

**MAYOR AND COUNCIL MEETING
MONDAY, NOVEMBER 01, 2021
6:00 PM
DALTON CITY HALL**

A G E N D A

Call to Order

Pledge of Allegiance

Approval of Agenda

Public Commentary: *(Please Complete Public Commentary Card Prior to Speaking)*

Proclamation:

- [1.](#) "Small Business Saturday" - November 27, 2021 - Candace Eaton, DDDA

Minutes:

- [2.](#) Mayor and Council Minutes of October 4, 2021

New Business:

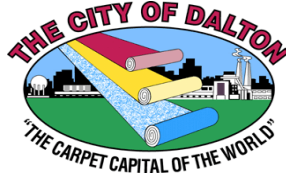
- [3.](#) (2) 2021 New Alcohol Beverage Applications
- [4.](#) Certification of Consistency with the Consolidated Plan for The Dalton-Whitfield Community Development Corporation (DWCDC) for Housing and Urban Development (HUD) Continuum of Care Funding
- [5.](#) Task Order 004A - Amendments to Professional Services Task Order 004 with Arcadis U.S., Inc. for Walnut North/ Ridge Street Drainage Study
- [6.](#) General Construction Agreement with Advanced Sports Group, LLC (ASG) for Northeast Community Complex Soccer Fields (New Synthetic Turf Construction Only Package)
- [7.](#) Contract for Services with Northwest Georgia Paving, Inc. for the Northeast Community Complex Soccer Fields Project (General Site Construction Package)
- [8.](#) Change Order with Signature Tennis Courts for Resurfacing Tennis Courts 11-20 at Lakeshore Park
- [9.](#) Creation of Defined Contribution Committee
10. Appointment of Octavio Perez to the Dalton-Whitfield Planning Commission to fill an unexpired 4-year term of Scott Delay to expire July 2023.

Supplemental Business

Announcements

Adjournment

PROCLAMATION



“SMALL BUSINESS SATURDAY” NOVEMBER 27, 2021



WHEREAS, the City of Dalton celebrates our local small businesses and the contributions they make to our local economy and community; and

WHEREAS, according to the United States Small Business Administration, there are 31.7 million small businesses in the United States that employ 47.1% of the employees in the private sector; and

Whereas, 97% of Small Business Saturday shoppers recognize the impact they can make by shopping small and agree that small businesses are essential to their community; and

WHEREAS, 95% of consumers who shopped on Small Business Saturday reported the day makes them want to shop or eat at small, independently-owned businesses all year long, not just during the holiday season, and

WHEREAS, the City of Dalton supports our local businesses that create jobs, boost our local economy, and preserve our communities; and

WHEREAS, advocacy groups as well as public and private organizations across the country have endorsed the Saturday after Thanksgiving as Small Business Saturday.

NOW, THEREFORE BE IT REOLVED, I, Mayor David Pennington, hereby proclaim **November 27, 2021**, as “**SMALL BUSINESS SATURDAY**” in the City of Dalton and urge our citizens to support small businesses and merchants on Small Business Saturday and throughout the year.

***In witness whereof, I have hereunto set my hand
and caused the seal of this city to be affixed.***

Mayor _____

Date November 1, 2021

THE CITY OF DALTON
MAYOR AND COUNCIL MINUTES
OCTOBER 4, 2021

The Mayor and Council held a meeting this evening at 6:00 p.m. in the Council Chambers of City Hall. Present were Mayor David Pennington, Council members Annalee Harlan, Tyree Goodlett, Gary Crews, City Administrator Andrew Parker and City Attorney Terry Miller.

CALLED TO ORDER

Mayor Pennington called the meeting of the Mayor and Council to order.

PLEDGE OF ALLEGIANCE

The audience was led in the Pledge of Allegiance.

APPROVAL OF AGENDA

On the motion of Council member Harlan, second Council member Goodlett, the Agenda dated October 4, 2021 was approved. The vote was unanimous in favor.

PUBLIC COMMENTARY

Robert Hill addressed the Mayor and Council requesting denial of a certain package Alcohol Beverage application, stating it would be detrimental to his church, South Dalton Baptist Church.

Note: Request for Alcohol Beverage in the City is accompanied by a certified surveyor to measure distance requirements.

PROCLAMATION – GENERAL AVIATION

The Mayor and Council proclaimed October 2021 as General Aviation Appreciation Month in the City of Dalton and to promote future economic growth of the next generation of aviation professionals and pilots.

MINUTES

The Mayor and Council reviewed the Regular Meeting Minutes of September 20, 2021. On the motion of Council member Harlan, second Council member Crews, the minutes were approved. The vote was unanimous in favor.

RESOLUTION 21-10 RECOGNIZING GEORGIA CITIES WEEK, OCTOBER 3-9, 2021

City Administrator Andrew Parker read Resolution 21-10 recognizing Georgia Cities Week, October 3-9, 2021, And Encouraging All Residents to Support the Celebration and Corresponding Activities.

NEW 2021 ALCOHOL BEVERAGE APPLICATIONS

The Mayor and Council reviewed the following 2021 Alcohol Beverage Applications:
(3) New 2021 Alcohol Beverage Applications

1. Business Owner: Jilljay 1 Inc.
d/b/a: Dalton Beverages
Applicant: Rajan Patel
Business Address: 1007 South Thornton Ave
License Type: Package Beer, Package Wine, Package Liquor (Package Store)
Disposition: **New**

2. Business Owner: Tienda Tikal #2, LLC
d/b/a: Tienda Tikal #2
Applicant: Andres Juan Pascual
Business Address: 616 4th Avenue Suite 4 - 6
License Type: Pouring Beer (Restaurant | Convenience Store)
Disposition: **New**

3. Business Owner: Freya's Lounge Corp.
d/b/a: Freya's Lounge Corp.
Applicant: Rudy Aviles
Business Address: 303 East Morris St.
License Type: Pouring Beer, Pouring Wine, Pouring Liquor (Restaurant)
Disposition: **New**

On the motion of Council member Harlan, second Council member Crews, the Mayor and Council approved the applications. The vote was unanimous in favor.

ENGAGEMENT LETTER WITH INVESTMENT RESEARCH & ADVISORY (IRA) GROUP FOR CITY OF DALTON RETIREMENT PLANS

Human Resources Director Greg Batts presented the Engagement Letter with Investment Research & Advisory (IRA) Group for City of Dalton Retirement Plans. Batts stated this engagement letter is for services related to investment advisory services for the defined contribution plan with cost split between the City and Dalton Utilities. On the motion of Council member Goodlett, second Council member Harlan, the engagement letter was approved. The vote was unanimous in favor.

WINDSTREAM CONTRACT - FIBER INTERNET SERVICE AT DALTON MUNICIPAL AIRPORT

Airport Director Andrew Wiersma presented the Addendum to the Current Windstream Contract which Provides for an Upgrade of Existing DSL Internet Service to Fiber Internet Service at Dalton Municipal Airport in the amount of \$620.00 per month. On the motion of Council member Harlan, second Council member Goodlett, the Mayor and Council approved the contract. The vote was unanimous in favor.

CHANGE ORDER 001 FOR 2021 LMIG PROJECT WITH NORTHWEST GEORGIA PAVING, INC

Assistant Public Works Director Meagan Elliott presented the Change Order 001 for 2021 LMIG Project with Northwest Georgia Paving, Inc – Deep Patching on College Drive at a cost of \$69,250.60 to be paid from the 2015 SPLOST. On the motion of Council member Goodlett, second Council member Crews, the Mayor and Council approved the Change Order. The vote was unanimous in favor.

PROFESSIONAL SERVICES AGREEMENT WITH GOODWYN MILLS CAWOOD (GMC)

Assistant Public Works Director Meagan Elliott presented the Professional Services Agreement with Goodwyn Mills Cawood (GMC) for Civil Design Services for Phase 2 Gateway Corridor Improvement Plan – Dug Gap Connector Road not to exceed \$478,800.00 to be paid from the 2021 Bond Issue Project. On the motion of Council member Harlan, second Council member Crews, the Mayor and Council approved the Change Order. The vote was unanimous in favor.

GENERAL CONSTRUCTION AGREEMENT WITH PLACE SERVICES, INC.

City Administrator Andrew Parker presented the General Construction Agreement with Place Services, Inc. for City Hall Cupola Repairs in the amount of \$173,238.51 to be paid from Capital Improvement Plan. Parker stated City Hall is experiencing roof leaks due to water intrusion from existing windows, trim and flashing around the cupola structures. On the motion of Council member Crews, second Council member Harlan, the Agreement was approved. The vote was unanimous in favor.

RESOLUTION 21-11 ACCEPTING DONATION OF REAL PROPERTY AND DEDICATION OF PUBLIC RIGHT-OF-WAY OF STREET TO BE NAMED AND KNOWN AS "JACK BANDY WAY"

Assistant Public Works Director Meagan Elliott presented Resolution 21-11 Accepting Donation of Real Property and Dedication of Public Right-of-Way of Street to Be Named and Known as "Jack Bandy Way" by Hamilton Health Care System, Inc. City Administrator Andrew Parker stated the dedication ceremony will be held October 5, 2021 at 1PM. On the motion of Council member Goodlett, second Council member Crews, the Resolution was adopted. The vote was unanimous in favor.

Note: Dedication of Public Right away will be revised to remove Hamilton Health Care System as the owner and list Hamilton Medical Center as the legal owner.

RESOLUTION 21-12 ACCEPTANCE OF PROPERTY DONATION FROM KEB GROUP, LLC

City Administrator Andrew Parker presented Resolution 21-12 regarding acceptance of a property donation from KEB Group LLC. Parker stated the parcel is 12-163-04-010 on Smith Industrial Boulevard adjacent to Broadus-Durkan Soccer Complex. On the motion of Council member Goodlett, second Council member Harlan, the Mayor and Council accepted the donation. The vote was unanimous in favor.

ORDINANCE 21-19 REQUEST OF MARIA PAJARITO TO ANNEX PROPERTY LOCATED AT 1501 HALE BOWEN DRIVE

NWGRC Assistant Planning Director Ethan Calhoun presented Ordinance 21-19 Request of Maria Pajarito to annex property located at 1501 Hale Bowen Drive, a tract of land totaling .19 acres zoned Medium Density Single Family Residential (R-3) into the City of Dalton. Parcel (12-179-02-050). On the motion of Council member Harlan, second Council member Goodlett, the Annexation was approved. The vote was unanimous in favor.

ADJOURNMENT

There being no further business to come before the Mayor and Council, the meeting was Adjourned at 6:24 p.m.

Bernadette Chattam
City Clerk

David Pennington, Mayor

Recorded
Approved: _____
Posted: _____



CITY COUNCIL AGENDA REQUEST

Meeting Type: Mayor & Council Meeting
Meeting Date: 11/01/2021
Agenda Item: (2) Alcohol Beverage Applications
Department: City Clerk
Requested By: Gesse Cabrera
Reviewed/Approved by City Attorney? Yes
Cost: N/A
Funding Source if Not in Budget N/A

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

(2) Alcohol Beverage Application recommendations by the Pubic Safety Commission at the October 26, 2021 regular called meeting.

2021 ALCOHOL BEVERAGE APPLICATION

PSC TUESDAY OCTOBER 26, 2021

M&C MONDAY NOVEMBER 1, 2021

(2) 2021 ALCOHOL APPLICATIONS

1. Business Owner: VIP Friends II, LLC
d/b/a: VIP Tobacco Mart 2
Applicant: Ashit Sushilkumar Kadakia
Business Address: 314 North Glenwood Ave. Suite 105
License Type: Package Beer (Convenience Store)
Disposition: **New**

2. Business Owner: Cigar Tyme Lounge, LLC
d/b/a: Cigar Tyme Lounge
Applicant: Juan Carlos Escudero Soriano
Business Address: 267 North Hamilton St
License Type: Pouring Beer, Pouring Wine (Lounge)
Disposition: **New**



CITY COUNCIL AGENDA REQUEST

Meeting Type:	Mayor & Council Meeting
Meeting Date:	11-1-21
Agenda Item:	HUD Certification of DWCDC's Continuum of Care Application
Department:	Finance
Requested By:	Cindy Jackson
Reviewed/Approved by City Attorney?	N/A
Cost:	\$0
Funding Source if Not in Budget	N/A

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

The Dalton-Whitfield Community Development Corporation (DWCDC) has applied for Housing and Urban Development (HUD) Continuum of Care funding for two programs. The City is required to certify that these programs are consistent with the City's Consolidated Plan. The grants are for the Permanent Supportive Housing Program and total \$345,172. This program supports the City's Consolidated Plan goals in regards to homeless and unsheltered persons.

**U.S. Department of Housing
and Urban Development**

**Certification of Consistency Plan
with the Consolidated Plan
for the Continuum of Care
Program Competition**

I certify the proposed activities included in the Continuum of Care (CoC) project application(s) is consistent with the jurisdiction's currently approved Consolidated Plan.

Applicant Name: Multiple Applicants (see attachment)

Project Name: Multiple Projects (see attachment)

Location of the Project: City of Dalton, Georgia

Name of
Certifying Jurisdiction: City of Dalton, Georgia

Certifying Official of the Jurisdiction

Name: David Pennington

Title: Mayor

Signature: _____

Date: _____

Public reporting burden for this collection of information is estimated to average 3.0 hours per response, including the time for reviewing instructions, completing the form, attaching a list of projects if submitting one form per jurisdiction, obtaining local jurisdiction's signature, and uploading to the electronic e-snaps CoC Consolidated Application. This agency may not conduct or sponsor, and a person is not required to respond to, a collection information unless that collection displays a valid OMB control number.

Privacy Act Statement. This form does not collect SSN information. The Department of Housing and Urban Development (HUD) is authorized to collect all the information required by this form under 24 CFR part 91, 24 CFR Part 578, and is authorized by the McKinney-Vento Act, as amended by S. 896 The Homeless Emergency Assistance and Rapid Transition to Housing (HEARTH) Act of 2009 (42 U.S.C. 11371 et seq.).

HUD considers the completion of this form, including the local jurisdiction(s) authorizing official's signature, as confirmation the project application(s) proposed activities submitted to HUD in the CoC Program Competition are consistent with the jurisdiction's Consolidated Plan and, if the project applicant is a state or unit of local government, that the jurisdiction is following its Consolidated Plan per the requirement of 24 CFR part 91. Failure to either submit one form per project or one form with a listing of project information for each field (i.e., name of applicant, name of project, location of project) will result in a technical deficiency notification that must be corrected within the number of days designated by HUD, and further failure to provide missing or incomplete information will result in project application removal from the review process and rejection in the competitive process.

**Certification of Consistency with the Consolidated Plan (attachment)
City of Dalton**

<u>Applicant Name</u>	<u>Project Name</u>	<u>Location of the Project</u>	<u>Name of Federal Program to which applicant is applying</u>
Dalton-Whitfield Community Development Corporation	PH SPC Case Manager	1309 Georgian Pl. Dalton, GA 30720	HUD Continuum of Care (CoC) Program - Renewal Application
Georgia Housing and Finance Authority (GHFA)	Dalton Whitfield CDC S+CR_C	1309 Georgian Pl., Dalton, GA 30720	HUD Continuum of Care (CoC) Program - Renewal Application



CITY COUNCIL AGENDA REQUEST

Meeting Type: Mayor & Council Meeting

Meeting Date: 11/1/21

Agenda Item: Task Order 004A - Amendments to Professional Services Task Order 004 with Arcadis U.S., Inc. for Walnut North/Ridge Street Drainage Study

Department: Public Works

Requested By: Megan Elliott

Reviewed/Approved by City Attorney? Yes

Cost: \$48,502 (lump sum price)

Funding Source if Not in Budget 2015 SPLOST

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

This will authorize Task Order 004 A under the Master Services Agreement with Arcadis to address the development of construction plans for new detention flood storage areas on the West Hill Cemetery site.

See attached Task Order for additional information about the scope of the project.

PROFESSIONAL SERVICES TASK ORDER

Task Order Number: 004A
Task Order Date: October 10, 2021

Subject to the Master Services Agreement between *the City of Dalton, Georgia* [Client] and *Arcadis U.S., Inc.* [Arcadis], dated March 1, 2020, Client hereby authorizes Arcadis to perform services as specified in this Task Order and in accordance with the above mentioned Agreement.

1. Project Description: A description of Client’s Project for which work is requested is provided in Attachment 1, incorporated into this Task Order.

Client's Project Number: _____
Project Name: West Hill Cemetery – Design Services
Client's Representative: Jackson Sheppard

2. Scope of Work: Arcadis shall perform its services as described in Attachment 1, incorporated into this Task Order.

Arcadis's Job Number: _____
Arcadis's Representative: Richard Greuel, P.E.

3. Time Schedule: Arcadis shall use reasonable efforts to complete its work by: 160 days of Notice to Proceed

4. Compensation: Arcadis's Compensation authorized under this Task Order, which shall not be exceeded without prior written authorization of Client, is:

\$ 48,502 [] This Task Order's Method of Payment is incorporated and attached as Attachment 2.

5. Special Conditions: This Task Order is subject to the special provisions as described in Attachment 3, attached and incorporated into this Task Order:

6. Amendment: [1] This Task Order amends a previously executed Task Order: Ridge Street Drainage Study

Previous Task Order Number: 004 Previous Task Order Date: March 11, 2021

ISSUED AND AUTHORIZED BY:
Client

ACCEPTED AND AGREED TO BY:
Arcadis, INC.

By: _____

By: _____

Title: _____

Title: _____

PROFESSIONAL SERVICES TASK ORDER

Task Order Number: 004A

Attachment 1 Description of Project & Scope of Work

Introduction

The City of Dalton Public Works Department has requested that Arcadis prepare this proposal to provide engineering support to develop infrastructure improvements related to known flooding issues downstream of the West Hill Cemetery adjacent to Ridge Street and along West Franklin Street. Previously, Arcadis conducted a drainage study of the area and identified various improvements which could be implemented to reduce flooding within the basin. The draft findings were published in a technical memorandum (DRAFT Ridge Street Drainage Study – Improvement Scenarios) was dated September 23, 2021. This scope of work is designed to assist the City with development of construction plans for new detention flood storage areas on the West Hill Cemetery site and referred to as Scenario C in the draft findings.

Task 1 – Construction Plans

30% Plans

Arcadis will prepare a design submittal at the 30-percent design stage and submit to the City of Dalton Public Works Department for review. The 30-percent design drawings and deliverables will include:

- 30% Submittal Construction Plan Sheets
 - Title Sheet
 - Existing Conditions Plan
 - Demolition Plan
 - Site, Grading and Drainage Plan
 - Limited Construction Details

Additionally, Arcadis will provide a brief stormwater management memo outlining the hydrologic / hydraulic performance of the proposed improvements. Please note that Arcadis will utilize the same model developed previously for the Ridge Street Drainage Study. As such, this memo will focus on illustrating the differences between the existing and proposed conditions of the design / plan.

Deliverables:

- 30% Construction Plans (PDF Format)
- Stormwater Management Analysis memo (PDF Format)

Assumptions:

- No significant changes to the configuration of the conceptual design improvements outlined in the original report in the previous effort.
- ARCADIS will address one round of review comments for the 30-percent design.
- The City will provide one set of consolidated review comments for the 30% Design Plan submittal.
- The scale of plan drawings will be 1-inch equals 20-feet.
- This project will be exempt from water quality, channel protection, and detention requirements of the City's Land Development Ordinance.
- It is anticipated that the disturbed area of the project will be greater than 1 acre, as such, a NPDES Construction permit will be required for this project. Additionally, the City will need to issue a Land Disturbance Permit for the project under the Georgia Erosion & Sedimentation Act.
- Any additional surveying required for the project will be secured separately by the City.

- No geotechnical or environmental design services will be required for this project. The geotechnical investigation previously secured by the City will be sufficient for design.
- GDOT standard details and specifications will be sufficient for the project for drainage elements.
- No structural design services will be required for the project.

60% Plans

Arcadis will prepare a design submittal at the 60-percent design stage and submit to the city for review. The 60-percent design drawings and deliverables will include:

- 60% Submittal Construction Plan Sheets
 - Title Sheet
 - General Notes
 - Existing Conditions Plan
 - Demolition Plan
 - Tree Protection Plan (if required)
 - Site, Grading and Drainage Plan
 - Pipe Profiles
 - Traffic Control Plan (if required)
 - Erosion & Sedimentation Plans
 - Erosion & Sedimentation Details
 - Standard Details

Deliverables:

- 60% Construction Plans (PDF Format and 1 hardcopy)
- Stormwater Management Analysis memo (PDF Format) – If changed from the previous submittal.

Assumptions:

- ARCADIS will address one round of review comments for the 60-percent design.
- The City will provide one set of consolidated review comments for the 60% Design Plan submittal prior to the plan review meeting.
- The scale of plan drawings will be 1-inch equals 20-feet

90% Plans

Arcadis will prepare a design submittal at the 90-percent design stage and submit to the City for review. The 90-percent design drawings and deliverables will include:

- 90% Submittal Construction Plan Sheets
 - Title Sheet
 - General Notes
 - Existing Conditions Plan
 - Demolition Plan
 - Tree Protection Plan (if required)
 - Site, Grading and Drainage Plan
 - Pipe Profiles
 - Traffic Control Plan (if required)
 - Erosion & Sedimentation Plans
 - Erosion & Sedimentation Details
 - Standard Details

It is the intent of the 90% drawings to be sufficient for permitting. Following completion of the effort, Arcadis will provide a 90% set of construction plans marked "For Permitting" signed and sealed by a Georgia Registered Engineer with a Level II Design certification by the Georgia Soil and Water Conservation Commission.

Deliverables:

- 90% Construction Plans (PDF Format and 1 hardcopy)
- Stormwater Management Analysis memo (PDF Format) – If changed from the previous submittal.

Assumptions:

- ARCADIS will address one round of review comments for the 90-percent design.
- The County will provide one set of consolidated review comments for the 90% Design Plan submittal prior to the plan review meeting.
- Following completion of this task, the plans will be considered final and sealed / signed drawings will be provided.

Task 2 – Permitting Support

Following completion of the plans, it is assumed that the City Public Works staff will submit the plans to the appropriate agency for issuance of a Land Disturbance permit. Arcadis will provide support for the permitting effort. This will include plan revisions and answers to questions submitted by the plan reviewers. Following completion of the effort, Arcadis will provide a 100% set of construction plans marked "For Construction" signed and sealed by a Georgia Registered Engineer with a Level II Design certification by the Georgia Soil and Water Conservation Commission.

PROFESSIONAL SERVICES TASK ORDER
Task Order Number: 004A

Attachment 2
Task Order Payment Terms

All work will be completed on a time and materials basis for a fee not to exceed the amount listed in this Task Order based on the 2021 rate table below.

2021 Rate Schedule

Title	Rate \$/hr
Project Administrative Assistant	\$70
Project Assistant	\$90
Sr Project Assistant	\$120
Project Manager	\$215
Engineering Technician I	\$90
Engineering Technician II	\$110
Staff Engineer/Scientist/Architect I	\$90
Staff Engineer/Scientist/Architect II	\$100
Staff Engineer/Scientist/Architect III	\$110
Project Engineer/Scientist/Architect I	\$120
Project Engineer/Scientist/Architect II	\$135
Project Engineer/Scientist/Architect III	\$150
Senior Engineer/Scientist/Architect I	\$165
Senior Engineer/Scientist/Architect II	\$180
Senior Engineer/Scientist/Architect III	\$195
Principal Engineer/Scientist/Architect I	\$240
Principal Engineer/Scientist/Architect II	\$265
Principal Engineer/Scientist/Architect III	\$290
Registered Land Surveyor	\$150
2-man Survey Crew	\$150
3-man Survey Crew	\$225

* A rate schedule will be provided with each Task Order proposal based on the specific services that will be provided and the rates effective at that time.

*All direct expenses will be billed at cost plus 10%

*Mileage will be billed at the current federal mileage rate

* Additional Services requested by the City beyond those in Scope of Work will be billed on an hourly basis in accordance with this rate schedule

PROFESSIONAL SERVICES TASK ORDER
Task Order Number: 004A

Attachment 3
Special Conditions

None.



CITY COUNCIL AGENDA REQUEST

Meeting Type:	Mayor & Council Meeting
Meeting Date:	11/1/21
Agenda Item:	General Construction Agreement with Advanced Sports Group, LLC (ASG) for Northeast Community Complex Soccer Fields (New Synthetic Turf Construction Only Package)
Department:	Public Works
Requested By:	Megan Elliott
Reviewed/Approved by City Attorney?	Yes
Cost:	\$ 1,551,275.22 (lump sum price)
Funding Source if Not in Budget	2020 SPLOST - SP210

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

This request is to approve the General Construction Agreement with Advanced Sports Group, LLC (ASG) for the synthetic turf construction at the Northeast Community Complex Soccer Fields.

This is contract is for Phase 2 of a Two (2) Phase project. The scope of work in this contract consists of the installation of a complete turn-key synthetic turf field system for two (2) fields.

The proposal received from ASG included a base bid in the amount of \$1,456,132.85. City Staff recommends the bid alternates (Alt #1, Alt #3, & Alt #4), for a total amount of \$95,242.78, be awarded in addition to the base bid for a project total amount of **\$1,551,275.22.**

The Finance Department has set up a charge account to fund this project.

**CITY OF DALTON
PUBLIC WORKS DEPARTMENT**

GENERAL CONSTRUCTION AGREEMENT

THIS GENERAL CONSTRUCTION AGREEMENT is made and entered into on this 1 day of November, 2021 by and between the City of Dalton, a Georgia Municipal Corporation, hereinafter referred to as "CITY", and Advanced Sports Group, LLC (ASG), hereinafter referred to as "CONTRACTOR".

WHEREAS, CONTRACTOR desires to construct the project to the CITY's specifications; and

WITNESSETH: That the parties hereto for the considerations hereinafter mentioned covenant and agree as follows:

1. CONSTRUCTION SITE: The real property upon which the project shall be constructed is located on the project site located off of Hale Bowen Drive, Dalton, GA that shall be designated for the Northeast Community Complex Soccer Fields, hereinafter "subject property". Final Plat for the "subject property" is attached hereto as Exhibit 'A'.

2. USE OF PROPERTY: CONTRACTOR shall have use and possession of the subject property to complete the project: The subject property shall be occupied and used in conformity with all laws, statutes, ordinances, rules, restrictions and orders of any federal, state or municipal governments or agencies thereof having jurisdiction over the use of the subject property. The subject property shall be used for construction of the subject project and related storage only and not for any other commercial operations. The storage of flammable liquids, gases, fuels, lubricating or waste oil, acids, paint and solvents or other dangerous materials is prohibited except that such materials may be kept and stored in proper receptacles and secured from access by the public at the subject property during construction as may be necessary for use in the operation of CONTRACTOR for completion of the subject project. Any such substances shall be delivered in such amount, and stored and used only as approved by the CITY and in accordance with applicable federal, state and local statutes, ordinances, rules and regulations in force during the term of the Agreement.

3. PROJECT: The CONTRACTOR shall complete the project and perform the services specified in the Request for Proposals for Dalton Soccer Complex (Synthetic Turf Field Construction ONLY) from ASG which is included herein by reference and specifications provided in the CONTRACTOR's proposal attached hereto as Exhibit "B", and Pricing Proposal dated 10.14.2021 from ASG which is included herein by reference and the specifications provided in the CONTRACTOR's proposal attached hereto as Exhibit "C", hereinbefore and after

“the project”.

4. DATE OF COMMENCEMENT: The CONTRACTOR shall commence work on the project within ten (10) days after receipt of the dated Notice to Proceed.

5. DATE OF COMPLETION: The CONTRACTOR shall complete the project on, or before, June 30th, 2022.

6. CONTRACT SUM: The CITY shall pay to CONTRACTOR the total sum of \$ 1,551,275.22 Dollars for the complete performance of the project and terms of this Agreement. In addition, CITY shall pay to CONTRACTOR for any additional work performed pursuant to any mutually agreed to change orders. All change orders shall be in writing signed by both parties.

7. CONTRACT PENALTY: The CONTRACTOR shall pay to the CITY the amount of \$ 250.00 Dollars per calendar day for unexcused delay in completion of the project past the date of completion.

8. PAYMENT: The CITY shall pay the contract sum to CONTRACTOR upon complete performance of the project and terms of this Agreement. CONTRACTOR shall provide to CITY an Affidavit from the CONTRACTOR stating the CONTRACTOR has fully performed all terms of the Agreement. Final payment shall be made no later than 30 days after receipt of said Affidavit. Upon completion of any additional services, said additional services shall be paid within 30 days of receipt of invoice from CONTRACTOR. Payment shall be made via electronic funds transfer (EFT).

9. SURRENDER OF subject property: CONTRACTOR shall, no later than 5 days after completion of the project, surrender possession of the subject property and remove all vehicles, equipment, supplies, construction debris, waste and refuse from the subject property. CONTRACTOR shall reimburse CITY for the cost of removal of any such items remaining on the subject property after 5 days. CITY may have any such items stored at CONTRACTOR'S risk and expense. All personal property of CONTRACTOR, or SUBCONTRACTOR, remaining on the subject property or in possession of the CITY after 30 days shall be deemed abandoned by the CONTRACTOR, or the SUBCONTRACTOR, and may be disposed of by CITY without liability to CONTRACTOR, or SUBCONTRACTOR. All permanent improvements to the subject property shall become the Subject property of the CITY.

10. CITY COVENANTS: CITY covenants and agrees:

(a) to provide all available information, data, reports, records and maps of or to which CITY has possession or control which are necessary for CONTRACTOR to perform the scope of services provided for herein;

- (b) to provide reasonable assistance and cooperation to CONTRACTOR in obtaining any information or documentation which are necessary for CONTRACTOR to perform the scope of services provided for herein;
- (c) to designate a representative authorized to act on the CITY's behalf with respect to the project. Unless otherwise provided, said CITY representative shall be the Director of Public Works;
- (d) to permit access to the subject property and obtain permission to access necessary private property for CONTRACTOR to complete the scope of services;
- (e) to provide reasonable assistance to CONTRACTOR in applying for and obtaining any necessary Federal, State or local government permits for the scope of services;

11. CONTRACTOR COVENANTS: CONTRACTOR covenants and agrees:

- (a) to perform the scope of services in a skilled, qualified, and professional manner, using that degree of care and skill ordinarily exercised by contractors practicing in the same or similar field;
- (b) to use only employees and subcontractors qualified to complete the work with sufficient experience on same or substantially similar projects;
- (c) to use only properly licensed employees or subcontractors for any work requiring a specialty, occupational, or professional license issued by the State of Georgia;
- (d) to designate a representative authorized to act on the CONTRACTOR's behalf with respect to the project.
- (e) to use the subject property in a safe, careful and lawful manner;
- (f) to promptly report in writing to CITY any unsafe or defective condition of the subject property and any adverse site condition, which shall include but not be limited to limited access, extremely dense vegetation, subsurface conditions, damaged property, or existing utilities, that may adversely affect CONTRACTOR's ability to complete the scope of services or other terms of this Agreement;
- (g) to promptly report in writing to CITY any damage to or injuries sustained on the subject property and to promptly repair any damage to the subject property which is made necessary by any act of CONTRACTOR, its employees, agents, subcontractors, or invitees;

- (h) to keep the subject property in a clean and orderly condition and to remove any personal property of CONTRACTOR upon completion of the project, and require all SUBCONTRACTOR's to do the same unless otherwise permitted by the CITY;
- (i) to perform all work on the project in a good and workmanlike manner, free from faults and defects, and in conformance with the terms of this Agreement;
- (j) to determine the appropriate method, details and means of performing the scope of services provided by this Agreement;
- (k) to exercise the ordinary standard of care in complying with the laws, codes, and regulations applicable to the CONTRACTOR's services;
- (l) to exercise diligence and to complete delivery of the scope of services in a timely manner consistent with the exercise of due care;
- (m) to attend meetings to make presentations or to otherwise review the progress of the work as set out in the scope of services at the reasonable request of the CITY;
- (n) to prepare and submit to the CITY reports required by the scope of services or upon the written request of the CITY.
- (o) to keep the subject property in a clean and orderly condition and to protect from loss, damage or theft any supplies or materials necessary for completion of the project;
- (p) to permit CITY and its employees and agents access to the subject property at all reasonable times for the purposes of making repairs, inspecting the subject property, and inspecting the progress of the project;
- (q) to use only new materials appropriate for completion of the project;

12. INDEMNITY: CONTRACTOR shall indemnify CITY from and hold CITY harmless against all claims, demands and judgments for loss, damage or injury to person or property, resulting from or incurring by reason of CONTRACTOR'S use and occupancy or non-occupancy of the subject property or by the negligence or willful acts of CONTRACTOR, its agents, officers, employees, invitees or licensees and from all expenses incurred by CITY as a result thereof including, without limitation, reasonable attorneys' fees and expenses and court costs, except if arising from or caused by the sole fault or negligence of CITY or any of CITY's employees, agents or representatives acting on behalf of the CITY.

Additionally, pursuant to State law, CITY does not indemnify or hold harmless CONTRACTOR for any claims arising from the actions or omissions of CONTRACTOR or any

third party.

Additionally, CONTRACTOR agrees that all personal property that may be at any time at the subject property shall be at CONTRACTOR's sole risk or at the risk of those claiming through CONTRACTOR and that CITY shall not be liable for any damage to or loss of such personal Subject property except if arising from or caused by the sole fault or negligence of CITY.

13. INSURANCE: CONTRACTOR agrees to carry at its own expense through the term of this Agreement the types and amounts of insurance required to maintain status as a Vendor of the City of Dalton. CONTRACTOR shall provide CITY with copies or evidence of such insurance coverage prior to the commencement date of the Agreement. Such insurance policies shall name CITY as an additional insured and shall be issued by such insurance companies and on such forms as may be approved by CITY. Said insurance shall include the following:

- (a) General Liability Coverage - General Liability policy with a minimum limit of \$1,000,000.00 per occurrence for bodily injury and property damage.
 - (b) Workers' Compensation Coverage – Workers' Compensation policy with the following minimum limits:
 - (1) Workers' Compensation statutory limits;
 - (2) Employer's Liability:
 - a. Bodily Injury by Accident - \$100,000.00
 - b. Bodily Injury by Disease - \$500,000.00 policy limit
 - c. Bodily Injury by Disease - \$100,000.00 each employee.
- CONTRACTOR shall complete the Workers' Compensation Insurance Affidavit of the City of Dalton to determine if any exemption to Workers' Compensation Insurance is applicable.
- (c) Auto Liability Coverage – Auto Liability policy with a combined single limit of \$1,000,000.00 per occurrence for bodily injury and property damage, if motor vehicle is used in performance of scope of services. Comprehensive form covering all owned, non-owned, and hired vehicles.
 - (d) Property Coverage or Builder's Risk Coverage - Property Coverage or Builder's Risk policy with a minimum equal to or greater than the existing building value for renovations, equal to or greater than the total cost of construction per contract for new construction, and equal to or greater than the existing building value being renovated plus the total cost of new construction per contract for mixed renovation and new construction.

14. ASSIGNMENT: CONTRACTOR may not assign all or any portion of this Agreement without the prior written consent of CITY.

15. SUBCONTRACTORS: The CONTRACTOR shall provide written notice to CITY of CONTRACTOR'S intent to use a subcontractor for any portion of the project. CITY shall be entitled to reject any subcontractor it deems not qualified. Any subcontractor approved for work on the project shall abide by any and all terms of this Agreement.

16. NON-WAIVER OF DEFAULT: The failure or delay by either party hereto to enforce or exercise at any time any of the rights or remedies or other provisions of this Agreement shall nor be construed to be a waiver thereof, not affect the validity of any part of this Agreement or the right of either party thereafter to enforce each and every such right or remedy or other provision. No waiver of any default or breach of the Agreement shall be held to be a waiver of any other default and breach.

17. NOTICES: Any notice required or permitted to be given under this Agreement or by law shall be deemed to have been given if reduced in writing and delivered in person or given by certified mail, return receipt requested, postage prepaid to the party who is to receive such notice.

Such notice to CITY shall be mailed to: City of Dalton
ATTN: City Administrator
300 W Waugh Street
P.O. Box 1205
Dalton, GA 30722-1205

Such notice to CONTRACTOR shall be mailed to: Advanced Sports Group, LLC (ASG)
2105 Barrett Park Drive, Ste 108
Kennesaw, GA 30144

When so mailed, the notice shall be deemed to have been given as of third (3rd) day after the date it was mailed. The addresses may be changed by giving written notice thereof to the other party.

18. CONTRACT DOCUMENTS: This Agreement shall include the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Addenda relating to bidding and proposal requirements, and any other written information provided by the CITY in anticipation of receiving bids or proposals, if any, except as specifically excluded herein, and the CONTRACTOR'S bid or proposal. The terms of this Agreement shall supersede any terms in the above-referenced documents in direct conflict with the terms of this Agreement.

Additionally, the Contract Documents and all drawings, plans, specifications and other related construction or service related documents shall be the sole property of the CITY. The CONTRACTOR shall be permitted to retain copies thereof for its records and for its future professional services.

Additionally, CITY shall be authorized to rely upon all documents, whether in hard copy or electronic format, provided by CONTRACTOR. Any changes to the material terms of any

document shall be clearly identified and noted to CITY.

19. VENDOR: CONTRACTOR shall register and remain active as a Vendor of the CITY by completing the City of Dalton Vendor Packet and fully comply with any and all requirements of said Vendor.

20. TERMINATION OF CONTRACT: In the event that CONTRACTOR defaults or neglects to perform work on the project in accordance with the terms of this Agreement, CITY may terminate this Agreement by providing written notice of termination. Prior to termination of this Agreement, CITY shall provide written notice to CONTRACTOR of any default and provide CONTRACTOR ten (10) days to correct said default or deficiency.

21. WARRANTY: CONTRACTOR shall provide to CITY a general warranty for labor and materials and guaranties that the work on the project it performs shall be free from any defects in workmanship and materials for a period for a period of two (2) years from the date of completion in addition to any additional warranty provided in Section 3 - Project description. Within ten days of completion of the terms of the Agreement, CONTRACTOR shall provide to CITY all original warranty documents from any third party.

22. BONDS: CONTRACTOR shall provide and maintain the types and amounts of bonds as required by the City of Dalton Request For Proposal provided in SECTION: 00080 PROPOSAL FORM

23. MISCELLANEOUS PROVISIONS:

(a) Governing Law; Venue. This Agreement is being executed and delivered in the State of Georgia and shall be construed and enforced in accordance with the laws of that state. The exclusive jurisdiction and venue for any action arising out of this Agreement shall be the Superior Court of Whitfield County Georgia, and the parties hereby waive any and all objections or defenses thereto.

(b) Successors and Assigns. This Agreement and the respective rights and obligations of the parties hereto shall inure to the benefit of and be binding upon the successors and permitted assigns of the parties. CONTRACTOR shall not assign its rights or obligations under this Agreement without the prior written consent of the CITY.

(c) Severability of Invalid Provisions. If any provision of this Agreement shall be deemed invalid, void or unenforceable, the remaining provisions hereof shall not be affected or impaired, and such remaining provisions shall remain in full force and effect.

(d) Complete Agreement; Amendments. This Agreement constitutes the entire agreement between the parties hereto; it supersedes all previous understandings and agreements between the parties, if any, and no oral or implied representation or understanding shall vary its terms, and it may not be amended except by written instrument executed by both parties hereto.

(e) Remedies Cumulative. All rights, powers, and privileges conferred hereunder upon the parties hereto shall be cumulative, but not restrictive to those given by law.

(f) TIME IS OF THE ESSENCE. Time is of the essence of this Agreement in each and all of its provisions.

(g) Attorney Fees. In the event the CITY must enforce the terms of this Agreement by filing a civil action against CONTRACTOR, then CONTRACTOR shall pay to CITY an amount equal to fifteen percent (15%) of the contract sum as attorneys' fees, if the CITY is the prevailing party.

(h) Confidentiality. All information and documentation regarding the project and the CONSULTANT's services shall be maintained in confidence and shall not be disclosed to any third party by CONSULTANT, without CITY's written authorization, except as may be required by the Georgia Open Records Act. CONSULTANT shall promptly notify CITY of any third party request for said information or documentation prior to any disclosure. CITY agrees that the technical methods, design details, techniques and pricing data contained in any material submitted by CONSULTANT pertaining to this Agreement shall be considered confidential and proprietary, and shall not be disclosed to any third party, except as may be required by the Georgia Open Records Act.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date and year first above written.

CONTRACTOR:

CONTRACTOR:

By: _____

Title: _____

CITY:

CITY OF DALTON, GEORGIA

By: _____
MAYOR

Attest: _____
CITY CLERK

EXHIBIT 'A'

RESERVED FOR THE CLERK OF SUPERIOR COURT

PLAT NOTES

CLOSURE STATEMENT

THE FIELD DATA UPON WHICH THIS SURVEY IS BASED HAS A CLOSURE PRECISION OF 1".23,442' AND AN ANGULAR ERROR OF 03" PER ANGLE POINT. THE FIELD DATA WAS ADJUSTED USING LEAST SQUARES. THIS PLAT HAS A CLOSURE PRECISION OF N/A.

EQUIPMENT

ALL FIELD MEASUREMENTS WERE MADE USING A SOKKIA I1003 ROBOTIC TOTAL STATION AND SOKKIA SHC5000 FIELD CONTROLLER. BEARINGS ROTATED TO MONUMENTS FOUND AND SURVEY CONTROL POINTS LOCATED BY GPS OBSERVATION USING A SOKKIA GCX3 GNSS RECEIVER WITH A SOKKIA SHC5000 FIELD CONTROLLER OPERATING ON THE GEO++ REAL TIME GNSS NETWORK OPERATED BY eGPS SOLUTIONS, INC.

FLOOD STATEMENT

A PORTION OF THE SUBJECT PROPERTY DOES LIE WITHIN A 1% ANNUAL CHANCE SPECIAL FLOOD HAZARD AREA (100-YEAR FLOOD ZONE) AS SHOWN ON F.I.R.M. MAP NO. 13313C0137D, EFFECTIVE DATE 09/19/2007.

BASIS OF BEARINGS

TITLE TO THE SUBJECT PARCEL IS CURRENTLY VESTED IN THE CITY OF DALTON, GEORGIA, BOARD OF EDUCATION PER DEED BOOK 3227, PAGE 19 (TAX PARCEL NO. 12-179-02-031) AND THE CITY OF DALTON PER DEED BOOK 2945, PAGE 157, DEED BOOK 2945, PAGE 161, AND DEED BOOK 3259, PAGE 71 (TAX PARCEL NO. 12-165-01).

SOURCE OF TITLE

BEARINGS ROTATED TO MONUMENTS FOUND AND SURVEY CONTROL POINTS LOCATED BY GPS OBSERVATION USING A SOKKIA GCX3 GNSS RECEIVER WITH A SOKKIA SHC5000 FIELD CONTROLLER OPERATING ON THE GEO++ REAL TIME GNSS NETWORK OPERATED BY eGPS SOLUTIONS, INC.

