity of boring CBR-1. However, further design information is not known at this time.

The soils at boring CBR-1 were generally comprised of low permeability CLAY (CL) and Clayey SAND (SC) that extended to the boring termination depth of 10 feet below existing grade. Groundwater was not encountered within this boring to the depth explored. Two (2) in-situ infiltration tests were completed at locations and depths within this proposed parking lot as specified by the client. These tests were conducted at a depth of 10 feet below existing grade. The infiltration at these locations and depth has been evaluated to have a low hydraulic conductivity.

Since the specific design of the SWM facility is not known at this time, recommendations to support the design would be premature. Consequently, once the final design has been established, the Geotechnical Engineer should be consulted to provide further recommendations as necessary.

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Pavement Section Thicknesses

The table on the following page provides our opinion of minimum thickness for Asphalt concrete (AC) and Portland Cement Concrete (PCC) pavement sections:

	Thickness (inches)					
Section ¹	AC ²		PCC	Aggregate Base	Subgrade ⁴	
	Surface	Base		Course 3		
Light Duty Flexible (Parking spaces)	2	MESSERVE TO		8	Firm, Stable, and Compacted	
Heavy Duty Flexible (Parking lot drive lanes)	2	3		8-	Firm, Stable, and Compacted	
Heavy Duty Flexible (Service road)	2	4	•	8	Firm, Stable, and Compacted	
Heavy Duty Rigid (Dumpster pads)	James <u>P</u> astelia j pagano <u>P</u> astelia j pagano pa	200	6	6	Firm, Stable, and Compacted	

- 1. Typical traffic classification in similar developments.
- 2. All materials should meet VDOT Standard Specifications for Highway and Bridge Construction.
 - Asphalt Surface SM-12.5A
 - Asphalt Base BM-25.0A
- 3. VDOT No. 21A stone compacted to a dry density of at least 100% of the Standard Proctor maximum dry density (ASTM D 698).
- 4. Subgrade soils compacted to a dry density of at least 100% of the Standard Proctor maximum dry density (ASTM D 698).

Obtaining the CBR design value included in our analysis for the subgrade soils when constructing new pavements is contingent upon successfully preparing and compacting the subgrade soils to a depth of at least 12 inches along with the quality control testing procedures as indicated in this report. In the event that the subgrade soils are not firm, stable, and properly compacted, a CBR value less than that noted above will be achieved which will reduce the lifespan of the pavement section and/or potentially result in pavement failures.

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system, longitudinal subdrains, or other suitable outlets and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate subdrainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

Based on the possibility of shallow and/or perched groundwater, we recommend installing a pavement subdrain system to control groundwater, improve stability, and improve long-term pavement performance.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic upkeep should be anticipated. Preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Pavement care consists of both localized (e.g., crack and joint sealing and patching) and global maintenance (e.g., surface sealing). Additional engineering consultation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur, and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

- Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.

Subsurface Exploration and Geotechnical Engineering Report

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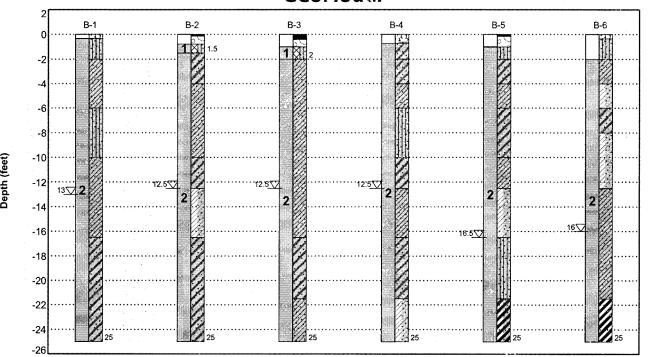


water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

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GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer Layer Name	General Description
1. Fill	Silty SAND (SM) with trace fine Gravel
2 CLAY & Clayey SAND	CLAY (CL, CH) and Clayey SAND (SC)

LEGEND

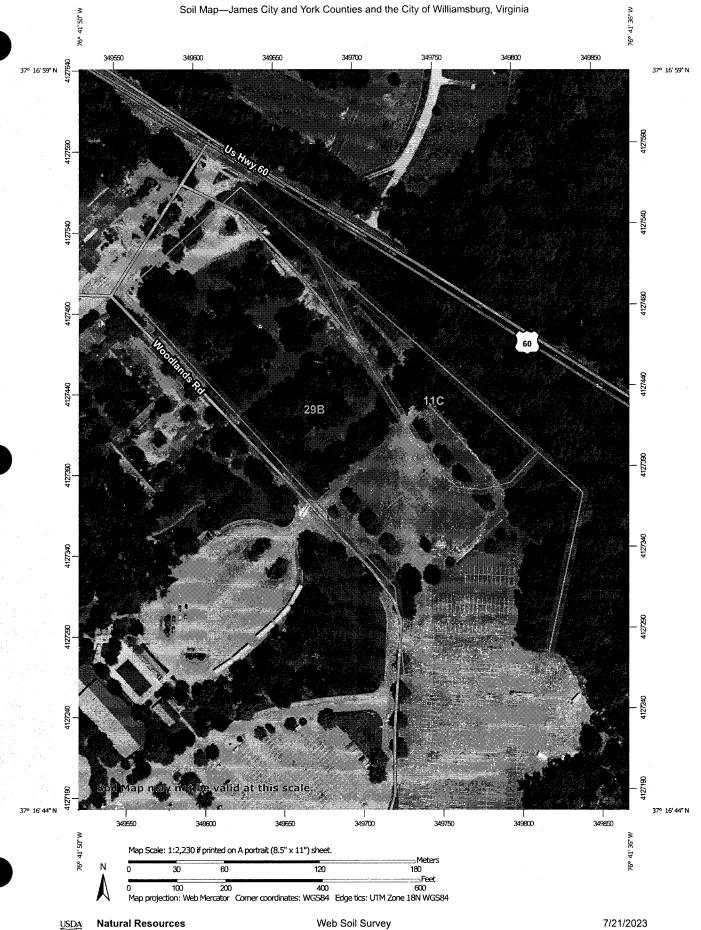
Topsoil	Clayey Sand	Lean Clay with Sand
Silty Sand	Asphalt	Fat Clay with Sand
Sandy Lean Clay	Aggregate Base Course	Fat Clay

The groundwater levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project.

Numbers adjacent to soil column indicate depth below ground surface.



Conservation Service

Web Soil Survey National Cooperative Soil Survey

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
11C	Craven-Uchee complex, 6 to 10 percent slopes	1.4	15.1%
29B	Slagle fine sandy loam, 2 to 6 percent slopes	8.1	84.9%
Totals for Area of Interest		9.6	100.0%



Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
12	25	Building footprint
1	40	Building footprint
. 4	10, obtained bulk samples for CBR testing at each location	Pavement areas
2	15, including a temporary 24-hr well installation at one location	Former SWM facility footprint
2	10, in-situ infiltration test only	Underground SWM Facility

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ± 10 feet) and referencing existing site features. If elevations and a more precise boring layout are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: The SPT borings were performed with the use of rotary wash "mud" drilling procedures in general accordance with ASTM D 1586. The tests were performed continuously from the existing ground surface to depths of 10 to 12-feet, and at 5-foot intervals thereafter starting at a depth of 13-feet. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with 2.5-inch I.D. ring lined sampler was used for sampling in the upper 40 feet. Ringlined, split-barrel sampling procedures are similar to standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration.

In lieu of an SPT boring using a drill rig, a hand auger was utilized to complete boring BMP-2. The hand auger was advanced to a depth of 15 feet below the existing ground surface. Sampling was performed continuously from the existing ground surface to boring termination. Representative samples were collected while advancing the hand auger generally at 1-ft intervals.

Subsurface Exploration and Geotechnical Engineering Report
Williamsburg Sports and Entertainment Complex - Phase 1 | Williamsburg, VA

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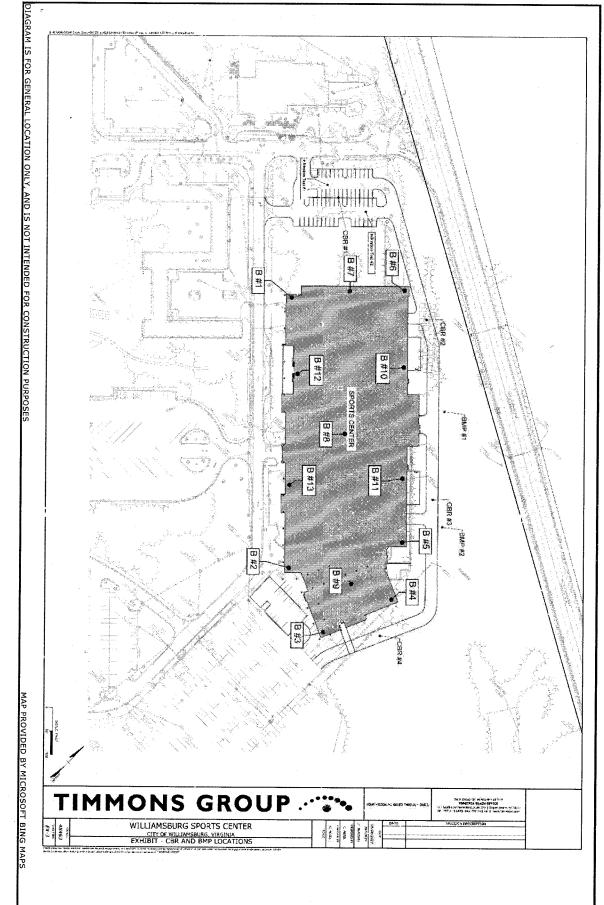
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Site Location and Exploration Plans

Contents:

Site Location Plan Exploration Plan

Note: All attachments are one page unless noted above.





Locatio	on: See Exploration Plan		<u>.</u> .	ıs e	,be	In.)	t	(%)	Atterberg Limits	
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CLAYEY SAND (SC), fine to medium grained, brown and gray, moist, medium dense	-					1		
medium dense	-	-	IX.	19	4-5-6-8 N=11	:		
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grained, brown, moist, loose	-		X	19	N=8			
SILTY SAND (SM), with trace Clay, fine to medium grained, brown, moist, loose	1 -		\bigvee	20	3-3-4-5			
4.0			\land	20	N=7			
SANDY LEAN CLAY (CL), brown, moist, very stiff	5-		M	16	5-7-9-10			
6.0 SANDY FAT CLAY (CH), brown and gray, moist, very stiff to hard	-				N=16			
SANDY PAT CLAY (CH), Drown and gray, moist, very stiff to hard	-		M	23	10-12-12-13 N=24	20.6	60-17-43	6
	-					ļ		<u> </u>
	-		X	24	16-17-15-14 N=32			
	10-							
	-		X	24	9-10-11-10 N=21			
12.5 SANDY LEAN CLAY (CL), brown and gray, wet, soft to medium stiff	_	V	/ \					
Exited Less Sent (CE), Blown and gray, wet, sort to medium sun	_		$\backslash /$		2-4-4-5			
	1.5		Ň	17	N=8			
	15-							
	_							
	-		M	17	3-4-4-5 N=8			
	20-		/ \		0			
	_							
	-		\	-				
25.0	_		XI	17	2-1-2-3 N=3			
Boring Terminated at 25 Feet	25							
(ploration and Testing Procedures for a description of field and laboratory Water Le			1.900		1. Art		Drill Rig	
upporting Information for explanation of symbols and abbreviations.	completion	of dril	ling		H.		CME-55 track /	
Advance					197		Automatic Driller Clark S.	
Advance ion Reference: Elevations were not determined. "mud" rot	m ent Me ary	thod						K#215
Abandon	ment Me	thod					Boring Starte 06-14-2023	d
Boring ba	ckfilled w	ith au	ger cı	uttings	upon completion.		Boring Compl 06-14-2023	ete



Location: See Exploration Plan		s	e e	n.)	1.1	<u> </u>	Atterberg Limits	
atitude: 37.2811° Longitude: -76.6953°	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Cirries	Darront
	pth	servi	mple	ove	Rest	Wat	LL-PL-PI	200
Double (Fe)	a	Šå	Sa	Rec	ū.	Ö	LL 1 L 11	-
Depth (Ft.) 6.5	-					-		+
SANDY FAT CLAY (CH), gray, wet, very soft	1 -							
			1					T
	-		X	24	0-0-1-1 N=1	61.8	59-22-37	
	30-		$V \setminus$					L
								l
1.5	」 ̄					ŀ		
CLAYEY SAND (SC), fine to medium grained, light brown, wet, very loose	-							
	_							
			\setminus / \mid		1-1-1-1			
	-		$ \Lambda $	13	N=2	63.5	48-20-28	
	35-		/\					+
	İ -							
6.5 SILTY SAND (SM), contains marine shell fragments, fine to medium grained,								
light gray, wet, loose	_							
			$\langle \cdot \rangle$			-		
	_		V	24	3-3-3-4			
0.0	4.0		$/ \setminus$		N=6			
Boring Terminated at 40 Feet	40							T
			l					
		ŀ	Ì					
			ı					
		ı						
oration and Testing Procedures for a description of field and laboratory Water Le	ual Obser							L
es used and additional data (If any).	ompletion						Drill Rig CME-55 track /	ΑТ
porting Information for explanation of symbols and abbreviations,			4				Hammer Type	e
The state of the s							Automatic Driller	
Advance	nent Mel	hod					Clark S.	
Reference: Elevations were not determined, "mud" rot.	ary						446	
							Boring Starte 06-15-2023	d
	ment Me	thod			9.5 / 1986		06-15-2023	
Abandon Boring bad Surface ca	kfilled wi	th Auc	ger C	uttings			Boring Compl	



<u>Б</u> .	Location: See Exploration Plan		T ,	a)	<u>:</u>			Atterberg	T
Graphic Log	Latitude: 37.2817° Longitude: -76.6953°	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	LL-PL-PI	Percent
<u>4. 1</u>	Depth (Ft.) 0.5 TOPSOIL, 6-in of Topsoil SANDY LEAN CLAY (CL), brown, moist, stiff			/		0.5.4.4	<u> </u>		+
	SANDY LEAN CLAY (CL), DIOWN, MOISE, SUN	-		X	21	8-5-4-4 N=9		·	
	4.0	-		X	19	4-5-5-4 N=10	16.7	40-13-27	6
	SANDY LEAN CLAY (CL), light gray and brown, moist, stiff to very stiff	5-		\bigvee	24	4-4-5-6 N=9			
		-			24	10-11-11-12 N=22			
		, <u> </u>		$\left\langle \right\rangle$	24	9-10-10-11 N=20			
	10.0 LEAN CLAY WITH SAND (CL), brown and gray, moist, very stiff	10-		$\left\langle \cdot \right\rangle$	34	8-8-9-9			
	12.5	-		\wedge	24	N=17			
	CLAYEY SAND (SC) , fine to medium grained, orange-brown and gray, moist, loose	-		\bigvee	24	3-4-5-6 N=9			
		15-							
	16.5 SANDY LEAN CLAY (CL), brown, wet, soft	_	V						
				\bigvee	17	2-1-3-2 N=4	32.7	46-22-24	1
	21.5	20- -		/\					
	LEAN CLAY WITH SAND (CL), brown, wet, medium stiff								
	25.0			M	24	2-2-3-3 N=5			
	Boring Terminated at 25 Feet	25-		-					
e Su tes	ploration and Testing Procedures for a description of field and laboratory Water Let ures used and additional data (If any). At comporting Information for explanation of symbols and abbreviations. Advancen	ompletion	of drii					Drill Rig CME-55 track Hammer Typ Automatic Driller Clark S.	
vati	on Reference: Elevations were not determined. "mud" rota Abandonr Boring bac	nent M	ethod uth au	ger c	uttings	s upon completion.		Boring Starte 06-15-2023 Boring Comp	



Location: See Exploration Plan	· ·	- ×	pe.	(In.)	, t	(%)	Atterberg Limits	
Latitude: 37.2812° Longitude: -76.6959°	Depth (Ft.)	Water Level Observations	Sample Type	ery (Field Test Results	Water Content (%)		Percent
	Dept	Wate	Sam	Recovery	Fiel	Cont	LL-PL-PI	Pe
Depth (Ft.) 10.5 TOPSOIL, 6-in of Topsoil				"		ļ		-
FILL - SILTY SAND (SM), with trace fine Gravel, fine to medium grained,	┨		\mathbb{N}	17	5-9-10-10			
gray, moist, medium dense				1′	N=19			
SILTY SAND (SM), fine to medium grained, brown, moist, medium dense		1	1	}				
	-	1	IX	20	9-10-10-11 N=20			
LEAN CLAY WITH SAND (CL), brown and gray, moist, very stiff		-		_		-		
======================================	5-		\bigvee	23	7-8-11-13			
6.0			$/\backslash$		N=19			
SILTY SAND (SM), with trace Clay, fine to medium grained, brown, moist, dense	1 -	1			15 17 10 10			
	-		IX	23	15-17-18-19 N=35			
8.0 SANDY LEAN CLAY (CL), brown and gray, moist, very stiff				ļ		-		
	-			24	16-14-15-16 N=20			
16.0	10-		$/ \setminus$		N=29			
SILTY SAND (SM), with trace Clay, fine to medium grained, orange-brown, moist, medium dense	10		\mathbb{N}		14-14-14-13			
	-		X	21	N=28			
12.5		ĺ				1		
LEAN CLAY WITH SAND (CL), brown and gray, moist, very stiff	_					-		
	_		\bigvee	24	11-14-12-10			
	4 -		\mathbb{N}		N=26			
	15							
16.5		∇						
SANDY LEAN CLAY (CL), brown, wet, stiff								
	-							
			\bigvee	19	5-4-5-7			
	20		$/\backslash$		N=9			
	20-							
21.5	_							
CLAYEY SAND (SC), fine to medium grained, brown, wet, loose	_							
	_							
	1 1		$ \backslash / $	16	4-3-2-2			
			ΙXΙ	10				
25.0 Boring Terminated at 25 Feet	25		\bigwedge	16	N=5			



	Boring Log i	NO. CI) N							
60	Location: See Exploration Plan		$\overline{}$	- S	ec.	in.)	Ψ.	(0)	Atterberg Limits	
Graphic Log	Latitude: 37.2821° Longitude: -76.6965°		Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Limits	Percent Fines
srapł			epth	Vater bsen	ampl	cove	Field Res	Wa	LL-PL-PI	Per
	Depth (Ft.)		۵	>0	S	Re		Ö		
XX//	0.5 <u>TOPSOIL</u> , 6-in of Topsoil <u>FILL - SANDY LEAN CLAY (CL)</u> , with trace fine Gravel, brown, moist	t ctiff			\setminus		C F 4 3	-		
	TILE - SANDT LEAN CLAY (CL), With trace line Graver, prown, moisi	at, Still	****		X.	13	6-5-4-3 N=9	15.4	24-14-10	62
X	2.0 SANDY LEAN CLAY (CL), brown, moist, stiff				$\langle \rangle$					
	orthor about (obj. storm, most, star				\bigvee	23	3-5-7-9			
	4.0				\bigwedge	رے	N=12			
77.77	LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very	stiff	****		$\langle \ \rangle$					
			5		X	17	9-10-11-13 N=21			
	6.0		_		$/ \setminus$					
	<u>CLAYEY SAND (SC)</u> , fine to medium grained, orange-brown and gray medium dense	y, moist,			$\setminus /$		12-11-12-13			
					Å	24	N=23			
111	8.0 CLAYEY SAND (SC), fine to medium grained, brown, moist, medium	dense			$\langle \ \rangle$					
					\bigvee	24	12-12-12-11			
	10.0	1.			$/ \setminus$		N=24			
	Boring Terminated at 10 Feet		10–							
								Ì	-	
						İ				
				i						
									,	
				İ	ĺ					
						İ				

				i						
Cos #	ALAN A. T. W. C. S. S. S. S. S. S. S. S. S. S. S. S. S.	W-1 1	<u> </u>			Constant Constant				
proced	ures used and additional data (If any).	Water Level Groundwater				ı			Drill Rig CME-55 track A	ιτν
See Su	pporting Information for explanation of symbols and abbreviations.	4485					Ž.		Hammer Type Automatic	•
	1 TO 1 TO 1 TO 1 TO 1 TO 1 TO 1 TO 1 TO		atir						Driller	
Notes		Advancemen "mud" rotary	t Mel	thod			A PERSONAL PROPERTY OF THE PERSONAL PROPERTY O		Clark S.	
Elevati	on Reference: Elevations were not determined.	muu rotary						Sant		
		Abandonmer		•h			100		Boring Starte 06-14-2023	d
		Boring backfill	ed wi	th aug	jer ci	uttings	upon completion.		06-14-2023 Boring Compl	
							54		06-14-2023	
		, ,-qq						100000000000000000000000000000000000000		



	Borning Log N	o. CDI	\ -J	,					
60	Location: See Exploration Plan		ار ا	be	In.)	پ	(%)	Atterberg Limits	
Graphic Log	Latitude: 37.2812° Longitude: -76.6945°	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)		Percent Fines
Grap		Depti	Wate	Samp	ecovi	Field Re	W. Conte	LL-PL-PI	Per
3 1/2 S	Depth (Ft.) 0.5 TOPSOIL , 6-in of Topsoil		-	<u> </u>	ď.	 			
mil	SANDY SILT (ML), brown, moist, medium stiff			\mathbb{V}	18	2-3-5-8	6.8	NP	55
	2.0	-		\mathbb{N}	10	N=8	0.6	INP	33
	SANDY LEAN CLAY (CL), brown and gray, mosit, very stiff to hard					8-9-9-10			
			1	X	19	N=18			
			-	$\langle \rangle$					
	·	5-	\dashv	X	15	9-15-16-17 N=31			
	6.0 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, mo	oist.	-	$\langle \cdot \rangle$					
	medium dense to dense				14	12-12-12-12			
				$/ \setminus$		N=24			
				M	1.0	15-17-16-17			
	10.0			Λ	16	N=33			
	Boring Terminated at 10 Feet	10-				· · · · · · · · · · · · · · · · · · ·			
					Į			:	
								•	
		***			İ				
					İ				
				}				,	

		-							
See Ex	ploration and Testing Procedures for a description of field and laboratory	ater Level Obs	ervati	ons				Drill Rig	
proced		roundwater not			ı			CME-55 track /	
								Hammer Type Automatic	•
Notes		Ivancement M	ethod					Driller Clark S.	
Elevati	on Reference: Elevations were not determined.	iud" rotary		12.7				12 12 12 12 12 12 12 12 12 12 12 12 12 1	100
	AL AL	andonment M	ethod			2019		Boring Starte 06-15-2023	d
	Bo	ring backfilled v	vith au	ger c	uttings	upon completion.		Boring Compl	



	Boring Log i	AO' PIAI	/- J						
Graphic Log	Location: See Exploration Plan Latitude: 37.2816° Longitude: -76.6949°	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI	Percent Fines
	Depth (Ft.) 0.5 TOPSOIL, 6-in of Topsoil SILTY SAND (SM), with trace fibrous organic material, fine to mediu grained, brown, moist, loose 2.0			X	20	3-3-5-5 N=8			
	SILTY SAND (SM), fine to medium grained, brown, moist, medium of	dense		X	18	6-8-9-9 N=17		-	
	SANDY FAT CLAY (CH), brown, moist, very stiff 6.0 CLAYEY SAND (SC), fine to medium grained, gray, moist, medium d	5-		X	15	6-9-11-12 N=20	13.7	52-20-32	67
	8.0 SANDY LEAN CLAY (CL), brown, moist, very stiff to hard	ense -			18	10-12-10-12 N=22	_		
		10-	-	$\left\langle \right\rangle$	20	12-12-13-13 N=25			
		-		X	15	11-12-13-16 N=25			
	15.0	-		X	16	17-18-17-16 N=35			
	Boring Terminated at 15 Feet	15							
See Sii	ures used and additional data (If any), prorting Information for explanation of symbols and abbreviations.	Water Level Obs Groundwater not of Advancement Me "mud" rotary	ncoun					Drill Rig CME-55 track A Hammer Type Automatic Driller Clark S.	
		Abandonment Me Boring backfilled w	ithod ith aug	jer ci	uttings	upon completion,		Boring Starte 06-15-2023 Boring Compl 06-15-2023	

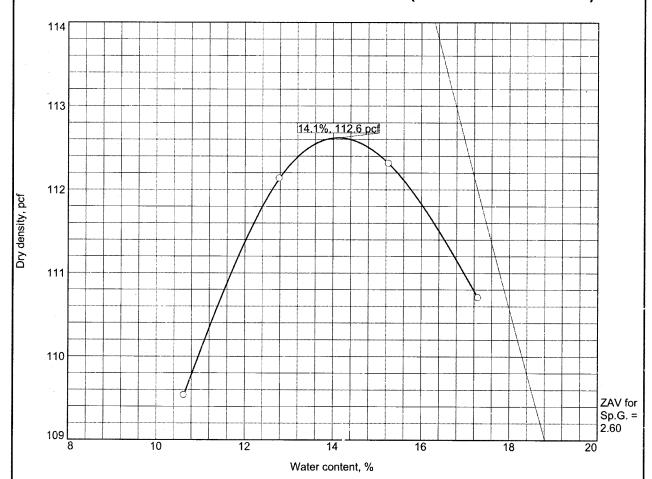
THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. SMART LAB SUMMARY-LANDSCAPE_A K4235044 WILLIAMSBURG SPOR.GPJ TERRACON_DATATEMPLATE.GDT 7/20/23

SUMMARY OF LABORATORY RESULTS

							- OT
D RING	Depth (Ft.)	Soil Classification USCS	Liquid Limit	Plastic I imit	Plasticity	% Fines	Water

	***************************************		FAX. 757-564-6453	PH. 757-564-6452			
•	CLIENT: MEB General Contractors, Inc.	CLIENT:	illex.	701	d	Williamsburg, VA	
						for Center Drive	SITE: 102 Vis
	PROJECT NUMBER: K4235044	PROJECT			orts and Entertainment Complex	PROJECT: Williamsburg Sports and	PROJECT: W
18.8	60.5	32	20	52		10	NF-2
21.4	60.3	26	22	48	SANDY FAT OF AVIOUS		7 .1
36.0	74.5	25	29	42	SANDY I SAN OF AVOID	5	BMP-2
20.5					EATOLAY with GANDIOU	12-13	BMP-2
23.5		Add				9-10	BMT-2
24.3	61.3	26	23	49	SANDT LEAN CLAT(CL)		BMP-2
13.7	66.5	32	20	52		4-6	BMP-1
7.3	66.4	10	15	25	SANDY EAT OF AVIOUS		CBR-4
6.8	54.8	NP	NP	NP NP	SANDY I FAN OLAVIOLI		CBR-3
19,4	57.2	15	15	30	SANDY SHITIMIN	0-2	CBR-2
15.4	62.1	10	14	24	SANDY LEAN OF AVIOL	0-2	CBR-1
14.6	66.4	29	22	51	SANDY I FAN CLAY(CT)	4-6	B-13
32.7	66.6	24	22	46	SOND'S ELDIN CLAT (CL)	18-20	B-10
16.7	61.2	27	13	40	SANDY LEAN CLAY(CL)	2.4	B-10
16.7	60.2	31	16	47	SANDY LEAN CLAY(CL)	4-6	B-9
63.5	48.6	28	20	48	COULT SHAD (SC)	33-35	- B
61.8	52.0	37	22	59	CI AVEV SAND(SC)	28-30	B-8
30.1	53.0	26	22	48	SANDY LEAN CLAY(CL)	23-25	B-8
14.5	64.3	13	14	27	SANDY LEAN CLAY(CL)	2.4	3-8
20.6	65.2	43	17	60	SANDY FAT CLAY(CH)	8	B-7
49.0	89.8	34	27	61	FAT CLAY(CH)	23-25	B-6
32.7	54.9	18	22	40	SANDY LEAN CLAY(CL)	18-20	B-6
14.3	64.7	19		30	SANDY LEAN CLAY(CL)	2-4	8-6
54.1	79.8	32	26	58	FAT CLAY with SAND(CH)	23-25	B-5
16.1	65.7	15	13	28	SANDY LEAN CLAY(CL)	2-4	B-3
13.9	65.4	24	13	37	SANDY LEAN CLAY(CL)	2-4	B-1
Water Content (%)	% Fines	Plasticity Index	Plastic Limit	Liquid Limit	Soil Classification USCS	Depth (Ft.)	BORING ID



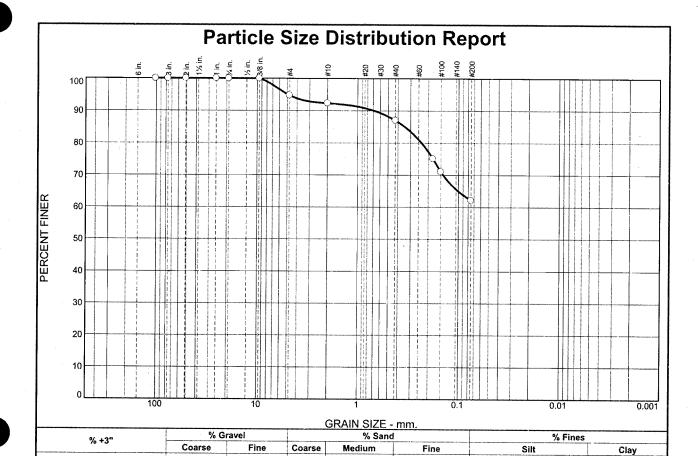


Test specification: ASTM D 698-12 Method A Standard

Elev/	Classi	fication	Nat.	Sp.G.		D.	%>	% <
Depth	USCS	AASHTO	Moist.	ър. . .	LL	PI	#4	No.200
0.5-2 Ft.	CL	A-4(3)	15	Estimated 2.6	24	10	5.2	62.1

	<u> </u>	11 1(3)	12	2.6	24	1 10	1 3.2	02.1
		TEST RESULTS				MATERIAL	DESCRIP	ΓΙΟΝ
Maximum	dry density = 112.6	pcf			Brown,	•	CLAY (CL) v Gravel	vith trace fine
Optimum	moisture = 14.1 %						Giavei	
Project No	. K4235044 Client	: MEB General Contract	ors, Inc.		Remar	ks:		
Project: V	Villiamsburg Sports & Er	ntertainment Complex - Ph	ase 1		CBR #	1		
			,		31 -	Obtained: 6/	•	
○Location	See Attached Boring Lo	cation Plan Sampl	e Number: C	BR #1	Sample	Tested: 6/16	/2023	
	16	rraco	h			•		
							Figure	1

Tested By: A. Kotyk Checked By: J. Wheeler



SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
4"	100.0		
3"	100.0		
2"	100.0		
1"	100.0		
0.75"	100.0	·	
0.375"	100.0		
#4	94.8		
#10	92.3		
#40	87.0		
#80	75.1		
#100	71.1		
#200	62.1		
	ļ		

0.0

5.2

2.5

5.3

24.9

	Soil Description	
Brown, Sandy lea	n CLAY (CL) with trac	ce fine Gravel
PL= 14	Atterberg Limits LL= 24	PI= 10
D ₉₀ = 0.6874 D ₅₀ = D ₁₀ =	Coefficients D ₈₅ = 0.3402 D ₃₀ = C _u =	D ₆₀ = D ₁₅ = C _c =
USCS= CL	Classification AASHTO	D= A-4(3)
ODD #1	Remarks	
CBR #1	C 11 C 10 000	
Sample Obtained:		
Sample Tested: 6/	16/2023	

(no specification provided)

0.0

Location: See Attached Boring Location Plan Sample Number: CBR #1 Depth: 0.5-2 Ft.

Date: 6/16/2023

62.1



Client: MEB General Contractors, Inc.

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Project No: K4235044

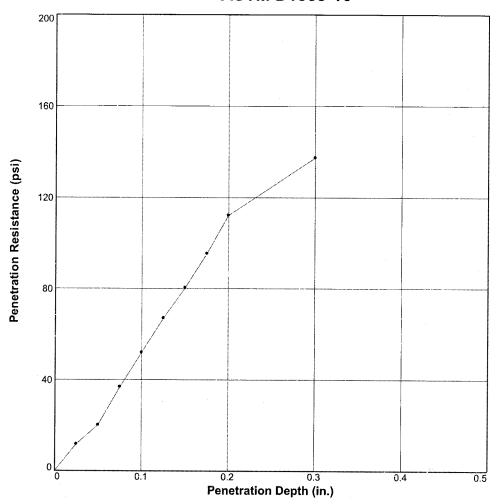
Figure

1b

Tested By: A. Kotyk

Checked By: J. Wheeler

BEARING RATIO TEST REPORT ASTM D1883-16



		Molded			Soaked		CBF	R (%)	Linearity		Max.
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	Surcharge (lbs.)	Swell (%)
10	105.6	100	17.0	105.5	99.9	22.8	7.0	8.0	0.031	10	0.1
2 🛆											
3 🗆							-				
			Material	Description			Hece	Max.	Optimum		DI.

Dark brown, Sandy lean CLAY (CL) with trace fine Gravel

USCS

Dens. (pcf)
(pcf)
(%)

CL
105.6
17.5
30
15

Project No: K4235044

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Location: See Attached Boring Location Plan

Sample Number: CBR #2

Depth: 0.7-2 Ft.

Date: 6/16/2023

lerracon

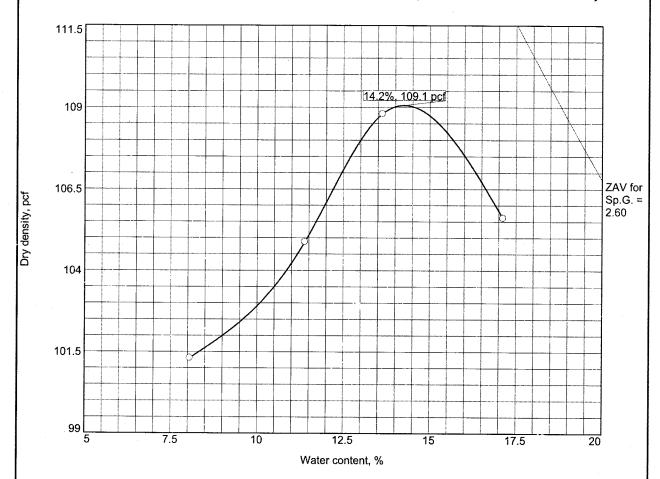
Test Description/Remarks:

CBR #2

Sample Obtained: 6/16/2023 Sample Tested: 6/16/2023 Resiliency Factor = 2.5

Figure 2a

MOISTURE DENSITY TEST REPORT (PROCTOR CURVE)



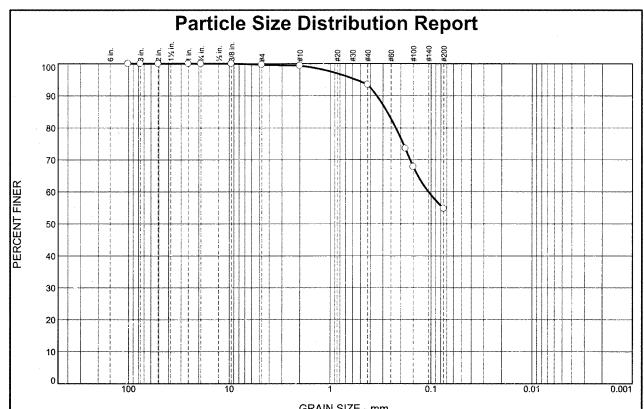
Test specification: ASTM D 698-12 Method A Standard

Elev/	Class	ification	Nat.	0.0		***	%>	% <
Depth	USCS	AASHTO	Moist.	Sp.G.	LL	PI	#4 •	No.200
0.5-2 Ft.	ML	A-4(0)	7	Estimated 2.6	NV	NP	0.3	54.8

0.3-2 Ft.	ML	A-4(0)	7	2.6	NV	NP	0.3	54.8
	-	TEST RESULTS				MATERIAL	DESCRIPT	ION
Maximum d	lry density = 109.1 _l	ocf		WWW.		Brown, Sa	ndy SILT (M	L)
Optimum m	oisture = 14.2 %							
Project No.	K4235044 Client:	MEB General Contractor	s, Inc.	******	Remark	ks:		
Project: Wil	lliamsburg Sports & En	ertainment Complex - Phas	e 1		CBR #3	,		
					11 -	Obtained: 6/		
○Location: S	ee Attached Boring Loc	cation Plan Sample	Number: C	BR #3	Sample	Tested: 6/16/	/2023	
	16	rracoi					Fi	
							Figure	3

Tested By: A. Kotyk

Checked By: J. Wheeler



				GRAIN SIZE -	111111.		
% +3"	% Gı	ravel		% Sand		% Fines	
76 T 3	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	0.3	5.9	38.7	54.8	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
4"	100.0		
3"	100.0		
2"	100.0	-	
1°	100.0		
0.75"	100.0		
0.375"	100.0		
#4	99.7		
#10	99.4		
#40	93.5		
#80	73.5		
#100	67.3		
#200	54.8		

(no specification provided)

Location: See Attached Boring Location Plan **Sample Number:** CBR #3 **Depth:** 0.5-2 Ft.

Date: 6/16/2023



Client: MEB General Contractors, Inc.

Project: Williamsburg Spoats & Entertainment Complex - Phase 1

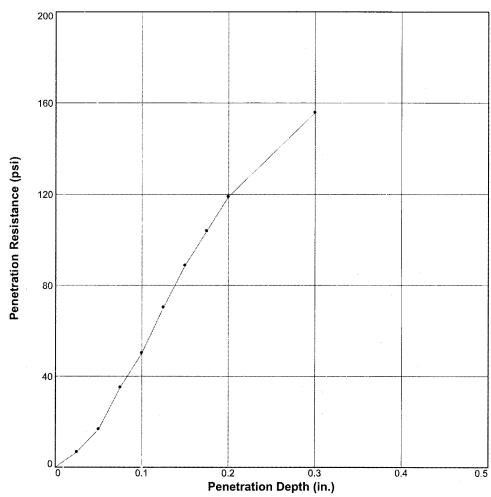
Project No: K4235044

Figure 3b

Tested By: A. Kotyk

Checked By: J. Wheeler

BEARING RATIO TEST REPORT ASTM D1883-16



		Molded		Soaked		CBR (%)		Linearity	Linearity Ma	Max.	
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Linearity Correction (in.)	Surcharge (lbs.)	Swell (%)
1 0	106.9	100	14.6	106.8	99.9	18.8	7.7	8.8	0.034	10	0.1
2 🛆				***							
3 □						-					

Material Description	USCS	Max. Dens.	Optimum Moisture	LL	PI
	0000	(pcf)	(%)	LL.	F :
Light brown, Sandy lean CLAY (CL) with trace fibrous organic material	CL	106.9	15.1	25	10

Project No: K4235044

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Location: See Attached Boring Location Plan

Sample Number: CBR #4 Dep

Depth: 0.5-2 Ft.

Date: 6/19/2023

<u>Terracon</u>

Test Description/Remarks:

CBR #4

Sample Obtained: 6/19/2023 Sample Tested: 6/20/2023 Resiliency Factor = 2.0

Figure 4a

INFILTRATION TESTING

Constant-Head Borehole Permeameter Infiltration testing was performed at boring locations and depths as directed by the client. The individual test location boreholes were prepared utilizing a planar auger to remove soil cuttings from the base. Permeability testing was then conducted utilizing an Johnson Permeameter™. Based on the field testing and corroborated with laboratory testing results, the hydraulic conductivity of the soils is presented in the Table below. Comprehensive hydraulic conductivity worksheets are provided in the **Supporting Information** section of this report.

Infiltration Test Results

Boring ID Test Depth Below Grade (ft)	Ksat Ksat Value Value (in/hr) (cm/se	Kat Class	USCS Classification
INF-1 .10	0.005 3.75 x 10	D ⁻⁶ Low	CL
INF-2 10	0.005 3.67 x 10	D ⁻⁶ Low	CH

The infiltration test results provided in this report are the result of permeability testing at the locations and depths indicated and do not include a safety factor. Varying site conditions, including soil composition, soil density, stratum depth, and stratum thickness should be expected throughout the site. As such, the permeability test results should not be assumed for all locations and depths across the project site.

Constant-Head Borehole Permeameter Test Analytical Method: Glover Solution



				graph.	stabilized values and analyzing the gra	stabilized values	1 hr 45 min		60.5 Ir	Struct./% Pass. #200.: 60.5 Init. Saturation Time.:
r four	Notes: Estimated field Ksat is determined by averaging and/or rounding of test results for the final three or four	inding of test resu	aging and/or rou	rmined by aver	d field Ksat is dete	Notes: Estimate	N/A		СН	USDA Txt./USCS Class:
0.010	0.005	0.317	3.67E-06	0.000	Field-Estimated Ksat:	Field-E	N/A	Consistency	18.8 C	Natural Moisture:
										-
								-		
0.010	0.005	0.310	3.59E-06	0.000	0.37	2.73	0:02:44	2:15:25 PM		110
0.010	0.005	0.318	3.68E-06	0.000	0.38	2.67	0:02:40	2:12:41 PM	1	111
0.010		0.312	3.62E-06	0.000	0.37	2.72	0:02:43	2:10:01 PM	- French	112
0.010		0.318	3.68E-06	0.000	0.38	2.67	0:02:40	2:07:18 PM	3	113
0.010		0.318	3.68E-06	0.000	0.38	2.67	0:02:40	2:04:38 PM	ъ	114
0.011		0.324	3.75E-06	0.000	0.38	2.62	0:02:37	2:01:58 PM	—	115
0.010		0.316	3.66E-06	0.000	0.37	2.68	0:02:41	1:59:21 PM		116
0.011		0.324	3.75E-06	0.000	0.38	2.62	0:02:37	1:56:40 PM	- Jana	117
0.011		0.322	3.73E-06	0.000	0.38	2.63	0:02:38	1:54:03 PM	<u>р</u>	118
0.010	0.005	0.309	3.57E-06	0.000	0.36	2.75	0:02:45	1:51:25 PM		119
								1:48:40 PM		120
(ft/day)	(in/hr)	(cm/day)	(cm/sec)	(cm/min)	(ml/min)	(min)	(hr:min:sec)	(h:mm:ss A/P)	(ml)	(ml)
-	lues	Ksat _B Equivalent Values	Ksat		Flow Rate Q	d Time	Interval Elapsed Time	TIME	Volume Out	VOLUME
7	$_{6}$ = QV[sinh ⁻¹ (H/r) - (r ² /H ² +1) ⁻⁵ + r/H]/(2 π H ²) [Tmp. Correction]	$^{2}+1)^{.5}+r/H]/(2\pi$	ւհ ⁻¹ (H/r) - (r²/H՝	Ksat _e = QV[sin		0.001003 kg/m·s	Dyn. Visc. @ T _B °C.:	ĺ	0.001028 kg/m·s	Dyn. Visc. @ T °C.:
Ξ.	Ksat = Q[$sinh^{-1}(H/r) - (r^2/H^2+1)^{-5} + r/H$]/($2\pi H^2$) [Basic Glover Solu.]	$1)^{.5} + r/H]/(2\pi H)$	$^{-1}(H/r) - (r^2/H^2 +$	Ksat = Q[sinh		4.0	H/r		19 °C	Soil/Water Tmp. T:
	V: Dyn. Visc. of water @ Tmp. T °C/Dyn. Visc. of water @ T _B	p. T °C/Dyn. Vis	of water @ Tm _l	V: Dyn. Visc.		19.1 cm	Const. Wtr. Ht. H:	m	4.75 cm	Boring Radius r:
		orehole	r: Radius of the cylindrical borehole	r: Radius of t	,	4.1 cm	WCU Susp. Ht. S:		9.5 cm	Boring Diameter:
		H: Constant height of water in the borehole	eight of water	H: Constant I		15.0 cm	WCU Base Ht. h:	10 ft (m, cm, ft, in)	10 ft (Boring Depth:
		ກ the borehole	Q: Rate of flow of water from the borehole	Q: Rate of flo		7/13/2023	Date		C. Hayes	Investigators:
20	Tmp. T _B (°C)	t_B : (Coefficient of Permeability) @ Base Tmp. $\bar{\tau}_B$ (°C)	cient of Permea	Ksat _B : (Coeffi		Williamsburg, VA	Proj. Location:		INF-2	Boring No
	Terminology and Solution (R. E. Glover Solution)	d Solution (R. I	erminology an	1		K4235044	Project No:		Sports Complex - Phase 1	Project Name:
		I								

Glover, R. E. 1953. Flow from a test-hole located above groundwater level, pp. 69-7l. in: Theory and Problems of Water Percolation. (C. N. Zanger. ed.). USBR. The condition for this solution exists when the distance from the bottom of the borehole to the water table or an impervious layer is at least twice the depth of the water in the well. H/r>5 to >10 Johnson Permeameter, LLC Revised 11/29/13



General Notes

Sampling	Water Level		Field Tests
∏ . Mastandard	Water Initially Encountered	N	Standard Penetration Test Resistance (Blows/Ft.)
Auger Cuttings Penetration Test	Water Level After a Specified Period of Time	(HP)	Hand Penetrometer
	Water Level After a Specified Period of Time	(T)	Torvane
And the second s	Cave In Encountered	(DCP)	Dynamic Cone Penetrometer
	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times	UC	Unconfined Compressive Strength
	indicated. Groundwater level variations will occur over time. In low permeability soils, accurate	(PID)	Photo-Ionization Detector
	determination of groundwater levels is not possible with short term water level observations.	(OVA)	Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

A CONTRACT		Strength Term		
(More than 50% re Density determine	of Coarse-Grained Soils etained on No. 200 sieve.) d by Standard Penetration esistance	Consistency dete	Consistency of Fine-Grained Soi (50% or more passing the No. 200 signified by laboratory shear strength test procedures or standard penetration resis	ive.) ing, field visual-manual
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0-3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2,00 to 4.00	15 - 30
	•	Hard	> 4.00	> 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.