REFERENCES

- 1. FRAZIER ACRES PLAT 1 / PROPERTY OF JOHN PLANZER BY R.E. SMITH DATED SEPTEMBER 4, 1945. (PLAT BOOK 1, PAGE 268)
2. SURVEY FOR CITY OF DALTON BY JOSEPH R. EVANS DATED NOVEMBER 11, 1997, REVISED JANUARY 30, 1998.
3. SURVEY FOR CITY OF DALTON BY JOSEPH R. EVANS DATED NOVEMBER 11, 1997, LAST REVISED DECEMBER 15, 1997.
4. PLAT FOR J&J INDUSTRIES, INC. BY N.B. DELOACH DATED OCTOBER 19, 1993. (DEED BOOK 416, PAGE 277)
5. MINOR SUBDIVISION PLAT OF BRYAN SPENCE SUBDIVISION BY MITCHELL LOWERY DATED FEBRUARY 9, 2017. (PLAT CABINET E, SLIDE 936)

ZONING INFORMATION

THE SUBJECT PROPERTY IS CURRENTLY ZONED R-2

BUILDING SETBACKS:

- FRONT (MAJOR): 40'
(MINOR): 25'
SIDES: 10'
REAR: 15'

GENERAL NOTES

- 1. THIS PLAT WAS PREPARED BY THE SURVEYOR OR UNDER HIS DIRECT SUPERVISION BASED ON AN ACTUAL ON THE GROUND SURVEY.
2. THE BOUNDARY CONDITIONS AND IMPROVEMENTS ARE CERTIFIED ONLY AS OF THE DATE OF PLAT PREPARATION AS LISTED IN THE TITLE BLOCK.
3. NO TITLE REPORT WAS PROVIDED TO LEWIS & ASSOCIATES LAND SURVEYING, LLC. NOR WAS AN INDEPENDENT TITLE SEARCH PERFORMED BY LEWIS & ASSOCIATES LAND SURVEYING, LLC. ALL MATTERS PERTAINING TO TITLE ARE EXCEPTED.
4. ALL DIMENSIONS SHOWN ARE HORIZONTAL GROUND DISTANCES.
5. LEWIS & ASSOCIATES LAND SURVEYING, LLC DOES NOT CERTIFY AS TO THE EXISTENCE OR NON-EXISTENCE OF ANY WETLANDS OR HAZARDOUS WASTE IN THE SURVEY AREA. NO UNDERGROUND INVESTIGATIONS HAVE BEEN PERFORMED.
6. CERTIFICATION IS MADE ONLY TO THE PARTY(IES) NAMED ON THIS PLAT. CERTIFICATION DOES NOT EXTEND TO ANY UNNAMED PARTY(IES) WITHOUT AN EXPRESS RE-CERTIFICATION BY THE SURVEYOR.
7. THIS SURVEY PLAT MAY NOT BE REPRODUCED, SCANNED OR ALTERED IN ANY WAY WITHOUT THE WRITTEN CONSENT OF LEWIS & ASSOCIATES LAND SURVEYING, LLC.
8. COPIES OF THIS SURVEY ARE NOT VALID WITHOUT AN ORIGINAL SEAL AND SIGNATURE. COPIES WITHOUT AN ORIGINAL SIGNATURE SHOULD BE CONSIDERED PRELIMINARY AND ARE NOT VALID FOR RECORDING OR CONDUCTING LAND TRANSACTIONS.
9. ALL IRON PINS SET TO BE 5/8" REBAR WITH YELLOW CAP BEARING THE REGISTRATION NUMBER OF THE SURVEYOR UNLESS NOTED OTHERWISE.
10. THE TERM "CERTIFICATION" AS USED IN RULE "180-0-09(2)" AND (3)" AND RELATING TO PROFESSIONAL ENGINEERING OR LAND SURVEYING SERVICES, AS DEFINED IN O.C.G.A. 43-15-2(6) AND (11), SHALL MEAN A SIGNED STATEMENT BASED UPON FACTS AND KNOWLEDGE KNOWN TO THE REGISTRANT AND IS NOT A GUARANTEE OR WARRANTY, EITHER EXPRESSED OR IMPLIED.
11. THIS SURVEY COMPLIES WITH BOTH THE RULES OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND THE OFFICIAL CODE OF GEORGIA ANNOTATED (O.C.G.A.) 15-6-67, IN THAT WHERE A CONFLICT EXISTS, THE REQUIREMENTS OF LAW PREVAIL.

SURVEYOR'S CERTIFICATION

AS REQUIRED BY SUBSECTION (d) OF O.C.G.A. SECTION 15-6-67, THIS PLAT HAS BEEN PREPARED BY A LAND SURVEYOR AND APPROVED BY ALL APPLICABLE LOCAL JURISDICTIONS FOR RECORDING AS EVIDENCED BY APPROVAL CERTIFICATES, SIGNATURES, STAMPS, OR STATEMENTS HEREOF. SUCH APPROVALS OR AFFIRMATIONS SHOULD BE CONFIRMED WITH THE APPROPRIATE GOVERNMENTAL BODIES BY ANY PURCHASER OR USER OF THIS PLAT AS TO INTENDED USE OF ANY PARCEL. FURTHERMORE, THE UNDERSIGNED LAND SURVEYOR CERTIFIES THAT THIS PLAT COMPLIES WITH THE MINIMUM TECHNICAL STANDARDS FOR PROPERTY SURVEYS IN GEORGIA AS SET FORTH IN THE RULES AND REGULATIONS OF THE GEORGIA BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS AND AS SET FORTH IN O.C.G.A. SECTION 15-6-67.



CHRISTOPHER E. LEWIS, PLS
GEORGIA PLS #3063 / GEORGIA LSF #1169
TENNESSEE RLS #2824 / NORTH CAROLINA PLS #L-5329

7/27/2021
DATE

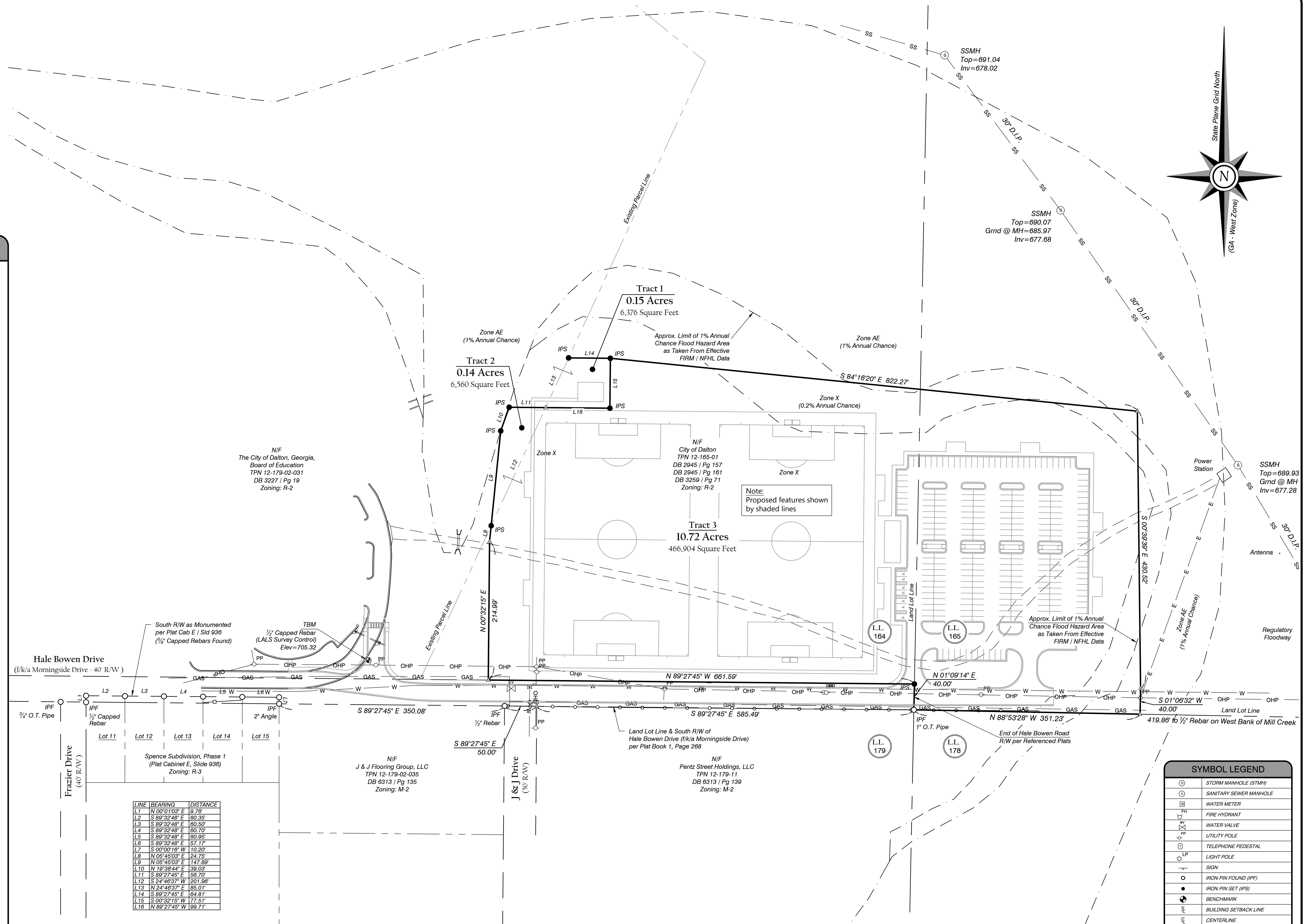


Table with 3 columns: LINE, BEARING, DISTANCE. Lists boundary lines L1 through L16 with their respective bearings and distances.

SYMBOL LEGEND table listing various symbols and their corresponding features: STORM MANHOLE (STHM), SANITARY SEWER MANHOLE, WATER METER, FIRE HYDRANT, WATER VALVE, UTILITY POLE, TELEPHONE PEDESTAL, LIGHT POLE, SIGN, IRON PIN FOUND (IPF), IRON PIN SET (IPS), BENCHMARK, BUILDING SETBACK LINE, CENTERLINE, ROAD SIGN, EXISTING CONTOUR, STORM SEWER LINE, OVERHEAD POWER LINE, OVERHEAD TELEPHONE LINE, UNDERGROUND ELECTRIC, WATER LINE, GAS LINE, CHAIN LINK FENCE, GUY WIRE, OPEN TOP PIPE, CRIMBED TOP PIPE, POINT OF BEGINNING, POINT OF COMMENCEMENT, DEED BOOK/PAGE, PLAT BOOK/PAGE, TAX PARCEL NUMBER, TEMPORARY BENCHMARK, CORRUGATED METAL PIPE, REINFORCED CONCRETE PIPE, TOP OF WALL, TITLE EXCEPTION REFERENCE.

811 logo with text 'Know what's below. Call before you dig.' Includes a graphic scale in feet (1 inch = 80 ft.) and a north arrow pointing to State Plane Grid North (GA - West Zone).

Lewis & Associates Land Surveying, LLC. Logo and contact information: P.O. Box 2046 | Dalton, GA 30722-2046 | 706.278.7518

GEORGIA PLS #3063
TENNESSEE RLS #2824
NORTH CAROLINA PLS #L-5329
GEORGIA LSF #1169
NORTH CAROLINA LSF #P-2042
GSWCC CERTIFICATION NO. 3115

FINAL PLAT (EXEMPT SUBDIVISION)
THE CITY OF DALTON
BEING PT. TAX PARCEL NOS. 12-165-01 & 12-179-02-031
LOCATED IN LAND LOTS 164 & 165, 12th DISTRICT, 3rd SECTION
CITY OF DALTON, WHITFIELD COUNTY, GEORGIA

© 2021, LEWIS & ASSOCIATES SURVEYING, LLC.
THIS DRAWING AND DESIGN ARE THE PROPERTY OF THE CONSULTANT. THEY ARE NOT TO BE REPRODUCED, COPIED, IN WHOLE OR IN PART, OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE CONSULTANT. ALL COMMON LAW RIGHTS OF COPYRIGHT AND OTHER RIGHTS ARE HEREBY SPECIFICALLY RESERVED.
UNLESS THIS DRAWING IS STAMPED, SIGNED AND DATED BY THE SURVEYOR IT SHOULD BE CONSIDERED PRELIMINARY.

Table with columns for SURVEY DATE, SURVEY CREW, COMPUTED BY, DATE DRAWN, DRAWN BY, CHECKED BY, REVISIONS, and REVISION DATE. Includes a drawing file path: DRAWING FILE: 20-209 City of Dalton-Hale Bowen.

EXHIBIT 'B'

CITY OF DALTON, GEORGIA



REQUEST FOR PROPOSALS (RFP)

For

PROJECT:

**DALTON SOCCER COMPLEX
(SYNTHETIC TURF FIELD CONSTRUCTION ONLY)**

**CITY OF DALTON
PO BOX 1205
DALTON, GEORGIA 30722**

TABLE OF CONTENTS
DALTON SOCCER COMPLEX PROJECT

Division 0 – Bid Requirements

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00020	Instructions to Proposers.....	4
00080	Proposal Form - Exhibit “A”	7
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	E-Verify Affidavit	11

SECTION 00010: REQUEST FOR PROPOSALS

NAME OF PROJECT: DALTON SOCCER COMPLEX (Synthetic Turf Field Construction Only)

NAME OF OWNER: THE CITY OF DALTON, GEORGIA

THE CITY OF DALTON (the “City”), pursuant to the provisions of O.C.G.A. § 36-91-1, *et. seq.*, herein seeks competitive Proposals from Contractors for the construction of the: “DALTON SOCCER COMPLEX – Synthetic Turf Field Construction, located on Hale Bowen Drive; East of Park Creek Elementary School. (the “Project”).

The requirements for construction of the Project, and the duties and responsibilities of the contractor whose Proposal is accepted, are set forth in the Request for Proposals issued by the City. In general, the successful contractor will be required to install a complete turn-key synthetic turf field system for 2 fields. Contractors interested in submitting Proposals must obtain Request for Proposals (RFP) on City’s website <https://www.daltonga.gov/rfps> Megan Elliott melliott@daltonga.gov will be contact person for questions. **All Proposers are required to email Megan Elliott to be added to the Plan Holders list.**

There is also an additional field in a separate RFP at Dalton Middle School. Please see City’s website for this RFP information.

Included in RFP packet will be Instructions to Proposers, Proposal Form which must be fully completed and submitted along with Bid Bond, and Executed E-Verify affidavit. Proposals not including executed E-verify affidavit will be automatically rejected. The Contract Documents require, among other things, the furnishing of all materials, labor, and equipment for construction of the Project. The City reserves the right to make available other relevant documents or information concerning the Project.

Any Proposal submitted in response to this Request should comply strictly with all requirements set forth in the Instructions to Proposers. Any such Proposal must contain the completed Proposal Form setting forth the contractor’s proposed lump sum contract price for full and complete construction of the Project in conformity with all requirements of this RFP. Proposal must include a fully executed Bid Bond in the amount of five percent (5%) of the proposed lump sum contract price (exclusive of any alternates and unit prices) in the form required by the Instructions to Proposers.

Any Contractor that intends to submit a proposal must complete the City of Dalton Vendor Packet and be an approved active Vendor with the City. Applications can be obtained from the Finance Department or online at <https://www.daltonga.gov/finance/page/vendor-packets>

For any work requiring a specialty or professional license, only licensed subcontractors may be submitted for consideration, and copies of all applicable licenses shall be attached to the Contractor’s proposal.

In evaluating Proposals, the City may seek additional information from any contractor concerning such contractor’s Proposal or its qualifications to construct the Project. The City reserves the right to short-list and interview Contractors to obtain further information on the proposed products or qualifications.

The City intends to award the construction contract to the responsible and responsive contractor whose Proposal is determined in writing to be the most advantageous to the City, taking into consideration the following evaluation factors which are listed in their order of relative importance:

- A. The Contractor's proposed synthetic turf system including durability, cost of ownership, specific application, player safety, warranty, and maintenance. (35 Points)
- B. The contractor's proposed lump sum contract price for full and complete construction of the Project in conformity with all requirements of the Contract Documents. (30 Points)
- C. The installer's qualifications, certifications, experience, and references in constructing and completing similar projects on schedule and within budget including at least five projects comparable in size and scope to this project. For purposes of this factor, the Project should not be more than 30 percent greater in scope or cost than the similar projects identified by contractor. (25 Points)
- D. The completeness and accuracy of proposals. (10 Points)

All Proposals must be clearly labeled "Sealed Proposal for Dalton Soccer Complex Project" properly signed, submitted in duplicate bounded and received by the City of Dalton Finance Department located at 300 West Waugh Street, Dalton, Georgia 30720 no later than 2:00 p.m. on the 15th day of March 2021.

A total of 2 proposals, tabbed, in bound notebooks are required. The City will receive such Proposals at such time and place. Proposals received after said time will not be accepted. At the discretion of the City, and in conformity with the applicable provisions of Georgia Law, the City may afford contractors an opportunity for subsequent discussion, negotiation, and revision of Proposals. The City reserves the right to reject any or all Proposals and to waive any technicalities or formalities. Incomplete proposals will not be considered by the City.

Contractors are responsible for ensuring Proposals comply with Georgia law, including but not limited to all state and local laws, rules, regulations, ordinances, and policies. Any Proposal must include an affidavit meeting all requirements of O.C.G.A. § 13-10-91 verifying compliance with applicable Federal work authorization program. The form for such affidavit is attached as an exhibit to the Instructions to Proposers.

Any Proposal submitted in response to this Request shall remain open for acceptance by the City, and same shall be honored by the contractor, for a period of one hundred eighty (180) days from the date set forth hereinabove for the receipt of Proposals.

Any questions or comments concerning this Request for Proposals should be addressed in writing to the City of Dalton at the address as set forth hereinabove.

THE CITY OF DALTON

End of Section 00010

SECTION 00020: INSTRUCTIONS TO PROPOSERS / SCOPE OF WORK

NAME OF PROJECT: DALTON SOCCER COMPLEX – Synthetic Field Construction

NAME OF OWNER: THE CITY OF DALTON, GEORGIA

The City wishes to install two new synthetic turf fields located just East of Park Creek Elementary School. An additional field, part of a different RFP will be at Dalton Middle School. The fields will be utilized year-round by the Dalton Parks and Recreation Department and Dalton Public Schools. The synthetic turf play surface for each field shall be 225' x 360'. The synthetic turf shall also extend 25' along each sideline and 30' into each endzone for a total dimension of 275' x 420'. A flush concrete curb 8" wide by 12" deep shall surround the fields. The fields shall include striping for football, soccer (full length field as well as cross-field for younger age groups, boys and girls lacrosse, DRPD / School logos, and names in each endzone. Field striping to be determined and approved during shop drawing submittal process by City and Landscape Architect.

Under a separate contract, the City of Dalton will prepare a compacted sub-grade at a depth determined by the Engineer. The awarded Contractor will take responsibility of prepared sub-grade for synthetic fields and then provide and install the stone base, drainage system, pads, nailer boards, turf, infill material and any other work required for a complete installation of synthetic fields.

It is the City's desire to install the highest quality, longest lasting synthetic turf system at these locations to facilitate year-round, daily use. The City's budget for this work is \$800,000 to \$1,000,000 per Field. The contractor's proposal shall include all information necessary to demonstrate why the installation of its product will provide the best available system for the intended use. Any proposed system shall meet all impact and safety requirements. The contractors are encouraged to provide as much pertinent information as possible to allow the owner to make a clear evaluation of the proposed system. At a minimum, the Contractor's proposal shall include the following:

Synthetic Turf System: The Contractor's proposal shall include a detailed description of its proposed synthetic turf system including information on player safety, impact ratings, durability,

cost of ownership, blade material / thickness, backing, seaming, drainage, thatch layer, edge details, infill material and installation.

Synthetic Turf Minimum requirements:

- Pile Height 2” min.
- Face Weight 52 oz. min.
- Shock pad w/ minimum thickness of 17 mm
- Rootzone/thatch layer included

(City encourages Proposer to propose better products and/or provide alternates to their pricing)

Stone base and drainage: The Contractor’s proposal shall include a detailed section, layout and description of the proposed stone base and drainage system. The description shall include material type, thickness and pipe size / materials. The drainage system shall be designed to accommodate a one-hundred-year storm event without any stormwater leaving the perimeter of the turf. The drainage system may include french drains, perimeter drains, surface drainage inlets, etc. as designed and installed by the Contractor. Under a separate contract, a storm water connection will be installed in each corner of the field. The Contractor shall extend its drainage system to one or all of these locations as required.

Installer’s Qualifications: The Contractor’s proposal shall include the qualifications of its installer. Include a minimum of five similar installations in the southeastern united states. Provide Owner references, project values and locations and type of turf system. The proposal shall also include the installer’s certifications from the manufacturer and professional associations, i.e., ASBA. Certified Field Builder (CFB) must be on site during entire field installation. **CFB Certificate must be turned in with Bid Proposal.**

Warranty: The Contractor’s proposal shall include the proposed manufacturer’s warranty along with any information/pricing on available extended warranties. Include a detailed description of the Owner’s responsibilities or obligations throughout the warranty period. The proposal shall include the history of warranty issues and or recalls and how these have been addressed.

Maintenance: The Contractor's proposal shall provide a description of any proposed maintenance program included in its lump sum price for each field. The proposal shall also include information for any additional maintenance programs that are available along with the proposed cost.

Lump Sum Price:

On the attached proposal form, provide the lump sum price for a complete installation of each field as described in the Contractor's proposal. The pricing for any additional warranties / maintenance programs, shall be offered under a separate form within the Contractor's proposal.

Form of Agreement:

The successful proposer will enter into a contract with the City of Dalton and general contractor for the project.

End of Section

CONTRACT ADDENDUM

ADDENDUM NO.: 001

DATE ISSUED: March 2, 2021

BID DATE: Monday, March 15, 2021

BID TIME: 2 PM ET

BID LOCATION: City of Dalton Finance Department

CONTRACTOR ACTION:

1. Acknowledge receipt of this addendum by writing in "Addendum No. 1" on the Addenda Acknowledgement Form attached and including the executed form with the proposal submittal.
2. Please substitute paragraphs labeled with the headings 'Synthetic Turf Minimum Requirements', 'Stone base and drainage', and 'Installer's Qualifications' with the paragraphs included in the attached document labeled Section 00020 Substitutions.

INTERPRETATIONS:

Responses by the City of Dalton follow the questions in red font.

1. Please confirm that each firm submitting a proposal must have a General Contractor's license. **No, the requirement for the General Contractor's license does not typically apply to single trade projects.**
2. The RFP states "under a separate contract, the City of Dalton will prepare a compacted subgrade at a depth determined by an engineer." Can you please provide a specification and information on the depth of the stone base, drainage, etc.? **Please see the typical drainage details attached. Contractor should utilize these typical sections as a reference to the City's preference, but the details can be modified for construction with approval by the City.**
3. On page 6 of the RFP, it looks like the Owner is requesting that the Contractor be responsible for design-build of the stone base and drainage system. Can you please confirm the intent? **Please see response to question #2 above. The Contractor is responsible for the design of the system as per the specifications in the RFP, but the typical drainage details attached are provided for reference.**

4. Please confirm that the subgrade will be compacted to 95% upon arrival from the work done under the separate contract. **Yes, the subgrade will be compacted to a minimum of 95%, by others.**
5. What is the City's plan for utility infrastructure? Will there be needs for electrical, water, sewer, etc.? **The City will have electric, sanitary sewer and water connections at the site. However, these trades will be performed under a separate contract.**
6. If there are plans for lighting, can you provide the details for the conduit installation? How will that impact the field construction? **This will be coordinated with the Contractor following the award of the turf contract, and after the design plans are completed. The conduit will be installed under a separate contract.**
7. If there is a separate contract handling the clearing and mass grading operation, will the erosion control be in place upon arrival? **Yes, the erosion control will be the responsibility of the separate site contractor and will be in place prior to mobilization of the turf contractor.**
8. Since there are two (2) separate contracts, who is responsible for pulling Land Disturbance Permits and who is responsible for closing the project out once completed? **All land disturbance work and permitting will be the responsibility of the separate site contractor.**
9. On page 9 of the RFP it states that the "successful proposer will enter into a contract with the City of Dalton and the General Contractor." Please confirm if this is a typo. **Yes, this is a typo. The successful proposer will enter into a contract with the City of Dalton only, not the GC.**
10. Do you have a site drawing? **Yes, please the site concept rendering attached.**
11. Is it possible for proposers to visit the site before bidding? **Yes, the proposers are allowed to visit the site prior to submitting a proposal. Please contact the City of Dalton for scheduling.**
12. The minimum requirements for the turf states the face weight to be 52 oz min. Is there a different specification that shows the type of yarn to be used? **Please see the 'synthetic turf preferences' that replaces the paragraph with the heading of 'synthetic turf minimum requirements' for the updated information.**

BY:

Megan Elliott
Project Engineer

Attachments:

- Section 00020 Substitutions
- Typical Drainage Details
- Addenda Acknowledgement Form
- Site Concept Rendering

###

Section 00020 Substitutions

Synthetic Turf Preferences:

Pile Height 2" min.

Face Weight 46 oz. min.

Fiber Type: Slit Film & Monofilament

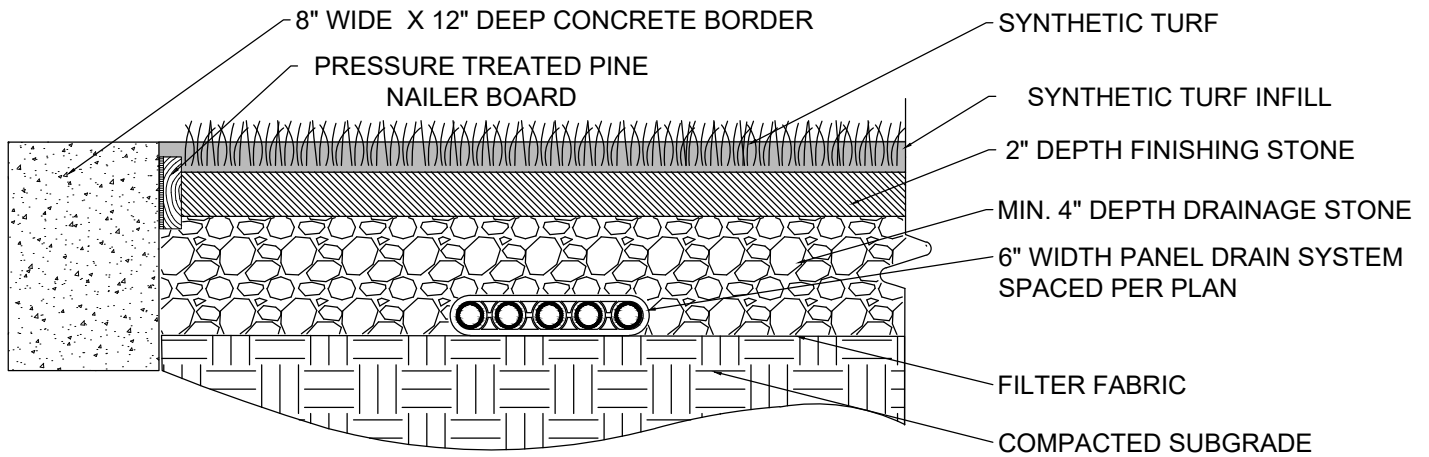
Shock pad w/ minimum thickness of 16 mm

Rootzone/thatch layer optional

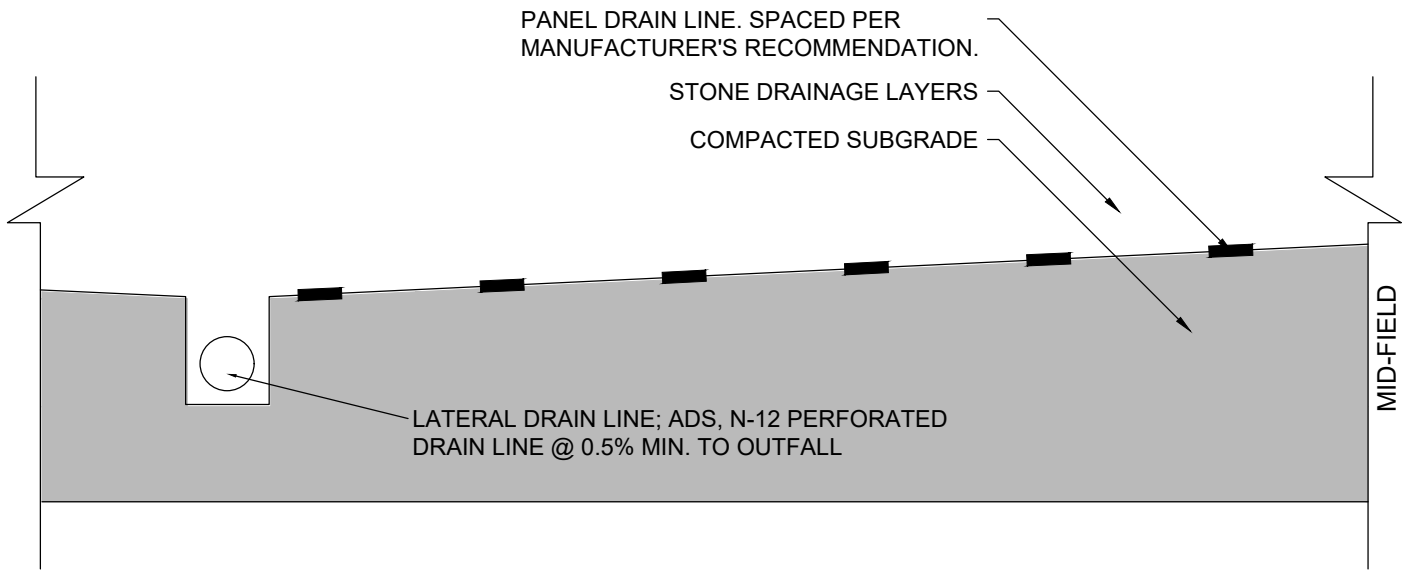
(City encourages Proposer to propose better products and/or provide alternates to their pricing)

Stone base and drainage: The Contractor's proposal shall include a detailed section, layout and description of the proposed stone base and drainage system. The description shall include material type, thickness and pipe size / materials. The drainage system shall be designed to accommodate a one-hundred-year storm event without any stormwater leaving the perimeter of the turf. The drainage system may include french drains, perimeter drains, surface drainage inlets, etc. as designed and installed by the Contractor. Under a separate contract, a storm water connection will be installed in each corner of the field. The Contractor shall extend its drainage system to one or all of these locations as required. The City has provided a typical drainage detail for the basis of design.

Installer's Qualifications: The Contractor's proposal shall include the qualifications of its installer. Include a minimum of five similar installations in the southeastern United States. Provide Owner references, project values and locations and type of turf system. The proposal shall also include the installer's certifications from the manufacturer and professional associations. Synthetic Turf Contractor must provide references for fields constructed in the state of Georgia. Synthetic Turf Council Membership and Certified Field Builder (CFB) are encouraged and will be noted during interviews, but are not mandatory.



1 TYPICAL SECTION (SYNTHETIC TURF)
NTS



2 TYPICAL SECTION (SYNTHETIC TURF)
NTS

ADDENDA ACKNOWLEDGEMENT FORM

I, Josh Mauer, acknowledge receipt of the following addenda for the Dalton Soccer Complex (Synthetic Turf Field Construction Only):

Addendum # 2 3-9-21

Company Name: Advanced Sports Group LLC

Authorized Rep. Signature: 

Authorized Rep. Title: President

DALTON SOCCER COMPLEX - SITE CONCEPT RENDERING



CONTRACT ADDENDA

ADDENDA NO.: 002

DATE ISSUED: March 9, 2021

BID DATE: Monday, March 15, 2021

BID TIME: 2 PM ET

BID LOCATION: City of Dalton Finance Department

CONTRACTOR ACTION:

1. Acknowledge receipt of this addendum by writing in "Addendum No. 2" on the Addenda Acknowledgement Form.

INTERPRETATIONS:

Responses by the City of Dalton follow the questions in red font.

1. The RFP states the following under the 'Stone Base and Drainage':

The drainage system shall be designed to accommodate a one-hundred-year storm event without any stormwater leaving the perimeter of the turf.

Is the intent of the design for the field drainage base to have the storage capacity for a 100-yr storm event, or does the system just need to properly handle the event with infiltration and pipe size sufficient to convey the stormwater to the corners of the field?

It is the intent of the turf drainage system design to properly infiltrate and convey the 100-year storm event to the separate site storm drainage system. The field subsurface drainage system is not expected to have the detention capacity for the full 100-year storm event. However, the design should be sufficient to allow the 100-year event to infiltrate without stormwater runoff sheet flowing across the field and outside the perimeter of the turf.

2. Can you please provide a construction timeline? The site design is scheduled to be completed and submitted for permit by 06/07/2021. The site package will involve a 30-day bid process with anticipated issuance of Notice to Proceed to the contractor of mid-July 2021 and a completion schedule of six (6) months.
3. In looking at the RFP, it states that the fields shall include striping for football, soccer and lacrosse. Will football goal posts be required, and if so do you have a manufacturer or model in mind? Please remove football striping from the scope of

work. It is not anticipated for football to be played on these fields, so there will not be a goal post requirement. In regard to the lacrosse and soccer striping, price the lacrosse package separately. The final striping packages will be negotiated during the interview process.

4. Will there be logos and lettering for the endzones specified prior to bid, or should this be presented in an allowance category? Also, will the endzones be green or will they have colors? The site design package is not complete, and this information will not be determined before proposals are due. Please include these options as alternates to your proposal.
5. Will the overall turf area be two (2) turf areas with the overall dimensions of 275' x 420', or is this to be one (1) turf area, 275' x 420', that is striped for two fields? The scope of the project includes two (2) turf areas that are 275' x 420' each. The final site design will most likely include a physical gap between the two (2) 275' x 420' fields of approximately 20'.

BY:

Megan Elliott
Project Engineer

SECTION: 00080 PROPOSAL FORM

EXHIBIT "A"

NAME OF PROJECT: DALTON SOCCER COMPLEX – SYNTHETIC FIELD CONSTRUCTION

NAME OF OWNER: THE CITY OF DALTON, GEORGIA

NAME OF PROPOSED CONTRACTOR: Advanced Sports Group LLC
(The "Contractor")

THE CITY OF DALTON (the "City"), pursuant to the provisions of O.C.G.A. § 36-91-1, *et. seq.*, herein seeks competitive Proposals from Contractors for the construction of the: "DALTON SOCCER COMPLEX – Synthetic Field Construction", located East of Park Creek Elementary School (the "Project"). This Proposal is submitted in response to the City's Request for Proposals dated 2/15/21.

This Proposal is for the full and complete construction of the Project in conformity with all requirements of the RFP. The submission of this Proposal constitutes a representation by the Contractor that it has carefully read the "Instructions to Proposers".

Contractor submits herewith its duly executed affidavit in accordance with the applicable Federal work authorization program. Contractor acknowledges that upon execution of any contract with the City, said affidavit shall be deemed a public record to the extent provided by Georgia law.

The Contractor further acknowledges that the Contract Documents provide no incentive provisions for early Completion of the Work.

A. Base Proposal

The Contractor proposes to fully and completely construct the two synthetic fields in conformity with all requirements of the RFP and furnish all necessary labor, material and equipment for such construction, and, furthermore, to fully, completely, and strictly perform all obligations of the Contractor as set forth in the Contract Documents, for the lump sum contract price of

~~One Million Four Hundred Fifty Seven Thousand Seven Hundred~~
~~Seventy Seven Dollars and 77/100 (\$1,457,777.77)~~
~~(\$ 728,888.87)~~ per field. Said lump sum contract price is allocated in its entirety

to the following elements of the work:

(Proposer to hold pricing for 180 days for si

See Pricing Proposal dated 10-14-2021 for Final Contract Pricing included as Exhibit 'B' ME 10/14/2021

Attached hereto, and incorporated herein as part of this Proposal, Contractor submit contractor's qualifications and proposed Synthetic Turf System. Contractor acknowledges that

* Upgrade to Shaw NaturalPlay Infill ADD \$ 374,984.64

the City may rely upon the truthfulness and accuracy of the responses set forth therein. In addition, Contractor has submitted herewith as part of this Proposal such documentation and information as Contractor deems appropriate to establish that it is a responsible and responsive Contractor and that its Proposal is the most advantageous to the City, taking into consideration the specific evaluation factors, listed in their order of relative importance, as set forth in the above-referenced Request for Proposals. Contractor acknowledges that the City may rely upon the truthfulness and accuracy of such documentation and information.

The Contractor proposes and agrees to commence actual construction (i.e., physical work) on site with adequate management, labor, materials and equipment within ten (10) days after receipt of Notice to Proceed and prosecute the Work diligently and faithfully to completion within the required Contract Time. Prior to commencing such Work, and prior to the issuance of the Notice to Proceed, Contractor shall furnish to the City duly executed Payment and Performance Bonds complying with all requirements of the Contract Documents along with Certificates of Insurance demonstrating that all required coverages are in place.

Contractor submits herewith its executed Bid Bond in accordance with the requirements of the City as set forth in the Instruction to Proposers.

Contractor herein acknowledges that this Proposal shall constitute an offer by Contractor to contract with the City for construction of the Project in conformity with all requirements of the Contract Documents for the lump sum contract price as set forth hereinabove. Said offer by Contractor is irrevocable and subject to acceptance by the City until the expiration of one hundred eighty (180) days following the date set forth in the Request for Proposals for receipt of Proposals by the City.

CONTRACTOR: Advanced Sports Group LLC

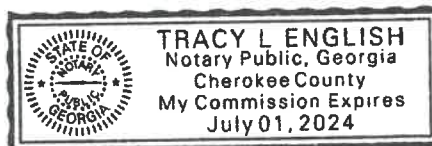
By: 

Title: President

Sworn and subscribed to before me this 15th day of March, 2021.


NOTARY PUBLIC

Commission Expiration: 7/1/2024



SECTION 00130 – Bid Bond

EXHIBIT “B”

NAME OF PROJECT: DALTON SOCCER COMPLEX – SYNTHETIC FIELD CONSTRUCTION

NAME OF OWNER: THE CITY OF DALTON, GEORGIA

NAME OF PROPOSED

CONTRACTOR:

Advanced Sports Group, LLC
(The “Contractor”)

KNOW ALL MEN BY THESE PRESENTS that
Western Surety Company, 151 N. Franklin St., Chicago, IL 60606
Advanced Sports Group, LLC
2105 Barrett Park Drive, Suite 108, Kennesaw, GA 30144, as
Surety (the “Surety”), and _____, as
Principal (the “Contractor”) are held and firmly bound unto the City of Dalton, Georgia (the “City”), pursuant to the
terms and conditions of this Bond (the “Bid Bond”) as set forth herein:

WHEREAS, the Contractor, in response to a Request for Proposals issued by the City, has submitted its Proposal
for the construction by Contractor of the: “DALTON SOCCER COMPLEX – Synthetic Field Construction”, located
East of Park Creek Elementary School (the “Project”).

NOW, THEREFORE, the condition of this obligation is such that if the City accepts the Proposal of the
Contractor as submitted, or as revised or negotiated in accordance with the provisions of O.C.G.A. § 36-91-21(c)(2),
and

- (a) The Contractor timely executes the Agreement between the City and Contractor (the
“Agreement”) as provided by the City and as included in the Contract Documents; and,
- (b) The Contractor furnishes to the City fully executed Payment and Performance Bonds as required
by the Agreement, then this obligation shall be void; otherwise, the Surety and the Contractor,
shall be jointly and severally liable to the City, and shall make payment to the City, in the amount
of five percent (5%) of the lump sum contract price (exclusive of any pricing for Alternates or unit
prices) as set forth in the Proposal of the Contractor.

The Contractor agrees that the amount of this Bid Bond as set forth hereinabove constitutes a proper and lawful sum
for liquidated damages which the City will sustain in the event Contractor fails or refuses to execute the Agreement
or fails or refuses to furnish the required Payment and Performance Bonds.

The Surety shall cause to be attached to this Bid Bond a current and effective Power of Attorney evidencing the
authority of the officer, agent, or representative who executed this Bond on behalf of the Surety to execute and
deliver same.

This Bid Bond is intended to conform to all applicable statutory requirements. Any applicable requirement
of any applicable statute that has been omitted from this Bid Bond shall be deemed to be included herein as if set
forth at length. If any provision of this Bid Bond conflicts with any applicable

statute, then the provision of said statute shall govern and the remainder of this Bid Bond that is not in conflict therewith shall continue in full force and effect.

IN WITNESS WHEREOF, the undersigned have caused this Bid Bond to be executed and their respective corporate seals to be affixed and attested by their duly authorized representatives this 15th day of March, 2021.

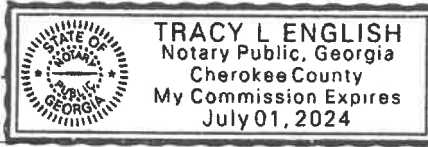
Advanced Sports Group, LLC
[CONTRACTOR]

By: [Signature] [SEAL]

[Signature: Katy Buckner]
Witness

Sworn and subscribed to before me this 15th day of March, 2021.

[Signature: Tracy L English]
NOTARY PUBLIC
Commission Expiration:



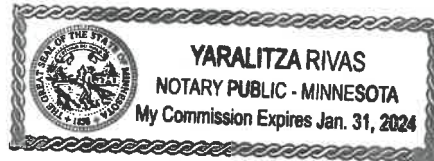
Western Surety Company
[NAME OF SURETY]

By: [Signature] [SEAL]
Sean McBride, Attorney-In-Fact

[Signature]
Witness

Sworn and subscribed to before me this 15th day of March, 2021.

[Signature]
NOTARY PUBLIC
Commission Expiration: January 31, 2024



[ATTACH PROPERLY EXECUTED POWER OF ATTORNEY]

Western Surety Company

POWER OF ATTORNEY APPOINTING INDIVIDUAL ATTORNEY-IN-FACT

Know All Men By These Presents, That WESTERN SURETY COMPANY, a South Dakota corporation, is a duly organized and existing corporation having its principal office in the City of Sioux Falls, and State of South Dakota, and that it does by virtue of the signature and seal herein affixed hereby make, constitute and appoint

Mary Jo Dingwall, Sean McBride, Carl Godziek, Michael J Jacobs, Individually

of Minnetonka, MN, its true and lawful Attorney(s)-in-Fact with full power and authority hereby conferred to sign, seal and execute for and on its behalf bonds, undertakings and other obligatory instruments of similar nature

- In Unlimited Amounts -

and to bind it thereby as fully and to the same extent as if such instruments were signed by a duly authorized officer of the corporation and all the acts of said Attorney, pursuant to the authority hereby given, are hereby ratified and confirmed.

This Power of Attorney is made and executed pursuant to and by authority of the By-Law printed on the reverse hereof, duly adopted, as indicated, by the shareholders of the corporation.

In Witness Whereof, WESTERN SURETY COMPANY has caused these presents to be signed by its Vice President and its corporate seal to be hereto affixed on this 26th day of March, 2020.



WESTERN SURETY COMPANY

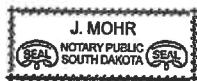
Paul T. Bruflat, Vice President

State of South Dakota }
County of Minnehaha } ss

On this 26th day of March, 2020, before me personally came Paul T. Bruflat, to me known, who, being by me duly sworn, did depose and say: that he resides in the City of Sioux Falls, State of South Dakota; that he is the Vice President of WESTERN SURETY COMPANY described in and which executed the above instrument; that he knows the seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed pursuant to authority given by the Board of Directors of said corporation and that he signed his name thereto pursuant to like authority, and acknowledges same to be the act and deed of said corporation.

My commission expires

June 23, 2021



J. Mohr, Notary Public

CERTIFICATE

I, L. Nelson, Assistant Secretary of WESTERN SURETY COMPANY do hereby certify that the Power of Attorney hereinabove set forth is still in force, and further certify that the By-Law of the corporation printed on the reverse hereof is still in force. In testimony whereof I have hereunto subscribed my name and affixed the seal of the said corporation this 15th day of March, 2021.



WESTERN SURETY COMPANY

L. Nelson, Assistant Secretary

Form F4280-7-2012

Go to www.cnasurety.com > Owner / Oblige Services > Validate Bond Coverage, if you want to verify bond authenticity.

STATE OF GEORGIA
WHITFIELD COUNTY
CITY OF DALTON

VENDOR AFFIDAVIT AND AGREEMENT (E-Verify)

COMES NOW before me, the undersigned officer duly authorized to administer oaths, the undersigned contractor, who, after being duly sworn, states as follows:

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-.02, stating affirmatively that the individual, firm, or corporation which is contracting with the City of Dalton, Georgia has registered with and is participating in a federal work authorization program and will continue using the program throughout the contract period in accordance with the applicability provisions and deadlines established in O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-.02.

The undersigned contractor further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to the contract with the City of Dalton, Georgia of which this affidavit is a part, the undersigned contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. § 13-10-91 and Georgia Department of Labor Rule 300-10-1-.02 through the subcontractor's execution of the subcontractor affidavit required by Georgia Department of Labor Rule 300-10-1-.08 or a substantially similar subcontractor affidavit. The undersigned contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the City of Dalton, Georgia at the time the subcontractor(s) is retained to perform such service.

FURTHER AFFIANT SAYETH NOT.



BY: Authorized Officer or Agent
Advanced Sports Group LLC
Contractor Name
President
Title of Authorized Officer or Agent of Contractor
Josh Maner
Printed Name of Authorized Officer or Agent

5.15.21
Date

2.6.20
Authorization Date for EEV Program
1478887
Employment Eligibility (EEV) #

Sworn to and subscribed before me
This 15th day of March, 2021



Notary Public

My Commission Expires: 7/1/2024

*MUST BE NOTARIZED



*Any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603. As of the effective date of O.C.G.A. § 13-10-91, the applicable federal work authorization program is the "EEV/Basic Pilot Program" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration.



▶ COST OF OWNERSHIP

shaw
SPORTS TURF 



SMART INVESTING DRIVES ADDITIONAL INCOME INTO YOUR COMMUNITY



A synthetic turf field is no small investment. However, it is an investment that can pay off. Shaw Sports Turf fields are an excellent way to create a steady revenue stream. With 24/7 availability and sports versatility, our fields can handle more tournaments and events per year than natural grass. The revenue generated from just one event can bring thousands of dollars into the community.





SYNTHETIC SAVES

Your Shaw Sports Turf field can save you money over its lifecycle compared to a well-maintained natural grass field.

- 💰 No closing fields due to rain
- 💰 No water, pesticides or fertilizers needed
- 💰 No contaminated storm water runoff from pesticides and fertilizers
- 💰 Looks and feels like natural grass
- 💰 Endures high traffic from every sport and easy to maintain
- 💰 Reduces carbon footprint

YEARLY
FIELD
MAINTENANCE
PROGRAMS

Maximize and protect
your investment.

Synthetic fields have commonly been promoted as maintenance-free. The truth is synthetic fields do significantly reduce the amount of maintenance. However, it is important for an owner to be realistic about what is necessary to maintain a playing surface to ensure its longevity, performance and safety.

REGULAR MAINTENANCE SHOULD BE PERFORMED TO PREVENT THE FOLLOWING:

- Premature degradation of fibers
- In high traffic areas, infill can migrate or displace, resulting in uneven surfaces and unsafe impact levels
- Compaction of infill resulting in a “packed down” surface that is too hard or slippery
- Build-up of foreign debris in turf surface collected over time

Shaw Sports Turf’s service after the sale is second to none. Our automated system tracks maintenance needs and will issue a reminder when it is time for important maintenance milestones.



▶ PRODUCT INFO

shaw
SPORTS TURF 

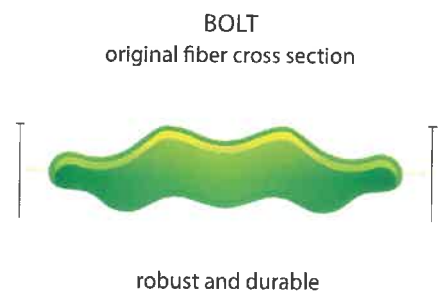




WHAT IS LEGION?

As a combined monofilament and slit film system, Legion provides the best hybrid synthetic surface in the market. Legion steps up durability and performance to the next level. Bolt design gives much more to the natural aesthetic, ball control, and other critical surface requirements for high-end play.

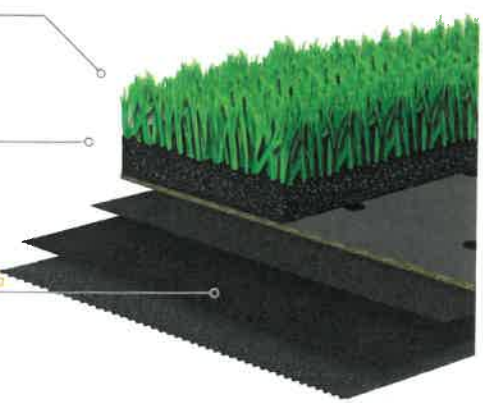
<p>LONG-LASTING monofilament & premium slit film fibers</p>	<p>SINGLE NEEDLE CONSTRUCTION for improved appearance & consistency</p>	<p>ONE OF THE MOST DURABLE products designed in the industry</p>
<p>MINIMAL SIGNS OF WEAR up through 80,000 cycles (32 YEARS of heavy use)</p>		<p>VARYING PILE HEIGHTS for complete customization to your requirements</p>



FIBER
Dual fiber combination of Bolt monofilament + slit film

INFILL
Mixture of materials (sand, rubber or natural) to create preferred performance characteristics

ULTRALOC™ COMPOSITE BACKING
Multiple layers of backing



TEST	UNIT	SPECIFICATIONS
Linear Density - Denier Mono*	Denier	10,800
Linear Density - Denier Tape*	Denier	5,000
Thickness - Mono**	Microns	300
Thickness - Tape**	Microns	100
Break Strength - Mono***	lbs/force	20
Break Strength - Tape***	lbs/force	12
Elongation - Mono & Tape	%	> 30
Total Lead Content - Mono & Tape	ppm	< 100
Total Product Weight****	oz / yd ²	74
Pile Yarn Fiber Weight**	oz / yd ²	46
Primary Backing Weight**	oz / yd ²	8
Secondary Backing Weight†	oz / yd ²	20
Average Pile Height**	inches	2.0
Average Tuft Bind Strength	lb / force	> 10
Tufting Gauge	inches	1/2
Average Grab Tear Strength	lb / force	> 200
g-Max		< 120
Pill Flammability		Pass
Infiltrometer (Drainage)	in / hr	> 25

Except where noted as a minimum or maximum, the above specifications are nominal.

* All values are ± 8% ** All values are ± 5% *** All values are ± 25% **** All values are ± 10% † All values are ± 3 oz



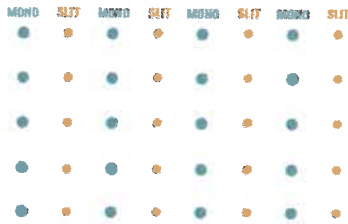
The colors shown are not intended for exact matching purposes, please refer to actual sample swatches for accurate hues.

HYBRID THREAD UP COMPARISON

Shaw Sports Turf's Legion system is a unique innovation. Combining two fibers into one hybrid product offers the best aspect of each—slit film's durability and monofilament's natural aesthetic. As a world-class manufacturer, Shaw Sports Turf takes pride in **NO FIBER FAILURES** to date. The images below demonstrate our superior single needle construction.

● Monofilament ● Slit film

COMPETITOR: A/B THREAD UP



LEGION: 2 ENDS PER NEEDLE



COMPETITOR: 2 ENDS PER NEEDLE



WESLEYAN UNIVERSITY - SMITH FIELD



Vanderbilt University, Indoor Practice, Nashville, TN, Legion



***Advanced Sports Group warranties and verifies the following system will meet or exceed the requirements needed for conveyance of the 100-year storm event. Onsite detention will need to be provided by the General Contractor responsible for the site development.**

VERTICAL DRAINAGE BASE SYSTEM

A. Sub-grade shall be compacted to 95%

B. A 4 oz. non-woven geotextile fabric shall be installed above the entire sub-grade and pipe trenches (below aggregate base). Fabric shall be AASHTO M288 Class II and shall at a minimum comply with specifications below;

1. Min. Grab tensile strength (ASTM-D-4632) – 160 lbs
2. Max. Elongation (ASTM-D-4632)– 50%
3. Trapezoidal Tear (ASTM-D-4533– 60 lbs
4. CBR Puncture Strength (ASTM-D-6241)– 410 lbs
5. Apparent Size Opening (ASTM-D-4751)– 70 US sieve
6. Permittivity (ASTM-D-4491)– 1.5 sec-1
7. Water Flow Rate (ASTM-D-4491)– 110 gpm/ft
8. UV resistance (ASTM-D-4355)– 70%/500 hrs

C. Drainage Pipe:

1. 1" x 12" Flat Panel Pipes shall be ADS "Advanedge" – 12" nominal size (800-821-6710),

2"x6" PRESSURE TREATED
MAILER (TOP FLUSH WITH
TOP OF GRAVEL)

8" CONCRETE CURB
(SEE DETAIL ON
THIS SHEET)

TOP OF TURF 0.5% SLOPE

SUB-GRADE 0.5% SLOPE

2" #59 STONE
4" #57 STONE

SYNTHETIC TURF AND INFILL

12" COMPOSITE DRAIN (SEE DETAIL ON THIS SHEET)

12" COMPOSITE DRAIN
OVERHANG INTO TRENCH 2"
PROVIDING 2" DROP PRIOR TO
TERMINATING (NO CONNECTION
TO COLLECTION PIPE)

1" SEPARATION FROM
BOTTOM OF SURROUNDING
SUB-GRADE TO TOP OF
HOLE PIPE

1" SEPARATION FROM
BOTTOM OF TRENCH TO
BOTTOM OF HOLE PIPE

MIN. TRENCH WIDTH PER
TABLE BELOW OR
MANUFACTURE
SPECIFICATIONS WHICH
EVER IS GREATER

NON-WOVEN
GEO-TEXTILE FABRIC TO
BE INSTALLED ALONG
ENTIRE SUB-GRADE
(INCLUDING TRENCH)
PROVIDING MIN. 36"
OVERLAP.

PERFORATED DUAL-WALL HOPE
COLLECTION PIPE
(SEE PLAN VIEW FOR SIZING)

NOTE: 1% MIN. SLOPE SHALL BE
MAINTAINED, WHICH WILL RESULT
IN A VARIED TRENCH DEPTH.

PIPE DIAM.	MIN. TRENCH WIDTH
8"	26"
12"	30"
15"	34"
18"	39"

JDR "J-Drain MVPI" (770-442-1461), or approved equal.

2. 12" Dual-Wall HDPE shall be ADS "N-12 ST IB" (800-821-6710) or approved equal with Class II perforations conforming with AASHTO M252 for diameters between 3" – 10" and AASHTO M294 for diameters between 12" – 60".

D. Free-Draining Base Aggregate shall consist of 4" layer of washed #57-stone placed above geotextile fabric (see characteristics of #57-stone below):

1-1/2" Sieve 100%

1" Sieve 95 - 100%

1/2" Sieve 25 - 60%

#4 Sieve 0 - 10%

#8 Sieve 0 - 5%

E. Choker Aggregate shall consist of 2" layer of washed #89-stone placed above #57-stone (see characteristics of #89-stone below):

1/2" Sieve 100%

3/8" Sieve 90 - 100%

#4 Sieve 20 - 55%

#8 Sieve 0 - 15%

#16 Sieve 0 - 10%

#50 Sieve 0 - 5%



▶ SAFETY/PLAYABILITY

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SPORTS TURF 



field science

WHAT IS PLAYABILITY:

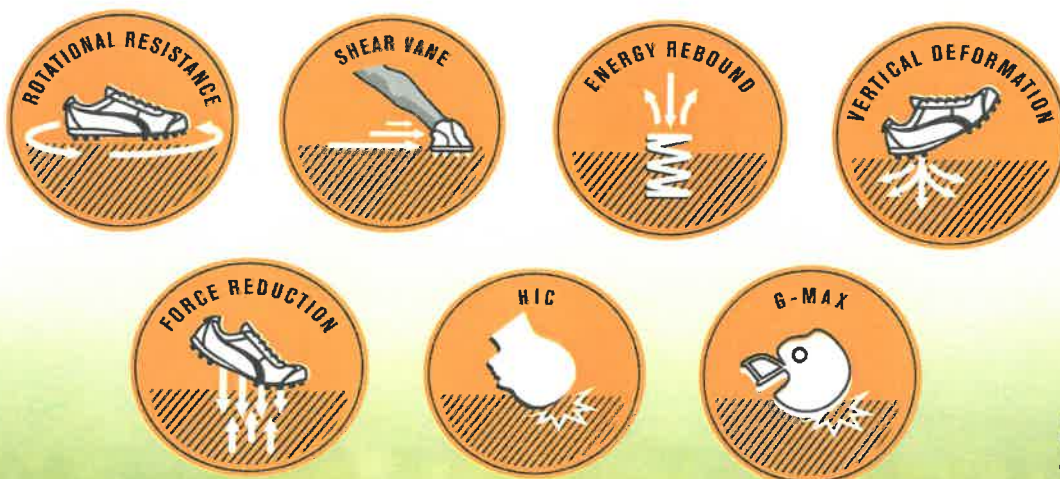
Sports turf playability has been a subjective concept and a representation of "how the field plays". Historically, it has been hard to determine the playability of a field in an objective, unbiased way.

THE RESEARCH:

Shaw Sports Turf set out to research what makes a great athletic playing surface. The goal was to develop not just the best artificial surface, but the best playing surface, period. The research has been a collaborative effort between the Shaw Sports Turf team, industry partners and academic efforts.

THE DATA: Shaw Sports Turf has been extensively benchmarking data on fields at the highest level for several years. The data obtained then led to the development of Shaw Sports Turf's *Playability Assessment Tool*. The tool tests a surface for ideal ranges in seven metrics. These 7 metrics objectively measure surface attributes related to stability, impact and rebound. The playability of a sports surface can be adjusted with changes to one or more of these aspects.

7 METRICS: Impact metrics, or how safe the surface is for contact or a fall, are represented by gMax and HIC (Head Impact Criterion). Stability metrics, metrics that are related to an athlete's footing and prevent against lower extremity injuries, are represented by Rotational Traction and Shear Vane. Finally, Rebound metrics, metrics that relate to how a surface feels to the athlete under foot, are represented in the chart by Energy Rebound, Vertical Deformation and Force Reduction. The Rebound metrics ensure that the athlete has a surface that will allow for peak athletic performance.

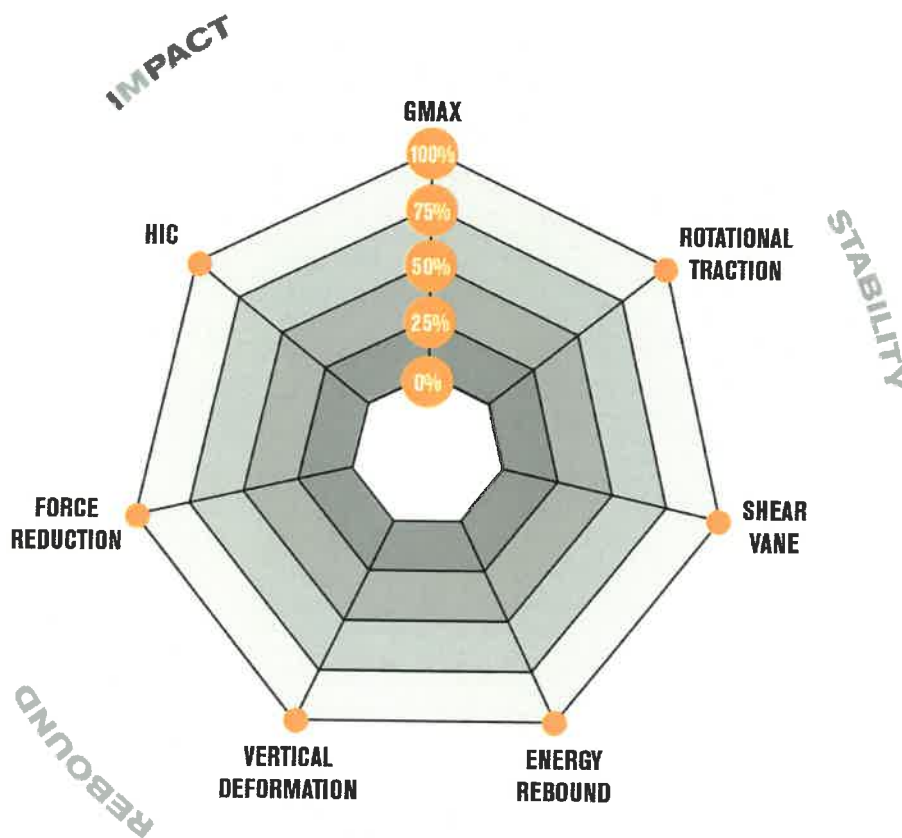


interpretation

THE TOOL: The *Playability Assessment Tool* (patent pending) is an objective quantification of field playability, as it uses measurable metrics to describe "how a field plays". Research shows that what's important to one sport's performance, may not be as important to another.

The *Playability Assessment Tool's* most important benefit is the easy representation and visual assessment of the tests: the Playability Radar. The more the radar is filled out the better the field is as it hits more of the the metrics that are vital to the playability of the surface. In addition to that, it is a very unique test protocol that can be used on both natural and artificial fields.

PLAYABILITY RADAR CHART





▶ WARRANTY/MAINTENANCE

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USAGE

PROTECT THE FIELD

PERMITTED PLAY ONLY

The following items are prohibited:

- > soda, sports drinks, alcohol, coffee, or any beverage other than water
- > metal cleats or other sharp objects that could penetrate the synthetic surface
- > food, peanuts, seeds, or gum
- > pets or other animals
- > unauthorized vehicles



Each Shaw Sports Turf surface is specially designed for optimal performance and is suitable for the following applications:

- Football, soccer, lacrosse, field hockey, rugby
- Softball / baseball (non-metal cleats)
- Physical exercises
- Physical education activities
- Pneumatic rubber-tired maintenance and service vehicles
- Pedestrian traffic and other similar uses



DO's

Shaw Sports Turf systems are designed to resist both wear and exposure to the elements. However, there are additional precautions that can be taken to help extend the life of your field.

- » Control access to the synthetic turf system.
- » Keep the synthetic turf system and adjacent areas clean and free of litter, mud, and debris.
- » Post signs at all entrances to the field prohibiting smoking and carrying food or drink onto the synthetic turf system.
- » Observe load limits for static and rolling loads, especially when the surface is wet.
- » Maintain infill levels.
- » Use practice mats when possible or rotate practice drills to avoid wear in a single location.
- » Repair minor damage promptly.
- » Inspect your field regularly for damaged seams, logos, and inlays. Follow suggested maintenance and cleaning procedures.
- » Contact your Shaw Sports Turf representative promptly for assistance with repairs or any other technical details.



DON'Ts

Shaw Sports Turf systems are resilient, but not indestructible. This list outlines activities to avoid when owning an artificial turf field.

- » Any unauthorized use
- » Heavy static loads
- » Fireworks, open flames, welding, etc.
- » Storage of materials such as drums, lumber, equipment, etc.
- » Golfing, shot putting, javelin, or discus throwing
- » Long metal spike shoes
- » Use of wire brushes in any form
- » Use of cleaning equipment, materials, and methods not authorized by Shaw Sports Turf
- » High-pressure water sprays exceeding 300 psi
- » Vehicles with non-pneumatic tires or tires inflated above 35 psi
- » Introduction of infills or impregnated layers other than supplied or authorized by Shaw Sports Turf
- » Use of bikes, lawnmowers, etc.
- » Displace infill with direct water pressure

FIELD EXPECTATIONS

FIELD LIFE CYCLE



NEWLY INSTALLED

After the field has been installed, all of the fibers will be upright and have an appearance similar to freshly cut grass. The field may appear a bit darker since the infill level is slightly higher and looser than it will be after use.



MIDLIFE

After initial use, the fibers will establish a more grass-like appearance with the tips moving in multiple directions. The infill will also settle down to the field's specified level. The time frame for this change to occur varies based on the amount of use. Areas of the field with frequent play may have this appearance after as little as one season. Areas with less frequent play may take years to reach this appearance.



SEASONED

After your field has been in use for several years, the fibers will lay over even more. Following our maintenance guidelines and maintaining proper infill height will help maintain the safety and performance qualities of your field even as these normal appearance changes take place.

GROOMING/SWEEPING OF INFILLED TURF

Surface maintenance is a necessary process in preserving your Shaw Sports Turf playing field. Both the groomer and sweeper are vital pieces of equipment in assisting with the maintenance of your field. However, both machines have very different roles in helping to keep a well maintained field. The sweeper is used to remove debris in the form of trash and organic matter like leaves. A sweeper with a magnet will also remove ferrous material such as pins, snaps, cleats, etc. The groomer's role is to re-level irregularities within the infill and recondition the turf fibers by standing them up or altering the way fibers lay for better surface play. When grooming and sweeping the field, it is important to follow proper grooming patterns based on your field type. Only use approved maintenance equipment on your synthetic turf playing surface. If you do not have an approved synthetic turf groomer and / or sweeper, please contact your Shaw Sport Turf representative for pricing options.

ROUTINE GROOMING AND SWEEPING

You may notice individual fibers that stand up from the turf after initial installation. These may be present around inlays, or they may be fibers that are pulled up during de-compaction. These fibers should not be pulled up because that can damage the turf. High fibers should simply be trimmed using scissors.



Routine grooming keeps the surface free from debris and also maintains your Shaw Sports Turf synthetic turf system at its optimum performance. Shaw Sports Turf recommends that every infilled turf system has a routine grooming after every 80-100 hours of use, or a minimum of once per month. Additional grooming may be necessary based on frequency or intensity of usage. Routine turf maintenance simultaneously achieves the following objectives:

1. Keeps infill layer uniform in its distribution
2. Recondition turf field fibers by standing them up
3. Helps remove litter, leaves, dirt, etc.
4. Consistent footing and ball bounce throughout the surface
5. Improves aesthetic appeal
6. Ensures maximum life expectancy

NOTE: Infilled turf systems can be groomed when slightly damp, but should not be groomed when wet/saturated.

Maintaining proper infill depth is critical to your field's longevity and performance. Follow the instructions below to periodically measure your infill depth with an infill depth gauge. Your measured infill depth should then be compared to the minimum infill depth for your field's pile height.

1. Turn black knob to loosen depth gauge
2. Slide center shaft down until it makes contact with turf backing
3. Place white foot plate on infill surface
4. Lift out and read gauge in inches or millimeters
5. Note, you should check 2 or 3 areas at each location to get the average infill for that test area
6. Check high wear areas more frequently as these areas are usually where the infill is dispersed more frequently (see maintenance video for visual representation)



Adding additional infill may be necessary in certain areas of the surface due to excessive use/displacement. Prior to adding infill, groom the field to redistribute and level out infill. Infill can be added by hand and spread with a broom or flexible tine leaf rake for smaller areas, or spread with a groomer for larger areas. Contact a Shaw Sports Turf representative if your entire field is in need of additional infill.



INFILL DECOMPACTION

Some groomers come equipped with spring tines to be used to decompact the infill. Shaw Sports Turf recommends annual decompaction for high use fields. Fields that experience more typical levels of use should be decompacted every 3-4 years.

Bristle Type

All equipment should have nylon or polypropylene bristles. The brush should not contain metal or wire bristles which can cause damage to the turf surface.

Brush Setting

Proper grooming techniques require that the groomers brush be set down in the turf fibers resting just on top of the infill, so that the brush may redistribute infill evenly as it moves over the field. Do not set the brush so low that it digs into the infill or backing. If the bristles are set too low, the groomer will pull up excess infill resulting in an uneven playing surface. Make sure the wheels are supporting the weight of the groomer, not the bristles. (Proper set up method will depend on the model and type of equipment.)

For best results, always drag the groomer from one side of the field to the other, back and forth. Make sure to change directions (start at the opposite end of the field than the previous grooming) each time the field is groomed.

The sweeper will work best when the brush is set so that it barely touches the tips of the turf fibers, so as not to dig into



NOTE: When using any equipment on a new field, you may notice many loose fibers are collected. This is normal. The fibers are the result of the many seams and inlays on your field. The loose fibers will diminish after a few routine brushings.

the infill. The sweeper is designed to removed debris in the form of trash and organic matter such as leaves and should be used as needed and prior to grooming. Much like grooming, drag the sweeper from one side of the field to the other, changing direction each time the field is swept.

Turf Loading Limitations

Both sweeping and grooming will require multiple passes over the field to complete the operation. When driving a maintenance vehicle, be sure to make wide slow turns on the synthetic turf surface to avoid associated damage. Maintenance equipment weighing over 300 lbs should use turf type low pressure tires (pneumatic tires) with a maximum tire pressure of 35 pounds per square inch (psi). (Parking vehicles on the turf is prohibited for extended periods of time.)

Exhaust Fumes

For indoor use we recommend either electric or propane powered equipment. The type of fuel or power used by your equipment is of no major importance for outdoor use. However, if your equipment has an internal combustion engine, make certain that the hot engine exhaust is not discharged down toward the playing surface. Also check to make sure that your equipment is designed in such a way that a hot muffler or exhaust pipe cannot accidentally touch the turf surface. Hot objects, including engine exhaust can damage the field by melting fibers.

Oil Spillage, etc.

Caution should be taken to prevent spilling, dripping, or leaking lubricating oil, gasoline, grease, transmission fluids, battery acid, break fluids, etc. on the turf surface during maintenance activities. Spills of this nature can stain or discolor the turf and cause damage to the turf fibers. The fluids listed above should not be allowed on the turf surface, proper maintenance procedures should be observed in this regard. Adding or changing fluids to maintenance equipment should be done in designated locations, never on the turf surface.



866.703.4004

185 South Industrial Blvd. Calhoun, GA 30701

www.shawsportsturf.com

Manufacturer's Limited Product and Installation Warranty

Shaw Contract Flooring Services, Inc. dba Shaw Sports Turf® endeavors to use the highest quality materials and the latest manufacturing techniques in the production of our Synthetic Turf products. Our products are manufactured within our product tolerances and installed in accordance with our specifications which permit Shaw Sports Turf® to offer a guarantee against defects in materials and workmanship with respect to Shaw Sports Turf® Synthetic Turf products and the installation of the Shaw Sports Turf® Synthetic Turf Products for a period of eight (8) years from the date of Substantial Completion.

The term Synthetic Turf, as used herein, shall include only the synthetic turf fibers and backings supplied by Shaw Sports Turf®.

Synthetic Turf is a consumable product and is subject to normal wear and tear, which is not a manufacturing defect and is not covered by this warranty. In addition to the factors mentioned above, wear and tear depends on, without limitation, the construction of the Synthetic Turf, the intensity of use of the Synthetic Turf and climate. Shaw Sports Turf warrants that the Synthetic Turf Fiber will be considered to have maintained UV stability if the weight of the Fiber shall not have decreased by more than ten percent (10%) per year according to ASTM standards, nor exceed fifty percent (50%) during the warranty period as a result of normal and ordinary wear and tear with properly maintained infill levels as required. The Fiber shall be stable to excessive fading and will fade in a uniform manner with no significant color variation except as affected by changes resulting from pile distortion, normal matting, and high wear areas.

NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN THIS LIMITED WARRANTY, THIS LIMITED WARRANTY SHALL NOT COVER ANY DEFECTS, FAILURE IN OR DAMAGE TO THE SYNTHETIC TURF THAT IS:

- (a) due or attributable to intentional and unintentional abuse, misuse, negligence;
- (b) installed, repaired, altered or replaced by any person not authorized by Shaw Sports Turf.
- (c) damaged, directly or indirectly, including but not limited to, on account of, accident, vandalism, machinery, inappropriate footwear including track spiked shoes, metal spiked cleats, animals, misuse, fire, flood, war, chemical reactions, acts of God, static or dynamic loads exceeding Shaw Sports Turf® specifications, improper cleaning methods or improper maintenance and grooming;
- (d) exposed to light other than natural light or approved artificial light; or
- (e) damage caused by excessive heat sources, engine exhaust, field heaters or other secondary reflective light.
- (f) not maintained in accordance with Shaw Sports Turf® maintenance manual and recommendations, including the care and maintenance of the infill system and proper infill levels (if applicable). The purchaser shall keep a log of all maintenance performed on the Product and supply Shaw Sports Turf with a copy upon request.
- (g) caused by normal and ordinary wear & tear or concentrated high wear areas
- (h) attributable to the base and any and all resulting damage to the product arising therefrom due to, failure or improper design of the base, infiltration rates, depressions or settlement of the base, long term planarity and/or compaction of the base upon which the product is installed, improperly prepared subgrade or subgrade settlement.
- (i) caused by thermal expansion and contraction of the sub-base, pad, drain tile or changes in the water table.
- (j) results from use for any purpose other than those approved in writing by Shaw Sports Turf

THE EXPRESS WARRANTIES SET FORTH IN THIS LIMITED WARRANTY ARE IN LIEU OF AND EXCLUDE ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

No person or party is authorized to create any obligation or liability for Shaw Sports Turf® and only the limited warranty expressed herein shall apply.

Shaw Sports Turf's obligations under this limited warranty are restricted to the repair or, at Shaw Sports Turf's sole option, replacement of all, or the affected parts covered herein. Shaw Sports Turf's liability under this limited warranty is limited to the non-prorated replacement value (based on an 8 year period) of the item to be repaired or replaced. IN NO EVENT SHALL THE OBLIGATIONS OF SHAW SPORTS TURF® UNDER THIS LIMITED WARRANTY EXCEED THE PURCHASE PRICE OF THE PRODUCT.

The remedy of repair or replacement set forth herein shall be the sole and exclusive remedy of the Warranty Holder and Shaw Sports Turf® shall have no other obligations or liability in connection with any matter or thing, including without limitation, the condition or quality of the Synthetic Turf. WITHOUT LIMITATION OF THE FOREGOING, IN NO EVENT SHALL SHAW SPORTS TURF® BE LIABLE TO THE WARRANTY HOLDER OR ANY OTHER PARTY FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CONNECTED WITH THE USE OF THIS PRODUCT, INCLUDING, WITHOUT LIMITATION, CLAIMS FOR DAMAGES RELATING TO PERSONAL INJURY, LOST TIME OR CONVENIENCE, LOSS OF USE OF THE PRODUCT, LOST PROFITS OR REVENUES, DOWNTIME COSTS, THE LOSS OF PERSONAL OR COMMERCIAL PROPERTY, THE COSTS OF TELEPHONE, TRAVEL OR LODGING, OR ANY OTHER DAMAGES.

Shaw Sports Turf® endeavors to handle all warranty claims promptly and professionally. The obligations of Shaw Sports Turf® under this Limited Warranty are conditional on Shaw Sports Turf® having been paid in full with respect to this project, including all change orders at the time of claim.

Notification of Claims

You, the Warranty Holder, will contact your Shaw Distributor or Shaw Sports Turf representative for claim service. Claims under this warranty must be submitted in writing and a detailed description of the issue, along with photographs showing the concern. The Shaw Sports Turf representative will file a claim via shawsportsturf.claims@shawinc.com and submit the information you provided. A company representative will thoroughly evaluate your claim. If you have any questions contact Shaw Financial Services, P O Box 2128, Dalton, GA 30720 or by phone, 1-800-257-7429.

It is agreed that all claims by the Warranty Holder made under the foregoing limited warranty shall be invalid unless made in writing to Shaw Sports Turf® within eight (8) years from the date of Substantial Completion and within (30) days of learning of the defect giving rise to its claim.

This Limited Warranty is not transferable.

Issued to: _____
As Warranty Holder

Project Name: _____

Installation Location: _____

Date of Substantial Completion: _____

Expiry Date: _____

Signed: _____



March 15th, 2021

Advanced Sports Group, LLC
2105 Barrett Park Drive
Suite 109
Kennesaw, GA 30144 RE: Dalton Soccer Complex

**“BASE
WARRANTY”**

To Whom It May Concern:

Advanced Sports Group, LLC hereby warrants and guarantees the basework and drainage portion of the work to the full extent provided for in the Contract Documents and to the full extent required of Contractor or Subcontractor by the law of the state of Georgia, without limiting the foregoing or any other obligation with respect to the Work.

Contractor shall, at its sole cost and expense, make good any faulty, defective or improper parts of the Work discovered by the Contractor, Architect or Owner within one (8) years from _____ or within such longer period as may be required by the Contract Documents or by law.

SIGNED: _____ DATE: _____

PRINT NAME: Josh Maner TITLE: President



Maintenance Packages

QUARTERLY PLAN		
Visits per Year	Service	Cost per Visit
4	Deep clean, de-compact infill, brush, infill depth check over field.	\$0.00
	Use LitterKat magnet to clean out metals and ferrous materials	
As needed	Replace infill in high wear areas based on depth check	

Scope of Work Inclusions

- Quarterly Visits (4 times per year)
- Supply deep clean of infill
- Leveling infill to maintain safe playing surface
- Remove ferrous materials from playing surface
- Clean & replace infill on an “as needed basis.”
- Confirm infill depths
- Provide owner documentation

Scope of Work Exclusions

- Site security
- Anything not specifically stated in our above scope of work
- Additional Infill if needed. Owner to purchase

Contractor Signature

X 

Owner Signature

X _____



CERTIFICATIONS

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SYNTHETIC TURF COUNCIL

In consideration of

having met the pre-qualification requirements and
having voluntarily agreed to abide by the provisions of

The STC Certification Program

Be it known that

SHAW SPORTS TURF

is STC Certified as a Material Manufacturer and Supplier

This two year company
commitment to be renewed in
April 2021



By authority of the STC
Board of Directors

A handwritten signature in black ink, appearing to read 'Dan Ryan'.



Certificate of Membership

This is to certify that

Shaw Sports Turf
Is a Member of the Supplier Division
of the

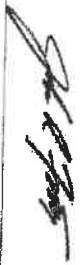
American Sports Builders Association

a nonprofit association, is a national organization for builders, designers, and suppliers of materials for tennis courts, running tracks, synthetic turf fields, indoor and outdoor synthetic sports surfaces. It is recognized as a centralized source for technical information, including construction guidelines.

The membership hereby conferred entitles the above named to use the name and membership mark of the Association on all proper forms, notices, and advertising subject to the conditions set forth in the By-Laws of the Association.

In Witness Whereof, The American Sports Builders Association has caused this certificate to be executed and its seal affixed by the Chairman and Secretary on June 23, 2014.




Secretary


Chairman



Everyone is satisfied with their synthetic turf field when it is installed. ***But, what about year 5 and beyond?*** Shaw Sports Turf's 450+ONE certification ensures the quality you expect and deserve to extend the life of your field without sacrificing performance.

AMERICAN-OWNED & MADE IN THE USA

EACH FIELD UNDERGOES **A MINIMUM OF 450 QUALITY & PERFORMANCE TESTS** TO ENSURE YOU ARE GETTING A WORLD-CLASS PLAYING SURFACE

ALL QUALITY TESTS ARE DONE BY **FULL-TIME EMPLOYEES** OF SHAW INDUSTRIES GROUP, INC.

ALL MANUFACTURING IS DONE IN FACILITIES **WHOLLY OWNED AND STAFFED BY EMPLOYEES** OF SHAW INDUSTRIES GROUP, INC.

+ONE REPRESENTS OUR ASSOCIATES GOING ABOVE-AND-BEYOND THE REQUISITE TESTING TO MAKE SURE YOU ARE COMPLETELY SATISFIED





▶ EXPERIENCE

GA, AL, TN

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A WINNING PARTNERSHIP

A partnership between Advanced Sports Group and Shaw Sports Turf gives you expertise in selecting the artificial turf field of your choice and the peace-of-mind of knowing that it will be installed correctly and to the highest industry standard.

ASG's mission is to build recreational spaces for their communities, while building meaningful relationships.

Bringing over 20 years of experience to each project, Advanced Sports Group provides design consultation, permitting, estimating and overall project management to every job.

ASG not only self performs the builds for their athletic fields, but they are a licensed General Contractor HQ'd in North Georgia, capable of serving multiple states spanning the US. They have the resources to construct an entire recreational facility and can handle your project from start to finish.

ASG's core values are at the heart of every job they do. They focus on the relationship first, establishing trust with clients and stewarding their resources well. ASG takes care of their employees and sub-contractors and equips them to be successful. They run projects with excellence and professionalism; always looking ahead and never complacent and they prioritize communication to make sure the project runs smoothly.

Shaw Sports Turf, a Berkshire-Hathaway company, is committed to operating by the highest ethical standards at all times. Trust is at the center of everything Shaw Sports Turf does. In fact, the company's core values, which they live every day, are honesty, integrity and passion.

The Berkshire-Hathaway name is also a reassurance that Shaw Sports Turf is going to be here tomorrow. Their business is solid and they aren't going anywhere anytime soon. Shaw Sports Turf is the largest company in the synthetic turf industry which is both, American-owned, and offers products that are made in America.

Shaw Sports Turf has demonstrated industry leadership in both quality and innovation for more than two decades with over 3,500 successful installations, and an impressive list of high-profile installations, including the Arizona Diamondbacks, Texas Rangers, Miami Marlins, Baltimore Ravens, Cleveland Browns, Indianapolis Colts, Cincinnati Bengals and many others. Engineered for performance and safety, Shaw Sports Turf features a product line designed specifically to meet the needs of athletes and sports programs.

Working together to provide customers with start to finish experience that is second to none.



**PARTNERS
IN THE
GAME**

shaw
SPORTS TURF 



INSTALLATIONS	TYPE	CITY	STATE	PRODUCT	SQ. FT	CONTACT	PHONE	SPORT	FIELD AGE
Florida International University	College	Miami	FL	Momentum HP	93,100	Derrick Mayfield	305-348-6301	Multi	2007
Georgia Tech	College	Atlanta	GA	Legion HP	76,046	Topher Roberts	404-894-1688	Football	2010
Ringgold High School	Public High School	Ringgold	GA	PowerBlade HP	94,000	Damon Rainee	706-965-2297	Football	2011
Union Co HS	Public High School	Blairsville	GA	PowerBlade HP	97,800	Shawn Teske	404-694-6689	Football	2011
Boone County Pee Wee FB	Parks & Rec	Lexington	KY	Momentum	72,124	Rick Nehisal	859-380-4530	Multi	2011
Memphis University	College	Memphis	TN	Legion HP	24,241	Rankin Fowlkes	901-260-1306	Baseball	2011
Saint Leo University	College	Saint Leo	FL	PowerBlade HP	150,000	Mike Medegan	352-588-8224	Multi	2012
Fredericksburg Fieldhouse	Private	Fredericksburg	VA	Legion	98,800	Chris Tierney	540-429-4901	Multi	2012
Mount Paran Christian School	Private	Kennesaw	GA	PowerBlade Pro	95,695	Mich Jordan	678-462-8231	Multi	2013
Furman University - Paladin Stadium	College	Greenville	SC	PowerBlade Pro	108,000	Soot Sherman	864-382-9062	Multi	2013
Clay-Chalkville High School	Public High School	Clay	AL	Momentum Pro	76,684	Jerry Hood	205-516-9352	Multi	2014
LakePoint Sporting Community	Sports Centers	Emerson	GA	PowerBlade Pro	93,750	Tony Carlson	770-403-1270	Multi	2014
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
Kings Ridge Football	Private High School	Alpharetta	GA	PowerBlade Pro	94,761	Kings Ridge School	770-754-5738	Football	2015
Darlington School	Private	Rome	GA	PowerBlade Pro	96,094	Eddie Guth	706-286-0058	Multi	2015
Virginia Tech Indoor Facility	College	Blacksburg	VA	Momentum	85,102	David Chinn	540-231-2269	Indoor	2015
Satsuma High School	Public High School	Satsuma	AL	Momentum Pro	96,847	Steve Cochran	251-380-6217	Multi	2016
Georgia Southern	College	Stateboro	GA	Legion HP	95,300	Tom Kleinfain	912-478-5047	Football	2016
Bremen High School Football Stadium	Public High School	Bremen	GA	Legion HP	96,000	Russell Cooper	770-557-4863	Football	2016
Tampa Bay Rays - Port Charlotte	Pro	Port Charlotte	FL	Spik Zone Pro	12,456	Rick Nafe	727-825-3195	Multi	2017
Dalton High School Indoor Field	Public High School	Dalton	GA	Momentum HP	6,500	Athletic Director	706-876-4916	Multi	2017
Fellowship Christian School	Private High School	Roswell	GA	Legion HP	22,000	David Lowery	770-993-1650	Multi	2017
Burnt Hickory Park Adaptive Baseball	Parks & Rec	Dallas	GA	TruHop	75,000	Michael Justus	770-324-4430	Multi	2019
Ashford Park Elementary Turf Field	Public Elementary School	Brookhaven	GA	Legion HP	19,800	Brian Borden	404-275-9901	Multi	2019
Adairsville High School Football	Public High School	Adairsville	GA	Legion HP	93,000	Pankaj Darys	770-606-7098	Multi	2019
Cassi High School Football	Public High School	White	GA	Legion HP	93,000	Pankaj Darys	770-606-7098	Multi	2019
Woodland High School Football	Public High School	Emerson	GA	Legion HP	93,000	Pankaj Darys	770-606-7098	Multi	2019
Toombs County High School Football	Public High School	Lyons	GA	Legion HP	78,000	Tony Wright	912-682-8706	Multi	2019
Worth County High School Football	Public High School	Sylvester	GA	Legion SD	50,800	Bill Settle	229-206-7814	Multi	2019
Kaiser University Football	College	West Palm Beach	FL	Momentum HP	108,000	John McMurray	904-588-3384	Multi	2019
Hamilton Crossing Park Adaptive Baseball	Parks & Rec	Cartersville	GA	TruHop	82,454	Greg Hight	770-383-7396	Multi	2019
Interlante Soccer	Private	Atlanta	GA	Legion Pro	220,000	Scott Steding	926-413-5208	Soccer	2019
Surge Lacrosse at North Atlanta High School	Private	Atlanta	GA	Legion HP	78,000	Paul Thomas	404-323-0573	Lacrosse	2019
Tindall Air Force Base Multipurpose Field	Private	Panama City	FL	Momentum HP	103,475	Chuck Scott	229-347-2614	Multi	2019
Shorty Howell Park Football	Parks & Rec	Duluth	GA	Momentum HP	130,882	Glenn Booman	770-822-8873	Football	2020
Brady Park	Parks & Rec	Dallas	GA	Legion HP	336,312	Michael Justus	770-324-4430	Multi	2020
Brook Run Park Soccer	Parks & Rec	Dunwoody	GA	Momentum SD	186,500	Mike Iezzi	404-391-5482	Soccer	2020
Morgan Falls Baseball	Parks & Rec	Sandy Springs	GA	TruHop	82,500			Baseball	2020
Mount Paran Christian School Multi-purpose	Private	Kennesaw	GA	Legion Pro	106,766			Multi	2020
Edwards Park	Parks & Rec	Dalton	GA	Legion & TruHop	203,327			Baseball	2020
Fullers Park Multi purpose	Parks & Rec	Marietta	GA	TruHop & Momentum	81,160			Multi	2021
Mount Paran Christian School Baseball	Private	Kennesaw	GA	TruHop & Legion HP	106,000	Kyle Reese		Baseball	2021
Cary Pirkle Park Multi-purpose	Parks & Rec	Sugar Hill	GA	Momentum SD	149,383			Multi	2021
Stratford Academy	Private	Macon	GA	Legion 2.0	75,600				