Appendix B: Erosion & Sediment Control Calculations



Appendix C: Stormwater Calculations





Project: Sport and Events Center Project No.: 48463 Date: 10/4/2023 Calculated By: HJS

ENERGY BALANCE EQUATION for : POA-2

Pre-Dev Drainage Area (LOD)

4.8 acres

Post-Dev Drainage Area (LOD)

6.65 acres

POA-2

Calculate RV_{Pre-Developed} and RV_{Post-Developed}

	1-Year (in)	CN	S	RV	DA	RV (ac-inches)
Pre-Developed	2.94	82	2.20	1.33	4.80	6.39

2.94 92 0.87 2.10 6.65 13.99 Post-Developed

Total Q_{1yr Pre-Developed} (LOD)

10.05 cfs

I.F. (Improvement Factor)

8.0

Determine Energy Balance Target

Using: $Q_{1-yr\text{-}Developed} \le I.F.*(Q_{1-yr\text{-}Pre\text{-}developed}*RV_{1-yr\text{-}Pre\text{-}Developed})/RV_{1-yr\text{-}Developed}$

0.80 * (10.05 * 6.39) / 13.99 =

cfs

Determine Q_{1yr Post-Developed} Overall Reduction Required for POA-2

Using: Q_{1-yr-Post-Developed} Overall Reduction Required = (Total Q_{1yr Pre-Developed} (LOD)) - (Energy Balance Target)

10.05 - 3.67 = 6.38 cfs

Check Site Compliance

Total Q_{1yr Pre-Developed} (Overall)

= 11.19 cfs

* From Pre-Overal SSA model.

Total Q_{1yr Post-Developed} (Overall)

4.81 cfs

* From Post-Overal SSA model.

Q1-yr Reduction Obtained

6.38

Q_{1-yr-Post} Reduction Observed: 6.38

cfs => 6.38

Satisfied

cfs

FLOOD PROTECTION SUMMARY

POA-1



Project Name: Sports and Events Center Timmons Group Project No. 48463

Date: 10/16/2023

Calculated By: Henry Sells

	Editoria de la compania de la compania de la compania de la compania de la compania de la compania de la compa	Pre-Development
Data In		Pre-development peak flow for 2-year, 24-hour design storm ^[1]
10-Year Q _{Pre-Developed}	42.070 CFS	Pre-development peak flow for 10-year, 24-hour design storm ^[1]

Application of the second of t	parent.	Post-Development
Data Inp 2-Year Q _{Post-Developed}	29.910 CFS	Post-development peak flow for 2-year, 24-hour design storm ^[1]
10-Year Q _{Post-Developed}	46.980 CFS	Post-development peak flow for 10-year, 24-hour design storm ^[1]

2-YEAR FLOOD PROTECTION CHECK

 $Q_{Post-Developed} \leq Q_{Pre-Developed}$

29 910 cfs	<	33 470 cfe
29.910 cfs	≤	33.470 cfs

C	hec	k
	ОК	

10-YEAR FLOOD PROTECTION CHECK

 $Q_{Post-Developed} \leq Q_{Pre-Developed}$

Q _{Post-Developed}		Q _{Pre-Developed}
46.980 cfs	≤	42.070 cfs

INCDEASE	See explanation below
Check	

While the peak flow does increase for this POA the update represents a net benefit to the system. The total drainage volume directed toward POA-1 for the 10 year storm is decreased by +/-28830.84CF due to the reduced area directed to POA-1. all peak HGL's within the existing system are also reduced. As the volume is reduced and the peak flow is very similar overall with large benefits to the system as a whole we request the 10 year reduction requirement be waived. The HGL reduction causes multiple upstream nodes that exhibit flooding in the existing to not flood during post [1] Peak flows obtained from Autodesk Storm and Sanitary Analysis 2023

FLOOD PROTECTION SUMMARY

POA-3

Calculated By: Henry Sells

Project Name: Sports and Events Center Timmons Group Project No. 48463

Date: 10/16/2023

Calculated By: Henry Sells



	Col	Pre-Development ntributing Drainage Area(s): EX-3
Data Ir 2-Year Q _{Pre-Developed}	2.210 CFS	Pre-development peak flow for 2-year, 24-hour design storm ^[1]
10-Year Q _{Pre-Developed}	3.450 CFS	Pre-development peak flow for 10-year, 24-hour design storm 1

Data Inp		Post-Development ributing Drainage Area(s): POA-3 Descriptions
2-Year Q _{Post-Developed}	2.090 CFS	Post-development peak flow for 2-year, 24-hour design storm ^[1]
10-Year Q _{Post-Developed}	3.350 CFS	Post-development peak flow for 10-year, 24-hour design storm ^[1]

2-YEAR FLOOD PROTECTION CHECK

 $Q_{Post-Developed} \leq Q_{Pre-Developed}$

2.090	ofo		2.210	cfs
Q _{Post} -	Developed	I	Q _{Pre-De}	eveloped

С	he	ck	
	OŁ	(

10-YEAR FLOOD PROTECTION CHECK

 $Q_{Post-Developed} \leq Q_{Pre-Developed}$

Q _{Post} .	Develope	ed 🚜	Q _{Pre-De}	eveloped
3.350	cfs	≤	3.450	cfs



[1] Peak flows obtained from Autodesk Storm and Sanitary Analysis 2023

AREA AND CURVE NUMBER COMPUTATIONS

FOR ENERGY BALANCE and VRRM CALCULATIONS POST-DEVELOPMENT

Project Name: Sports and Events Center Timmons Group Project No. 48463

Date: 10/02/2023

Calculated By: Henry Sells

Point of Analysis	Area	Area	Ţ	orest/Op	Forest/Open Space	е	7	Turf & Mulch Cover	ch Cove		1	Impervious Cover	Cover		Weighted
	(SF)	(AC)	HSG	SF	Acres CN[1]		HSG	SF	Acres	CN[3	HSG	SF	Acres CN[1]	CN[1]	S
D^{A}			Α			30	Α			39	⋗			98	
DA-A	15/677	n n	æ			55	σ			61	œ			98	<u>ဂ</u>
DRAINAGE AREA TO POA-1	104,077	0.00	റ			70	ဂ	27,885	0.64	74	0	122,666	2.81	98	ر د
WITHIN LOD		!	D			77	D	2,055	0.05	80	D	2,071	0.05	98	
DA B			Α			30	Α			39	A			98	
DA-0	13 265	9	₿			55	œ	997	0.02	61	B			98	Z
DRAINAGE AREA TO POA-2	43,263	0.99	ဂ			70	ဂ	31,364	0.72	74	ဂ			98	Č
BYPASSING BMP			O			77	D	10,904	0.25	80	o			98	-
D			Α			30	٨			39	A			98	
DA-C	246 220	n D n	σ			55	σ.			61	œ			98	о Л
DRAINAGE AREA TO POA-2	240,200	0.00	ဂ			70	ဂ	29,189	0.67	74	ဂ	178,072	4.09	98	Č
THROUGH BMP TREATMENT			D			77	ס	7,868	0.18	80	o	31,110	0.71	98	
BOA_3			≻			30	>			39	≻			98	
TOA-Z	280 504	n n	œ			55	œ	997	0.02	ð	₩	٠.		98	S
TOTAL DRAINAGE AREA TO POA-2	¥00,00	0.00	ဂ			70	C	60,553	1.39	74	<u>ი</u>	178,072	4.09	98	9
WITHIN LOD (DAB + DA-C)			ס			77	o	18,773	0.43	80	o	31,110	0.71	98	
ח ח			≻			30	≻			39	A			98	
ָלָּאָלָי ַ	24 004) }	σ		•	55	ω			9	₩			98	2
DRAINAGE AREA TO POA-3	21,001	1. 0	ဂ			70	ဂ			74	ဂ	2,152	0.05	98	4
WITHIN LOD			D			77	ס	4,406	0.10	80	D	14,522	0.33	98	

[1] CN values obtained from Tables 2-2a and 2-2c of the NRCS TR-55 Manual, rev. June 1986



LOD AREA ONLY PRE-DEVELOPMENT MODEL

Project Description TO BE USED WITH ENERGY BALANCE CALCULATIONS

File Name	48463 - Pre-Dev SSA-LOD.SPF
Description	C:\Users\henry.sells\OneDrive - Timmons Group
	Inc\Deskton\56460-SPSTRM dwg

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Cverflow Ponding at Nodes	YES
Skin Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:05:00	days hh:mm:ss
Routing Time Step	30	seconds

Number of Elements

	Qt
Rain Gages	1
Subbasins	7
Nodes	8
Junctions	5
Outfalls	3
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links	5
Channels	0
Pipes	5
Pumps	O
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

S	N Rain Gage	Data	Data Source	Rainfail	Rain	State	County	Return	Rainfall	Rainfall
	ID	Source	ID	Type	Units			Period	Depth	Distribution
_								(years)	(inches)	
1	LIMBVEDCAL	Time Series	1VEAD	Cumulative	inches	Virginia	Mana	1.00	2.94	SCS Type II 24-hr

Node Summary

Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation		Peak Inflow	Max HGL Elevation Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Flooded	Total Time Flooded
		(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(days hhimm)	(ac-in)	(min)
HW	Junction	55.45	67.58	49.91	100.00	10.04	56.11	11.47	0 00:00	0.00	0.00
POA-1	Junction	63,34	69.74	0.00	100.00	16.79	64.35	5.39	0 00:00	0.00	0.00
S-2	Junction	65.04	69.81	0.00	100.00	0.25	65.26	4.55	0 00:00	0.00	0.00
5-3	Junction	66.21	73.21	0.00	100.00	16.77	67.63	5.58	0 00:00	0.00	0.00
S-4	Junction	66.33	73.25	0.00	100.00	8.57	68.05	5.20	0 00:00	0.00	0.00
OUT-1	Outfall	52.48				16.79	62.12			0.00	0.00
POA-2	Outfall	48.71				10.05	49.91				
POA-3	Outfall	63.93				1.80	63.93				

AREA AND CURVE NUMBER COMPUTATIONS FOR USE WITH THE OVERALL PRE-DEVELOPMENT DAM

Project Name: Sports and Events Center Timmons Group Project No. 48463

Date: 10/02/2023

Calculated By: Henry Sells

Drainage Area	Area	Area	Fo	Forest/Open Space	pace		Turf & Mulch Cover	h Cove		=	Impervious Cover	Cover		Weighted
	(SF)	(AC)	нѕс	SF Ac	Acres CN[1]	HSG	SF	Acres	CN(1)	HSG	SF	Acres	SN:	CN
E-1	24,754	0.57	D C B >		7 7 8 8	D C B >	2,810			ບ ດ ໝ ≯	21,943		96 96 86	95
E-2A	19,133	0.44	O C B >		30 55 70 77	D C B A	13,982	0.32	8 8 8	ບ ດ ® ≯	5,151	0.12	සි සී සී සි	80
E-2B	25,459	0.58	_ _ ∪ ∪ ∰ >		30 55 70 77	D C B A	22,466	0.52	39 61 74 80	ОСВР	2,993	0.07	98 98 96 86	77
m-3	12,029	0.28	_ _ C B >		30 55 70 77	C B A	6,392	0.15	39 61 74 80	D C B A	5,638	0.13	98 98 86 86	CO CO
E-4	8,203	0.19	D C B >		30 55 70 77	ОСВУ	2,693	0.06	39 61 74 80	рсвъ	5,510	0.13	98 98 86 86	90
⊞ -5	113,138	2.60	осв≻		30 55 70 77	D C B A	27,029 4,654	0.62 0.11	39 61 74 80	D C B A	66,436 15,019	1.53 0.34	98 98 98	92
ш-6	11,173	0.26	D C B >		30 55 70 77	осв≻	11,173	0.26	39 61 74 80	ОСВА			86 86 86 86	74
E-7	36,909	0.85	ບ ດ ໝ ≯		30 55 70 77	осв х	11,036	0.25	39 61 74 80	008>	25,873	0.59	98 86 86	9
The same of the sa											ļ			

[1] CN values obtained from Tables 2-2a and 2-2c of the NRCS TR-55 Manual, rev. June 1986



AREA AND CURVE NUMBER COMPUTATIONS FOR USE WITH THE OVERALL PRE-DEVELOPMENT DAM



Project Name: Sports and Events Center

Timmons Group Project No. 48463 Date: 10/02/2023

Calculated By: Henry Sells

Drainage Area	Area	Area	71	Forest/Open Space	n Space	В	Tı	urf & Mulch Cover	ch Cove	_	_	Impervious Cover	s Cover		Weighted
	(SF)	(AC)	HSG	SF	Acres	CN[1]	HSG	SF	Acres	CN(1)	HSG	SF	Acres	유 교	CN
E-15			Α			30	>			39	Α			98	
	3.309	0.08	В			55	w			<u>6</u>	œ			98	Š
	0,000	6.00	ဂ			70	റ	536	0.01	74	ဂ	1,179		98	4
			D			77	o	534	0.01	8	_	1,060	0.02	98	
П 16			٨			30	Α			39	A			98	
Π	20 117	ಷ ೨ ೨	В			55	σ			61	œ			98	>
	00,417	1.29	ဂ			70	<u>ი</u>	16,374	0.38	74	ဂ	35,087		98	Š
			O			77	0	6,432	0.15	8	o	2,524	0.06	98	
E_17			≻			30	Þ			39	A		(////XX	98	
Γ	46 071	3	œ			55	σ			61	8			98	3
	10,01	č	റ			70	ဂ	2,465	0.06	74	ဂ	43,605	1.00	98	<u>u</u>
			D			77	D			80	D			98	
EP_1			⊳			30	⋗			39	Þ			98	
,	8,243	0,19	n α			7 55 5 5	ο œ	3 870	2	9 6) w	1 361 1 361)	86	87
			0			77	0 ((80	0 (88	
EP_2			Α			30	Α			39	⊅			98	
<u> </u>	310 713	۲ در در	œ	29,363	0.67	55	50			61	œ			98	7,7
	3	į	n	131,563	3.02	70	ဂ	29,591	0.68	74	ი	80,483	1.85	98	**
			o	39,714	0.91	77	D			80	ס			98	
			≻			30	>			39	Α			98	
		3	8			55	œ			61	œ			98	٠
		0.00	Ö			70	ი			74	ი			98	
			o			77	0			80	0		e.	98	
			Α			30	>			39	Þ			98	
		3	ᢍ			55	σ			61	0			98	
		0.00	ဂ			7	ဂ			74	റ			98	
			o			77	0			80	0			98	
							ŀ						000		

[1] CN values obtained from Tables 2-2a and 2-2c of the NRCS TR-55 Manual, rev. June 1986

AREA AND CURVE NUMBER COMPUTATIONS FOR USE WITH THE OVERALL POST-DEVELOPMENT DAM

TIMMONS GROUP

Project Name: Sports and Events Center

Timmons Group Project No. 48463 Date: 10/02/2023

Calculated By: Henry Selis

8 8 8 8 8 8 8	0.09	3,978	0 (74 80	5.0	483	o	77	_	0 (
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98 88 88	3000		œ	61			α	Ş		α	9 3	4.461	
98 98 88			Α	39			>	1 22		>			B-8
86 86	0.08	3,434	٥		0.07	2,877	D	77		D			
98	0.24	10,347	ဂ		0.15	6,324	ဂ	70		C	1	j	
			В	0)			В	55		œ	0.53	22.982	•
86			Α	39			Þ	30		>			B-7
98			D	80			D	77		o			
98	0.09	3,774	ဂ		0.05	2,204	C	70		ဂ	į	0,0,0	
98			σ :	61			В	55		8	5	5 078 ·	0.5 -5
98			Þ	39			Α	30		₽			n
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98	0.29	12,766	ဂ		0.10	4,216	C	70		0	Ş	0,000	
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98	0.01	401	D	80			D	77		D			
98	0.21	9,114	ဂ	74	0.05	2,288	ဂ	70		O		,,,,	
98			В	61		•	œ	55		σ	0.27	11.803	ľ
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98			D	80			0	77		D			- April - Parker - A
98			ဂ		0.15	6,574	C	70		റ	Š	ر ر	
98			œ	<u>6</u>			В	55		σ	n n	S 574	
98			Α	39			Α	30		>			>
CN[1]	Acres	SF	HSG	CN[1]	Acres	SF	HSG	Acres CN ¹¹	SF A	HSG	(AC)	(SF)	
Weighted	ervious Cover	Imperviou		e	ch Cov	luff & Mulch Cover		Space	Forest/Open Space	Fore	Area	Area	Dialitage Alea

[1] CN values obtained from Tables 2-2a and 2-2c of the NRCS TR-55 Manual, rev. June 1986

AREA AND CURVE NUMBER COMPUTATIONS FOR USE WITH THE OVERALL POST-DEVELOPMENT DAM



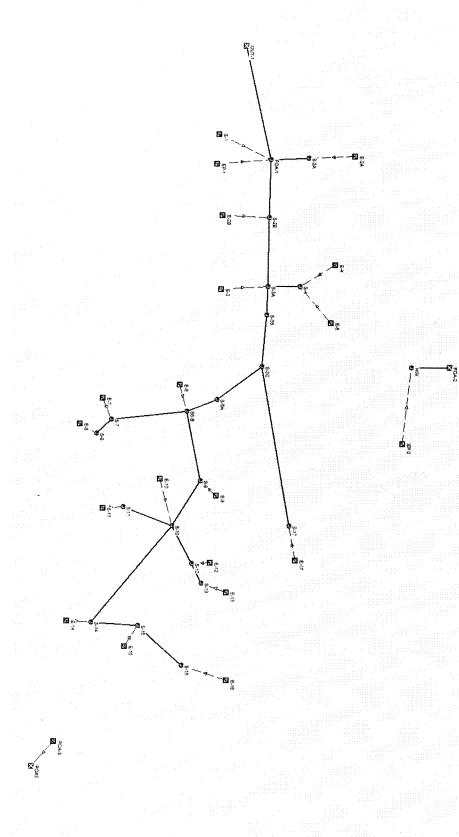
Project Name: Sports and Events Center

Timmons Group Project No. 48463 Date: 10/02/2023

Calculated By: Henry Sells

Drainage Area	Area	Area	F	Forest/Open Space	n Space		7	Turf & Mulch Cover	ch Cove	¥	=	npervious Cover	Cover		Weighted
	(SF)	(AC)	HSG	SF	Acres	CN	HSG	SF	Acres	CN	HSG	SF	Acres	CN[1]	0.00
EP-4			⊳			30	Α			96	Α			98	
	5 105	0.12	œ			55				61	D			98	0
	Ç	2	ဂ			70	ი —			74	C	5,105	0.11	98	y
			D			77	0			80	D			98	
EP-12			Α .			30	Α			39	٨			98	
	6,935	0.16) W			; 8) }	- 61	ω	1)))	98	94
			ם כ			3 €	<u> </u>	1,131	0.03	80 80	J ()	5,805	0.13	os	
			A			3 :	> (ð	Δ (2 8	
ET-13	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2	ω :			55 E	Φ;			61	ω ;			98	
	3,2/2	0.08	ဂ			70	<u>ი</u>	897	0.02	74	ဂ	2,375	0.05	98	9
			D			77	ס			80	o	٠.		98	
ED-16			А	:		30	➤			39	Þ			98	
-	23,449	0.54	œ			55	œ			61	æ			98	S S
			υ n			77	<u>ი</u> ი			8 %	o ر	23,449	0.54	98	Č
D-10			Α			3	≯			39	Α			98	
7:3	23 495	0.54	ß			55	œ			61	В	··· -		98	9
	10, 700	ŝ	C			70	n			74	C	10,930	0.25	98	90
			0			3	0			80	0	12,565	0.29	98	
R-1B			ע ע			7 30	" ≻			39	ŭ >			98	
	41,282	0.95	င			70	ဂ			74	O (38.889	0,89	98	98
			D			77	D			80	٥	2,392	0.05	98	
R-7			Þ			30	➤			39	Α			98	
	31.135	0.71	œ			8	00			61	œ			98	2
	9		ם כ			5 6				7 4	, ດ	31,135	0.71	98	Ġ
			Δ			3	> (ခ ဝ	> [3 8	
R-3			0)			n c	o)) (2) u	
	25,335	0.58	ဂဏ			3 8	ο ¤			7 o	n α	25.22.5	о л	0 K	98
			0			77	0			80	0			\$	
[1] CN values obtained from Tables 2-2a and 2-2c of the NBCS TR-55 Manual ray lune 1086	2-22 and 2) ~ ~ f +ho	٥٥٥	TO EE M	2010		2000								

[1] CN values obtained from Tables 2-2a and 2-2c of the NRCS TR-55 Manual, rev. June 1986



Subbasin Summary

Subbasin	Area	Weighted	Total	Total	Total	Peak	Time of
ID		Curve	Rainfall	Runoff	Runoff	Runoff	Concentration
		Number			Volume		
	(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
E-1	0.57	95.00	2.94	2.39	1.36	2.04	0 00:05:00
E-10	0.13	87.00	2.94	1.68	0.22	0.34	0 00:05:00
E-11	0.41	94.00	2.94	2.29	0.94	1.42	0 00:05:00
E-12	0.15	93.00	2.94	2.19	0.33	0.50	0 00:05:00
E-13	0.15	95.00	2.94	2.39	0.36	0.53	0 00:05:00
E-14	0.05	95.00	2.94	2.36	0.12	0.18	0 00:05:00
E-15	0.08	91.00	2.94	2.00	0.16	0.26	0 00:05:00
E-16	1.39	90.00	2.94	1.93	2.68	4.21	0 00:05:00
E-17	1.06	97.00	2.94	2.60	2.75	3.99	0 00:05:00
E-2A	0.44	80.00	2.94	1.21	0.53	0.84	0 00:05:00
E-28	0.58	77.00	2.94	1.03	0.60	0.93	0 00:05:00
E-3	0.28	85.00	2.94	1.54	0.43	0.69	0 00:05:00
E-4	0.19	90.00	2.94	1.93	0.37	0.58	0 00:05:00
E-5	2.60	92.00	2.94	2.10	5.47	8.47	0 00:05:00
E-6	0.26	74.00	2.94	0.87	0.23	0.34	0 00:05:00
E-7	0.85	91.00	2.94	2.02	1.71	2.68	0 00:05:00
E-8	0.34	97.00	2.94	2.60	0.88	1.27	0 00:05:00
E-9	0.14	82.00	2.94	1.33	0.19	0.30	0 00:05:00
EP-1	0.19	87.00	2.94	1.68	0.32	0.51	0 00:05:00
EP-2	7.13	77.00	2.94	1.03	7.34	11.38	0 00:05:00
POA-3	0.48	97.00	2.94	2.60	1.25	1.80	0 00:05:00

Link Summary

SN Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Diameter or Height	Manning's Roughness		Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
			(ft)	(ft)	(ft)	(in)		(cfs)	(cfs)		(ft/sec)
1 Pipe	S-3A	S-2B	155.00	66 21	64.78	24.000	0.0130	22.39	21.73	1.03	7.16
2 Pipe	POA-1	OUT-1	227.00	63.34	60.12	30.000	0.0130	26.26	48.85	0.54	7.16
3 Pipe	S-4	S-3A	133.57	66.33	66.21	24.000	0.0130	9.04	6.78	1.33	2.88
4 Pipe	HW	POA-2	108.00	55.45	48.71	18.000	0.0130	11.19	26.24	0.43	9.41
5 Pipe	S-2A	POA-1	31.00	65.04	64.84	12.000	0.0130	0.83	2.86	0.29	2.85
6 Pipe	S-16	S-15	125.00	73.66	72.61	15.000	0.0130	4.17	5.92	0.70	4.78
7 Pipe	S-15	S-14	50.00	72.46	72.00	15.000	0.0130	4.41	6.20	0.71	4.83
8 Pipe	S-14	S-10	172.00	71.75	70.54	15.000	0.0130	4.34	5.42	0.80	3.86
9 Pipe	S-13	S-12	6.00	72.22	72.02	12.000	0.0130	0.53	6.50	0.08	3.91
10 Pipe	S-12	S- 1 0	30.00	71.74	70.99	12.000	0.0130	1.02	5.63	0.18	4.01
11 Pipe	S-17	S-3C	74.00	68.79	68.06	15.000	0.0130	4.10	6.42	0.64	3.34
12 Pipe	S-3C	S-3B	195.00	68.06	66.82	24.000	0.0130	14.14	18.04	0.78	4.88
13 Pipe	S-3B	S-3A	62.27	66.82	66.21	24.000	0.0130	14.16	22.39	0.63	4.51
14 Pipe	S-11	S-10	73.00	71.79	70.98	15.000	0.0130	1.42	6.80	0.21	3.44
15 Pipe	S-10	5-9	91.00	70.54	69.82	18.000	0.0130	6.63	9.34	0.71	4.38
16 Pipe	S-9	S6-B	91.00	69 78	69.06	18.000	0.0130	6.88	9.34	0.74	3.90
17 Pipe	S6-B	S-6A	46.00	69.06	69.02	24.000	0.0130	10.71	6.67	1.61	4.47
18 Pipe	S-6A	S-3C	73.00	69.02	68.06	24.000	0.0130	11.22	25.94	0.43	4.63
19 Pipe	S-8	S-7	16.50	71.79	69.94	15.000	0.0130	1.27	21.63	0.06	4.79
20 Pipe	S-7	56-B	141.00	69.88	69.06	18.000	0.0130	3.79	8.01	0.47	2.34
21 Pipe	S-2B	POA-1	93.57	64.78	63.34	24.000	0.0130	23.18	28.06	0.83	8.23

Subbasin Summary

Subbasin	Area	Weighted	Total	Total	Total	Peak	Time of
ID		Curve	Rainfall	Runoff	Runoff	Runoff	Concentration
		Number			Volume		
_	(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
E-1	0.57	95.00	3.58	3.02	1.72	2.54	0 00:05:00
€-10	0.13	87.00	3.58	2.25	0.29	0.46	0 00:05:00
E-11	0.41	94.00	3.58	2.91	1.19	1.79	0 00:05:00
E-12	0.15	93.00	3.58	2.81	0.42	0.63	0 00:05:00
E-13	0.15	95 00	3.58	3.01	0.45	0.66	0 00:05:00
E-14	0.05	95.00	3.58	3.00	0.15	0.23	0 00:05:00
E-15	0.08	91.00	3.58	2.61	0.21	0.34	0 00:05:00
E-16	1.39	90.00	3.58	2.52	3.51	5.44	0 00:05:00
E-17	1.06	97.00	3.58	3.23	3.43	4.90	0 00:05:00
E-2A	0.44	80.00	3.58	1.70	0.75	1.19	0 00:05:00
E-28	0.58	77.00	3.58	1.49	0.86	1.37	0 00:05:00
E-3	0.28	85.00	3.58	2.09	0.58	0.93	0 00:05:00
E-4	0.19	90.00	3.58	2.52	0.48	0.75	0 00:05:00
E-5	2.60	92.00	3.58	2.71	7.05	10.78	0 00:05:00
E-6	0.26	74.00	3.58	1.30	0.34	0.53	0 00:05:00
E-7	0.85	91.00	3.58	2.62	2.22	3.43	0 00:05:00
E-8	0.34	97.00	3.58	3.23	1.10	1.56	0 00:05:00
E-9	0.14	82.00	3.58	1.85	0.26	0.41	0 00:05:00
EP-1	0.19	87.00	3.58	2.25	0.43	0.68	0 00:05:00
EP-2	7.13	77.00	3.58	1.49	10.62	16.77	0 00:05:00
POA-3	0.48	97.00	3.58	3.23	1.55	2.21	0 00:05:00

Link Summary

SN	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(ft)	(ft)	(ft)	(in)		(cfs)	(cfs)		(ft/sec)
1	Pipe	S-3A	S-2B	155.00	66.21	64.78	24.000	0.0130	27.76	21.73	1.28	8.84
2	Pipe	POA-1	OUT-1	227.00	63.34	60.12	30.000	0.0130	33.55	48.85	0.69	8.36
3	Pipe	5-4	S-3A	133.57	66.33	66.21	24.000	0.0130	11.52	6.78	1.70	3.67
4	Pipe	HW	POA-2	108.00	55.45	48.71	18.000	0.0130	16.60	26.24	0.63	11.99
5	Pipe	S-2A	POA-1	31.00	65.04	64.84	12.000	0.0130	1.18	2.86	0.41	3.10
6	Pipe	S-16	S-15	125.00	73.66	72.61	15.000	0.0130	5.91	5.92	1.00	4.82
. 7	Pipe	S-15	S-14	50.00	72.46	72.00	15.000	0.0130	6.51	6.20	1.05	5.31
8	Pipe	5-14	S-10	172.00	71.75	70.54	15.000	0.0130	6.63	5.42	1.22	5.40
9	Pipe	S-13	S-12	6.00	72.22	72.02	12.000	0.0130	1.07	6.50	0.16	3.99
10	Pipe	S-12	S-10	30.00	71.74	70.99	12.000	0.0130	2.10	5.63	0,37	3.98
11	Pipe	5-17	S-3C	74.00	68.79	68.06	15.000	0.0130	4.65	6.42	0.72	3.79
12	Pipe	S-3C	S-3B	195.00	68.06	66.82	24.000	0.0130	16.99	18.04	0.94	5.41
13	Pipe	S-3B	S-3A	62.27	66.82	66.21	24.000	0.0130	17.02	22.39	0.76	5.42
14	Pipe	S-11	S-10	73.00	71.79	70.98	15.000	0.0130	3.56	6.80	0.52	3.41
15	Pipe	S-10	S-9	91.00	70.54	69.82	18.000	0.0130	9.84	9.34	1.05	5.57
16	Pipe	S-9	S6-B	91.00	69.78	69.06	18.000	0.0130	10.08	9.34	1.08	5.70
17	Pipe	S6-B	S-6A	46.00	69.06	69.02	24.000	0.0130	13.63	6.67	2.04	4.48
18	Pipe	S-6A	S-3C	73.00	69.02	68.06	24.000	0.0130	13.63	25.94	0.53	4.83
19	Pipe	5-8	S-7	16.50	71.79	69.94	15.000	0.0130	1.71	21.63	0.08	4.79
20	Pipe	S-7	S6-B	141.00	69.88	69.06	18.000	0.0130	4.98	8.01	0.52	2.82
21	Pipe	S-2B	POA-1	93.57	64.78	63.34	24.000	0.0130	29.10	28.06	1.04	9.43

Subbasin Summary

Subbasin	Area	Weighted	Total	Total	Total	Peak	Time of
ID		Curve	Rainfall	Runoff	Runoff	Runoff	Concentration
		Number			Volume		
	(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
E-1	0.57	95.00	5.51	4.93	2.81	4.02	0 00:05:00
E-10	0.13	87.00	5.51	4.05	0.53	0.80	0 00:05:00
E-11	0.41	94.00	5.51	4.81	1.97	2.86	0 00:05:00
E-12	0.15	93.00	5.51	4.70	0.70	1.02	0 00:05:00
E-13	0.15	95.00	5.51	4.92	0.74	1.04	0 00:05:00
F-14	0.05	95.00	5.51	4.91	0.25	0.36	0 00:05:00
E-15	0.08	91.00	5.51	4.47	0.36	0.56	0 00:05:00
E-16	1.39	90.00	5.51	4.37	6.07	9.16	0 00:05:00
E-17	1.06	97.00	5.51	5.16	5.46	7.63	0 00:05:00
E-2A	0.44	80.00	5.51	3.34	1.47	2.33	0 00:05:00
E-2B	0.58	77.00	5.51	3.06	1.77	2.83	0 00:05:00
E-3	0.28	85.00	5.51	3.84	1.08	1.68	0 00:05:00
E-4	0.19	90.00	5.51	4.37	0.83	1.27	0 00:05:00
E-5	2.60	92.00	5.51	4.59	11.93	17.69	0 00:05:00
E-6	0.26	74.00	5.51	2.78	0.72	1.16	0 00:05:00
E-7	0.85	91.00	5.51	4.48	3.81	5.71	0 00:05:00
E-8	0.34	97.00	5.51	5.16	1.75	2.44	0 00:05:00
E-9	0.14	82.00	5.51	3.54	0.50	0.78	0 00:05:00
EP-1	0.19	87.00	5.51	4.05	0.77	1.20	0 00:05:00
EP-2	7.13	77.00	5.51	3.06	21.78	34.61	0 00:05:00
POA-3	0.48	97.00	5.51	5.16	2.47	3.45	0 00:05:00

Link Summary

	lement ype	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Diameter or Height	Manning's Roughness		Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity
				(ft)	(ft)	(ft)	(in)		(cfs)	(cfs)		(ft/sec)
1 Pi	ipe	S-3A	S-2B	155.00	66.21	64.78	24.000	0.0130	33.50	21.73	1.54	10.66
2 Pi	ipe	POA-1	OUT-1	227.00	63.34	60.12	30.000	0.0130	42.07	48.85	0.86	9.40
3 Pi	ipe	S-4	S-3A	133.57	66.33	66.21	24.000	0.0130	17.56	6.78	2.59	5.59
4 Pi	ipe	HW	POA-2	108.00	55.45	48.71	18.000	0.0130	34.31	26.24	1.31	19.42
5 Pi	ipe	S-2A	POA-1	31.00	65.04	64.84	12.000	0.0130	2.31	2.86	0.81	3,52
6 Pi	ipe	S-16	S-15	125.00	73.66	72 61	15.000	0.0130	7.29	5.92	1.23	5.94
7 Pi	ipe	S-15	S-14	50.00	72.46	72.00	15.000	0.0130	7.49	6.20	1.21	6.10
8 Pi	ipe	S-14	5-10	172.00	71.75	70.54	15.000	0.0130	7.43	5.42	1.37	6.06
9 Pi	ipe	S-13	S-12	6.00	72.22	72.02	12.000	0.0130	1.81	6.50	0.28	3.95
10 Pi	ipe	S-12	S-10	30.00	71.74	70.99	12.000	0.0130	3.38	5.63	0.60	4.30
11 Pi	ipe	S-17	S-3C	74.00	68.79	68.06	15.000	0.0130	6.49	6.42	1.01	5.29
12 Pi	ipe	S-3C	S-3B	195.00	68.06	66.82	24.000	0.0130	23.25	18.04	1.29	7.40
13 Pi	ipe	S-3B	S-3A	62.27	66.82	66.21	24.000	0.0130	24.80	22.39	1.11	7.89
14 Pi	ipe	S-11	S-10	73.00	71.79	70.98	15.000	0.0130	3.99	6.80	0.59	3.38
15 Pi	ipe	S-10	S-9	91.00	70.54	69.82	18.000	0.0130	14.01	9.34	1.50	7.93
16 Pi	ipe	S-9	S6-B	91.00	69.78	69.06	18.000	0.0130	15.67	9.34	1.68	8.87
17 Pi	ipe	S6-B	S-6A	46.00	69.06	69.02	24.000	0.0130	17.88	6.67	2.68	5.69
18 Pi	ipe	S-6A	S-3C	73.00	69.02	68.06	24.000	0.0130	19.81	25.94	0.76	6.31
19 Pi	ipe	S-8	S-7	16.50	71.79	69.94	15.000	0.0130	3.51	21.63	0.16	4.80
20 Pi	ipe	S-7	S6-B	141.00	69.88	69.06	18.000	0.0130	5.94	8.01	0.74	3.36
21 Pi	ipe	S-2B	POA-1	93.57	64.78	63.34	24.000	0.0130	35.71	28.06	1.27	11.37

POST DEVELOPMENT MODEL - 1 YEAR STORM

Project Description

File Name	48463 - Post-Dev SSA-OVERALL.SPF
Description	C:\Users\henry.sells\OneDrive - Timmons Group
	Inc\Desktop\56460-SPSTRM.dwg

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:00:30	days hh:mm:ss
Routing Time Step	1	seconds
Runoff (Wet Weather) Time Step	0 00:05:00 0 00:00:30	days hh:mm:s

Number of Elements

	Qt
Rain Gages	1
Subbasins	45
Nodes	56
Junctions	52
Outfalls	3
Flow Diversions	0
Inlets	0
Storage Nodes	1
Links	54
Channels	1
Pipes	51
Pumps	0
Orifices	1
Weirs	1
Outlets	0
Pollutants	0
Land Uses	o

Rainfall Details

SN	Rain Gage	Data	Data Source	Rainfall	Rain	State	County	Return	Rainfall	Rainfall
	ID	Source	ID	Туре	Units			Period	Depth	Distribution
								, ,		
								(years)	(inches)	

Node Summary

Element ID	Element Type	Invert Elevation	Ground/Rim		Ponded	Peak Inflow	Max HGL	Min	Time of		Total Time
10	туре	cievation	(Max) Elevation	Water Elevation	Area	innow	Attained	Freeboard Attained	Peak Flooding	Flooded Volume	Flooded
				Lievation			Attanled	Actamed	Occurrence	volume	
		(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
A-1 A2	Junction Junction	64.96 67.21	68.75	0.00	100.00	9.16	65.92	2.83	0 00:00	0.00	0.00
A3	Junction	69.50	72.48 74.21	0.00	100.00	9.23 0.58	68.25 69.78	4.23 4.43	0 00:00	0.00	0.00
A4	Junction	68.43	74.21	0.00	100.00	7.68	69.42	5.08	0 00:00	0.00	0.00
A5	Junction	69.22	74.40	0.00	100.00	5.37	70.02	4.38	0 00:00	0.00	0.00
A6	Junction	69.93	74.50	0.00	100.00	4.43	70.66	3.84	0 00:00	0.00	0.00
A7	Junction	70.49	74.54	0.00	100.00	3.11	71.36	3.18	0 00:00	0.00	0.00
A8	Junction	70.75	74.50	0.00	100.00	2.17	71.52	2.98	0 00:00	0.00	0.00
81	Junction	68.04	73.93	0.00	100.00	1.25	68.36	5.57	0 00:00	0.00	0.00
B10A	Junction	69.00	75.80	0.00	100.00	5.50	70.05	5.75	0 00:00	0.00	0.00
B10B	Junction	69.32	75.65	0.00	100.00	5.53	70.42	5.23	0 00:00	0.00	0.00
B11	Junction	69.88	75.18	0.00	100.00	4.75	70.84	4.34	0 00:00	0.00	0.00
B12	Junction	70.35	74.74	0.00	100.00	4.03	71.24	3.50	0 00:00	0.00	0.00
813	Junction	71.00	74.17	0.00	100.00	1.23	71.55	2.62	0 00:00	0.00	0.00
B-1A	Junction	65.83	73.98	0.00	100.00	1.25	68.07	5.91	0 00:00	0.00	0.00
B2	Junction	65.90	74.55	0.00	100.00	0.91	68.07	6.48	0 00:00	0.00	0.00
B3	Junction	66.81	74.37	0.00	100.00	11.76	68.07	6.30	0 00:00	0.00	0.00
84	Junction	67.14	76.07	0.00	100.00	10.60	68.43	7.64	0 00:00	0.00	0.00
B5	Junction	72.40	76.25	0.00	100.00	0.41	72.63	3.62	0 00:00	0.00	0.00
B6	Junction	68.18	75.82	0.00	100.00	7.59	69.15	6.67	0 00:00	0.00	0.00
B7	Junction	70.39	75.63	0.00	100.00	2.12	70.98	4.65	0 00:00	0.00	0.00
B8	Junction	71.65	76.68	0.00	100.00	0.58	71.88	4.80	0 00:00	0.00	0.00
B9	Junction	72 87	77.54	0.00	100.00	0 21	73.02	4.52	0 00:00	0.00	0.00
HW	Junction	55.45	67.58	49.91	100.00	4.89	55.89	29.56	0 00:00	0.00	0.00
POA-1	Junction	63.34	69.74	0.00	100.00	23.58	64.70	5.04	0 00:00	0.00	0.00
R1A	Junction	66.66	75.10	0.00	100.00	2.05	68.07	7.03	0 00:00	0.00	0.00
R-1A.1	Junction	70.45	74.98	0.00	100.00	2.05	70.86	4.12	0 00:00	0.00	0.00
R1B R1B.2	Junction	65.97	75.15	0.00	100.00	3.60	68.07	7.08	0 00:00	0.00	0.00
R10.2	Junction	71.66	74.91	0.00	100.00	3.61	72.34	2.57	0 00:00	0.00	0.00
R2.1	Junction Junction	71.71	77.15	0.00	100.00	2.71	72.32	4.83	0 00:00	0.00	0.00
S-10	Junction	73.50 70.54	77.21	0.00	100.00	2.71	74.03	3.18	0 00:00	0.00	0.00
5-10	Junction	71.79	75.36	0.00	100.00	5.06	71.47	3.89	0 00:00	0.00	0.00
S-12	Junction	71.79	75.02	0.00	100.00	1.42	72.21	2.81	0 00:00	0.00	0.00
S-13	Junction	72.22	75.36 75.86	0.00	100.00	0.82 0.26	72.03 72.39	3.33 3.47	0 00:00	0.00	0.00
S-14	Junction	71.75	77.09	0.00	100.00	2.49	72.34	4.75	0 00:00	0.00	0.00
S-15	Junction	72.46	76.81	0.00	100.00	2.31	73.08	3.73	0 00:00	0.00	0.00
5-16	Junction	73.66	75.45	0.00	100.00	2.05	74.21	1.24	0 00:00	0.00	0.00
5-2A	Junction	63.65	69.81	0.00	100.00	9.89	64.96	4.85	0 00:00	0.00	0.00
5-2 B	Junction	64.78	71.18	0.00	100.00	11.41	65.87	5.31	0 00:00	0.00	0.00
5-3A	Junction	66.21	73.21	0.00	100.00	10.53	67.27	5.94	0 00:00	0.00	0.00
S-3B	Junction	66.82	73.62	0.00	100.00	9.50	67.98	5.64	0 00:00	0.00	0.00
S-3C	Junction	68.06	75.00	0.00	100.00	9.50	69.22	5.78	0 00:00	0.00	0.00
5-4	Junction	66.33	73.25	0.00	100.00	0.46	67.27	5.98	0 00:00	0.00	0.00
5-6A	Junction	69.02	73.71	0.00	100.00	9.50	70.08	3.63	0 00:00	0.00	0.00
66-B	Junction	69.06	77.52	0.00	100.00	9.50	70.62	6.90	0 00:00	0.00	0.00
5-7	Junction	69.88	74.89	0.00	100.00	3.95	74.02	0.87	0 00:00	0.00	0.00
5-8	Junction	71.79	74.67	0.00	100.00	1.27	74.04	0.63	0 00:00	0.00	0.00
;-9	Junction	69.78	75.78	0.00	100.00	5.33	70.94	4.84	0 00:00	0.00	0.00
T-0UT-1	Junction	64.00	73.50	0.00	100.00	4.91	64.33	29.67	0 00:00	0.00	0.00
T-OUT-2-DOWN	Junction	64.14	70.00	0.00	100.00	1.67	64.53	13.57	0 60:00	0.00	0.00
T-OUT-2-UP	Junction	64.14	70.00	0.00	100.00	3.27	68.07	10.03	0 00:00	0.00	0.00
OUT-1	Outfall	52.48				23.57	62,12				
OA-2	Outfali	48.71				4.81	49.91				
OA3	Outfall	63.93				1.67	63.93				
CHAMBERS	Storage Node	64.74	73.93	0.00	0.00	10.46	68.07			0.00	0.00

Storage Nodes

Storage Node: CHAMBERS

Input Data

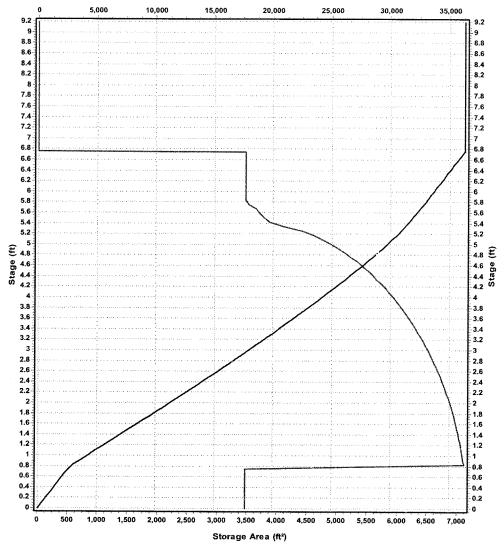
Invert Elevation (ft)	64.74
Max (Rim) Elevation (ft)	73.93
Max (Rim) Offset (ft)	9.19
Initial Water Elevation (ft)	0.00
Initial Water Depth (ft)	-64.74
Ponded Area (ft²)	0.00
Evaporation Loss	0.00

Storage Area Volume Curves Storage Curve : CHAMBERS

Stage	Storage	Storage
	Area	Volume
 (ft)	(ft²)	(ft ³)
0	3475.18	0
0.08	3475.18	278.01
0.17	3475.18	590.78
0.25	3475.18	868.79
0.33	3475.18	1146.8
0.42	3475.18	1459.57
0.5	3475.18	1737.58
0.58	3475.18	2015.59
0.67	3475.18	2328.36
0.75	3475.18	2606.37
0.83	7128.56	3030.52
0.92	7109.22	3671.22
1	7097.32	4239.48
1.08	7084.42	4806.75
1.17	7069.87	5443.69
1.25	7055.55	6008.71
1.33	7041.28	6572.58
1.42	7025.2	7205.57
1.5	7008.18	7766.91
1.58	6990.21	8326.85
1.67	6971.15	8955.11
1.75	6951.14	9512
1.83	6930.29	10067.26
1.92	6906.71	10689.92
2	6885.13	11241.59
2.08	6860.87	11791.43
2.17	6835.6	12407.77
2.25	6809.26	12953.56
2.33	6780.96	13497.17
2.42	6753.1	14106.2
2.5	6723.29	14645.26
2.58	6692.19	15181.88
2.67	6658.79	15782.67
2.75	6625.73	16314.05
2.83	6591.05	16842.72
2.92	6554.74	17434.28
3	6517.1	17957.15
3.08	6478.14	18476.96
3.17	6437.43	19058.16
3.25	6395.25	19571.47
3.33	6351.47	20081.34
3.42	6305.89	20650.92
3.5	6258.65	21153.5
3.58	6208.64	21652.19
3.67	6158.47	22208.71
3.75	6105.58	22699.27
3.83	6050.56	23185.52
3.92	5993.34	23727.5
4	5933.5	24204.57
4.08	5871.07	24676.75
4.17	5805.7	25202.2
4.25	5737.1	25663.91
4.33	5665.25	26120

Storage Area Volume Curves





— Storage Area — Storage Volume

POST DEVELOPMENT MODEL - 2 YEAR STORM

Project Description

File Name	48463 - Post-Dev SSA-OVERALL.SPF
Description	C:\Users\henry.sells\OneDrive - Timmons Group
	Inc\Desktop\56460-SPSTRM.dwg

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:00:30	days hh:mm:ss
Routing Time Step	1	seconds