INSTALLATIONS	TYPE	CITY	STATE	Product	SQ. FT	CONTACT	PHONE	SPORT	FIELD AGE
East Forsyth HS (Stadium)	Public High School	Gainesville	GA	Momentum HP	91,995				2021
East Forsyth HS (Stadium) Add'l Turf	Public High School	Gainesville	GA	Momentum HP	502				2021
Wilson-Central HS Indoor	Public High School	Lebanon	TN	Momentum HP	10,465		615-444-3284	Multi	2021
Braly Soccer Complex #1		Dallas	GA	Legion HP	67,643		470-557-5792		2020
Braly Soccer Complex #2		Dallas	GA	Legion HP	67,643		470-557-5793		2020
Riverbend Correctional Facility		Milledgeville	GA	Momentum HP	28,500				2020
Auburn Rec Field- Field #2	College	Auburn	AL	Legion Pro	119,850			Multi Sport	2020
Auburn Rec Rugby Field- Field #1	College	Auburn	AL	Legion Pro	115,675		334-844-0023	Multi Sport	2020
Bob Jones High School	Public High School	Madison	AL	Legion HP	101,414			Multi Sport	2020
Brook Run Park- Field 2	Sports Park	Dunwoody	GA	Momentum SD	98,100				2020
Brook Run Park- Field 1	Sports Park	Dunwoody	GA	Momentum SD	93,100				2020
Cookeville High School		Cookeville	TN	Legion HP	77,500				2020
Edwards Park- Fid 7	Sports Park	Dalton	GA	Legion HP	87,730				2020
Edwards Park- Fid 8	Sports Park	Dalton	GA	Legion HP	79,825				2020
Hartley Field	Elementary School	Macon	GA	Fields	90,283		410-207-5279	Multi Sport	2020
Riverbend Correctional Facility	Prison	Milledgeville	GA	Momentum HP	28,500			Multi Sport	2020
Chattanooga Christian School	Private School	Chattanooga	TN	Legion Pro	140,000				2020
Georgia Tech - Grant Field	College	Atlanta	GA	Legion NXT	83,822			Football	2020
Fullers Park	Sports Park	Marietta	GA	Momentum HP	70,052		470-557-5792		2020
Gary Pirkle Park	Sports Park	Sugar Hill	GA	Momentum SD	149,393		470-557-5792		2020
Shorty Howell Park	Sports Park	Duluth	GA	Momentum HP	130,882				2020
Cherokee High School	Public High School	Rogersville	TN	Legion HP	78,257				2020
Volunteer High School (Baseline)	Public High School	Church Hill	TN	Legion HP	76,871	Thomas E. Floyd Jr.			2020
Fort Benning		Fort Benning	GA	Momentum HP	15,609				2020
Mount Paran	Private School	Kennesaw	GA	Legion HP	115,525			Baseball	2020
Mount Paran Lower Field	Private School	Kennesaw	GA	Legion Pro	89,392			Baseball	2020
Mountain View Middle School	Public School	Kennesaw	GA	Legion HP	92,021	Tim Thomsen	tim_thomsen@sumner	Multi Sport	2020
Russel County High School BB & SB	Public High School	Seale	AL	Momentum SD	54,123		601-416-4767	Baseball/Softball	2020
Tulahoma	Army	Tulahoma	TN	Elevate w/ Cushion	3,000				2020
Austin Peay Indoor Fields	College	Clarkville	TN	Legion HP	30,971		615-459-6993	Football	2020
Green Hills Baseball Indoor	Public High School	Mt Juliet	TN	Game Changing Smm	7,500		615-444-3282	Baseball	2020
Green Hills High School	Public High School	Mt Juliet	TN	PowerBlade Pro	88,041		615-444-3282	Baseball	2020
Green Hills Indoor	Public High School	Mt Juliet	TN	Momentum SD	10,350		615-444-3282	Baseball	2020
Green Hills Mound & Halo	Public High School	Mt Juliet	TN	Momentum SD	4,035		615-444-3282	Baseball	2020
Homewood High School Practice	Public High School	Homewood	AL	Legion NXT	39,974		205-871-7154		2020
Jasper Indoor	Public High School	Jasper	AL	Momentum SD	9,300		205-276-4380		2020
Lebanon High School Indoor	Public High School	Lebanon	TN	Momentum SD	8,109		615-444-3283		2020
Lincoln County High School Baseball	Public High School	Fayetteville	TN	SpikeZone Pro	24,943		931-433-6505	Baseball	2020
Bob Jones High School	Public High School	Madison	AL	Legion HP	101,414		205-276-4380		2020
James Clemens High School	Public High School	Madison	AL	Legion HP	103,128		205-276-4381		2020
The Stadium		Madison	AL	Legion HP	100,901		205-276-4382		2020
Richard Siegal Soccer Complex Field 1	Sports Park	Murfreesboro	TN	Legion Pro	93,100		615-890-5333	Soccer	2020
Richard Siegal Soccer Complex Field 2	Sports Park	Murfreesboro	TN	Legion Pro	93,100		615-890-5333	Soccer	2020
Watertown High School Indoor	Public High School	Watertown	TN	Momentum HP	8,342		615-444-3282		2020
Auburn Rec Multi Sport- Field 3	College	Auburn	AL	Legion Pro	119,850	Jennifer Jarvis	334-844-0023	Multi Sport	2019
Jasper High School	Public High School	Jasper	AL	Legion HP	98,686	Jonathan Jordan	205-221-9277		2019
Deshler High School	Public High School	Tusculum	AL	Legion Pro	93,944	Wynn Vinson	601-416-4767		2019
Friendship Christian School	Private High School	Lebanon	AL	Legion HP	79,560	John McNeal	615-449-1573		2019
Athens Wellness Center	Gym	Athens	AL	PowerBlade Pro	75,935	Wynn Vinson	601-416-4767		2019
Bob Jones High School	Public High School	Madison	AL	TruHop	13,539	Jared Smith	256-772-2547	Baseball	2019
Auburn Rec Softball Field #4	College	Auburn	AL	TruHop	11,525	Jennifer Jarvis	334-844-0023	Multi Sport	2019
Auburn Rec Softball Field #5	College	Auburn	AL	TruHop	11,525	Jennifer Jarvis	334-844-0023	Multi Sport	2019
Friendship Christian School	Private High School	Lebanon	AL	Legion HP	8,400	John McNeal	615-449-1573	Multi Sport	2019
Bob Jones High School	Public High School	Madison	AL	Momentum HP	3,285	Jared Smith	256-772-2547	Softball	2019
Inter Atlanta Soccer	Sports Park	Atlanta	GA	Legion Pro	220,000	Scott Steiding	770-379-8500	Soccer	2019
Woodland High School	Public High School	Cartersville	GA	Legion HP	94,355	Josh Manor	470-557-5794		2019
Adairsville High School	Public High School	Adairsville	GA	Legion HP	93,357	Josh Manor	470-557-5794		2019
Cass High School	Public High School	White	GA	Legion HP	92,778	Josh Manor	470-557-5794		2019
Worth County High School	Public High School	Sylvester	GA	Legion SD	90,080				2019
Surge Lacrosse Complex	Sports Park	Atlanta	GA	Legion HP	79,306			Lacrosse	2019
Atlanta Silverbacks Replacement	Soccer Complex	Doraville	GA	Momentum HP	79,350	Ben Wood		Soccer	2019
Atlanta Silverbacks Replacement	Soccer Complex	Doraville	GA	Momentum HP	79,350	Ben Wood		Soccer	2019
Toombs County High School	Public High School	Lyons	GA	Legion NXT	78,000	Bill Benton	912-293-5550		2019
Burnt Hickory Park	Sports Park	Dallas	GA	Legion HP	64,250	Board of Commissioners of Paulding County			2019
East Side Elementary School	Elementary School	Marietta	GA	Momentum HP	29,408	Maris Clark	770-578-7200	Multi Sport	2019
Ashford Park Elementary School	Elementary School	Atlanta	GA	Legion HP	19,300	Brian Borden			2019
Barlow County Parks and Recreation	Sports Park	Cartersville	GA	TruHop	18,268	Josh Manor	470-557-5794	Baseball	2019
Battlefield Airmen Outdoor		Woodstock	GA	SpikeZone Pro	17,079	Daniel	706-847-8646		2019
Woodland High School	Public High School	Cartersville	GA	Legion HP	2,230	Josh Manor	470-557-5794		2019
Worth County High School-Additional Roll	Public High School	Sylvester	GA	Legion SD	1,669				2019
Hamilton Crossing Park	Sports Park	Cartersville	GA						2019
North Atlanta High School	Public High School	Atlanta	GA						2019
Oakland High School	Public High School	Murfreesboro	TN	Legion NXT	100,403	Kevin Casey	615-904-3780		2019
UTC-Scrappy Moore Field	College	Chattanooga	TN	Legion Pro	92,160	UTC		Practice Football	2019
Union County High School	Public High School	Maynardville	TN	Legion HP	87,879				2019
William G Cooke Memorial Park	Sports Park	Athens	TN	Legion HP	84,547				2019
William G Cooke Memorial Park	Sports Park	Athens	TN	TruHop	32,058				2019
University of the South	College	Sewanee	TN	TruHop	32,000	Marty Hawkins		Baseball	2019
William G Cooke Memorial Park- college	Sports Park	Athens	TN	TruHop	22,605				2019
Public High School	Public High School	Halls	TN	Legion HP	18,165				2019
Riverdale High School	Public High School	Murfreesboro	TN	SpikeZone Pro	16,218	Barry Messer	615-890-6450	Baseball	2019
Warner-Cedar Stone Field	Sports Park	Smyrna	TN	TruHop	12,020	Mike Moss	615-260-4961	Baseball	2019
Warner-Cedar Stone Field	Sports Park	Smyrna	TN	TruHop	12,020	Mike Moss	615-260-4961	Baseball	2019
Warner-Cedar Stone Field	Sports Park	Smyrna	TN	TruHop	12,020	Mike Moss	615-260-4961	Baseball	2019
Warner-Cedar Stone Field	Sports Park	Smyrna	TN	TruHop	12,020	Mike Moss	615-260-4961	Baseball	2019
Belmont University	College	Nashville	TN	Momentum HP	11,107			Soccer	2019

INSTALLATIONS	TYPE	CITY	STATE	Product	SQ. FT	CONTACT	PHONE	SPORT	FIELD AGE
Calvary Chapel	Church	Chatanooga	TN	Momentum HP	7,680				
Riversdale High School	Public High School	Murfreesboro	TN	Momentum HP	4,141	Garry Messer	615-890-6450	Softball	2019
Andalusia High School Stadium	Public High School	Anniston	AL	Legion	101,000	Andy Wiggins	334-222-3312	Football	2018
New Thompson High School Stadium	Public High School	Alabaster	AL	Momentum	87,300	Vincent Pitts	205-685-6700	Football	2018
Thompson HS- Stadium	High School	Alabaster	AL	Momentum SD	87,300	Vincent Pitts, Athletic Director	205-685-6700		2018
New Thompson HS - Indoor Practice	Public High School	Alabaster	AL	Momentum	19,200	Vincent Pitts	205-685-6700	Football	2018
Thompson HS- Indoor Practice	High School	Alabaster	AL	Momentum SD	19,200	Vincent Pitts, Athletic Director	205-685-6700		2018
Thompson HS- Additional Turf	High School	Alabaster	AL	Momentum SD	14,560	Vincent Pitts, Athletic Director	205-685-6700		2018
Thompson HS- Batting Cages	Public High School	Alabaster	AL	Momentum	10,135	Vincent Pitts	205-685-6700	Baseball	2018
Thompson HS- Batting Cages	High School	Alabaster	AL	Momentum SD	10,135	Vincent Pitts, Athletic Director	205-685-6700		2018
Brook Run Park East Field	Parks & Recs	Dunwoody	GA	Momentum	109,000	Brent Walker	678-382-6850	Multi	2018
Brook Run Park East Field		Dunwoody	GA	Momentum SD	109,000	Brent Walker	678-382-6850		2018
FC- South Forsyth High School		Cumming	GA	Momentum HP	107,296	Tom Wenning	770-887-2461		2018
FC- Central Forsyth High School		Cumming	GA	Momentum HP	105,296	Tom Wenning	770-887-2461		2018
Brook Run Park West Field		Dunwoody	GA	Momentum SD	97,000	Brent Walker	678-382-6840		2018
FC- West Forsyth High School		Cumming	GA	Momentum HP	91,725	Tom Wenning	770-887-2461		2018
Lambert High School		Suwanee	GA	Momentum HP	91,725	Tom Wenning	770-887-2461		2018
FC- North Forsyth High School		Cumming	GA	Momentum HP	88,885	Tom Wenning	770-887-2461		2018
Lakepoint Mound Turf	Sports Complex	Calhoun	GA	Elevate	3,094			Baseball	2018
West High School	Public High School	Knoxville	TN	Legion		Steve Killian	(865) 594-4491	Multi	2018
Vestavia Hills High School Baseball	Public HS	Vestavia Hills	AL	TruHop	129,822	Jamie Harris	205-296-9224	Baseball	2017
Spain Park High School	Public High School	Hoover	AL	Legion	99,480	Patrick Kellogg	205-439-1400	Multi	2017
Hoover High School	Public High School	Hoover	AL	Legion	98,120	Andy Urban	205-439-1233	Multi	2017
Cherokee County - Veterans Park	Parks & Rec	Canton	GA	Legion	122,456	Bryan Reynolds	770-924-7768	Multi	2017
Franklin Road - Field 1 *	Parks & Rec	Marietta	GA	PowerBlade Pro	100,000	Mike Singleton	678-614-9172	Soccer/Lacrosse	2017
Franklin Road - Field 2 *	Parks & Rec	Marietta	GA	PowerBlade Pro	100,000	Mike Singleton	678-614-9172	Soccer/Lacrosse	2017
Franklin Road - Field 3 *	Parks & Rec	Marietta	GA	PowerBlade Pro	100,000	Mike Singleton	678-614-9172	Soccer/Lacrosse	2017
UGA IAF Field 2	College	Athens	GA	PowerBlade SD	49,898			Multi	2017
Fellowship Christian School	Private High School	Roswell	GA	Legion	22,000	David Lowery	770-993-1650	Multi	2017
Dalton High School Indoor Field	Public High School	Dalton	GA	Momentum	6,500	Athletic Director	706-876-4916	Multi	2017
Mt. Juliet High School	Public High School	Mt. Juliet	TN	Momentum	13,752	Lou Warner	615-430-6664	Baseball	2017
Dyersburg High School Indoor	High School	Dyersburg	TN	Momentum	6,505	Sandy Baker	731-286-3600	Soccer/Lacrosse	2017
Satsuma High School	Public High School	Satsuma	AL	Momentum	96,847	Steve Cochran	251-980-8217	Multi	2016
Auburn University - Band Field	College	Auburn	AL	Momentum	87,647	Dr. Rick Good	334-844-4166	Band	2016
Leeds High School	Public High School	Leeds	AL	PowerBlade SD	81,070	Lee Gibson	205-699-4510	Multi	2016
Bremen High School Football Stadium	Public High School	Bremen	GA	Legion	96,000	Russell Cooper	770-557-4963	Football	2016
Georgia Southern	College	Statesboro	GA	Legion	95,300	Tom Kleinlein	912-478-5047	Football	2016
Cherokee County - Hobgood Park	Parks & Rec	Woodstock	GA	Legion	88,000	Brian Reynolds	770-924-7768	Multi	2016
Lanierland Park - Field 2	Parks & Rec	Dawsonville	GA	Momentum	79,800	Jim Pryor	770-781-2215	Multi	2016
Lanierland Park - Field 4	Parks & Rec	Dawsonville	GA	Momentum	79,800	Jim Pryor	770-781-2215	Multi	2016
Lanierland Park Field 1	Parks & Rec	Dawsonville	GA	Momentum	79,800	Jim Pryor	770-781-2215	Multi	2016
Georgia Southern - J. Clements Stadium	College	Statesboro	GA	Momentum	32,851	Tom Kleinlein	912-478-5047	Baseball	2016
Arlington High School	Public High School	Arlington	TN	Legion	93,855	Adam Sykes	901-867-1541	Multi	2016
Vanderbilt University - John Rich Practice Field	College	Nashville	TN	Legion	75,000	Ed Higgins	615-974-8906	Football	2016
Dyer County Multi-Use Facility	Sports Centers	Dyersburg	TN	Momentum	20,100	Preston Ozment	731-627-2229	Multi	2016
Hemdon Park (3 Fields)	Parks & Rec	Mobile	AL	PowerBlade HP	237,450	Shannon McIntyre	251-208-7835	Multi	2016
Sheffield High School	Public High School	Sheffield	AL	Momentum	7,274	Kelvin Matthews	901-416-2370	Multi	2015
Darlington School	Private	Rome	GA	PowerBlade Pro	86,094	Eddie Guth	706-266-0058	Multi	2015
Episcopal Day School	Private	Augusta	GA	Momentum	18,263	Athletic Director		Multi	2015
King's Ridge	Private	Alpharetta	GA	PowerBlade Pro	94,761	Todd Mooney	770-754-5738	Multi	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
LakePoint Sports	Sports Centers	Emerson	GA	TruHop	116,525	Tony Carlson	770-403-1270	Baseball	2015
Alcoa High School	Public High School	Alcoa	TN	Momentum	1,300	Gary Rankin	865-982-4631	Multi	2015
Houston High School	Public High School	Germantown	TN	Momentum	94,500	Chad Becker	901-359-6497	Multi	2015
Clay-Chalkville High School	Public High School	Clay	AL	Momentum	76,684	Jerry Hood	205-516-9352	Multi	2014
Georgia Tech - Roe Stamps Field	College	Atlanta	GA	Momentum	163,175	John Hart	404-894-3987	Multi	2014
LakePoint Sporting Community	Sports Centers	Emerson	GA	PowerBlade Pro	93,750	Tony Carlson	770-403-1270	Multi	2014
Roswell Area Park #2	Parks & Rec	Roswell	GA	Legion	73,730	Jeff Pruitt	770-641-3705	Multi	2014
Alcoa High School	Public High School	Alcoa	TN	Legion	79,919	Josh Stephens	865-804-1679	Football	2014
Boost Fit Club	Sports Centers	Nashville	TN	Momentum	26,952	Jon Sexton	615-496-4736	Multi	2014
Christian Brothers High School	Private	Memphis	TN	Legion	92,400	Mike Kelly	901-598-4815	Football	2014
Ensworth School	Private	Nashville	TN	Legion	84,842	Connor Schutzman	318-278-0732	Multi	2014
Carson Newman University	College	Jefferson City	TN	PowerBlade Pro	101,350	Ken Sparks	865-471-3466	Multi	2014
Middle Tennessee State University	College	Murfreesboro	TN	Legion	112,705	JE Wallace	615-898-2967	Football	2014
Fairhope High School	Public High School	Fairhope	AL	Momentum	6,016	Tim Carter	251-990-2062	Indoor/Multi	2013
City of Roswell	Parks & Rec	Roswell	GA	PowerBlade Pro	400,000	Jeff Pruitt	678-414-5363	Multi	2013
Dalton High School	Public High School	Dalton	GA	PowerBlade Pro	90,600	Jeff McKinney	706-876-4800	Multi	2013
Dunwoody Springs	Public High School	Dunwoody	GA	Momentum	84,804	Dunwoody High School	678-874-8522	Multi	2013
Mount Paran Christian School	Private	Kennesaw	GA	PowerBlade Pro	95,695	Milton Jordan	678-462-8231	Multi	2013
Chattanooga Christian School	Private	Chattanooga	TN	PowerBlade Pro	110,856	Chad Dirks	423-265-6411	Multi	2013
East Tennessee State University	College	Johnson City	TN	PowerBlade HP	27,100	Tony Skole	423-439-4496	Baseball	2013
Memphis University School	Private	Memphis	TN	PowerBlade HP	92,554	Rankin Fowlkes	901-270-1222	Multi	2013
Vanderbilt University - Indoor	College	Nashville	TN	Legion	61,042	Bill Randles	615-456-0281	Indoor Football Practice	2013
White House High School	Public High School	Nashville	TN	Momentum	7,887	Jeff Porter	615-943-6246	Multi	2013
Christian Heritage High School	Private	Dalton	GA	PowerBlade HP	79,950	Preston Paag	706-277-1198	Football	2012
Georgia Gwinnett	College	Lawrenceville	GA	Legion	96,000	Eric Holland	770-921-1925	Soccer	2012
East Tennessee State University	College	Johnson City	TN	PowerBlade HP	146,017	Dave Mullins	423-737-6920	Baseball	2012
Vanderbilt University - Dudley Stadium	College	Nashville	TN	Legion	89,500	Brock Williams	615-943-4411	Football	2012
Columbus Arena Indoor	Sports Centers	Columbus	GA	DiaterTurf	19,575	Brian Giffen	706-225-4855	Football	2012
GA Tech Indoor field	College	Atlanta	GA	PowerBlade HP	86,013	Shawn Teske	404-894-6688	Football	2011
GA Tech-Grant Rd/Bobby Dodd Stad.	College	Atlanta	GA	Legion	37,103	Shawn Teske	404-894-6687	Football	2011
Ringgold High School	Public High School	Ringgold	GA	PowerBlade HP	94,000	Damon Raines	706-965-2297	Football	2011
Union Co HS	Public High School	Blairsville	GA	PowerBlade HP	97,800	Shawn Teske	404-894-6689	Football	2011
Memphis University	College	Memphis	TN	Legion	24,241	Rankin Fowlkes	901-260-1306	Baseball	2011



INSTALLATIONS	TYPE	CITY	STATE	Product	SQ. FT	CONTACT	PHONE	SPORT	FIELD AGE
George Washington Carver High School	Public High School	Birmingham	AL	Momentum	88,500	Aubrey Bennett	205-251-2942	Multi	2010
Georgia Tech	College	Atlanta	GA	Legion	76,046	Topher Roberts	404-894-1688	Football	2010
Lovett School	Private	Atlanta	GA	Momentum	85,000	Steve Franks	404-231-8744	Multi	2010
Whitefield Academy	Private	Atlanta	GA	Legion	92,000	Lynn Dupree	678-305-9000	Multi	2010
Atlanta International School	Private	Atlanta	GA	PowerBlade HP	64,200	Greg Albright	404-841-3840	Multi	2008
Etowah High School	Public High School	Woodstock	GA	PowerBlade HP	96,000	Bill Stewart	770-926-4157	Multi	2007
Lassiter High School	Public High School	Marietta	GA	PowerBlade HP	96,000	Tony Carlson	770-403-1270	Multi	2007
Harpeth Hall School	Private	Nashville	TN	Momentum	94	Karen Sinton	615-346-0100	Soccer	2007
Middle Tennessee State University	College	Murfreesboro	TN	PowerBlade HP	80,600	Mike Szul	615-898-5563	Football	2007
Bethel College	College	McKenzie	TN	Momentum	90,000	Dino Kaklis	731-352-4211	Football	2006
Kings Ridge Football	Private High School	Alpharetta	GA	Powerblade Pro	94,761	Kings Ridge School	770.754.5738		
Sports Fields-PF-Caifee Park	Sports Centers	Pigeon Forge	TN	Momentum Pro	69,860			Baseball	

EXHIBIT 'C'

Pricing Proposal

www.asgsportsfields.com | 470.557.5792 | info@asgsportsfields.com



Strategic Turf Partner:



Date: 14 October 2021

Prepared For:



Project: Dalton Soccer Complex - Fields 1 and 2
Proposal 3: REVISED

Prepared By: Patrick Remke
premk@asgsportsfields.com

	Unit	Qty	Unit Price	Total Cost
GENERAL CONDITIONS				
Field 1: Laser Grading, Curb, Drainage, Stone Base, Turf and Installation	SF	106,000.00	\$ 6.56	\$ 694,888.89
Field 2: Laser Grading, Curb, Drainage, Stone Base, Turf and Installation	SF	106,000.00	\$ 6.56	\$ 694,888.89
Laser Grading, Curb, Drainage, Stone Base, Turf and Installation Include:				
Supply and Install Legion Pro 2.0 (46 oz.)				
Shaw NXT Play Pad				
SBR / Sand Infill				
2 (two) Soccer Line Packages (Inlaid)				
1 (one) Redexim Base Rake with Brushes				
8 (eight) year maintenance package				
Performance and Payment Bonding				
Material Cost Increases from Outside Suppliers Incurred Since 29 April 2021	LS	1.00	\$ 66,355.08	\$ 66,355.08
PROJECT TOTAL:				\$ 1,456,132.85

ALTERNATES				
Alternate 1: Upgrade to Legion Pro 2.0 (50oz.) - ADD TO PROJECT TOTAL	LS	1.00	\$ 40,216.98	\$ 40,216.98
Alternate 3: GeoFill Top Dressing - ADD TO PROJECT TOTAL	LS	1.00	\$ 41,425.38	\$ 41,425.38
Alternate 4: 2 (two) 3 color "DRPD" logos (DESIGN T.B.D.) - ADD TO PROJECT TOTAL	EA	2.00	\$ 6,750.00	\$ 13,500.00

PRICING BASED ON SHEET

Total Cost (Base Bid plus Alternates 1, 3, & 4):
\$1,551,275.22

SCOPE OF WORK INCLUSIONS:

- Performance and payment bonding
- Assumes tie in to existing storm system - within 100' of installation
- Price based upon private wages.
- Prices based upon one mobilization. Re-mobilization will incur additional costs (each mobilization).
- Price based on standard Shaw Sports Turf colors for each product (custom yarns not included).
- Supply and install tufted and inlaid game field markings as specified above.
- Supply and install turf system infill materials: ambient processed SBR and silica sand.
- One (1) GMAX test performed upon completion of each field.
- All usable remnants of new material generated by Shaw Sports Turf shall become property of the owner.
- Quote based upon use of Shaw Sports Turf standard adhesive. Other adhesives at additional cost.

SCOPE OF WORK EXCLUSIONS:

- Any required licensing and/or permitting costs and/or fees.
- Any prevailing wages, union wages or union requirements.
- Contaminated soils, unsuitable soils, hazardous material removal and remediation of any kind.
- Provision of any additional sports equipment, score clocks, bases, home plates, pitching rubbers, foul poles, soccer nets, corner flags, netting, goal posts, etc
- Site Security.
- Concrete sidewalk repair.
- Anything not specifically state in our above scope of work.
- Changes in the specifications and/or scope of work are subject to change orders and may require additional charges.
- Any rock blasting or excavation.

"Our mission is to build recreational spaces for our communities, while building meaningful relationships."

2105 Barrett Park Drive, Ste 108
Kennesaw, GA 30144

CONDITIONS:

Adequate staging area to be provided by the client - within 200' of installation

Advanced Sports Group to accept site on subgrade (BY OTHERS).

Executed contract contingent upon site visit and approval by Advanced Sports Group LLC representative.

This proposal is valid for 60 days.

Price(s) subject to increase if additional work items are added, or scope of work is changed by owner.

Thank you for your interest in Advanced Sports Group. We look forward to the opportunity of working together.

PATRICK REMKE, PRESIDENT



CITY COUNCIL AGENDA REQUEST

Meeting Type:	Mayor & Council Meeting
Meeting Date:	11/1/2021
Agenda Item:	Contract for Services with Northwest Georgia Paving, Inc. for the Northeast Community Complex Soccer Fields Project (General Site Construction Package)
Department:	Public Works
Requested By:	Megan Elliott
Reviewed/Approved by City Attorney?	Yes
Cost:	\$ 3,608,822.42 (unit pricing)
Funding Source if Not in Budget	2020 SPLOST - SP210

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

This contract for services with Northwest Georgia Paving, Inc. is for the General Site Construction at the Northeast Community Complex as per the plans prepared by Goodwyn Mills Cawood (GMC) dated 08-02-2021.

This is contract is for Phase 1 of a Two (2) Phase project. The scope of work in this contract consists of the roadway extension of Hale Bowen Drive, a parking lot, restroom/concessions building, two (2) soccer fields to sub-grade, etc.

The bid received from NWGP, Inc. included a base bid in the amount of \$3,452,192.42. City Staff recommends the bid alternates (Alt #2, Alt #3 & Alt #4), for a total amount of \$156,630.00, be awarded in addition to the base bid for a project total amount of **\$3,608,822.42.**

The Finance Department has set up a charge account to fund this project.

CITY OF DALTON, GEORGIA



CONTRACT DOCUMENTS

For
PROJECT:

**NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS**

HALE BOWEN DRIVE

**CITY OF DALTON PUBLIC WORKS DEPARTMENT
PO BOX 1205
DALTON, GEORGIA 30722**

ADVERTISEMENT FOR BID

**NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS**

Sealed bids will be received by the City of Dalton Finance Department located at 300 W. Waugh Street, Dalton, Georgia 30722 until:

TUESDAY, SEPTEMBER 21, 2021 AT 2 PM

for the furnishing of all materials, labor, tools, skill, equipment and incidentals unless noted otherwise for the construction of the project entitled:

**NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS**

at which time and place the sealed bids will be publicly opened and read aloud.

Bids received after the designated time will not be considered.

The principal items of construction are:

The project consists of roadway extension of Hale Bowen Drive, parking lot, restroom concessions building, and 2 soccer fields to sub-grade. Standards and specifications consist of mass grading, laser grading, utilities, asphalt paving, detention and drainage, concrete, fencing and associated electrical.

Bidders shall inform themselves of and comply with all conditions and specifications contained in the bid package, contract, related documents and State and Federal Law.

The bid package, specifications, and contract documents for this project are open to public inspection at the City of Dalton Public Works Department located at 535 Elm Street, Dalton, Georgia 30721. The Public Works Department may be contacted by telephone at (706) 278-7077 or by mail at P.O. Box 1205, Dalton, Georgia 30722.

One Contract shall be awarded covering all work and the bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner. The project is to be fully complete withing 180 calendar days from signed Notice to Proceed. Bidders must agree to pay as liquidated damages the sum of \$300.00 per each consecutive calendar day thereafter. Due consideration will be given to delivery of materials in specifying starting date.

Contract documents and the bid package for this project may be obtained electronically via the City of Dalton's webpage @ <http://www.daltonga.gov>.

Should a bidder choose to download the bid package from the City of Dalton webpage, please send a written request to be added to the Project "Bidder's List" by sending an email request to: melliott@daltonga.gov.

Bids must be accompanied by a Certified Check or Bid Bond in an amount equal to not less than five percent (5%) of the bid to be considered.

No bid may be withdrawn after the scheduled closing time for receiving bids for a period of sixty (60) days.

The Owner reserves the right to reject any or all bids (and/or alternates) and to waive formalities and re-advertise.

Anyone seeking to bid on and/or perform work on this project must be prequalified by the Georgia Department of Transportation.

CITY OF DALTON, GEORGIA

BY _____
Megan Elliott
Project Engineer

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GEOTECHNICAL REPORT

SECTION 0100 – INFORMATION FOR BIDDERS

0101 RECEIPT AND OPENING OF BIDS

The CITY OF DALTON, GEORGIA (*hereinafter called the Owner*), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the CITY OF DALTON FINANCE DEPARTMENT
300 W. WAUGH STREET, DALTON, GEORGIA 30722 until SEPTEMBER 21, 2021 AT 2 PM and then at said office publicly opened and read aloud. The envelope containing the bids must be sealed and designated as the bid for the construction of the project entitled:

NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities to reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual date of the opening thereof.

IMPORTANT NOTE:

This project is Phase 1 of a 2-Phase project. Shaw Sports Turf has been awarded the Synthetic Turf portion of the project (Phase 2 to include from sub-grade up on the Sports field only) and the awarded General Contractor for Phase 1 will need to coordinate for Phase 2 (Shaw Sports) for mobilization and installation of Synthetic Turf field when sub-grade and field perimeter sidewalk has been installed. Access to field to coordinated with Shaw Sports Turf.

0102 PREPARATION OF BID

Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in numerals for unit prices and for total amounts.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, his address, and the name of the project for which the bid is submitted. **ALL SEALED BIDS MUST INCLUDE AN EXECUTED E-VERIFY**

AFFIDAVIT, THIS DOCUMENT CAN BE FOUND IN THE BID PROPOSAL SECTION. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified in the bid form. Any bid which is not properly prepared and accompanied by required certifications may be rejected by the Owner.

Each bidder will be required to certify compliance with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act O.C.G.A. §13-10-90 et seq. by doing the following: registering at <https://www.vis-dhs.com/EmployerRegistration> to verify information of all newly hired employees in order to comply with the Immigration Reform and Control Act of 1986 (IRCA), D.L. 99-603 and the Georgia Security and Immigration Compliance Act. Each firm must submit a completed and notarized E-verify (Exhibit A) affidavit with their bid submittal. During the entire duration of this contract, Contractor and all sub-contractors must remain in compliance with Georgia Security and Immigration Compliance Act of 2007 and Georgia code §13-10-91 and §50-36-1.

0103 TELEGRAPHIC MODIFICATION

Any bidder may modify his bid by telegraphic communication at any time prior to the scheduled closing time for receipt of bids, provided such telegraphic communication is received by the Owner prior to the closing time, and, provided further, the Owner is satisfied that a written confirmation of the telegraphic modification over the signature of the bidder was mailed prior to the closing time. If written confirmation is not received within two days from the closing time, no consideration will be given to the telegraphic modification.

0104 QUALIFICATIONS OF BIDDERS

The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. By submission of his Bid, the Bidder acknowledges the right of the Owner to make such investigations, to contact references and utilize this information as a basis of determining award of the contract. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

Written information pertaining to the Bidder's qualifications may be requested by the Owner. Failure of the Bidder to provide such information within fifteen days of notification will be grounds for disqualification.

0105 BID SECURITY

Each bid must be accompanied by a certified check or bid bond prepared on the form of bid bond attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the Owner, in the amount of five (5)% of the bid. Such certified checks or bid bonds will be returned to all except the three lowest bidders within three days after the opening of bids, and the remaining certified checks or bid bonds will be returned promptly after the Owner and the accepted bidder have executed the contracts, or, if no award has been made within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he has not been notified of the acceptance of his bid.

0106 LIQUIDATED DAMAGES AND FAILURE TO ENTER INTO CONTRACT

The successful bidder, upon his failure or refusal to execute and deliver the contract and bonds required within 10 days after he has received notice of the acceptance of his bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his bid.

0107 TIME OF COMPLETION AND LIQUIDATED DAMAGES

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" of the Owner and be complete Within 180 calendar days from date of Notice to Proceed. Bidders must agree also to pay as liquidated damages the sum of \$300.00 per each consecutive calendar day thereafter.

0108 CONDITION OF WORK

Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Insofar as possible the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor.

0109 ADDENDA AND INTERPRETATIONS

Oral interpretations of the meaning of plans, specifications or other contract documents shall not be binding over written material.

Every request for such interpretation should be in writing addressed to City of Dalton Public Works, P.O. Box 1205, Dalton, Georgia 30722 or by email to Megan Elliott (melliott@daltonga.gov) and to be given consideration must be received at least ten days prior to the date fixed for the opening of bids. Any and all such

interpretations and any supplemental instructions will be in the form of written addenda to the specifications, which, will be emailed to all prospective bidders. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

0110 SECURITY FOR FAITHFUL PERFORMANCE

Simultaneously with his delivery of the executed contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of his contract and for the payment of all persons performing labor on the project under this contract, and furnishing materials in connection with his contract, as specified in the General Conditions included herein. Surety companies executing Bonds must appear on the Treasury Department's most current list (*Circular 570 as amended*) and be authorized to transact business in the state where the project is located.

0111 POWER OF ATTORNEY

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

0112 NOTICE OF SPECIAL CONDITIONS

Attention is particularly called to those parts of the contract documents and specifications which are identified subsequently under Special Conditions.

0113 LAWS AND REGULATIONS

The bidders' attention is directed to the fact that all applicable federal and state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

0114 METHOD OF AWARD

If the Contract is awarded, it will be awarded to the lowest Bidder whose evaluation by Owner indicates to Owner that the award will be in the best interests of the project. The Owner shall have complete discretion in making this determination and may consider factors such as, but not limited to the following:

0114.01 Unit bid prices of various items as they relate to total bid price.

0114.02 Proximity of the Bidder's permanent place of business as it may relate to Bidder's responsiveness in carrying out the contract.

0114.03 Litigation record of the Bidder.

0114.04 Satisfactory completion of similar projects. Qualifications and experience in Parks and Recreation construction.

0114.05 Resources pertaining to management, personnel and equipment.

0114.06 Financial history, credit rating and current resources.

0115 OBLIGATION OF BIDDER

At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (*including all addenda*). The failure or omission of any bidder to examine any form, instrument, or document shall in no way relieve any bidder from any obligation in respect to his bid.

0116 CORRELATION AND INTENT OF DOCUMENTS

The contract documents are complementary, and what is called for by one shall be as binding as if called for by all.

The intent of the documents is to describe in detail all construction entailed in this project. The contractor will furnish all labor, materials, equipment, transportation, tools and appurtenances such as may be reasonably required under the terms of the contract to make each part of the work complete.

The drawings are intended to conform and agree with the specifications. If, however, discrepancies occur, the Owners will decide which shall govern. Special specifications stated on the drawings govern that particular piece of construction and have equal weight and importance as the printed specifications. In the event of any discrepancies between the drawings and the figures written thereon, the figures are to be taken as correct.

0117 CLAIMS

The Owner reserves the right to refuse to issue any voucher and to direct that no payment shall be made the contractor in the case they have reason to believe that said contractor has neglected or failed to pay any subcontractor, material dealer, worker or employee for work performed on or about the project including work as set forth in these specifications, until the Owner is satisfied that such subcontractors, material dealers, worker, or employees have been fully paid. However this provision shall not obligate the Owner to intervene in any claim.

0118 ORDER OF WORK

The work shall be started at such points as the Owner shall designate and shall be prosecuted in the order he directs. This applies to both location and items of construction.

0119 SUBCONTRACTS

If required by the Owner, the apparent Successful Bidder, and any other Bidder so requested, will within seven days after the day of the Bid opening submit to Owner a list of all Subcontractors and other persons and organizations (*including those who are to furnish the principal items of material and equipment*) proposed for those portions of the Work as to which such identification is so required. If the Owner, after due investigation, has reasonable objection to any proposed Subcontractor, other person or organization, may, before giving the Notice of Award, request the apparent Successful Bidder to submit an acceptable substitute without an increase in Bid price. If the apparent Successful Bidder declines to make any such substitution, the contract shall not be awarded to such Bidder, but his declining to make any such substitution will not constitute grounds for sacrificing his Bid Security. Any Subcontractor, other person or organization so listed and to whom the Owner does not make written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner.

0120 TIMELY EXECUTION

When the Owner gives a Notice of Award to the Successful Bidder, it will be accompanied by at least five unsigned counterparts of the Agreement and all other Contract Documents. Within ten days thereafter, the Contractor shall sign and deliver at least five counterparts of the Agreement to Owner with all other Contract Documents attached. Thereafter, the Owner will deliver two fully signed counterparts to Contractor.

.....END OF SECTION

SECTION 0200 – BID PROPOSAL

BID BOND
(Five Percent of Bid)

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned _____
Northwest Georgia Paving, Inc.

of the City of Calhoun State of Georgia and County of Gordon
as Principal and Liberty Mutual Insurance Company

as Surety, are hereby held and firmly bound unto the CITY OF DALTON, GEORGIA as
Owner in the penal sum of Five Percent of Principal's Bid

Dollars (\$ _____) for the payment of which, well and truly to be made,
we hereby jointly and severally bind ourselves, our heirs, executors, administrators,
successors and assigns.

Signed this 21st day of September, 2021.

The condition of the above obligation is such that whereas the Principal has submitted to
the CITY OF DALTON, GEORGIA a certain bid attached hereto and hereby made a part
hereof to enter into a contract in writing for the construction of the project entitled:

NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS

NOW, THEREFORE,

- (a) If said bid shall be rejected or in the alternate,
- (b) If said bid shall be accepted and the Principal shall execute and deliver a contract
in the Form of Contract attached hereto (*properly completed in accordance with
said bid*) and shall furnish a bond for his faithful performance of

BID BOND

0200-1



(Continued)

said contract and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void; otherwise the same shall remain in force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of the time within which the Owner may accept such Bids, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

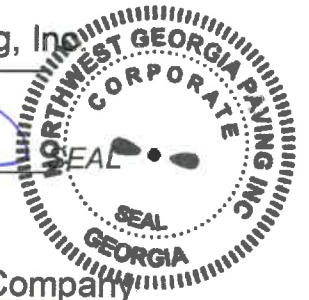
Lisa Callaway
Witness As To Principal

Gloria Curry
Witness As To Surety
Gloria Curry

Northwest Georgia Paving, Inc.

Principal

By [Signature]



Liberty Mutual Insurance Company

Surety
175 Berkeley Street
Boston, MA 02116

Address

By Deborah B. Sasser SEAL
Attorney-in-Fact

Deborah B. Sasser





This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

Certificate No: 8204980-016007

POWER OF ATTORNEY

KNOWN ALL PERSONS BY THESE PRESENTS: That The Ohio Casualty Insurance Company is a corporation duly organized under the laws of the State of New Hampshire, that Liberty Mutual Insurance Company is a corporation duly organized under the laws of the State of Massachusetts, and West American Insurance Company is a corporation duly organized under the laws of the State of Indiana (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Bart Peppers, Brian E. Madden, Brittany L. Triplett, Deborah B. Sasser, Felisa H. Vaughan, Travis G. Huffines

all of the city of Alpharetta state of GA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 5th day of March, 2021.



Liberty Mutual Insurance Company
The Ohio Casualty Insurance Company
West American Insurance Company

By: David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

State of PENNSYLVANIA ss
County of MONTGOMERY

On this 5th day of March, 2021 before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of Liberty Mutual Insurance Company, The Ohio Casualty Company, and West American Insurance Company, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at King of Prussia, Pennsylvania, on the day and year first above written.



Commonwealth of Pennsylvania - Notary Seal
Teresa Pastella, Notary Public
Montgomery County
My commission expires March 28, 2025
Commission number 1126044
Member, Pennsylvania Association of Notaries

By: Teresa Pastella, Notary Public

For bond and/or Power of Attorney (POA) verification inquiries, please call 610-832-8240 or email HOSUR@libertymutual.com.

This Power of Attorney is made and executed pursuant to and by authority of the following By-laws and Authorizations of The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company which resolutions are now in full force and effect reading as follows:

ARTICLE IV - OFFICERS: Section 12. Power of Attorney.

Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and execution of any such instruments and to attach thereto the seal of the Corporation. When so executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

ARTICLE XIII - Execution of Contracts: Section 5. Surety Bonds and Undertakings.

Any officer of the Company authorized for that purpose in writing by the chairman or the president, and subject to such limitations as the chairman or the president may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Company by their signature and execution of any such instruments and to attach thereto the seal of the Company. When so executed such instruments shall be as binding as if signed by the president and attested by the secretary.

Certificate of Designation - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

Authorization - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Renee C. Llewellyn, the undersigned, Assistant Secretary, The Ohio Casualty Insurance Company, Liberty Mutual Insurance Company, and West American Insurance Company do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 21st day of September, 2021.



By: Renee C. Llewellyn, Assistant Secretary

BID PROPOSAL

Place Calhoun, GA
Date 09/21/2021

Proposal of Northwest Georgia Paving, Inc. (*hereinafter called "Bidder"*) a contractor organized and existing under the laws of the City of Calhoun State of Georgia and County of Gordon, * an individual, a corporation, or a partnership doing business as Corporation - Northwest Georgia Paving, Inc.

TO: CITY OF DALTON, GEORGIA
(*Hereinafter called "Owner"*)

Gentlemen:

The Bidder in compliance with your invitation for bids for the construction of NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS having examined the plans and specifications with related documents and the site of the proposed work, and being familiar with all of the conditions surrounding the construction of the proposed project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the project in accordance with the contract documents, within the time set forth herein, and at the prices stated below. These prices are to cover all expenses incurred in performing the work required under this contract, of which this proposal is a part.

Bidder hereby agrees to commence work under this contract on or before a date to be specified in a written "Notice to Proceed" of the Owner and be complete within 180 calendar days of dated NTP. Bidder further agrees to pay as liquidated damages the sum of \$300.00 for each consecutive calendar day thereafter as hereinafter provided in the General Conditions under "Time of Completion and Liquidated Damages."

Bidder acknowledges receipt of the following addenda:

Addendum No. 1 - 09/07/2021

Addenda No. 3 - 09/17/2021

Addenda No. 2 - 09/15/2021

*Strike out inapplicable terms

BID PROPOSAL
(Continued)

Amount shall be shown in figures.

SEE FOLLOWING PAGES FOR BID PROPOSAL FORMS.

The prices submitted shall include all labor, materials, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.

The Bidder agrees that this bid shall be good and may not be withdrawn for a period of 60 calendar days after the scheduled closing time for receiving bids.

The undersigned further agrees that, in case of failure on his part to execute said contract and bond within ten (10) days after the award thereof, the check or bond accompanying his bid and the money payable thereon shall become the property of the Owner; otherwise, the check or bond accompanying this proposal shall be returned to the Bidder.

The Bidder declares that he understands that the quantities shown on the proposal are subject to adjustment by either increase or decrease, and that should the quantities of any of the items of work be increased, the undersigned proposes to do the additional work at the unit prices stated herein; and should the quantities be decreased, he also understands that payment will be made on actual quantities at the unit price bid and will make no claim for anticipated profits for any decrease in the quantities and that actual quantities will be determined upon completion of work, at which time adjustment will be made to the contract amount by direct increase or decrease.

Attached hereto is a bid bond or certified check on the 21st of September 2021 in the amount of Five Percent (5%) of Principal's Bid according to conditions under "Information For Bidders" and the provisions therein.

The full name and residence of persons or parties interested in the foregoing bids, as principals, are named as follows:

Russell Smith - 501 W. May Street, Calhoun, GA 30701

BID PROPOSAL
(Continued)

Dated at:

Calhoun, GA

The 21st day of September, 2021



Northwest Georgia Paving, Inc.

Principal

By 

SEAL

CONTRACT ADDENDUM

ADDENDUM NO.: 001

DATE ISSUED: September 7, 2021

BID DATE: Tuesday, September 21, 2021

BID TIME: 2 PM ET

BID LOCATION: City of Dalton Finance Department

CONTRACTOR ACTION:

1. Acknowledge receipt of this addendum by writing in "Addendum No. 1" on page 0200-3 of bid proposal.
2. For any and all electronic file requests, including CAD files, please fill out the attached 'Electronic File Transmission Agreement' and send it to:

Katie Strickland
katie.strickland@gmcnetwork.com

BY:

Megan Elliott
Assistant Public Works Director

Attachments:

- Electronic File Transmission Agreement

###



ELECTRONIC FILE TRANSMISSION AGREEMENT

Goodwyn Mills Cawood

6120 Powers Ferry Road NW
Suite 350
Atlanta, GA 30339

T (770) 952-2481
F (770) 955-1064

www.gmcnetwork.com

The Recipient recognizes that data, plans, specifications, reports, documents or other information recorded on or transmitted as electronic media are subject to undetectable alteration, either intentional or unintentional due to, among other causes, transmission, conversion, media degradation, software error, or human alteration. Electronic documents also are frequently incomplete, and often represent a fraction of the applicable Contract Documents. Accordingly, the electronic documents provided hereunder are for informational purposes only and are not intended, under any circumstances, as an end-product. Only the complete printed Contract Documents serve as such, and therefore shall prevail in any dispute over the accuracy or sufficiency of the work product. The Design Professional makes no warranties, either expressed or implied, regarding the fitness, suitability, accuracy, or completeness of the electronic documents. Accordingly, the Recipient agrees to indemnify and hold harmless Goodwyn Mills & Cawood, LLC. and its Consultants, and to waive any and all claims, including claims for consequential damages or attorney’s fees, against Goodwyn, Mills & Cawood, LLC. and its Consultants relating in any way to the authorized or unauthorized use, reuse or alteration of the electronic documents. The information transmitted under this agreement is proprietary and shall remain the sole property of Goodwyn, Mills & Cawood, LLC. It shall not be copied or used for any purpose unless authorized in writing by Goodwyn, Mills & Cawood, LLC. Further, where payment for electronic file transmission is required, Goodwyn Mills & Cawood, LLC. must receive payment in full before commencement of file transfer services.

Project Title/Name: _____

Intended Use: _____

Agreed by: _____ Date: _____

Representing: _____

CONTRACT ADDENDUM

ADDENDA NO.: 002

DATE ISSUED: September 15, 2021

BID DATE: Tuesday, September 21, 2021

BID TIME: 2 PM ET

BID LOCATION: City of Dalton Finance Department

CONTRACTOR ACTION:

1. Acknowledge receipt of this addendum by writing in "Addenda No. 2" on page 0200-3 of bid proposal.

INTERPRETATIONS:

Responses by the City of Dalton follow the questions in red font.

1. What is the actual wattage of each fixture? Each fixture is 1500 LED. The 7.4 Amp rating is the max operating current and takes into account minimum power loss, operating temperature and other factors, but the TLC-LED-1500 LED fixture is actually 1430 watts.
2. Can you verify the subgrade for the soccer fields? As per sheet C-301 Grading Plan, the soccer area receiving turf should hold down 6" to subgrade.
3. Due to the excess material, will you entertain balancing the site? No, Contractor should bid as per the bid documents.

BY:

Megan Elliott
Assistant Public Works Director

###

CONTRACT ADDENDUM

ADDENDA NO.: 003

DATE ISSUED: September 17, 2021

BID DATE: Tuesday, September 21, 2021

BID TIME: 2 PM ET

BID LOCATION: City of Dalton Finance Department

CONTRACTOR ACTION:

1. Acknowledge receipt of this addendum by writing in "Addenda No. 3" on page 0200-3 of bid proposal.
2. Please remove and discard the original bid form from the bid proposal. Each Contractor shall record their bid on the revised bid form attached to this document. Failure to use the revised bid form will result in automatic rejection of the bid submitted.
3. Please note Item #1 under INTERPRETATIONS below is a correction to the information provided in for Addendum #2, released on September 15th, 2021, and should replace the answer for the question that stated:

- Due to the excess material, will you entertain balancing the site?

INTERPRETATIONS:

Responses by the City of Dalton follow the questions in red font.

1. Due to the excess material, will you entertain balancing the site? **If there is interest in doing so, the Contractor may provide a proposal for balancing the site to the City for consideration.**
2. The bid form Item No. '33. Connect Sewer Pipe to Exist. Manhole' indicates estimated quantity to be '560 EA'. This information appears to be a typo. Please clarify. **This is a typo. Please see the updated bid form.**

BY:

Megan Elliott
Assistant Public Works Director

Attachments:

- Revised Bid Form

###

Revised Bid Form For:

City of Dalton

Northeast Community Complex Soccer Field



ITEM No.	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
SITE PREPERATION					
1.	Clearing, Demolition & Grubbing	1	LS	205,000.00	205,000.00
2.	Mobilization and Demobilization	1	LS	6,500.00	6,500.00
3.	Grading Complete	1	LS	365,000.00	365,000.00
STREET IMPROVEMENTS					
4.	1" (110 lb/sy) Recycled Asphalt Concrete 9.5 mm Superpave	355.0	Tons	130.00	46,150.00
5.	1.5" (165 lb/sy) Recycled Asphalt Concrete 9.5 mm Superpave	515.0	Tons	130.00	66,950.00
6.	2" (220 lb/sy) Recycled Asphalt Concrete 19 mm Superpave	1,395.0	Tons	120.00	167,400.00
7.	Bituminous Tack Coat (.07 gal/sy)	886	GAL	3.00	2,658.00
8.	Bituminous Prime Coat (0.25 gal/sy)	3,164	GAL	3.00	9,492.00
9.	8" Graded Aggregate Base Course	6,233	SY	17.00	105,961.00
10.	6" Graded Aggregate Base Course	6,420	SY	13.00	83,460.00
11.	Stand Up Curb	535	LF	10.00	5,350.00
12.	24" Wide Concrete Curb & Gutter	5,000	LF	18.00	90,000.00
13.	Concrete Paving (7" Thick)	81	SY	145.00	11,745.00
14.	Concrete Sidewalk (4" Thick)	2,980	SY	60.00	178,800.00
15.	Handicap Ramp	4	EA.	353.00	1,412.00
16.	5" Wide Solid Yellow Stripe (Thermoplastic)	2,378	LF	2.00	4,756.00
16.	5" Wide Dashed White Stripe (Thermoplastic)	98	LF	1.00	98.00
17.	5" Wide Paint (Solid Stripe for Parking Lines/Handicapped Lines Symbols)	1	LS	2,800.00	2,800.00
18.	8" Wide Solid White Crosswalk Stripe (Thermoplastic)	1	LS	550.00	550.00
19.	24" Wide Solid White Stop Bar Stripe (Thermoplastic)	55	LF	10.00	550.00
20.	Solid White Directional Arrow (Thermoplastic)	2	EA	150.00	300.00
21.	Parking/Roadway Signage including Handicapped Signs	1	LS	3,200.00	3,200.00
STORM SEWER SYSTEM					
22.	Storm Drain Pipe, RCP				
A.	18-inch	85	LF	70.00	5,950.00
B.	24-inch	24	LF	240.00	5,760.00
C.	30-inch	311	LF	90.00	27,990.00
D.	36-inch	78	LF	165.00	12,870.00
23.	Concrete Headwall	6	EA	2,000.00	12,000.00
24.	Slope Paved Headwall	2	EA	5,500.00	11,000.00
25.	4'x4' Junction Box/Inlet	1	EA	5,000.00	5,000.00
26.	Single Wing Catch Basin (4')	1	EA	5,600.00	5,600.00
27.	Double Wing Catch Basin (4')	2	EA	5,600.00	11,200.00
28.	Double Wing Catch Basin (8')	1	EA	6,800.00	6,800.00
29.	Grate Inlet (4')	1	EA	4,400.00	4,400.00
30.	ADS Barracuda WQ Unit(s)	1	LS	79,500.00	79,500.00
31.	Outlet Control Structure	1	EA	15,000.00	15,000.00

Item No.	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
SANITARY SEWER AND WATER UTILITIES					
32.	4" DIP Sanitary Sewer Lateral (Fittings Included)	560	LF	100.00	56,000.00
33.	Connect Sewer Pipe to Exist. Manhole	1	EA	5,000.00	5,000.00
34.	Sanitary Sewer Clean Out	6	EA	1,800.00	10,800.00
35.	1" DR 9 HDPE Water Line (taps, fittings, valves, meters, backflows included)	1	LS	15,000.00	15,000.00
36.	2" DR 9 HDPE Water Line (taps, fittings, valves, meters, backflows included)	1	LS	15,500.00	15,500.00
37.	6" DIP Water Line (taps, fittings, valves included)	1	LS	15,000.00	15,000.00

MISCELLANEOUS					
38.	Erosion Control/BMPs (All Items As Shown On Plans)	1	LS	185,000.00	185,000.00
39.	Storm Water Sampling for NPDES Permit	1	LS	9,251.54	9,251.54
40.	Monitoring, NOI, NOT, Record Keeping & Reporting NPDES to GA EPD	1	LS	9,531.89	9,531.89
41.	Materials Testing	1	LS	5,606.99	5,606.99
42.	Cash Allowance (Authorized by Owner & Engineer)	1	LS	0.00	0.00
43.	Restroom Building Complete	1	LS	398,500.00	398,500.00
44.	Site Fencing, Gates & Netting	1	LS	278,000.00	278,000.00
45.	Bleachers	4	EA	10,200.00	40,800.00
46.	Picnic Tables	12	EA	1,500.00	18,000.00
47.	Musco Sports Field Utility Complete	1	LS	435,000.00	435,000.00
48.	Scoreboards & Associated Electronics	4	EA	11,000.00	44,000.00
49.	Site Electrical Complete	1	LS	350,000.00	350,000.00

TOTAL AMOUNT BASE BID 3,452,192.42

(In Figures)

Three million four hundred fifty-two thousand one hundred ninety-two and 42/100

(In Words)

BID ITEM 1

STREET IMPROVEMENTS

1.	ADS MC-4500 Underground Detention Complete As Shown	1	LS	650,000.00	650,000.00
2.	Add Alternate Grading Complete	1	LS	395,000.00	395,000.00
3.	Storm Drain Pipe, RCP				
A.	18-inch	63	LF	90.00	5,670.00
B.	24-inch	37	LF	180.00	6,660.00
C.	30-inch	262	LF	110.00	28,820.00
D.	36-inch	78	LF	160.00	12,480.00
4.	Concrete Headwall	4	EA	2,000.00	8,000.00
5.	Slope Paved Headwall	1	EA	5,500.00	5,500.00
6.	4'x4' Junction Box/Inlet	2	EA	5,000.00	10,000.00
7.	Single Wing Catch Basin (4')	1	EA	5,600.00	5,600.00
8.	Double Wing Catch Basin (4')	0	EA	5,600.00 BHA	0.00
9.	Double Wing Catch Basin (8')	1	EA	6,800.00	6,800.00
10.	Grate Inlet (4')	2	EA	4,400.00	8,800.00
11.	ADS Barracuda WQ Unit(s)	1	LS	79,500.00	79,500.00
12.	Outlet Control Structure	0	EA	0.00	0.00

Replace Base Bid items 22-31 with BID ITEM 1

Bid Item No 1 will not be awarded **TOTAL AMOUNT BID ITEM No. 1** ~~1,222,830.00~~

ME 10/14/2021

(In Figures)

~~One million two hundred twenty-two thousand eight hundred thirty and 00/100~~

(In Words)

Item No.	DESCRIPTION	ESTIMATED QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE
BID ITEM 2					
1.	Concrete Paving (7" Thick) Outdoor Classroom	138	SY	135.00	18,630.00

TOTAL AMOUNT BID ITEM No. 2 18,630.00
(In Figures)

Eighteen thousand six hundred thirty and 00/100
(In Words)

BID ITEM 3					
1.	Rectangle Hip Shade Structures at Parking Lot	4	EA	12,500.00	50,000.00

TOTAL AMOUNT BID ITEM No. 3 50,000.00
(In Figures)

Fifty thousand and 00/100
(In Words)

BID ITEM 4					
1.	Cantilever Shade Structures At Field	4	EA	22,000.00	88,000.00

TOTAL AMOUNT BID ITEM No. 4 88,000.00
(In Figures)

Eighty-eight thousand and 00/100
(In Words)

The Total Contract Value to include the following:

- Base Bid - **\$3,453,192.42**
- Bid Item No. 2 - **\$18,630.00**
- Bid Item No. 3 - **\$50,000.00**
- Bid Item No. 4 - **\$88,000.00**

Total Contract Award - \$3,608,822.42 (unit pricing)

CONSTRUCTION PAYMENT BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

OWNER (*Name and Address*):

CITY OF DALTON
P.O. BOX 1205
DALTON, GEORGIA 30722

CONSTRUCTION CONTRACT:

Date: _____

Amount: _____

Description (*Name and location*):

NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS

SURETY (*Name and Principal place of Business*):

BOND:

Date: _____

Amount: _____

Bond Number: _____

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner and for the use and protection of all subcontractors and persons supplying labor, materials, machinery, and

CONSTRUCTION PAYMENT BOND
(Continued)

equipment in the prosecution of the Work involved in this Construction Contract.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:
 - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2.2. Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity whose claim, demand, lien or suit is for payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (*at the address described in Paragraph 11*) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligations to Claimant unless the Claimant has substantially complied with the requirements of O.C.G.A. 36-82-104 by giving the notices provided for therein. Each Claimant failing to substantially comply with said Code Section shall be deemed to have waived the protection of the payment bond. No Claimant shall file an action for payment against the Owner, Contractor or Surety, except in accordance with this section.
 - 4.1. Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (*at the address described in Paragraph 12*) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
 - 4.2. Claimants who do not have a direct contract with the Contractor:
 1. Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed: and
 2. Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
 3. Not having been paid within the above 30 days, have sent a written notice

CONSTRUCTION PAYMENT BOND
(Continued)

to the Surety (*at the address described in Paragraph 12*) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
 - 6.1. Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and that basis for challenging any amounts that are disputed.
 - 6.2. Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. 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 the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
9. 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 payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
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. No suit or action on this bond shall be instituted by a Claimant after expiration of one (1) year from the completion of the contract and the acceptance of the work by the public entity responsible therefor.

CONSTRUCTION PAYMENT BOND
(Continued)

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on this Bond.

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 the 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. The intent is, that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. DEFINITIONS

- 15.1. 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 Contract. 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.
- 15.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 15.3. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

CONTRACTOR AS PRINCIPAL

Company: _____

_____ (Corp. Seal)

Signature: _____

Name and Title: _____

SURETY

Company: _____

_____ (Corp. Seal)

Signature: _____

Name and Title: _____

CONSTRUCTION PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

OWNER (*Name and Address*):

CITY OF DALTON
P.O. BOX 1205
DALTON, GEORGIA 30722

CONSTRUCTION CONTRACT:

Date: _____

Amount: _____

Description (*Name and location*):

NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS

SURETY (*Name and Principal place of Business*):

BOND:

Date: _____

Amount: _____

Bond number: _____

1. The Contractor and the 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.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor

CONSTRUCTION PERFORMANCE BOND
(Continued)

shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:
 - 3.1. The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 below, that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. 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; and
 - 3.2. The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and
 - 3.3. The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:
 - 4.1. Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or
 - 4.2. Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
 - 4.3. 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 the 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 Paragraph 6 in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or
 - 4.4. 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

CONSTRUCTION PERFORMANCE BOND
(Continued)

- Owner and, as soon as practicable after the amount is determined, tender payment therefore to the Owner; or
2. Deny liability in whole or in part and notify the Owner citing reasons therefor.
5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen 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 Subparagraph 4.4, and the Owner refuses the payment tendered 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.
6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3 above, 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. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:
- 6.1. The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
 - 6.2. 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 Paragraph 4; and
 - 6.3. 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.
7. 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, or successors.
8. 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.

CONSTRUCTION PERFORMANCE BOND
(Continued)

9. 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 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.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

11. 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. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

- 12.1. 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.
- 12.2. Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.
- 12.3. Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.
- 12.4. Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

CONTRACTOR AS PRINCIPAL

Company: _____

_____ (Corp. Seal)

Signature: _____

Name and Title: _____

SURETY

Company: _____

_____ (Corp. Seal)

Signature: _____

Name and Title: _____

CONTRACT

THIS AGREEMENT made this the 1 day of November, 2021, by
and between the CITY OF DALTON, GEORGIA, hereinafter called "Owner",
and Northwest Georgia Paving, Inc.

a contractor doing business as an individual, a partnership, or a corporation* of the City
of Calhoun, County of Gordon, and State of Georgia
hereinafter called "Contractor".

WITNESSETH: That for and in consideration of the payments and agreements
hereinafter mentioned, to be made and performed by the Owner, the Contractor hereby
agrees to commence and complete the construction of the project entitled:

NORTHEAST COMMUNITY COMPLEX
SOCCER FIELDS

hereinafter called the "Project", for the sum of \$3,608,822.42
Dollars (Three Million Six Hundred and Eight Thousand Eight Hundred Twenty Two
Dollars and Forty Two Cents) and all extra work in connection therewith, under the
terms as stated in the Contract Documents, and at his (*its or their*) own proper cost
and expense to furnish all materials, supplies, machinery, equipment, tools,
superintendence, labor, insurance and other accessories and services necessary to
complete the said project in accordance with the conditions and prices stated in the
proposal, the General Conditions of the Contract, the specifications and contract
documents therefore as prepared by the Owner and as enumerated in Paragraph 2 of
the General Conditions, all of which are made a part hereof and collectively constitute the
Contract.

The Contractor hereby agrees to commence work under this contract on or before a
date to be specified in a written "Notice to Proceed" of the Owner. The Contractor
further agrees to pay as liquidated damages the sum of \$300.00 for each consecutive
calendar day thereafter as hereinafter provided in the General Conditions under
"Time of Completion and Liquidated Damages."

*Strike out inapplicable terms.

CONTRACT
(Continued)

The Owner agrees to pay the Contractor in current funds for the performance of the contract, subject to additions and deductions as provided in the General Conditions of the Contract, and to make payments on account thereof as provided in "Payments to Contractor," of the General Conditions.

IN WITNESS WHEREOF, the parties to those presents have executed this contract in five (5) counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

ATTEST:

CITY OF DALTON, GEORGIA

City Clerk

By: _____ SEAL

Witness

Title

ATTEST:

Secretary

By: _____ SEAL

Witness

Title

Secretary of Owner should attest. If Contractor is corporation, secretary should attest.

Give proper title of each person executing contract.

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. 13-10-91, stating affirmatively that the individual, firm, or corporation which is contracting with City of Dalton has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security or any equivalent federal work authorization program operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA), P.L. 99-603], in accordance with the applicability provisions and deadlines established in O.C.G.A. 13-10-91.

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract with City of Dalton, contractor will secure from such subcontractor(s) similar verification of compliance with O.C.G.A. 13-10-91 on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the City of Dalton at the time the subcontractor(s) is retained to perform such service.

The undersigned Contractor is using and will continue to use the federal work authorization program throughout the contract period.

110560
EEV/Basic Pilot Program* User Identification Number

[Signature]
BY: Authorized Officer or Agent
(Contractor Name)

09/21/2021
Date

President
Title of Authorized Officer or Agent of Contractor

Russell Smith
Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN
BEFORE ME ON THIS THE
21st DAY OF September, 20 21
Lisa Callaway
Notary Public
My Commission Expires:
06/05/2023



* As of the effective date of O.C.G.A. 13-10-91, the applicable federal work authorization program is the "EEV/Basic Pilot Program" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in conjunction with the Social Security Administration (SSA).



SECTION 0300 - GENERAL CONDITIONS

0301 CONTRACT AND CONTRACT DOCUMENTS

The Contract Documents as hereinafter enumerated in Paragraph 2 of the General Conditions, shall form this Contract and the provisions thereof shall be as binding upon the parties hereto as if they were fully set forth. The Table of Contents, Titles, Headings, Running Headlines and Marginal Notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way effect, limit or cast light on the interpretation of the provisions to which they refer.

0302 DEFINITIONS

The following terms as used in this contract are respectively defined as follows:

- 0302.01 Contractor - A person, firm or corporation with whom the contract is made by the Owner.
- 0302.02 Contract Documents - The Contract Documents are composed of the Advertisement for Bids; Instructions to Bidders; Bid Package; Form of Proposal, General Conditions, Supplementary Conditions, Detail Specifications, Form of Contract, Form of Bond(s), Addenda and the drawings including all changes incorporated herein before their execution.
- 0302.03 Project Representative - Refers to the authorized representative of the Owner, who is assigned to the site or any part thereof.
- 0302.04 Owner - The party of the First Part in the accompanying Contract, and meaning the CITY OF DALTON, GEORGIA.
- 0302.05 Subcontractor - A person, firm or corporation supplying labor and materials or only labor for work at the site of the project for, and under separate contract or agreement with the contractor for performance of a part of the work at the site.
- 0302.06 Work on (at) the Project - Work to be performed at the location of the project, including the transportation of materials and supplies to or from the location of the project by employees of the Contractor and any Subcontractor.

0303 CORRELATION AND INTENT OF DOCUMENTS

The contract documents are complementary, and what is called for by any one shall be as binding as if called for by all.

0303.01 The intent of the documents is to describe all construction entailed in this project. The contractor will furnish all labor and materials, equipment, transportation, tools and appurtenances such as may be reasonably required under the terms of the contract to make each part of the work complete.

0303.02 The Drawings are intended to conform and agree with the Specifications; if, however, discrepancies occur, the Owner will decide which shall govern. Special specifications stated on the Drawings govern that particular piece of construction and have equal weight and importance as the printed specifications. In the event of any discrepancies between the Drawings and the figures written thereon, the figures are to be taken as correct.

0304 MATERIALS, SERVICES AND FACILITIES

0304.01 It is understood that except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, labor, tools, equipment, water, light, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the work within the specified time.

0304.02 Any work necessary to be performed by the Contractor to complete the project on time after regular working hours, on Sundays or Legal Holidays, shall be performed without additional expense to the Owner.

0305 CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies used by him in the work, free from all liens, claims and/or encumbrances.

0306 MATERIALS FURNISHED BY THE CONTRACTOR

All materials used in the work including equipment shall be new and unused materials of a reputable U.S. Manufacturer conforming to the applicable requirements of the Specifications, and no materials shall be used in the work until they have been approved by the Owner. The Contractor shall furnish all materials necessary except as otherwise specifically noted or specified.

0307 INSPECTION AND TESTING OF MATERIALS

All materials and equipment used in the construction of the project shall be subject to adequate inspection and testing in accordance with accepted standards. The laboratory or inspection agency shall be selected by the Owner. Materials of construction, particularly those upon which the strength and durability of the structure may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

0308 PATENTS

- 0308.01 The Contractor shall hold and save the Owner and its officers, agents, servants, and employees harmless from liability of any nature or kind, including cost and expenses for, or on account of, any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the Owner, unless otherwise specifically stipulated in the Contract Documents.
- 0308.02 License and/or Royalty Fees for the use of a process which is authorized by the Owner of the project must be reasonable, and paid to the holder of the patent, or his authorized licensee, direct by the Owner and not by or through the Contractor.
- 0308.03 If the Contractor uses any design, device or materials covered by letters, patent or copyright, he shall provide for such use by suitable agreement with the Owner of such patented or copyrighted design, device or material. It is mutually agreed and understood, that, without exception, arising from the use of such design, device, or materials or in any way involved in the work, the Contractor and/or his Sureties shall indemnify and save harmless the Owner of the project from all claims for infringement by the reason of the use of such patented or copyrighted design, device or materials or any trademark or copyright in connection with work agreed to be performed under this contract and shall indemnify the Owner for any cost, expense or damage which it may be obliged to pay by reason of such infringement at any time during the prosecution of the work or after completion of the work.

0309 SURVEYS, PERMITS AND REGULATIONS

- 0309.01 Unless otherwise expressly provided for in the Specifications, the Owner

will furnish to the Contractor any control alignment and bench mark data from previous engineering surveys.

- 0309.02 The Contractor shall procure and pay all permits, licenses and approvals necessary for the execution of his contract. The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to performance of the work, the protection of adjacent property, and the maintenance of passageways, guard fences or other protective facilities.

0310 CONTRACTOR'S OBLIGATIONS

- 0310.01 The Contractor shall and will, in good workmanlike manner do and perform all work and furnish all supplies and materials, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all the work required by this contract, within the time herein specified, in accordance with the plans and drawings covered by this contract, any and all supplemental plans and drawings and in accordance with the directions of the Owner as given from time to time during the progress of the work. He shall furnish, erect, maintain and remove such construction plant and such temporary works as may be required. He alone shall be responsible for the safety, efficiency and adequacy of his plant, appliances, and methods, and for any damage which may result from their failure of their improper construction, maintenance or operation.

- 0310.02 The Contractor shall observe, comply with and be subject to all terms, conditions, requirements, and limitations of the Contract and specifications and shall do, carry on, and complete the entire work to the satisfaction of the Owner.

0311 CONTRACTOR'S RESPONSIBILITY

The Contractor shall be responsible for all material and work until they are finally accepted by the Owner and shall repair at his own expense any damage that they sustain before their final acceptance. The Contractor shall be responsible for all damages caused by him of whatever nature and must settle all claims arising from such damage without cost to the Owner; he shall act as defendant in, and bear the expense of each and every suit of any and every nature which may be brought against him or the Owner, by reason of, or connected with the work under the Contract. Should any claim arise, the Owner may hold back sufficient money to meet said claims or until the Contractor has satisfied the Owner that all claims against him as the result of his work have been adjusted. He must also show that there are no claims or liens whatsoever outstanding at the completion of his contract before final payment is made.

0312 WEATHER CONDITIONS

In the event of temporary suspension of work, or during inclement weather, or whenever the Owner shall direct, the Contractor will, and will cause his subcontractors to protect carefully his and their work and materials against damage or injury from the weather. If, in the opinion of the Owner, any work or materials shall have been damaged or injured by reason of failure on the part of the Contractor or any of his subcontractors so to protect his work, such materials shall be removed and replaced at the expense of the Contractor.

0313 SAFETY PROVISIONS

- 0313.01 The Contractor shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (*PL 91-596*) and under Sec.107 of the Contract Work Hours and Safety Standards Act (*PL 91-54*).
- 0313.02 The Contractor shall be responsible for the Safety, efficiency and adequacy of his plant, appliances and methods, and for any damage which may result from their failure of their improper construction, maintenance and operation.
- 0313.03 The Contractor shall employ, when necessary, watchmen on the work and shall, when necessary, erect and maintain such strong and suitable barriers and such light as will effectually prevent the happening of any accident to health, limb or property.

0314 SANITARY PROVISIONS

The Contractor shall provide and maintain in a neat and sanitary condition such accommodations for the use of his employees as may be necessary to comply with the regulations of the State Board of Health and all local ordinances. No nuisance will be permitted.

0315 PUBLIC CONVENIENCE AND SAFETY

Materials stored at the site of the work shall be so placed and the work shall, at all times, be so conducted as to cause no greater obstruction to traffic than is considered permissible by the Owner. No roadway shall be closed or opened except by express permission of the Owner and the Contractor's proper notification of local fire and police departments. Precaution shall be exercised at all times for the protection of persons and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery, equipment and other hazards shall be guarded in accordance with the safety provisions of the manual of Accident Prevention in Construction, published by the Associated General Contractors of America to extent that such provisions are not in contra-

vention of applicable laws.

0316 PROTECTION OF WORK AND PROPERTY - EMERGENCY

The Contractor shall at all times safely guard the Owner's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work, and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such be caused directly by errors contained in the contract or by the Owner, or his duly authorized representative.

0316.01 In case of an emergency which threatens loss or injury of property, and/or safety of life, the Contractor will be allowed to act, without previous instructions from the Owner in a diligent manner. He shall notify the Owner immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Owner for approval.

0316.02 Where the Contractor has not taken action but has notified the Owner of an emergency threatening injury to persons or damage to the work or any adjoining property, he shall act as instructed or authorized by the Owner.

0316.03 The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided in Paragraph 0327 of the General Conditions.

0317 INSPECTION

The authorized representatives and agents of the Owner shall be permitted to observe all work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records.

0318 REPORTS, RECORDS AND DATA

The Contractor shall submit to the Owner such schedule of quantities and costs, progress schedules, payrolls, reports, estimates, records and other data as the Owner may request concerning work performed or to be performed under this contract.

0319 SUPERINTENDENCE BY CONTRACTOR

At the site of the work, the Contractor shall employ a construction superintendent or foreman who shall have full authority to act for the Contractor. It is understood that such representative shall be acceptable to the Owner and shall be one who can be continued in that capacity for the particular job involved unless he ceases to be on the Contractor's payroll.

0320 COMPETENT LABOR

- 0320.01 The Contractor shall employ only competent and skilled workers on the project. The Contractor shall have a competent superintendent or foreman present at all times when the work is in progress and with authority to receive orders and execute the work.
- 0320.02 The Contractor shall, upon demand from the Owner, immediately remove any superintendent, foreman or worker whom the Owner may consider incompetent or undesirable.

0321 CONSTRUCTION EQUIPMENT

The Contractor shall provide all necessary equipment in good repair for the expeditious construction of the work. Any equipment not adapted for the work, in such repair as to be dangerous to the project or workers, shall not be used.

0322 CHANGES IN THE WORK

- 0322.01 Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, the Contractor will proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Paragraph 0328. A Change Order signed by the Contractor indicates his agreement therewith.
- 0322.02 The Owner may authorize minor changes or alterations in the Work not involving extra cost and not inconsistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order. If the Contractor believes that any Field Order authorized by the Owner entitles him to an increase in the Contract Price or extension of Contract Time, he shall inform the Owner in writing of the amount of increased price or time associated with the Field Order, and he shall include reference to appropriate contract documents supporting the basis for the claim, and he shall not proceed with the work in question until a written decision has been rendered by the Owner.
- 0322.03 Any changes or additional work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency.
- 0322.04 It is the Contractor's responsibility to notify his surety of any changes affecting the general scope of the Work or change in the Contract Price and

the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Owner.

0322.05 The term Change Order is defined as a written order to the Contractor signed by the Owner which authorizes a change in the work or the contract price or the contract time issued after execution of the Agreement.

0322.06 The Contract Price constitutes the total compensation payable to the Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at his expense without changing the Contract Price, except where authorized by Change Order.

0323 CHANGE IN CONTRACT PRICE

0323.01 The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

0323.01.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved.

0323.01.2 By mutual acceptance of a lump sum (*which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 0327.04.2.1*).

0323.01.3 On the basis of the Cost of the Work (*determined as provided in Paragraphs 0327.04 and 0327.05*) plus a Contractor's Fee for overhead and profit (*determined as provided in Paragraphs 0327.4 and 0327.05*).

0323.02 The term Cost of the Work means the sum of all costs necessarily incurred and paid by the Contractor in the proper performance of the Work. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items and shall not include any of the costs itemized in Paragraph 0327.03.

0323.02.1 Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and

payroll taxes, workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing work after regular working hours, on Sunday or legal holidays shall be included in the above to the extent authorized by Owner.

- 0323.02.2 Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and manufacturers' field services required in connection therewith.
- 0323.02.3 Payments made by Contractor to the Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from Subcontractors acceptable to him and shall deliver such Bids to Owner who will then determine which Bids will be accepted.
- 0323.02.4 Costs of special consultants (*including, but not limited to, engineers, architects, testing laboratories, surveyors, lawyers, and accountants*) employed for services specifically related to the Work.
- 0323.02.5 Supplemental costs including the following:
 - 0323.02.5.1 The proportion of necessary transportation, traveling and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - 0323.02.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workmen, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of Contractor.
 - 0323.02.5.3 Rentals of all construction equipment and machinery and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner and the costs of transportation, loading, unloading, installation, dismantling and removal thereof - all in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.
 - 0323.02.5.4 Sales, use or similar taxes related to the Work, and for which Contractor is liable, imposed by any governmental authority.

0323.02.5.5 Deposits lost for causes other than Contractor's negligence, royalty payments and fees for permits and licenses. Costs for permits and licenses must be shown as a separate item.

0323.02.5.6 Losses, damages and expenses, not compensated by insurance or otherwise, sustained by Contractor in connection with the execution of, and to, the Work, provided they have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's Fee.

0323.02.5.7 The cost of utilities, fuel and sanitary facilities at the site.

0323.02.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.

0323.02.5.9 Cost of premiums for additional Bonds and Insurance required because of changes in the Work.

0323.03 The term Cost of the Work shall not include any of the following:

0323.03.1 Payroll costs and other compensation of Contractor's officers, executives, principals (*of partnership and sole proprietorships*), general managers, engineers, architects, estimators, lawyers, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks and other personnel employed by Contractor whether at the site or in his principal or a branch office for general administration of the Work and not specifically included in the schedule referred to in subparagraph 0327.02.1 - all of which are to be considered administrative costs covered by the Contractor's Fee.

0323.03.2 Expenses of Contractor's principal and branch offices other than his office at the site.

0323.03.3 Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

0323.03.4 Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective work, disposal of materials or equipment

wrongly supplied and making good any damage to property.

0323.03.5 Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 0327.04.

0323.03.6 The Contractor's Fee which shall be allowed to Contractor for his overhead and profit shall be determined as follows:

0323.03.7 a mutually acceptable firm fixed price; or if none can be agreed upon.

0323.03.8 a fee based on the following percentages of the various portions of the Cost of the Work.

0323.03.8.1 for costs incurred under paragraphs 0327.02.1 and 0328.02.2, the Contractor's Fee shall be fifteen percent.

0323.03.8.2 for costs incurred under paragraph 0328.02.3, the Contractor's Fee shall be five percent; and if a subcontract is on the basis of Cost of the Work Plus a Fee, the maximum allowable to Contractor on account of overhead and profit of all Subcontractors shall be fifteen percent:

0323.03.8.3 no fee shall be payable on the basis of costs itemized under paragraphs 0327.02.4, 0327.02.5, and 0327.03;

0323.03.8.4 the amount of credit to be allowed by Contractor to Owner for any such change which results in a net decrease in cost will be the amount of the actual net decrease plus a deduction in Contractor's Fee by an amount equal to ten percent of the net decrease; and

0323.03.8.5 when both additions and credits are involved in any one change, the adjustment in Contractor's Fee shall be computed on the basis of the net change in accordance with paragraphs 0327.04.2.1 through 0328.04.2.4, inclusive.

0323.03.9 Whenever the cost of any Work is to be determined pursuant to Paragraph 0327.02 or 0327.03. Contractor will submit in form acceptable to Owner an itemized cost breakdown together with supporting data.

0324 CHANGE OF THE CONTRACT TIME

The Contract Time may only be changed by a Change Order. Any claim for an extension in the Contract Time shall be based on written notice delivered to Owner within ten days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five days of

such occurrence unless Owner allows an additional period of time to ascertain more accurate data. Any change in the Contract Time resulting from any such claim shall be incorporated in a Change Order.

0324.01 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of CONTRACTOR if he makes a claim therefor as provided in Paragraph 0327.01. Such delays shall include, but not be restricted to, acts or neglect by any separate contractor employed by Owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

0324.02 All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Paragraph 0328 shall not exclude recovery for damages (*including compensation for additional professional services*) for delay by either party.

0325 CORRECTION OF WORK

All work, all materials, whether incorporated in the work or not, all processes of manufacture, and all methods of construction shall be at all times and places subject to the review of the Owner who shall be the final judge of the quality and suitability of the work, material, processes of manufacture and methods of construction for the purposed for which they are used. Should they fail too meet his approval, they shall be forthwith reconstructed, made good, replaced and/or corrected, as the case may be, by the Contractor at his own expense. Rejected material shall immediately be removed from the site. If, in the opinion of the Engineer, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the compensation to be paid to the Contractor hereunder shall be reduced by such amount as in the judgment of the Engineer shall be equitable. It is not intended that the Engineer should be liable for the Contractor's performance of the work nor for safety during construction.

0326 EXISTING UNDERGROUND UTILITIES AND STRUCTURES

0326.01 The Owners and/or operators of private or public utilities shall have access to such utility at all times, for the installation, maintenance, adjustment, repair and operation of said utility. No extra compensation will be allowed because of the delay or interference caused by such work.

0326.02 Wherever existing utilities are encountered which conflict in actual position and location with the proposed work, the Contractor shall promptly notify the Owner for resolution of the conflict.

0326.03 The Contractor shall be solely and directly responsible to the Owner and/or other operator of such utility properties for any damage, injury, expense, loss, inconvenience or delay, or for any suits, actions, claims of any character brought on account of any injuries or damages which may result from the carrying out of the work.

0327 SUBSURFACE CONDITIONS FOUND DIFFERENT

Should the Contractor encounter sub-surface and/or latent conditions at the site materially differing from those shown on the plans or indicated in the specifications, he shall immediately give notice to the Owner of such conditions before they are disturbed. The Owner will thereupon promptly investigate the conditions, and if he finds that they materially differ from those shown on the plans or indicated in the specifications, he will at once make such changes in the plans and/or specifications as he may find necessary, any increase or decrease of cost resulting from such changes to be adjusted in the manner provided in Paragraph 0326 of the General Conditions.

0328 CLAIMS FOR EXTRA WORK

No claim for extra work or cost shall be allowed unless the same was one in pursuance of a written order of the Owner and approved by the Owner, as aforesaid, and the claim presented with the first estimate after the changed or extra work is done. When work is performed under the terms of Subparagraph 0326 of the General Conditions, the Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner, give the Owner access to accounts relating thereto.

0329 RIGHT OF THE OWNER TO TERMINATE CONTRACT

In the event that any of the provisions of this contract are violated by the Contractor or by any of his Subcontractors, the Owner may serve written notice upon the Contractor and the surety of its intention to terminate the contract, such notices to contain the reasons for such intention to terminate the contract, and unless within ten (10) days after the serving of such notice upon the Contractor such violation or delay shall cease and satisfactory arrangement of correction be made, the contract shall, upon the expiration of said ten (10) days, cease and terminate. In the event of any such termination the Owner shall immediately serve notice thereof upon the Surety and the Contractor and the Surety shall have the right to take over and perform the contract; provided, however, that if the Surety does not commence performance thereof within ten (10) days from the date of the mailing to such Surety of notice of termination, the Owner may take over the work and prosecute the same to completion by contract or by force account for the account and at the expense of the Contractor and the Contractor and his Surety shall be liable to the Owner for any excess cost occasioned the Owner thereby, and in such event the

Owner may take possession of and utilize in completing the work, such materials, appliances and plant as may be on the site of the work and necessary therefor.

0330 CONSTRUCTION SCHEDULE AND PERIODIC ESTIMATES

Immediately after execution and delivery of the contract, and before the first partial payment is made, the Contractor shall deliver to the Owner an estimated construction progress schedule in form satisfactory to the Owner showing the proposed dates of commencement and completion of each of the various subdivisions of work required under the contract documents and the anticipated amount of each monthly payment that will become due the Contractor in accordance with the progress schedule. The Contractor shall also furnish on forms to be supplied by the Owner, (a) a detailed estimate giving a complete breakdown of the contract price and (b) periodic itemized estimate of work done for the purpose of making partial payments thereon. The costs employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the contract price.

0331 PAYMENTS TO CONTRACTORS

0331.01 No later than thirty (30) days after submittal of a progress payment request the Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this contract, but to insure the proper performance of this contract, the Owner shall retain ten percent (10%) of the amount of each estimate until final completion and acceptance of all work covered by this contract. Provided, that the Contractor shall submit his estimate not later than the first day of the month; provided, further, that the Owner at any time after fifty percent (50%) of the work has been completed, if it finds that satisfactory progress is being made, *may* reduce the retainage to 5%.

0331.02 Where a project is under the jurisdiction of a Force Account Agreement between the Owner and the Georgia Department of Transportation, the Contractor shall maintain a *daily* report of the amount of completed work as shown in the bid proposal. A copy of the accepted report appears in Appendix A at the end of this section and may be reproduced for use on this project. The Contractor's representative shall certify by signature that the report is accurate on behalf of the Contractor for the Owner (*shown as "Utility" on the report*). The Project Engineer representing the Georgia Department of Transportation shall certify by signature that the report is accurate for the "State". A copy of each days report properly certified as required by this part shall accompany each progress payment request by the Contractor. The quantity of work completed shown on the progress payment request *must* be supported by an equal quantity shown on the daily

report for that progress payment period. Payment requested for quantities of work not supported by a properly certified daily report(s) may *not* be recommended for payment by the Owner.

0331.03 In preparing estimates, the material delivered on the site and preparatory work done may be taken into consideration. Where a project is under the jurisdiction of a Force Account Agreement between the Owner and the Georgia Department of Transportation, however, material delivered on the site and preparatory work done may *not* be taken into consideration.

0331.04 All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for the care and protection of materials and work upon which payments have been made or the restoration of any damaged work, or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the contract.

0331.05 The Contractor agrees that he will indemnify and save the Owner harmless from all claims growing out of the lawful demands of Subcontractors, laborers, workmen, mechanics, material men, and furnishers of machinery and parts thereof, equipment, power tools, and all supplies, including commissary incurred in the furtherance of the performance of this contract. The Contractor shall, at the Owner's request, furnish satisfactory evidence that all obligations of the nature hereinabove designated have been paid, discharged, or waived. If the Contractor fails to do so, then the Owner may, after having served written notice on the said Contractor, either pay unpaid bills, of which the Owner has written notice, direct, or withhold from the Contractor's unpaid compensation a sum of money deemed reasonably sufficient to pay any and all such lawful claims until satisfactory evidence is furnished that all liabilities have been fully discharged whereupon payment to the Contractor shall be resumed, in accordance with the terms of this contract, but in no event shall the provisions of this sentence be construed to impose any obligations upon the Owner to either the Contractor or his Surety. In paying any unpaid bills of the Contractor, the Owner shall be deemed the agent of the Contractor, and any payment so made by the Owner shall be considered as a payment made under the contract by the Owner to the Contractor and the Owner shall not be liable to the Contractor for any such payments made in good faith.

0331.06 If at any time the Owner shall determine that the amount of work completed at that time is lagging behind the expired contract time by more than 20 percent, the Owner may determine that the Contractor is not faithfully performing on the contract and therefore the Owner may elect to withhold all monies and refrain from making any additional payments to the Contractor until such time as the Owner determines the work to be progressing satisfactorily.

0332 ACCEPTANCE AND FINAL PAYMENT

When the project provided for under this contract shall have been completed by the Contractor, and all parts of the work have been approved by the Owner according to the contract, the Owner shall, within ten (10) days unless otherwise provided, make final inspection and advise the Contractor as to preparing a final estimate, showing the value of work as soon as the necessary measurements and computations can be made, all prior certificates or estimates upon which payments have been being made are approximately only, and subject to correction in the final payment. The amount of the final estimates, less any sums that may have been deducted or retained under the provisions of this contract, will be paid to the Contractor within sixty (60) days after approval by the Owner, provided that the contractor has properly maintained and operated the project as specified under these specifications, and provided, that he has furnished to the Owner a sworn affidavit to the effect that all bills are paid and no suits are pending in connection with the work done or labor and material furnished under this contract. A sample affidavit appears at the end of this section to be considered as an example of an acceptable affidavit.

0333 PAYMENTS BY CONTRACTORS

The Contractor shall pay (a) for all transportation and utility services not later than the 20th day of the calendar month following that in which such services are rendered, (b) for all materials, tools, and other expendable equipment to the extent of 90 percent of the cost thereof, not later than the 20th day of the calendar month following that in which such materials, tools and equipment are delivered at the site of the project, and the balance of the cost thereof not later than the 30th day following the completion of that part of the work in or on which such materials, tools and equipment are incorporated or used, and (c) to each of his Subcontractors, not later than the 5th day following each payment to the Contractor, the respective amounts allowed the Contractor on account of the work performed by his Subcontractors to the extent of each Subcontractor's interest therein.

0334 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

0334.01 The Contractor shall not commence work under this Contract until he has obtained all the insurance required under this paragraph and such insurance has been reviewed by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until the insurance has been so obtained and reviewed.

0334.01.1 Contractor's Liability Insurance: Contractor shall purchase and maintain such comprehensive general liability and other insurance as will provide protection from claims set forth below which may arise out

of or result from Contractor's performance of the work and Contractor's other obligations under the Contract Documents, whether such performance is indirectly employed by any of them, or by anyone for whose acts any of them may be liable.

- 0334.01.1.1 Claims under workers' or workmen's compensation, disability benefits and other similar employees benefit acts;
- 0334.01.1.2 Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
- 0334.01.1.3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
- 0334.01.1.4 Claims for damages insured by personal injury liability coverage which are sustained (i) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (ii) by any other person for any other reason.
- 0334.01.1.5 Claims for damages, other than to the work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom; and
- 0334.01.1.6 Claims for damages because of bodily injury or death of any person or property damage arising out of the Ownership, maintenance or use of any motor vehicle.

The insurance required by this paragraph shall include the specific coverages and be written for not less than the limits of liability and coverages provided in these specifications, or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All such insurance shall contain a provision that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days prior written notice has been given to Owner. All such insurance shall remain in effect until final payment and at all times thereafter when Contractor may be correcting, removing or replacing defective work. In addition, Contractor shall maintain such completed operations insurance for at least one year after final payment and furnish Owner with evidence of continuation of such insurance at final payment. Renewal certificates shall be sent to the Owner 30 days prior to the expiration date of any policy required herein.

0334.02 Contractual Liability Insurance: The comprehensive general liability insurance required by paragraph 0338.01.1 will include contractual liability

insurance applicable to Contractor's obligations under separate contract and subcontracting.