Number of Elements

	Qt
Rain Gages	1
Subbasins	45
Nodes	56
Junctions	52
Outfalls	3
Flow Diversions	0
Inlets	0
Storage Nodes	1
Links	54
Channels	1
Pipes	51
Pumps	0
Orifices	1
Weirs	1
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage	Data	Data Source	Rainfall	Rain	State	County	Return	Rainfall	Rainfall
	ID	Source	ID.	Type	Units			Period	Depth	Distribution
								(years)	(inches)	
1	UNIVERSAL	Time Series	2 YEAR	Cumulative	inches	Virginia	None	2.00	3.58	SCS Type II 24-hr

Node Summary

Element	Element		Ground/Rim		Ponded	Peak	Max HGL	Min	Time of		Total Tim
ID	Type	Elevation	(Max)	Water	Area	Inflow		Freeboard		Flooded	Floode
			Elevation	Elevation			Attained	Attained	Flooding	Volume	
		(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)) (fe)	Occurrence	(an in)	fam.ts
A-1	Junction	64.96	68.75	0.00	100.00	11.48	66.06	2.69	(days hh:mm) 0 00:00	(ac-in) 0.00	(mir 0.0
A2	Junction	67.21	72.48	0.00	100.00	11.56	68.41	4.07	0 00:00	0.00	0.0
A3	Junction	69.50	74.21	0.00	100.00	0.75	69.83	4.38	0 00:00	0.00	0.0
A4	Junction	68.43	74.50	0.00	100.00	9.59	69.58	4.92	0 00:00	0.00	0.0
A5	Junction	69.22	74.40	0.00	100.00	6.73	70.15	4.25	0 00:00	0.00	0.0
A6	Junction	69.93	74.50	0.00	100.00	5.54	70.77	3.73	0 00:00	0.00	0.0
A7	Junction	70.49	74.54	0.00	100.00	3.89	71.49	3.05	0 00:00	0.00	0.0
48	Junction	70.75	74.50	0.00	100.00	2.71	71.66	2.84	0 00:00	0.00	0.0
B1	Junction	68.04	73.93	0.00	100.00	1.58	68.56	5.37	0 00:00	0.00	0.0
B10A	Junction	69.00	75.80	0.00	100.00	6.91	70.21	5.59	0 00:00	0.00	0.0
B10B	Junction	69.32	75.65	0.00	100.00	6.95	70.60	5.05	0 00:00	0.00	0.0
311	Junction	69.88	75.18	0.00	100.00	5.98	71.01	4.17	0 00:00	0.00	0.0
312	Junction	70.35	74.74	0.00	100.00	5.09	71.41	3.33	0 00:00	0.00	0.0
313	Junction	71.00	74.17	0.00	100.00	1.60	71.66	2.51	0 00:00	0.00	0.0
3-1A	Junction	65.83	73.98	0.00	100.00	1.59	68.55	5.43	0 00:00	0.00	0.0
32	Junction	65. 9 0	74.55	0.00	100.00	1.14	68.55	6.00	0 00:00	0.00	0.0
33	Junction	66.81	74.37	0.00	100.00	14.83	68.55	5.82	0 00:00	0.00	0.0
34	Junction	67.14	76.07	0.00	100.00	13.34	68.61	7.46	0 00:00	0.00	0.0
35	Junction	72.40	76.25	0.00	100.00	0.53	72.67	3.58	0 00:00	0.00	0.0
86	Junction	68.18	75.82	0.00	100.00	9.61	69.30	6.52	0 00:00	0.00	0.6
37	Junction	70.39	75.63	0.00	100.00	2.74	71.09	4.54	0 00:00	0.00	0.4
38	Junction	71.65	76.68	0.00	100.00	0.73	71.91	4.77	0 00:00	0.00	0.0
39	junction	72.87	77.54	0.00	100.00	0.28	73.04	4.50	0.00:00	0.00	0.0
HW POA-1	Junction	55.45 63.34	67.58	49.91	100.00	11.53	56.15	29.30	0 00:00	0.00	0.0
R1A	Junction Junction	66.66	69.74 75.10	0.00	100.00	29.91 2.54	64.99	4.75	0 00:00	0.00	0.0
R-1A.1	Junction	70.45	74.98	0.00	100.00	2.54	68.56 70.90	6.54 4.08	0 00:00	0.00	0.0
R1B	Junction	65.97	75.15	0.00	100.00	4.40	68.57	6.58	0 00:00	0.00	0.0
R1B.2	Junction	71.66	74.91	0.00	100.00	4.42	72.44	2.47	0 00:00	0.00	0.0
R2	Junction	71.71	77.15	0.00	100.00	3.31	72,42	4.73	0 00:00	0.00	0.0
R2.1	Junction	73.50	77.21	0.00	100.00	3.32	74.11	3.10	C 00:00	0.00	0.0
5-10	Junction	70.54	75.36	0.00	100.00	6.33	71.91	3.45	0 00:00	0.00	0.0
5-11	Junction	71.79	75.02	0.00	100.00	1.79	72.26	2.76	0 00:00	0.00	0.0
5-12	Junction	71.74	75.36	0.00	100.00	1.03	72.05	3.31	0 00:00	0.00	0.0
5-13	Junction	72.22	75.86	0.00	100.0C	0.34	72.42	3.44	0 00:00	0.00	0.0
5-14	Junction	71.75	77.09	0.00	100.00	3.06	72.42	4.67	0 00:00	0.00	0.0
-15	Junction	72.46	76.81	0.00	100.00	2.84	73.16	3.65	0 00:00	0.00	0.0
5-16	Junction	73.66	75.45	0.00	109.00	2.51	74.28	1.17	0 00:00	0.00	0.0
5-2A	Junction	63.65	69.81	0.00	100.00	12.50	65.24	4.57	0 00:00	0.00	0.0
-2B	Junction	64.78	71.18	0.00	100.00	14.51	66.08	5.10	0 00:00	0.00	0.0
5-3A	Junction	66.21	73.21	0.00	100.00	13.23	67.46	5.75	0 00:00	0.00	0.0
3-3B	Junction	66.82	73.62	0.00	100.00	11.88	68.19	5.43	0 00:00	0.00	0.0
i-3C	Junction	68.06	75.00	0.00	100.00	11.89	69.43	5.57	0 00:00	0.00	0.0
-4	Junction	66.33	73.25	0.00	100.00	0.57	67.46	5.79	0 00:00	0.00	0.0
-6A	Junction	69.02	73.71	0.00	100.00	11.89	70.27	3.44	0 00:00	0.00	0.0
6-B →	Junction	69.06	77.52	0.00	100.00	11.90	70.90	6.62	0 00:00	0.00	0.0
-7	Junction	69.88	74.89	0.00	100.00	5.00	74.31	0.58	0 00:00	0.00	0.0
-8	Junction	71.79	74.67	0.00	100.00	1.56	74.35	0.32	0 00:00	0.00	0.0
-9 T OUT 1	Junction	69.78	75.78	0.00	100.00	6.56	71.46	4.32	0 00:00	0.00	0.0
T-OUT-1	Junction	64.00	73.50	0.00	100.00	11.59	64.46	29.54	0 00:00	0.00	0.0
T-OUT-2-DOWN	Junction	64.14	70.00	0.00	100.00	7.30	65.00	13.10	0 00:00	0.00	0.0
T-OUT-2-UP OUT-1	Junction Outfall	64.14	70.00	0.00	100.00	7.30	68.53	9.57	0 00:00	0.00	0.0
OA-2	Outfall Outfall	52.48				29.93	62.12				
		48.71				11.00	49.91				
OA3	Outfall	63.93	72.02	0.00	n 00	2.09	63.93				_
CHAMBERS	Storage Node	64.74	73.93	0.00	0.00	24.04	68.55			0.00	0.0

Storage Nodes

Storage Node : CHAMBERS

Input Data

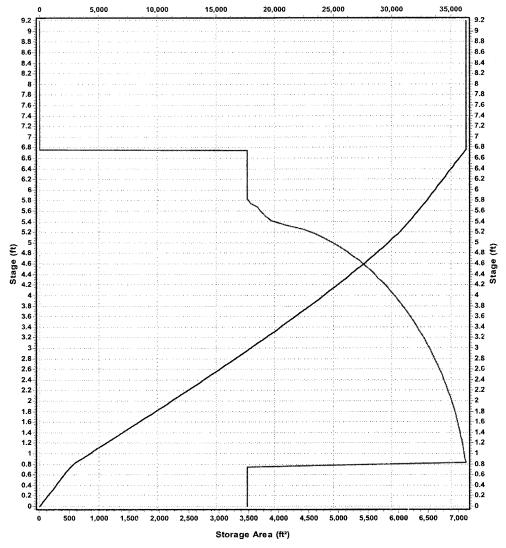
Invert Elevation (ft)	64.74
Max (Rim) Elevation (ft)	73.93
Max (Rim) Offset (ft)	9.19
Initial Water Elevation (ft)	0.00
Initial Water Depth (ft)	-64.74
Ponded Area (ft²)	0.00
Evaporation Loss	0.00

Storage Area Volume Curves Storage Curve : CHAMBERS

Stage	Storage	Storage
	Area	Volume
(ft)	(ft²)	(ft³)
0	3475.18	. 0
0.08	3475.18	278.01
0.17	3475.18	590.78
0.25	3475.18	868.79
0.33	3475.18	1146.8
0.42	3475.18	1459.57
0.5	3475.18	1737.58
0.58	3475.18	2015.59
0.67	3475.18	2328.36
0.75	3475.18	2606.37
0.83	7128.56	3030.52
0.92	7109.22	3671.22
1	7097.32	4239.48
1.08	7084.42	4806.75
1.17	7069.87	5443.69
1.25	7055.55	6008.71
1.33	7041.28	6572.58
1.42	7025.2	7205.57
1.5	7008.18	7766.91
1.58	6990.21	8326.85
1.67	6971.15	8955.11
1.75	6951.14	9512
1.83	6930.29	10067.26
1.92	6906.71	10689.92
2	6885.13	11241.59
2.08	6860.87	11791.43
2.17	6835.6	12407.77
2.25	6809.26	12953.56
2.33	6780.96	13497.17
2.42	6753.1	14106.2
2.5	6723.29	14645.26
2.58	6692.19	15181.88
2.67	6658.79	15782.67
2.75	6625.73	16314.05
2.83	6591.05	16842.72
2.92	6554.74	17434.28
3	6517.1	17957.15
3.08	6478.14	18476.96
3.17	6437.43	19058.16
3.25	6395.25	19571.47
3.33	6351.47	20081.34
3.42	6305.89	20650.92
3.5	6258.65	21153.5
3.58	6208.64	21652.19
3.67	6158.47	22208.71
3.75	6105.58	22699.27
3.83	6050.56	23185.52
3.92	5993.34	23727.5
4	5933.5	24204.57
4.08	5871.07	24676.75
4.17	5805.7	25202.2
4.25	5737.1	25663.91
4.33	5665.25	26120

Storage Area Volume Curves





---- Storage Area ----- Storage Volume

POST DEVELOPMENT MODEL - 10 YEAR STORM

Project Description

File Name	48463 - Post-Dev SSA-OVERALL.SPF
Description	C:\Users\henry.sells\OneDrive - Timmons Group
	Inc\Desktop\56460-SPSTRM.dwg

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	SCS TR-55
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skin Steady State Analysis Time Periods	NO

Analysis Options

Start Analysis On	00:00:00	0:00:00
End Analysis On	00:00:00	0:00:00
Start Reporting On	00:00:00	0:00:00
Antecedent Dry Days	0	days
Runoff (Dry Weather) Time Step	0 01:00:00	days hh:mm:ss
Runoff (Wet Weather) Time Step	0 00:05:00	days hh:mm:ss
Reporting Time Step	0 00:00:30	days hh:mm:ss
Routing Time Step	1	seconds

Number of Elements

	Qt
Rain Gages	1
Subbasins	45
Nodes	56
Junctions	52
Outfalls	3
Flow Diversions	0
Inlets	0
Storage Nodes	1
Links	54
Channels	1
Pipes	51
Pumps	0
Orifices	1
Weirs	1
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

St	I Rain Gage	Data	Data Source	Rainfall	Rain	State	County	Return	Rainfall	Rainfall
	ID	Source	ID	Type	Units			Period	Depth	Distribution
_								(years)	(inches)	
1	UNIVERSAL	Time Series	10YEAR	Cumulative	inches	Virginia	None	10.00	5.51	SCS Type II 24-hr

Node Summary

Element	Element	Invert	Ground/Rim	Initial	Ponded	Peak	Max HGL	Min	Time of	Total	Total Time
ID	Туре	Elevation	(Max)	Water	Area	Inflow	Elevation	Freeboard	Peak	Flooded	Flooded
			Elevation	Elevation			Attained	Attained	Flooding	Volume	
									Occurrence		
		(ft)	(ft)	(ft)	(ft²)	(cfs)	(ft)	(ft)		(ac-in)	(min)
A-1	Junction	64.96	68.75	0.00	100.00	18.11	67.38	1.37	0 00:00	0.00	0.00
A2	Junction	67.21	72.48	0.00	100.00	18.57	69.08	3.40	0 00:00	0.00	0.00
A3 ·	Junction	69.50	74.21	0.00	100.00	1.28	69.93	4.28	0 00:00	0.00	0.00
A4	Junction	68.43	74.50	0.00	100.00	15.42	70.15	4 35	0 00:00	0.00	0.00
A5 A6	Junction Junction	69.22 69.93	74.40 74.50	0.00	100.00	10.90	70.59	3.81	0 00:00	0.00	0.00
A7	Junction	70.49	74.50	0.00	100.00	9.00	71.10	3.40	0 00:00	0.00	0.00
A8	Junction	70.75	74.54	0.00	100.00 100.00	6.30 4.39	71.88	2.66	0 00:00	0.00	0.00
B1	Junction	68.04	73.93	0.00	100.00	2.56	72.11 69.85	2.39 4.08	0 00:00	0.00	0.00
B10A	Junction	69.00	75.80	0.00	100.00	11.18	70.65	5.15		0.00	0.00
B10B	Junction	69.32	75.65	0.00	100.00	11.23	71.14		0 00:00	0.00	0.00
B11 ·	Junction	69.88	75.18	0.00	100.00	9.72	71.14	4.51	0 00:00	0.00	0.00
B12	Junction	70.35	74.74	0.00	100.00	8.30	72.19	3.62 2.55	0 00:00	0.00	0.00
B13	Junction	71.00	74.17	0.00	100.00	2.74	72.13	1.74	0 00:00	0.00	0.00
B-1A	Junction	65.83	73.98	0.00	100.00	2.59				0.00	0.00
B2	Junction	65.90	74.55	0.00	100.00	1.85	69.70 69.62	4.28 4.93	0 00:00	0.00	0.00
B3	Junction	66.81	74.37	0.00	100.00	22.97	69.73	4.53		0.00	0.00
B4	Junction	67.14	76.07	0.00	100.00	21.32	69.85	6.22	0 00:00	0.00	0.00
B5	Junction	72.40	76.25	0.00	100.00	0.91	72.77		0 00:00	0.00	0.00
B6	Junction	68.18	75.82	0.00	100.00	15.75	70.09	3.48 5.73	0 00:00	0.00	0.00
B7	Junction	70.39	75.62	0.00	100.00	4.63	71.45	4.18	0 00:00	0.00	0.00
B8	Junction	71.65	76.68	0.00	100.00	1.19	71.43	4.10	0 00:00	0.00	0.00
B9	Junction	72.87	77.54	0.00	100.00	0.46	73.08	4.76	0 00:00	0.00	0.00
нw	Junction	55.45	67.58	49.91	100.00	39.19	58.46	26.99	0 00:00	0.00	0.00
POA-1	Junction	33.34	69.74	0.00	100.00	46.98	66.80	20.99	0 00:00		0.00
R1A	Junction	66.66	75.10	0.00	100.00	3.83	69.95	5.15	0 00:00	0.00	0.00
R-1A.1	Junction	70.45	74.98	0.00	100.00	3.89	71.20	3.78	0 00:00	0.00	0.00
R1B	Junction	65.97	75.15	0.00	100.00	6.73	69.90	5.25	0 00:00	0.00	0.00
R1B.2	Junction	71.66	74.91	0.00	100.00	6.85	72.82	2.09	0 00:00	0.00	0.00
R2	Junction	71.71	77.15	0.00	100.00	5.14	73.23	3.92	0 00:00	0.00	0.00
R2.1	Junction	73.50	77.21	0.00	100.00	5.14	75.57	1.64	0 00:00	0.00	0.00
5-10	Junction	70.54	75.36	0.00	100.00	9.56	75.73	0.00	0 11:56	0.00	6.00
5-11	Junction	71.79	75.02	0.00	100.00	2.86	75.88	0.00	0 11:55	0.02	8.00
5-12	Junction	71.74	75.36	0.00	100.00	1.73	75.82	0.00	0 11:56	0.03	6.00
5-13	Junction	72.22	75.86	0.00	100.00	0.59	75.82	0.04	0 00:00	0.00	0.00
5-14	Junction	71.75	77.09	0.00	100.00	5.28	76.86	0.23	0 00:00	0.00	0.00
5-15	Junction	72.46	76.81	0.00	100.00	5.08	76.81	0.00	0 11:53	0.00	0.00
5-16	Junction	73.66	75.45	0.00	100.00	3.89	77.20	0.00	0 11:55	0.06	10.00
5-2A	Junction	63.65	69.81	0.00	100.00	20.06	67.14	2.67	0 00:00	0.00	0.60
5-2B	Junction	64.78	71.18	0.00	100.00	22.50	69.24	1.94	0 00:00	0.00	0.00
S-3A	Junction	65.21	73.21	0.00	100.00	19.61	72.41	0.80	0 00:00	0.00	0.00
5-3B	Junction	66.82	73.62	0.00	100.00	17.78	72.91	0.71	0 00:00	0.00	0.00
5-3C	Junction	68.06	75.00	0.00	100.00	17.78	72.67	2.33	0 00:00	0.00	0.00
5-4	Junction	66.33	73.25	0.00	100.00	2.50	73.25	0.00	0 11:55	0.00	0.00
5-6A	Junction	69.02	73.71	0.00	100.00	18.04	73.18	0.53	0 00:00	0.00	0.00
66-В	Junction	69.06	77.52	0.00	100.00	18.54	73.91	3.61	0 00:00	0.00	0.00
5-7	Junction	69.88	74.89	0.00	100.00	8.03	75.08	0.00	0 11:53	0.00	6.00
5-8	Junction	71.79	74.67	0.00	100.00	2.44	75.16	0.00	0 11:52	0.01	10.00
S-9	Junction	69.78	75.78	0.00	100.00	10.13	74.86	0.92	0 00:00	0.00	0.00
T-OUT-1	Junction	64.00	73.50	0.00	100.00	39.25	64.73	29.27	0 00:00	0.00	0.00
T-OUT-2-DOWN	Junction	64.14	70.00	0.00	100.00	27.55	66.00	12.10	0 00:00	0.00	0.00
T-OUT-2-UP	Junction	64.14	70.00	0.00	100.00	27.55	69.29	8.81	0 00:00	0.00	0.00
DUT-1	Outfall	52.48				46.98	62.12		- 50.00		0.00
) (i - T	Outran	J2.70									
OA-2	Outfall	48.71									
						23.33 3.35	49.91 63.93				

Storage Nodes

Storage Node : CHAMBERS

Input Data

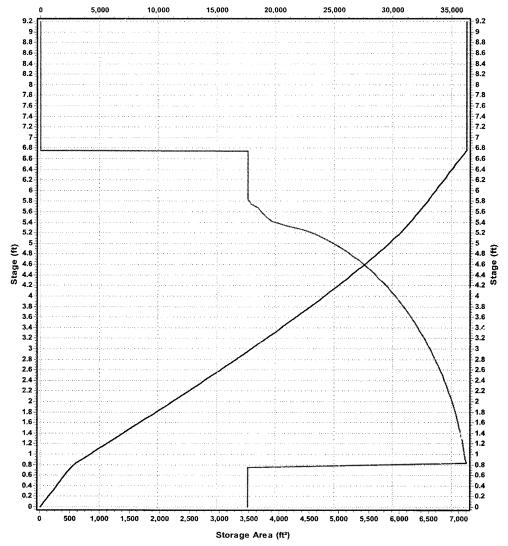
Invert Elevation (ft)	64.74
Max (Rim) Elevation (ft)	73.93
Max (Rim) Offset (ft)	9.19
Initial Water Elevation (ft)	0.00
Initial Water Depth (ft)	-64.74
Ponded Area (ft²)	0.00
Evaporation Loss	0.00

Storage Area Volume Curves Storage Curve : CHAMBERS

Stage	Storage	Storage
	Area	Volume
(ft)	(ft²)	(ft ³)
	3475.18	0
0.08	3475.18	278.01
0.17	3475.18	590.78
0.25	3475.18	868.79
0.33	3475.18	1146.8
0.42	3475.18	1459.57
0.5	3475.18	1737.58
0.58	3475.18	2015.59
0.67	3475.18	2328.36
0.75	3475.18	2606.37
0.83	7128.56	3030.52
0.92	7109.22	3671.22
1	7097.32	4239.48
1.08	7084.42	4806.75
1.17	7069.87	5443.69
1.25	7055.55	6008.71
1.33	7041.28	6572.58
1.42	7025.2	7205.57
1.5	7008.18	7766.91
1.58	6990.21	8326.85
1.67	6971.15	8955.11
1.75	6951.14	9512
1.83	6930.29	10067.26
1.92	6906.71	10689.92
2	6885.13	11241.59
2.08	6860.87	11791.43
2.17	6835.6	12407.77
2.25	6809.26	12953.56
2.33	€780.96	13497.17
2,42	6753.1	14106.2
2.5	6723.29	14645.26
2.58	6692.19	15181.88
2.67	6658.79	15782.67
2.75	6625.73	16314.05
2.83	6591.05	16842.72
2.92	6554.74	17434.28
3	6517.1	17957.15
3.08	6478.14	18476.96
3.17	6437.43	19058.16
3.25	6395.25	19571.47
3.33	6351.47	20081.34
3.42	6305.89	20650.92
3.5	6258.65	21153.5
3.58	6208.64	21652.19
3.67	6158.47	22208.71
3.75	6105.58	22699.27
3.83	6050.56	23185.52
3.92	5993.34	23727.5
4	5933.5	24204.57
4.08		24676.75
4.17	5805.7	25202.2
4.25	5737.1	25663.91
4.33	5665.25	26120

Storage Area Volume Curves





--- Storage Area --- Storage Volume

Project:

Sports Center

Chamber Model Units Number of Chambers Number of End Caps Voids in the stone (porosity) Base of Stone Elevation Amount of Stone Above Chambers Amount of Stone Below Chambers 9

MC-7200
Imperial
119
40
40
64.74
47
48
49
40
64.74
49
64.74
49
64.74



Area of system -

8688 sf Min. Area - 7464 sf min. area

StormTe	ech MC-7200 (Cumulativa	Sterage Va	Jumos				
Height of	Incremental Single	Incremental	Incremental	Incremental Cl			4	
System	Chamber	Total Chamber	Stone	& St	Cumulative Chamber	Elevation	Cumulative System	Elevation
(inches)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(feet)	(cubic feet)	(feel)
81	0.00	0.00	0.00	0.00	289.60	289.60	36254.11	71.49
80 79	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	289.60	289.60	35964.51	71.41
78	0.00	0.00	0.00	0.00	289.60 289.60	289.60 289.60	35674.91 35385.31	71.32 71.24
77	0.00	0.00	0.00	0.00	289.60	289.60	35095.71	71.16
76	0.00	0.00	0.00	0.00	289.60	289.60	34806.12	71.07
75	0.00	0.00	0.00	0.00	289.60	289.60	34516.52	70.99
74 73	0.00 0.00	0.00	0.00	0.00	289.60	289.60	34226.92	70.91
72	0.00	0.00 0.00	0.00 0.00	0.00	289.60 289.60	289.60 289.60	33937.32 33647.72	70.82 70.74
71	0.00	0.00	0.00	0.00	289.60	289.60	33358.13	70.74
70	0.00	0.00	0.00	0.00	289.60	289.60	33068.53	70.57
69	0.06	0.01	7.07	0.13	286.72	293.92	32778.93	70.49
68 67	0.19	0.03	22.63	0.34	280.41	303.38	32485.01	70.41
66	0.28 0.36	0.05 0.07	32.75 42.51	0.52 0.66	276.29 272.33	309,56 315.50	32181.63	70.32
65	C.46	0.08	54.55	0.83	267.45	322.83	31872.08 31556.58	70.24 70.16
64	0.74	0.11	88.26	1.05	253.87	343.18	31233.75	70.07
63	1.10	0.13	130.47	1.32	236.88	368.67	30890.57	69.99
62	1.32	0.16	156.90	1.61	226.19	384.70	30521.89	69.91
61 60	1.50 1.65	0.19 0.22	178.29 196.88	1.89 2.19	217.53 209.97	397.70	30137.19	69.82
59	1.79	0.25	213.48	2.19	203.22	409.04 419.17	29739.49 29330.45	69 74 69.66
58	1.92	0.28	228.44	2.75	197.12	428.31	28911.28	69.57
57	2.04	0.30	242.45	3.02	191.41	436.88	28482.96	69.49
56 57	2.15	0.33	255.29	3.28	186.17	444.74	28046.08	69.41
55 54	2.25 2.34	0.35 0.38	267.48	3.55	181.19	452.21	27601.34	69.32
53	2.43	0.41	278.83 289.58	3.84 4.09	176.53 172.13	459.20 465.80	27149.13 26689.93	69.24 69.16
52	2.52	0.44	299.77	4.41	167.93	472.10	26224.13	69.07
51	2.60	0.47	309.47	4.69	163.94	478.09	25752.03	68.99
50	2.68	0.50	318.73	4.95	160.12	483.81	25273.93	68.91
49 48	2.75 2.82	0.52 0.54	327.56 335.99	5.21	156.49	489.26	24790.13	68.82
47	2.89	0.57	344.08	5.44 5.67	153.02 149.70	494.46 499.45	24300.87 23806.41	68.74 68.66
46	2.96	0.59	351.81	5.89	146.52	504.21	23306.97	68.57
45	3.02	0.61	359.23	6.10	143.46	508.80	22802.75	68.49
44	3.08	0.63	366.36	6.32	140.53	513.21	22293.96	68.41
43 42	3.14 3.19	0.64 0.68	373.22	6.43	137.74	517.39	21780.75	68.32
41	3.25	0.70	379.82 386.16	6.77 7.00	134.96 132.34	521.55 525.49	21263.36 20741.81	68.24 68.16
40	3.30	0.72	392.26	7.22	129.80	529.29	20216.32	68.07
39	3.35	0.74	398.13	7.44	127.37	532.94	19687.03	67.99
38	3.39	0.76	403.78	7.64	125.03	536.45	19154.09	67.91
37 36	3.44 3.48	0.79 0.80	409.22	7.86	122.77	539.85	18617.64	67.82
35	3.53	0.82	414.46 419.52	8.03 8.20	120.60 118.51	543.09 546.23	18077.79 17534.70	67.74 67.66
34	J.57	0.84	424.37	8.39	116.49	549.25	16988.47	67.57
33	3.61	0.85	429.06	8.51	114.57	552.14	16439.22	67.49
32 31	3.64	0.86	433.57	8.60	112.73	554.90	15887.08	67.41
30	3.68 3.71	0.89 0.90	437.91 442.08	8.89	110.87	557.68	15332.18	67.32
29	3.75	0.92	446.09	9.04 9.17	109.15 107.49	560.27 562.76	14774.49 14214.22	67.24 67.16
28	3.78	0.92	449.94	9.20	105 94	565.08	13651.46	67.07
27	3.81	0.94	453.63	9.43	104.37	567.44	13086.38	66.99
26	3.84	0.96	457.16	9.56	102.91	569.63	12518.94	66.91
25 24	3.87 3.90	0.97 0.98	460.55 463.79	9.69	101.50	571.74	11949.31	66.82
23	3.92	0.96	463.79 466.89	9.81 9.71	100.16 98.96	573.76 575.56	11377.57 10803.81	66.74 66.66
22	3.95	1.00	469.84	10.03	97.65	577.52	10228.25	66.57
21	3.97	1.01	472.66	10.11	96.49	579.26	9650.73	66.49
20	3.99	1.02	475.35	10.20	95.38	580.93	9071.46	66.41
19 18	4.02 4.04	1.03 1.04	477.90	10.30	94.32	582.52	8490.53	66.32
17	4.06	1.04	480.31 482.60	10.39 10.46	93.32 92.37	584.02 585.43	7908.02 7324.00	66.24 66.16
16	4.07	1.05	484.75	10.54	91.48	586.77	6738.57	66.16 66.07
								00.01

STORM SEWER SYSTEM TIME OF CONCENTRATION COMPUTATIONS

Date: 10/02/2023 Project Name: Sports and Events Center Timmons Group Project No. 48463

Calculated By: Henry Sells

2-Year, 24-Hour Precipitation Depth, P2

rom NOAA Atlas 14 for Williamsburgh, VA)

Roughness Coefficients (Manning's n values)	n values)
Concrete, asphalt, gravel, bare soil	0.013
Plastic pipe	0.011
Short grass	0.15
Woods (light underbrush)	0.40
Weedy natural stream channels	0.10
Clean straight bank	0.03

Values obtained from TR-55 Manual and Open-Channel Hydraulics (Chow, 1959)

$A_x = 7.07 \text{ SF } P_w = 9.42 \text{ FT } $	36" Circular Pipe
$A_x = 4.91 \text{SF} P_w = 7.85 \text{FT}$	30" Circular Pipe
$A_y = 3.14 \text{ SF } P_w = 6.28 \text{ FT}$	24" Circular Pipe
$A_x = 1.77 \text{ SF } P_w = 4.71 \text{ FT}$	18" Circular Pipe
$A_x = 1.23 \text{ SF} P_w = 3.93 \text{ FT}$	15" Circular Pipe
$A_x = 0.79 \text{ SF} \mid P_w = 3.14 \text{ FT}$	12" Circular Pipe
/draulic Properties for Full Pipes	Hydraul
Proposed pipe flow depth = 100% of diameter (full-flow)	Proposed pipe flow de
Assumptions	



		ITX-1じ	1		Γ		EX-10	1		Storm Drain	Receiving		_		
_		Č	!		L		<u></u>	<u> </u>		₽	_			Time	Factors
5	4	ω	2		5	4	u	2	-	Section	Flow				
											Þ	Manning's n-value		(wannin	Š.
							L		L	Ē	_	Flow Length (100' max.)		manning's Kinematic Solution, 100' Maximum	Overland/Sheet Flow
										(#V/ft)	s	Average Slope		manc so	heet Flo
										(min)	7	Travel Time		lution)	
				141					246	╄	-	Flow Length	L	O _V	
				0.02			L	L	0.004	1	s	Average Slope	Paved	erland Fi	Shallow
				0.82					3.19		To	Travel Time		(TK55 Figure 3-1) Overland Flow > 100' or Gutter Flow	Shallow Concentrated Flow
H					<u>.</u>				_	(E)	_	Flow Length	Ung	re 3-1) or Gutte	trated FI
					_					(ft/ft)	S	Average Slope	Unpaved	r Flow	MO
								H		min)	70		ļ		
Н					_					2	_	Flow Length Average	Avg. Velocity Method		
Н										(ft/s)	<	Velocity (~ 2.5 ft/s)	city Met		
Ц										(min)	Tc	Travel Time	pod		
1.77	3.14	1.77	1.23		1.77	3.14	1.77	0.79		₹.	Ą	Cross- Sectional Area		Ditches	Channelia
	6.28	4.71	3.93		4.71	6.28	4.71	3.14		3	٦	Wetted Perimeter	Manı	Ditches/Streams/Pipes	8000 S. S.
0.008	800.0	0.008	0.009		0.008	0.008	0.008	0.02		(ft/ft)	s	Average Slope	fanning's Equation Method	/Pipes	ed Flow
0.013	0.013	0.013	0.013		0.013	0.013	0.013	0.013			3	Manning's n-value	uation M		
257	119	182	347		257	119	182	36		(ft)	-	Flow Length	ethod		
0.80	0.31	0.57	1.15		0.80	0.31	0.57	0.09		(min)	Tc	Travel Time			
Ħ										(ft)	٦	Flow Length		Wai	F
H														(Wave	ow Acros
										(ft) ·	Dm	Average Depth		(Wave Equation) Wave Flow on Water Surfaces	Flow Across Water Bodies
										(min)	Тс	Travel Time		in) Surfaces	Bodies
	A-808	3.65					4.96			(min)	Тс	Calculated		Conce	Total
	•	رن س					Ú			(min)	Тс	For Design		Concentration	Total Time of

Note: All other drainage areas are assumed to have a 5-minute time of concentration to reflect the worst-case scenario. This is appropriate given the relatively small size and/or high impervious percentage of the other watersheds.

REFERENCE EQUATIONS TIME OF CONCENTRATION COMPUTATIONS

Overland Flow Travel Time (Manning's Kinematic Solution): $T_c = \frac{0.007 (nL)^{0.8}}{(P_2)^{0.5} S^{0.4}}$

$$T_c = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5}S^{0.4}}$$

Shallow Concentrated Flow Travel Time (TR-55 Paved):

$$T_c = \left(\frac{L}{60}\right) \frac{1}{20.328(S)^{0.5}}$$

Shallow Concentrated Flow Travel Time (TR-55 Unpaved):

$$T_c = \left(\frac{L}{60}\right) \frac{1}{16.135(S)^{0.5}}$$

Channelized Flow Travel Time (Manning's Equation):

$$T_c = \left(\frac{\dot{L}}{60}\right) \left[\left(\frac{1.49}{n}\right) \left(\frac{A_x}{P_w}\right)^{2/3} (S)^{0.5} \right]^{-1}$$

Travel Time on Water Surfaces:

$$T_c = \left(\frac{L}{60}\right) \left[\sqrt{32.2D_m}\right]^{-1}$$

				od Re-Development	Compliance Spre	odsheet - Ve	rsion 3.0				
☐ 2011 BMP Standards and Specifica	tions	E3 2013 Dreft (BMP Standards and	Specifications .		Value of the second					
Project Name	:		IND EVENTS CENTE	Ŕ		CLEA	R ALL	data input cells			
Date	: 000,000,000,000		7/5/2023 velopment Project	? No	<u> </u>			constant values calculation cells	 		
Site Information			I		**************************************			inal results			
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Post-Development Projec	t (Treatmei	nt Volume	and Loads)								
	า	En	ter Total Disturb	ed Area (ocres) 🕂	10.66	1	BMP Design So	Check: ecifications List:	2013 D	aft Strik & Snace	I
	100 M TO			reduction required		<u> </u>		Linear project?	No	July 103 de 3pers	
				rious cover (acres) is action for Site (lb/yr)			Land cover areas en Total disturbe	tered correctly? d area entered?	1		
									· · ·		T
Pre-ReDevelopment Land Cover (acr	es) A Solis	B Soils	C Soils	D Soils	Yotals						
Forest/Open Space (acres) – undistorbed forest/open space	A Julis	0.02	2.33	0.60	2.95						
Managed Turf (acres) disturbed, graded for yards or other turf to be mowed/managed			131	0.27	1.58						
Impervious Cover (acres)			534	0.79	6.13		•				
. ,	-			9.5	10.66						
Post-Development Land Cover (acre-	1		·			-	+				
Forest/Open Space (acres) undisturbed,	A Soils	B Soils	C Soils	D Soils	Totals	1					
protected lorest/open space or reforested land Managed Turf (acres) disturbed, graded for	-		-		0.00	 	ļ	ļ	ļ		
yards or other turf to be mowed/managed impervious Cover (acres)	-	0.05	2.03	0.57	2.62	_	<u> </u>	ļ			
Impervious Cover (acres) Area Chec	d ox	OK.	5:95 OK.	1.09 OK.	8.04 10.66	 	 				-
				-		1					
Constants	<u> </u>		Runoff Coefficien	ts (Rv)		-	<u> </u>	ļ <u></u>			
Annual Rainfall (inches) Target Rainfall Everst (inches)	43 1.00	 	Forest/Open Space	A Soils 0.02	B Soils 0.03	C Soils 0.04	D 50ils 0.05				
Total Phosphorus (TP) EMC (mg/L) Total Nitrogen (TN) EMC (mg/L)	0.26	ļ	Managed Turf Impervious Cover	0.15	0.20	0.22	0.05 0.25 0.95				
Target TP Load (lb/acre/yr) Pj (unitless correction factor)	0.41 0.90			F-7-2	1. 0.00	W.E.	4.33				
LAND COVER SUMMARY		ODMENIA							~~		
		LOPMENT			<u> </u>	AND GOVE	R SUMMARY P		PMEN		<u>j. </u>
Land Cover Sum Pre-ReDevelopment	mary-Pre Listed	Adjusted ¹		Land Cover Summ Post ReDev. & N			Land Cover Sur Post-ReDevi			i.and Cover Sum Post-Development N	········
Forest/Open Space Cover (acres)	2.95	1.04		Forest/Open Space Cover (acres)	0.00		Forest/Open Space	9.00			
Weighted Ry(forest)	0.04	0.04		Weighted Rytforest)	0.00		Cover (acres) Weighted Rufforest)	0,00			
% Forest Managed Turf Cover (acres)	28% 1.58	12% 1.58		% Forest Managed Turf Cover	0% 2.62		Managed Turf Cover	0%			
Weighted Rulturf)	0.23			(acres)			(acres)	262			
% Managed Turl	15%	0.23		Weighted Rv (t.inf) K Managed Turf	0.79 25%		Weighted Rv (turf) % Managed Turf	0.23 30%			
Impervious Cover (acres)	5.13	6.13			8.04		ReDev. Impervious Cover			New Impervious Cover	
By(impervious)		L		Impervious Cover (acres)			(acres)	6.13		(acres)	1.91
% impervious	0.95 58%	774	 	Rv(impervious) % impervious	0.95 75%	-	Rv(impervious) % impervious	0.95 70%	-	Rv(impervious)	0.95
Total Site Area (acres)	10.66	175		Final Site Area (acres)	10.66		Tutal ReDev. Site Area (acres)	8.75			
Site Rv	0.59	9.71		Final Post Dev Site R	9.77		ReDev Site Rv	0.71			
Treatment Volume an	d Nutrient Los	ad				Trea	ifnient Volume and	i Nutrient Load	a .		
Pre-ReDevelopment Treatment Volume				Final Post-Development			Payt-ReDavelopment			Past-Development	
(scre-ft)	0.5253	0.5186		Treatment Volume (acre-ft)	0.6859		Treatment Volume (acre-ft)	0.5347		Treatment Volume	0 1512
Pre-ReDevelopment Treatment Volume	22,880	22 592		Final Post-Development Treatment Volume	29,879		Post-ReDevelopment Treatment Volume	23,292		Post-Development	
(cubic feet)	7			(cubic feet)	25,613		(cubic reet)	23,272		Treatment Volume (cubic feet)	6,587
Pre-ReDevelopment TP load				Final Post-			Post-ReDavelopment				
Pre-ReDevelopment TP Load (lb/yr)	14.38	14.19		Development TP Load (lb/yr)	18.77		Load (TP) (Ib/yr)*	14.63		Post-Development TP Load (lb/yr)	4.14
	-										
Pre-ReDevelopment i Planud per acre (th/acre/yr)	395	212		Final Post-Development (P 1/34d per acre (Rt/scre/yr)	176		Post-ReDevelopment 10 Load per store (lb/acre/vr)	100			
The state of the s				1003-9CLB/ALI							
isasnine TP Load (ib/yr) GAE lbs/acre/yr applied to pre-redevelopment area e	cluding pervious land	3.59					Max. Reduction Required (Below Pre-	20%			
proposed for new impervious cover							ReDevelopment Load)				
Adjusted Land Cover jumpay;	·———						TP Load Reduction	7. 7. 10. 20. 20. 20. 20. 20. 20. 20. 20. 20. 2		-	
	á cover (foi essábben	spare or manoped					Required for Redeveloped Area	3.28		TP Load Reduction Required for New	3.36
re ReGevelopment land cover minus persions is:							Reseveloped Area (lb/yr)			Impervious Area (Ib/yr)	
re ReDevelopment land coner minus pervious ku: nB octampe propriect für new innervious (mvc)	vac: 1								_		
ie ReCernissment hund cover minus gervisus kur nff octange propused für new innervisus crivi: djurënd total gurnege is carrisaine with frist lietu	чедорожни петезда	lminus acrenae of									
te Re Gentlagment (und cover minus y evolus) sur. uff occupe propused for men mocrohus, crinci djuvand cotol armoge is consistent with hist-lecto em insperiors, cape). okum I stewn knot entaction reaccionent for un											
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re ReGerelagment (und cover mirus y ervinus sur. 19 europee proposed fan neu moervinus ervi dyvand total aureoge is consistent with hust Rech ew Unpervious caves). Okana I stanw krast entaction reacchement fur un	er itmeerleuw cawar (t	Texted not have	TP Load	Reduction Required	(lb/yr)	6.63 oses Only)	evelopment TN Load	k	<i>*</i>		
e ReGerelogiment (und cover mirus y ervinus sur. 19 e-sente propued für men moorvinus ervi furland cotal sernege is consistent with hist-Reth. en langerious cause). Plana 1 stanes lova cotactivo renomens für un		Texted not have	TP Load	Reduction Required	(lb/yr)	6.63 oses Only) final Post-0 (Post-ReDevelop	evelopment TN Load mixet is New Impervious) Bufyst;	. 134,30	<i>;</i>		

SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS TOTAL PROSPROBLES AFTER A STATE AND A MANAME FOR EXAMONA IN D. A. A. IMPO (1975) KAYS.

TOTAL PROSPROBLES ARROWDED WITHOUT BEHODE RECOFFICION PRACTICES. IN D. A. IMPO (1975)

TOTAL PROSPROBLES ARROWDED WITHOUT BEHODE RECOFFICION PRACTICES. IN D. A. IMPO (1975)

TOTAL PROSPROBLES AFTER A STATE A MANAMENT AND A MANAMENT A IMPO (1975)

TOTAL PROSPROBLES AFTER A MANAMENT AND A MANAM TOTAL MAPERVIOUS COVER TREATED (ac) 000 AREA CHECK: OX.
TOTAL MANAGED TURE AREA TREATED (ac) 000 AREA CHECK: OX. NITROGEN REMOVED WITH RUNGIF REDUCTION PRACTICES IN D.A. A (b/r) DDD NITROGEN REMOVED WITHOUT RUNGIF REDUCTION PRACTICES IN D.A. A (b/r) DDD NITROGEN REMOVED IN D.A. A (b/r) DDD. TOTAL PHOSPHORUS REMOVAL REQUIRED ON SITE (Ib/yr) 6.68

14 c. Manufactured Frestment Bevice Geoesic	[4.1] Misosfactured Treatment Device-Filtering	14.a. Manufactured Treatment Device - Hydrodyttenik	A. Manufactured Treatment Devices (no RR)	13.d. Wet Ford #2 (Coastal Ptain) (Spec #54)	11 ic. Wes Point #2 (Spec #14)	(3.b. Wei Poru 4. (Coastal Prain) (Spec #14)	13.4. Wet fund \$1.55pec #14)	3. Wet Ponds (no RR)	12.b Constructed Wesland #2 (Spec #13)	12.a Constructed Wedard \$1 (Spec \$13)	2 Constructed Wetland (no RR)	11.b Picking Practice #2 (Spec #12)	11.a Filtering Practice #1 (Spec #12)	L. Filtering Practices (no RR)
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8	60	0.00	la Manu	0.00	000	8.00	no.	Wet Ponds (no BR)	0.00	000	Constructed Wetland (no RR)	+	0.0	Filtering Practices (no BR)
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0. Wet Swale (no RB)

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SEE WATER QUALITY COMPLIANCE TAB FOR SITE CALCULATIONS (Information Only)

Total bundff reduction in D.A. $a(t^i)$ 0 mitrogen remoted with bundff reduction practices in D.A. a(tb/r) 0.00

TOTAL PHOSPHORUS RANDORUS WARRINGTOWN FOR ERROYAL IN D.A.A. IN INC. 1869.

TOTAL PHOSPHORUS RANDORUS WARRINGTOWN FRANCH FOR ERROYAL IN D.A.A. IN INC. 1869.

TOTAL PHOSPHORUS RANDORUS WARRINGTOWN FRANCH FOR ERROYAL IN D.A.A. IN INC. 1869. SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS TOTAL IMPRENIOUS COVER TREATED (ac)

TOTAL MANAGED TURE AREA TREATED (ac)

TOTAL RUNDEF REDUCTION IN D.A. A [It²]

D.



14.c. Numbersed Treatment Tenken Relieg 14.c. Associations and Tenenteen Venter-Residen	36. Inflancifectured Freatment Devices (ap. 185) 34.0. National street Freatment Device Nylinologisme	23.d. Key Punit 82 (Course Pluid) (Spec et 6)	18 1 West Pound Mile (Coaseast Kipm) Physica 819)	13. West Blooks (for RR) 13.3. West Provided (Base 613)	12.b. Constructed existent #2 tipes at a	12. Constructed Wattend (no RR)	() b. Tricareg Produce 82 (Spec 812)	11. Filtering Praying Invite) 13 of Survey & Letter of Other 612)	Ida, wet Saule #2 (Just #11)	10 in West Swede By (Sons BUS)
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0 100 100 100 000 000 000 000 000 000 0	14 Abraulesturel (1939 (cs.) (4))	10 COR 10 COR 100 COR	G	Fr now (4) And (5)	25	seded Welfand (no RR)	(a) (a) (a) (a) (a) (a) (a) (a) (a) (a)	U. Charles Proctices (ca. 88)	34 C.O.S. C.O.S. (1995) (1995)	National Agency Services and Company of the Company



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TOTAL PHOSPHORUS STANDA BOY SUBJANCES OF PHOPOLOGICAL PHOSPHORUS SETS FOR PHOSPHORUS SEED OF PHOSPHORUS SEED TOTAL IMPERATOUS COVER TREATED (4:) DAM AREA CHECK: DK.
TOTAL MANAGED TUBE AREA TREATED (4:) 8:00 AREA CHECK: DK.
TOTAL RUNGEF REDUCTION IN D.A. C (1:) 9: SEE WATER QUALITY COMPLIANCE TAB FOR SITE COMPLIANCE CALCULATIONS

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755 · 555							*					. Communicad Westland (no RR)
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DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Summary

Project Title: Williamsburg Sports Center Date: 45112

Total Disturbed Acreage:	Total Rainfall (in):
10.66	43

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.02	2.33	0.60	2.95	28
Managed Turf (acres)	0.00	0.00	1.31	0.27	1.58	15
Impervious Cover (acres)	0.00	0.00	5.34	0.79	6.13	58
					10.66	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.02	2.03	0.57	2.62	25
Impervious Cover (acres)	0.00	0.00	6.95	1.09	8.04	75
		;			10.66	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post- ReDevelopment	Post- Development (New Impervious)	Adjusted Pre- ReDevelopment
Site Rv	0.77	0.73	0.95	0.71
Treatment Volume (ft³)	29,879	23,292	6,587	22,592
TP Load (lb/yr)	18.77	14.63	4.14	14.19

1.67	1.76	1.62
(lb/acre/yr)	(lb/acre/yr)	(lb/acre/yr)
Load per acre	TP Load per acre	TP Load per acre
Pcst-ReDevelopment TP	Final Post-Development Post-ReDevelopment TP	ReDevelopment
		Pre-

Total TP Load Reduction Required (lb/yr)	
6.63	
3.28	
3.36	

TN Load (lb/yr)	
134.30	Final Post-Development Load (Post-ReDevelopment & New Impervious)
102.84	Pre- ReDevelopment

Drainage Area Summary

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres)	0.71	66.0	0.85	0.07	0.00	2.62
Impervious Cover (acres)	2.83	0.00	4.81	0.38	0.00	8.02
Total Area (acres)	3.54	0.99	5.66	0.45	0.00	10.64

Drainage Area Compliance Summary

TN Load Reduced (lb/yr)	TP Load Reduced (lb/yr)		
0.00	0.00	D.A. A	
0.00	0.00	D.A. B	
0.00	4.34	D.A. C	
0.00	0.00	D.A. D	
0.00	0.00	D.A. E	
0.00	4.34	Total	

Version 2.8 - June 2014 - 2011 BMP Stds & Specs

- Fixed summary sheet totals /percentage column fixed
- Corrected nitrogen efficiency percentages
- Checked and revised runoff reduction credit values assigned Corrected the Rv value in column J for managed turf

Version 3.0 - 2011 and draft 2013 BMP Stds & Specs

- Added error checks and user prompts to Site tab, DA tabs, and Runoff Volume and CN tab for data input errors.
- Various format changes thoughout the spreadsheet.
- Combined 2011 and 2013 BMP spreadsheets into one spreadsheet with a user selection option included in Site tab.

Site tab

- User input celi color changed from cyan blue to green; calculation cells changed from mid-grey to light grey; and added final result cell in indigo.

- Locked annual rainfall of 43 inches for use throughout Virginia since regulatory site based TP load limit is based on this value.
 Corrected error in formula for total phosporus load reduction requirement, Previous formula was inconsistent with 9VAC25-870-63 A.2 and under certain circumstances provided erroneous TP load reduction requirement. for development on prior developed lands.
- Added button and shortcut (Ctrl+Shift+R) to clear user inputs from all worksheets.
- Added shortcut (Ctrl+Shift+D) to clear land cover data from Site tab.
- Added TP Baseline Load for adjusted pre-redevelopement portion (cell C58).
- Added note (triggered to appear when applicable) below "Land Cover Summary for Redevelopment" indicating that reduction below baseline TP load (<0.41 lbs/acre) not required as per 9VAC25-570-63.
- Added error messages when data input areas incomplete or not entered correctly.

- Conditional formatting (Summary sections grayed out) when input information incomplete or incorrect.

 Added Pre-redevelopment and Post-development load in Ibs/acre/yr (row 57) for additional comparison purposes
- 13 13 15 Corrected error in excel formula for new impervious cover Rv.

 Corrected errors in excel formula for total site area and RVs in redevelopment portion: error appeared when soil types change between pre-redevelopment and post-development with no net increases in impervious
- 16
- 17 Added section for Final Post-Development to Land Cover Summaries to show combination of redevelopment portion and new net impervious cover portion.

 Added informational section in blue (columns B to F. rows 12-14) and inputierror guide (columns H to K. rows 12-14) to indicate to users upfront when new net impervious cover is being triggered, when 10 or 20% reductions are being utilized, and when
- Added data entry instruction when user inputs blank (row 8).

data entry is completed correctly.

- Removed "protected" from pre-redevelopment land cover type forest/open space since this is only required in post-development. (08/22/2017)
 Added error notification to side error notes if total disturbed acreage entered is greater than post-development area entered. (08/22/2017)

18 19 20 21

- Added option for linear development projects (row 6, and cells D64-G64)
- D.A. tabs Added MTDs: Hydrodynamic, Filtering, Generic.

Added "Total Blvf? Treatment Volume (ft")" column.

- 22 23 24 25 26 27 27 28 29 31 31 33 Consolidated BMP Practice heading and added (RR or no RR label) to each practice to identify those with and without Runoff Reduction.

Rearranged previous Turf and Impervious input rows to adjacent cells in same row so each practice now located on 1 row only.

- Added "Total Phosphorus Available for Removal in D.A. _ (lbs)". Added button to clear BMP credit areas entered for each practice.
- Renamed Credit and Phosphorus/Nitrogen Efficiency column headers to Runoff Removal Credit and Phosphorus/Nitrogen Removal Efficiency for clarity. Added user prompts to assist with user-input Rainwater Harvesting runoff reduction credit, and MTDs.
- Removed "RR" from Column headings referring to runoff volume and TP load from upstream practices (which may be RR or non-RR practices)
- Renamed "10. Wet Swale (Coastal Plain)" to "10. Wet Swale" in BMP heading in order to improve clarity. The practice is well suited for but not limited to the Coastal Plain. Renamed "14. Manufactured BMPs" section heading to "14. Manufactured Treatment Device"s for consistency with Virginia BMP Clearinghouse. Added "Micro-Bioretention #2" and "Micro-Bioretention #2" to Bioretention headings (6.a and 6.b on tab, respectively) from Spec 9.

Replaced zero values from all data entry ceils with blank ceils, blocked out calculation and data entry cells where input or calculations are not applicable

Water Quality Compliance tab

- Optimized and reorganized for improved information output.
- Added section for linear development projects (rows 21-26) Added "Runoff Reduction Volume and TP By Drainage Area"

Runoff Volume and CN (ab

- Reorganized and renamed Channel and Flood Protection tab to Runoff Volume and CN to more accurately reflect information provided. Added user notes regarding limitations of Runoff Volume and CN tab for water quantity calculations.
- Renamed CN_{weighted} to CN $_{(D,\Lambda,X)}$ for the CNs based on soils and land cover types for each drainage area

Summary tab

- Added "Print Preview" button.
- Fixed runtime error in Summary tab update macro.
- Added "BMP Treatment Volume", "TP Load from Upstream practice", "TF Removed" and "TP remaining" columns to Summary tab.
- Optimized macro efficiency and eliminated screen updating/flashing during macros.
- Corrected Summary tab macro -Turf missing routine missing "<>".
- Added additional pre and post site data onto Summary tab.
- Added Error Summary Table to Summary tab (appears only if errors on Site tab or Drainage Area tabs are present)
- Expanded and improved Runoff Coefficient and CN calculation section

- Added summary information for linear projects, only populates if applicable. Macro glitch with MS Excel 2016 corrected. (08/22/2017) Added Project Title and Date from Site tab. (8/22/2017)

HRSD Sanitary Sewer Flow Calculations Worksheet

Applicants with projects generating sanitary sewer flow must use this worksheet to calculate flows and submit to HRSD Development Services using the email link: developrequest@hrsd.com

Lase true the table below to calculate annitory sever flows for your project Lase filte: Contributing Flow (Bowl) Contributing Flow (Bowl) Contributing Flow (Bowl) Commons (Contributing Flow) Reddential Downling 316 34 2.5 Single Family Romes, Trailers, Apastments, Condos, Noticing Rome & Assists Long Noticing Rome & Assists Long Noticing Rome & Assists Long Medical Bled Sever Seve	Pumn Station Replacements - Unavada	c Nandifir	Hann ====	nete	Project Name:	Sports and Eve	nts Center			
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Existing Sanitary Sewer Capacity

Structure	Rim	12" Inv (in)	12" Inv (out)	Length	Slope	Capacity (gpm)	Velocity (fps)
1-2	75.22	65.12	65.02	210	0.84%	1470	4.17
2-3	73.91	63.25	62.68	303	0.99%	1602	4.54
3-4	72.08	59.69	59.59	365	1.58%	2064	5.85
4-5	65.18	53.83	53.58	505	0.51%	643	2.63
5-6	70.35	51.00	51.00	95	0.18%	636	1.81
6-7	68.85	50.83	50.63	115	0.10%	476	1.35
7-8	68.42	50.51	50.43	110	0.23%	726	2.06
8-9	68.16	50.18	50.06	87	1.87%	2262	6.42
9-10	68.10	48.43	48.04	122	0.44%	1038	2.95
10-11	62.69	47.50	46.47	185	0.84%	1464	4.16
11-12	55.04	44.92	44.87	332	3.85%	3342	9.48
12-13	42.37	32.09	32.07	48	1.15%	1734	4.93
13-14	40.45	31.52	30.97	164	0.82%	1452	4.12
14	35.23	29.62					

NEEDED FIRE FLOW CALCULATIONS

PER 2015 INTERNATIONAL FIRE CODE (IFC)



Project Name: Sports and Events Center Timmons Group Project No. 48463

Date: 10/12/2023 Calculated By: L. Epps

Data Input	· 1	Notes and Descriptions		
Building Construction Type	Type IIB	Per International Building Code (IBC)		
Building Sprinkler System	Yes	Full Automatic		
Fire Area	200,000 SF	Building Gross Square Footage		
Minimum Required Fire Flow	8,000 GPM	Per IFC Table B105.1(2) - Refer to next page		
Allowable Sprinkler Reduction	75%	Per IFC Table B105.2 - Refer to next page		
Calculated Fire Flow	2,000 GPM	Refer to IFC tables on next page		

Results		Notes and Descriptions		
Adjusted Needed Fire Flow (NFF)	2,000 GPM	For commercial properties		
Flow Duration 4 HR		Per IFC Table B105.1(2) - Refer to next page		
Minimum Number of Hydrants	2	Assumes 1,000 GPM maximum per hydrant		

PLUMBING CALCULATIONS



Date: 10/11/2023 Computed By: RMF Project Name: WM Sports
Project Location: Williamsburg, VA

Checked By: RMF

Project Number: 10038

WATER SERVICE CALCULATIONS

Building Type: Commercial Kitchen

Fixture			Supply Fix	ture Units
No.	Fixture Description	Quantity	SFU's	Total
1	Lavatory, Private	48	0.7	33.6
7	Kitchen Sink-Public	1	4	4
10	Shower-Private	2	1.4	2.8
13	Mop Receptor	3	3 8	9
14	Water Closet-FV	57	6	342
16	Urinal-FV	8	9475.	40
19	Electric Water Cooler	20	0.25	h# 2.5
20	Wall Hydrant	8	3	24
2.7	4 347 33 10 1 2	agraeur.	48	if .
29 -	Triple Pot Sink	1,500	8	- 8
30 -	Hand Sink	2	2	4 25
31	Pre-Rinse Faucet	1	14.3	3. **
32	Worktable w/ Sink	1	2	2
34	Dishmachine	124	10	10
39	Ice Machine	1	2	2
41	Coffee Machine	1	2 4	2
43	Iced Tea Brewer	1	2	2
44	Wash Hose	1	4	4
48	Dish Soak Sink	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3 (9)	3
51	Soda Fountain	4	1	4
53	Glass Washer	1	. 4	4
4	The second second		304	3.6
	AND SOME STATE OF THE PARTY OF	100 - Land		
	· · · · · · · · · · · · · · · · · · ·		14	434
	CONTRACTOR SERVICE		and a	240
	Harry Carlotter Committee of the Committ		Service Control	Sec.
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	ing the same of th	No.		
*	The state of the s		64.	
~		Total Supply Fixture	Units (SFU):	506
			· ' •	

WATER METER SIZING COMPUTATIONS

PROPOSED BUILDING

Per AWWA-M22 Meter Design Worksheet

Project Name: Sports and Events Center Timmons Group Project No. 48463

Date: 10/13/2023 Calculated By: L. Epps

AWWA WATER METER STANDARDS (TABLE 6-1)

				Head Loss at		
Meter	Minimum Flow Rate (gpm)	Low Normal Flow Rate (gpm)	Change-over Range (Compound Meters)	High Normal Flow Rate (gpm)	$\begin{array}{c} \text{Maximum} \\ \text{Flow Rate} \\ (gpm) \end{array}$	Maximum Flow (psi)
	and the second s	. 88	**************************************	(8)22101	Carrens.	/ \$10.8-3
	Displacement	4	****		***	4.44
1/2 in.	0.25	1	N/A	7.5	15	15
∜8 in.	0.25			10	20	15
3/4 in.	0.5	2		15	30	15
1 in.	0.75	3		25	50	15
14/2 in.	1,5	5	N/A	50	100	15
2 in.	-2	- 8		80	160	15
Multijet						
5/8 in.	0.25	1	N/A	10	20	15
3/4 in.	0.5	2		15	30	15
1 in.	0.75	3		25	50	15
11/2 in.	1.5	5		50	100	15
2 in.	2.0	8		80	160	15
Turbine a	class 1					
∛4 in.	1.5	N/A	N/A	20	30	15
1 in.	2			35	50	15
14/2 in.	3			65	100	15
2 in.	4			100	160	15
3 in.	6			220	350	15
4 in.	.8			420	630	15
6 in.	15			865	1,300	15
Turbine c	elass 2				1	
13/2 in.	4	N/A	N/A	80	120	7
2 in.	4		• • • • • • • • • • • • • • • • • • • •	100	160	
3 in.	8			240	350	7
4 in.	15			420	630	$\dot{\tau}$
6 in.	30			920	1,400	7
8 in	50			1,600	2,490	7
10 in.	75			2,500	3,800	÷,
12 in.	120			3,300	5,000	7
14 in.	150			5,200	7,500	7
16 in.	200			6,500	10,000	egi.
18 in.	250			8,500	12,500	Ÿ
20 in.	300			10,000	15,000	Ŷ
Compoun	a					
2 in.	0.25	2	20	80	160	. 20
3 in.	0.5	ä	23	160	320	20
4 in.	0.75	6	28	250	500	20
6 in.	1.5	10	32	500	1,900	20
8 in.	2	16	50 50	800	1,600	20
Singlejet	.***	10	4,9%	0.33	1,000	20
1½ in.	0.5	1.5	N/A	50	100	70 E
2 in.	0.5	2.0	1N62A	50 80	100 160	15.
3 in.	0.5	2.5		160	320	15 15
4 in.	0.75	3.0		250	500	15
6 in.	1.5	4.0		290 500	1000	15
· (2 314.	£ 4.3	** , \$3			LUUI	

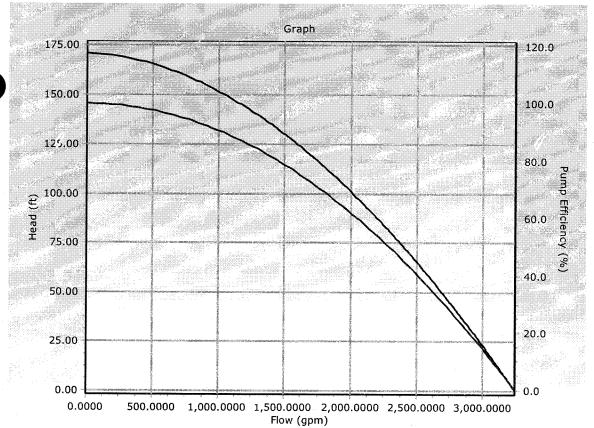
Source: Data are drawn from AWWA Standards C700, C701, C702, C708, C710, and C712, of latest revision as of December 2002, N/A = not applicable



SPORTS AND EVENTS CENTER

Pump Definition Detailed Report: Flow Test

Element Details			
ID	68	Notes	
Label	Flow Test		w
Pump Definition Type			
Pump Definition Type	Standard (3 Point)	Design Head	143.03 ft
Shutoff Flow	0.0000 gpm	Maximum Operating Flow	2,739.0000 gpm
Shutoff Head	170.72 ft	Maximum Operating Head	46.14 ft
Design Flow	1,216.0000 gpm	· · · · · · · · · · · · · · · · · · ·	
Pump Efficiency Type			
Pump Efficiency Type	Best Efficiency Point	Motor Efficiency	100.0 %
BEP Efficiency	100.0 %	Is Variable Speed Drive?	False
BEP Flow	0.0000 gpm		
Transient (Physical)			
Inertia (Pump and Motor)	0.000 lb·ft²	Specific Speed	SI=25, US=1280
Speed (Ful!)	0 rpm	Reverse Spin Allowed?	True



Scenario: Maximum Day

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure Head (ft)	Pressure (psi)
J-1	70.17	0.0000	239.26	169.09	73
J-2	68.20	0.0000	239.06	170.86	74
J-3	73.66	0.0000	238.85	165.19	71
J-4	72.70	0.0000	238.85	166.15	72
J-5	72.73	0.0000	238.85	166.12	72
J-6	73.60	0.0000	238.83	165.23	71
J-7	74.86	0.0000	238.71	163.85	71
J-8	77.25	153.0000	216.33	139.08	60
J-9	73.50	0.0000	238.83	165.33	72
J-10	75.74	110.5000	238.73	162.99	71

Pipe Table - Time: 0.00 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Headloss (Minor) (ft)	Status (Initial)
P-1	1	R-1	PMP-1	72.0	150.0	263.5012	0.02	0.00	0.00	Open
P-2	1	PMP-1	J-1	72.0	150.0	263.5011	0.02	0.00	0.00	Open
P-3	813	J-1	J-2	12.0	120.0	263.5010	0.75	0.20	0.00	Open
P-4	345	J-2	J-3	10.0	120.0	263.5010	1.08	0.21	0.00	Open
P-5	453	J-4	J-3	10.0	120.0	-0.0005	0.00	0.00	0.00	Open
P-6	14	J-5	J-4	10.0	120.0	-0.0001	0.00	0.00	0.00	Open
P-7	10	J-4	H-1	6.0	120.0	0.0001	0.00	0.00	0.00	Open
P-8	24	J-3	J-6	10.0	120.0	263.5004	1.08	0.01	0.00	Open
P-9	45	J-6	J-7	6.0	120.0	153.0000	1.74	0.12	0.00	Open
P-10	17	J-7	GPV-1	4.0	120.0	153.0000	3.91	0.32	0.00	Open
P-11	21	J-6	J-9	10.0	120.0	110.5004	0.45	0.00	0.00	Open
P-11	71	GPV-1	J-8	4.0	120.0	153.0000	3.91	1.36	0.00	Open
P-12	11	1-9	H-2	6.0	120.0	0.0001	0.00	0.00	0.00	Open
P-13	827	J-9	GPV-2	10.0	120.0	110.5002	0.45	0.10	0.00	Open
P-14	19	GPV-2	J-10	10.0	120.0	110.5000	0.45	0.00	0.00	Open

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Flow (In net) (gpm)	Flow (Out net) (gpm)
R-1	70.17	70.17	-263.5012	263.5012

Pump Table - Time: 0.00 hours

Label	Elevation (ft)	Pump Definition	Status (Initial, Transient)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	69.17	Flow Test	On	70.17	239.26	263.5012	169.09

Scenario: Maximum Day w/ Fire

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Flow (In net) (gpm)	Flow (Out net) (gpm)
R-1	70.17	70.17	-263.5012	263.5012

Pump Table - Time: 0.00 hours

Label	Elevation (ft)	Pump Definition	Status (Initial, Transient)	Hydraulic Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
PMP-1	69.17	Flow Test	On	70.17	239.26	263.5012	169.09

Scenario: Peak Hour

Junction Table - Time: 0.00 hours

Label	Elevation (ft)	Demand (gpm)	Hydraulic Grade (ft)	Pressure Head (ft)	Pressure (psi)
J-1	70.17	0.0000	232.94	162.77	70
J-2	68.20	0.0000	231.95	163.75	71
J-3	73.66	0.0000	230.93	157.27	68
J-4	72.70	0.0000	230.93	158.23	68
J-5	72.73	0.0000	230.93	158.20	68
J-6	73.60	0.0000	230.86	157.26	68
J-7	74.86	0.0000	230.27	155.41	67
J-8	<i>7</i> 7.25	360.0000	147.57	70.32	30
J-9	73.50	0.0000	230.85	157.35	68
J-10	75.74	260.0000	230.35	154.61	67

Pipe Table - Time: 0.00 hours

Label	Length (ft)	Start Node	Stop Node	Diameter (in)	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)	Headloss (ft)	Headloss (Minor) (ft)	Status (Initial)
P-1	. 1	R-1	PMP-1	72.0	150.0	620.0012	0.05	0.00	0.00	Open
P-2	1	PMP-1	J-1	72.0	150.0	620.0011	0.05	0.00	0.00	Open
P-3	813	J-1	J-2	12.0	120.0	620.0010	1.76	0.99	0.00	Open
P-4	345	J-2	J-3	10.0	120.0	620.0010	2.53	1.02	0.00	Open
P-5	453	J-4	J-3	10.0	120.0	-0.0004	0.00	0.00	0.00	Open
P-6	14	J-5	J-4	10.0	120.0	-0.0003	0.00	0.00	0.00	Open
P-7	10	J-4	H-1	6.0	120.0	0.0003	0.00	0.00	0,00	Open
P-8	24	J-3	J-6	10.0	120.0	620.0004	2.53	0.07	0.00	Open
P-9	45	J-6	J-7	6.0	120.0	360.0000	4.08	0.59	0.00	Open
P-10	17	J-7	GPV-1	4.0	120.0	360.0000	9.19	1.55	0.00	Open
P-11	21	J-6.	J-9	10.0	120.0	260.0004	1.06	0.01	0.00	Open
P-11	71	GPV-1	J-8	4.0	120.0	360.0000	9.19	6.66	0.00	Open
P-12	11	J-9	H-2	€.0	120.0	0.0001	0.00	0.00	0.00	Open
P-13	827	J-9 .	GPV-2	10.0	120.0	260.0002	1.06	0.49	0.00	Open
P-14	19	GPV-2	J-10	10.0	120.0	260.0000	1.06	0.01		Open

Reservoir Table - Time: 0.00 hours

Label	Elevation (ft)	Hydraulic Grade (ft)	Flow (In net) (gpm)	Flow (Out net) (gpm)
R-1	70.17	70.17	-620.0012	620.0012

Pump Table - Time: 0.00 hours

PMP-1	(ft)	Elaw Tork	Transient)	Grade (Suction) (ft)	Hydraulic Grade (Discharge) (ft)	Flow (Total) (gpm)	Pump Head (ft)
NAM-1	69.17	Flow Test	On	70.17	232.94	620.0012	162.77



701 Alexander Lee Parkway Williamsburg, VA 23185 P (757) 564-6452 Terracon.com

October 30, 2023

MEB 4016 Holland Boulevard Chesapeake, VA 23323

Attn: Michael Stark

P: (757) 487-5858 E: mstark@meb.group

Re: Subsurface Exploration and Geotechnical Engineering Report

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1)

Williamsburg, VA

Terracon Project No. K4235044

Dear Mr. Stark:

We have completed the revised scope of Subsurface Exploration and Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. PK4235044 dated May 31, 2023, and our supplemental services in general accordance with a change order, dated August 30, 2023. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations, floor slabs, stormwater management facilities, and pavements for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

James R. Wheeler, P.G. Office Manager

Bruce R. Spiro, P.E. Senior Engineering Consultant Virginia Lic. No. 015791

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



Figures

GeoModel

Attachments

Exploration and Testing Procedures Site Location and Exploration Plans Exploration and Laboratory Results Supporting Information

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the **pierracon** logo will bring you back to this page. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



Light Duty Parking Bays:

2" AC Surface Mix over 8" Aggregate BaseHeavy Duty for Drive Lanes with Parking Lot:2" AC Surface Mix over 3" AC Base Mix over 8" Aggregate Base

Heavy Duty for Service Road:

2" AC Surface Mix over 4" AC Base Mix over 8" Aggregate Base Heavy Duty for Dumpster Pads:

6" Concrete over 6" Aggregate Base

General Comments

This section contains important information about the limitations of this geotechnical engineering report.

- If the reader is reviewing this report as a pdf, the topics above can be used to access the appropriate section of the report by simply clicking on the topic itself.
- 2. This summary is for convenience only. It should be used in conjunction with the entire report for design purposes.

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) \dagger Williamsburg, VA October 30, 2023 \dagger Terracon Project No. K4235044



Item 🤾	Description
	The project includes a sports and entertainment complex. This report pertains to the first phase that will include a building, service road, parking lot, and stormwater management (SWM) facility.
Project Description	It is noted that we have already completed a subsurface exploration for the Phase 1 portion of the proposed development and issued a Geotechnical Engineering Report, dated July 24, 2023. However, since the issuance of that report, our client notified us that the location of the proposed development shifted southeast roughly 300-ft. As a result, a supplementary exploration, laboratory testing, and engineering services were conducted to address the project shifting southeast. Although, this revised report provides recommendations that are applicable to the new site location, we still included all of the original borings completed and test results in this report that may now extend beyond the project limits for informational purposes as they may be useful for future phases.
Proposed Structure	The structure to be constructed within the first phase of the project will include a sports complex building that will house 12 courts and also include space for sports performance and physical therapy.
Building Construction	The structure will be pre-engineered metal building with slab- on-grade construction.
Finished Floor Elevation	Boring depths have assumed that finished floor is within about 3 feet of current grades.
	Anticipated structural loads were not provided. In the absence of information provided by the design team, we used the following loads in estimating settlement based on our experience with similar projects.
Maximum Loads	 Columns: 150 kips Walls: 6 kips per linear foot (klf) Slabs: 150 pounds per square foot (psf)
Grading/Slopes	In the absence of grading information, we have estimated that cuts and fills required to establish finish grades across the site are limited to about 3 feet or less.
Stormwater Management Facility	The specific design has not been developed at this time, but it is our understanding that it will likely consist of an underground SWM facility located beneath the proposed parking lot to the west of the sports complex building.

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting, and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses for the proposed structures, we identified two model layers within the subsurface profile as presented in the table on the following page. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer Name	General Descript <u>i</u> on	Depth Range
1 SURFICIAL	Topsoil or Asphalt underlain by Aggregate Base	to 0.5-1.0
provided pro	Silty SAND (SM) with trace fine Gravel	0.5-1.0 to 1.5-2.0
CLAY & CLAYEY SAND	CLAY (CL, CH) and Clayey SAND (SC) Isolated deposits of Silty SAND (SM) interbedded	0.3-2.0 to 10.0-40.0

The initial surficial materials were comprised of either 3 to 9 inches of topsoil materials or 1.5 to 5 inches of asphalt pavement underlain by 5 to 10 inches of aggregate base material. The undocumented existing fill materials, which constitute GeoModel layer 2, were observed at borings B-2, B-3, B-8, B-11, B-12, B-13, NB-1, NB-3, NB-3, NB-4, and NB-6 as well as two of the pavement borings CBR-1 and CBR-2.

The borings were observed during drilling and at the completion of drilling for the presence of groundwater. Groundwater was encountered approximately 12.5 to 18 feet below grade.

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



Based on the laboratory classification test results, the shallow (upper 4 feet) CLAY (CL) soils possess Liquid Limits (LL) ranging from 24% to 37% and Plasticity Indices (PI) ranging from 13 to 27 generally indicative of possessing low to moderate shrink-swell potential and in agreement with the soil survey.

Field Exploration

In order to explore the general subsurface soil types and to aid in developing associated foundation design parameters, the following exploration program was performed:

Original Scope of Services

- In order to complete the soil borings, an auger was used to advance the borehole through the existing asphalt pavements at seven (7) boring locations.
- Thirteen (13) 25- to 40-foot deep Standard Penetration Test (SPT) borings (designated as B-1 through B-13), drilled within the proposed building footprint.
- Four (4) 10-foot deep SPT borings (designated as CBR-1 through CBR-4), drilled within the proposed new pavement areas. Also, one bulk soil sample was collected from each location (obtained from depths of 0.5 2 ft below grade).
- One (1) 15-foot deep SPT boring (designated as BMP-1), drilled within the former proposed location of the SWM facility.
- One (1) 15-foot deep hand auger boring (designated as BMP-2), performed within the former proposal location of the SWM facility. Boring BMP-2 was completed using a hand auger, as agreed upon with the client, to minimize significant clearing efforts that would have been required for our drill rig to access this specific location.
- A 24-hr groundwater monitoring well installed at boring location BMP-1.
- We were informed after completion of our soil borings that the previously intended SWM facility location within the currently wooded area along the north side of the site was eliminated. The current design intent is to install an underground SWM facility below a new pavement area. For this reason, two (2) in-situ infiltration tests were conducted to the northwest of the proposed building (near CBR-1) at a depth of 10-ft as directed by the client.
- Review of historical site data.

Additional Scope of Services

- In order to complete the soil borings, an auger was used to advance the borehole through the existing asphalt pavements at four (4) boring locations.
- Six (6) 25-foot deep Standard Penetration Test (SPi) borings (designated as NB-1 through NB-6), drilled within the newly proposed building footprint.

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



Soil Classification and Index Testing

Representative portions of all soil samples collected during drilling operations were labeled, preserved, and transferred to our laboratory in accordance with ASTM D4220 for classification and analysis. Soil descriptions on the boring logs are provided using visual-manual methods in general accordance with ASTM D2488 using the Unified Soil Classification System (USCS).

Soil samples that were selected for index testing were classified in general accordance with ASTM D2487. It should be noted that some variation can be expected between samples classified using the visual-manual procedure (ASTM D2488) and the USCS (ASTM D2487). A summary of the soil classification system is provided in the **Supporting Information** section of this report.

Representative split-spoon soil samples were selected and subjected to natural moisture, #200 sieve wash, and Atterberg Limits testing in order to corroborate the visual classification. These test results are presented in the **Exploration and Laboratory Results** attachment of this report and on the soil test boring logs provided in the **Exploration Results** attachment of this report.

Bulk Soil Sample CBR Testing

The bulk soil samples were subjected to Atterberg Limits, natural moisture content, and -# 200 sieve testing in general accordance with ASTM standards. These test results are and presented in the **Exploration and Laboratory Results** section of this report. In addition to classification testing, the bulk soil samples were subjected to Standard Proctor and CBR testing in general accordance with ASTM D698 and ASTM D1883, respectively. The stress-strain curves were plotted. If necessary, the stress-strain curve was corrected by adjusting the location of the origin for concave shaped curves. CBR results were compared for 0.1-inch and 0.2-inch penetration, and subsequently, the CBR value was selected at 0.1-inch penetration using the corrected load values. These test results are presented in the **Exploration and Laboratory Results** section of this report.

Geologic Setting

The project site is located within the Atlantic Coastal Plain physiographic province. Bedrock of the Late Mesozoic age is present at depths of greater than 2,000 ft, and is overlain by Lower and Upper Cretaceous, Tertiary, Pleistocene and Recent Sediments.

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



A support stand was assembled and placed adjacent to the borehole. This stand holds a calibrated reservoir and a cable used to raise and lower the water control unit (WCU). The WCU establishes a constant water head within the borehole during testing by use of a precision valve and float assembly. The WCU was attached to the flow reservoir with a braided PVC hose and then lowered by cable into the borehole to the test depth elevation. As required by the Glover solution, the WCU was suspended approximately 1 to 2-inches above the bottom of the borehole. The shut-off valve was then opened allowing water to pass through the WCU to fill the borehole to the constant water level elevation. The absorption rate slowed as the soil voids became filled and an equilibrium developed as a wetting bulb developed around the borehole. Water was continuously added until the flow rate stabilized. The reservoir was then re-filled in order to begin testing. During testing, as the water drained into the borehole and surrounding soils, the water level within the calibrated reservoir was recorded as well as the elapsed time during each interval. The test was continued until relatively consistent flow rates were documented. During testing the quick release connections and shutoff valve were monitored to ensure that no leakage occurred. The flow rate (Q), height of the constant water level (H), and borehole diameter (D) were used to calculate Ks utilizing the Glover Solution.

Based on the field testing and corroborated with laboratory testing results, the hydraulic conductivity of the soils is presented in the **Exploration and Laboratory Results** attachment of this report.

Geotechnical Overview

The site appears suitable for the proposed construction to be supported by means of shallow footings and an on-grade slab, based upon geotechnical conditions encountered in the test borings, and provided that the recommendations included in this report are implemented in the design and construction phases of this project.

The subsurface material generally consists of CLAY (CL, CH) and Clayey SAND (SC). Existing undocumented fill was observed at boring locations B-2, B-3, B-8, B-11, B-12, B-13, NB-1, NB-3, NB-4, NB-6, CBR-1, and CBR-2.

The near surface CLAY (CL) and Clayey SAND (SC) could become unstable with typical earthwork and construction traffic, especially after precipitation events. The effective drainage should be completed early in the construction sequence and maintained after construction to avoid potential issues. If possible, the grading should be performed during the warmer and drier times of the year. If grading is performed during the winter months, an increased risk for possible undercutting and replacement of unstable subgrade will persist. Additional site preparation recommendations, including subgrade improvement and fill placement, are provided in the **Earthwork** section.

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Site Preparation

Prior to placing fill, existing vegetation, topsoil, and root mats should be removed. Complete stripping of the topsoil should be performed in the proposed building and pavement areas. This cut is expected to extend deeper in isolated areas to remove deeper deposits of organic or unsuitable soils, which become evident during the clearing (i.e., removal of root mat associated with existing trees). Based on observations of this project site and similar projects within wooded areas, this cut could extend as deep as 24 inches to remove unstable, organic laden soils and root mat materials. Removing trees will also consist of stump and large root ball removal. These events will likely leave holes that may extend several feet in depth throughout the project site. Surface water may accumulate in these holes leading to subgrade deterioration if not properly addressed.

Tree root systems can remove substantial moisture from surrounding soils. Where trees are removed, the full root ball and all associated dry and desiccated soils should be removed.

Where fill is placed on existing slopes steeper than 5H:1V, benches should be cut into the existing slopes prior to fill placement. The benches should have a minimum vertical face height of 1 foot and a maximum vertical face height of 3 feet and should be cut wide enough to accommodate the compaction equipment. This benching will help provide a positive bond between the fill and natural soils and reduce the possibility of failure along the fill/natural soil interface.

Although no evidence of underground facilities (such as septic tanks, cesspools, basements, and utilities) was observed during the exploration and site reconnaissance, such features could be encountered during construction. The presence of undocumented existing fill was encountered within several of the borings. This undocumented existing fill is likely associated with the previous construction of the existing pavements. If unexpected fills that are deemed unsuitable by the Geotechnical Engineer or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

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In addition to the test pits, several compaction tests should be performed on the existing fill within the proposed construction areas to further substantiate the suitability of the existing fill to remain beneath the ground supported slabs and pavements. It is possible that some subgrade improvements will be required to provide suitable soils for slab and pavement support. Upon completion of the test pit exploration and once planned grading has been completed, the entire area should be proofrolled with heavy, rubber tire construction equipment, to aid in delineating areas of soft or otherwise unsuitable soil. Once unsuitable materials have been remediated, and the subgrade has passed the proofroll test, backfill to finished subgrade elevation can begin.

We anticipate that excavations for the proposed construction can be accomplished with Excavation conventional earthmoving equipment. The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 5 feet of structures or pavements.

Reuse of On-Site Soil: Nearly all of the excavated on-site soil is likely not suitable for reuse as Structural Fill and should not be placed beneath any structures of pavement areas. Isolated deposits of Silty SAND (SM) were encountered that may be suitable for reuse as Structural Fill, but these soils were very limited in occurrence in the soil borings and not expected to be a viable source of material for this project.

Material property requirements for on-site soil for use as general fill and structural fill are noted in the table on the following page.

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Item	Structural Fill
Maximum Lift	10 inches or less in loose thickness when heavy, self-propelled compaction equipment is used
Thickness	4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Minimum Compaction Requirements	98% of maximum dry density as determined by the Standard Proctor (ASTM D698)
Water Content Range	±2 percentage points of optimum as determined by the Standard Proctor (ASTM D698)

Item	General Fill
Maximum Lift	10 inches or less in loose thickness when heavy, self-propelled compaction equipment is used
Thickness	4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used
Minimum Compaction Requirements	92% of maximum dry density as determined by the Standard Proctor (ASTM D698)
Water Content Range	As required to achieve minimum compaction requirements

Utility Trench Backfill

Any soft or unsuitable materials encountered at the bottom of utility trench excavations should be removed and replaced with structural fill or bedding material in accordance with public works specifications for the utility be supported. This recommendation is particularly applicable to utility work requiring grade control and/or in areas where subsequent grade raising could cause settlement in the subgrade supporting the utility. Trench excavation should not be conducted below a downward 1:1 projection from existing foundations without engineering review of shoring requirements and geotechnical observation during construction.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

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As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Excavations or other activities resulting in ground disturbance have the potential to affect adjoining properties and structures. Our scope of services does not include review of available final grading information or consider potential temporary grading performed by the contractor for potential effects such as ground movement beyond the project limits. A preconstruction/ precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent or near property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,000 square feet of compacted fill in the building areas (minimum 3 tests per lift) and 5,000 square feet in pavement areas (minimum 3 tests per lift). Where not specified by local ordinance, one density and water content test should be performed for every 100 linear feet of compacted utility trench backfill and a minimum of one test performed for every 12 vertical inches of compacted backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

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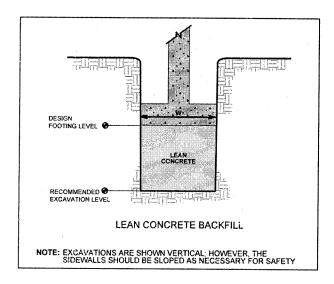


Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the observation of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil and undocumented existing fill prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

Sensitive soils exposed at the surface of footing excavations may require surficial compaction with hand-held dynamic compaction equipment prior to placing structural fill, steel, and/or concrete. Should surficial compaction not be adequate, construction of a working surface consisting of either crushed stone or a lean concrete mud mat may be required prior to the placement of reinforcing steel and construction of foundations.

If unsuitable bearing soils or undocumented existing fill are observed at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The lean concrete replacement zone is illustrated on the sketch below.



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Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

Mitigation measures, as noted in **Existing Fill** within **Earthwork**, are critical to the performance of floor slabs. In addition to the mitigation measures, the floor slab can be stiffened by adding steel reinforcement, grade beams, and/or post-tensioned elements.

Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed, and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should observe the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

Storm Water Management Discussion

Currently, the design concept is for the SWM facility to likely consist of an underground type of facility located at boring locations NBMP-1 and NBMP-2. However, further design information is not known at this time.

The soils observed at both locations were generally comprised of low permeability CLAY (CL) and Clayey SAND (SC) that extended to the boring termination depth of 15 feet below existing grade. Groundwater was encountered within these borings at a depth of approximately 13-ft below grade, including a 24-hr reading from a temporary well installed adjacent to NBMP-2. Two (2) in-situ infiltration tests were completed at locations directly adjacent to the borings and to depths specified by the client. These tests were conducted at a depth of 10 feet below existing grade. The infiltration at these locations and depths have been evaluated to have a low to moderately low hydraulic conductivity.

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The average laboratory California Bearing Ratio (CBR) value (8.3) was calculated disregarding the two extreme values (highest and lowest values) and then multiplied by a factor of two-thirds to determine a pavement design CBR value. The two-thirds factor provides the necessary safety margins to account for any low-test results not considered when computing the average and/or the possibility of varying conditions at unexplored locations. Therefore, a design CBR value of 5.5 rounded down to 5 for the subgrade soils was used for the asphalt concrete (AC) pavement designs. A modulus of subgrade reaction of 100 pci was used for the Portland cement concrete (PCC) pavement designs. The value was empirically derived based upon our experience with the fine-grained subgrade soils and our expectation of the quality of the subgrade as prescribed by the **Site Preparation** conditions as outlined in **Earthwork**. A modulus of rupture of 550 psi was used in design for the concrete (based on correlations with a minimum 28-day compressive strength of 4,000 psi).

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- Following pavement rough grading operations, the exposed subgrade should be observed under proofrolling. This proofrolling should be accomplished with a fully loaded dump truck or 7- to 10-ton drum roller to check for pockets of soft material hidden beneath a thin crust of better soil. Any unsuitable materials thus exposed should be removed and replaced with a well-compacted Select Fill in accordance with the recommendations of this report. The inspection of these phases should be performed by a geotechnical engineer or a qualified engineer's representative.
- Where excessively unstable subgrade soils are observed during proofrolling and/or fill placement, it is expected that these weak areas can be stabilized by means of undercutting and replacing with suitable material, thickening the base course layer, and/or by chemically stabilizing the subgrade. These alternates should be addressed by the Geotechnical Engineer during construction, if necessary, who will recommend the most economical approach at the time.

Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles.

A minimum 6-inch thick base course layer is recommended to help reduce potential for slab curl, shrinkage cracking, and subgrade pumping through joints. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. Joints should be sealed to prevent entry of foreign material and doweled where necessary for load transfer. PCC pavement details for joint spacing, joint reinforcement, and joint sealing should be prepared in accordance with ACI 330 and ACI 325.

Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its "green" state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

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- Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
- Install pavement drainage systems surrounding areas anticipated for frequent wetting.
- Install joint sealant and seal cracks immediately.
- Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
- Place compacted, low permeability backfill against the exterior side of curb and gutter.
- Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

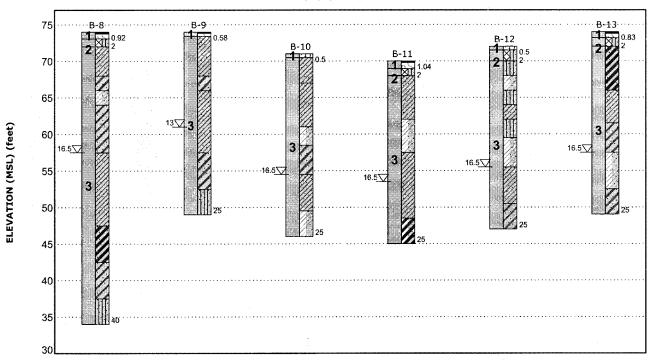
Figures

Contents:

GeoModel (5 Pages)



GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer Layer Name General Description	Le Le	egend
1 SURFICIAL Topsoil or Asphalt underlain by Aggregate Base	Asphalt	Aggregate Base Course
	Silty Sand	Sandy Lean Clay
2 Silty SAND (SM) with trace fine Gravel	Clayey Sand	Lean Clay with Sand
3 CLAY & CLAYEY CLAY (CL, CH) and Clayey SAND (SC)	Sandy Fat Clay	Topsoil
**************************************	Fat Clay with Sand	I

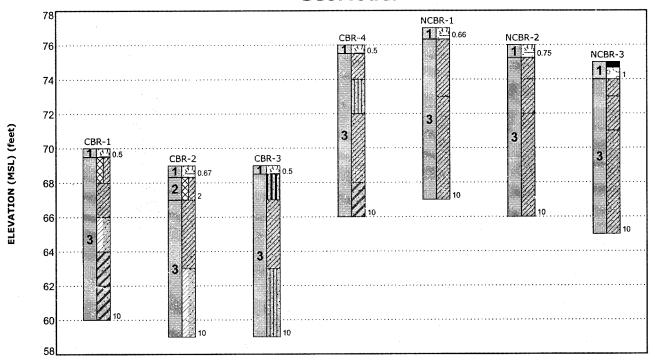
Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.



GeoModel



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer Layer Name General Description	, L	egend
1 SURFICIAL Topsoil or Asphalt underlain by Aggregate Base	Topsoil	Sandy Lean Clay
2 FILL Silty SAND (SM) with trace fine Gravel	Lean Clay with Sa	***************************************
CLAY & CLAYEY	Sandy Silt	∭Silty Sand 5√Aggregate Base
3 CLAY & CLAYET CLAY (CL, CH) and Clayey SAND (SC)	Asphalt	Course

$_{\underline{\nabla}}$ First Water Observation

Groundwater levels are temporal. The levels shown are representative of the date and time of our exploration. Significant changes are possible over time. Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:

Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Attachments

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Subsurface Exploration Procedures: The SPT borings were performed with the use of rotary wash "mud" drilling procedures in general accordance with ASTM D 1586. The tests were performed continuously from the existing ground surface to depths of 10 to 12-feet, and at 5-foot intervals thereafter starting at a depth of 13-feet. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 3-inch O.D. split-barrel sampling spoon with 2.5-inch I.D. ring lined sampler was used for sampling in the upper 40 feet. Ringlined, split-barrel sampling procedures are similar to standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration.

In lieu of an SPT boring using a drill rig, a hand auger was utilized to complete boring BMP-2. The hand auger was advanced to a depth of 15 feet below the existing ground surface. Sampling was performed continuously from the existing ground surface to boring termination. Representative samples were collected while advancing the hand auger generally at 1-ft intervals.

We also observed the boreholes while drilling and at the completion of drilling for the presence of groundwater. The groundwater levels are shown on the attached boring logs. For safety purposes, all boreholes were backfilled upon completion with the drilling spoils. Pavements were patched with cold-patch asphalt, as appropriate.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Atterberg Limits
- Sieve Analysis

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Site Location and Exploration Plans

Contents:

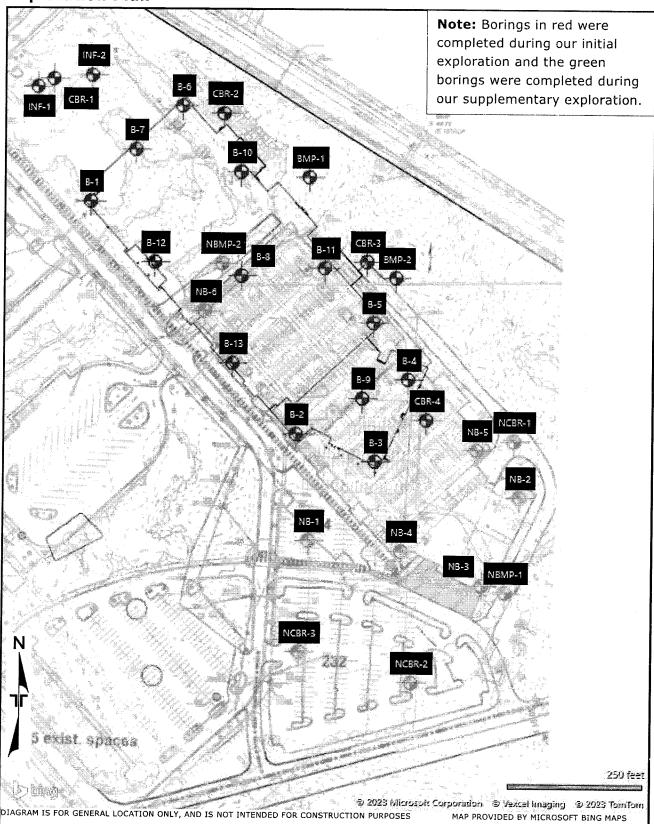
Site Location Plan Exploration Plan

Note: All attachments are one page unless noted above.