- 0334.03 Unless otherwise provided in these General Conditions, Contractor shall purchase and maintain property insurance upon the work at the site to the full insurable value thereof (*subject to such deductible amounts as may be provided in these general conditions or required by law*). This insurance shall include the interest of Owner, Contractor and Subcontractors in the work, shall provide "all risk" insurance for physical loss and damage including but not limited to fire, lightning, windstorms, hail, smoke, explosion, riot, aircraft, vehicles, falling objects, flood, earthquake, theft, vandalism, malicious mischief, collapse, water damage and other perils, and shall include damages, losses and expenses arising out of or resulting from any insured loss or incurred in the repair or replacement of any insured property (*including fees and charges of engineers, architects, attorneys and other professionals*). If not covered under the "all risk" insurance or otherwise provided in these General Conditions, Contractor shall purchase and maintain similar property insurance on portions of the work stored on and off the site or in transit when such portions of the work are to be included in an Application for Payment. The policies of insurance required to be purchased and maintained by Contractor in accordance with paragraphs c and d shall contain a provision that the coverage afforded will not be cancelled, materially changed or renewal refused until at least thirty days prior written notice has been given to the Owner.
- 0334.04 Contractor shall purchase and maintain such boiler and machinery insurance as may be required by these General Conditions or by law. This insurance shall include the interest of Owners, Contractor and Subcontractors in the work and shall provide coverage for all installed and functional mechanical equipment for the full replacement value of the equipment.
- 0334.05 Owner shall not be responsible for purchasing and maintaining any property insurance to protect the interests of Contractor or Subcontractors in the work to the extent of any deductible amounts that are provided in the supplemental conditions. If Contractor wishes property insurance coverage within the limits of such amounts, Contractor may purchase and maintain it at his own expense.
- 0334.06 If Owner has any objection to the coverage afforded by or other provisions of the insurance required to be purchased and maintained by Contractor in accordance with paragraphs 0338.01.1. through 0338.01.1.4., Owner will notify Contractor thereof within ten days of the date of delivery of such certificates, to Owner. Contractor will provide to the Owner such additional information in respect of insurance provided by him as Owner may reasonably request. The right of the Owner to review and comment on

Certificates of Insurance is not intended to relieve the Contractor of his responsibility to provide insurance coverage as specified nor to relieve the Contractor of his liability for any claims which might arise.

0334.07 Partial Utilization - Property Insurance: If Owner finds it necessary to occupy or use a portion or portions of the work prior to Substantial Completion of all the work, such use or occupancy may be accomplished provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be cancelled or lapse on account of any such partial use or occupancy.

0334.08 The Contractor shall carry and maintain Combined Excess Liability (*Umbrella*) Insurance for a limit of not less than the following:

Each Occurrence:	\$3,000,000
Aggregate:	\$3,000,000

0334.09 The limits of liability for the insurance required by paragraph 36.1.1. of the General Conditions shall provide coverage for not less than the following amounts or greater where required by law:

For claims under paragraph 0338.01.1.1. and 0338.01.1.2., Worker's Compensation:

State	Statutory
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Federal	Statutory
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Employer's Liability – Each Accident:	\$1,000,000
Employer's Liability – Disease – Each Employee:	\$1,000,000
Employer's Liability – Disease – Policy Limit:	\$1,000,000

If the Contractor chooses to maintain a policy with a maximum of the state mandated amounts of \$100,000 per accident, \$100,000 for disease per employee and a disease policy limit of \$500,000, the Contract required minimum of \$1,000,000 can be achieved by the excess liability policy required by paragraph 0338.08 above.

For claims under 0339.01.1.1. through 0339.01.1.5. (*General Liability*),

General Liability Provided Per Occurrence

Each Occurrence (Bodily and Property Damage Included):	\$1,000,000
Fire Damage (<i>Any One Fire</i>):	\$50,000
Medical Expense (<i>Any One Person</i>):	\$5,000
Personal and Adv Injury, With Employment Exclusion Deleted:	\$1,000,000
General Aggregate (<i>Per Project</i>):	\$2,000,000
Products and Completed Operations Aggregate:	\$1,000,000

Notes: Property Damage Liability Insurance will provide explosion, collapse and underground hazard coverages where applicable. Each detonation of blasting shall be considered a single occurrence. General Liability shall include Contractual Liability as stipulated in Paragraph 0339.02. above.

Comprehensive Automobile Liability:

Combined Single Limit Per Occurrence, For Any and All Autos, Including Bodily Injury and Property Damage:	\$1,000,000
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0334.10 Scope of Insurance and Special Hazards - The amounts stated in subparagraph 0334.09. above are minimum amounts of insurance to be carried. The Contractor shall carry such additional insurance as may be required to provide adequate protection of the Contractor and his Subcontractors, respectively, against any and all damage claims which may arise from operations under this Contract, whether such operations be by the insured or by anyone directly or indirectly employed by his and, also, against any of the special hazards which may be encountered in the performance of this Contract.

Where the scope of work involves crossing of a railway and/or railway rights-of-way, Contractor shall be required to furnish railway with a Railroad Protective Liability Insurance Policy naming railway as the named insured and issued to the Contractor with a combined single limit of \$2,000,000 for all damages arising out of bodily injury, death, property damage liability and physical damage to property liability per occurrence with an aggregate limit of \$6,000,000.

0334.11 Certificate Holder should read:

CITY OF DALTON
P.O. BOX 1205
DALTON, GEORGIA 30722

0334.12 Insurance company must have an A.M. Best Rating of A-6 or higher. Insurance company must be licensed to do business by the Georgia Secretary of State. Insurance company must be authorized to do business in the State of Georgia by the Georgia Insurance Department.

0335 CONTRACT SECURITY

The Contractor shall furnish a Construction Performance Bond in an amount at least equal to one hundred percent (100%) of the contract prices as security for the faithful performance of this contract and also a Construction Payment Bond in an amount at least equal to one hundred percent (100%) of the contract price or in a penal sum not less than that prescribed by State, Territorial or local law, as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. The performance bond and the payment bond may be in one or in separate instruments in accordance with local law.

0336 ADDITIONAL OR SUBSTITUTE BOND

If at any time the Owner for justifiable cause shall be or become dissatisfied with any Surety or Sureties, then upon the Construction Performance or Payment Bonds, the Contractor shall within five (5) days after notice from the Owner to do so, substitute an acceptable bond (*or bonds*) in such form and sum and signed by such other Surety or Sureties as may be satisfactory to the Owner. The premiums on such bond shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished such an acceptable bond to the Owner.

0337 LIEN

Neither the final payment nor any part of the retained percentage will become due until the Contractor, if required, shall furnish the Owner a complete release from any liens which may arise out of this contract, or receipts in full in lieu thereof, and if required in either case, an affidavit that insofar as he has knowledge or information, the release and receipts include all materials, for which a lien might be filed. The Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner to indemnify it against any lien. If a lien shall remain unsatisfied after all payments are made, then the Contractor shall refund to the Owner all monies which the latter may be compelled to pay in discharging such lien, including all incidental costs and attorney's fees.

0338 ASSIGNMENTS

The Contractor shall not assign the whole or any part of this contract or any money due to or to become due hereunder without written consent of the Owner. In case the Contractor assigns all or part of any money due or to become due under this contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assigned in and to any money due or to become due to the Contractor shall be subject to prior liens of all persons, firms and corporations for services rendered or materials supplied for the performance of the work called for in this contract.

0339 MUTUAL RESPONSIBILITY OF CONTRACTORS

If through acts of neglect on the part of the Contractor, any other Contractor or subcontractor, shall suffer loss or damage on the work, the Contractor agrees to settle with such other Contractor or subcontractor by agreement or arbitration, if such other contractor or subcontractor will so settle. If such other Contractor or subcontractor shall assert any claim against the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall indemnify and save harmless the Owner against any such claim.

0340 COORDINATION WITH OTHER CONTRACTORS

The Contractor shall coordinate his operations with those of other contractors. Cooperation will be required in the arrangement for the storage of materials and in the detailed execution of the work. The Contractor, including his Subcontractors shall keep informed of the progress and the detail work of other Contractors and shall notify the Owner immediately of lack of progress or defective workmanship on the part of other contractors. Failure of a Contractor to keep informed of the work progressing on the site and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by him of the status of the work as being satisfactory for proper coordination with his own work.

0341 SUBCONTRACTING

The Contractor shall utilize the service of specialty subcontractor on those parts of the work which, under normal contracting practices, are performed by specialty Subcontractors. Provided - that if the Owner shall determine that the specialty work in question has been customarily performed by the Contractor's own organization and that such organization is presently competent to perform such work, the Contractor shall be permitted to do so. Provided, further - that if the Owner shall determine that the performance of any specialty work be specialty Subcontractors will result in materially increased costs or inordinate delays, the requirements of this paragraph shall not apply.

0341.01 The Contractor shall not be allowed to award work to any subcontractor

prior to written approval of the Owner, which approval will not be given until the Contractor submits to the Owner, a written statement concerning the proposed award to the subcontractor, which statement shall contain such information as the Owner may require.

0341.02 The Contractor shall be as fully responsible to the Owner for the acts and omissions of his Subcontractors, and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

0341.03 The Contractor shall cause appropriate provisions to be inserted in all Subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and other contract documents insofar as applicable to the work of subcontractors and to give the Contractor the same power as regards terminating any subcontract that the Owner may exercise over the Contractor under any provision of the Contract Documents.

0341.04 Nothing contained in this Contract shall create any contractual relation between any Subcontractor and the Owner.

0342 USE OF PREMISES AND REMOVAL OF DEBRIS

The Contractor expressly undertakes at his own expense:

0342.01 To take every precaution against injuries to persons or damage to property;

0342.02 To store his apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractors;

0342.03 To place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.

0342.04 To clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly and workmanlike appearance;

0342.05 Before final payment to remove all surplus material, false work, temporary structures, including foundations thereof, plant of any description and debris of every nature resulting from his operations, and to put the site in a neat orderly condition;

0343 QUANTITIES OF ESTIMATE

Wherever the estimated quantities of work to be done and materials to be furnished

under this contract are shown in any of the documents including the proposal, they are given for use in comparing bids and the right is especially reserved except as herein otherwise specifically limited, to increase or diminish them as may be deemed reasonably necessary or desirable by the Owner to complete the work contemplated by this Contract, and such increase or diminution shall in no way vitiate this Contract, nor shall any such increase or diminution give cause for claims or liability for damages.

0344 RIGHTS-OF-WAY AND SUSPENSION OF WORK

The Owner shall furnish all land and rights-of-way necessary for the carrying out of this Contract and the completion of the work herein contemplated and will use due diligence in acquiring said land and rights-of-way as speedily as possible. But it is possible that all lands and rights-of-way may not be obtained as herein contemplated before construction begins, in which event the Contractor shall begin his work upon such land and rights-of-way as the Owner may have previously acquired, and no claim for damages whatsoever will be allowed by reason of the delay in obtaining the remaining lands and rights-of-way. Should the Owner be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of any litigation, or by reason of its inability to procure any lands or rights-of-way for the said work, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay, or, to withdraw from the contract except by consent of the Owner, but time for completion of the work will be extended to such time as the Owner determines will compensate for the time lost by such delay, such determination to be set forth in writing.

0345 GUARANTY

0345.01 All work constructed under this contract shall be fully guaranteed by the Contractor for a period of one year from the date of final inspection and acceptance by the Owner. This guarantee shall cover any and all defects in workmanship or materials that may develop in this specified time, and any failure in such workmanship or materials shall be repaired or replaced to the satisfaction of the Owner by the Contractor at his own expense.

0345.02 Neither the final certificate of payment nor any provision in the contract documents nor partial or entire occupancy of the premises by the Owner shall constitute an acceptance of work not done in accordance with the contract documents or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship.

0346 CONFLICTING CONDITIONS

Any provisions in any of the contract documents which may be in conflict or inconsistent with any of the paragraphs in these General Conditions shall be void to the extent of such conflict or inconsistency.

0347 NOTICE AND SERVICE THEREOF

Any notice to any Contractor from the Owner relative to any part of this contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted, by certified or registered mail, to the said Contractor at his last given address, or delivered in person to the said Contractor or his authorized representative on the work.

0348 PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in this contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted, or is not correctly inserted, then upon the application of either party the contract shall forthwith be physically amended to make such insertion or correction.

0349 SUSPENSION OF WORK

Should the Owner be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Owner, the Contractor shall not be entitled to make or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

0350 PROTECTION AND RESTORATION OF PROPERTY

- 0350.01 The Contractor shall not enter upon private property for any purpose without first obtaining permission, and he shall use every precaution necessary to prevent damage or injury to any public or private property, trees, fences, monuments, underground structures, etc., on and adjacent to the site of the work. He shall protect carefully, from disturbance or damage, all land monuments and property marks until an authorized agent has witnessed or

otherwise referenced their location, and shall not remove them until directed.

0350.02 Except as specifically provided in the Contract Documents, the Contractor shall not do any work that would affect any railway track, pipeline, telephone, telegraph, or electric or transmission line, or other structure nor enter upon the right-of-way or other lands appurtenant thereto, until authority therefore has been secured from the proper parties. The Contractor shall not be entitled to any extension of time or any extra compensation on account of any postponement, interference, or delay resulting from his requirement, except as specifically provided in the contract.

0350.03 The Contractor shall be responsible for all damage or injury to property of any character resulting from any act, omission, neglect, or misconduct in his manner or method of executing said work, or due to his nonexecution of said work, or at any time due to defective work or materials, and he shall not be released from said responsibility until the work shall have been completed and accepted.

0350.04 When or where any direct or indirect damage or injury is done to public or private property by, or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof on the part of the Contractor, he shall restore at his own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring, as may be directed, or he shall make good such damage or injury in an acceptable manner.

0351 RESPONSIBILITY FOR DAMAGE CLAIMS

The Contractor shall be responsible for all injury or damage of any kind resulting from his work, to persons or property. The Contractor hereby assumes the obligation to indemnify and save harmless the Owner including associates, agents and representatives, from every expense, liability, or payment arising out of or through injury to any person or persons including death and loss of services, or damage to property, regardless of who may be the Owner of the property, suffered through any cause whatsoever in the construction work involved in the contract and to defend on their behalf any suit brought against them arising from any such cause.

0352 INTEREST OF FEDERAL, STATE OR LOCAL OFFICIALS

No Federal, State or Local official shall be admitted to any share or part of this contract or to any benefit that may arise therefrom, but this provision shall not be

construed to extend to this contract if made with a corporation for its general benefit.

0353 OTHER PROHIBITED INTERESTS

No official of the Owner who is authorized in such capacity and on behalf of the Owner to negotiate, make, accept or approve or to take part in negotiating, making, accepting, or approving any architectural, engineering, inspection, construction or material supply contract or any subcontract in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part hereof. No officer, employee, architect, attorney, engineer or inspector of or for the Owner who is authorized in such capacity and on behalf of the Owner to exercise any legislative, executive, supervisory or other similar functions in connection with the construction of the project, shall become directly or indirectly interested personally in this contract or in any part thereof, any material supply contract, subcontract, insurance contract, or any other contract pertaining to the project.

0354 USE OF CHEMICALS

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either E.P.A., or U.S.D.A. Use of all such chemicals and disposal of residues shall be in strict conformance with instructions.

0355 MAINTENANCE OF TRAFFIC

0355.01 The Contractor shall notify the Owner and the appropriate department of transportation prior to performing any work which disrupts normal flow of traffic, and shall utilize appropriate warning signs, flagmen and other procedures necessary to ensure safety and minimize inconvenience to the public.

0356 ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the Owner of all claims and all liability to the Contractor for all things done or furnished in connection with this work and for every act and neglect of the Owner and others relating to or arising out of this work. No payment, however, final or otherwise, shall operate to release the Contractor or his sureties from any obligations under this contract or the Construction Performance and Payment Bond.

0357 OWNER'S RIGHT TO SUSPEND WORK

The Owner shall have the authority to suspend the work, wholly or in part as he may deem necessary because of conditions unsuitable for proper prosecution of the work or failure on the part of the Contractor to carry out the provisions or to meet the specified requirements. The Contractor shall not suspend operations without the Owner's permission.

0358 TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- 0358.01 It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the date of beginning and the time for completion as specified in the contract of the work to be done hereunder are ESSENTIAL CONDITIONS of this contract; and it is further mutually understood and agreed that the work embraced in this contract shall be commenced on a date to be specified in the "NOTICE TO PROCEED."
- 0358.02 The Contractor agrees that said work shall be prosecuted regularly, diligently, and uninterruptedly at such rate of progress as will insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for the completion of the work described herein is a reasonable time for the completion of the same, taking into consideration the average climatic range and usual industrial conditions prevailing in this locality.
- 0358.03 If the said Contractor shall neglect, fail or refuse to complete the work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the amount specified in the contract, not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall be in default after the time stipulated in the contract for completing the work.
- 0358.04 The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be retained from time to time by the Owner from current periodical estimates.
- 0358.05 It is further agreed that time is of the essence of each and every portion of this contract and of the specifications wherein a definite and certain length of time is fixed for the performance of any act whatsoever; and where, under the contract, an additional time is allowed for the completion of any work, the new time limit fixed by such extension shall be of the essence of this contract. Provided, that the Contractor shall not be charged with liquidated

damages or any excess cost when the Owner determines that the Contractor is without fault and the Contractor's reasons for the time extension are acceptable to the Owner; provided, further, that the Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due:

0358.05.1 To any preference, priority or allocation order duly issued by the Government;

0358.05.2 To unforeseeable cause beyond the control and without the fault or negligence of the Contractor, including but not restricted to, acts of God, or of the public enemy, acts of the Owner, acts of another contractor in the performance of a contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and severe weather; and

0358.05.3 To any delays of Subcontractors or suppliers occasioned by any of the causes specified in subsections 0369.05.1 and 0369.05.2 of this article.

0358.06 Provided, further, that the Contractor shall, within ten (10) days from the beginning of such delay, unless the Owner shall grant a further period of time prior to the date of final settlement of the contract, notify the Owner, in writing, of the causes of the delay, who shall ascertain the facts and extent of the delay, and notify the Contractor within a reasonable time of its decision in this matter.

.....END OF SECTION

SECTION 0300: APPENDIX A



AFFIDAVIT FOR FINAL PAYMENT AND RELEASE OF LIENS

STATE OF: _____

COUNTY OF: _____

FROM: _____ (Contractor)

TO: CITY OF DALTON, GEORGIA _____ (Owner)

RE: Contract entered into the ____ day of _____, _____ between the above mentioned parties for the construction of the project entitled NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS.

KNOW ALL MEN BY THESE PRESENTS:

1. The undersigned hereby certifies that all work required under the above Contract has been performed in accordance with the terms thereof, that all material-men, sub-contractors, mechanics, and laborers have been paid and satisfied in full and that there are not outstanding claims of any character arising out of the performance of the Contract which have been paid and satisfied in full.
2. The undersigned further certifies that to the best of their knowledge and belief there are not unsatisfied claims for damages resulting from injury or death to any employees, sub-contractors, or the public at large arising out of the performance of the Contract or any suits or claims for any other damage of any kind, nature or description on which might constitute a lien upon the property of the Owner.
3. The undersigned makes this final affidavit as provided by the Contract and agrees that acceptance of final payment shall constitute full settlement of all claims against the Owner arising under or by virtue of the Contract.
4. IN WITNESS WHEREOF, the undersigned has signed and sealed this instrument this day of _____, _____.

SIGNED: _____ (SEAL)

BY: _____

TITLE: _____

Personally appeared before the undersigned who after being duly sworn, deposes and says that the facts stated in the above affidavit are true.

This ____ day of _____, _____.

Notary Public: _____ SEAL

My Commission Expires: _____,

_____ County,

SECTION 0400 – GENERAL NOTES

1. **IMPORTANT NOTE:**

This project is Phase 1 of a 2-Phase project. Shaw Sports Turf has been awarded the Synthetic Turf portion of the project (Phase 2 to include from sub-grade up on the Sports field only) and the awarded General Contractor for Phase 1 will need to coordinate for Phase 2 (Shaw Sports) for mobilization and installation of Synthetic Turf field when sub-grade and field perimeter sidewalk has been installed. Access to field to coordinated with Shaw Sports Turf.

2. THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS, OR IN ANY WAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED AND DO NOT BIND THE CITY OF DALTON IN ANY WAY. THE ATTENTION OF THE BIDDER IS SPECIFICALLY DIRECTED TO GEORGIA DEPARTMENT OF TRANSPORTATION SPECIFICATION SECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.
3. ALL WORK ASSOCIATED WITH THIS CONTRACT SHALL BE DONE IN ACCORDANCE WITH THE MOST CURRENT GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, AND CONSTRUCTION DETAILS.
4. **THE BEGINNING AND ENDING TERMINI FOR EACH RESURFACING PROJECT ARE SHOWN ON THE LOCATION MAPS AND PROJECT SUMMARY REPORT INCLUDED IN THE GENERAL NOTES (SECTION 0400).**
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL DRAINAGE STRUCTURES WITHIN THE LIMITS OF THE PROJECT THROUGHOUT THE DURATION OF THE PROJECT. ANY DEBRIS THAT GOES IN DRAINAGE STRUCTURES AS A RESULT OF THE MILLING OPERATION SHALL BE CLEANED OUT BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY.
6. PERMANENT STRIPING: THE CONTRACTOR SHALL RESTRIPE ALL EXISTING ROADWAY MARKINGS AT EXISTING LOCATIONS ON ROADWAY AND AS CURRENTLY MARKED. THE CONTRACTOR SHALL RESTRIPE ALL EXISTING ROADWAY MARKINGS ON SIDE ROADS TO THE END OF THE NEW RESURFACED SECTION ONLY WHEN APPLICABLE. REFERENCE PAVEMENT MARKING DETAILS AND NOTES IN GDOT SPECIFICATIONS FOR LOCATING EDGE LINES. THE COST OF RESTRIPE INCLUDING REQUIRED STOP BARS AND PROVIDING CONSTRUCTION LAYOUT WILL BE PAID FOR UNDER 653 PAY ITEMS.
7. THIS PROJECT REQUIRES AN NOI. THE CONTRACTOR IS RESPONSIBLE FOR FILING A NOI ON THE CITY'S BEHALF.
8. TRAFFIC CONTROL SHALL MEET THE REQUIREMENTS OF THE 2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS AND

SPECIAL PROVISION SECTION 150-TRAFFIC CONTROL OF GDOT SPECIFICATIONS.

9. THE CONTRACTOR SHALL USE THE SPECIFIED ASPHALT DESIGN MIX AND APPLICATION RATE SPECIFIED ON THE PROJECT SUMMARY SHEET FOR ALL PAVED AREAS. **DESIGN MIXES FOR THESE STREETS SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER IN ADVANCE.** PLEASE SUBMIT MIX DESIGNS TO THE OWNER FOR APPROVAL UPON NOTICE OF AWARD.
10. THE REPLACEMENT OF TRAFFIC SIGNAL LOOPS IS NOT PART OF THE CONTRACTOR'S SCOPE OF WORK FOR THIS PROJECT.
11. MATERIALS TRANSFER VEHICLE (MTV, SHUTTLE BUGGY) – THE CONTRACTOR SHALL UTILIZE A MATERIALS TRANSFER VEHICLE WHEN PLACING ASPHALTIC CONCRETE MIXTURES ON THIS PROJECT ONLY AS REQUIRED BY THE APPLICABLE GDOT STANDARD SPECIFICATION.
12. TIME OF WORK RESTRICTIONS – NO WORK SHALL BE COMPLETED BY THE CONTRACTOR ON **RESIDENTIAL STREETS BETWEEN THE HOURS OF 9:01PM THROUGH 7:59AM (I.E. NO NIGHTTIME WORK ON RESIDENTIAL STREETS).** FOR STREETS IN **COMMERCIAL AND INDUSTRIAL DISTRICTS, NO WORK SHALL BE COMPLETED BETWEEN THE HOURS OF 7:01AM THROUGH 8:00AM (I.E. NO WORK ON COMMERCIAL DISTRICT STREETS DURING THE AM RUSH).** THE CONTRACTOR SHALL KEEP AT LEAST ONE TRAVEL LANE OPEN IN EACH DIRECTION OF TRAVEL AT ALL TIMES. LIQUIDATED DAMAGES FOR FAILURE TO OBSERVE TIME OF WORK RESTRICTIONS SHALL BE ASSESSED TO THE CONTRACTOR AT THE RATE OF \$200 PER HOUR.
13. THE CONTRACTOR WILL BE PERMITTED TO USE ADVANCED WARNING SIGNS ON TRIPODS THROUGHOUT THE PROJECT AS LONG AS THE SIGNS AND TRIPODS CONFORM TO THE REQUIREMENTS ESTABLISHED BY PART 6 OF THE MUTCD AND SPECIAL PROVISION SECTION 150-TRAFFIC CONTROL OF THE GEORGIA DOT STANDARD SPECIFICATIONS.

SECTION 04 2000

UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 05 5000 - "Metal Fabrications"
 - 2. Section 06 1000 - "Rough Carpentry"
 - 3. Section 07 1600 - "Bituminous Damp proofing"
 - 4. Section 07 2100 - "Building Insulation"
 - 5. Section 07 6000 - "Flashing and Sheet Metal"
 - 6. Section 07 9000 - "Joint Sealers"
 - 7. Section 09 9000 - "Painting"

1.2 SUMMARY:

- A. The extent of each type of masonry work is indicated on the Drawings and Schedules.
 - 1. All CMU shall extend up to bottom of structure, unless specifically indicated otherwise.
 - 2. A continuous reinforced and concrete filled CMU bond beam and a full-width P.T. 2 x wood plate shall occur at top of all CMU walls, unless specifically indicated otherwise.
- B. This Section includes the following:
 - 1. Concrete masonry units (CMU), where indicated on the Drawings.
 - 2. Decorative concrete masonry units (Split-Faced).
 - 3. Standard gray colored mortar at exposed interior and concealed exterior locations.
 - 4. Mortar color and tooling at exposed exterior locations shall be: Gray Type N, manufactured by Cemex, Lehigh or Southern Heritage.
 - 5. Anchors, ties, reinforcing, masonry accessories, and concealed flashings, and galvanized steel lintels.
 - a. Elastic through-wall flashing at all wall base flashing, at heads and sills of exterior wall openings, at flashing at perimeters of all exterior wall openings, and as otherwise indicated.
 - 6. Masonry Insulation, at locations specified:

- a. Foamed-in-place insulation (all interior and exterior hollow CMU); and as otherwise indicated.

1.3 SYSTEM PERFORMANCE REQUIREMENTS:

- A. Provide concrete unit masonry that develops at least the following installed compressive strengths (f'_m): $f'_m = 1,500$ psi.

1.4 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 1. Manufacturer's product data for each different masonry unit, accessory, water repellent (integral and surface-applied types), and other manufactured product indicated, including certifications that each item and type complies with specified requirements.
 - a. Include instructions for handling, storage, installation, and protection.
 2. Shop drawings for reinforcing, if any, detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcing" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.

1.5 QUALITY ASSURANCE:

- A. Fire Performance Characteristics: Where indicated, provide materials and construction identical to those of assemblies whose fire resistance has been determined per ASTM E 119 by a testing and inspecting organization, by equivalent concrete masonry thickness, or by another means, as acceptable to authorities having jurisdiction.
- B. Single-Source Responsibility for Masonry Units: Obtain exposed masonry units of uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from one manufacturer for each different product required for each continuous surface or visually related surfaces.
- C. Single-Source Responsibility for Mortar Materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.
- D. Single-Source Responsibility for Water Repellents: Obtain each type of integral and applied water repellents from a single manufacturer for the entire project.
 1. Verify full compatibility with any other coatings, fluid applied waterproofing, etc., prior to application of this and other products. Notify Architect in writing and in detail, of any incompatible products, prior to any application, and await Architect's written direction on how to proceed.
- E. Subcontractors: Subcontractors shall have been established in their own firms for at least 5 verifiable years and shall have successfully completed at least 5 verifiable projects of this size,

scope, and complexity. Furnish names and telephone numbers of General Contractors for each project submitted for consideration of experience requirements.

1. Refer to Section 01015 - "Special Conditions" for additional information and requirements.

1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Deliver masonry materials to project in undamaged condition.
- B. Store and handle masonry units off the ground, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not place until units are in an air-dried condition.
- C. Store cementitious materials and insulation off the ground, under cover, and in dry location.
- D. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- E. Store masonry accessories including metal items to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS:

- A. Protection of Masonry:
 1. During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 2. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 3. Where one wythe of multi-wythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention:
 1. Prevent grout, mortar, and soil from staining the face of masonry to be left exposed, painted, and/or to receive any other coatings. Remove immediately any grout, mortar, and soil that come in contact with such masonry.
 2. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface, until landscaping or other improvements indicated adjacent to completed masonry work are in place.
 3. Protect sills, ledges, and projections from mortar droppings.

4. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes from mortar droppings, coatings, water repellents, and/or any other damage.
- D. Clean Air Space:
1. Prevent grout and mortar from occurring in, bridging, forming ledges, and/or filling air space between masonry and back-up walls.
 2. Remove excess grout and mortar flush with back side of masonry as work progresses, using trowel, board pulled up through air space, or other effective and acceptable method(s), pre-approved by Architect.
 3. Provide cavity drainage material specified just above through-wall flashings and weeps.
- E. Cold-Weather Construction: Comply with referenced unit masonry standard for cold-weather construction and the following:
1. Do not lay masonry units that are wet or frozen.
 2. Remove masonry damaged by freezing conditions.
- F. Hot-Weather Construction: Comply with referenced unit masonry standard, or applicable Building Code requirements.
- G. Thoroughly clean and rinse all masonry prior to application of water repellents, water-proofing, coatings, paint, etc. Comply with written recommendations of each manufacturer of products to be applied to masonry work.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL:

- A. Comply with referenced unit masonry standard and other requirements specified in this Section applicable to each material indicated.

2.3 CONCRETE MASONRY UNITS:

- A. General:
1. Comply with requirements indicated below applicable to each form of concrete masonry unit required.
 2. Provide special shapes where indicated and as follows:
 - a. For lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
 - b. Provide bullnose CMU at all outside corners of walls; Except first CMU at bottom of wall and at ceiling shall be square corner units so as to accommodate base and ceiling materials.

3. Size: Provide concrete masonry units complying with requirements indicated below for size that are manufactured to specified face dimensions within tolerances specified in the applicable referenced ASTM specification for concrete masonry units.
 4. Concrete Masonry Units:
 - a. Manufacturer's standard sixteen (16) inches long x eight (8) inches x eight (8) inches nominal dimension, unless indicated otherwise on Drawings.
 - b. Provide 1/4 notched foundation block and other preformed shapes, if any, as indicated on the Drawings.
 5. Concrete Building Brick: Standard Modular, 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.
 6. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
- B. Hollow Load-Bearing Concrete Masonry Units - (CMU):
1. ASTM C 90, Grade N.
 2. Unit Compressive Strength: Provide units with minimum average net area compressive strength of 1,900 psi.
 3. Weight Classification: Lightweight, at above-grade locations.
 4. Weight Classification: Normal weight, at below-grade locations, and where necessary to achieve required fire-ratings according to manufacturer's testing and/or by "calculated fire resistance" as may be allowed by applicable building code.
- C. Decorative Concrete Masonry Units: ASTM C 90.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
 2. Weight Classification: Medium weight or Normal weight.
 3. Size (Width): Manufactured to dimensions specified in "Concrete Masonry Units" Paragraph above.
 4. Pattern and Texture: Standard pattern, split-face finish. Match Architect's samples.
 5. Colors: Manufacturer's standard color.
- D. Concrete Building Brick:
1. ASTM C 55, Grade N.
 2. Unit Compressive Strength: Provide units with minimum average net area compressive strength of 3,500 psi.

3. Weight Classification: Lightweight.

2.4 MORTAR AND GROUT MATERIALS:

- A. Portland Cement for Grout: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce required mortar color.
- B. Masonry Cement:
 1. ASTM C 91.
 2. For colored pigmented mortars use premixed colored masonry cements of formulation required to produce color indicated:
 - a. Color Selection(s): Gray Type N, manufactured by Cemex, Lehigh or Southern Heritage.
- C. Sand: ASTM C 144.
- D. Hydrated Lime: ASTM C 207, Type S.
- E. Aggregate for Mortar:
 1. ASTM C 144, except for joints less than 1/4 inch use aggregate graded with 100 percent passing the No. 16 sieve.
 2. White Mortar Aggregates: Natural white sand or ground white stone, only where necessary to achieve selected colors.
- F. Aggregate for Grout: ASTM C 404.
- G. Colored Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with record of satisfactory performance in masonry mortars.
- H. Water: Clean and potable.

2.5 REINFORCING STEEL:

- A. General: Provide reinforcing steel complying with requirements of referenced unit masonry standard and this article.
- B. Steel Reinforcing Bars: Billet steel complying with ASTM A 615, and Section 03310 - "Concrete".

2.6 JOINT REINFORCEMENT:

- A. General: Provide joint reinforcement complying with requirements of referenced unit masonry standards and this article, formed from the following:

1. Galvanized carbon steel wire, coating class as required by referenced unit masonry standard for application indicated, complying with ASTM A 82, hot-dipped galvanized after fabrication to comply with ASTM A 153, class B-2 coating (1.5 ounces per square foot).

- B. Description: For multi-wythe masonry, provide welded-wire units prefabricated with deformed continuous side rods and plain cross rods into straight lengths of not less than 10 feet in widths approximately 2 inches less than nominal width of walls and partitions, as required for full mortar embedment and mortar coverage of not less than 5/8 inch at exterior sides and not less than 1/2-inch elsewhere; with prefabricated corner and tee units, and complying with requirements indicated below, unless otherwise indicated:
 1. Wire Diameter for Side Rods: 0.1483 inch (9 gauge).
 2. Wire Diameter for Cross Rods: 0.1483 inch (9 gauge).
 3. Type as follows:
 - a. Truss design with diagonal cross rods spaced not more than 16 inches o.c. and number of side rods as follows:
 - b. Number of Side Rods for Multi-wythe Masonry: One side rod for each face of masonry units more than 4 inches in nominal width plus one side rod for each wythe of masonry 4 inches or less in nominal width.

- C. Manufacturers: Subject to compliance with requirements, provide joint reinforcement by one of the following:
 1. Dur-O-Wal, Inc.
 2. Heckman Building Products, Inc.
 3. Hohmann & Barnard, Inc.
 4. Masonry Reinforcing Corp. of America.
 5. Southern Construction Products, Inc.

2.7 TIES AND ANCHORS, GENERAL:

- A. General: Provide ties and anchors specified in subsequent articles that comply with requirements for metal and size of referenced unit masonry standards and of this article.

- B. Galvanized Carbon Steel Wire:
 1. ASTM A 82, coating class as required by the Standard Building Code and referenced unit masonry standard for application indicated.
 2. Wire Diameter: 0.1875 inch.

- C. Galvanized Steel Sheet as follows: ASTM A 366 (commercial quality) cold-rolled carbon steel sheet hot-dip galvanized after fabrication to comply with ASTM A 153, Class B2 (for unit lengths over 15 inches) and Class B3 (for unit lengths under 15 inches), for sheet metal ties and anchors exposed to the weather and not completely embedded in mortar and grout.

- D. Thickness of Steel Sheet Galvanized After Fabrication: Uncoated thickness of steel sheet hot-dip galvanized after fabrication:
 - 1. 0.0598 inch (16 gage).
- E. Steel Plates and Bars: ASTM A 36, hot-dip galvanized to comply with ASTM A 123 or ASTM A 153, Class B3, as applicable to size and form indicated.
- F. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AA Wire Products Co.
 - 2. Dur-O-Wal, Inc.
 - 3. Heckman Building Products, Inc.
 - 4. Hohmann & Barnard, Inc.
 - 5. Masonry Reinforcing Corp. of America.
 - 6. National Wire Products Industries.
 - 7. Southern Construction Products, Inc.

2.8 MISCELLANEOUS ANCHORS AS REQUIRED BY PROJECT CONDITIONS:

- A. Unit Type Masonry Inserts in New Concrete: Cast iron or malleable iron inserts of type and size indicated.
- B. Dovetail Slots for New Concrete: Furnish dovetail slots, with filler strips, of slot size indicated, or if not indicated, as required by project conditions, fabricated from 0.0336-inch (22-gage) galvanized sheet metal.
- C. Anchor Bolts: Steel bolts complying with A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations, as indicated on the Drawings, or if not indicated, as required for the intended use:
 - 1. Headed bolts.
 - 2. Nonheaded bolts, straight.
 - 3. Nonheaded bolts, bent in manner indicated.

2.9 POST-INSTALLED ANCHORS, WHERE INDICATED OR AS REQUIRED:

- A. Anchors as described below, with capability to sustain, without failure, load imposed within factors of safety indicated, as determined by testing per ASTM E 488, conducted by a qualified independent testing laboratory.
 - 1. Type: Expansion anchors.
 - 2. Material: Zinc-plated carbon steel, hot-dipped galvanized after fabrication, or Zamac, or other non-corrosive or coated material in compliance with requirements and submitted for prior approval.

3. For post-installed anchors in grouted concrete masonry units: Capability to sustain, without failure, a load equal to 6-times loads imposed by masonry.

2.10 EMBEDDED FLASHING MATERIALS:

- A. Vinyl Sheet Flashing (typical except below parapet caps and all other tops of walls exposed at the exterior of buildings and other locations on site):
 1. Smooth surfaced flexible sheet flashings especially formulated from virgin polyvinyl chloride with plasticizers and other modifiers, to remain flexible and waterproof in concealed masonry applications, black in color and of thickness indicated below:
 - a. Thickness: 30-mils.
 2. Product/Manufacturer: “Nervastral 300” (smooth surface both sides, not textured, grained, etc.), or pre-approved equivalent submitted at least 10-days prior to original Bid Date and subsequently approved, including mastic, and where required companion surface conditioner product, and all other materials and components required.
 3. Application: Use where flashing is fully concealed in masonry, including in part, wall flashing, below sills, at lintels, above grade weeps at base of exterior walls, etc.
 4. Adhesive for Flashings: Type recommended by manufacturer of flashing material, for each use indicated.

2.11 MISCELLANEOUS MASONRY ACCESSORIES:

- A. Nonmetallic Expansion Joint Strips: Premolded filler strips complying with ASTM D 1056, Type 2 (closed cell), Class A (cellular rubber and rubber-like materials with specific resistance to petroleum base oils), Grade 1 (compression-deflection range of 2-5 psi), compressible up to 35 percent, of width and thickness indicated, formulated from the following material:
 1. Flexible Cellular Neoprene.
- B. Preformed Control Joint Gaskets:
 1. Material as indicated below, designed to fit project conditions, and to maintain lateral stability in masonry wall; size and configuration as indicated, or if not indicated, T-shape (or other special shapes required by project conditions to fit inside masonry, and of depth through joint to allow proper sealant application with only one backer rod.
 2. Styrene-Butadiene Rubber Compound: ASTM D 2000, Designation 2AA-805.
- C. Bond Breaker Strips: Asphalt-saturated organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Weep Holes, Provide the Following: Cotton sash cord; 3/8-inch outside diameter by length(s) as required to overlap cord 2-inches past adjacent weep hole at bottom of air space at interior wall cavity, extend through exterior wythe(s), and 4-inches on exterior side - until water repellent is applied and excess is trimmed flush with raked mortar joint at flashing.
 1. Wet cord prior to embedding in mortar.

2.12 MASONRY CLEANERS:

- A. Job-Mixed Detergent Solution: Solution of trisodium phosphate (1/2-cup dry measure) and laundry detergent (1/2-cup dry measure) dissolved in one gallon of water.

2.13 MORTAR AND GROUT MIXES:

A. General:

1. Do not add admixtures including coloring pigments, air-entraining agents, accelerators, retarders, water repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
2. Do not use calcium chloride in mortar or grout.

- B. Mixing: Combine and thoroughly mix cementitious, water and aggregates in a mechanical batch mixer; comply with referenced ASTM standards for mixing time and water content.

C. Mortar for Unit Masonry:

1. Comply with ASTM C 270, Proportion Specification, for types of mortar required, unless indicated otherwise.
2. Use Type M mortar for masonry below grade and in contact with earth, and where indicated.
3. Use Type S mortar for reinforced masonry and where indicated.
4. Use Type S mortar for exterior, above-grade load-bearing and non-loadbearing walls and parapet walls; for interior load-bearing walls; for interior non-loadbearing partitions, and for other applications where another type is not indicated.

D. Mortar Colors:

1. Standard gray colored mortar at exposed interior and concealed locations.

E. Grout for Unit Masonry:

1. Comply with ASTM C 476 for grout for use in construction of reinforced and nonreinforced unit masonry. Use grout of consistency indicated or if not otherwise indicated, of consistency (fine or coarse) at time of placement which will completely fill all spaces intended to receive grout.
2. Use fine grout in grout spaces less than two inches (2") in horizontal direction, unless otherwise indicated.
3. Use coarse grout in grout spaces two inches (2") or more in least horizontal dimension, unless otherwise indicated.

2.14 INSULATION FOR COMPOSITE MASONRY WALLS:

- A. Provide the insulation products below at all interior and exterior CMU masonry walls, except where cells are required to be filled with grout or concrete.
1. Foamed-in-place Foam Insulation System - Pre-approved Equivalent To:
 - a. “Core Foam Masonry Foam Insulation”, as manufactured by cfiFOAM, Inc.; Knoxville, TN; Phone: 1-800-656-3626; or
 - b. “Core-Fill 500”, as manufactured by Tailored Chemical Products, Inc.; Hickory, N.C.; Phone: 1-800-627-1687; or
 - c. “R501”, as manufactured by PolyMaster, Inc.; Knoxville, TN.; Phone: 1-800-580-3626 (Representative: Southeast Construction Services, LLC; Dothan, AL.; Phone: (334) 673-0622).
 2. Where foam insulation may occur at exterior and other double-wythe walls, install from cavity side, and conceal drilled holes at all locations where possible.
 3. Holes for installation of foam insulation shall occur in and be no larger than typical 3/8-inch mortar joints. Patches for holes shall be for the full depth of mortar removed by drilling, and shall match adjacent mortar joint tooling and texture.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other specific conditions, and other conditions affecting performance of unit masonry.
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of unit masonry, if any.
- B. Examine rough-in and built-in construction to verify actual locations of other or related work, prior to installation.
- C. Do not proceed until any unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL:

- A. Comply with referenced unit masonry standards and other requirements indicated, applicable to each type of installation included in Project.
1. Install bought-out manufactured items (i.e.: flashing, special flashing, insulation, etc.), in accordance with manufacturer’s current written directions and recommendations, related fire tests/certifications, and reviewed shop drawings.
- B. Thickness: Build composite walls and other masonry construction to the full thickness indicated. Build single-wythe walls to the actual thickness of the masonry units, using units of nominal thickness indicated.

- C. Height: Build walls and other masonry construction to full height indicated, or if not indicated, at least up to bottom of structure or structure bearing height where occurs. Extend fire-rated walls, and all perimeter/surrounding walls at the following rooms up to bottom of structure or roof deck, as required to seal-off top of walls:
 - 1. Toilet and Janitor's Rooms (including chase walls).
 - 2. Storage Rooms.
 - 3. Mechanical, Electrical and Utility Rooms.
- D. Build chases and recesses as shown or required to accommodate items specified in this and other Sections of the Specifications. Provide not less than 8 inches of masonry between chase or recess and jamb of openings and between adjacent chases and recesses.
- E. Leave openings for equipment to be installed before completion of masonry. After installation of equipment, complete masonry to match construction immediately adjacent to the opening.
- F. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting where possible.
 - 1. Use dry cutting saws to cut concrete masonry units.
- G. Cleaning Reinforcing: Before placing, remove loose rust, ice and other coatings from reinforcing.
- H. Fill all hollow masonry and air spaces below grade with concrete.
- I. Provide solid substrate for all wall flashing.
- J. Wet sash cord weeps prior to embedding in mortar, so it will not draw water out of mortar.

3.3 CONSTRUCTION TOLERANCES - REQUIRED FOR ACCEPTANCE:

- A. Comply with construction tolerances of referenced unit masonry standards.
- B. Variation from Plumb: For vertical lines and surfaces of columns, walls and arises do not exceed 1/4-inches in 10-feet, or 3/8-inches in a story height not to exceed 20-feet, nor 1/2-inches in 40-feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4-inch in any story or 20-feet maximum, or 1/2-inch in 40-feet or more. For vertical alignment of head joints do not exceed plus or minus 1/4-inches in 10-feet, 1/2-inch maximum.
- C. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4-inch in any bay or 20-feet maximum, nor 1/2-inch in 40' or more. For top surface of bearing walls do not exceed 1/8-inches between adjacent floor elements in 10' or 1/16" within width of a single unit.
- D. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls and partitions, do not exceed 1/2-inch in any bay or 20' maximum, nor 3/4" in 40' or more.