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Exploration Plan





Location: See Exploration Plan					<i>a</i> -	·	· · · · · · · · · · · · · · · · · · ·	Τ_	Atterberg	1
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		Abandonm Boring back	filled with	1 Auge	er Cu	ttings		0	6-16-2023	
		Surface cap	ped with	aspha	lt			B 0	oring Comple 6-16-2023	ted



Depth (Ft.) C.2.ASPMALT_2-in of Asphalt C.1.ASPMALT_2-in of Asphalt C.1.ASPMALT_2-in of Asphalt C.1.ASPMALT_2-in of Asphalt C.1.ASPMALT_2-in of Asphalt C.1.ASPMALT_SAND_(SM), with trace fine Gravel, fine to medium grained, C.1.ASPMALT_SAND_(SC), fine to medium grained, brown and gray, moist, medium dense C.1.ASPMALT_SAND_(SC), fine to medium grained, brown and gray, moist, medium dense C.1.ASPMALT_SAND_(SC), fine to medium grained, brown, moist, very stiff C.1.ASPMALT_SAND_(SC), fine to medium grained, orange-brown, moist, C.1.ASPMALT_SAND_(SC), fine to medium grained, orange-brown, moist, C.1.ASPMALT_SAND_(SC), fine to medium grained, orange-brown, moist, C.1.ASPMALT_SAND_(SC), fine to medium grained, orange-brown, moist, C.1.ASPMALT_SAND_(SC), fine to medium grained, orange-brown, moist, C.1.ASPMALT_SAND_(SC), orange-brown and gray, moist, very C.1.ASPMALT_SAND_(SC), orange-brown and gray, moist, very C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_SAND_(SM), with trace Clay, fine to medium grained, brown, C.1.ASPMALT_CLAY_CLAY_CLAY_CLAY_CLAY_CLAY_CLAY_CLAY	Depth (Ft.) 0.2 \(\lambda \text{ASPHALT}, \ 2-\text{in of Asphalt} \) 1.0 \(\lambda \text{AGGREGATE BASE COURSE}, \ 10-\text{in of Aggregate Base} \) SILTY SAND (SM), with trace fine Gravel, fine to medium grained, dark gray, moist, medium dense CLAYEY SAND (SC), fine to medium grained, brown and gray.	6-10-11-8	Water Content (9)	LL-PL-PI	trooped .
Depth (Ft.) Elevation: 70 (Ft.) D	Depth (Ft.) 0.2\ASPHALT, 2-in of Asphalt 1.0 AGGREGATE BASE COURSE, 10-in of Aggregate Base SILTY SAND (SM), with trace fine Gravel, fine to medium grained, dark gray, moist, medium dense CLAYEY SAND (SC), fine to medium grained, brown and gray.	6-10-11-8	Wa	LL-PL-PI	-
Depth (F.) Elevation: 70 (Pt.) Depth (Depth (Ft.) 0.2/ASPHALT, 2-in of Asphalt 1.0 AGGREGATE BASE COURSE, 10-in of Aggregate Base SILTY SAND (SM), with trace fine Gravel, fine to medium grained, dark gray, moist, medium dense CLAYEY SAND (SC), fine to medium grained, brown and gray.	6-10-11-8		j	
10.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, very stiff 60.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.0 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 60.2 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 61.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 61.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 62.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 63.2 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 64.1 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 65.2 SANDY LEAN CLAY (CL). brown and dark brown, moist, wery stiff 66.3 S	1.0 AGGREGATE BASE COURSE, 10-in of Aggregate Base 69 SILTY SAND (SM), with trace fine Gravel, fine to medium grained, dark gray, moist, medium dense 68 CLAYEY SAND (SC), fine to medium grained, brown and gray.				+
SILTY SAND (SM), with trace fine Gravel, fine to medium grained, 20, dark gray, moist, medium dense 16	SILTY SAND (SM), with trace fine Gravel, fine to medium grained, dark gray, moist, medium dense CLAYEY SAND (SC), fine to medium grained, brown and gray.				
12.6 ark gray, most, medium dense 68 CLAYEY SAND (SC). fine to medium grained, brown and gray, moist, medium dense 19 4-5-6-8 N=11 19 4-5-6-8 N=11 19 4-5-6-8 N=11 10 11-11-12-10 10 12-13-14-13 10 12-13-14-13 10 12-13-14-13 10 19 14-16-14-14 10 19 14-16-14-14 10 19 14-16-14-14 10 19 14-16-14-14 10 19 14-16-14-14 10 10 10 11 11-11-12 12 11-11-12 13 13-18 14 16 14-14 15 16 17 17 18 18 18 18 19 14-16-14-14 19 14-16-1	2.0 dark gray, moist, medium dense CLAYEY SAND (SC), fine to medium grained, brown and gray.	"			
10.0 SANDY LEAN CLAY (CL), brown and dark brown, moist, very stiff 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 11.11-11-12 N=22 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 11.11-11-12 N=22 11.11-11-12 N=22 11.11-11-13-18 N=24 11.11-13-18 N=	moist medium dense				
10. SANDY LEAN CLAY (CL), brown and dark brown, moist, very stiff 5.0 CLAYEY SAND (SC), fine to medium grained, orange-brown, moist, medium dense 10. SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 11. 11. 11. 11. 11. 12. 12. 12. 11. 11.		4560			
SANDY LEAN CLAY (CL), brown and dark brown, moist, very stiff 6.0 CLAYEY SAND (SC), fine to medium grained, orange-brown, moist, medium dense 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 11.11-11-12-10 N=23 12.11-11-11-12 N=22 13.12-13-14-13 N=27 19.11-11-13-18 N=24 19.11-11-13-18 N=24 19.11-11-13-18 N=30 11.15-13-14 N=30 11.15-14-14 N=30 12.5 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft					
5 - CLAYEY SAND (SC). fine to medium grained, orange-brown, moist, medium dense 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 11.11-11-12-10 N=23 12.11-11-11-12 N=22 13.11-11-11-12 N=22 14.11-11-13-18 N=24 15.15 SANDY LEAN CLAY (CL), orange-brown and gray, moist, very stiff 15.15 SANDY LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very stiff 15.15 SANDY LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very stiff 16.12-13-14-13 N=27 19.11-11-13-18 N=24 19.11-13-18 N=24 19.11-13-18 N=24 19.11-13-18 N=24 10.15 SANDY LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very stiff 19.11-11-11-12 19.11-11-12-10 N=23 10.10-10-10-10-10-10-10-10-10-10-10-10-10-1			_		
CLAYEY SAND (SC), fine to medium grained, orange-brown, moist, medium dense 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 10.1 11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1					
CLAYEY SAND (SC), fine to medium grained, orange-brown, moist, medium dense 10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 10.1 11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	6.0	N=23			
10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 10.5 LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very stiff 15.5 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 10.10 10.11 10.12-13-14-13 11.13-18 11.15-14-14 11.15-14-14 12.15 13.36-7 N=9 24.15 24.15 24.15 24.15 24.15 25.05	CLAYEY SAND (SC), fine to medium grained, grange-brown, moist		1		
10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 10- 11-13-14-13 19-11-13-18 19-1	- 1				
10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 12.5 LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24. 1-1-1-2 N=2 S4.1 58-26-32			_		
10.0 SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 12.5		12-13-14-13			
SANDY LEAN CLAY (CL), orange-brown, moist, very stiff 12.5 LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very 15 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 S4.1 S8-26-32	10.0	N=27			
12.5 LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very 15 16.5 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32			4	Ì	
12.5					
LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very stiff 15- 16.5 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 17 3-3-6-7 N=9 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32		11-24			
16.5 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 17 3-3-6-7 N=9 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32	LEAN CLAY WITH SAND (CL), orange-brown and gray, moist, very		7		
15- 16.5 SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 17 3-3-6-7 N=9 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32	stiff		1		
15- SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 17 3-3-6-7 N=9 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32					
16.5	15 / /	,,-30			
SILTY SAND (SM), with trace Clay, fine to medium grained, brown, wet, loose 17 3-3-6-7 N=9 21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32					
21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 25.0 48.5 24 17 3-3-6-7 N=9 24 1-1-1-2 N=2 54.1 58-26-32					
21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32	wet, loose wet, loose				
21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32				1	
21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32		3-3-6-7			
21.5 FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32		N=9			
FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32	20-		-		
FAT CLAY WITH SAND (CH), gray, wet, soft 24 1-1-1-2 N=2 54.1 58-26-32	21.5				
25.0 N=2 S4.1 S8-26-32					
25.0 N=2 S4.1 S8-26-32					
25.0 N=2 S4.1 S8-26-32					-
25.0	- 24		54.1	58-26-32	80
DUTING TERMINATED AT 25 PERT	45) - 1 1/ 1/	1,1-2			
	bonng reminated at 25 reet				
	25.0		54.1	58-26-32	



		-0 P	be	In.)	řt	(%)	Atterberg Limits	T
Latitude: 37.2818° Longitude: -76.6960°	Depth (Ft.)	Water Level	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)		
	Dept	Wate	Sam	lecov	Fiel	Cont	LL-PL-PI	6
Depth (Ft.) Elevation.: 72 (Ft.) .5 TOPSOIL, 6-in of Topsoil 71	-	-	 					\downarrow
SILTY SAND (SM), with trace fibrous organic material, fine to medium grained, brown, moist, loose	9			19	3-4-4-5 N=8			
SILTY SAND (SM), with trace Clay, fine to medium grained, brown, moist, loose	_			-	3-3-4-5			
.0 SANDY LEAN CLAY (CL), brown, moist, very stiff	3 _		\bigwedge	20	N=7			
	5-		\bigvee	16	5-7-9-10 N=16			
.0 SANDY FAT CLAY (CH), brown and gray, moist, very stiff to hard	_		$\langle \ \rangle$		10-12-12-13			H
	-		\triangle	23	N=24	20.6	60-17-43	
	-		X	24	16-17-15-14 N=32			
	10-		\bigvee	24	9-10-11-10	-		
2.5		∇	\mathbb{N}		N=21			
SANDY LEAN CLAY (CL), brown and gray, wet, soft to medium stiff	_		$\backslash /$					
	15-		\bigwedge	17	2-4-4-5 N=8			
	_							
				17	3-4-4-5			
	20-	ļ	/\		N=8			
	-				:			
	-		X	17	2-1-2-3 N=3			
Boring Terminated at 25 Feet	25	$-$ {						
.0 47 Boring Terminated at 25 Feet praction and Testing Procedures for a description of field and laboratory Water Lev	25			17				rill Rīg



	Boring Log	NO.	B-	8					3,	
60°	Location: See Exploration Plan	· · · · · · · · · · · · · · · · · · ·		- s	g	n.)	<u> </u>	l s	Atterberg Limits	
Graphic Log	Latitude: 37.2811° Longitude: -76.6953°		Depth (Ft.)	Leve	Sample Type	ery (I	Field Test Results	ater int (%	Latines	Percent Fines
Gra			Dept	Water Level Observations	Samp	Recovery (In.)	Field	Water Content (%)	LL-PL-PI	Per
	Depth (Ft.) Elevation.: 26.5	74 (Ft.) 47.5		_		~		ļ.		
	SANDY FAT CLAY (CH), gray, wet, very soft		_					ļ		
			_						·	
					M	24	0-0-1-1	61.0	F0 33 37	
			30-		\bigwedge	24	N=1	61.8	59-22-37	52
			30-							
	31.5 CLAYEY SAND (SC), fine to medium grained, light brown, wet, very	42.5								
	loose		-							
				k	$\langle A \rangle$					
					ХΙ	13	1-1-1-1 N=2	63.5	48-20-28	49
		al contract of the contract of	35-	ľ	^ }					
	36.5	37.5	_							İ
	SILTY SAND (SM) , contains marine shell fragments, fine to medium grained, light gray, wet, loose									
			-	k		_				
			-		VI	24	3-3-3-4 N=6			
	40.0 Boring Terminated at 40 Feet	34	40	_/	$^{\prime}$		140			
	3									

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-										ĺ
	The state of the s									
procedu	res used and additional data (If any).	Vater Lev e ✓ At cor		*			7.3] (Orill Rig CME-55 track A	ΓV
ace out	poorting information for explanation of symbols and abbreviations.							,	Hammer Type Nutomatic	
Notes		dvanceme	ant Mat	hod	Sugg				Oriller 5. Sabine	
Elevatio (datum		mud" rotan		uou	la Car		Section 1	1	ogged by Gerald	
		bandonm	ont McL	had				E	Boring Started	
	Be the second of	oring backl urface cap	illed wit	h Auge	er Cu ilt	ttings		E	6-15 ⁻ 2023 Joring Comple	ted
11.00.11							145	0	6-15-2023	



2 Depth (Ft.)	Water Level Observations	Sample Type	15 Recovery (In.)	Field Test N=0 10 8-2-4-4 N=10	Water Content (%)	LL-PL-PI	+400000
	Water	Sample	21	8-5-4-4 N=9			000
	× 0	s	21	8-5-4-4 N=9			
5				N=9 4-5-5-4	16.7	40-13-27	
5				N=9 4-5-5-4	16.7	40-13-27	
5-			19		16.7	40-13-27	$\frac{1}{1}$
5			19		16.7	40-13-27	
5		$\langle \rangle$		N=10	10.7		1
5					ſ		
5	ł	. 1/			1		T
_	1	X	24	4-4-5-6 N=9			
		$\langle \ \rangle$			-		
****		V	24	10-11-11-12			
		$/ \setminus$		N=22			
		\mathbb{N}		9-10-10-11]		
		Å	24	N=20			
10-		$\langle \ \rangle$					
		XI	24	8-8-9-9 N=17			
4		/ \]	: 	
_							
		$\setminus / \! /$		3-4-5-6			
٦		M	24	N=9			
15	ľ	· }					
\dashv	∇						
4			İ				
İ		$\setminus I$		2-1-3-2			
1		M	1/	N=4	32.7	46-22-24	6
20-	ľ	1					
\exists							
4					1		
				40			
	^	$\sqrt{ }$	24	2-2-3-3			
		\setminus	24	N=5	İ		
25-		-					
	115	15-	15-	24 24 15 20 17 20 24	10- 24 8-8-9-9 N=17 24 3-4-5-6 N=9 17 2-1-3-2 N=4 24 2-2-3-3 N=5	10- 24 8-8-9-9 N=17 24 3-4-5-6 N=9 17 2-1-3-2 N=4 32.7	10- 24 8-8-9-9 N=17 24 3-4-5-6 N=9 17 2-1-3-2 N=4 32.7 46-22-24 24 2-2-3-3 N=5



				,	,	,				
Log	Location: See Exploration Plan		-	- S	l e	(In.)	يد	9	Atterberg Limits	
Graphic Log	Latitude: 37.2812° Longitude: -76.6959°		Depth (Ft.)	Water Level Observations	Sample Type	2	Field Test Results	Water Content (%)		Percent
srap			epth	ater	dime	Recovery	rield	Wa	LL-PL-PI	Perc
	Depth (Ft.)	n.: 72 (Ft.)	۵	⁵ ö	S	Rec	u_	ပိ		
XX	0.5 TOPSOIL , 6-in of Topsoil	71.	5	\vdash	/	-		1		
\boxtimes	FILL - SILTY SAND (SM), with trace fine Gravel, fine to medium grained, gray, moist, medium dense		-	-	ΙX	17	5-9-10-10 N=19			
	2.0	70			$V \setminus$		14-13			
	SILTY SAND (SM) , fine to medium grained, brown, moist, mediun dense	n			\mathbb{N}			1		
			-	1	IX	20	9-10-10-11 N=20			
	4.0 LEAN CLAY WITH SAND (CL), brown and gray, moist, very stiff	68	3 _							
	ELAN GEAT WITH SAND (CE), DIOWII and gray, Moist, Very Stiff		_		\mathbb{N}		7-8-11-13			
	5.0		5-		M	23	N=19			
	SILTY SAND (SM), with trace Clay, fine to medium grained, brown	66	-		$\langle - \rangle$			4		
	moist, dense	•	_		V	23	15-17-18-19			
		64			$/\backslash$		N=35			
	SANDY LEAN CLAY (CL), brown and gray, moist, very stiff		-							
			_		XI	24	16-14-15-16 N=29			
	O.O	62	10-		/					
	SILTY SAND (SM), with trace Clay, fine to medium grained, orange-brown, moist, medium dense		10		\ /		14 14 14 12			
					ΧI	21	14-14-14-13 N=28			
	2.5	59.5			<u> </u>					
	LEAN CLAY WITH SAND (CL), brown and gray, moist, very stiff	39.3								
				Ì	$\backslash \Lambda$					
			_		ΧI	24	11-14-12-10 N=26			
			15-	1	/ \					
	SANDY LEAN CLAY (CL), brown, wet, stiff	55.5	7	∇						
	wet, suit		-							
			_							
				($\backslash / $		5-4-5-7			
			٦		ΛL	19	N=9			
			20-	, K	}					
	1.5		4			İ				
	CLAYEY SAND (SC), fine to medium grained, brown, wet, loose	50.5			-	l				
			7	-						
		İ	4	K	_	-				
			_	[\bigvee	16	4-3-2-2			
// 2 ^t	5.0	47			\setminus		N=5			
	Boring Terminated at 25 Feet		25	7	1					
ee Expl rocedur	oration and Testing Procedures for a description of field and laboratory es used and additional data (If any).	Water Lev ✓ At co	el Obsei mpletion	- 100 X				E C	Orill Rig ME-55 track A	
ee Sup	porting Information for explanation of symbols and abbreviations.	_V_ ACCO	mpiedon	or or un	ng				ammer Type	
								Α	utomatic	
lotes		Advancem	ent Met	hod		ac Ai			riller . Sabine	
levation apping	Reference: Elevations were interpolated from available site topographic (datum unknown)	"mud" rotar	у					L	ogged by	
	Abandonment Method Boring backfilled with auger cuttings upon completion.								. Gerald	
								в 0	oring Started 6-16-2023	
							B	oring Comple 6-16-2023	ted	
									- 10 1025	



Boring Log No. CBR-1

				. =						
60]	ocation: See Exploration Plan		$\hat{}$	<u>e</u> 8	90	(In.)	T.	(;	Atterberg Limits	
Graphic Log	atitude: 37.2821° Longitude: -76.6965°		Depth (Ft.)	Water Level Observations	Sample Type	آب ()	Field Test Results	Water Content (%)	Linits	Percent
c ab			epth	/ater bsen	amp	Recovery	Field	Wa	LL-PL-PI	Perc
	Depth (Ft.) Elevation : 70 (ı	۵	>0	S	Re		8		
<u> </u>	.5 TOPSOIL, 6-in of Topsoil FILL - SANDY LEAN CLAY (CL), with trace fine Gravel, brown, moist,	69.5			\setminus					
	SUII				X	13	6-5-4-3 N=9	15.4	24-14-10	ε
2	SANDY LEAN CLAY (CL), brown, moist, stiff	68	_		$\langle \ \rangle$					<u> </u>
	, ,, ,				\bigvee	23	3-5-7-9			
//4	0	66			\bigwedge	ر 2	N=12			
	LEAN CLAY WITH SAND (CL) , orange-brown and gray, moist, very stiff	- 55	1							
			5 –		X	17	9-10-11-13 N=21			
6.	CLAYEY SAND (SC), fine to medium grained, orange-brown and	64	4	į	/ \					
4	gray, moist, medium dense			ľ	\backslash / \mid		12-11-12-13			
/ 8.	0	63	٦		Μ	24	N=23			
1	CLAYEY SAND (SC), fine to medium grained, brown, moist, medium dense	62		K						
	dense.		4		XI	24	12-12-12-11 N=24			
10	0.0 Boring Terminated at 10 Feet	60 1	0	/	/		11-27			
	Borng Terminated at 10 Feet	-								
					Ì					
						ŀ				
						l				
								İ		
					-					
			İ							
1										
				İ	Ì	1			1	
xploi dure	Sused and additional data (If any)	Level O							Drill Rig	
uure		Level O				li			CME-55 track A	
iure	s used and additional data (If any).					12			Drill Rig CME-55 track A Hammer Type Automatic	
uppo	Ground additional data (If any). Ground Information for explanation of symbols and abbreviations.	lwater no	ot end	counte					CME-55 track A Hammer Type Automatic Driller	
uppo	Ground additional data (If any). Inting Information for explanation of symbols and abbreviations. Advantage of the symbols and abbreviations of the symbols are symbols and abbreviations of the symbols are symbols and abbreviations of the symbols and abbreviations of the symbols and abbreviations of the symbols and abbreviation	lwater no	ot end	counte					CME-55 track A: Hammer Type Automatic Driller C. Sabine Logged by	
suppo s tion I	Ground additional data (If any). Orting Information for explanation of symbols and abbreviations, Advan.	lwater no	ot end	counte					CME-55 track A: Hammer Type Automatic Driller C. Sabine Logged by C. Gerald	
uppo	Ground additional data (If any). Inting Information for explanation of symbols and abbreviations. Advan Reference: Elevations were interpolated from available site topographic datum unknown) Abanda	lwater no	ot end Meth	od	ered	tings	Upon completies		CME-55 track A: Hammer Type Automatic Driller C. Sabine Logged by	
Suppo s tion I	Ground additional data (If any). Inting Information for explanation of symbols and abbreviations. Advan Reference: Elevations were interpolated from available site topographic datum unknown) Abanda	lwater no	ot end Meth	od	ered	itings	upon completion.		CME-55 track A: Hammer Type Automatic Driller C. Sabine Logged by C. Gerald Boring Started	



Boring Log No. CBR-3

		y No. (, .	,		,				
Graphic Log	Location: See Exploration Plan Latitude: 37.2812° Longitude: -76.6945°		Depth (Ft.)	Water Level Observations	Sample Type	ery (In.)	Field Test Results	Water Content (%)	Atterberg Limits	
	Depth (Ft.) Elevati	ion.: 69 (Ft.)	Depti	Water	Samp	Recovery	Field	Conte	LL-PL-PI	
	0.5 TOPSOIL, 6-in of Topsoil SANDY SILT (ML), brown, moist, medium stiff	68.5	-		X	18	2-3-5-8 N=8	6.8	NP	
	SANDY LEAN CLAY (CL), brown and gray, mosit, very stiff to ha	67 rd	_			19	8-9-9-10			1
							N=18			
	SILTY SAND (SM), with trace Clay, fine to medium grained, brow moist, medium dense to dense	63 vn,	5 -		$\left(\right)$	15	9-15-16-17 N=31			
	moist, medium dense to dense				\setminus	14	12-12-12-12 N=24			
1	en ~				\bigvee	16	15-17-16-17 N=33			
	Boring Terminated at 10 Feet	59	10							+
7								-		
ee Explo	oration and Testing Procedures for a description of field and laboratory es used and additional data (If any).	Water Leve					25.65.1988		Drill Rig	
	orting Information for explanation of symbols and abbraviations.	Groundwater	r not en	counte	erea			,	CME-55 track A Hammer Type Automatic	
ites evation	Reference: Elevations were interpolated from available site topographic	Advanceme "mud" rotary	nt Meth	od			Table 1	(Oriller C. Sabine	
apping i	(datum unknown)	Abandonme	nt Meti	und				C	ogged by Gerald Soring Started 6-15-2023	d
		Boring backfil	D = 2	200 C	4		upon completion.		0 13 2023	



Boring Log No. BMP-1

Log	Location: See Exploration Plan	-	·	اع د اع	be	In.)	٠٠	(9)	Atterberg Limits	T
Graphic Log	Latitude: 37.2816° Longitude: -76.6949°	Denth (Et.)	Jebai (Fr	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	LL-PL-PI	1
1	Depth (Ft.) Elevation.: 71 (Ft. 0.5 TOPSOIL, 6-in of Topsoil			- 0		, a		0		
	SILTY SAND (SM), with trace fibrous organic material, fine to medium grained, brown, moist, loose	.5			\bigvee	20	3-3-5-5 N=8			
	2.0 SILTY SAND (SM), fine to medium grained, brown, moist, medium dense	59	4	k	$\left\langle \cdot \right\rangle$		11-8			
	4.0		-		X	18	6-8-9-9 N=17			
	SANDY FAT CLAY (CH), brown, moist, very stiff	57		K			601112			t
6	CLAVEY SAND (SC) fine to modify	5 5			\bigvee	15	6-9-11-12 N=20	13.7	52-20-32	
	CLAYEY SAND (SC), fine to medium grained, gray, moist, medium dense				M	18	10-12-10-12 N=22			
8	SANDY LEAN CLAY (CL), brown, moist, very stiff to hard	3	-	K	$\left\langle \cdot \right\rangle$		N=22			
			$\frac{1}{2}$		X	20	12-12-13-13 N=25			
		10	ן'			15	11-12-13-16			
			\downarrow		\backslash		N=25			
			-	1	+					
15	5.0		1		$\langle $	16	17-18-17-16 N=35			
	at 15 Feet 5	15	+		\dagger	_				L

xplo	oration and Testing Procedures for a description of field and laboratory Water Less used and additional data (If any).	vel Obs	serv	ation	<u> </u>				rill Rig	
	orting Information for explanation of symbols and abbreviations. Groundwa	ter not	enc	ounter	ed			C	ME-55 track AT	
							400	Aı	ammer Type utomatic	
s tion	Reference: Elevations were interpolated from available site topographic "mud" rot	ient M	etho	od				C.	riller Sabine	
ing (datum unknown)	-200			i i			Lo C.	ogged by Gerald	
	Abandon Boring bac	nent M	eth vith	o d auger	cut	tinas i	pon completion.	Br 06	oring Started 5-15-2023	l.
				a-a	-	gat	, an completion.	Во	oring Complet i-15-2023	te



Boring Log No. NB-1

	ocation: See Exploration Plan	-	,	- s	be	(In.)	پ	(o)	Atterberg Limits	- 1
	atitude: 37.2798° Longitude: -76.6949°	Depth (Ft.)		Water Level Observations	Sample Type	Recovery (I	Field Test Results	Water Content (%)	LL-PL-PI	٠ ا
Ω	Depth (Ft.) Elevation.: 75 (Ft.) 2.^ASPHALT, 2-in of Asphalt 74.i	13		≤õ —	σ \ /	Rec		8		-
4	.8 AGGREGATE BASE COURSE, 7-in of Aggregate Base FILL - CLAYEY SAND (SC), with trace Gravel, fine to coarse grained, light brown and gray, moist, medium dense	·3	+		X	18	5-10-7-7 N=17			
	CLAYEY SAND (SC), fine to medium grained, light brown, moist, loose		1		\bigvee	15	5-3-2-2 N=5			
4	SANDY LEAN CLAY (CL), light brown, moist, soft	1 _	-		$\langle \ \rangle$		1 1 1 1			
6.	0 SANDY FAT CLAY (CH), gray and brown, moist, stiff to very stiff	5 9			$\langle \rangle$	20	1-1-1-1 N=2	18.4	34-14-20	
	, , , , , , , , , , , , , , , , , , , ,		-		X	20	2-3-5-6 N=8	19.5	81-23-58	
					M	19	10-12-18-18 N=30			
10	SANDY LEAN CLAY (CL), moist to wet, medium stiff to very stiff	10			$\langle \rangle$	20	11-11-12-14	-		
		or delication of the second			\bigvee	20	N=23			
						24	6-5-9-9			
		15	-		\setminus	_	N=14	-		
	Wet below 18-ft	_	7	Z	<u> </u>					
		20-			X	24	3-3-4-5 N=7	29.8	49-23-26	(
		_	_							
		-							-	
					(:	24	2-2-3-4 N=5			
25.	0 50 Boring Terminated at 25 Feet	25-			\l	į				



Boring Log No. NB-3

	Boring Log No.	NR	-3						
Log	Location: See Exploration Plan	t.)	vel	ype	(In.)	sst	(%)	Atterberg Limits	
Graphic Log	Latitude: 37.2796° Longitude: -76.6938°	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	LL-PL-PI	Percent Fines
	Depth (Ft.) Elevation.: 78 (Ft.)		Š d	Sa	Rec	ü.	Ö	LLTLTI	-
×Z	0.3 ASPHALT, 3-in of Asphalt 77.0.9 AGGREGATE BASE COURSE, 8-in of Aggregate Base 77.0. FILL - CLAYEY SAND (SC), with trace Gravel, fine to coarse grained,	1	_	\bigvee	24	3-4-5-5 N=9			
	la a light brown and gray moiet loose	<u>'</u> 6	-			14-3			
		-		X	15	3-3-3-4 N=6			
		-		$\langle \ \rangle$			-		
		5-		M	18	4-4-5-5 N=9			
		-		M	15	3-3-4-3			
	8.0 SANDY LEAN CLAY (CL), gray and orange-brown, moist to wet,	0 _		$\langle \cdot \rangle$		N=7			
	medium stiff to very stiff	-			14	10-11-8-11 N=19			
		10-				0.0.40.0			
		-		M	18	9-8-10-9 N=18			
	Wet below 13-ft	_	∇						
	Web delon 13 (C	_		\bigvee	18	3-3-5-6 N=8			
		15		/		٧	-		
		_							
		-		,					
			ļ	V	20	3-3-4-5			
		20-		\bigvee		N=7			
2	1.5 56.5								
	<u>SILTY SAND (SM)</u> , fine to coarse grained, orange-brown, wet, very loose	_				İ			
		_				1-1-2-2			
2	5.0 53	25		\bigvee	13	N=3	27.5		23
	Boring Terminated at 25 Feet	23						1	
proceau	loration and Testing Procedures for a description of field and laboratory res used and additional data (If any). Descripting Information for explanation of symbols and abbreviations.	vel Obse ompletion			Ţ	.75 2		Drill Rig CME-55 track A	—— ĭV
	The state of the s						1	Hammer Type Automatic	
Notes Elevatio	Advancen Reference: Elevations were interpolated from available site topographic "mud" rote		thod					Oriller T. Donahue Logged by	
apping	(datum unknown) Abandonr	nent U-	thed	Shu				C. Gerald Boring Started	l
	Abandon/ Boring bac	kfilled wi	th aug	er cu	ttings	upon completion.	ı	9-26-2023 Boring Comple 99-26-2023	ted



Boring Log No. NB-5

	Dorning Edg	, 140.	H	J						
go.	Location: See Exploration Plan			~ s	e C	(In.)		T	Atterberg Limits	
Graphic Log	Latitude: 37.2803° Longitude: -76.6938°		Depth (Ft.)	Water Level Observations	Sample Type	D \(\frac{1}{2} \)	Field Test Results	Water Content (%)	Littles	Percent Fines
Grap			Pepth	Vater	amp	Recovery	Field	Wa	LL-PL-PI	Perc
37.3	Depth (Ft.) Elevatio	n.: 77 (Ft.)		>0	CO	Re		٥		
777	10PSOIL, 9-in of Topsoil	76.2	5		N / I		2-3-4-4			
	<u>CLAYEY SAND (SC)</u> , with trace fibrous organic material, fine to medium grained, dark brown, moist, loose 2.0		-		X	24	N=7			
	SANDY LEAN CLAY (CL), light brown to orange-brown, moist, stif	7 <u>.</u> f	_		$\langle \ \rangle$			-		
			-		\setminus	20	5-6-7-11 N=13	11.9	27-13-14	67
	4.0	73	3		$/ \setminus$		·			
	<u>SILTY SAND (SM)</u> , with trace Clay, fine to medium grained, light brown, moist, medium dense		-		\bigvee		9-11-12-14			
			5-		\bigwedge	16	N=23			
			-							
			_		XI	19	10-10-14-18 N≃24			
	SANDY FAT CLAY (CH), orange-brown and gray, moist, very stiff	69	_		$\langle \ \rangle$					
	and gray, most, very sair				VI	19	5-11-12-15	17.3	53-17-36	
	10.0	. 67	10		$\setminus \setminus$		N=23	17.3	53-17-36	66
	SANDY LEAN CLAY (CL), orange-brown, wet, very stiff		10	Í	\sqrt{I}					
			-	ŀ	XI	24	9-10-10-14 N=20			
			_	K	_}		-,			
	Wet below 13-ft		_	∇						
					\bigvee	24	7-7-9-12			
					\setminus	24	N=16			
			15	ſ	1					
	6.5	60.5	-	İ						
	<u>SANDY LEAN CLAY (CL)</u> , orange-brown and light brown, wet, soft medium stiff	to	4					-		
					$\sqrt{ }$	24	3-3-4-3			
					\setminus	24	N=7			
			20							
			\dashv							
			4							
			4			_				
				1	$\sqrt{}$	24	1-2-2-2			
2	5.0	52]		\setminus	24	N=4	1	a disconnection	
	Boring Terminated at 25 Feet		25		1					_
See Eyn	oration and Testing Procedures for a description of field and laboratory	M-1	-1 6's		_1_					
procedu	res used and additional data (If any). porting Information for explanation of symbols and abbreviations.	Water Lev ✓ At co	mpletion						Drill Rig CME-55 track A	TV
-u. 3(1)	explanation or symbols and abbreviations.							1	Hammer Type Automatic	
Notes			400				##	r	Driller	
Elevatio	Reference: Elevations were interpolated from available site topographic	Advancem "mud" rotar	ent Meti Y	rod	11.000				C. Donahue	
mapping	(datum unknown)							C	C. Gerald	
		Abandonm Boring back	ent Met	hod	ar mud	tinge	upon completion.	E C	Boring Started 19-26-2023	r I
		July Duck	WIL	uuyt	., uul	ys	apon completion.	E	Boring Comple	ted



Boring Log No. NBMP-1

Log	Location: See Exploration Plan	()	la se	be	In.)	, t	(%	Atterberg Limits	T
Graphic Log	Latitude: 37.2796° Longitude: -76.6937°	Depth (Ft.)	Water Level Observations	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	LL-PL-PI	100,00
×. '7	Depth (Ft.) Elevation.: 78 (Ft.) 0.6 TOPSOIL , 7-in of Topsoil		>0	s	Re		<u>ک</u>		
	SANDY LEAN CLAY (CL), brown, moist, soft			\bigvee	24	1-1-1-2			
	2.0			\bigwedge	24	N=2			
	SANDY LEAN CLAY (CL), light brown, moist, medium stiff to very stiff	_		X	24	3-4-4-9 N=8			
		5 -		M	24	10-12-14-15			
		_				N=26			
	6.0 CLAYEY SAND (SC), fine to medium grained, light brown, moist,	_		\bigvee	14	7-12-13-16 N=25	15.8		
	meaium dense	10-		\bigvee	24	12-12-14-19 N=26	14.7	35-16-19	4
	SANDY LEAN CLAY (CL), orange-brown, moist to wet, stiff to very stiff	10			15	10-9-11-10 N=20	21.7		
	Wet below 13-ft	4	∇						
1	5.0 63 Boring Terminated at 15 Feet	15		X	17	6-5-4-4 N=9	22.7		
Supp supp stion	oration and Testing Procedures for a description of field and laboratory sets used and additional data (If any). Porting Information for explanation of symbols and abbreviations. Reference: Elevations were interpolated from available site topographic (datum unknown) Abandonme Boring backfir	nt Meth	f drillin od	g	J. Control		C H A D T. Li C	Prill Rig ME-55 track All lammer Type utomatic Priller Donahue ogged by Gerald oring Started 9-26-2023	



Boring Log No. NCBR-1

	ing Log No.			_					
Location: See Exploration Plan				2 9	n.)	ш	<u> </u>	Atterberg Limits	Т
Location: See Exploration Plan Latitude: 37.2803° Longitude: -76.6936°		Depth (Ft.)	Water Level	Sample Type	Recovery (In.)	Field Test Results	Water Content (%)	Limits	Percent
		Dept	Wate	Samp	secov.	Field	Conte	LL-PL-PI	Per
Depth (Ft.) Depth (Ft.) Depth (Ft.) TOPSOIL, 8-in of Topsoil	Elevation.: 77 (F			-	-		_		
SANDY LEAN CLAY (CL), with trace fibrous org moist, soft to stiff	janic material, brown,	6.34	-	X	24	1-2-2-3 N=4	13.3	28-19-9	5
			_	/\		114-4			<u> </u>
				\bigvee	24	6-5-5-8			
4.0 SANDY LEAN CLAY (CL), light brown, moist, ve		73		$ \rangle$		N=10			
SAND FEAR CLAY (CE), light brown, moist, ve	ery stiff	5-		\mathbb{N}	24	9-10-12-14			
				\mathbb{N}	24	N=22			
				\bigvee		9-14-16-17			
				Λ	24	N=30			
		-		M		0 10 10 15			
10.0		67 10	7	X	24	9-10-10-15 N=20			
Boring Terminated at 10 Feet		10	1						
						!			
								,	
			Ì						
·									
					ĺ				

exploration and Testing Procedures for a description of field and fures used and additional data (If any).		Level Obs						Orill Rig	
upporting Information for explanation of symbols and abbreviat	Ground ions.	water not e	ncount	tered			(ME-55 track A	
	Carrier 1	i da					A	Nutomatic.	
				0.0000000000000000000000000000000000000	1000			Priller	
ion Reference: Elevations were interpolated from available site	Advanc "mud" n	ement Me	thod			100000000		. Donahue	
tion Reference: Elevations were interpolated from available site	topographic Advanc "mud" ri	ement Me otary	thod				L	ogged by Gerald	
s tion Reference: Elevations were interpolated from available site ing (datum unknown)	topographic "mud" r	otary	thad	er cul	tinos	upon completion.	L C	ogged by	



Boring Log No. NCBR-3

th (Ft.) Elevation.: 75 (Ft.) ASPHALT, 4-in of Asphalt AGGREGATE BASE COURSE, 8-in of Aggregate Base SANDY LEAN CLAY (CL), brown, moist, medium stiff	.)	Depth (Ft.)	Water Level Observations	Sample Type	ry (In.)	les Its	<u>.</u> e	Limits	4 .
ASPHALT, 4-in of Asphalt AGGREGATE BASE COURSE, 8-in of Aggregate Base	.)	a) I	= 였	Ę	vei	Field Test Results	Water Content (%)	11 01 07	41000
ASPHALT, 4-in of Asphalt AGGREGATE BASE COURSE, 8-in of Aggregate Base		۵	Šå	Sat	Recovery	<u></u>	Cor	LI -PL-PI	1
SANDY I FAN CLAY (CL.) brown maint madium wiff	.67			$ \langle $					t
DAND! LEAN CEA! (CE), brown, moist, medium stiff	74	-		XI	24	4-4-3-3 N=7	13.7	27-14-13	
SANDY LEAN CLAY (CL), light brown to orange-brown, moist,	73	4		$\langle \cdot \rangle$			-		\perp
medium stiff		4		\bigvee	18	2-2-3-3			
	71			$/ \setminus$		N=5			
SANDY LEAN CLAY (CL), orange-brown and gray, moist, stiff to very stiff		٦	ľ	$\backslash A$		4.4.6.40			
		5 -		XΙ	20	4-4-6-10 N=10			
		\exists	K	$\langle \ \rangle$			-		
		4		VΙ	24	9-9-14-12 N-23			
			6	/		11-23			
				M		12-11-10-12			
	اً	1		M	24	N=21			
Boring Terminated at 10 Feet	1	.0-		1					H
									ĺ
					ŀ				
					İ				
				Ì					
							į		
sed and additional data (If any).						A	ŗ	Orill Rig	TV
ng Information for explanation of symbols and abbreviations.							ř	fammer Type	
							A	utomatic	
Advance	ement	Meth	od	199. 430 1					
erence: Elevations were interpolated from available site topographic tum unknown)	cary						Ľ C	ogged by Gerald	
Abandos	iment	Meth	od				B	oring Started	ı
Boring ba	ckfille	d with	auge	r cut	tings	upon completion.	В	oring Comple	te
i (C	on and Testing Procedures for a description of field and laboratory sed and additional data (If any). Grounds information for explanation of symbols and abbreviations. Advance immediate from available site topographic immunknown). Abandon	on and Testing Procedures for a description of field and laboratory water Level C Groundwater of Information for explanation of symbols and abbreviations. Advancement much rotary munknown) Advancement much rotary was a part of the procedure o	on and Testing Procedures for a description of field and laboratory sed and additional data (If any). Ing. Information for explanation of symbols and abbreviations. Berence: Elevations were interpolated from available site topographic umunknown). Abandonment Meth	on and Testing Procedures for a description of field and laboratory sed and additional data (If any). The information for explanation of symbols and abbreviations. Water Level Observation Groundwater not encounted the information for explanation of symbols and abbreviations. Advancement Method "mud" rotary Abandonment Method "mud" rotary	on and Testing Procedures for a description of field and laboratory sed and additional data (If any). The information for explanation of symbols and abbreviations. Water Level Observations Groundwater not encountered. Advancement Method "mud" rotary Abandonment Method.	on and Testing Procedures for a description of field and laboratory and additional data (If any). The information for explanation of symbols and abbreviations. Advancement Kethod mud. rotary Advancement Kethod mud. rotary Advancement Kethod mud. rotary	Boring Terminated at 10 Feet 10 Water Level Observations Groundwater not encountered Advancement Kethod multicomy municipolitics from available site topographic municipolitics. Advancement Kethod multimorn)	on and Testing Procedures for a description of field and istoratory and additional data (If any). on information for explanation of symbols and abbreviations. Mater Level Observations Groundwater not encountered. Advancement Kethod "mud" rotary Advancement Kethod "mud" rotary Advancement Kethod "mud" rotary Advancement Kethod "mud" rotary Advancement Kethod "mud" rotary Advancement Method Boring backfilled with auger cuttings upon completion.	Boring Terminated at 10 Feet The string Processor's for a description of field and laboratory and additional data (If any).



Summary of Laboratory Results

NBMP-2	NBMP-2	NBMP-1	NBMP-1	NBMP-1	NBMP-1	NB-6	NB-5	NB-5	NB-4	NB-3	NB-1	NB-1	NB-1	8MP-2	BMP-2	BMP-2	BMP-2	BMP-1	Boring LID
10-12	8-10	13-15	10-12	8-10	6-8	13-15	8-10	2-4	2-4	23-25	18-20	6-8	4-6	14-15	12-13	9-10	5-6	4-6	Depth (Ft.)
	SANDY LEAN CLAY(CL)			CLAYEY SAND(SC)		SANDY LEAN CLAY(CL)	SANDY FAT CLAY(CH)	SANDY LEAN CLAY(CL)	SANDY LEAN CLAY(CL)		SANDY LEAN CLAY(CL)	SANDY FAT CLAY(CH)	SANDY LEAN CLAY(CL)	FAT CLAY WITH SAND(CH)			SANDY LEAN CLAY(CL)	SANDY FAT CLAY(CH)	Soil Classification USCS
	33			35		45	53	27	34		49	81	34	54			49	52	Liquid
	15			16		22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	17	13	13		23	23 24	14	29			23	20	Pastic of the control
	18			19		23	36	14	21		26	58	20	25			26	32	Plasticity Index
	53.9			48.2	(M)((M)(M)(M)(M)(M)(M)(M)(M)(M)(M)(M)(M)	56,9	66.4	56.9	63,4	22.6	63.2	69.1	63.3	74.5			61.3	66.5	% Fines
14.6	1,5 Q	21.7		15.8		23.7	17.3	11.9	14.8	27.5	29.8	19.5	18.4	36.0	20.5	23.5	24.3	13.7	Water Content (%)

Subsurface Exploration and Geotechnical Engineering Report

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) \mid Williamsburg, VA October 30, 2023 \mid Terracon Project No. K4235044



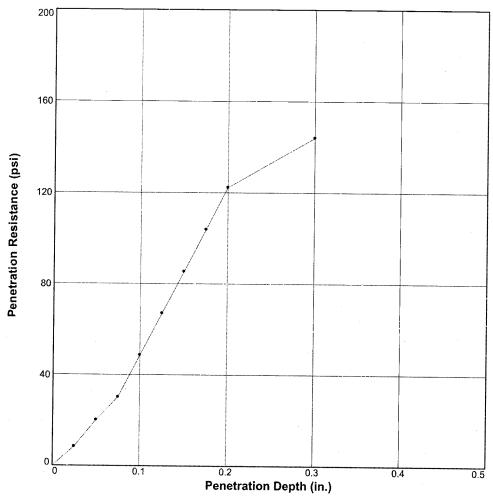
BULK SOIL SAMPLE CBR TESTING

The bulk soil samples were subjected to Standard Proctor and CBR testing in general accordance with ASTM D698 and ASTM D1883, respectively. The stress-strain curves were plotted. If necessary, the stress-strain curve was corrected by adjusting the location of the origin for concave shaped curves. CBR results were compared for 0.1-inch and 0.2-inch penetration, and subsequently, the CBR value was selected at 0.1-inch penetration using the corrected load values. These test results are provided in the Table below.

Summary of CBR Test Results

Sample No/Boring ID	Depth Below Grade (ft)	NSCS	W _N (%)	Pass #200 Sieve (%)	A.L. (LL/PL/PI)	Max. Dry Density (pcf)	Optimum Moisture (%)	CBR Value	Swell (%)
CBR-1	0.5 – 2	CL	15	62	24/14/10	112.6	14.1	7.3	0.1
CBR-2	0,7 - 2	CL	19	57	30/15/15	105.6	17.5	7.0	0.1
CBR-3	0.5 - 2	ML	7	55	Non-Plastic	109.1	14.2	9.2	0.1
CBR-4	0.5 – 2	CL	7	66	25/15/10	106.9	15.1	7.7	0.1
NCBR-1	0.7 - 2	CL	13	54	28/19/9	112.2	13.7	8.2	0.1
NCBR-2	0.8 - 2	CL	17	61	23/15/8	102.6	15.8	7.5	0.1
NCBR-3	1 - 2	CL	14	62	27/14/13	116.8	11.7	8.2	0.1

BEARING RATIO TEST REPORT ASTM D1883-16



		Molded			Soaked		CBF	र (%)	Linearity		Max.
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	Surcharge (lbs.)	Swell (%)
1 0	112.6	100	13.6	112.4	99.9	18.4	7.3	8.6	0.033	10	0.1
2 🛆	,					-					
3 □			1								
			Material	Description	<u> </u>			Max.	Optimum		

USCS Dens. Moisture ΡI LL (pcf) (%) Brown, Sandy lean CLAY (CL) with trace fine Gravel CL112.6 14.1 10

Project No: K4235044

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Location: See Attached Boring Location Plan

Sample Number: CBR #1

Depth: 0.5-2 Ft.