- E. Variation in Cross Sectional Dimensions: Do not exceed bed joint thickness indicated by more than plus or minus 1/8". Do not exceed head joint thickness indicated by more than plus or minus 1/8".

3.4 LAYING MASONRY WALLS:

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.
- B. Lay up walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
- C. Bond Pattern for Exposed Masonry: Lay exposed masonry in the following bond pattern; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
1. Exterior Concrete Masonry Units: Running bond, unless specifically indicated otherwise on Drawings.
 2. All interior CMU shall be running bond, unless specifically indicated otherwise on Drawings.
- D. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- E. Stopping and Resuming Work: In each course, rack back 1/2-unit length in each course; do not tooth. Clean exposed surfaces of set masonry, wet masonry units lightly (if required), and remove loose masonry units and mortar prior to laying fresh masonry.
- F. Built-In Work:
1. As construction progresses, build-in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
 2. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
 3. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.
 4. Fill cores in hollow concrete masonry units with grout 3 courses (24 inches) under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING:

- A. Lay hollow concrete masonry units as follows:
1. **With full mortar coverage on horizontal and vertical face shells and cross webs.**
 2. Bed all webs in mortar in starting course on footings and in all courses of walls, piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.

3. For starting course on footings where cells are not grouted, spread out full mortar bed including areas under cells.
- B. Cut joints flush for masonry walls to be concealed or to be covered by base, crown moulding, and/or other materials, unless otherwise indicated.
 - C. Tool all joints in exposed work as follows:
 1. Interior: Slightly concave, with a tool of at least 50% but no more than 100% larger than joint width.
 2. Exterior: Slightly concave, with a tool of at least 50% but no more than 100% larger than joint width.
 3. Cut flush with face of exposed masonry, and taking care not to spread mortar over onto face of masonry units.
 - D. Maintain joint widths of 3/8 inch, except for minor variations required to maintain bond alignment, or as otherwise required to align with or match adjacent work.
 - E. Collar Joints: After each course is laid, fill vertical longitudinal joint between wythes solidly with mortar, for the following work:
 1. Exterior walls, except where clear air space above flashing is indicated.
 2. Interior bearing walls.

3.6 STRUCTURAL BONDING OF MULTI-WYTHE MASONRY:

- A. Use continuous horizontal joint reinforcement installed in horizontal mortar joints for bond tie between wythes, at 16 inches o.c. vertically (maximum) at running bond and 8 inches o.c. (maximum) at any stacked bond.
- B. Corners:
 1. Provide interlocking masonry unit bond in each course at corners, unless otherwise shown.
 2. Provide continuity with horizontal joint reinforcement at corners using prefabricated "L" units, in addition to masonry bonding.
- C. Intersecting and Abutting Walls:
 1. Unless vertical expansion or control joints are shown or necessary at juncture, provide same type of bonding specified for structural bonding between wythes and space as follows:
 2. Provide individual metal ties to columns and stud walls, at 16 inches o.c. vertically (maximum).

- a. Provide additional anchors within 1'-0" of openings and at intervals around perimeter not exceeding 3'-0" o.c.
3. Provide continuity with horizontal joint reinforcement using prefabricated "T" units.
4. Provide continuous dovetail slots, with anchors at 16 inches o.c. maximum vertically and 16 inches o.c., at new concrete back-up walls, columns, etc.

3.7 MASONRY WALL CELL INSULATION:

- A. Fill foamed-in-place insulation in cavities as indicated, to completely fill void spaces. Maintain inspection ports to show presence of insulation at extremities of each area. Close ports after complete coverage has been confirmed. Limit fall of insulation to one story in height, but not to exceed 8'-0".
 1. Provide foamed-in-place insulation at the following locations:
 - a. In cells of all hollow CMU indicated in Paragraph 2.3 above, except cells which are required to be filled with concrete or grout.

3.8 HORIZONTAL JOINT REINFORCEMENT (FOR MULTI-WYTHE WALLS):

- A. General: Provide continuous horizontal joint reinforcement as indicated and as required by Code, but not more than 16 inches o.c. vertically at running bond and 8 inches o.c. vertically at any stacked bond. Install longitudinal side rods in mortar for their entire length with a minimum cover of 5/8 inch on exterior side of walls, 1/2-inch elsewhere. Lap reinforcing a minimum of 6 inches.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by use of prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.
- D. Reinforce masonry openings greater than 1'-0" wide, with horizontal joint reinforcement placed in 2 horizontal joints approximately 8" apart, immediately above the lintel and immediately below the sill. Extend reinforcement a minimum of 2'-0" beyond jambs of the opening except at control joints.

3.9 ANCHORING MASONRY WORK:

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
 1. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar or other rigid materials.
 2. Anchor masonry to structural members with flexible anchors which allow 4-way movement embedded in masonry joints and attached to structure.

3. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally.
- B. Anchor single-wythe masonry veneer to studs with masonry veneer anchors to comply with the following requirements:
1. Fasten each anchor section through sheathing to studs with 2 metal fasteners of type indicated.
 2. Embed tie section in masonry joints. Provide not less than 1-inch air space between back of masonry veneer wythe and face of sheathing.
 3. Locate anchor section relative to course in which tie section is embedded to allow maximum vertical differential movement of tie up and down.
 4. Space anchors as indicated but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally with not less than one anchor for each 2 sq. ft. of wall area. Install additional anchors within 1'-0" of openings and at intervals around perimeter not exceeding 3'-0" o.c.

3.10 CONTROL AND EXPANSION JOINTS:

- A. General: Install control and expansion joints in unit masonry where existing in floor slabs, walls, and roof, and as otherwise indicated. Build in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.
- B. Form control joints in masonry as follows: Install preformed control joint gaskets designed to fit wall construction. Fill recesses with backer rod and flexible sealant, as specified in Section 07900 - "Joint Sealers." Use firestop materials at fire-rated walls, as specified in Section 07270 - "Firestopping."
- C. Provide control joints at locations indicated or as approved by Architect, and not to exceed the following at continuous straight runs:
1. Exterior walls: 30'-0" o.c. maximum.
 2. Interior walls: 40'-0" o.c. maximum.

3.11 LINTELS:

- A. Install hot-dipped galvanized steel lintels where exterior steel lintels are indicated.
- B. Provide masonry or precast lintels where shown and wherever openings of more than 1'-0" for brick size units are shown without structural steel or other supporting lintels. Temporarily support formed-in-place lintels, including steel lintels, for at least 7-days after masonry above has been completed; Supports shall be from cured concrete or masonry construction (at least 8-days old) or other surface accepted in writing by Architect, prior to installing supports.
1. For hollow concrete masonry unit walls, use specially formed bond beam units with reinforcement bars placed as indicated and filled with course grout.

- C. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.
 - 1. Unless indicated otherwise, fill all jamb cells with concrete, from supporting structure below, up to bottom of lintel bearing, 8-inches wide by CMU wall thickness - minimum.

3.12 FLASHING/WEEP HOLES:

- A. General: Install embedded concealed flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to the downward flow of water in exterior walls, and where indicated.
- B. Prepare masonry surfaces so that they are smooth and free from projections that could puncture flashing. Place flashing on sloping bed of mortar and cover with mortar. Seal penetrations in flashing with adhesive/sealant/tape, as recommended by flashing manufacturer before covering with mortar.
 - 1. Where indicated or required by manufacturer, provide continuous seal at top edge, using their recommended materials.
- C. Install flashings as follows:
 - 1. At lintels and shelf angles, extend flashing a minimum of 4 inches into masonry at exterior end. Extend flashing from exterior face of outer wythe of masonry, through the outer wythe, turned up a minimum of 4 inches on back-up wall (at stud walls), and seal top edge with product specified; except turned up a minimum of 8 inches at back-up masonry walls and extended through back-up wall to within 1/2-inch of its interior face.
 - 2. At heads and sills, extend flashing as specified above unless otherwise indicated but turn up ends not less than 2 inches to form a pan.
 - 3. Cut off flashing 1/2-inch from exterior face of wall and tool joint in accordance with flashing manufacturer's requirements.
 - 4. Comply with manufacturer's current written instructions and recommendations.
- D. Seal laps in flashing with elastomeric sealant complying with requirements in Division 7 Section "Joint Sealants" for application indicated.
- E. Install weep holes, in the head joints in exterior wythes of the first course of masonry immediately above embedded flashings and as follows:
 - 1. Form weep holes with product specified in Part 2 of this Section.
 - 2. Space weep holes 32 inches o.c., except 24 inches o.c. at heads and sills of masonry openings, and centered on openings, unless specifically indicated otherwise on the Drawings.
 - 3. Wet cotton sash cord prior to embedding in mortar.

3.13 INSTALLATION OF REINFORCED UNIT MASONRY:

- A. General: Install reinforced unit masonry to comply with requirements of referenced unit masonry standards, and as indicated on the Drawings.

3.14 REPAIRING, POINTING, AND CLEANING:

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units and in fresh mortar or grout, pointed to eliminate evidence of replacement.
1. Clean glass, unit masonry and other surfaces as work progresses. Remove mortar fins and smears immediately, using a clean, wet sponge or a scrub brush with stiff fiber bristles. Do not use harsh cleaners, acids, abrasives, steel wool, or wire brushes when removing mortar or cleaning glass, unit masonry or other surfaces.
- B. Pointing: During the tooling of joints, enlarge any voids or holes, except weep holes, and completely fill with mortar. Point-up all joints including corners, openings, and adjacent construction to provide a neat, uniform appearance, prepared for application of sealants.
- C. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 2. Test cleaning methods on sample wall panel; leave 1/2- panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 3. Protect adjacent nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
 4. Saturate wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.
 5. Clean brick by means of bucket and brush hand-cleaning method described in BIA "Technical Note No. 20 Revised", to clean brick masonry made of clay or shale, except use detergent as the masonry cleaner.
 6. Clean concrete masonry by means of cleaning method indicated in NCMA TEK 45 applicable to type of stain present on exposed surfaces.
 - a. Comply with mason

3.17 PROTECTIONS:

- A. Protection: Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure unit masonry is without damage and deterioration at time of Substantial Completion.

END OF UNIT MASONRY

SECTION 06 1000

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - .. Section 06 2000 - "Finish Carpentry"

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Framing with dimension lumber.
 - 2. Framing with engineered wood products (if any).
 - 3. Wood grounds, nailers, and blocking.
 - 4. Roof and wall sheathing (plywood).
 - 5. Framing anchors and miscellaneous accessories.

1.3 DEFINITIONS:

- A. Rough carpentry includes carpentry work not specified as part of other Sections and generally not exposed, unless otherwise specified.

1.4 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for the following products:
 - 1. Metal framing anchors.
 - 2. Plywood sheathing.
 - 3. Construction adhesives.
- C. Material certificates for dimensional lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use as well as design values approved by the Board of Review of American Lumber Standards Committee.
- D. Wood treatment data as follows including chemical treatment manufacturer's instructions for handling, storing, installation, and finishing of treated material:

1. For each type of preservative treated wood product include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
 2. For water-borne treated products include statement that moisture content of treated materials was reduced to levels indicated prior to shipment to project site.
 3. Warranty of chemical treatment manufacturer for each type of treatment.
- E. Research reports or evaluation reports of the model code organization acceptable to authorities having jurisdiction evidencing compliance of the following wood products with specified requirements and building code in effect for Project.
1. Engineered wood products.
 2. Air infiltration barriers.
 3. Metal framing anchors.
- F. Additional information as needed to clarify materials, installation requirements, etc., upon request by the Architect or Engineer.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.
1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulation.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL:

- A. Lumber Standards: Furnish lumber manufactured to comply with PS 20 “American Softwood Lumber Standard” and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee’s (ALSC) Board of Review.
- B. Inspection Agencies and Standards: Inspection agencies and standards and the abbreviations used to reference them with lumber grades and species include the following:
1. AFPA - American Forest and Paper Association (formerly NFPA)
 2. AITC - American Institute of Timber Construction
 3. AWWPA - American Wood Preservers Association
 4. AWPB - American Wood Preservers Bureau
 5. NLGA - National Lumber Grades Authority (Canadian).
 6. SPIB - Southern Pine Inspection Bureau.

7. TPI - Truss Plate Institute.
 8. WCLIB - West Coast Lumber Inspection Bureau.
 9. WWPAA - Western Wood Products Association.
- C. Grade Stamps: Provide lumber with each piece factory-marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.
1. For exposed lumber furnish pieces with grade stamps applied to ends or back of each piece; or omit grade stamps entirely and provide certificates of grade compliance issued by inspection agency.
- D. Nominal sizes are indicated, except as shown by detail dimensions. Provide actual sizes as required by PS 20, for moisture content specified for each use.
1. Provide dressed lumber, S4S, unless otherwise indicated.
 2. Provide seasoned lumber with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.

2.2 DIMENSION LUMBER:

- A. For light framing provide “Stud,” or “Standard” grade lumber for stud framing (2 to 4 inches thick, 2 to 4 inches wide, 10 feet and shorter) and “Standard” grade for other light framing (2 to 4 inches thick, 2 to 6 inches wide), and as follows:
1. Southern Yellow Pine graded under SPIB rules, No 2 or better.
- B. For structural light framing (2 to 4 inches thick, 2 to 4 inches wide), provide the following grade and species:
1. “No. 2” grade, Stress Rated, with the following minimum properties:
 - a. $F_b = 1,150$ psi.
 - b. $E = 1,500,000$ psi.
 2. Species: Southern yellow pine or approved equivalent.
- C. For structural framing (2 to 4 inches thick, 5 inches and wider), provide the following grade and species:
1. Same as indicated above for structural light framing.

2.3 BOARDS:

- A. Concealed Boards: Where boards will be concealed by other work, provide lumber of 19 percent maximum moisture content (S-DRY or KD-19) and of following species and grade:

1. Southern Pine No. 2 boards per SPIB rules, or any species graded construction boards per WCLIB, or WWPA rules.

2.4 MISCELLANEOUS LUMBER:

- A. General: Provide lumber for support or attachment of other construction including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, furring, grounds, stripping, and similar members.
- B. Fabricate miscellaneous lumber from dimension lumber of sizes indicated and into shapes shown.
- C. Moisture content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.
- D. Grade: “Standard” grade light-framing-size lumber of any species or board-size lumber as required. “No. 3 Common” or “Standard” grade boards per WCLIB or WWPA rules or “No. 2 Boards” per SPIB rules.

2.5 CONSTRUCTION PANELS, GENERAL:

- A. Construction Panel Standards: Comply with DOC PS 1 “U.S. Product Standard for Construction and Industrial Plywood” for plywood construction panels and, for products not manufactured under PS 1 provisions, with APA PRP-108.
 1. Oriented Strand Board: Comply with DOC PS 2.
- B. Trademark: Furnish construction panels that are each factory- marked with APA trademark evidencing compliance with grade requirements.

2.6 CONCEALED PERFORMANCE-RATED CONSTRUCTION PANELS:

- A. General: Where construction panels are indicated for the following concealed types of applications, provide APA Performance-Rated Panels complying with requirements designated under each application for grade designation, span rating, exposure durability classification, edge detail (where applicable), and thickness.
- B. Wall Sheathing: APA RATED SHEATHING, Veneer Core Plywood.
 1. Exposure Durability Classification: EXTERIOR.
 2. Span Rating: As required to suit stud spacing indicated.
 3. Thickness: 5/8 inch (nominal), unless otherwise indicated, or as required to match thickness of any contiguous gypsum or other sheathing.
- C. Roof Sheathing: APA RATED SHEATHING, Veneer Core Plywood; Tongue-and-Groove Edges.
 1. Exposure Durability Classification: EXPOSURE 1.

2. Span Rating: As required to suit rafter spacing indicated.
3. 42/20 minimum, unless otherwise indicated.
4. Thickness: 5/8 inch at sloped roofs and where required at parapet walls, unless otherwise indicated; 3/4-inch at any roofing substrates with less than 3:12 slope.

2.7 CONSTRUCTION PANELS FOR BACKING:

- A. Plywood Backing Panels: For mounting electrical or telephone equipment, provide fire-retardant-treated plywood panels with grade designation, APA C-D PLUGGED EXPOSURE 1, in thickness indicated, or, if not otherwise indicated, not less than 3/4 inch.

2.8 FASTENERS:

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 1. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
- B. Nails, Wire, and Brads: FS FF-N-105.
- C. Power Driven Fasteners: National Evaluation Report NER-272.
- D. Wood Screws: ANSI B18.6.1.
- E. Lag Bolts: ANSI B18.2.1.
- F. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

2.9 METAL FRAMING ANCHORS:

- A. General: Provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:
 1. Current Evaluation/Research Reports: Provide products for which model code evaluation/research reports exist that are acceptable to authorities having jurisdiction and that evidence compliance of metal framing anchors for application indicated with the building code in effect for this Project.
 2. Allowable Design Loads: Provide products for which manufacturer publishes allowable design loads that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.

- B. Galvanized Steel Sheet: Steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for Coating Designation G90 and with ASTM A 446, Grade A (structural quality); ASTM A 526 (commercial quality); or ASTM A 527 (lock-forming quality); as standard with manufacturer for type of anchor indicated.
 - 1. Use galvanized steel framing anchors for rough carpentry exposed to weather, in ground contact, or in area of high relative humidity, and all other locations, and at every point of bearing.

2.10 MISCELLANEOUS MATERIALS:

- A. Adhesives for Field Gluing Panels to Wood Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by both adhesive and panel manufacturer.
- B. Intermediate Supports for Roof Sheathing: Mill finish aluminum H-clip type supports/spacers, with flat top at roof side, internal “points” for pushing into sheathing to prevent sliding or dislodgement, of size required for sheathing thickness, and in compliance with referenced standards.

2.11 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS:

- A. General: Where lumber is indicated as preservative- treated wood or is specified herein to be treated, comply with applicable requirements of AWWA Standards C2 (Lumber). Mark each treated item with the AWPB or SPIB Quality Mark Requirements.
- B. Pressure-treat above-ground items with water-borne preservatives to a minimum retention of 0.25 pcf. For interior uses, after treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19 percent and 15 percent. Treat indicated items and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
 - 3. Wood framing members less than 18 inches above grade.
 - a. Exception: Not required above treated bottom plate for framing which is bearing on concrete floor slab on grade.
 - 4. Wood floor plates installed on concrete slabs or directly in contact with earth.
- C. Complete fabrication of treated items prior to treatment, where possible. If cut after treatment, coat cut surfaces to comply with AWWA M4. Inspect each piece of lumber or plywood after drying and discard damaged or defective pieces.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL:

- A. Discard units of material with defects that impair quality of rough carpentry construction and that are too small to use in fabricating rough carpentry with minimum joints or optimum joint arrangement.
- B. Set rough carpentry to required levels and lines, with members plumb and true to line and cut and fitted.
- C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.
- D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- E. Countersink nail heads on exposed carpentry work and fill holes.
- F. Use common wire nails, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting of wood; predrill as required.

3.2 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS:

- A. Install wood grounds, nailers, blocking, and sleepers where shown and where required for screeding or attachment of other work. Form to shapes as shown and cut as required for true line and level of work to be attached. Coordinate location with other work involved.
- B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.
- C. Install permanent grounds of dressed, preservative treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material involved. Remove temporary grounds when no longer required.

3.3 WOOD FRAMING, GENERAL:

- A. Framing Standard: Comply with A.F.P.A. "Manual for Wood Frame Construction", unless otherwise indicated.
- B. Install framing members of size and spacing indicated, or if not indicated, to comply with referenced standard.
- C. Anchor and nail as shown, and to comply with the following:
 - 1. Published requirements of manufacturer of metal framing anchors.
 - 2. "Table 2306.1 - Fastening Schedule," of the Standard Building Code.

- D. Fire stop concealed spaces of wood framed walls and partitions at each floor level and at the ceiling line of the top story. Where fire stops are not automatically provided by the framing system used, use closely fitted wood blocks of nominal 2-inch-thick lumber of the same width as framing members.

3.4 STUD FRAMING (if any):

- A. General: Arrange studs so that wide face of stud is perpendicular to direction of wall or partition and narrow face is parallel. Install single bottom plate and double top plates using 2-inch thick members whose widths equal that of studs. Nail or anchor plates to supporting construction, as indicated and as required by applicable codes and standards, authorities having jurisdiction, and project conditions.
 - 1. Anchor bottom plates to concrete slabs with at least 2-inch diameter galvanized anchor bolts with nuts and washers at 4'-0" o.c. (minimum) and otherwise as required by code and project conditions.
 - 2. For exterior walls install 2-inch by 6-inch wood studs spaced 24 inches o.c., unless otherwise indicated.
 - 3. For interior partitions and walls install 2-inch by 4-inch wood studs spaced 16 inches o.c., unless otherwise indicated.
 - 4. The extent of wood stud framing, if any, is indicated on the Drawings.
- B. Construct corners and intersections with not less than 3 studs. Install miscellaneous blocking and framing as shown and as required for support of facing materials, fixtures, specialty items, and trim.
 - 1. Install continuous horizontal blocking row at mid-height of single-story partitions over 8 feet high and at midpoint of multi-story partitions, using 2-inch thick members of same width as wall or partitions.
- C. Frame openings with multiple studs and headers. Install nailed header members of thickness equal to width of studs. Set headers on edge and support on jamb studs.
 - 1. For nonbearing partitions, install double-jamb studs and headers not less than 4 inches deep for openings 3 feet and less in width, and not less than 6 inches deep for wider openings.
 - 2. For load-bearing partitions, install double-jamb studs for openings 6 feet and less in width, and triple-jamb studs for wider openings. Install headers of depth shown, or if not shown, as recommended by A.F.P.A. "Manual for Wood Frame Construction".
- D. Install diagonal bracing in stud framing of exterior walls, except as otherwise indicated. Brace both walls at each external and internal corner, full story height, at a 45 degree angle, using either a let-in 1 by 4 or 2 by 4 blocking or metal diagonal bracing. Omit bracing where following types of sheathing are indicated.

1. Plywood sheathing or corner bracing, 8-foot-wide panels, vertically, at each face of any wall framing at corners.

3.5 RAFTER AND CEILING JOIST FRAMING (if any):

- A. Ceiling Joists: Install ceiling joists with crown up and to comply with requirements specified above for floor joists. Face nail to ends of parallel rafters.
1. Where principal ceiling joists are at right angles to rafters, frame as indicated with additional short joists from wall plate to first joist; nail to ends of rafters and to top plate and nail to long joists or anchor with framing anchors or metal straps. Install 1 by 8 or 2 by 4 stringers spaced 4 feet o.c. crosswise over principal ceiling joists.
- B. Rafters: Notch to fit exterior wall plates and toe nail. Provide metal framing anchors at bearing points. Double rafters to form headers and trimmers at openings in roof framing (if any), and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.
1. At valleys, install valley rafter of size shown, or if not shown, twice the thickness of regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafter.
 2. At hips, install hip rafters of size shown, or if not shown, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafters.
- C. Install collar beams (ties) as shown, or if not shown, install 1-inch by 6-inch boards between every third pair of rafters. Locate below ridge member, one-third of distance to ceiling joists. Cut ends to fit slope and nail to rafters.
- D. Install special framing as shown for eaves, overhangs, dormers and similar conditions, if any.

3.6 INSTALLATION OF CONSTRUCTION PANELS:

- A. General: Comply with applicable recommendations contained in Form No. E30, "APA Design/Construction Guide - Residential & Commercial," for types of construction panels and applications indicated.
- B. Fastening Methods: Fasten panels as indicated below:
1. Roof Sheathing and Wall Sheathing: Nail to framing.
 2. Plywood Backing Panels, if any: Nail to supports.
- C. Intermediate Supports: Provide H-clip spacers at midpoints between supports for roof sheathing, which are otherwise unsupported.

END OF ROUGH CARPENTRY

SECTION 06 1500

WOOD DECKING

PART 1 - GENERAL

.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

.2 SUMMARY:

- A. This Section includes the following:
 - 1. Solid-wood Roof Decking; Tongue-and-Groove.
 - 2. Solid wood decking is intended to be untreated, factory sealed, and painted on site with a stained finish, as specified in Section 09 9000 - "Painting," not the work of this Section 06 1500.

.3 SUBMITTALS:

- A. Product Data: For any manufactured wood decking. Include installation instructions and data on fabrication.
- B. Samples: 24 inches long, showing the range of variation to be expected in appearance of wood decking.
- C. Wood-Treatment Certificates: Signed by wood treater certifying that treatment processes comply with requirements.

.4 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced installer who has completed wood decking installation similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Decking Standard: Comply with AITC 112, "Standard for Tongue-and-Groove Heavy Timber Roof Decking."

.5 DELIVERY, STORAGE, AND HANDLING:

- A. Schedule delivery of wood decking to avoid extended on-site storage and to avoid delaying the Work.

- B. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings.
- C. Refer to Division 1 Sections “Summary of Work” and “Special Conditions” for additional information and requirements regarding stored materials.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL:

- A. General: Comply with DOC PS 20, “American Softwood Lumber Standard,” and with applicable grading rules of inspection agencies certified by ALSC’s Board of Review.
- B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:
 - 1. NELMA - Northeastern Lumber Manufacturers Association.
 - 2. NLGA - National Lumber Grades Authority (Canada).
 - 3. SPIB - Southern Pine Inspection Bureau.
 - 4. WCLIB - West Coast Lumber Inspection Bureau.
 - 5. WWPA - Western Wood Products Association.
- C. Grade Stamps: Provide wood decking with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, species, grade, moisture content at time of surfacing, and mill. Apply grade stamp to surfaces that will not be exposed to view.
- D. Preservative Treatment: Only where preservative treatment is specifically indicated on the Drawings, pressure treat solid wood decking with waterborne solution to comply with AWPAC2 for aboveground use.
 - 1. After treatment, re-dry wood to 15 percent maximum moisture content.
 - 2. Use preservative solution with water-repellent additive.
 - 3. Use preservative solution without water repellents or other substances that might interfere with application of indicated finishes.
 - 4. Do not use chemicals containing arsenic or chromium.

2.1 SOLID WOOD DECKING:

- A. Decking Species: Southern pine, unless otherwise indicated on the Drawings.

- B. Decking Grade: Dense Standard Decking.
- C. Moisture Content: Provide wood decking with 15 percent maximum moisture content at time of dressing.
- D. Pattern and Dressing: Tongue and groove, edge vee 1 side, surfaced 2 sides.
- E. Fasteners: Provide fastener size and type complying with decking standard for thickness of deck used.
 - 1. Use hot-dip galvanized nails and spikes.
- F. Size: 2 x 6 nominal, unless otherwise indicated on the Drawings.

2.3 FABRICATION:

- A. Shop Fabrication: Where pressure treatment of decking is indicated, complete cutting, trimming, surfacing, and sanding before treatment.
- B. Fabricate decking in lengths for combination simple and 2-span continuous lay-up.
- C. Seal Coat: After fabricating and surfacing decking, apply a saturation coat of penetrating sealer.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Install solid wood decking to comply with referenced decking standard and with end joints located according to lay-up indicated. Apply joint sealant between decking and supports and between tongues and grooves at outside wall supports.
- B. Install laminated wood decking to comply with manufacturer's current written instructions and with end joints located according to lay-up indicated. Apply joint sealant between decking and supports and between tongues and grooves at outside wall supports.
- C. Comply with AITC standard for nailing of solid wood decking, and applicable building codes.

3.2 ADJUSTING AND CLEANING:

- A. Repair damaged surfaces and finishes after completing erection. Replace damaged decking if repairs are not approved by Architect.

3.3 PROTECTION:

- A. Provide temporary waterproof covering to protect exposed decking before applying roofing.

END OF WOOD DECKING

SECTION 06 1850

STRUCTURAL GLUED-LAMINATED TIMBER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY:

- A. This Section includes the following factory finished structural glue-laminated timber:
 - 1. Beams.
 - 2. Connections and Accessories.

1.3 DEFINITIONS:

- A. Structural Glued-Laminated (Glulam) Timber: An engineered, stress-rated timber product assembled from selected and prepared wood laminations bonded together with adhesives with the grain of the laminations approximately parallel longitudinally.

1.4 PERFORMANCE REQUIREMENTS:

- A. Structural Performance of Structural Glulam Timber: Engineer, fabricate, and install structural glulam timber to withstand structural loads shown on Drawings without exceeding the allowable design working stresses according to AITC 117--DESIGN.

1.5 SUBMITTALS:

- A. Product Data: For glulam timber and accessories. Include installation instructions and data on lumber, adhesives, fabrication, treatment, and protection.
- B. Shop Drawings: Show layout of structural glulam timber system and full dimensions of each member. Indicate species and laminating combination, adhesive type, and other variables in required Work.
 - 1. Include large-scale details of connections.
 - 2. For installed structural glulam timber indicated to comply with certain design loadings, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples: Full width and depth, 24 inches long, showing the range of variation to be expected in appearance of structural glulam timber including treatment and finishing.
 - 1. Apply specified factory finish to 3 sides of half-length of each sample.

- D. Certificates of Conformance: Issued by a qualified inspection and testing agency indicating that glulam timbers comply with requirements of AITC A190.1.
- E. Wood-Treatment Certificates: Signed by wood treater certifying that treatment processes comply with requirements.
- F. Qualification Data: For firms and persons specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.6 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced installer who has completed structural glulam timber construction similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of kind indicated. Engineering services are defined as those performed for installations of structural glulam timber similar to that indicated for this Project in design and extent.
- C. Manufacturer Qualifications: Provide factory-glued structural units produced by an AITC-licensed firm.
 - 1. Factory mark each piece of structural glulam timber with AITC Quality Mark. Place mark on surfaces that will not be exposed in completed Work.
- D. Refer to Division 1 Section “Special Conditions”, for additional information and minimum experience requirements.
- E. Quality Standard: Comply with AITC A190.1, “Structural Glued Laminated Timber.”

1.7 DELIVERY, STORAGE, AND HANDLING:

- A. General: Comply with provisions of AITC 111, “Recommended Practice for Protection of Structural Glued Laminated Timber during Transit, Storage, and Erection.”
- B. Individually wrap members with plastic-coated paper covering, with water-resistant seams, before shipping or exposing to outdoor conditions.
- C. Refer to Division 1 Sections “Summary of Work”, and “Special Conditions”, for additional information and minimum requirements for stored materials.

PART 2 - PRODUCTS

2.1 STRUCTURAL GLULAM TIMBER FRAMING:

- A. Species and Grades for Structural Glulam Timber: Provide glulam members that comply with “Performance Requirements” Article and are made from the following species:
1. Species: Southern yellow pine, or Douglas fir (northern).
- B. Appearance Grade: Provide Architectural appearance grade members complying with AITC 110.
- C. Preservative Treatment: Where preservative-treated glulams are indicated, pressure treat lumber before gluing according to AWPA C28 for waterborne preservatives. After dressing and end-cutting each member to final size and shape, apply a field-treatment preservative to comply with AWPA M4 to surfaces cut to a depth of more than 1/16 inch (1.5 mm).
1. Use preservative solution without water repellents or other substances that might interfere with application of indicated finishes.
- D. Adhesive: Wet-use type complying with ASTM D 2559.
1. Do not use melamine-urea-formaldehyde adhesives for preservative-treated structural glulam timber.
- E. End Sealer: Manufacturer’s standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.
- F. Penetrating Sealer: Manufacturer’s standard, transparent, penetrating wood sealer that is compatible with indicated finish.
- G. Connectors, Anchors, and Accessories: Fabricate from structural-steel shapes, plates, and bars complying with ASTM A 36 (ASTM A 36M); steel bars complying with ASTM A 575, Grade M 1020; and hot-rolled steel sheet complying with ASTM A 570 (ASTM A 570M), Grade 33.
1. Fabricate beam seats with 3/8-inch- (9.5-mm-) steel bearing plates, 3/4-inch- (19-mm-) diameter-by-12-inch- (300-mm-) long deformed bar anchors, and 0.239-inch (6-mm) side plates.
 2. Fabricate purlin hangers with 0.179-inch (4.6-mm) stirrups and 0.239-inch (6-mm) top plates.
 3. Fabricate strap ties (if any) from 3-inch- (75-mm-) wide, 0.239-inch (6-mm) steel sheet.
 4. Fabricate tie rods from round steel bars with upset threads connected with forged-steel turnbuckles complying with ASTM A 668 (ASTM A 668M).
 5. Provide bolts, 3/4 inch (19 mm), unless otherwise indicated, complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); nuts complying with ASTM A 563 (ASTM A 563M); and, where indicated, flat washers.
 6. Provide shear plates, 4 inches (102 mm) in diameter, cast from malleable iron complying with ASTM A 47, Grade 32510 (ASTM A 47M, Grade 22010).
 7. Hot-dip galvanize each assembly and fastener after fabrication to comply with ASTM A 123 or ASTM A 153 (ASTM A 153M).

8. Finish each assembly and fastener with rust-inhibitive primer, 2-mil (0.05-mm) dry film thickness.

2.2 FABRICATION:

- A. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.
- B. Camber: Fabricate horizontal and inclined members, units of less than 1:1 slope, with either circular or parabolic camber equal to 1/500 of span.
- C. End-Cut Sealing: Immediately after end-cutting each member to final length and after wood treatment (if any), apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood-coated for not less than 10 minutes.
- D. Seal Coat: After fabricating and sanding each unit, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit, except for treated wood where treatment included a water repellent.

2.3 FACTORY FINISHING:

- A. Wiped Stain Finish: Manufacturer's standard, dry-appearance, penetrating acrylic stain and sealer, oven dried and resistant to mildew and fungus.
 1. Provide color selected by Architect from manufacturer's full range of colors.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. General: Erect structural glulam timber framing true and plumb, with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.
 1. Use padded slings and protect corners with wood blocking.
- B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.
 1. Where treated members must be cut during erection, apply a field-treatment preservative to comply with AWPA M4.
- C. Install steel connectors, anchors, and accessories as indicated.

3.2 ADJUSTING AND CLEANING:

- A. Repair damaged surfaces and finishes after completing erection. Replace damaged structural glulam timber if repairs are not approved by Architect.

3.3 PROTECTION:

- A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, soiling, and damage from work of other trades.
 - 1. Coordinate wrapping removal with finishing work specified in Division 9. Retain wrapping where it can serve as a painting shield.

END OF STRUCTURAL GLUE-LAMINATED TIMBER

SECTION 06 1920

PREFABRICATED METAL-PLATE-CONNECTED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY:

- A. Section Includes:
 - 1. Gable-shaped trusses.
 - 2. Hip and girder trusses at hip ends of roof.
- B. Definitions:
 - 1. Prefabricated metal-plate-connected wood trusses include planar structural units consisting of metal-plate-connected members that are fabricated from dimension lumber and that have been cut and assembled prior to delivery to the project site.
- C. Related Documents: Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- D. Related Sections:
 - 1. Section 06 1000, "Rough Carpentry".

1.2 SUBMITTALS:

- E. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data for lumber, metal connector plates, hardware, fabrication process, and fasteners.
 - 2. Shop drawings indicating species, species group, sizes, and stress grades of lumber to be used; pitch, span, camber, configuration, and spacing for each type of truss required; type, size, material, finish, design values, and location of metal connector plates; and bearing details.
 - 3. To the extent engineering design considerations are indicated as fabricator's responsibility, include design analysis indicating loading, assumed allowable stress, stress diagrams and calculations, and other information needed for review that have been signed and sealed by a qualified professional engineer responsible for their preparation.
 - 4. Provide shop drawings that have been signed and stamped by a qualified professional engineer.
 - 5. Product certificate, signed by officer of fabricating firm, certifying that metal-plate-connected wood trusses supplied for Project comply with specified requirements.

1.2 QUALITY ASSURANCE:

- A. TPI Standards: Comply with applicable requirements and recommendations of the following Truss Plate Institute (TPI) publications:
 - 1. "Design Specification for Metal Plate Connected Wood Trusses."
 - 2. "Commentary and Recommendations for Handling and Erecting Wood Trusses."
 - 3. "Commentary and Recommendations for Bracing Wood Trusses."
 - 4. "Quality Standard for Metal Plate Connected Wood Trusses."
- B. Connector Plate Manufacturer's Qualifications: A manufacturer that is a member of TPI and that complies with TPI quality control procedures for manufacture of connector plates published in TPI "Quality Standard for Metal Connector Plate Manufacture."
- C. Wood Structural Design Standard: Comply with applicable requirements of N.F.P.A. "National Design Specification for Wood Construction."
- D. Single-Source Engineering Responsibility: Provide trusses engineered by the metal plate connector manufacturer to support superimposed dead and live loads indicated, with design approved and certified by a qualified professional engineer.
- E. Engineer Qualifications: A professional engineer legally authorized to practice in jurisdiction where Project is located and experienced in providing engineering services of the kind indicated that have resulted in the installation of metal-plate-connected wood trusses similar to those of this Project and with a record of successful in-service performance.
- F. Fabricator's Qualifications: A firm that complies with the following requirements for quality control and is experienced in prefabricating metal-plate-connected wood trusses similar to those of this Project that have a record of successful in-service performance:
- G. Single Source Responsibility for Connector Plates: Provide metal connector plates from a single manufacturer.

1.3 DELIVERY, STORAGE, AND HANDLING:

- A. Handle and store trusses with care and comply with manufacturer's instructions and TPI recommendations to avoid damage from bending, overturning, or other cause which trusses are not designed to resist or endure.

1.4 SEQUENCING AND SCHEDULING:

- A. Time delivery and erection of trusses to avoid extended on-site storage and to avoid delaying work of other trades whose work must follow erection of trusses.

PART 2 - PRODUCTS

2.1 CONNECTOR PLATE MANUFACTURERS:

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering metal connector plates that may be incorporated in the Work include, but are not limited to, the following:
1. Alpine Engineered Products, Inc.
 2. Bemax of Florida, Inc.
 3. Clary Corporation.
 4. Computrus, Inc.
 5. Gang-Nail Systems, Inc.
 6. Hydro-Air Engineering, Inc.
 7. Inter-Lock Steel Co., Inc.
 8. Metal-Lock, Inc.
 9. Robbins Manufacturing Co.
 10. TEE-Lok Corp.
 11. Truss Connectors of America.
 12. Truswal Systems Corporation.

2.2 LUMBER:

- A. Factory mark each piece of lumber with type, grade, mill, and grading agency.
- B. Lumber Standard: Manufacture lumber to comply with PS 20 "American Softwood Lumber Standard" and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee's (ALSC) Board of Review.
- C. Nominal sizes are indicated, except as shown by detail dimensions.
- D. Provide dressed lumber, S4S, manufactured to actual sizes required by PS 20 to comply with requirements indicated below:
1. Moisture Content: Seasoned, with 19 percent maximum moisture content at time of dressing and shipment for sizes 2 inches or less in nominal thickness, unless otherwise indicated.
 2. Any species and grade that complies with the following requirements for species group as defined in Table 8.1a of N.F.P.A National Design Specification, for extreme fiber stress in bending "Fb" for single and repetitive members, and for modulus of elasticity "E":

2.3 METAL CONNECTOR PLATES:

- A. General: Fabricate connector plates from metal complying with requirements indicated in this article.
- B. Hot-Dip Galvanized Steel Sheet: Structural (physical) quality steel sheet complying with ASTM A 446, Grade A; zinc coated by hot-dip process to comply with ASTM A 525, Designation G60; minimum coated metal thickness indicated but not less than 0.036 inch.
- C. Electrolytic Zinc-Coated Steel Sheet: Structural (physical quality steel sheet complying with ASTM A 591, Coating Class C, and, for structural properties, with ASTM A 446, Grade A;

zinc coated by electro-deposition; with minimum coated metal thickness indicated but not less than 0.047 inch.

- D. Any metal indicated above.

2.4 FASTENERS:

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
- B. Where truss members are exposed to weather or to high relative humidities, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of AISI Type 304 stainless steel.
- C. Nails, Wire, Brads, and Staples: FS FF-N-105.
- D. Power Driven Fasteners: National Evaluation Report NER-272.
- E. Wood Screws: ANSI B18.6.1.
- F. Lag Bolts: ANSI B18.2.1.
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and where indicated, flat washers.

2.5 METAL FRAMING ANCHORS:

- A. General: Provide metal framing anchors of type, size, metal, and finish indicated that comply with requirements specified including the following:
1. Current Evaluation/Research Reports: Provide products for which reports exist from a model code organization acceptable to authorities having jurisdiction that evidence compliance of metal framing anchors for application indicated with the building code in effect for this Project.
 2. Allowable Design Loads: Provide products for which manufacturer publishes allowable design loads that are determined from empirical data or by rational engineering analysis and that are demonstrated by comprehensive testing performed by a qualified independent testing laboratory.
- B. Galvanized Steel Sheet: Steel sheet zinc-coated by hot-dip process on continuous lines prior to fabrication to comply with ASTM A 525 for Coating Designation G60 and with ASTM A 446, Grade A (structural quality); ASTM A 526 (commercial quality); or ASTM A 527 (lock-forming quality); as standard with manufacturer for type of anchor indicated.

2.6 FABRICATION:

- A. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints with wood-to-wood bearing in assembled units.

- B. Fabricate metal connector plates to size, configuration, thickness, and anchorage details required to withstand design loadings for types of joint designs indicated.
- C. Assemble truss members in design configuration indicated using jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances specified in TPI "Quality Standard for Metal Plate Connected Wood Trusses." Position members to produce design camber indicated.
- D. Connect truss members by means of metal connector plates accurately located and securely fastened to each side of wood members by means indicated or approved.

PART 3 – EXECUTION

3.1 INSTALLATION:

- A. General: Erect and brace trusses to comply with applicable requirements of referenced TPI standards.
- B. Where trusses do not fit, return them to fabricator and replace with trusses of correct size; do not alter trusses in the field.
- C. Erect trusses with plane of truss webs vertical (plumb) and parallel to each other, located accurately at design spacings indicated.
- D. Hoist trusses in place by means of lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.
- E. Anchor trusses securely at all bearing points to comply with methods and details indicated.
- F. Install permanent bracing and related components to enable trusses to maintain design spacing, withstand live and dead loads including lateral loads, and to comply with other indicated requirements.
- G. Do not cut or remove truss members.

END OF PREFABRICATED METAL-PLATE-CONNECTED WOOD TRUSSES

SECTION 06 2000

FINISH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Related work specified elsewhere includes:
 - .. Section 06 1000 - "Rough Carpentry"
 - .. Section 07 3110 - "Asphalt Shingles"
 - .. Section 07 9000 - "Joint Sealers"
 - .. Section 08 7100 - "Finish Hardware"
 - .. Section 09 9000 - "Painting"

1.2 DESCRIPTION OF WORK:

- A. Definition: Finish carpentry includes carpentry work which is exposed to view, is non-structural, and which is not specified as part of other sections.
- B. Types of finish carpentry work in this section include:
 - 1. Interior and exterior running and standing trim for opaque finish.
 - 2. Exposed plywood.
 - 3. Prefinished extruded aluminum soffit vents, as indicated on the Drawings, if any.
- C. Refer to Section 061000 - "Rough Carpentry", and Structural Drawings for framing anchors.
- D. Finish carpentry is intended to be finish painted on site, under section 099000.
 - 1. All standing and running trim and all exposed lumber and wood products shall be back-primed prior to installation.
 - 2. Existing components indicated to be refinished, shall be stripped, sanded, filled, caulked, sealed, primed and painted/refinished.
 - 3. All exposed edges of woodwork shall be eased.
 - 4. Framing and deck above soffit vents shall be painted with minimum 1-coat non-specular flat black enamel prior to installation of soffit vents, under Section 099000.

1.3 QUALITY ASSURANCE:

- A. Factory-mark each piece of lumber and plywood with type, grade, mill and grading agency identification; except omit marking from surfaces to receive transparent finish, and submit mill

certificate that material has been inspected and graded in accordance with requirements if it cannot be marked on a concealed surface.

1.4 SUBMITTALS:

- A. Product Data: Submit manufacturer's specifications and installation instructions for each item of factory-fabricated products, paneling, trim, etc. Include color samples for items requiring color selection.
- B. Samples: Submit the following samples for each species and cut or pattern of finish carpentry.
 - 1. Interior Standing and Running Trim: 2'-0" long x full board or molding width, unfinished.
 - 2. Exterior Standing and Running Trim: 2'-0" long x full board or molding width, unfinished.
- C. Wood Treatment Data: Submit chemical treatment manufacturer's instructions for handling, storage, installation and finishing treated materials, if required.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

- A. Protect finish carpentry materials during transit, delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver finish carpentry materials, until painting, wet work, grinding and similar operations which could damage, soil or deteriorate woodwork have been completed in installation areas. If, due to unforeseen circumstances, finish carpentry materials must be stored in other than installation areas, store only in areas meeting requirements specified for installation areas.