Date: 6/16/2023

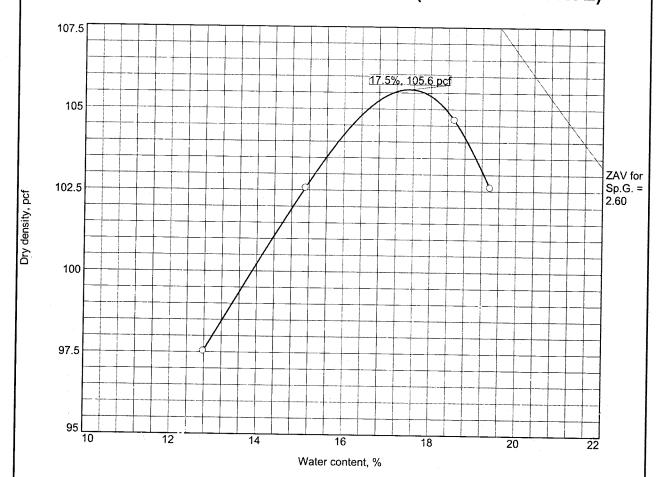
Test Description/Remarks:

CBR #1

Sample Obtained: 6/16/2023 Sample Tested: 6/16/2023 Resiliency Factor = 2.0

Figure 1a

MOISTURE DENSITY TEST REPORT (PROCTOR CURVE)

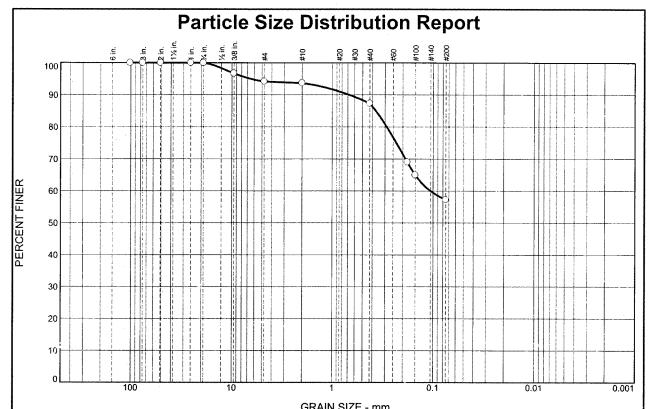


Test specification: ASTM D 698-12 Method A Standard

Elev/	Classi	Classification					% >	% <
Depth	USCS	AASHTO	Moist.	Sp.G.	LL	PI	#4	No.200
0.7-2 Ft.	CL	A-6(5)	19	Estimated 2.6	30	15	5.8	57.2

0.7-2 Ft.	CL	A-6(5)	19	Estimated 2.6	30	15	5.8	57.2		
		TEST RESULTS		***	MATERIAL DESCRIPTION					
Maximum o	dry density = 105.6	pcf			Dark brov		ean CLAY (C	L) with trace		
-	noisture = 17.5 %			****	0.4.01					
Project No.		t: MEB General Contractors			Remark	Remarks: CBR #2				
Project: Wi	lliamsburg Sports & E	ntertainment Complex - Phase	: 1		1					
Ol ocation: S	Son Attached Desire I	101 TO			Sample C	Obtained: 6/ Fested: 6/16,	16/2023			
CLOCATION, S	CLocation: See Attached Boring Location Plan Sample Number: CBR #2									
			****				Figure	2		

Tested By: A. Kotyk Checked By: J. Wheeler



	ORAN OIZE - IIIII.											
% +3"	% Gr	avel	% Sand			% Fines						
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay					
0.0	0.0	5.8	0.5	6.4	30.1	57.2						

	SIEVE	PERCENT	SPEC.*	FASS?
	SIZE	FINER	PERCENT	(X=NO)
	4"	100.0		
ı	3"	100.0		
	2"	100.0		
	1"	100.0		
	0.75"	100.0		
	0.375"	96.7		
	#4	94.2		
	#10	93.7		
	#40	87.3		
	#80	69.0		
- 1	#100	65.0		•
	#200	57.2		
١				
ı				

Soil Description									
Dark brown, Sandy	lean CLAY (CL) with t	race fine Gravel							
	Atterberg Limits								
PL= 15	LL= 30°	Pi= 15							
D ₉₀ = 0.6799 D ₅₀ = D ₁₀ =	Coefficients D85= 0.3703 D30= Cu=	D ₆₀ = 0.1063 D ₁₅ = C _c =							
USCS= CL	Classification AASHTO=	A-6(5)							
	Remarks								
CBR #2									
Sample Obtained: 6	5/16/2023								
Sample Tested: 6/1	6/2023	j							

* (no specification provided)

Location: See Attached Boring Location Plan Sample Number: CBR #2 Depth: 0.7-2 Ft.

Date: 6/16/2023



Client: MEB General Contractors, Inc.

Project: Williamsburg Sports & Entertainment Complex - Phase 1

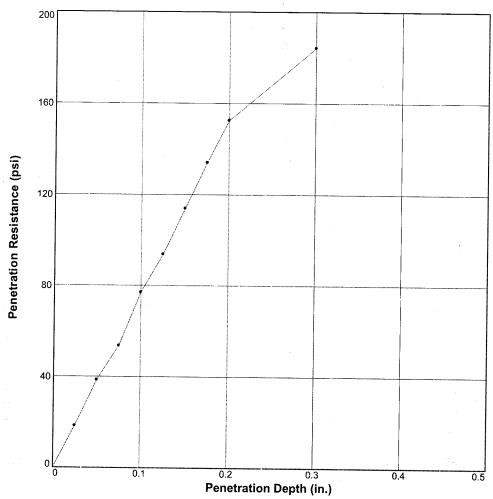
Project No: K4235044

Figure 2b

Tested By: A. Kotyk

Checked By: J. Wheeler

BEARING RATIO TEST REPORT ASTM D1883-16



		Molded			Soaked		CBF	र (%)	Linearity		
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	alircharge	Max. Swell (%)
1 0	109.1	100	13.7	109.0	99.9	15.6	9.2	10.6	0.022	10	0.1
2 △						***************************************					
3 🗆											
			Material	Description			USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brow	n, Sandy S	ILT (ML)					ML	109.1	14.2	ŅV	NP

Project No: K4235044

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Location: See Attached Boring Location Plan

Sample Number: CBR #3

Depth: 0.5-2 Ft.

<u>lerracon</u>

Date: 6/16/2023

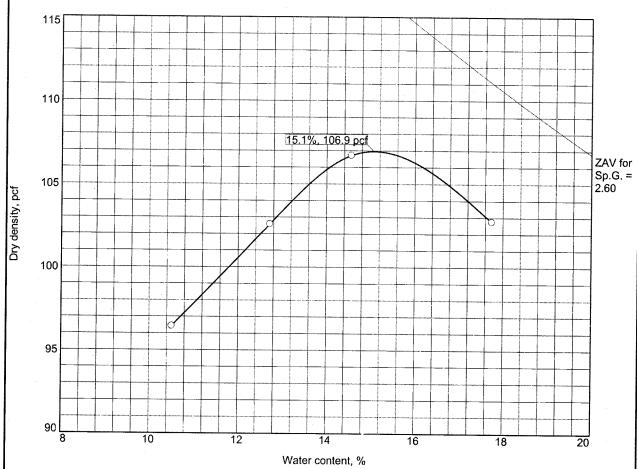
CBR #3

Sample Obtained: 6/16/2023
Sample Tested: 6/16/2023
Resiliency Factor = 2.5

Figure 3a

Test Description/Remarks:



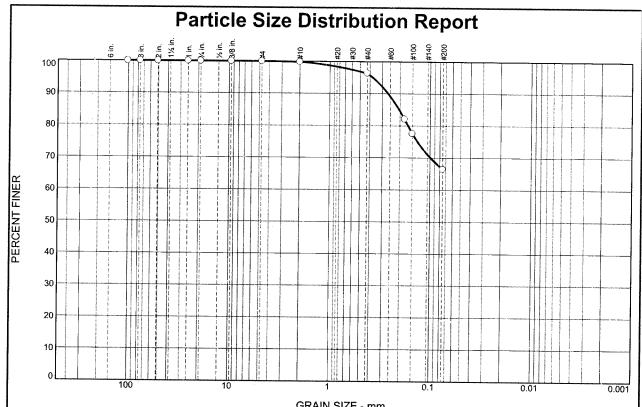


Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Class	Classification					%>	% <
	USCS	AASHTO	Moist.	Sp.G.	LL	Pi	#4	No.200
0.5-2 Ft.	CL	A-4(4)	7	Estimated 2.6	25	10	0.0	66.4

TEST RESULTS		MATERIAL DESC	CRIPTI	ION	
Maximum dry density = 106.9 pcf Optimum moisture = 15.1 %		brown, Sandy lean trace fibrous organ			
Project No. K4235044 Client: MEB General Contractors, Inc. Project: Williamsburg Sports & Entertainment Complex - Phase 1	CBR #4 Sample	Remarks: CBR #4 Sample Obtained: 6/19/2023			
CLocation: See Attached Boring Location Plan Sample Number: CBR #4	Sample	Tested: 6/20/2023 Fig	ure	./- 4	

Tested By: A. Kotyk Checked By: J. Wheeler



GRAIN SIZE - mm. % Sand % Gravel % Fines Coarse Fine Medium Fine Silt Clay 0.0 0.0 0.0 0.2 3.5 29.9 66.4

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
4"	100.0		
3"	100.0		
2"	100.0		
1"	100.0		
0.75"	100.0		
0.375"	100.0		
#4	100.0		
#10	99.8		
#40	96.3		
#80	82.1		
#100	77.5		
#200	66.4	į	

	Soil Description								
Light brown, Sand material	Light brown, Sandy lean CLAY (CL) with trace fibrous organic material								
PL= 15	Atterberg Limits LL= 25	PI= 10							
D ₉₀ = 0.2635 D ₅₀ = D ₁₀ =	<u>Coefficients</u> D ₈₅ = 0.2042 D ₃₀ = C _u =	D60= D15= C _c =							
USCS= CL	Classification AASHTC)= A-4(4)							
CDD #4	<u>Remarks</u>								
CBR #4									
Sample Obtained:	6/19/2023								
Sample Tested: 6/	19/2023								

(no specification provided)

Location: See Attached Boring Location Plan Sample Number: CBR #4 Depth: 0.5-2 Ft.

Date: 6/19/2023



Client: MEB General Contractors. Inc.

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Project No: K4235044

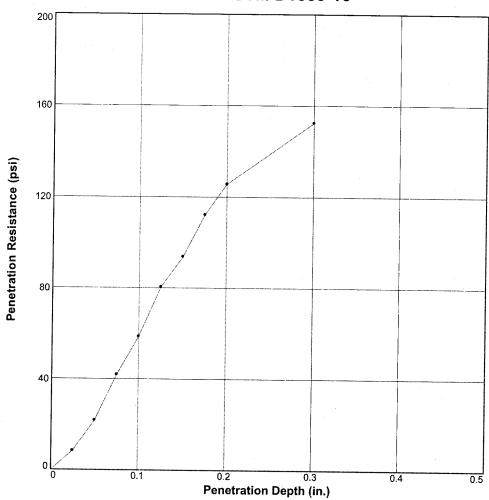
Figure

4b

Tested By: A. Kotyk

Checked By: J. Wheeler

BEARING RATIO TEST REPORT ASTM D1883-16



-		Molded			Soaked		CBF	R (%)	Linearity	<u> </u>	
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	Surcharge (lbs.)	Max. Swel (%)
1 0	112.2	100	13.2	112.0	99.9	16.6	8.2	8.9	0.028	10	0.1
2 🛆								W			
3 🗆							·				
			Material	Description			USCS	Max. Dens.	Optimum Moisture	LL	PI
Brow	n, Sandy le	ean CLAY (C	L) with trace	e fibrous or	ganic materia	1	CL	(pcf)	(%)	28	0

Project No: K4235044

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Location: See Attached Boring Location Plan

Sample Number: NCBR #1

Depth: 0.7-2 Ft.

Date: 9/29/2023

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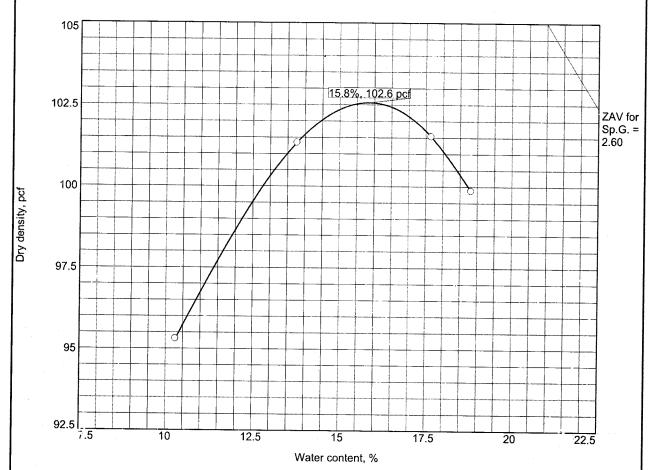
Test Description/Remarks:

NCBR #1

Sample Obtained: 9/29/2023 Sample Tested: 9/29/2023 Resiliency Factor = 2.5

Figure 5a



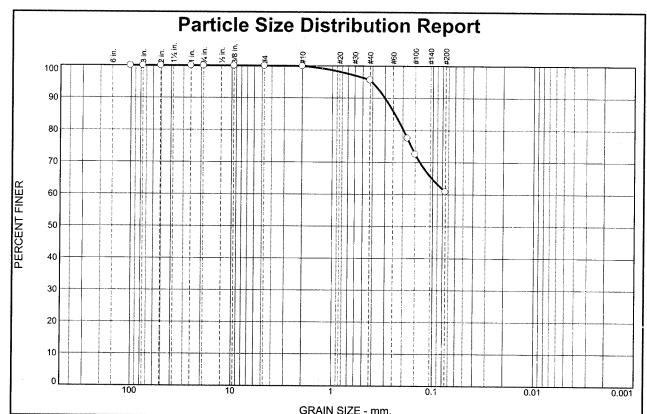


Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat.				%>	% <
	USCS	AASHTO	Moist.	Sp.G.	LL	PI	#4	No.200
0.8-2 Ft.	CL	A-4(2)	17	Estimated 2.6	23	8	0.0	60.9

11 .(2)	17	2.6	23		0.0	60.9
EST RESULTS				MATERIAL	. DESCRIPT	TION
ocf			Brown			
				norous o	rganic materi	aı
MEB General Contractors	, Inc.		Remark	s:		
ertainment Complex - Phase	:1 -		ll l			
ation Plan Sample N	Number: N	CBR #2	Sample	Fested: 9/29	/2023	
rracor			A constraint of the constraint		Figure	6
	MEB General Contractors ertainment Complex - Phase ation Plan Sample I	TEST RESULTS OCF MEB General Contractors, Inc. ertainment Complex - Phase 1	MEB General Contractors, Inc. ertainment Complex - Phase 1 ation Plan Sample Number: NCBR #2	MEB General Contractors, Inc. ertainment Complex - Phase 1 ation Plan Sample Number: NCBR #2 Remark NCBR # Sample 6 Sample 6	MEB General Contractors, Inc. ertainment Complex - Phase 1 ation Plan Sample Number: NCBR #2 MATERIAL Brown, Sandy lear fibrous o Remarks: NCBR #2 Sample Obtained: 9/ Sample Tested: 9/29	### Page 1 Page 2.6 Page 3

Tested By: A. Kotyk Checked By: J. Wheeler



				JIVAIN SIZE -	111111.		
% +3 "	% Gı		<u> </u>	% Sand		% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	4.3	34.7	60.9	

SIEVE	PERCENT	SPEC.*	PASS?
SIZE	FINER	PERCENT	(X=NO)
4"	100.0		
3"	100.0		
2"	100.0		
1"	100.0		
0.75"	100.0		
0.375"	100.0		
#4	100.0		
#10	99.9		
#40	95.6		
#80	77.6		
#100	72.6		
#200	60.9		

D 0	Soil Description	
Brown, Sandy lea	in CLAY (CL) with tra-	ce fibrous organic materi
	Atterberg Limits	
PL= 15	LL= 23	PI= 8
	Coefficients	
D ₉₀ = 0.3018 D ₅₀ =	$D_{85} = 0.2399$	D ₆₀ =
D50- D10=	D30= Cu=	D15= C-=
- 10	~u	C
USCS= Ci.	Classification AASHT	O- 4 4(2)
0000- CE	AASITT	$O = A_{-4}(2)$
	Remarks	
NCBR #2		
Sample Obtained:	9/29/2023	
Sample Tested: 9/	29/2023	

* (no specification provided)

Location: See Attached Boring Location Plan Sample Number: NCBR #2 Depth: 0.8-2 Ft.

Date: 9/29/2023



Client: MEB General Contractors, Inc.

Project: Williamsburg Sports & Entertainment Complex - Phase 1

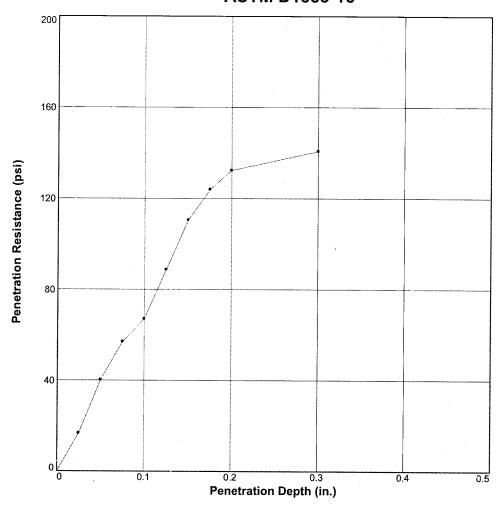
Project No: K4235044

Figure

Tested By: A. Kotyk

Checked By: J. Wheeler

BEARING RATIO TEST REPORT ASTM D1883-16



		Molded			Soaked		CBI	₹ (%)	Linearity		Max.
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.	Correction (in.)	Surcharge (lbs.)	Swell (%)
1 0	116.8	100	11.2	116.7	99.9	14.4	8.2	8.9	0.017	10	0.1
2 🛆						·					
3 □										, ,	

Material Description	uscs	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Brown, Sandy lean CLAY (CL)	CL	116.8	11.7	27	13

Project No: K4235044

Project: Williamsburg Sports & Entertainment Complex - Phase 1

Location: See Attached Boring Location Plan

Sample Number: NCBR #3 Depth: 1-2 Ft.

Date: 9/29/2023

<u>llerracon</u>

Test Description/Remarks:

NCBR #3

Sample Obtained: 9/29/2023 Sample Tested: 9/29/2023 Resiliency Factor = 2.0

Figure 7a

Subsurface Exploration and Geotechnical Engineering Report

Williamsburg Sports and Entertainment Complex - Phase 1 (Rev. 1) | Williamsburg, VA October 30, 2023 | Terracon Project No. K4235044



INFILTRATION TESTING

Constant-Head Borehole Permeameter Infiltration testing was performed at boring locations and depths as directed by the client. The individual test location boreholes were prepared utilizing a planar auger to remove soil cuttings from the base. Permeability testing was then conducted utilizing an Johnson PermeameterTM. Based on the field testing and corroborated with laboratory testing results, the hydraulic conductivity of the soils is presented in the Table below. Comprehensive hydraulic conductivity worksheets are provided in the **Supporting Information** section of this report.

Infiltration Test Results

Boring ID	Test Depth Below Grade (ft)	Ksat Value (in/hr)	Ksat Value (cm/sec)	Ksat Class	USCS Classification
INF-1	10	0.005	3.75 x 10 ⁻⁶	Low	CL
INF-2	10	0.005	3.67 x 10 ⁻⁶	Low	CH
NBMP-1	10	0.050	3.53 x 10 ⁻⁵	Moderately Low	SC
- NBMP-2	10	0.006	4.48 × 10 ⁻⁶	Low	СЦ

The infiltration test results provided in this report are the result of permeability testing at the locations and depths indicated and do not include a safety factor. Varying site conditions, including soil composition, soil density, stratum depth, and stratum thickness should be expected throughout the site. As such, the permeability test results should not be assumed for all locations and depths across the project site.

Constant-Head Borehole Permeameter Test

Analytical Method: Glover Solution



three or four			graph.	stabilized values and analyzing the graph.	rapilized values	1 hr 45 min	Init. Saturation Time.:	60.5	Struct./% Pass. #200.:
*L \ £	ults for the fir	aging and/or round	rmined by aver	d field Ksat is dete	Votes: Estimated	N/A			USDA Txt./USCS Class:
0.005 0.010	0.317 0.	3.67E-06	0.000	Field-Estimated Ksat:	Field-Es	N/A	1	8	Natural Moisture:
	-								
							The state of the s		The second secon
	0.310	3.59E-06	0.000	0.37	2.73	0:02:44	2:15:25 PM		OTT
	0.318 C	3.68E-06	0.000	0.38	2.67	0:02:40	2:12:41 PM	-	110
	0.312	3.62E-06	0.000	0.37	2.72	0:02:43	2:10:01 PM		1112
		3.68E-06	0.000	0.38	2.67	0:02:40	2:07:18 PM		113
		3.68E-06	0.000	0.38	2.67	0:02:40	2:04:38 PM	1	114
		3.75E-06	0.000	0.38	2.62	0:02:37	2:01:58 PM	1	115
		3.66E-06	0.000	0.37	2.68	0:02:41	1:59:21 PM	-	110
0.005 0.011	0.324	3.75E-06	0.000	0.38	2.62	0:02:37	1:56:40 PM	.	11/
0.005 0.011	0.322	3.73E-06	0.000	0.38	2.63	0:02:38	1:54:03 PM		110
0.005 0.010	0.309	3.57E-06	C.000	0.36	2.75	0:02:45	1:51:25 PM		110
							1:48:40 PM		110
(ft/day)	(cm/day) (in/hr)	(cm/sec)	(cm/min)	(ml/min)	(min)	(hr:min:sec)	(nama:ss A/P)	(1111)	120
	Ksat _B Equivalent Values	Ksat _B		Flow Rate Q	Time	Interval Elapsed Time	/h.m.m.n. / /h)	(ml)	(ml)
rrection]	$Ksat_b = QV[sinh^{-1}(H/r) - (r^2/H^2+1)^{-5} + r/H]/(2\pi H^2)$ [Tmp. Correction]	դի ⁻¹ (H/r) - (r²/H²+	Ksat _B = QV[sir	kg/m·s	0.001003 kg/m·s	Dyn. Visc. @ T _B °C.:		U.UUIUZ8 kg/m·s	VOLLIME
ver Solu.]	at = $Q[\sinh^{-1}(H/r) - (r^2/H^2+1)^{-5} + r/H]/(2\pi H^2)$ [Basic Glover Solu.]	⁻¹ (H/r) - (r ² /H ² +1)	Ksat = Q[sinh		4.0	H/r		19	Soil/Water Imp. T:
) T _B	Dyn. Visc. of water @ Tmp. T °C/Dyn. Visc. of water @ T _B	of water @ Tmp.	V: Dyn. Visc.	cm	19.1 cm	Const. Wtr. Ht. H:		4.75 cm	Boring Kadius r:
	rehole	Radius of the cylindrical borehole	r: Radius of	â	4.1 cm	WCU Susp. Ht. S:	m	9.5 cm	Boring Diameter:
	n the borehole	Constant height of water in the borehole	H: Constant	cm	15.0 cm	WCU Base Ht h:	10 ft (m, cm, ft, in)	10 ft	Boring Depth:
	the borehole	Rate of flow of water from the borehole	Q: Rate of flo		7/13/2023	Date:		C. Hayes	investigators
. 20	Ksat _B : (Coefficient of Permeability) @ Base Tmp. T _B (°C)	icient of Permeak	Ksat _B : (Coeff	, VA	Williamsburg, VA	Proj. Location:		INF-2	Boring No
ution)*	Terminology and Solution (R. E. Glover Solution)	Terminology and			K4235044	Project No:		Complex - Phase 1	Project Name:
							Williamsburg Sports and Entertainment	Williamsburg Sport	

Glover, R. E. 1953. Flow from a test-hole located above groundwater level, pp. 69-71. in: Theory and Problems of Water Percolation. (C. N. Zanger. ed.). USBR. The condition for this solution exists when the located above groundwater level, pp. 69-71. in: Theory and Problems of Water Percolation. (C. N. Zanger. ed.). USBR. The condition for this solution exists when the located above groundwater level, pp. 69-71. in: Theory and Problems of Water Percolation. (C. N. Zanger. ed.). USBR. The condition for this solution exists

Constant-Head Borehole Permeameter Test

Analytical Method: Glover Solution



							3 flours	init. Saturation Time.:	23.5%	Struct./% Pass. #200.:
r four	Notes: Estimated field Ksat is determined by averaging and/or rounding of test results for the final three or four stabilized values and analyzing the graph.	ounding of test resu	raging and/or ro	ermined by ave e graph.	Notes: Estimated field Ksat is determined stabilized values and analyzing the graph.	Notes: Estimat stabilized value	13'	Water Table Depth:		USDA Txt./USCS Class:
0.013	0.006	0.387	4.48E-06	0.000	Field-Estimated Ksat:	Field-I	Very stiff	Consistency	15.9%	Natural Moisture:
										-
										٠
										·
						-				

0.013	0.007	0.404	4.68E-06	0.000	0.48	2.10	0:02:06	4:22:05 PM	1	110
0.013	0.006	0.389	4.50E-06	0.000	0.46	2.18	0:02:11	4:19:59 PM	1	111
0.014	0.007	0.414	4.79E-06	0.000	0.49	2.05	0:02:03	4:17:48 PM	1-3	112
0.013	0.007	0.411	4.75E-06	0.000	0.48	2.07	0:02:04	4:15:45 PM	1	113
0.013	0.007	0.398	4.60E-06	0.000	0.47	2.13	0:02:08	4:13:41 PM	1	114
0.013	0.006	0.395	4.57E-06	0.000	0.47	2.15	0:02:09	4:11:33 PN	1	115
0.012	0.006	0.366	4.24E-06	0.000	0.43	2.32	0:02:19	4:09:24 PM	1	116
0.012	0.006	0.364	4.21E-06	0.000	0.43	2.33	0:02:20	4:07:05 PM	1	117
0.011	0.006	0.339	3.93E-06	0.000	0.40	2.50	0:02:30	4:04:45 PM	1	118
0.013	0.006	0.392	4.53E-06	0.000	0.46	2.17	C.02:10	4:02:15 PM		119
								4:00:05 PM	1822	120
(ft/day)	(in/hr)	(cm/day)	(cm/sec)	(cm/min)	(ml/min)	(min)	(hr:min:sec)	(h:mm:ss A/P)	(ml)	(ml)
	ues	Ksat _B Equivalent Values	Ksat		Flow Rate Q	d Time	interval Elapsed Time	TIME	Volume Out	VOLUME
_	t_{B} = QV[sinh ⁻¹ (H/r) - (r ² /H ² +1) ⁻⁵ + r/H]/(2 π H ²) [Tmp. Correction]	¹² +1) ^{.5} + r/H]/(2πH	h-1(H/r) - (r2/H	$Ksat_{\theta}=QV[sin$		0.001003 kg/m·s	Dyn. Visc. @ T _B °C.:		0.001028 kg/m·s	Dyn. Visc. @ T °C.:
	$t = Q[\sinh^{-1}(H/r) - (r^2/H^2+1)^{-5} + r/H]/(2\pi H^2)$ [Basic Glover Solu.]	$(-1)^{.5} + r/H]/(2\pi H^2)$	$^{-1}(H/r) - (r^2/H^2 +$	Ksat = Q[sinh		4.0	H/r*		19 °C	Soil/Water Tmp. T:
	of water @ T _B	V: Dyn. Visc. of water @ Tmp. T °C/Dyn. Visc. of water @	of water @ Tm	V: Dyn. Visc.	G H	19.1 cm	Const. Wtr. Ht. H:		4.75 c	Boring Radius r:
		orehole	r: Radius of the cylindrical borehole	r: Radius of t	CE .	4.1 cm	WCU Susp. Ht. S:	T	9.5 cm	Boring Diameter:
		H: Constant height of water in the borehole	leight of water	H: Constant h	cm	15.0 cm	WCU Base Ht. h:	10 ft (m, cm, ft, in)	10 ft (ı	Boring Depth:
		Q: Rate of flow of water from the borehole	w cf water from	Q: Rate of flo		10/13/2023			C. Hayes, H. Hubbard	Investigators:
20	mp. T _B (°C)	$t_{\rm b}$: (Coefficient of Permeability) @ Base Tmp. $T_{\rm b}$ (°C)	cient of Perme	Ksat _B : (Coeffice		Williamsburg, VA	••		NBMP-2	Boring No
	Terminology and Solution (R. E. Glover Solution)	nd Solution (R. E.	erminology an	Т		K4235044	Project No:	Williamsburg Sports and Entertainment Complex - Phase 1	Complex - Phase 1	Project Name:

Glover, R. E. 1953. Flow from a test-hole located above groundwater level, pp. 69-71. in: Theory and Problems of Water Percolation. (C. N. Zanger, ed.). USBR. The condition for this solution exists when the stance from the bottom of the borehole to the water table or an impervious layer is at least twice the water in the well. "H/r>5 to >10 Johnson Permeameter, LLC Revised 11/29/13



General Notes

Sampling	Water Level		Field Tests
∏ , √/ Standard	✓ Water Initially Encountered	N	Standard Penetration Test Resistance (Blows/Ft.)
Auger Cuttings Standard Penetration Test	Water Level After a Specified Period of Time	(HP)	Hand Penetrometer
AND THE PROPERTY OF THE PROPER	Water Level After a Specified Period of Time	(T)	Torvane
A CONTRACTOR OF THE PARTY OF TH	Cave In Encountered	(DCP)	Dynamic Cone Penetrometer
	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times	UC	Unconfined Compressive Strength
	indicated. Groundwater level variations will occur over time. In low permeability soils, accurate	(PID)	Photo-Ionization Detector
2.000 (1.	determination of groundwater levels is not possible with short term water level observations.	(OVA)	Organic Vapor Analyzer

Descriptive Soil Classification

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

Location And Elevation Notes

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- Indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

		Strength Term	s and the second	
(More than 50% ret Density determined	f Coarse-Grained Soils ained on No. 200 sieve.) by Standard Penetration sistance	Consistency dete	Consistency of Fine-Grained Soi (50% or more passing the No. 200 signified by laboratory shear strength test procedures or standard penetration resis	ive.) ing, field visual-manual
Relative Density	Standard Penetration or N-Value (Blows/Ft.)	Consistency	Unconfined Compressive Strength Qu (tsf)	Standard Penetration or N-Value (Blows/Ft.)
Very Loose	0 - 3	Very Soft	less than 0.25	0-1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	5 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	16 - 30
		Hard	> 4.00	` > 30

Relevance of Exploration and Laboratory Test Results

Exploration/field results and/or laboratory test data contained within this document are intended for application to the project as described in this document. Use of such exploration/field results and/or laboratory test data should not be used independently of this document.



USDA

Natural Resources Conservation Service

Web Soil Survey National Cooperative Soil Survey 10/25/2023 Page 1 of 3

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
11C	Craven-Uchee complex, 6 to 10 percent slopes	1.5	11.3%
29B	Slagle fine sandy loam, 2 to 6 percent slopes	12.0	88.7%
Totals for Area of Interest		13.6	100.0%

General Conditions of Contract Between

The Historic Triangle Recreational Facility Authority

And

MEB General Contractors, Inc.

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Article 1 General

1.1 Mutual Obligations.

- **1.1.1** Owner and Design-Builder commit at all times to cooperate fully with each other and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.
- 1.2 Basic Definitions. (Capitalized terms not otherwise defined herein shall have the meaning as defined in the Comprehensive Agreement).
- **1.2.1** Agreement refers to the executed Comprehensive Agreement between Owner and Design-Builder.
- **1.2.2** Basis of Design Documents are the 35% Comprehensive Agreement Documents submitted by the Design-Builder to the Authority on November 30, 2023, attached to the Comprehensive Agreement as Exhibit A.
- **1.2.3** Construction Documents are the documents, consisting of Drawings and Specifications, to be prepared or assembled by Design-Builder consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order executed by both Owner and Design-Builder, as part of the design review process contemplated by Section 2.4 of these General Conditions of Contract.
- **1.2.4** Day or Days shall mean calendar days unless otherwise specifically noted in the Contract Documents.
- **1.2.5** Design-Build Team is comprised of Design-Builder, the Design Consultant, and key Subcontractors identified by Design-Builder.
- 1.2.6 Designer is a qualified, licensed design professional who is an employee of Design-Builder or is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of the Designer, but is retained by the Designer or employed or retained by anyone under contract to Designer, to furnish design services required under the Contract Documents.
- **1.2.7** Final Completion is the date on which all Work is complete in accordance with the Contract Documents, including but not limited to, any items identified in the punch list prepared under Section 6.6.1 and the submission of all documents set forth in Section 6.7.2.
- 1.2.8 Force Majeure Events are those events that are beyond the control of both Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes,

epidemics, unusually severe weather conditions not reasonably anticipated, and other acts of God.

- **1.2.9** General Conditions of Contract refer to this DBIA Document No. 535, Standard Form of General Conditions of Contract Between Owner and Design-Builder (2010 Edition), as modified by the Parties.
 - **1.2.10** Omitted.
 - **1.2.11** Omitted.
- **1.2.12** Hazardous Conditions are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.
- 1.2.13 Legal Requirements are all applicable federal, state and local laws, codes, ordinances, rules, regulations, standards, requirements, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work including, without limitation the most current Virginia Uniform Statewide Building Code the Americans with Disabilities Act. All publications and other documents (such a manuals, handle codes, standards, and specifications) cited to in this Agreement for the purpose of establishing requirements applicable to equipment, materials, or workmanship are hereby incorporated by reference in this Agreement.
 - **1.2.14** Omitted.
 - **1.2.15** Site is the land or premises on which the Project is located.
- **1.2.16** Subcontractor is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.
- **1.2.17** Sub-Subcontractor is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of a Subcontractor's Work and shall include materialmen and suppliers.
- 1.2.18 Substantial Completion or Substantially Complete means the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents, including an occupancy permit, commissioning and punch list (other than cosmetic items), so that it may be utilized and can be used for all of its intended uses, including that the Project is ready to accept move-in by Owner and all life/safety items are operational, and other items that are critical in nature are complete.

1.2.19 Work is comprised of all Design-Builder's design, construction and other services required by the Contract Documents, including procuring and furnishing all materials, equipment, services and labor reasonably inferable from the Contract Documents.

1.3 Additional Definitions

- **1.3.1** Contract Price means the amount established as the lump sum payable to Design-Builder, as increased or decreased due to Change Orders.
- **1.3.2** Contractor or Prime Construction Contractor means Design-Builder or, where appropriate, the entity to which Design-Builder subcontracts its responsibility for the construction portion of the work under the agreement. If Design-Builder has proposed the Construction Contractor for the Project in its proposals to the Owner, Design-Builder shall use Construction Contractor for the Project unless the Owner in its sole discretion approves otherwise in writing.
- **1.3.3** Defect, Defective, or Deficient is an adjective or noun which when modifying or referring to the word Work refers to Work or any part thereof that is unsatisfactory or faulty or does not conform to the Contract Documents, or does not meet the requirements of any inspections, standards, tests or approvals referred to in the Contract Documents.
- **1.3.4** *Drawings and Specifications* mean the surveys, drawings and specifications that Design-Builder causes to be prepared for the Project that are approved by Owner, Designer and Design-Builder.
- **1.3.5** Fixed Fees mean the amounts payable to Design-Builder as specified in any later negotiated Comprehensive Agreement for the Services in addition to Reimbursable Costs.
- **1.3.6** Person(s) or person(s) means any individual, partnership, joint venture, association, joint-stock company, corporation, limited liability company, trust, unincorporated organization, government or any agency or political subdivision thereof, or any other legal entity.
- **1.3.7** Project Schedule means the schedule for design and construction of the Project, which, in its initial version, is set forth in Exhibit 1-4 Project Schedule attached to the Agreement.
- **1.3.8** Reimbursable Costs mean the amounts payable to Design-Builder as specified in any later negotiated Comprehensive Agreement for the Services in addition to the Fixed Fees.
 - **1.3.9** Requisition means an application for payment.
- **1.3.10** Scope of Work means all the work and materials for the Project required by this Agreement to be provided by Design-Builder, and that may be required to result in a fully

functional and properly operating Project, and all of which shall be provided by Design-Builder, within the Contract Price as reflected in the 35% Design Development Submission, attached to the Comprehensive Agreement as Exhibit 1, except as may be modified by any Change.

- **1.3.11** Services means all pre-construction and development services and all architectural and engineering design, procurement and construction services related to the Project furnished by Design-Builder, including, without limitation, all labor, services, materials and facilities, and all other things that are required to provide for the development of the site and the design, construction and equipping of the Project so that such Project is properly completed. Services are a part of the Work.
- **1.3.12** Unusually Severe Weather. Weather shall be considered "unusually severe", only if a weather condition (or any combination of weather conditions) prevents the Design-Builder from working a number of workdays during a calendar month, which number exceeds the number of workdays listed below for that calendar month. Delays will only be allowed for the number of lost workdays in excess of the following:

January – six (6) days

July – four (4) days

February – four (4) days August – three (3) days

March 4 – four (4) days September – three (3) days

April – three (3) days October – three (3) days

May – four (4) days

November – three (3) days

June – four (4) days December – five (5) days

The Contractor shall anticipate the potential loss of the number of workdays listed above for each calendar month due to weather and shall schedule the Work accordingly. Any schedules submitted shall include the above number of days each month as lost days. The Owner shall determine, upon examination of submitted evidence, whether or not weather prevented the Contractor from performing Work on the days claimed by the Contractor. The Owner's determination shall be final and binding upon the parties.

Article 2 Design-Builder's Services and Responsibilities

2.1 General Services.

2.1.1 Design-Builder's Representative shall be reasonably available to Owner and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with Owner and shall be vested with the authority

to act on behalf of Design-Builder. Design-Builder's Representative may be replaced only with the mutual agreement of Owner and Design-Builder.

- **2.1.2** Design-Builder shall provide Owner with a monthly status report detailing the progress of the Work, including (i) whether the Work is proceeding according to schedule, (ii) whether discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution, (iii) whether health and safety issues exist in connection with the Work, (iv) [reserved], and (v) other items that require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price and within the Contract Time(s).
- 2.1.3 Design-Builder shall prepare and submit a schedule in accordance with Supplemental Condition, Section 8.1, at least three (3) days prior to the meeting contemplated by Section 2.1.4 hereof, a schedule for the execution of the Work for Owner's review and response. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). On a monthly basis, the schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner's review of, and response to, the schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.
- **2.1.4** The parties will meet within seven (7) days after execution of the Agreement to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to submittals and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

2.2 Design Professional Services.

2.2.1 It is understood and agreed that this Agreement includes design services. Design-Builder shall, consistent with applicable state licensing laws, provide through qualified, licensed design professionals employed by Design-Builder, or procured from qualified, independent licensed Designer or Design Consultants, the necessary design services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. Design-Builder further represents that the structural, electrical, mechanical and other engineering disciplines provided for the design of the Project will be under the direct supervision of licensed professional engineers who are registered in Virginia or who are persons in responsible charge of an engineering firm registered in Virginia. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant.

2.3 Standard of Care for Design Professional Services.

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the design profession practicing under similar conditions on projects of similar complexity at the same time and in the Commonwealth of Virginia.

2.4 Design Development Services.

- 2.4.1 Subject to Section 2.3.1, Design-Builder is responsible to Owner for the professional quality, technical accuracy, and coordination of all designs, drawings, specifications, and other Services furnished by Design-Builder's design professionals under this Agreement. Design-Builder must, without any changes to the Contract Price or schedule, correct any errors or deficiencies in any of the designs, drawings, specifications, and other Services, all at no costs to Owner, and, provided that such errors or deficiencies do not arise out of, or as a result of, information or directives furnished by Owner or Owner's Representative, and further provided, that because of such errors or deficiencies the Work does not conform to the requirements of this Agreement. Design-Builder shall, consistent with the Comprehensive Agreement, prepare the interim design submissions described therein which interim design submissions may include design criteria, drawings, diagrams and specifications setting forth the Project requirements. Interim design submissions shall be consistent with the Basis of Design Documents, as the Basis of Design Documents may have been changed through the design process set forth in this Section 2.4.1. On or about the time of the scheduled submissions, Design-Builder and Owner shall meet and confer about the submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any changes to the Basis of Design Documents, or, if applicable, previously submitted design submissions. Changes to the Basis of Design Documents, including those that are deemed minor changes under Section 9.3.1, shall be processed in accordance with Article 9. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Following the design review meeting, Owner shall review and approve the interim design submissions and meeting minutes in a time that is consistent with the turnaround times set forth in Design-Builder's schedule.
- 2.4.2 Design-Builder shall submit to Owner Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim design submissions, as such submissions may have been modified in a design review meeting and recorded in the meetings minutes. The parties shall have a design review meeting to discuss, and Owner shall review and approve, the Construction Documents in accordance with the procedures set forth in Section 2.4.1 above. Design-Builder shall proceed with construction in accordance with the approved Construction Documents and shall submit one set of approved Construction Documents to Owner prior to commencement of construction.

- **2.4.3** Owner's review and approval of interim design submissions, meeting minutes, and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with the requirements of the Work. Neither Owner's review nor approval of any interim design submissions, meeting minutes, and Construction Documents shall be deemed to transfer any design liability from Design-Builder to Owner.
- **2.4.4** To the extent not prohibited by the Contract Documents or Legal Requirements, Design-Builder may prepare interim design submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

2.5 Legal Requirements.

- **2.5.1** Design-Builder shall perform the Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.
- **2.5.2** The Contract Price and/or Contract Time(s) shall be adjusted to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

2.6 Licenses, Government Approvals, Permits and Responsibilities.

- **2.6.1** Design-Builder shall identify and obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project.
- **2.6.2** Design-Builder shall provide reasonable assistance to Owner in obtaining those permits, approvals and licenses that are Owner's responsibility.
- **2.6.3** Design-Builder is responsible also for all materials delivered and Work performed until completion and acceptance by Owner of the entire construction Work. There shall be no mark-up on any permit or other costs paid for by the Owner for the items covered by the allowances.
- **2.6.4** Design-Builder shall demonstrate compliance with all environmental permits and regulations identified in the Contract Documents and/or as may be required by law prior to, and during construction.
- **2.6.5** Design-Builder shall pay all fees and charges for temporary connections to outside services and for use of property outside the site, subject to reimbursement as provided by the Contract Documents. Owner will directly pay for permanent utility connection fees for

the facility. Design-Builder shall coordinate permanent utility connections and advise Owner on required fees.

2.7 Design-Builder's Construction Phase Services.

- **2.7.1** Unless otherwise provided in the Contract Documents to be the responsibility of Owner or a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.
- **2.7.2** Design-Builder shall perform all construction activities efficiently and in a good and workmanlike manner and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Design-Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.
- **2.7.3** Design-Builder shall employ only Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Owner may reasonably object to Design-Builder's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance.
- 2.7.4 Design-Builder assumes responsibility to Owner for the proper performance of the Work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.
- **2.7.5** Design-Builder shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with separate contractors under Owner's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.
- 2.7.6 On a daily basis during the progress of the work, Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.
- **2.7.7** Design-Builder must give personal superintendence to the Work either in person or by having a foreman or superintendent on the Prime Construction Contractor's or Design-

Builder's payroll, approved by Owner's Representative, with authority to act on behalf of Design-Builder, on the site at all times Work is in progress.

- **2.7.7.1** A minimum of one such superintendent must be provided on site to be responsible for coordinating, directing, inspecting, and expediting the Work of the Prime Construction Contractor and its subcontractors.
- 2.7.7.2 It is contemplated that all construction Work at the Site will be performed during normal working hours, between the hours of 7:00 a.m. until 7:00 p.m., Monday through Saturday, local time, unless otherwise specified in this Agreement. Design-Builder's material and equipment deliveries must not interfere with the arrival or departure of Owner employees, staff and visitors to existing facilities. The Authority may upon written request from Design-Builder waive or modify this requirement in its sole and exclusive discretion.
- **2.7.8** Design-Builder must refer requests received from occupants of buildings included in the immediate Work area to change the hours of Work, including anticipated cost and schedule impact, to Owner's Representative for consideration of a possible Change Order.
- **2.7.9** Design-Builder shall submit a daily construction report within 3 working days on a form provided by or approved by Owner's Representative or other form customarily used in the industry. The report shall indicate the number of people by trade or craft, and the type and location of Work. The report shall include subcontractors, safety and quality violations observed, corrective measures taken to correct the violations, and other information requested by Owner's Representative. Owner's Representative may modify the requirements of this report as the Project progresses.
- **2.7.10** Owner's Representative may, in writing, require Design-Builder to remove from the Work any employee of Design-Builder, or any subcontractor or its employee, Owner's Representative reasonably deems incompetent, careless, or otherwise objectionable. Design-Builder shall immediately remove from the Work any employee or any subcontractor or its employee so designated. However, if Design-Builder does not agree with such action, Design-Builder may within 3 days request Owner to review and make a decision on the matter, which decision shall be final.

2.8 Design-Builder's Responsibility for Project Safety.

- **2.8.1** Design-Builder is responsible for all injury to persons or damage to property that occurs as a result of its actions. Design-Builder must take proper safety and health precautions to protect the Work, the workers, the public, and the property of others.
- **2.8.2** Design-Builder recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting, (ii) the Work, including materials and equipment incorporated into the Work or

stored on-Site or off-Site, and (iii) all other property at the Site or adjacent thereto. Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. Design-Builder shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, Design-Builder's Safety Representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety. The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

- 2.8.3 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to safety, as well as any Owner-specific safety requirements set forth in the Contract Documents, provided that such Owner-specific requirements do not violate any applicable Legal Requirement. Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Owner's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.
- **2.8.4** Design-Builder's responsibility for safety under this Section 2.8 is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters, and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injuries, losses, damages or accidents resulting from their performance of the Work.

2.9 Design-Builder's Warranty.

2.9.1 Design-Builder represents and warrants that it has the requisite experience, skills, capabilities, and manpower to perform the Obligations in a good and workmanlike fashion. Design-Builder warrants to Owner that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of suitable grade for the purpose intended, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section 2.9 or the Contract Documents. Design-Builder shall provide a list of extended warranties at 100% design development submission that Design-Builder is providing, or will be providing, or is or will be assigning from manufacturers and which shall be in addition to the warranty mentioned above. Design-Builder will provide Owner with all manufacturers' warranties upon Substantial Completion. Design-Builder will also use commercially reasonable efforts to include provisions in the Specifications, that such warranties do not contain any

limitation on liability, any reduction of the applicable statute of limitations, any indemnity requirements from Owner, any venue or forum selection clause other than the City of Williamsburg, Virginia, or any requirement for mediation.

- 2.9.2 Design-Builder warrants Design-Builder's Work for a period of one (1) year from the date of Substantial Completion of the entire Project against defects in workmanship and materials. However, if Owner chooses to take possession and use of a portion of the Project before Substantial Completion of the entire Project, then the one-year warranty on such portion shall begin to run on the date Owner takes possession of that portion. In no event shall Design-Builder's warranty period be less than or terminate earlier than any warranty provision specified in the Contract. Design-Builder's Warranty shall be in addition to, and not in limitation of, any other warranty or remedy required by law or by the Contract Documents.
- 2.9.3 Design-Builder agrees that if warranties set forth in the Contract Documents are in any respect breached, Design-Builder will pay to Owner any direct damages sustained by Owner as a result of such breach up to the full Contract Price agreed to by Owner to be paid for the supplies, materials, equipment or services furnished under the bid or proposal. These rights and remedies are in addition to and do not limit those rights and remedies otherwise available to Owner, except that these rights do not affect the Parties' agreement that liquidated damages constitute the sole damages available to Owner for delayed Substantial or Final Completion of the Project, and do not alter the mutual waiver of consequential damages.

2.10 Correction of Defective Work.

- **2.10.1** All materials and work not conforming to Design-Builder's Warranty, including substitutions not properly approved and authorized, may be considered defective. Design-Builder agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.9 hereof, within a period of one year from: (i) the date of Substantial Completion of the Work, or (ii) the date Owner takes possession of any portion of the Work on such portion, or within such longer period to the extent required by any specific warranty included in the Contract Documents.
- 2.10.2 Design-Builder shall, within seven (7) days of receipt of written notice from Owner that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If Design-Builder fails to commence the necessary steps within such seven (7) day period, Owner, in addition to any other remedies provided under the Contract Documents, may provide Design-Builder with written notice that Owner will commence correction of such nonconforming Work with its own forces. If Owner does perform such corrective Work, Design-Builder shall be responsible for all reasonable costs incurred by Owner in performing such correction, including reasonable attorney's fees. If, in the opinion of Owner, it is not expedient to correct or replace all or any part of rejected work or materials,

then Owner, at its option, may deduct from the payment due, or to become due, to Design-Builder such amounts as, in Owner's judgment, will represent the higher of: (i) the difference between the fair value of the rejected work and materials and the value thereof, if the work had complied with the Contract Documents; or (ii) the cost of correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

- **2.10.3** The one-year period referenced in Section 2.10.1 above applies only to Design-Builder's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Owner may have regarding Design-Builder's other obligations under the Contract Documents.
- **2.10.4** Design-Builder shall obtain each transferable guarantee or warranty of equipment, materials, or installation that is furnished by any manufacturer or installer in the ordinary course of the business or trade. Design-Builder shall obtain and furnish to Owner all information required to make any such guarantee or warranty legally binding and effective and shall submit both the information and the guarantee or warranty to Owner in sufficient time to permit Owner to meet any time limit requirements specified in the guarantee or warranty or, if no time limit is specified, before completion and acceptance of all Work under this Agreement.
- **2.10.5** Owner, by accepting any warranties or guarantees under this Agreement, does not waive any legal right or remedy that Owner otherwise may have for breach of this Agreement and/or for breach of any such warranties or guarantees.

2.11 Use of Premises

[RESERVED]

2.12 Design-Builder's Additional Obligations

- **2.12.1** Unless otherwise specified, or unless directed otherwise by Owner's Representative in writing, Design-Builder shall provide heat as necessary to protect all Work, materials, and equipment against injury from dampness and cold, and in the case of information technology equipment requiring the same, air conditioning, to protect it from heat and humidity.
- **2.12.2** Design-Builder's on-site superintendent must be able to speak, read, and write English to the extent necessary to permit reasonable communication with Owner personnel.
- **2.12.3** Where the Construction Documents permit Design-Builder to propose substitute materials, items, systems, or equipment, the selection of such options is subject to the following conditions:

- **2.12.3.1** Once a substitute has been selected and approved by Owner, it must be used for the entire Project unless Design-Builder has proposed, and Owner has approved, the substitute for a limited application.
- **2.12.3.2** Design-Builder must coordinate its selection with the Plans and Specifications and the Designer.
- **2.12.3.3** Substitutions proposed by Design-Builder shall be at no increase to the Contract Price.
- **2.12.4** Except with Owner's prior written approval, Design-Builder agrees not to refer in its commercial advertising to imply in any manner that Owner endorses its products.

2.12.5 Survey Monuments and Benchmarks.

- **2.12.5.1** Except as otherwise provided in Section 3.2, Design-Builder will establish such general reference points, for written approval by Owner's Representative, as will enable Design-Builder to proceed with the Work. Design-Builder shall provide new monuments where shown or specified. If Design-Builder finds that any previously established reference points have been destroyed or displaced, or that none have been established, Design-Builder shall promptly notify Owner's Representative. Vertical datum shall be based on NAVD 88.
- **2.12.5.2** Design-Builder must protect and preserve established benchmarks and monuments and make no changes in locations without the written approval of Owner. Established reference points that may be lost, covered, destroyed, or disturbed in the course of performance of the Work under this Agreement, or that require shifting because of necessary changes in grades or locations, must (subject to prior approval of Owner's Representative) be replaced and accurately located or relocated (as appropriate) by a licensed engineer or licensed land surveyor.
- **2.12.5.3** New monuments will be six (6) inches square by three (3) feet deep (unless otherwise specified), of concrete or stone, with a 3—inch copper or brass pin, 3/8—inch in diameter, in the center, and must be set flush with the ground or pavement in locations indicated on the site plan.
- **2.12.5.4** Monuments will not be required where lines of buildings are coincident with property lines.
- **2.12.5.5** Design-Builder shall verify the figures shown on the survey and site plan before undertaking any construction Work and will be responsible for the accuracy of the finished Work.

- **2.12.5.6** After completion of construction and before final payment, Design-Builder must furnish Owner blueprints (in triplicate) of plans showing the exact location of construction survey monuments with reference to true property lines.
- **2.12.6** Design-Builder agrees to participate in groundbreaking ceremonies at a time specified by Owner.

Article 3 Owner's Services and Responsibilities

3.1 Duty to Cooperate.

- **3.1.1** Owner shall, throughout the performance of the Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.
- **3.1.2** Owner shall provide timely reviews and approvals of interim design submissions and Construction Documents consistent with the turnaround times set forth in Design-Builder's schedule.
- **3.1.3** Owner shall give Design-Builder timely notice of any Work that Owner notices to be defective or not in compliance with the Contract Documents.

3.2 Furnishing of Services and Information.

- **3.2.1** Unless expressly stated to the contrary in the Contract Documents, Owner shall provide, at its own cost and expense, for Design-Builder's information and use the following, all of which Design-Builder is entitled to rely upon in performing the Work:
 - **3.2.1.1** Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;
 - **3.2.1.2** Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;
 - **3.2.1.3** Temporary and permanent easements or leases, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design-Builder to perform the Work;
 - **3.2.1.4** A legal description of the Site;
 - **3.2.1.5** To the extent available, record drawings of any existing structures at the Site; and

- **3.2.1.6** To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site.
- **3.2.2** Owner is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the Work. Owner is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements.

3.3 Financial Information.

- **3.3.1** Design-Builder shall not be obligated to commence performance under the Agreement until Owner has demonstrated that funds in the amount of the Agreement have been appropriated. If, upon request of Design-Builder, Owner fails to furnish such financial information in a timely manner, Design-Builder may exercise its rights as permitted under the Contract Documents.
- **3.3.2** Design-Builder shall cooperate with the reasonable requirements of Owner's lenders or other financial sources. Notwithstanding the preceding sentence, after execution of the Agreement, Design-Builder shall have no obligation to execute for Owner or Owner's lenders or other financial sources any documents or agreements that require Design-Builder to assume obligations or responsibilities greater than those existing obligations Design-Builder has under the Contract Documents.

3.4 Owner's Representative.

3.4.1 Owner's Representative shall be responsible for providing Owner-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. Owner's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work. Owner's Representative shall communicate regularly with Design-Builder.

3.5 Government Approvals and Permits.

- **3.5.1** Design-Builder shall obtain and pay for all necessary permits, approvals, licenses, government charges and inspection fees.
- **3.5.2** Owner shall provide reasonable assistance to Design-Builder in obtaining those permits, approvals and licenses that are Design-Builder's responsibility.

3.6 Owner's Separate Contractors.

3.6.1 Owner is responsible for all work performed on the Project or at the Site by separate contractors under Owner's control. Owner shall contractually require its separate contractors to cooperate with, and coordinate their activities so as not to interfere with, Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

3.7 Site Visits.

3.7.1 Owner from time to time during construction may desire to conduct groups of guests on visits to the Site. These tours will be authorized by Owner's Representative or his/her appointed representative. In such event Design-Builder shall cooperate by providing reasonable access to and posting signs to give notice of dangerous areas, providing hard hats, and making such other arrangements for the safety and convenience of the guests as may be required. Owner's Representative shall give Design-Builder as much advance notice of any such visits as is practical and to the maximum practicable extent shall schedule any such visits so as not to interfere with the progress of the Work.

3.8 Examination of Records

3.8.1 Design-Builder hereby agrees to retain all books, records, and other documents relative to Design-Builder's Obligations and the Contract Documents for three (3) years after final payment or after all other pending matters are closed, whichever is longer.

3.9 Ownership of Work Product.

[See Comprehensive Agreement Article 5.]

3.10 Partial Occupancy Does Not Constitute Acceptance

- **3.10.1** Owner reserves the right of partial occupancy or use of facilities, services, and utilities, before final acceptance, without implying acceptance of any part of the Project by Owner. Before such occupancy or use, Owner must furnish Design-Builder an itemized list of Work remaining to be performed or corrected. Failure to list an item will not relieve Design-Builder of the responsibility for complying with the terms of the Contract Documents. Responsibility for damage to the Work within the partially occupied area shall be transferred to Owner for any such partial occupancy or use.
- **3.10.2** Costs incurred and delays to the completion of the Project as a direct result of such partial occupancy or use of facilities, services, and utilities are subject to equitable adjustment under Section 9 hereof.

3.11 Owner Property.

- **3.11.1** Owner will provide access to Design-Builder and all rights needed for the Work to the Land.
- 3.11.2 Title to the Land and tangible Owner Property will remain with Owner even if incorporated in or affixed to property not owned by Owner. Design-Builder may use the Land and tangible Owner Property only in connection with this Agreement. Design-Builder must maintain adequate property control records in a form acceptable to Owner's Representative and must make them available for Owner inspection upon request. Owner represents that it has good title to the Land subject to easements and other items of record and the authority to authorize Design-Builder contractors to perform work on such Land provided Design-Builder complies with all applicable laws, ordinances, and regulations regarding work on such Land and obtains all required permits and licenses for such Work. The Land shall be made available to Design-Builder with the notice to proceed with the construction Work.
- **3.11.3** Upon delivery of the tangible Owner Property (other than the Land) to Design-Builder, Design-Builder assumes the risk and responsibility for its loss or damage, except:
 - **3.11.3.1** For reasonable wear and tear;
 - **3.11.3.2** To the extent property is consumed in performing the Agreement; or
 - **3.11.3.3** As otherwise provided in the Contract Documents.

3.11.4 Changes in Owner-Furnished Tangible Property

- **3.11.4.1** Exhibit 1-3 Responsibility Matrix to the Comprehensive Agreement specifies what Tangible Property will be furnished by Owner. By written notice and Change Order, Owner's Representative may (a) decrease the Property provided or to be provided by Owner under this Agreement; or (b) substitute other Owner owned Property for the Property to be provided by Owner, or to be acquired by Design-Builder for Owner under this Agreement. Design-Builder must promptly take any action Owner's Representative may direct regarding the removal and shipping of the Property covered by this notice.
- **3.11.4.2** In the event of any decrease in or substitution of Property pursuant to the above, or any withdrawal of authority to use Property provided under any other contract or lease, or failure of Owner to make Land or tangible property available in a timely manner which Property Owner had agreed in this Agreement to make available., an equitable adjustment will be made in any contractual provisions affected by the decrease, substitution, late delivery or withdrawal, in accordance with the "Changes" clause.

- **3.11.5** Design-Builder must maintain and administer a program or system acceptable to Owner's Representative for the utilization, maintenance, repair, protection, and preservation of Owner Property until it is disposed of in accordance with this Section 3.11.
- **3.11.6** Owner, and any persons designated by it, shall at reasonable times have access to premises where any Owner Property is located for the purpose of inspecting it.
- **3.11.7** Within forty-five (45) calendar days after Notice to Proceed with construction, Design-Builder must submit a schedule to Owner's Representative, in an acceptable format and giving desired dates for delivery of items and Property furnished by Owner. Approved dates of delivery must be confirmed by Owner's Representative in writing. Approved dates of delivery must be confirmed by Design-Builder thirty (30) calendar days prior to scheduled delivery. Design-Builder must submit a written report to Owner's Representative within forty-eight (48) hours after receipt, noting any shortages or damage to Owner-furnished Property, other than for the Land.
- **3.11.8** If Owner-furnished equipment is to be installed and is not on the construction site, Owner will make separate arrangements to provide delivery to the Site. Any costs to Design-Builder for labor associated with loading or unloading this Owner-furnished equipment will be negotiated.
- **3.11.9** Upon Substantial Completion, Design-Builder shall follow Owner's Representative's instructions regarding the disposition of all Owner Property not consumed in performing this Agreement or previously returned to Owner. Design-Builder shall prepare for shipment, deliver f.o.b. origin, or dispose of Owner Property, as directed or authorized by Owner's Representative. The net proceeds of any such disposal will be credited to award amounts due Design-Builder or will be paid to Owner as directed by Owner's Representative.

3.12 Owner Property Furnished "As Is".

- **3.12.1** Except as provided in Article 4 below, Owner makes no warranty whatsoever with respect to the Land and tangible Owner Property furnished "as is" except that such Property is in the same condition specified in the solicitation as when inspected by Design-Builder pursuant to the solicitation or (if not inspected by Design-Builder) as when last available for inspection under the solicitation.
- **3.12.2** Design-Builder may repair any Property made available to Design-Builder "as is." Repair will be at Design-Builder's expense except as otherwise provided in this clause. Such Property may be modified at Design-Builder's expense, but only with the written permission of Owner. Any repair or modification of Property furnished "as is" does not affect the title of Owner.
- **3.12.3** If there is any change (between the time inspected or last available for inspection under the solicitation to the time placed on board at the location specified in the

solicitation) in the condition of tangible Owner Property furnished "as is" that will adversely affect Design-Builder, Design-Builder must, upon receipt of the Property, notify Owner's Representative of that fact, and (as directed by Owner's Representative) either (1) return the Property at the expense of Owner or otherwise dispose of it, or (2) effect repairs to return it to the condition it was in when inspected under the solicitation, or (if not inspected) as it was when last available for inspection under the solicitation. Upon completion of (1) and (2) above, Owner, upon written request from Design-Builder, may equitably adjust any contractual provisions affected by the return, disposition, or repair, in accordance with the "Changes" clause. The foregoing provisions for adjustment are exclusive, and Owner is not liable for any delivery of Owner Property furnished "as is" in a condition other than that in which it was originally offered.

3.12.4 Except as otherwise provided in this section, tangible Owner Property furnished "as is" is governed by this Section 3.12 of this Agreement.

<u>Article 4</u> Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions.

- **4.1.1** Unless otherwise expressly provided in the Contract Documents to be part of the Work, Design-Builder is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, Design-Builder will stop Work immediately in the affected area and duly notify Owner and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project or Site.
- **4.1.2** Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent experts to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.
- **4.1.3** Design-Builder shall be obligated to resume Work at the affected area of the Project only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site.
- **4.1.4** Design-Builder will be entitled, in accordance with these General Conditions of Contract, to an adjustment in its Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by the presence of Hazardous Conditions.

- **4.1.5** To the fullest extent permitted by law, Owner shall indemnify, defend and hold harmless Design-Builder, Designer, Subcontractors, anyone employed directly or indirectly by any of them, and their officers, directors, employees and agents, from and against any and all costs, delays, claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from the presence, removal or remediation of Hazardous Conditions at the Site.
- Notwithstanding the preceding provisions of this Section 4.1, Owner is not 4.1.6 responsible for bodily injury, sickness or death, and property damage or destruction to the extent resulting from the negligent acts, errors or omissions, recklessness or intentionally wrongful conduct of Design-Builder, Designer, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable as the result of (a) Hazardous Conditions introduced to the Site by anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable or (b) Hazardous Conditions on the Site about whose existence the Design-Builder, Subcontractors or anyone for whose acts they may be liable reasonably knows or should have known. To the fullest extent permitted by law, Design-Builder shall indemnify, defend and hold harmless Owner and Owner's officers, directors, employees and agents from any liability, claim, demand, action, cause of action, suit, loss, damage, injury, expense, cost, settlement, or judgment of any kind or nature including but not limited to demands, fines, remediations, or penalties asserted by any governmental entity, as a result of the treatment, storage, disposal, handling, spillage, leakage, or presence in any form in soils, surface waters, ground-waters, air, or property, of any Hazardous Conditions, wastes or "hazardous waste" as defined the Supplemental Conditions of Contract, Section 13.2.3(f), caused or to the extent contributed to by Design-Builder, Subcontractors or anyone for whose acts they may be liable.

4.2 Differing Site Conditions.

- **4.2.1** Concealed or latent physical conditions or subsurface conditions, including protected cultural, historic, or archeological sites, cemeteries, and human remains, at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work are collectively referred to herein as "Differing Site Conditions." If Design-Builder encounters a Differing Site Condition, Design-Builder may be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are adversely impacted by the Differing Site Condition pursuant to documentation acceptable to the Owner of the requested adjustment. Removal of unsuitable soils or other conditions for which an allowance or unit price is provided for in the Contract shall not be considered a Differing Site Condition.
- **4.2.2** During the initial stages of project, prior to the time that the Design-Builder has had sufficient access to the Site to cause a geotechnical engineer selected by it to conduct a geotechnical investigation to its own satisfaction of physical and subsurface conditions at the

Site, Design Builder must, upon encountering a Differing Site Condition, provide prompt written notice to Owner of such condition, which notice shall not be later than fourteen (14) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

- **4.2.3** The Parties agree that as the Scope of Work progresses under this Agreement, however, Design-Builder will have access to and the ability to investigate the Site conditions.
- **4.2.4.a** If Design-Builder encounters Differing Site Conditions the costs of which are greater than \$25,000.00 in the aggregate, Design-Builder will be entitled to: (i) an adjustment in the Contract Price in the amount of 90% of the actual, reasonable costs incurred in excess of \$25,000.00 (which first \$25,000.00 cost shall be paid by Design-Builder); and (ii) an adjustment to the Contract Time(s) to the extent Design-Builder's time of performance is adversely impacted by the Differing Site Condition.
- **4.2.4.b** Upon encountering a Differing Site Condition, Design-Builder shall provide prompt written notice to Owner of such condition, which notice shall not be later than fourteen (14) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.
- **4.2.5** No claim of the Design-Builder for any subsurface or latent conditions or any other Differing Site Conditions will be allowed unless the Design-Builder has given the written notice and otherwise compiled with the requirements of this Section 4.2.

Article 5 Insurance and Bonds

5.1 Design-Builder's Insurance Requirements.

- **5.1.1** Design-Builder shall obtain and maintain during the Contract Period such bodily injury, liability and property damage liability insurance as shall protect it and Owner from claims for damages under the Virginia Workers' Compensation Act, for personal injury including death, as well as from claims for property damage, which could arise from Design-Builder's performance of its Obligations. General Liability and Automobile Liability policies shall name the "The Historic Triangle Recreational Facilities Authority" as an additional insured. Coverage shall be secured from insurance companies authorized to do business in Virginia and with at least an AM Best rating of A-.
 - **5.1.1.1** General Liability: Design-Builder shall maintain a general liability policy with \$5,000,000 combined single limits. Coverage is to be on an occurrence basis. The endorsement must be issued by the insurance company. This coverage shall include contractual liability, underground hazard, explosion and collapse, hazard, property damage,

independent contractor, and personal injury insurance in support of Section 7 of these General Conditions of Contract entitled "Indemnification". This policy shall be endorsed to include Owner as an additional insured during the Contract Period and shall state that this insurance is primary insurance as regards any other insurance carried by Owner.

- **5.1.1.2** <u>Workers' Compensation</u>: Design-Builder shall maintain workers' compensation coverage in compliance with the Virginia Workers' Compensation Act (Act). The insurance shall not have a limit of liability less than the limits imposed by the Act. As an alternative, it is acceptable for Design-Builder to be insured by a group self-insurance association that is licensed by the Virginia Bureau of Insurance.
- **5.1.1.3** Employer's Liability: Design-Builder will also carry employers' liability insurance with a limit of at least \$2,000,000 bodily injury by accident/\$2,000,000 bodily injury by disease policy limit/\$2,000,000 bodily injury by disease each employee.
- **5.1.1.3** Comprehensive Automobile Liability: Design-Builder shall procure and maintain Comprehensive Automobile Liability Insurance covering all automobiles, trucks, tractors, trailers, or other automobile equipment, whether owned, not owned, or hired by Design-Builder, with a limit of at least \$1,000,000 for each occurrence involving personal injury; \$1,000,000 for each occurrence involving property damage; and \$2,000,000 aggregate limits. The coverage is to be written with a symbol "1".
- **5.1.1.4** <u>Professional Liability</u>: Design-Builder will maintain professional liability insurance with a limit of at least \$5,000,000.00 each occurrence, and \$5,000,000.00 in the aggregate. If Design-Builder has professional liability insurance on a *claims made* basis, agreement must be made that coverage will be maintained for at least three years beyond the expiration date of the policy in force at the time of this contract. The foregoing requirement for Professional Liability Insurance may be met by Designer's practice policy.
- **5.1.2** With all policies listed above, the insurer or agent of the insurer must issue a certificate of insurance to show evidence of coverage and provide copies of applicable policies along with applicable endorsements. General Liability and Automobile Liability policies shall include an endorsement listing Owner as additional insured.
- **5.1.3** All wording limiting the insurer responsibility to notify Owner of any cancellation or non-renewal of the coverage must be removed. Insurance policies shall provide for notification to Owner of non-payment of any premium and shall give Owner the right to make the premium payment thereunder within a reasonable time, if the insurance policy is in danger of lapsing during the Contract Period. Any premium payments made by Owner shall be deducted from amounts due Design-Builder under the Agreement.
- **5.1.4** All insurance policies required under this paragraph, or otherwise required by the Contract Documents, shall include a clause waiving any and all subrogation rights against Owner.

- **5.1.5** Design-Builder's insurance shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.
- 5.1.6 Prior to commencing any construction services hereunder, Design-Builder shall provide Owner with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days prior written notice is given to Owner. If any of the foregoing insurance coverages are required to remain in force after final payment are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the Final Application for Payment. If any information concerning reduction of coverage is not furnished by the insurer, it shall be furnished by Design-Builder with reasonable promptness according to Design-Builder's information and belief.
- 5.2 Omitted.
- 5.3 Omitted.
- 5.4 Omitted.

Article 6 Payment

6.1 Schedule of Values.

- **6.1.1** Unless required by Owner upon execution of this Agreement, within ten (10) days of execution of the Agreement, Design-Builder shall submit for Owner's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts, (ii) include values for all items comprising the Work and (iii) serve as the basis for monthly progress payments made to Design-Builder throughout the Work.
- **6.1.2** Owner will timely review and approve the schedule of values so as not to delay the submission of Design-Builder's first application for payment. Owner and Design-Builder shall timely resolve any differences so as not to delay Design-Builder's submission of its first application for payment.

6.2 Monthly Progress Payments.

6.2.1 On a monthly basis, Design-Builder shall submit for Owner's review and approval its Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be consistent with Project Schedule,

and be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.4 hereof.

- **6.2.2** The Application for Payment may request payment for equipment and materials not yet incorporated into the Project, provided that (i) Owner is satisfied as to the quantity, value and delivery of such equipment and materials and that the equipment and materials are suitably stored at either the Site or another acceptable location, (ii) the equipment and materials are protected by suitable insurance and (iii) upon payment, Owner will receive the equipment and materials free and clear of all liens and encumbrances.
- **6.2.3** All discounts offered by Subcontractor, Sub-Subcontractors and suppliers to Design-Builder for early payment shall accrue one hundred percent to Design-Builder to the extent Design-Builder advances payment. Unless Owner advances payment to Design-Builder specifically to receive the discount, Design-Builder may include in its Application for Payment the full undiscounted cost of the item for which payment is sought.
- 6.2.4 The Application for Payment shall constitute Design-Builder's certification that the Work described herein has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Builder's receipt of payment, whichever occurs earlier. This paragraph does not: (i) relieve Design-Builder of responsibility to protect and safeguard materials and Work for which payment has been made or for restoration of any damaged Work; or (ii) waive the right of Owner to require fulfillment of all terms of the contract Documents.

6.3 Withholding of Payments.

- 6.3.1 Within thirty (30) days of receipt of a correct and accurate invoice, Owner shall pay Design-Builder all amounts properly due. If Owner determines that Design-Builder is not entitled to all or part of an Application for Payment as a result of Design-Builder's failure to meet its obligations hereunder, it will notify Design-Builder in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Owner intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Builder must take to rectify Owner's concerns. Design-Builder and Owner will attempt to resolve Owner's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under Article 10 hereof.
- **6.3.2** Notwithstanding anything to the contrary in the Contract Documents, Owner shall pay Design-Builder all undisputed amounts in an Application for Payment within the times required by the Agreement.

6.4 Right to Stop Work and Interest.

6.4.1 In the event that the Owner fails to pay Design-Builder any amount due and owing on Design-Builder's properly submitted and accurate Payment Application, the procedures established in this Article 6 shall be followed. Interest will only be paid pursuant to Comprehensive Agreement Article 7.

6.5 Design-Builder's Payment Obligations.

- **6.5.1** Design-Builder shall take one of the two following actions within seven (7) days after receipt of amounts paid to Design-Builder by Owner for work performed by a subcontractor under this Agreement:
 - (a) Pay the subcontractor for the proportionate share of the total payment received from Owner attributable to the work performed by the subcontractor under this Agreement; or
 - (b) Notify Owner and the subcontractor, in writing, of its intention to withhold all or a part of the subcontractor's payment with the reason for nonpayment.
- **6.5.2** The Design-Builder shall pay interest to the subcontractor on all amounts owed by Design-Builder that remain unpaid after seven (7) days following receipt by Design-Builder of payment from Owner for work performed by the subcontractor under this Agreement, except for amounts withheld as allowed in subdivision a(2), above.
- **6.5.3** Unless otherwise provided under the terms of this Contract, such interest shall accrue at the rate of one percent (1%) per month.
- **6.5.4** The Design-Builder shall include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements to each lower-tier subcontractor.
- **6.5.5** The Design-Builder's obligation to pay an interest charge to a subcontractor pursuant to the payment clause above may not be construed to be an obligation of Owner.
- **6.5.6** Design-Builder will indemnify and defend Owner against any claims for payment and mechanic's liens as set forth in Section 7.3 hereof.

6.6 Substantial Completion.

6.6.1 Design-Builder shall notify Owner when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is Substantially Complete. Within five (5) days of Owner's receipt of Design-Builder's notice, Owner and Design-Builder will jointly inspect such Work to verify that it is Substantially Complete in accordance with the requirements of the Contract Documents. If such Work is Substantially Complete, Owner shall

prepare and issue a Certificate of Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof, (ii) the remaining items of Work that have to be completed before final payment, (iii) provisions (to the extent not already provided in the Contract Documents) establishing Owner's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending final payment, and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

- **6.6.2** Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.
- 6.6.3 Owner, at its option, may use a portion of the Work which has been determined to be Substantially Complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 6.6.1 above, (ii) Design-Builder and Owner have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project, and (iii) Owner and Design-Builder agree that Owner's use or occupancy will not interfere with Design-Builder's completion of the remaining Work.

6.7 Final Payment.

- **6.7.1** After receipt of a Final Application for Payment from Design-Builder, Owner shall make final payment by the time required in the Agreement, provided that Design-Builder has achieved Final Completion.
- **6.7.2** At the time of submission of its Final Application for Payment, Design-Builder shall provide the following information:
 - **6.7.2.1** An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests;
 - **6.7.2.2** A general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to Owner and remaining unsettled at the time of final payment;
 - **6.7.2.3** Consent of Design-Builder's surety, if any, to final payment;
 - **6.7.2.4** All operating manuals, warranties and other deliverables required by the Contract Documents; and

- **6.7.2.5** Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.
- **6.7.3** Upon making final payment, Owner waives all claims against Design-Builder except claims relating to (i) Design-Builder's failure to satisfy its payment obligations, if such failure affects Owner's interests, (ii) Design-Builder's failure to complete the Work consistent with the Contract Documents, including defects appearing after Substantial Completion and (iii) the terms of any special warranties required by the Contract Documents.
- 6.7.4 Deficiencies in the Work discovered after Substantial Completion, whether or not such deficiencies would have been included on the Punch List if discovered earlier, shall be deemed warranty Work. Such deficiencies shall be corrected by Design-Builder under Sections 2.9 and 2.10 herein, and shall not be a reason to withhold final payment from Design-Builder, provided, however, that Owner shall be entitled to withhold from the Final Payment the reasonable value of completion of such deficient work until such work is completed.

Article 7 Indemnification

7.1 Patent and Copyright Infringement.

- **7.1.1** Design-Builder shall defend any action or proceeding brought against Owner based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Owner shall give prompt written notice to Design-Builder of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Builder shall indemnify and hold harmless Owner from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Builder agrees to keep Owner informed of all developments in the defense of such actions.
- **7.1.2** If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Builder shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Builder cannot so procure such right within a reasonable time, Design-Builder shall promptly, at Design-Builder's option and at Design-Builder's expense, (i) modify the Work so as to avoid infringement of any such patent or copyright or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.
- **7.1.3** Sections 7.1.1 and 7.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer specified by Owner and not offered or recommended by Design-Builder to Owner or (ii) arising from modifications to the Work by Owner or its agents after acceptance of the Work.

- **7.1.4** The obligations set forth in this Section 7.1 shall constitute the sole agreement between the parties relating to liability for infringement of violation of any patent or copyright.
- **7.1.5** This clause must be included in all subcontracts that include design services of any type under this Agreement.

7.2 Tax Claim Indemnification.

7.2.1 Owner shall furnish Design-Builder with any applicable tax exemption certificates necessary to obtain an exemption, if available, for use of the property or services from any taxes based on their incorporation into a public project, upon which Design-Builder may rely.

7.3 Payment Claim Indemnification.

7.3.1 Provided that Owner is not in breach of its contractual obligation to make payments to Design-Builder for the Work, Design-Builder shall indemnify, defend and hold harmless Owner from any claims or mechanic's liens brought against Owner or against the Project as a result of the failure of Design-Builder, or those for whose acts it is responsible, to pay for any services, materials, labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within three (3) days of receiving written notice from Owner that such a claim or mechanic's lien has been filed, Design-Builder shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Builder fails to do so, Owner will have the right to discharge the claim or lien and hold Design-Builder liable for costs and expenses incurred, including attorneys' fees.

7.4 Design-Builder's General Indemnification.

- **7.4.1** Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, its Board Members, officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) to the extent resulting from the negligent acts, errors or omissions, recklessness or intentionally wrongful conduct of Design-Builder, Designer, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.
- 7.4.2 If an employee of Design-Builder, Designer, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against Owner, its Board Members, officers, directors, employees, or agents, Design-Builder's indemnity obligation set forth in Section 7.4.1 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design Consultants, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

7.5 Omitted.

Article 8 Time

8.1 Obligation to Achieve the Contract Times.

8.1.1 Design-Builder agrees that it will commence, and diligently pursue, the performance of the Work and achieve the Contract Time(s) in accordance with the Agreement and the Project Schedule.

8.2 Delays to the Work.

- **8.2.1** If Design-Builder is delayed in the performance of the Work on the Project Critical Path due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Design-Builder is responsible, the Contract Time(s) for performance shall be reasonably extended by Change Order. By way of example, events that will entitle Design-Builder to an extension of the Contract Time(s) include acts or omissions of Owner or anyone under Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, and Force Majeure Events.
- **8.2.2** In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 above, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events.

8.3 Design-Builder's Notice of Delay.

8.3.1 Immediately, and in no event later than ten (10) days after it first believes an event may give rise to or result in a Change due to any delay under this Agreement, Design-Builder shall so notify Owner's Representative in writing. The notification must identify the difficulties, the reasons for them and the estimated period of delay anticipated. Failure to give such notice in substantial compliance with this Section 8.3 will waive any right by Design-Builder to make a claim based upon such delay. Such notice shall be a condition precedent to Design-Builder's right to pursue any claim for an adjustment to payment or schedule based upon such delay.

Article 9 Changes to the Contract Price and Time

9.1 Change Orders.

9.1.1 Owner may at any time, without notice to any sureties, make a Change, including, without limitation, one that: (i) changes the Drawings and Specifications (including

drawings and designs); (ii) changes the method or manner of performance of the Work; (iii) changes Owner-furnished facilities, equipment, materials, services, or site; (iv) directs acceleration in the performance of the Work; or (v) implements other changes referred to in this Agreement. A Change Order is a written instrument issued after execution of the Agreement signed by Owner and Design-Builder, stating their agreement upon all of the following:

- **9.1.1.1** The scope of the change in the Work;
- **9.1.1.2** The amount of the adjustment to the Contract Price; and
- **9.1.1.3** The extent of the adjustment to the Contract Time(s).
- **9.1.2** All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes. Design-Builder shall not proceed with any Change until Owner has executed and delivered a Change Order.
- **9.1.3** If Owner requests a proposal for a change in the Work from Design-Builder and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Builder for any material reasonable costs incurred for estimating services, design services and services involved in the preparation of proposed revisions to the Contract Documents.
- **9.1.4** Any other written or oral order, direction, instruction, interpretation, or determination from Owner that causes a change to the Scope of Work or its time of performance will be treated as a Work Change Directive, allowing a change in compensation or schedule only if (1) Design-Builder gives Owner written notice promptly, but not later than within twenty one (21) calendar days, of the receipt by Design-Builder or the Prime Construction Contractor whichever has first receipt of such order, direction, instruction, stating (i) the date, circumstances, and source of the order, direction, instruction or determination, and (ii) that Design-Builder regards the order, direction, instruction or determination as a Change, and (2) Design-Builder does not incur additional costs attributable to such order, direction, instruction or determination without first receiving a Change Directive from Owner, unless waiting for a Change Directive is unreasonable under the circumstances. Such notice is a condition precedent to any such claim.
- **9.1.5** If any Change under this Article adds to or increases the Scope of Work, other than minor changes, and causes an increase or decrease in Design-Builder's cost of, or the time required for, the performance of any part of the Work under this Agreement, Owner shall issue a Change Order or Change Directive for such Change. However, no claim for any Change shall be allowed for which Design-Builder has not complied in all material respects with the requirements of Article 9 as well as all other requirements of this Agreement. No claims will be

allowed for Drawings or Specifications prepared by or for Design-Builder and not in conformance with the Comprehensive Agreement. The Contract Price shall be decreased for any Owner requested reduction to the Scope of Work. After approval of final Drawings and Specifications, except for the correction of errors and omissions, Design-Builder shall not make or allow any changes in the Drawings or Specifications, including drawings and designs, that represent a change to the Basis of Design, without approval of Owner which shall not be unreasonably withheld.

- **9.1.5.1** Overhead and profit for both additive and deductive changes in the Work (other than changes covered by unit prices) shall be paid by applying the specified percentage markups only on the net cost of the changed Work (i.e. difference in cost between original and changed Work excluding overhead and profit). Said percentages for overhead and profit shall reasonably approximate the Contractor's overhead and profit, but shall not exceed the percentages for each category listed below:
 - **9.1.5.1.1** If a Subcontractor does all or part of the changed Work, the Subcontractor's mark-up for overhead and profit on the Work it performs shall be a maximum of fifteen percent (15%). The Contractor's mark-up for overhead and profit on the Subcontractor's price shall be a maximum of ten percent (10%).
 - **9.1.5.1.1** If the Contractor does all or part of the changed Work, its markup for overhead and profit on the changed Work it performs shall be a maximum of fifteen percent (15%).
 - **9.1.5.1.3** If a Sub-subcontractor at any tier does all or part of the changed Work, the Subsubcontractor's markup on that Work shall be a maximum of fifteen percent (15%). The markup for overhead and profit on a Sub-subcontractor's Work by the Contractor and all intervening tiers of Subcontractors shall not exceed a total of ten percent (10%).
- 9.1.6 The Contract Price shall be adjusted for overruns and underruns in any allowances as agreed to by the parties in writing in accordance with this Article 9 of the General Conditions. Items covered by allowances shall be supplied for such amounts (without markup except as otherwise noted) and by such persons or entities as required to perform the Work, but Design-Builder shall not be required to employ persons or entities to whom Design-Builder has reasonable objection. Unless otherwise provided in this Agreement, (1) allowances shall cover the cost to Design-Builder of materials and equipment delivered at the Site, cost for unloading and handling of materials and equipment, labor and installation costs, and all required taxes, less applicable trade discounts but no other costs; and (2) Design-Builder's cost for unloading and handling at the Site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the allowances. Overhead, profit and other expenses shall reasonably approximate the Design-Builder's overhead and profit, but shall not exceed the percentages for each category listed in Section

9.1.5 above. Whenever costs covered by (1) and (2) are more or less than allowances, the Contract Price shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference between actual costs covered by (1) and the allowances. Materials and equipment under an allowance shall be presented by Design-Builder and selected by Owner in sufficient time to avoid delay in the Work.

9.2 Work Change Directives.

- **9.2.1** A Work Change Directive is a written order prepared and signed by Owner directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).
- **9.2.2** Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

9.3 Minor Changes in the Work.

9.3.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Owner, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

9.4 Contract Price Adjustments.

- **9.4.1** The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:
 - **9.4.1.1** Unit prices set forth in the Agreement or as subsequently agreed to between the parties;
 - **9.4.1.2** A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Owner;
 - **9.4.1.3** Costs, fees and any other markups set forth in the Agreement; or
 - **9.4.1.4** If an increase or decrease cannot be agreed to as set forth in items 9.4.1.1 through 9.4.1.3 above and Owner issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement.

- **9.4.2** If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Owner or Design-Builder because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.
- If Owner and Design-Builder disagree upon whether Design-Builder is entitled to be paid for any services required by Owner, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Owner and Design-Builder shall resolve the disagreement pursuant to Article 10 hereof. As part of the negotiation process, Design-Builder shall furnish Owner with a good faith estimate of the costs to perform the disputed services in accordance with Owner's interpretations. If the parties are unable to agree and Owner expects Design-Builder to perform the services in accordance with Owner's interpretations, Design-Builder shall proceed to perform the disputed services, conditioned upon Owner issuing a written order to Design-Builder (i) directing Design-Builder to proceed and (ii) specifying Owner's interpretation of the services that are to be performed. If this occurs, Design-Builder shall be entitled to submit in its Applications for Payment an amount equal to fifty percent (50%) of its reasonable estimated direct cost to perform the services, and Owner agrees to pay such amounts, with the express understanding that (i) such payment by Owner does not prejudice Owner's right to argue that it has no responsibility to pay for such services and (ii) receipt of such payment by Design-Builder does not prejudice Design-Builder's right to seek full payment of the disputed services if Owner's order is deemed to be a change to the Work.

9.5 Emergencies.

9.5.1 In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time(s) on account of emergency work shall be determined as provided in this Article 9.

Article 10 Contract Adjustments and Disputes

10.1 Requests for Contract Adjustments and Relief.

10.1.1 If either Design-Builder or Owner believes that it is entitled to relief against the other for any event arising out of or related to the Work or Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of these General Conditions of Contract. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. Such notice shall include sufficient information to advise the

other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

- 10.2 Omitted.
- 10.3 Omitted.
- 10.4 Duty to Continue Performance.
- 10.4.1 Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and Owner shall continue to satisfy its payment obligations to Design-Builder, pending the final resolution of any dispute or disagreement between Design-Builder and Owner.

Article 11 Omitted.

Article 12 Electronic Data

12.1 Electronic Data.

12.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be transmitted among Owner, Design-Builder and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

12.2 Transmission of Electronic Data.

- **12.2.1** Owner and Design-Builder shall agree upon the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.
- 12.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

12.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

12.3 Electronic Data Protocol.

- 12.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 12.3.
- **12.3.2** Electronic Data will be transmitted in the format agreed upon in Section 12.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.
- **12.3.3** The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information, data or other information contained in the electronic media if such information changes prior to Final Completion of the Project.
- 12.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

Article 13 Miscellaneous

13.1 Confidential Information.

13.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain

the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

13.2 Assignment.

13.2.1 Neither Design-Builder nor Owner shall, without the written consent of the other assign, or transfer any portion or part of the Work or the obligations required by the Contract Documents. Notwithstanding the foregoing, Design-Builder does not require written consent to retain a person or entity as a Subcontractor or Sub-Subcontractor as those terms are defined in Article 1 above.

13.3 Severability.

13.3.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

13.4 Headings.

13.4.1 The headings used in these General Conditions of Contract, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

13.5 Amendments.

13.5.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

13.6 Equal Opportunity Employment

- **13.6.1** During the performance of the Agreement, Design-Builder agrees as follows:
- **13.6.1.1** Design-Builder will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by federal or state law relating to discrimination in employment, except where there is a bona-fide occupational qualification reasonably necessary to the normal operation of Design-Builder. Design-Builder agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

- **13.6.1.2** Design-Builder, in all solicitations or advertisements for employees placed by or on behalf of Design-Builder, will state that Design-Builder is an equal opportunity employer.
- **13.6.1.3** Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this paragraph.
- **13.6.2** Design-Builder will include the provisions of the foregoing subparagraph 13.6.1.1, .2, and .3 in every subcontract or purchase order exceeding \$10,000 in value, so that the provisions will be binding upon each Subcontractor or vendor.

13.7 Non-Discrimination pursuant to Virginia Code § 2.2-4343.1.

13.7.1 Be advised that Owner does not discriminate against faith-based organizations. The Company shall not discriminate against faith-based organizations during the performance of this Agreement.

13.8 Drug-Free Workplace

- 13.8.1 During the performance of the Agreement, Design-Builder agrees to (i) provide a drug-free workplace for Design-Builder's employees; (ii) post in conspicuous places, available to employees and applicants for employment, statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in Design-Builder's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of Design-Builder that Design-Builder maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order exceeding \$10,000 in value, so that the provisions will be binding upon each Subcontractor or vendor.
- **13.8.2** For the purposes of this paragraph, "drug-free workplace" means a site for the performance of work done in connection with the Agreement by Design-Builder where its employees are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the Agreement.

13.9 Authorization to Conduct Business in Virginia.

13.9.1 The provisions of Virginia Code § 2.2-4311.2 are incorporated by reference. If Design-Builder, is a business entity described in Virginia Code § 2.2.4311.2.A, Design-Builder, must be authorized to transact business in Virginia if required by law to be so authorized and shall not allow its existence or certificate authority or registration to transact business to lapse or be revoked or cancelled during the term of this Agreement.

13.10 Tax ID Number

13.10.1 The provisions of Virginia Code § 2.2-4308.2 are incorporated by reference. In accord with Virginia Code § 2.2-4308.2 registration and participation in the E-Verify program (electronic verification of work authorization program of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, Division C, Title IV, § 403(a), as amended) is required. Design-Builder agrees to provide its federal tax D number to the Owner.

13.11 Ethics in Public Contracting.

13.11.1 Design-Builder certifies that:

- **13.11.1.1** It has not offered or received any kickback from any other bidder or contractor, supplier, manufacturer, or subcontractor in connection with this Agreement. A kickback is defined as an inducement for the award of a contract, subcontract, or order, in the form of any payment, loan, subscription, advance, deposit of money, services or anything, present or promised, unless consideration of substantially equal or greater value is exchanged. Further, no person shall demand or receive any payment, loan, subscription, advance, and deposit of money, services or anything of value in return for an agreement not to compete on a public contract.
- **13.11.1.2** It is not a party to nor has he participated in nor is obligated or otherwise bound by agreement, arrangement or other understanding with any person, firm or corporation relating to the exchange of information concerning bids, prices, terms or conditions upon which this Agreement is to be performed.
- **13.14.1.3** Design-Builder understands that collusive bidding is a violation of the Virginia Governmental Frauds Act and federal law, and can result in fines, prison sentences, and civil damage awards.
- **13.11.1.4** Neither Design-Builder, Design-Builder's subcontractors, nor any person acting on Design-Builder's behalf, have conferred, or will confer, on any public employee having official responsibility for a procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value is exchanged.

13.12 Immigration Reform and Control Act of 1986.

13.12 Design-Builder does not, and shall not during the performance of this Agreement for goods and services in the Commonwealth of Virginia, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

13.13 Minority and Women-Owned Business Enterprise and Small Business Certification.

13.13 Design-Builder shall use reasonable efforts to use minority and women-owned business enterprises and small businesses for Work on the Project. Design-Builder shall complete and submit the "Minority and Women-Owned Business and Small Business Certification" form from time to time as requested by Owner. Failure to complete and sign this statement is considered a material violation of this Agreement.

13.14 Modifications.

13.14 This Agreement shall not be amended, altered, or modified unless such amendment, modification or alteration is reduced to writing signed by both parties and attached hereto.

13.15 Attorneys' Fees

13.15 Should either Party employ an attorney to either (i) institute and maintain a suit against the other Party arising out of the Contract Documents or the other Party's Obligations (ii) assist in enforcing or defending any of that Party's rights under the Contract Documents; (iii) protect a Party's interest in any matter arising under the Agreement; (iv) collect damages for the breach of a contract or any other amounts owed to a Party; or (v) maintain an action to recover on a surety bond given by Design-Builder, then the prevailing Party shall be entitled to recover its attorneys' fees, costs, charges, and expenses expended or incurred therein from the other Party.

13.16 Tax Exemption.

13.16 Owner, as a political subdivision of the Commonwealth of Virginia, is exempt from any federal excise tax and Virginia sales and use tax.

13.17 Loss or Damage in Transit

Owner. Any claim for loss or damage incurred during delivery shall be between Design-Builder and the carrier. Owner accepts title only when goods are received regardless of the F.O.B. point noted in the Solicitation or the Contract Documents. Owner will note all apparent damages in transit on the freight bill and notify Design-Builder. Discovery of concealed damages or loss will be reported by Owner to the carrier and Design-Builder within fifteen (15) days of receipt and prior to removal from the point of delivery if possible. Design-Builder shall make immediate replacement of the damaged or lost merchandise or be in default of the Contract Documents. It shall be Design-Builder's responsibility to file a claim against the carrier. If damage is to a small quantity, with the approval of Owner, Design-Builder may deduct the amount of damage or loss from his or her invoice to Owner in lieu of replacement.

Supplemental Conditions of Contract

The Historic Triangle Recreational Facility Authority

And

MEB General Contractors, Inc.

For

Design and Construction

Of

Regional Sports and Events Facility

SC Article 1 General

1.1 The Work

1.1.1. Omitted.

1.1.2. Conditions Affecting The Work.

Except for hazardous conditions and differing site conditions as defined by and addressed in General Conditions Article 4, the Design-Builder is responsible for having taken steps reasonably necessary to ascertain the nature and location of the Work, and the general and local conditions that can affect the Work or its costs, including, but not limited to available parking and staging areas and existing building materials and components. Any failure by the Design-Builder to reasonably ascertain the conditions affecting the Work does not relieve the Design-Builder from responsibility for successfully performing the Work without additional expense to the Owner. Each party assumes no responsibility for any representations concerning conditions made by any of its officers, employees or agents before execution of this Agreement unless such representations are expressly stated in the Agreement.

1.1.3. Interpretation of Contract Documents.

- a. The Contract Documents are intended to be complementary and to be interpreted in harmony to avoid conflict if this can reasonably be accomplished.
- b. The following rules regarding correlation and intent of the Contract Documents are first to be employed in the event of any inconsistency, conflict, or ambiguity: (1) Anything mentioned in the Specifications and not shown on the Plans, or shown on the Plans and not mentioned in the Specifications, is of like effect as if shown or mentioned in both; (2) In case of conflicts between Plans and Specifications, the Specifications will govern; (3) In case of a difference between small and large-scale drawings, the large-scale drawings will govern; (4) Schedules on any contract drawing take precedence over conflicting information on that or any other contract drawing; and (5) On any of the drawings in which a portion of the Work is detailed or drawn out and the remainder is shown in outline, the parts detailed or drawn out will apply also to all other like portions of the Work.

SC Article 2 Design-Builder's Services and Responsibilities

2.1. Subcontractors.

a. Design-Builder shall ensure that all subcontractors:

- i. Are properly licensed and authorized to do business in Virginia and the City of Williamsburg,
- ii. Have the proper insurance coverage,
- iii. Are not debarred from contracting with any agency of the Commonwealth, and
- iv. Comply with all state, federal and local laws, including obtaining any necessary business licenses.
- b. The Design-Builder shall comply with Title 54.1, Chapter 11, of the Code of Virginia, with respect to licensure of itself and all subcontractors employed to work on the Project.
- c. The Design-Builder represents that it has verified that all subcontractors hold all required state and local licenses.
- d. The Design-Builder will verify that any additional subcontractors employed to work on the Project, subject to initial verification, hold all required state and local licenses.
- e. Design-Builder is required to submit the Contractor's Certification as to Licensure of Subcontractors Form to the Owner. This constitutes a material part of the Design-Builder's Agreement with the Owner.
- f. For every subcontract of \$50,000.00 or more, the Design-Builder and subcontractors shall, prior to performing any Work on the Project, provide copies of their current licenses and a copy of each Subcontract to the Owner's Representative with appropriate cost and other proprietary information redacted. For subcontracts less than \$50,000.00, the Design-Builder and subcontractors shall, at the request of the Owner's Representative, provide copies of their current licenses and a copy of each Subcontract to the Owner's Representative with appropriate cost and other proprietary information redacted.
- g. Design-Builder further agrees that it is as fully responsible to the Owner for the acts and omissions of its subcontractors, suppliers, and invitees on the jobsite and of persons either directly or indirectly employed by them, as the Design-Builder is for the acts and omissions of Persons directly employed by it. Nothing in this Agreement may be construed to create any contractual relationship between any subcontractors and the Owner. The divisions or sections of the Specifications are not intended to control Design-Builder in dividing the Work among subcontractors or to limit the Work performed by any trade.
- e. The Owner will not undertake to settle any differences among or between Design-Builder, the Prime Construction Contractor, the Designer, and any subcontractors of any of them.

2.2 Preparation of Plans and Specifications

Based upon the Scope of Work and/or requirements furnished by the Owner in writing and included herein, Design-Builder shall prepare the complete contract working Plans and Specifications. All design submissions for this Project shall be made in Revit or PDF electronic file form. The Owner review and/or approval period shall be in accordance with the Project Schedule Milestones, but not less than ten (10) working days for each of the specified submissions.

2.3 Scheduled Submittals

- a. Upon receipt of a scheduled submittal by Design-Builder for the Owner's review and approval, the Owner shall provide its approval, conditional approval or a single consolidated list of exceptions within the period of time specified, provided, however that the Owner shall have ten (10) workdays to review and act upon any initial submission. If a submittal is not specified in this Agreement, the period for review shall not exceed ten (10) workdays. Acceptance of a particular scheduled submittal(s) shall be deemed made by the Owner if the Owner's Representative has not delivered a consolidated list of exceptions prior to the expiration of the applicable period for review. Upon receipt of any "conditional" approval, work shall proceed on the approved portions of the Work and a re-submittal of the conditional Work will be submitted, or not submitted, as directed.
- b. Upon receipt of a consolidated list of exceptions from the Owner's Representative regarding any submittal, Design-Builder shall incorporate changes responsive to Owner's exceptions in the next Submittal, unless Owner's Representative expressly requests a resubmittal of a corrected submittal. In the case of a request for resubmittal, the Design-Builder shall change or correct, and redeliver the submittal to the Owner's Representative within the period of time specified in the Schedule Milestones, or within ten work (10) days if not specified. The Owner's Representative shall then provide Design-Builder its approval or single consolidated list of exceptions within three work (3) days. Any rereview after the initial review and resubmittal shall strictly confine itself to the corrections or changes relative to the original consolidated list of exceptions. All exceptions taken at any time must be relative only to the requirements set forth in this Agreement and identify the area of non-compliance.

2.4 Samples

a. Sample Approval. After issuance of the notice to proceed with construction, the Design-Builder shall furnish to the Owner's Representative samples required by the Specifications or by the Owner's Representative, for the Owner's approval. The Owner's review and approval shall not be unreasonably withheld, conditioned, or delayed and shall be made in a time frame so as not to delay the Design-Builder or Contractor. Samples shall be delivered to the Owner's Representative as specified or as directed. The Design-Builder shall prepay all shipping charges on samples. Materials or equipment for which samples are required may not be used in the Work until the Owner approves them in writing.

Approval of a sample is only for the characteristics or use named in the approval and may not be construed to change or modify any requirement of the Contract Documents. Substitutions are not permitted unless approved in writing by the Owner.

b. Testing. Samples of materials or equipment delivered on the site or in place may be taken by the Owner's Representative for testing. Failure of a sample to meet the requirements of the Contract Documents may void previous approvals of the item tested. The Design-Builder shall replace materials or equipment found not to have met requirements of the Contract Documents.

c. Cost of Testing.

- The Design-Builder shall pay for all costs of construction testing, including sampling, field tests, laboratory tests, and inspection services as required by the specifications. The Design-Builder shall timely provide written reports of observations, recommendations, and testing activities to the Owner's Representative as the Project progresses. All tests pertaining to physical or chemical properties of materials must be made in a laboratory approved by the Owner. The Design-Builder shall include all applicable tests required in the specifications, which will include all tests and inspections required by Codes and Standards.
- ii. The Owner will pay for the costs of special inspections and any additional tests the Owner deems necessary. However, if such tests indicate that the workmanship or materials used by the Design-Builder are not in conformance with the Construction Documents, approved shop drawings, or the approved materials, the Design-Builder shall pay for the tests and/or re-tests and remove all Work and material failing to conform, and replace with Work and materials in full conformity, without additional cost to the Owner, and to the Owner's satisfaction.
- iii. The Design-Builder shall provide a listing in the specifications of all testing, inspections, and special inspections required by the local code official.
- iv. The testing and inspections scope of work shall conform to local code requirements.
- v. If such tests indicate that the workmanship or materials used by the Design-Builder are not in conformance with the Construction Documents, approved shop drawings, or the approved materials, the Design-Builder shall pay for the re-tests. The Design-Builder shall remove all Work and material failing to conform, and replace with Work and materials in full conformity, without additional cost to the Owner, and to the Owner's satisfaction.
- d. Inventory of Samples. The Design-Builder shall maintain an inventory of all approved samples until final Inspection of the Project. Such samples shall be available to Owner for additional viewing, inspection and testing, as deemed necessary by the Owner, at reasonable times.

2.5 Measurements, Drawings, Specifications

2.5.1. Requirement for Verification of Measurements/On Site Documents.

- a. The Design-Builder shall keep at the site copies of the Contract Documents and shall at all times give the Owner's Representative and any designated representative access to them.
- b. When the word "similar" appears on the Plans, it has a general meaning and must not be interpreted as meaning identical, and all details must be worked out in relation to their location and connection with other parts of the Work.
- c. In case of discrepancy either in figures, Plans, or Specifications, the matter must be promptly submitted to Designer, who shall provide a determination in writing. The Design-Builder shall furnish from time to time such detailed Plans and other information as may be deemed reasonably necessary by Owner's Representative.

2.5.2. Plans and Specifications requirements.

The following requirements apply to Design-Builder's responsibility to cause the Plans and Specifications to be properly prepared:

- a. Required technical Specifications shall be prepared in accordance with the applicable standards. Specifications must be complete, concise, and reasonably free of repetition and ambiguity. Care must be exercised to avoid specifying the same Work in more than one section and to avoid duplication or conflict with the general provisions, special provisions, and the Plans.
- b. The Specifications shall be submitted in PDF format.
- c. If guide specifications are not furnished, typical specifications developed and used by the Designer in general practice shall be used in preparing contract Specifications. The CSI Format for Construction Specifications, CSI Document MP-2A, shall be used in the arrangement of Project Specifications.
- d. Testing to establish compliance with the Contract Documents for critical items or critical portions of the Work shall be specified as the Design-Builder's responsibility, subject to Supplemental Condition Section 2.4.b. Testing shall be consistent with that required under standard commercial practices as approved by Owner's Representative and/or the local building officials. Any testing requirements specified do not limit the Owner from having additional testing and inspection performed in Owner's discretion.
- e. Submittals such as shop drawings, samples, and certificates shall be specified as necessary to establish compliance with the Contract Documents for critical portions of the Work. The Design-Builder should not require submittals for minor commercial

items or for items of marginal value. The Design-Builder shall include in the mechanical and electrical sections the extent of a manufacturer's literature, rating data, performance curves, spare part lists, and shop drawings that must be furnished for review and approval before procurement.

- f. The Specifications shall require the Design-Builder to make tests of heating and air conditioning systems, as installed, to demonstrate that the equipment will perform as required. The results of the tests are to be submitted before the final inspection. Manufacturer's representatives may be required for inspection, start-up, and instructions in the operation and maintenance of equipment and the Design-Builder shall ensure their presence for such purposes if requested by the Owner. Commissioning may be provided by the Owner at Owner's sole cost, and the Design-Builder shall cooperate with the commissioning agent providing all documentation and demonstrations required.
- g. The Specifications shall require that the Design-Builder furnish manufacturer's manuals, spare parts lists, diagrams, instructions, performance data, curves, and shop drawings as approved for major items of equipment to be installed in the Work.
- h. All required Plans shall be prepared and furnished as Revit files and/or PDF files with title block and graphic scale.
- i. All final Plans shall be detailed as necessary for efficient execution of the construction Work. They must conform to the above general requirements and the requirements previously stated. All original Plans must be prepared at an adequate scale to properly present the design data development including detailed features. Drawing scales for buildings or structures smaller than 118-inch = 1'-0" are not permitted without prior written approval of the Owner's Representative.
- j. The electrical design plans must be divided by systems into separate documents, when necessary to avoid congestion. Similarly, the plumbing and heating/air conditioning must be separated, when necessary to avoid congestion. A minimum scale of 1/4-inch = 1'-0" must be used for all details of areas of congestion such as mechanical rooms, toilet rooms, and the like, and as may otherwise be reasonably designated by the Owner's Representative. Drawing scale for site, utility, or other related Work outside five foot building line), including details (engineer's) must clearly and adequately reflect the design data developed. Plans must be organized and provide appropriate details of the site Work (layout, grading, paving, and drainage) and the utilities (water, sewer, gas, power, and communications) separate from the building and/or structure Plans.
- k. All design submissions prepared using CADD support shall be accompanied by electronic files of the submission in Revit files.

- I. Any discrepancies in figures, Plans, Specifications, or submittals shall be promptly resolved by the Design-Builder. Design-Builder shall immediately notify the Owner's Representative of any discrepancies in such Plans and/or Specifications and confirm such notice in writing within five (5) calendar days.
- m. The Specifications shall include, to the satisfaction of the Owner, training of Owner's personnel on the operation and maintenance of systems and equipment. In addition, the Specifications shall include, to the satisfaction of the Owner, the development and submittal of operations and maintenance manuals, to include three (3) copies of each such document.
- n. Design-Builder shall be responsible for making all changes in the Work necessary to adapt and accommodate any equivalent product or item that it uses. The necessary changes shall be made at the Design-Builder's sole expense.
- The Design-Builder shall, as requested by the Owner's Representative, provide all design calculations, which may include, but are not limited to, structural steel, mechanical, electrical, plumbing and civil calculations.

2.5.3 Shop Drawings, Submittals, Coordination Drawings, and Schedules.

- a. The Design-Builder shall submit to the Owner's Representative a schedule listing all items that will be furnished for review and approval no later than thirty (30) days after Owner's final approval of Plans and Specifications. For example, the schedule must include shop drawings and manufacturer's literature, test procedures, test results, certificates of compliance, material samples, and special guarantees, etc. The schedule must indicate the type of item, contract requirement reference, the Design-Builder's scheduled date for submitting the above items, identification of the first scheduled activity and projected needs for approval answers to support procurement or installation. In preparing the schedule, reasonable time will be allowed for review, approval, and possible re-submittal. Also, the scheduling shall be coordinated with the approved construction progress chart. The Design-Builder must revise and/or update the schedule as the Owner's Representative reasonably directs. Such revised schedule must be made available to the Owner's Representative for monitoring.
- b. The Design-Builder shall submit to the Designer with copies to the Owner's Representative shop drawings, coordination drawings, and schedules for approval by Designer required by the Specifications, as follows:
 - Shop drawings shall include fabrication, erection, and setting drawings, schedule drawings, manufacturer's scale drawings, wiring and control diagrams, cuts or entire catalogs, pamphlets, descriptive literature, and performance and test data.
 - ii. Drawings and schedules, other than catalogs, pamphlets and similar printed material, shall be reviewed, signed and submitted in reproducible form with three

prints made by a process approved by the Owner's Representative. Upon approval, the reproducible form will be returned to the Design-Builder who shall furnish the number of additional prints, not to exceed ten. The Design-Builder shall submit shop drawings in catalog, pamphlet, and similar printed form in a minimum of four copies plus as many additional copies as the Design-Builder may desire or need for the use of subcontractors.

- iii. Approval by the Designer is to validate conformance with the owner's intent, and does not relieve the Design-Builder from any design liability for the approved submittals. Owner's Representative shall provide any comments on submittals and shop drawings to Design-Builder prior to approval.
- c. Before submitting shop drawings on the mechanical and electrical Work, the Design-Builder shall obtain the Designer's written approval of lists of mechanical and electrical equipment and materials as required by the Specifications.
- d. The Design-Builder must check the drawings and schedules and coordinate them (by means of coordination drawings whenever required) with the Work of all trades involved before submission, indicating approval on them. Drawings and schedules submitted without evidence of subcontractors/trades' approval may be returned for resubmission.
- e. Unless otherwise provided in this Agreement, or otherwise directed by the Owner's Representative, shop drawings, coordination drawings, and schedules must be submitted by Design-Builder sufficiently in advance of construction requirements to permit fourteen (14) calendar days, excluding delivery time to and from the contractor, for checking and appropriate action by the Designer. Such items shall be submitted to the Owner's Representative concurrently with the Designer's review.
- f. Except as otherwise provided in Subparagraph h. below, approval of drawings and schedules will be general and may not be construed as:
 - i. Permitting any departure from the requirements of the Contract Documents; or
 - ii. Relieving the Design-Builder of responsibility for any errors, including details, dimensions, and materials.
- g. If drawings or schedules show variations from the requirements of the Contract Documents because of standard shop practice or for other reasons, the Design-Builder must clearly describe the variation in the letter of transmittal. If acceptable, Designer may approve any or all variations and issue an appropriate Change Order. If the Design-Builder fails to describe these variations, it is not relieved of the responsibility for executing the Work in accordance with the Contract Documents, even though the drawings or schedules have been previously approved.

- h. Shop drawings, samples, color schedules, catalog cuts, construction schedule, etc. submitted to Owner's Representative, will be reviewed by Owner's Representative and any comments thereon shall be provided by Owner's Representative to Design-Builder who shall verify compliance with the Construction Documents.
- i. The Design-Builder shall prepare and submit equipment room layout drawings and drawings of areas where the equipment proposed for use could present interface or space difficulties. Room layout drawings must conform to the requirements established for drawings. Layouts must be submitted within forty (40) calendar days after completion of final construction drawings. Submittals describing the various mechanical and electrical equipment items which are to be installed in the areas represented by the layout drawings must be assembled and submitted concurrently and accompanied by the room layout drawings. Room layout drawings must show all pertinent structural and fenestration features and other items such as cabinets required for installation and which will affect the available space. All mechanical and electrical equipment and accessories must be shown in scale in plan and also in elevation and/or section in their installed locations. Duct work and piping also must be shown. Equipment room layout designs must ensure all equipment is accessible for maintenance, repair and replacement.
- j. All shop drawings, ductwork drawings, and sprinkler drawings must be on 30" x 42" sheets to fit the size of the Project Plans.
- k. At the completion of the Project, updated ductwork drawings and sprinkler drawings must be submitted as part of the "As-Built" drawings submission.
- I. All certificates required for demonstrating proof of compliance of materials with Specification requirements, including mill certificates, statements of application, and extended warranties, must be executed in quadruplicate and furnished to the Owner's Representative. It is the Design-Builder's responsibility to review all certificates to ensure compliance with the requirements of the Contract Documents and that all affidavits are properly executed prior to submission to the Owner's Representative. Each certificate must be signed by an official authorized to certify on behalf of the manufacturing company. Each certificate must contain the name and address of the manufacturer, the Project name and location, and the quantity and date(s) of shipment or delivery to which the certificate(s) apply. Copies of laboratory test reports submitted with certificates must contain the name and address of the testing laboratory and the date(s) of the tests to which the report applies. Certification shall not be construed as relieving the Design-Builder from furnishing satisfactory material, if, after test(s) are performed on selected sample(s), the material is found not to meet the specified requirements.
- m. Designer shall review and take action on all shop drawings and samples. All approvals must be in accordance with the terms of the Contact Documents. Processing will be accomplished in accordance with the following procedure:

- i. Prime Construction Contractor shall transmit reproducible copies of shop drawings etc. to the Designer for review. Information copies of the letter of transmittal, clearly identifying shop drawings, etc., shall at the same time be furnished to the Owner's Representative.
- ii. As a result of Designer's review, each submittal will be marked by Designer as follows:

"Approved": The fabrication, manufacture and/or construction may proceed providing the Work is in compliance with the Contract Documents.

"Approved as Noted": The fabrication, manufacture and/or construction may proceed providing the Work is in compliance with Designer's notations and the Contract Documents.

"Rejected": No Work shall be fabricated, manufactured or constructed and a new submittal is required. No Work for a submittal marked "C-Action" shall be permitted on site.

- iii. The Design-Builder is responsible for obtaining prints of all "Approved" and "Approved as Noted" reproducible shop drawings and distributing them to the field and to the subcontractors. Concurrently, two (2) copies of each print shall be provided to the Owner's Representative.
- iv. The Design-Builder is responsible for obtaining copies of all "Approved" and "Approved as Noted" manufacturer's descriptive literature, literature, catalog cuts and brochures and distributing them to the Contractor. Concurrently, two (2) copies of each shall be provided to the Owner's Representative.
- v. The Design-Builder is responsible for submitting new shop drawings, brochures and/or samples to replace all "Rejected" items and furnishing two (2) copies to the Owner's Representative.
- vi. The Design-Builder is responsible for maintaining the Shop Drawing Log. An updated copy of the Log shall be furnished to the Owner's Representative no less than monthly.

2.5.4. Record "As Built" Drawings.

- a. The Design-Builder shall, during the progress of the Work, keep a master set of prints on the job site (Record or also referred to as "As-Built" drawings) on which is kept a complete, careful and neat record of all deviations from the Construction Documents made during the course of the Work.
- b. The Design-Builder shall provide the Owner with one complete set of the Construction Documents incorporating the revisions and changes made during construction up to

acceptance of the Project. These updated Plans and Specifications shall reflect all changes to the Construction Documents to indicate the "As-Built" conditions, including revisions in site and building area tabulations. These Plans and specifications must be certified as to their correctness by the signature of the Design-Builder and Designer and used in preparing a permanent set of "As-Built" drawings.

- c. Design-Builder must submit a CADD system electronic file for these "As Built" documents prepared with a CADD system.
- d. The Owner reserves the right to review "As-Built" documents at any time during the Project.
- e. The Design-Builder shall forward all "As-Built" drawings, specifications and photographs to the Owner not later than thirty (30) calendar days after Project completion.
- f. Any part of the costs associated with the preparation and completion of the "As-Built" drawings will not be paid to Design-Builder by Owner until the As-Built drawings are provided to and approved by the Owner.

2.5.5 Spare Parts Data.

- a. The Design-Builder shall furnish spare-parts data for each different item of equipment furnished. The data must include a complete list of parts and supplies, with current unit prices and sources of supply; a list of spare parts and supplies that are either normally furnished at no extra cost with the purchase of the equipment, or specified to be furnished as part of the Contract Documents, and a list of additional items recommended by the manufacturer to ensure efficient operation for a period of 360 days at the particular installation.
- b. The foregoing does not relieve the Design-Builder of any responsibilities under any of the guarantees specified and/or provided.

2.6 Owner's Representative Field Office.

The Owner's Representative's Field Office (Field Office) shall be adjacent to the construction contractor's trailer ready for use and occupancy within fourteen (14) days from the construction Notice to Proceed through Final Completion. The Field Office will be approximately 100 square feet with HVAC, light, power outlets, internet, and secured windows/doors.

SC Article 3
Owner's Services, Rights and Responsibilities

[See General Conditions of Contract]

SC Article 4 Hazardous Conditions and Differing Site Conditions

[See General Conditions of Contract]

SC Article 5 Insurance and Bonds

[See General Conditions of Contract]

SC Article 6
Payment

[See General Conditions of Contract]

SC Article 7
Indemnification

[See General Conditions of Contract]

SC Article 8 Time

8.1 Construction Schedule / Progress Chart.

a. Within ten (10) working days after receiving Notice to Proceed for each phase, the Design-Builder shall prepare and submit to the Owner's Representative a complete detailed design and construction schedule in the form of a native electronic file. The schedule shall show the principal categories of work, corresponding with those used in the breakdown on which progress payments are based, the order in which the Design-Builder proposes to carry on the Work, the date on which it will start each category of Work, and the contemplated dates for completion. The design and construction schedule must be in suitable scale to indicate graphically the total percentage of Work scheduled to be in place at any time. The Design-Builder shall use a Critical Path Method (CPM) format. This schedule shall use Primavera Scheduling software (Primavera Contractor P6), with at least 100 activities including sitework, procurement, delivery, commissioning, significant owner activities, and installation of construction materials and equipment. An "earned value report" shall be used as the feeder report for the Schedule of Values for the purpose

of determining progress payment. A critical path shall be developed based on scheduling logic that identifies all successor and predecessor activities and float. Activities of like duration, programmed for different times of the year shall be modified to account for weather that can reasonably be expected by the Design-Builder. Activity constraints shall be avoided. Such software and schedule shall be compatible with the Owner's computer system and scheduling software. This will allow the Owner's Representative to efficiently process each pay application in Expedition, using the AIA G702/G703 format where the G703 back up listing will be the Schedule of Values in CSI division format so that the Owner will only be paying for work actually completed by the Design-Builder.

- b. At the end of each progress payment period, or at such reasonable intervals as directed by the Owner's Representative, the Design-Builder shall:
 - i. Revise the design and construction schedule to reflect any changes in the Work, completion time, or both, as approved by the Owner's Representative;
 - ii. Enter on the design and construction schedule the total percentage of Work actually in place; and
 - iii. Submit the adjusted design and construction schedule, and a complete update in its native electronic format and one printed copy to the Owner's Representative.
- c. If at any time the Work falls behind the design and construction schedule after taking into consideration any excusable delays as defined in General Condition Article 8, Design-Builder shall take such action as necessary to improve progress. The Owner's Representative may require the Design-Builder to submit a revised design and construction schedule demonstrating its proposed recovery plan to make up the lag in scheduled progress. The plan shall show how the Design-Builder shall achieve recovery by increasing resources and/or work times (if approved by Owner). If the Owner's Representative finds the proposed plan unacceptable, the Design-Builder may be required to submit a new plan. If the new plan submitted is not reasonable, after consultation with the Design-Builder, the Owner's Representative may require the Design-Builder to increase the work force, accelerate the planned construction volume, increase assigned construction equipment, or the number of work shifts, or take other appropriate action, all without an amendment to the Contract Price.
- d. Design-Builder shall update the schedule and issue a progress report each month. If after the update has been performed the actual durations of recurring activities are longer than the original durations, the Design-Builder shall issue a written plan that indicates the additional resources to be allocated to those activities showing how they will achieve the planned duration. Alternatively, the durations of all subsequent occurrences of that type of activity shall be increased to reflect actual production, and the Design-Builder shall issue a recovery plan to the Owner's Representative within ten (10) days showing how the project will get back on schedule.

e. Repeated failure of the Design-Builder to comply with any of these requirements, after written notice from Owner, may be considered grounds for a determination by the Owner's Representative that the Design-Builder is failing to prosecute the Work in accordance with Contract requirements. Owner may pursue any rights and remedies provided by the Contract Documents or by law.

8.2 Exception to Completion Schedule and Liquidated Damages.

In cases where the parties agree in writing that sodding and/or planting and/or specified maintenance thereof is not feasible during the construction period, such Work will be excepted from the completion schedule and the liquidated damages provision of Comprehensive Agreement Article 8. However, such Work must be accomplished or completed during the first sodding and/or planting period or the specified maintenance period following the original completion date within the same number of days originally scheduled for such activity. This shall also include items not contracted to the Design-Builder, but directly contracted by the Owner with other vendors and which is required to complete and provide a fully functional facility.

SC Article 9 Changes to the Contract Price and Time

SC 9.1 Change Order Accounting.

The Owner's Representative may require Change and Change-order accounting whenever the estimated cost of a Change or series of related Changes exceeds \$50,000. The Design-Builder, for each such Change or series of related Changes, must maintain suitable accounting procedure, of all incurred direct costs (less allocable credits) of Work, both changed and not changed, allocable to the Change. The Design-Builder shall maintain such data until the parties agree to an equitable adjustment for the Changes ordered by the Owner's Representative or the matter is finally disposed of in accordance with the Dispute Resolution provisions in the Comprehensive Agreement. However, Design-Builder shall continue to work on the Project without any interruption and/or delay.

SC Article 10
Contract Adjustments and Disputes

[See General Conditions of Contract]

Stop Work and Termination for Cause

[See Comprehensive Agreement]

SC Article 12 Electronic Data

[See General Conditions of Contract]

SC Article 13 Miscellaneous

13.1 Inspections and Acceptance

13.1.1 Inspection of Professional Services.

The Owner may, at any time or place, inspect the services performed and the work products, including documents and reports. The Owner may reject any services or products that do not meet the requirements of the Construction Documents. No payment will be due for any services or products rejected under this clause.

13.1.2 Inspection and Acceptance.

- a. Owner inspection and testing of materials and workmanship will be made at reasonable times at the site of the Work or off the site as the Owner's Representative may direct. Off-site inspection or testing does not relieve the Design-Builder of responsibility for damage to or loss of the material prior to acceptance, nor in any way affect the continuing rights of the Owner after acceptance of the completed Work under the terms of Paragraph f of this section.
- b. The Design-Builder must, without charge, replace any material or correct any workmanship found by the Owner not to conform to the Agreement requirements, unless the Owner consents to accept such material or workmanship with an appropriate adjustment in Agreement price. The Design-Builder must promptly segregate and remove rejected material from the premises.
- c. If the Design-Builder does not promptly replace rejected material or correct rejected workmanship, the Owner may, by contract or otherwise, replace or correct it and charge the cost to the Design-Builder.
- d. The Owner may examine completed Work by removing or tearing it out. The Design-Builder must replace or correct any Work found not to conform to Agreement requirements. If Work is torn out and found to comply with Agreement requirements, the Owner must make an equitable adjustment for the Services provided for the inspection, removal, and replacement of the Work.
- e. The Owner will inspect the Work as soon as practicable after completion.

f. The Owner may terminate this Agreement for default and seek any remedy allowed by law and/or this Agreement if the Design-Builder does not maintain an acceptable inspection system or follow Owner directions to replace or correct incorrect or defective items, which is material to completion of the Work as required by this Agreement.

13.1.3 Technical Supervision.

The Owner reserves the right to use Project Management Support Services (PMSSC) personnel, or other qualified personnel under contract to the Owner.

13.1.4 Approval of Design.

a. The Owner must approve all final Plans and Specifications. However, phased or fast track construction may commence prior to approval of final Plans and Specifications, provided the Owner has approved Plans and Specifications covering only that phase of the Work. The Owner's review will be primarily for general arrangement and compliance with Owner requirements included as part of the Agreement.

Owner's Representative's approval shall not be construed as:

- 1. Permitting any departure from the Agreement requirements, without specific prior written approval.
- 2. Relieving the Design-Builder of responsibility for any errors including, but not limited to, details, dimensions and materials.
- 3. Relieving the Design-Builder of responsibility for compliance with all applicable codes of local, state, or federal codes, regulations and laws.
- b. After approval of Plans and Specifications, the Design-Builder shall be responsible for revising Plans and Specifications to correct all deficiencies from requirements of this Agreement. Copies of revised Plans and Specifications will be furnished to the Owner's Representative. There will be no modification to any fee or to the Contract Price to the Agreement, as a result of corrections of such deficiencies.

13.1.5 Project Closeout.

Unless specified for an earlier date elsewhere in this Agreement, the Design-Builder must process all documents, changes, claim submissions, complete all Project closeout items, provide warranties, as-built drawings, and submit a final report certifying that this action has been taken not later than sixty (60) days after the date of Substantial Completion.

13.1.6 Asbestos Free and Lead-Based Paint Free Certification.

The Design-Builder must certify that no asbestos-containing building materials or lead-based paints (interior or exterior) were used in this Project. The Design-Builder must include completed and unaltered asbestos free and lead-based paint certifications as a closeout submittal document. The only acceptable alternative for asbestos and lead based paint certification is to conduct a post-construction asbestos and lead paint survey in accordance with AHERA requirements.

13.2 Protection of Persons And Property

13.2.1 Accident Prevention.

- a. All construction and other Work on this Project must be performed in compliance with the Occupational Safety and Health Act of 1970 and with local, state and federal occupational safety and health regulations enforced by an agency of the locality or state under a plan approved by the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA). Where requirements are different or in conflict, the more stringent requirement will apply.
- b. The Design-Builder shall maintain or require maintenance by the Prime Construction Contractor of an accurate record of exposure data and all accidents incidental to Work performed under this Agreement resulting in death, traumatic injury, occupational disease, or damage to property, material, supplies, or equipment. The Design-Builder must submit regular Project safety reports, exposure data, and accident reports, as prescribed by the Owner's Representative.
- c. Health and Safety Plans are required as follows:
 - Prior to commencing on-site Work, the Design-Builder must submit to the Owner's Representative, a Health and Safety Plan designed to provide a system by which hazards on the Project site will be controlled to minimize or eliminate occupational injuries or illnesses during performance of the contract.
 - 2. The Health and Safety Plan must state that the Prime Construction Contractor, Designer, and all subcontractors are required to comply with the Design-Builder's Project safety rules and requirements issued under the authority of that program.
 - 3. The Health and Safety Plan must identify, by name, the Design-Builder's representative responsible for the execution of the Project safety program. The Design-Builder's Project safety representative must have the express written authority from the Design-Builder to stop work, to abate hazardous conditions or unsafe practices, and to eject any Design-Builder, Subcontractor, or vendor employees from the Project site for failure to comply with safety requirements.

- 4. The Health and Safety Plan must include the precautionary measures to be taken to protect Owner staff, employees and the public.
- d. The authority, responsibilities, and duties of the Design-Builder's Project safety representative must be incorporated as part of the written Health and Safety Plan. The safety responsibilities include, but are not limited to, conducting subcontractor construction safety program reviews, conducting employee safety orientation training, conducting weekly safety meetings, conducting daily site safety inspections, auditing Subcontractor safety compliance, and preparing required periodic and special safety reports.
- e. In addition to the general requirements of Health and Safety Standards, the Design-Builder, Designer and Prime Construction Contractor, specifically must comply with applicable OSHA requirements concerning Hazard Communications Standards. Details of the Design-Builder's hazard communications program shall be included in the Health and Safety Plan.

13.2.2 Health and Safety Standards.

- a. In performing this contract, the Design-Builder must:
 - Comply with applicable Occupational Safety and Health Standards promulgated pursuant to the authority of the Occupational Safety and Health Act of 1970 (OSHA).
 - 2. Comply with any other applicable federal, state, or local regulations governing workplace safety to the extent they do not conflict with a.1. above; however, the more stringent shall apply.
 - 3. Comply with any Owner standard that is expressly incorporated into this Agreement unless the OSHA standard contains more rigorous or stringent safety requirements, in which case the OSHA standard governs and takes precedence.
 - 4. Pursuant to the terms of this Agreement, take all reasonable precautions to protect the safety and health of the Design-Builder's employees, Owner staff, employees, and the public.
- b. The Design-Builder must coordinate its use of existing Owner premises with the Owner's Representative. Subjects of this coordination include the designation of work and storage areas; the extent, if any, of use by the Design-Builder of Owner tools and equipment; the furnishing by the Design-Builder of appropriate signs and barricades to exclude unauthorized personnel from the work areas and to call attention to hazards and dangers; and other matters relating to the protection of Owner staff, employees, property and the public.

- c. Materials, supplies, articles, or equipment manufactured or furnished under this Agreement or order must conform to the Occupational Safety and Health Standards pursuant to the authority of OSHA, and to other safety and health requirements specified in this Agreement or order. When conducting work on existing facilities, the Design-Builder must provide the Owner's Representative copies of Material Safety Data Sheets (MSDS) for any hazardous material, as defined by OSHA's Hazard Communications Standards, to be used on the job.
- d. If no OSHA standard exists, federal or other nationally recognized standards apply. Copies of current Occupational Safety and Health Standards are available from regional and/or area offices of the U.S. Department of Labor, Occupational Safety and Health Administration.

13.2.3 Protection of the Environment, Existing Vegetation, Structures, Utilities, and Improvements

- a. The Design-Builder shall perform all Work necessary to implement and accomplish a program to prevent environmental pollution during or as a result of construction performed under this Agreement. As a minimum, the Design-Builder's Work must conform to all requirements of applicable federal, state and local law.
- b. The Design-Builder must preserve, protect and maintain all existing vegetation (such as trees, shrubs, and grass), landscape features, athletic fields, and structures on or adjacent to the site of Work that are not to be removed. Care must be taken in removing trees authorized by the Owner's Representative for removal, to avoid damage to vegetation that will remain in place. Any trees or other landscape features scarred or damaged by the Design-Builder's equipment or operations must be restored by the Design-Builder. The Owner's Representative decides what method of restoration must be used and whether damaged trees and/or shrubs will be treated or replaced. The Design-Builder shall use guard posts or barriers as necessary to control vehicular traffic passing close to trees and/or shrubs to remain. Areas disturbed, such as temporary roadways or embankments, must be restored to near natural conditions that will permit the growth of vegetation. Disturbed areas must be graded and filled as required and landscaped as per the Contract Documents.
- c. The Design-Builder shall protect from damage all existing buildings, improvements or utilities at or contiguous to the site of the Work, the location of which is known. and must repair or restore any damage to these facilities resulting from failure to comply with the requirements of this Agreement or to exercise reasonable care in performing the Work. If the Design-Builder fails or refuses to repair such damage promptly, the Owner's Representative may have the necessary Work performed and charge the cost to the Design-Builder, who shall pay such costs to the Owner in a prompt manner.
- d. The Design-Builder shall obtain approval from the Owner's Representative for any temporary roads, embankments and disposal areas not included in Project

Specifications or Plans and restore such areas to original conditions, including appropriate landscaping, upon the completion of Work.

- e. Monuments, markers and works of art must be protected. Items discovered that have potential historical or archeological interest must be preserved. The Design-Builder must leave the archeological find undisturbed and must immediately report the find to the Owner's Representative so that the proper authority may be notified. The Contract Time shall be equitably adjusted in accordance with the provisions of this Agreement if the Design-Builder incurs additional cost or time to perform as a result of any such discovery.
- f. Design-Builder shall follow all Environmental Protection Agency, Virginia Department of Environmental Quality and other applicable governmental regulations and guidelines, as to the labeling, use, storage and disposal of "hazardous waste", which shall for the purposes of this agreement be defined as (a) any chemical, substance, material, mixture, contaminant or pollutant now or hereafter defined as a "hazardous substance" under the comprehensive Environmental Response, Compensation and Liability Act, as amended from time to time; (b) petroleum, crude oil, or any fraction thereof; (c) any pollutant, contaminant, special waste or toxic substance now or hereinafter listed, defined by or subject to regulation under any federal, state or local statute, ordinance, rule, regulation, standard, policy, guidance, permit, order, administrative or judicial decision or pronouncement, previously, currently or hereafter in effect, as amended from time to time, pertaining to health, safety, or the environment, including without limitation, natural resources, environmental regulation, contamination, pollution, cleanup, or disclosure.

13.2.4 Access to Site.

The Design-Builder's access to the site and use of existing roads will be as agreed to by the Design-Builder and the Owner's Representative.



Comprehensive Agreement

for the Design and Construction of a



and

Preliminary Draw Schedule

	Preliminary Monthly Billings
2023	1
January	\$1,500,000
February	\$1,000,000
March	\$1,000,000
April	\$1,000,000
May	\$1,000,000
June	\$1,750,000
July	\$2,250,000
August	\$2,500,000
September	\$2,500,000
October	\$2,500,000
November	\$2,500,000
December	\$2,500,000
2024	
January	\$2,500,000
February	\$2,500,000
March	\$3,000,000
April	\$3,000,000
May	\$3,000,000
June	\$3,000,000
July	\$2,500,000
August	\$2,500,000
September	\$2,500,000
October	\$2,500,000
November	\$2,500,000
December	\$2,500,000
2025	
January	\$2,500,000
February	\$2,500,000
March	\$2,500,000
April	\$2,500,000
May	\$2,250,000
June	\$2,250,000
July	\$2,000,000
August	\$1,750,000
September	\$825,000

Total \$73,075,000

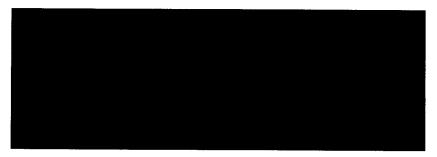
Notes *

FF&E and AV/IT Allowance of \$4,000,000 depending on when ordered and invoiced D/B Contingency has been allocated equally thru preliminary draw schedule

PAYMENT APPLICATION (4 PAGES)

Comprehensive Agreement

for the Design and Construction of a



of payment are without	Contractor riamed herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract	Contractor name	36	\$0.00	NET CHANGES by Change Order
D is payable only to the	This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the	This Certificate		\$0.00	TOTALS
Date		By			Total approved this Month
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	nex C	Notary Public: My Commission ex		0.00	b% of Stored Material (Column F on G703) Total Retainage (Lines 5a + 5b or
City of:	ia sw	State of: Virginia Subscribed and swi		0.00	a% of Completed Work (Column D + E on G703)
Date:	and the state of t	Ву:		چ	TOTAL COMPLETED & STORFD TO DATE (Column G on G703) RETAINAGE
	<i>R</i> :	CONTRACTOR:	And the second s	တန္တ	 ORIGINAL CONTRACT SUM Net change by Change Orders CONTRACT SUM TO DATE (Line 1 ± 2)
II amounts have been paid by syment were issued and shown herein is now due.	completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.	completed in ac the Contractor f payments receiv			Communion Sired, AIA Document G7/35, Is anached
ortractor's knowledge, for Payment has been	The undersigned Contractor certifies that to the best of the Contractor's knowledge information and belief the Work covered by this Application for Payment has been	The undersigne information and		NENT	CONTRACTOR'S APPLICATION FOR PAYMENT Application is made for payment, as shown below, in connection with the Cortract.
	CONTRACT DATE.				CONTRACT FOR:
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				VIA ARCHITECT:	FROM CONTRACTOR:
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AIA DOCUMENT 6762 - APPLICATION AND CERTIFICATION FOR PAYMENT - 1992 EDITION - AIA® @ 1992

AIA DOCUMENT 0702 - APPLICATION AND CERTIFICATION FOR PAYMENT - 1992 EDITION - AIA® -# 1992

THE AMERICAN INSTITUTE OF ARCHITECTS, 1735 NEW YORK AVE, N.W., WASHINGTON, DC 2006-8292

Users may obtain validation of this document by requesting a completed AIA Document D401 - Certification of Document's Authenticity from the Licensee.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:

ARCHITECT'S PROJECT NO:



																								
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ARCHITECT'S PROJECT NO:

APPLICATION DATE: APPLICATION NO:

PERIOD TO:



Comprehensive Agreement

for the Design and Construction of a

New ____

and

Private Entity Certification

for the **Comprehensive Agreement** between

VIRGINIA and

THE CITY OF

	- PPEA	
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Signatures of Authorized Principals:		
Name:		
Title: Manager & Executive in Charge	_	
Date:		
Signature		
Name:		
Title: Project Executive		
Date:		
Comprehensive Agreement	Page 1 of 1	10-20-2022

SAMPLE PERFORMANCE BOND, PAYMENT BOND (6 PAGES)

Comprehensive Agreement

for the Design and Construction of a





Comprehensive Agreement

between



Sample Payment and Performance Bonds are attached (8 pages).

CONTRACTOR: (Name, legal status and address)	SURETY: (Name, legal status and principal place of business)
OWNER: (Name, legal status and address)	
CONSTRUCTION CONTRACT Date Amount: \$ Description: (Name and location)	
BOND	
	e)
Date: Not earlier than Construction Contract Date Amount: Modifications to this Bond: X N	None See Section 16
(Not earlier than Construction Contract Date Amount:	·

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

The Company executing this bond vouches that this document conforms to American Institute of Architects Document A312, 2010 edition

- § 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.
- § 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after
 - the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
 - .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
 - .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.
- § 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.
- § 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
- § 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
- § 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
- § 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
- § 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
 - .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
 - .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.
- § 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.
- § 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for
 - .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
 - .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.
- § 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

- § 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.
- § 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
- § 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
- § 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.
- § 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

- § 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.
- § 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.
- § 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.
- § 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- § 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.
- § 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
- § 16 Modifications to this bond are as follows:

(Space is provided beloe CONTRACTOR AS PRIN	rw for additional signatures o ICIPAL	f added parties, other than th SURETY	ose appearing on the cover page.)
Company:	(Corporate Seal)	Company:	(Corporate Seal)
Signature: Name and Title: Address:		Signature: Name and Title: Address:	

PAYMENT BOND

Bond No.: 106410971	
CONTRACTOR: (Name, legal status and address)	SURETY: (Name, legal status and principal place of business)
OWNER: (Name, legal status and address)	
CONSTRUCTION CONTRACT Date: Camount	
Description: (Name and location)	
BOND	
Date: January 4, 2016 (Not earlier than Construction Contract Date)	
Amount: \$12,500,000.00 Modifications to this Bond: X None	See Section 18
CONTRACTOR AS PRINCIPAL Company:	SURETY Company:
	Company.
Signature:	Signature:
Name and Title:	Name and Title:
(Any additional signatures appear on the last page of the	is Payment Bond.)
(FOR INFORMATION ONLY — Name, address and the second of th	
AGENT or BROKER:	OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

- § 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
- § 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
- § 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.
- § 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.
- § 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:
- § 5.1 Claimants, who do not have a direct contract with the Contractor,
- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).
- § 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).
- § 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.
- § 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
- § 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
- § 7.2 Pay or arrange for payment of any undisputed amounts.
- § 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
- § 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
- § 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction

Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

- § 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.
- § 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.
- § 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
- § 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
- § 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
- § 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

- § 16.1 Claim. A written statement by the Claimant including at a minimum:
- 1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- 4 a brief description of the labor, materials or equipment furnished;
- the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.
- § 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.
- § 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

- § 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.
- § 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.
- § 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.
- \S 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, or	her than those appearing on the cover page.)
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CONTRACTOR AS PI	RINCIPAL	SURETY	(Corporate Seal)
Company:	(Corporate Seal)	Company:	
Signature: Name and Title: Address:		Signature: Name and Title: Address:	