1.6 JOB CONDITIONS:

- A. Conditioning: Installer shall advise Contractor of temperature and humidity requirements for finish carpentry installation areas. Do not install finish carpentry until required temperature and relative humidity conditions have been stabilized and will be maintained in installation areas.
- B. Maintain temperature and humidity in installation area as required to maintain moisture content of installed finish carpentry within a 1.0 percent tolerance of optimum moisture content, from date of installation through remainder of construction period. The fabricator of woodwork shall determine optimum moisture content and required temperature and humidity conditions.

PART 2 - PRODUCTS

2.1 WOOD PRODUCT QUALITY STANDARDS:

- A. Softwood Lumber Standards: Comply with PS 20 and with applicable grading rules of the respective grading and inspecting agency for the species and product indicated.

- B. Plywood Standard: Comply with PS 1/ANSI A199.I.
- C. Hardwood Lumber Standard: Comply with National Hardwood Lumber Association (NHLA) rules.
- D. Woodworking Standard: Where indicated for a specific product comply with specified provision of the following:
 - 1. Architectural Woodwork Institute (AWI) “Quality Standards”.

2.2 MATERIALS:

- A. General:
 - 1. Nominal sizes are indicated, except as shown by detailed dimensions. Provide dressed or worked and dressed lumber, as applicable, manufactured to the actual sizes as required by PS 20 or to actual sizes and pattern as shown, unless otherwise indicated.
 - 2. Moisture Content of Softwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation not greater than values required by the applicable grading rules of the respective grading and inspecting agency for the species and product indicated.
 - 3. Moisture Content of Hardwood Lumber: Provide kiln-dried (KD) lumber having a moisture content from time of manufacture until time of installation within the ranges required in the referenced woodworking standard.
 - 4. Lumber for Transparent Finish (Stained or Clear): Refer to Section 06400 – “Architectural Woodwork”.
 - 5. Lumber for Painted Finish: At Contractor’s option, use pieces which are either glued-up lumber or made of solid lumber stock.
- B. Interior and Exterior Finish Carpentry:
 - 1. WM/Series Wood Molding Patterns: For stock molding patterns graded under Wood Molding and Millwork Producers Industry WM 4, provide the following grade based on finish indicated and fabricated from any Western hardwood species graded and inspected by WWPA or other referenced standard or agency.
 - a. Moldings for Transparent Finish: N-Grade (finger joints not permitted); Refer to Section 06400 – “Architectural Woodwork”.
 - b. Moldings for Painted Finish: P-Grade.
 - 2. Standing and Running Trim for Painted Finish: Any Western hardwood species graded and inspected by WWPA complying with following requirements:
 - a. Grade for Standard Sizes and Patterns: “C Select” or “Choice” for White or Yellow Poplar, or White or Red Oak.

- b. Grade for Special (Custom) Sizes and Patterns: Custom for quality of materials and manufacture as required in referenced woodworking standard.
- 3. Hardwood Plywood Stock Panels: Provide manufacturer's stock hardwood plywood panels complying with applicable requirements of PS 51 for species and grade of face veneers and backing, adhesive, construction, thickness, panel size, and finish.
 - a. Face Veneer Species for Painted Finish: Rotary cut Natural Birch.
 - b. Grade: Premium.
 - c. Backing Veneer Species: Any hardwood compatible with face species.
 - d. Construction: Veneer core.
 - e. No. of Plies: 5.
 - f. Thickness: As indicated on the Drawings, or if not indicated, at least 3/4-inch.
 - g. Panel Size: As required.
 - h. Plywood Type (Water Resistance Capability): Type I at Exterior and Type II at Interior.
 - i. Face Pattern: Plain (no grooves) with veneer edge matched within each panel face to comply with type of match required by referenced product standard.
 - j. Face Veneer Matching (Panel-to-Panel): No match required.
 - k. Finish: Polish sanded.
- 4. Softwood Plywood: Comply with DOC PS 1, "U.S. Product Standard for Construction and Industrial Plywood."
 - a. Face Veneer Species for Painted Finish: SYP, or any similar species permitted by referenced standards.
 - b. Grade:
 - .. Plywood Soffits (if any) and Wainscots (if any): A-C, minimum
 - .. Sub-flooring (if any): B-C, minimum
 - c. Backing Veneer Species: Same as face veneer.
 - d. Construction: Veneer core.
 - e. Thickness: As indicated on the Drawings, or if not indicated, at least as follows:

- .. Ceilings/Soffits: 1/2-inch, unless otherwise indicated.
- f. Panel Size: As required.
- g. Plywood Type (Water Resistance Capability): Type I (exterior).
- h. Finish: Primed at back and edges prior to installation (typical), with face finish as follows:
 - 1) Typical: Sanded.

2.3 MISCELLANEOUS MATERIALS:

- A. Fasteners and Anchorages: Provide nails, screws and other anchoring devised of the type, size, material, and finish required for application indicated to provide secure attachment, concealed where possible, and complying with applicable Federal Specifications and the Standard Building Code.
 - 1. Where finish carpentry is exposed on exterior or in areas of high relative humidity, provide fasteners and anchorages with a hot-dipped zinc coating (ASTM A 153).
- B. Prefinished Soffit Vent: Provide manufacturer's standard prefinished "Kynar 500" baked enamel extruded aluminum vent assemblies with aluminum bug screen, flush non-ferrous fasteners (stainless steel or aluminum; matching color if/where exposed) as recommended by manufacturer for substrate provided, and all accessories recommended by manufacturer and/or required by project conditions.
 - 1. Manufacturer: Unless specifically indicated otherwise, provide equivalent to standard prefinished products indicated on the Drawings, as manufactured by one of the following:
 - a. AMICO
 - b. Fry Reglet Corporation
 - c. Gordan, Inc.
 - d. M&M Systems Corporation
 - 2. Color: As selected by Architect.

PART 3 - EXECUTION

3.1 PREPARATION:

- A. Condition wood materials to average prevailing humidity conditions in installation areas prior to installing.
- B. Back-prime Lumber and panel products for painted finish exposed on the exterior and where exposed to moisture and high relative humidities on the interior. Comply with requirements of Section 099000 - "Painting", for primers and their application.

- C. Pre-Installation Meeting: Meet at project site prior to delivery of finish carpentry materials and review coordination and environmental controls required for proper installation and ambient conditioning in areas to receive work. Include in meeting the Contractor, Architect and other Owner Representatives (if any), Installers of finish carpentry, wet work including plastering, other finishes, painting, mechanical work and electrical work, and firms and persons responsible for continued operation (whether temporary or permanent) of HVAC system as required to maintain temperature and humidity conditions. Proceed with finish carpentry on interior only when everyone concerned agrees that required ambient conditions can be properly maintained.

3.2 INSTALLATION:

- A. Discard units of material which are unsound, warped, bowed twisted, improperly treated, not adequately seasoned or too small to fabricate work with minimum of joints or optimum jointing arrangements, or which are of defective manufacture with respect to surfaces, sizes or patterns.
- B. Install the work plumb, level, true and straight with no distortions. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level countertops; and with 1/16" maximum offset in flush adjoining 1/8" maximum offsets in revealed adjoining surfaces.
- C. Scribe and cut work to fit adjoining work, and refinish cut surfaces or repair damaged finish at cuts.
- D. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum lengths of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns, miter at corners, to produce tight fitting joints with full surface contact throughout length of joint. Use scarf joints for end-to-end joints.
- E. Anchor finish carpentry work to anchorage devices or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fasteners heads are required, use fine finishing nail for exposed nailings, countersunk and filled flush with finished surface, and matching final finish where transparent is indicated.
- F. Hardwood Plywood Paneling: Where grain character or color variations are noticeable, select and arrange panels on each wall for best match of adjacent panels. Install with uniform, tight joints between panels.
 - 1. Attach panels to supports with panel adhesive and fasteners, plus nailing, in accordance with manufacturer's current written instructions for concealed-fastener installation.
 - 2. Apply panel adhesive on supports, immediately prior to panel placement and nailing.
 - 3. Apply battens and corner trim as indicated.

3.3 ADJUSTMENT, CLEANING, FINISHING AND PROTECTION:

- A. Repair damaged and defective finish carpentry work wherever possible to eliminate defects functionally and visually; where not possible to repair properly, replace woodwork. Adjust joinery for uniform appearance.
- B. Clean finish carpentry work on exposed and semi-exposed surfaces. Touch-up shop-applied finishes to restore damaged or soiled areas.
- C. Refer to Section 09900 - "Painting", for final finishing of installed finish carpentry work, not the work of this Section 06200.
- D. Protection: Installer of finish carpentry work shall advise Contractor of final protection and maintained conditions necessary to ensure that work will be without damage or deterioration at time of acceptance.

END OF FINISH CARPENTRY

SECTION 07 2100

BUILDING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 04 2000 - "Unit Masonry" (foamed-in-place cell insulation)
 - 2. Section 06 1000 - "Rough Carpentry"

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Building insulation, **urea formaldehyde-free**, in batt form, in exterior stud walls, on continuous support at bottom of roof joists / trusses where/if indicated, at miscellaneous locations, and as otherwise required to provide a continuous and complete insulation envelope between interior and exterior of building.

1.3 DEFINITIONS:

- A. Thermal Resistivity: Where the thermal resistivity of insulation products are designated by "r-values," they represent the reciprocal of thermal conductivity (k-values). Thermal conductivity is the rate of heat flow through a homogenous material exactly 1 inch thick. Thermal resistivities are expressed by the temperature difference in degrees F between the two exposed faces required to cause one BTU to flow through one square foot per hour at mean temperatures indicated.

1.4 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of insulation product and accessory specified.

1.5 QUALITY ASSURANCE:

- A. Fire Performance Characteristics: Provide insulation materials identical to those whose indicated fire performance characteristics have been determined per the ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing and inspecting organization.

- B. Single-Source Responsibility for Insulation Products: Obtain each type of building insulation from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Protect insulation materials from physical damage and from deterioration by moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's recommendations for handling, storage, and protection before and during installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide **urea formaldehyde-free** insulation products of one of the following:
 - 1. Manufacturers of Glass Fiber Insulation: (urea formaldehyde-free)
 - a. CertainTeed Corp.
 - b. Georgia-Pacific
 - c. Knauf Fiber Glass GmbH.
 - d. Manville Building Insulations Div., Manville Sales Corp.
 - e. Ottawa Fibre, Inc.
 - f. Owens/Corning Fiberglass Corp.

2.2 INSULATING MATERIALS:

- A. General:
 - 1. Provide insulating materials that comply with requirements, with referenced standards, and free of urea formaldehyde.
 - 2. Preformed Units: Sizes to fit applications indicated, selected from manufacturer's standard thicknesses, widths, and lengths.
- B. Faced Mineral Fiber Blanket/Batt Insulation (if any): Thermal insulation produced by combining mineral fibers of type described below with **urea formaldehyde-free** thermosetting resins to comply with ASTM C 665 for Type III, Class A (blankets with reflective vapor-retarder membrane facing with flame spread of 25 or less); foil-scrim-kraft membrane on one face, and as follows:
 - 1. Mineral Fiber Type: Fibers manufactured from glass or slag; **urea formaldehyde-free**.
 - 2. Surface Burning Characteristics: Maximum flame spread and smoke developed values of 25 and 50, respectively.
 - 3. Thickness: R-30 continuous at bottom of roof trusses, continuously supported at bottom of any roof joists / trusses; and other locations only as indicated.
 - 4. NOTE: Where insulation is concealed by other construction (inside walls, on or above ceiling materials, etc., and in substantial contact with back of wall or ceiling facing

materials), the following insulation may be used, except NOT at Mechanical plenum spaces.

- a. ASTM C 665, Type II, Class C; Kraft-faced membrane on one face; **Urea Formaldehyde-free**, and otherwise same as above.

2.3 MISCELLANEOUS MATERIALS:

- A. General: Provide support system acceptable to insulation manufacturer where insulation batts are not fully concealed in wall construction, occur between open horizontal framing (i.e.: nothing else at bottom of framing if in attic), where a reduction occurs in fire protection materials fire-rating due to insulation being in direct contact with fire-rated assembly materials, etc., in addition to mechanical anchorage.
 1. Products: Provide one of the following (if any) or other method acceptable to Architect:
 - a. Galvanized struts or straps, at 2'-0" o.c. maximum, anchored at each end; at walls and fire-rated horizontal construction components.
 - b. Galvanized 2" mesh "chicken wire," continuous, and anchored to framing at 1'-0" o.c. maximum, at any open framing.
- B. Baffles (if any): Insulation manufacturer's standard recommended baffles at eaves, to close-off edges of insulation and to keep from extending batts into above soffit area. Provide at least 1-inch clear from roof decking to allow ventilation through attic and concealed areas from soffit vents.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Examine substrates and conditions with Installer present, for compliance with requirements of the Sections in which substrates and related work are specified and to determine if other conditions affecting performance of insulation are satisfactory. Do not proceed with installation of insulation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL:

- A. Comply with insulation manufacturer's instructions applicable to products and application indicated. If printed instructions are not available or do not apply to project conditions, consult manufacturer's technical representative for specific recommendations before proceeding with installation of insulation.
 1. Do not install insulation which is or has been wet, or otherwise damaged.
- B. Provide support system at locations where insulation is exposed in open or partially exposed framing, or is otherwise unsupported.

- C. Extend insulation full thickness as indicated to envelop entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections that interfere with placement.
 - 1. Omit insulation over recessed lighting fixtures.
- D. Apply a single layer of insulation of required thickness, unless otherwise shown or required to make up total thickness.

3.3 INSTALLATION OF GENERAL BUILDING INSULATION:

- A. Apply insulation units to substrate by method indicated, complying with manufacturer's recommendations. If no specific method is indicated, bond units to substrate using mechanical anchorage to provide permanent placement and support of units.
- B. Set vapor retarder faced units with vapor retarder to warm side of construction, except as otherwise indicated. Do not obstruct ventilation spaces, except for firestopping.
- C. Stuff glass fiber loose fill insulation into miscellaneous voids and cavity spaces. Compact to approximately 40 percent of normal maximum volume (to a density of approximately 2.5 pcf).

3.4 PROTECTION:

- A. General: Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation will be subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF BUILDING INSULATION

SECTION 07 2600

BUILDING WRAP
(AIR BARRIER/WEATHER RESISTANT BARRIER)

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 06 1000 - "Rough Carpentry"

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Furnish and install air barrier/weather resistant barrier over exterior of wall sheathing and over perimeter flashing at openings through wall sheathing, at all locations regardless of whether or not indicated on drawings, to protect exterior sheathing and interior walls. Substrates include in part, behind stucco systems, and over vertical and sloped gypsum and plywood sheathing, and over base flashing ("Nervastral") required at perimeters of wall openings in framing construction.

1.3 REFERENCES:

- A. American Society for Testing and Materials
- B. Technical Association of the Pulp and Paper Industry
- C. American Association of Textile Chemists and Colorists

1.4 SUBMITTALS:

- A. General: Submit each item in this Article according to the conditions of the Contract and Division I Specifications Sections.
- B. Product Data: Submit product specifications, technical data and installation instructions of manufacturer equivalent to or exceeding those specified.

1.5 QUALITY ASSURANCE:

- A. Installer Qualifications:
 - 1. Installer with at least 5 verifiable years successful experience in the installation of air barrier/secondary weather resistant barriers for projects of similar size, scope and complexity.

2. Refer to Division 1 Section “Special Conditions” for additional information and minimum experience requirements.
- B. Install job mock-up using specified air barrier/secondary weather resistant barrier with system of fastening and taping seams as per manufacturer’s instructions. Obtain architect’s approval of system for appearance and workmanship standard.
1. Refer to Division 4 Section “Unit Masonry” for additional information and requirements regarding mock-up walls required.

PART 2 – PRODUCTS

2.1 MATERIALS:

- A. Manufacturer: Provide “Commercial Wrap”, as manufactured by DuPont Weatherization Systems; Wilmington, Delaware; Phone: 1-800-448-9835; or preapproved equivalent properly submitted at least ten days prior to bid date and subsequently accepted by Architect in writing or by addendum.
- B. Materials - Air Barrier/Weather Resistant Barrier: A flash spunbonded olefin, non-woven, non-perforated secondary weather resistant barrier.
- C. Performance Characteristics:
1. AATCC–127, Water Penetration Resistance, exceeded at 280
 2. TAPPI T–460, Gurley Hill (sec/100cc) Air infiltration at >1500 seconds
 3. ASTM E 96 Method B(g/m²–24hr.)Water vapor transmission of 200
 4. TAPPI T-41D, Basis weight of 2.7oz/yd
 5. ASTM E96 Method B, Water Vapor Transmission, 28 perms
 6. ASTM E1677, Air Retarder Material Standard Specification, Type I air barrier
- D. Sealing Tape/Fasteners:
1. DuPont™ Tyvek® Tape, DuPont Weatherization Systems.
 2. For Steel Framed Construction: DuPont™ Tyvek® Wrap Cap Screws, DuPont Weatherization Systems; 1-5/8-inch rust resistant screws with 2-inches diameter plastic cap.
 3. For Wood Framed Construction: DuPont™ Tyvek® Wrap Caps, DuPont Weatherization Systems. Nails with large heads or plastic washers.
 4. Sealants: Polyurethane or other elastomeric sealants.
 - a. Available Products:

- 1) OSI® Quad Pro-Series®, solvent release butyl rubber sealant
 - 2) DAP® Dynaflex 230™
 - 3) Other products as approved and recommended by air barrier/weather resistant barrier manufacturer.
- b. Refer to Division 7 Section “Joint Sealers” for additional information and requirements regarding sealants and their installation.

PART 3 - EXECUTION

0.1 EXAMINATION:

- A. Examine substrates, areas, and conditions under which air barrier/weather resistant barrier will be applied, with Installer present, for compliance with requirements.
- B. Verify that joints in sheathing substrate have been sealed and taped.
- C. Where plywood substrate occurs, verify that required building felt has been properly installed over entire substrate and lapped in shingled manner, and that internal and external corners have been covered with additional layer of building felt.
- D. Verify that all flashings are in place, including in part, that required “elastic flashing” has been installed at perimeter of windows, doors, louvers and similar openings, and turned up at least 4-inches at sills to form a pan.
- E. Where metal siding occurs over solid substrate, verify that “special flashing” (waterproofing underlayment) has been properly installed over entire substrate, lapped in shingled manner, perimeter of wall openings have been similarly flashed, and that internal and external corners have been covered with additional layer of special flashing.

3.2 INSTALLATION:

- A. Install Air Barrier/Weather Resistant Barrier over exterior side of all exterior wall sheathing.
 1. Install Air Barrier after sheathing is installed, after required elastic flashing and/or waterproofing underlayment has been installed as indicated above and in other Sections, and before windows, doors, louvers and similar items are installed. Install lower level barrier prior to upper layers to ensure proper shingling of layers.
 2. Overlap Air Barrier at interior and exterior corners of building by a minimum of 12 inches.
 3. Overlap Air Barrier vertical seams by a minimum of 6 inches.
 4. Ensure barrier is plumb and level with foundation, and unroll extending Air Barrier over openings for windows, doors, louvers and similar openings.

5. Attach Air Barrier to wood, plywood, insulated sheathing board and exterior gypsum with plastic cap nails every 12” to 18” on vertical stud line with wood stud framing, and screws with washers to metal stud framing.
6. Prepare window and door rough openings as follows:
 - a. Prepare each window, louver and similar rough opening by cutting a modified “I” pattern in the Air Barrier.
 - b. Horizontally cut Air Barrier along bottom of header.
 - c. Vertically cut Air Barrier down the center of window openings from the top of the window opening down to 2/3 of the way to the bottom of the window openings.
 - d. Diagonally cut Air Barrier from the bottom of the vertical cut to the left and right corners of opening.
 - e. Fold side and bottom flaps into window opening and fasten every 6 inches. Trim off excess.
7. Prepare each rough door opening by cutting a standard “I” pattern in the Air Barrier.
 - a. Horizontally cut Air Barrier along bottom of door frame header and along top of sill.
 - b. Vertically cut Air Barrier down the center of door openings from the top of the door opening (header) down to the bottom of the door opening (sill).
 - c. Fold side flaps inside around door openings and fasten every 6 inches. Trim off excess.
8. Tape all horizontal and vertical seam of Air Barrier with DuPont™ Tyvek® Tape.
9. Completely seal all tears and cuts in Air Barrier with DuPont™ Tyvek® Tape.

END OF BUILDING WRAP

SECTION 07 3110

ASPHALT SHINGLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 06 1000 - "Rough Carpentry"
 - 2. Section 07 6000 - "Flashing and Sheet Metal"

1.2 DESCRIPTION OF WORK:

- A. Extent of roofing work is indicated on drawings.
- B. Work described in this section also includes new heavy weight, laminated, architectural, self-sealing ("seal-tab") strip roof shingles with stain and fungus protection, and continuous ridge vents.
- C. Required metal flashings, continuous drip edge, special valley, ridge and roof plane edges flashing / waterproofing underlayment ("Ice and Water Shield"), etc., are specified in Section 076000 - "Flashing and Sheet Metal," and shall be coordinated and installed in proper sequence with roofing work.

1.3 SUBMITTALS:

- A. Samples:
 - 1. Shingles: Submit full range of samples for color(s) and texture selection.
 - 2. Accessories: Submit at least three (3) samples or ridge vent material and each roofing accessory.
 - 3. Include color samples for items where color selections are available, and where color selection(s) is required.

1.4 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced Installer (Roofer) to perform roofing work who has specialized in installing roofing systems similar to that required for this Project and who is acceptable to manufacturer of primary roofing materials.
 - 1. Installer's Field Supervision: Require Installer to maintain a full-time supervisor/foreman who is on job site during times that roofing work is in progress and

who is experienced in installing roofing systems similar to type and scope required for this Project.

- B. **Manufacturer Qualifications:** Obtain primary products, including each type of roofing, bitumen, composition flashings, etc., from a single manufacturer. Provide secondary products as recommended by manufacturer of primary products to use with roofing system specified.
- C. **Insurance, Code and Warranty Requirements:** Provide materials complying with governing regulations that can be installed to comply with the following:
 - 1. UL Fire Classified.
 - 2. Wind Uplift Resistance: As per local building code and warranty requirements.
 - 3. Wind Speed at the Project Site: As per local building code and warranty requirements, but no less than **95 mph**.
- D. **Insurance Certification:** Assist Owner in preparing and submitting roof installation acceptance certification as necessary in connection with fire and extended-coverage insurance on roofing and associated work.
- E. **UL Listing:** Provide roofing system and component materials that have been tested for application and slopes indicated and that are listed by UL for Class A external fire exposure.
 - 1. Provide roof-covering materials bearing UL Classification Marking on bundle, package, or container indicating that materials have been produced under UL's Classification and Follow-up Service. Submit nailing pattern and size of plates.
- F. **Pre-Roofing Conference:** A pre-roofing conference is required before any roofing materials are installed. This conference shall be conducted by a representative of the Architect and attended by representatives of the Owner, Building Commission Inspector, General Contractor, Roofing Contractor, Sheet Metal Contractor, Roof Deck Manufacturer (if applicable), and the Roofing Materials Manufacturer (if warranty is required of this manufacturer). If equipment of substantial size is to be placed on the roof, the Mechanical Contractor must also attend this meeting.
 - 1. The pre-roofing conference is intended to clarify demolition (for renovation or re-roofing projects) and application requirements for work to be completed before roofing operations can begin. This would include a detailed review of the specifications, roof plans, roof deck information, flashing details, and approved shop drawings, submittal data, and samples. If conflict exists between the specifications and the Manufacturer's requirements, this shall be resolved. If this pre-roofing conference cannot be satisfactorily concluded without further inspection and investigation by any of the parties present, it shall be reconvened at the earliest possible time to avoid delay of the work. In no case should the work proceed without inspection of all roof deck areas and substantial agreement on all points.
 - 2. The following are to be accomplished during the conference:
 - a. Review all Factory Mutual and Underwriters Laboratories requirements listed in the specifications and resolve any questions or conflicts that may arise.

- b. Establish trade-related job schedules, including the installation of roof-mounted mechanical equipment.
- c. Establish roofing schedule and work methods that will prevent roof damage.
- d. Require that all roof penetrations and walls be in place prior to installing the roof.
- e. Establish those areas on the job site that will be designated as work and storage areas for roofing operations.
- f. Establish weather and working temperature conditions to which all parties must agree.
- g. Establish acceptable methods of protecting the finished roof if any trades must travel across or work on or above any areas of the finished roof.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Deliver materials in manufacturer's unopened, labeled bundles, rolls, or containers.
- B. Store materials to avoid water damage, and store rolled goods on end. Comply with manufacturer's recommendations for job-site storage and protection.

1.6 JOB CONDITIONS:

- A. Weather Conditions: Proceed with Shingle work only when weather conditions are in compliance with manufacturer's current written instructions and recommendations and when substrate is completely dry.

1.7 WARRANTIES AND GUARANTEES:

- A. Warranty: Provide shingle manufacturer's warranty on installed work, agreeing to pay for repair or replacement of defective shingles and roofing system components as necessary to eliminate leaks. Period of warranty is **thirty (30) years** from date of substantial completion.
- B. Repairs that become necessary, such as for leaks, wind damage or temperature stress while roofing is under warranty and/or guarantee, shall be performed by the installer within 7-days of notification. Should for any reason, the installer not be able to perform the repairs, it shall be incumbent upon the manufacturer to do so. If repairs are not begun on time, Owner shall have work done by others and costs will be charged to the Contractor, with no detrimental effect on the remaining warranty and no termination of warranty.
- C. The above warranty and guarantee shall be in addition to, shall be in effect simultaneously with, and shall not limit or alter other project or product warranties or guarantees, nor shall they serve as limitations to other remedies available to the Owner.

PART 2 - PRODUCTS

2.1 ASPHALT SHINGLE MATERIALS:

- A. Laminated Strip Shingles, UL Class "A" Heavyweight: Mineral surfaced, self sealing, asphalt fiberglass, stain and fungus resistant shingles complying with ASTM D 3161, Type 1. Provide shingles bearing UL class "A" external fire exposure label and UL "Wind Resistant" label; approximately 240 pounds per square.

1. Subject to compliance with requirements, provide one (1) of the following, or pre-approved equivalent submitted at least 10 days prior to original Bid date and subsequently approved:
 - a. “Prestique II,” as manufactured by ELK Corporation.
 - b. “Timberline 30,” as manufactured by GAF Corp.
 - c. “Heritage Series,” as manufactured by TAMKO Roofing Products, Inc.
 2. Color(s): Shall be selected by Architect from manufacturer’s standard colors.
- C. Asphalt-Saturated Roofing Felt: No. 15 (provide two layers), un-perforated organic felt, complying with ASTM D 22681 Type I, 36" wide, approximate weight 18 lbs./square.
- D. Asphalt Plastic Cement: Fibrated asphalt cement complying with ASTM D 2822, designed for trowel application.
- E. Hip and Ridge Shingles: Manufacturer’s standard factory pre-cut units to match shingles.
- F. Nails:
1. Aluminum or hot-dip galvanized 11 or 12-gage, sharp-pointed, conventional roofing nails with barbed shanks, minimum 3/8" diameter head, and of sufficient length to penetrate 3/4" into solid decking or to penetrate through plywood sheathing.
 2. The use of square head nails, staples, and pneumatic, and/or electric nail or staple guns are strictly prohibited.
- G. Ridge Vents: Equivalent to “Ridge Master,” as manufactured by Mid-America Building Products Corp. (Phone: 1-800-521-8486).

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Examine substrate under which shingle work is to be performed and notify Contractor in writing of unsatisfactory conditions. Do not proceed with shingle work until unsatisfactory conditions have been corrected.

3.2 PREPARATION OF SUBSTRATE:

- A. Clean substrate of any projections and substances detrimental to shingling work. Cover knotholes or other minor voids in substrate with sheet metal flashing secured with roofing nails.
- B. Coordinate installation of shingles with flashing and other adjoining work to ensure proper sequencing. Do not install shingle roofing until all vent stacks and other penetrations through roofing have been installed and are securely fastened against movement.

3.3 INSTALLATION:

- A. General: Comply with current written instructions and recommendations of shingle and accessories manufacturers, except to extent more stringent requirements are indicated.
 - 1. Coordinate all work under this Section 07311 with other roofing systems and roof related work of other trades.
- B. Shingles: After covering entire roof with roofing felt, install starter strip of roll roofing or inverted shingles with tabs removed; fasten shingles in pattern, weather exposure and number of fasteners per shingle as recommended in writing by manufacturer. Use horizontal and vertical chalk lines to ensure straight coursing.
- C. Comply with installation details and recommendations of shingle and accessories manufacturers and NRCA Steep Roofing Manual.
- D. Flashing and Edge Protection:
 - 1. Install metal flashing, vent flashing and edge protection as indicated and in compliance with details and recommendations of the NRCA Steep Roofing manual.
 - 2. Install diverters 1'-0" above roof edge at locations where water would otherwise run over exterior doorways or mechanical units.

3.4 PROTECTION:

- A. Restrict areas of completed work from all non-essential pedestrian traffic or other use.

3.5 CLEANING:

- A. Remove all trash, scraps, debris, etc., from roof and site, which results from work under this Section, and legally dispose of off-site.

END OF ASPHALT SHINGLES

SECTION 07 6000

FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 04 2000 - "Unit Masonry"
 - 2. Section 06 1000 - "Rough Carpentry"
 - 4. Section 07 3110 - "Asphalt Shingles"
 - 6. Section 07 9000 - "Joint Sealers"
 - 7. Section 08 1100 - "Steel Doors and Frames"

1.2 SUMMARY:

- A. This Section includes the following, where indicated, and where required by project conditions, and which are not part of other Sections:
 - 1. Prefinished metal counter flashing and base flashing.
 - 2. Miscellaneous prefinished metal wall flashing, counterflashing, and reglets.
 - 3. Exposed prefinished metal trim/fascia units, any parapet caps (copings), downspouts, and other items as indicated on the Drawings.
 - 4. Elastic flashing at top of all curbs, top course of double wythe walls, at perimeters of all exterior wall openings (i.e.: doors, windows, louvers, etc.), through-wall flashing, and elsewhere as indicated.
 - 5. Miscellaneous sheet metal accessories as indicated and as required by project conditions.
- B. Exposed metal flashing is intended to be factory formed, prefinished baked enamel, as specified, in manufacturer's standard non-metallic color(s) selected by Architect after bidding.

1.3 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for Flashing, Sheet Metal and Accessories: Manufacturer's current technical product data, installation instructions and general recommendations for each specified sheet material, fabricated product, coating system, and color selection data.
- C. Samples of the following flashing, sheet metal, and accessory items:
 - 1. 12-inch-long samples of factory-fabricated products exposed as finished work. Provide complete with specified factory finish.
 - 2. Physical samples for color selections, where color selection is required.

- D. Shop drawings showing layout, profiles, methods of joining, and anchorages details, including major counterflashings, trim/fascia units, expansion joint systems, and other fabricated work. Provide layouts at 1/4-inch scale and details at 3-inch scale.

1.4 PROJECT CONDITIONS:

- A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 SHEET METAL FLASHING, GUTTERS AND DOWNSPOUTS, AND TRIM MATERIALS:

- A. Fabricate of **minimum 24-gage** metal, with minimum 50,000 p.s.i. yield, with **2-coat** full strength (70-percent) Kynar 500 resin (20-year) finish. Provide one of the following base metals, to be the same base metal used for other sheet metal applications and systems:
1. ASTM A 792 aluminum-zinc allow coated steel sheet (“Galvalume”), or
 2. ASTM A 653, G-90 (galvanized) zinc-coated steel sheet.
 3. Typical metal flashing, except where specifically indicated otherwise.
- B. Prefinished Metal Drip Edge: Brake-formed sheet metal with at least a 2-inch roof deck flange at shingles and at least 4-inch roof deck flange at any “flat” roofs; 1-inch flange extension to support any shingle roofing and 1/2” raised edge at single-ply roofing; with a 1-1/2-inch fascia flange with a 3/8-inch hemmed edge drip at lower edge at any shingle or metal roofing, which is not already included with metal roofing system. Furnish in lengths of at least 10 feet.
1. Furnish for metal roofing systems and metal flashing systems over 6” wide, if indicated in addition to metal roofing trim.
- C. Prefinished Metal Flashing and 2-Inch High Diverter Strips:
1. Install diverter strips 1’-0” above low roof edge(s) of sloped roofs, at all locations over exterior doors, and over exterior mechanical units where roof edge gutters or parapet walls do not occur.
- D. Finishes:
1. Finish for any exposed metal flashings, gutters, downspouts, coping systems, and similar items, etc. - Fluoropolymer Coating System: Manufacturer’s standard **2-COAT** (i.e.: primer and color coat), ; and note that the finish system may be a traditional liquid or powder coat, complying with AAMA 2605; thermo-cured, full-strength 70 percent resin “Kynar 500” coating and 30 percent reflective gloss when tested in accordance with ASTM D 523; Dry film thickness of 1.6-mils, minimum. Provide 2-coat finish on underside of panels where exposed to view in the finished work, and manufacturer’s standard primer and wash coating at concealed locations.
 2. Colors: As selected by Architect after Bid Date, from manufacturer’s standard non-metallic colors; Minimum 15 colors to select from, including color(s) to match material being flashed, or roofing or window framing, to include white.

2.2 FLASHING (AT VENT STACKS):

- A. For built-up and shingle roofing, provide 4-pound lead sheet, fabricated to extend 4 inches minimum onto roof and turn down 1 inch minimum down inside vent stacks.
- B. For metal roofing, provide preformed cone-shaped vinyl boot or split pipe boot counterflashing covers and with stainless steel draw-band at top; and counterflashing over curbs and other penetrations' flashings in same material and color as metal roofing.

2.3 MISCELLANEOUS MATERIALS AND ACCESSORIES:

- A. Solder:
 - 1. For use with steel or copper: Provide 50 - 50 tin/lead solder (ASTM B 32), with rosin flux.
 - 2. For use with stainless steel: Provide 60 - 40 tin/lead solder (ASTM B 32), with acid-chloride type flux, except use rosin flux over tinned surfaces.
- B. Fasteners: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened.
- C. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15-mil dry film thickness per coat.
- D. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, non-drying, nonmigrating sealant.
- E. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07900 - "Joint Sealers."
- F. Paper Slip Sheet: 5-lb. rosin-sized building paper.
- G. Counterflashing and Reglets: Metal units of type and profile indicated, or if not indicated, as required for the intended use, compatible with flashing indicated, noncorrosive.
- H. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of work, matching or compatible with material being installed, noncorrosive, size and gage required for performance.
- I. Provide precast concrete splashblock sloped away from building, approximately 12-inches wide x 24-inches long x 2-inches thick x 3-inches high, with 3-raised edges and one "open" end turned toward building – at locations where downspouts would otherwise drain on grade or paving.

2.4 FABRICATED UNITS:

- A. General Metal Fabrication: Shop-fabricate work to greatest extent possible. Comply with details shown and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to

permanently prevent leakage, damage, or deterioration of the work. Form work to fit substrates. Comply with material manufacturer instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

1. At metal roofing and horizontal or sloped metal flashings over 6-inches wide, provide custom configurations and continuous brake-metal roofing system, with continuous concealed clip anchors rated for I-90 uplift conditions, with 1-inch high standing seam Pittsburgh lock-seam joints - filled with sealant, double-folded, and corners turned down at 45-degrees.
 2. Provide matching materials and finish for fascia metal covering, flashing, counterflashing and trim.
- B. Seams: Fabricate nonmoving seams in sheet metal with standing seam at exposed tops and lapped side or edge seams. For metal other than aluminum, tin edges to be seamed, form seams, and solder. Form aluminum seams with epoxy seam sealer. Pop-riquet joints for additional strength where required and at vertical faces.
- C. Separations: Provide for separation of metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
- D. Gutters: Form in “continuous” sections with the least number of joints, unless otherwise indicated, complete with end pieces, outlet tubes and other special pieces as required. Size as indicated on the Drawings, or if not indicated, size in accordance with SMACNA and submit for approval prior to fabrication. Join sections with riveted and soldered or sealed joints, concealed wherever possible. Provide expansion-type slip joint at locations indicated, or if not indicated, as recommended by SMACNA for the metal being used.
1. Furnish gutter supports spaced 36-inches on center, or 32-inches on center at 16” metal roofing panels, or 48-inches on center at 24” metal roofing panels, constructed of same metal as gutters.
 2. Provide bronze, copper, or aluminum wire ball strainers at outlets, which are slightly below front edge of gutters and not visible from normal view.
 3. Finish shall be as indicated, or if not indicated, to match roofing, roof edge fascia and rake, or as selected by Architect.
- E. Downspouts: Form in 10-foot-long sections, complete with elbows, offsets and other special pieces as required. Join sections with 1-1/2-inch telescoping joints. Provide off-set anchor straps / supports designed to hold downspouts securely 1-inch away from walls; locate anchor straps / supports at top and bottom and equally spaced at approximately 5-feet on center in between. Finish shall be as indicated, or if not indicated, to match gutters, roof edge fascia and rake, or as selected by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS:

- A. General: Except as otherwise indicated, comply with manufacturer’s current written installation instructions and recommendations, with SMACNA “Architectural Sheet Metal Manual,” and reviewed submittals and shop drawings.

1. Install manufactured, bought-out items in accordance with manufacturer's current written instructions and recommendations.
 2. Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Underlayment: Where stainless steel or aluminum is to be installed directly on cementitious or wood substrates, install a slip sheet of red rosin paper and a course of polyethylene underlayment.
- C. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.
- D. Install reglets to receive counterflashing in manner and by methods indicated, in a straight line and single elevation.
- E. Install counterflashing in reglets, by snap-in seal arrangement for anchorage and filling reglet with mastic or elastomeric sealant, as indicated and depending on degree of sealant exposure, or if not indicated, as recommended by referenced standards, flashing and roofing manufacturers, and otherwise as required for the intended application.
- F. Nail or anchor flanges of expansion joint units to curb nailers, at maximum spacing of 6 inches o.c. Fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof system.
- G. Flashing:
1. Comply with manufacturer's current written instructions and recommendations for installation of all systems components in all applications indicated on the Drawings, and as otherwise required by project conditions.
 2. At any parapet wall and roof curbs applications, extend flashing continuous, over top of wall or curb, and turn down one inch (1") minimum on exterior side of wall and mechanically anchor in place at side of top of wall, below and concealed by continuous metal clip anchor (acting as termination bar) and metal cap flashing or coping, and down over top edge of roofing flashing material at roof side.
- H. Provide 1-precast concrete splashblock at each downspout which drains onto grade, and 1-preformed metal pan at each downspout which drains onto roof below.

3.2 CLEANING AND PROTECTION:

- A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.
1. After cleaning, repair and restore damaged metal and metal finishes with prefinished paint manufacturer's special air-drying touch-up paint, in manner such that touch-up is not apparent.
 2. Replace damaged flashing and sheet metal work which cannot be repaired and when finish repair and restoration is not acceptable to Architect.

- B. Protection: Advise Contractor of required procedures for surveillance and protection of flashings and sheet metal work during construction to ensure that work will be without damage or deterioration other than natural weathering at time of Substantial Completion.

END OF FLASHING AND SHEET METAL

SECTION 07 9000

JOINT SEALERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 03 2000 - "Concrete"
 - 2. Section 04 2000 - "Unit Masonry"
 - 3. Section 06 2000 - "Finish Carpentry"
 - 4. Section 07 6000 - "Flashing and Sheet Metal"
 - 5. Section 09 9000 - "Painting"

1.2 DESCRIPTION OF WORK:

- A. Work described in this section includes joint sealer systems.

1.3 SYSTEM PERFORMANCES:

- A. Provide joint sealers that have been produced and installed to establish and maintain watertight and airtight continuous seals.

1.4 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an Installer who has successfully completed within the last three years at least 3 joint sealer applications similar in type and size to that of this project and who will assign mechanics from these earlier applications to this project, of which one will serve as lead mechanic.
- B. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.
- C. Refer to Division 1 Section "Special Conditions", for additional information and minimum experience requirements.

1.5 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: Submit manufacturer's complete product specifications, handling/installation/curing instructions, color charts and performance tested data sheets for each product required.

1.6 DELIVER, STORAGE AND HANDLING:

- A. Comply with manufacturer’s current written instructions and recommendations.
- B. Deliver materials to project site in original unopened containers or bundles with labels informing about manufacturer, product name and designation, color, expiration period for use, pot life, curing time and mixing instructions for multi-component materials.
- C. Store and handle materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
- D. Refer to Division 1 Sections “Summary of Work” and “Special Conditions” for additional information and requirements regarding stored materials.

1.7 PROJECT CONDITIONS:

- A. Environmental Conditions: Do not proceed with installation of joint sealers under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealer manufacturer or below 40° F.
 - 2. When joint substrates are wet due to rain, frost, condensation or other causes.
- B. Joint Width Conditions: Do not proceed with installation of joint sealers when joint widths are less than allowed by joint sealer manufacturer for application indicated.
- C. Asbestos Prohibited: Refer to Section 01015 - “Special Conditions”.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL:

- A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by testing and field experience.
- B. Colors: Provide color of exposed joint sealers indicated, or if not indicated, as selected by Architect from manufacturer’s standard colors, to include colors to match window/storefront framing, metal panels, roofing, flashing and fabrications.

2.2 ELASTOMERIC JOINT SEALANTS:

- A. Elastomeric Sealant Standard: Provide manufacturer’s standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C 920 requirements, including those for Type, Grade, Class and Uses.
- B. Multi-Part Nonsag Urethane Sealant: Type M, Grade NS, Class 25, Uses NR, M, A and, as applicable to joint substrates indicated, O.

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems, “MasterSeal NP 2” (formerly Sonneborn “Sonolastic NP2”)
 - b. Pecora Corp., “Dynatrol II”
 - c. Sika Corporation, “Sikaflex 2CNS”
 - d. Tremco, Inc., “Dymeric 240FC”
 2. Locations for Use: Exterior joints and penetrations in vertical surfaces of concrete, and between metal and concrete, mortar of stone; overhead or ceiling joints; perimeters of metal frames in exterior walls; vertical expansion and control joints in masonry and concrete; and at all miscellaneous locations requiring a joint sealant.
 3. Equivalent 1-part sealants will be acceptable for interior surfaces only, by one of the above named manufacturers.
 4. Where used in conjunction with stucco or EIFS, provide 1-part non-yellowing aliphatic polyurethane, equivalent to one of the following:
 - a. BASF Building Systems, “MasterSeal CR 195” (formerly Sonneborn “Ultra”)
 - b. Pecora Corp., “Dynatrol I-XL Tru-White”
- C. Two-Part Pourable Urethane Sealant: Type M, Grade P, Class 25; Uses T, M, A and, as applicable to joint substrates indicated, O.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Building Systems, “MasterSeal SL 2 “(formerly Sonneborn “Sonolastic SL2”);
 - b. Bostik Findley, “Chem-Calk 550”.
 - c. Pecora Corporation, “NR-200 Urexpan”.
 - d. Sika Corporation, “Sikaflex 2CSL”
 - e. Tremco, Inc., “THC-900/901”.
 - f. Tremco, Inc., “Vulkem 45SSL”.
 - g. W. R. Meadows, Inc., “Pourthane”.
 2. Locations for Use: Exterior and interior expansion, control and construction joints in horizontal surfaces; and joints subject to pedestrian and light vehicular traffic.
- D. One-Part Mildew-Resistant Silicone Sealant: Type S, Grade NS; Class 25, Uses NT, G, A and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide for sealing interior joints with nonporous substrates around ceramic tile, showers, sinks and plumbing fixtures.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corp., “Dow-Corning 786”
 - b. General Electric, “SCS 1702”.
 - c. Pecora Corp., “863 #345 White”
 - d. Sika Corporation, Sikasil GP
 - e. Tremco, Inc., “Tremsil 200”; White, Clear.

2. Locations for Use: Interior joints in vertical surfaces and terminal edges of tile; and joints At damp areas, such as around sinks and plumbing fixtures and pipe penetrations; and exposed terminal edges of vinyl flooring, such as around door frames and terminations at concrete.

2.3 LATEX JOINT SEALERS:

- A. Acrylic-Emulsion Sealant: Manufacturer’s standard, one part nonsag, acrylic, mildew resistant, acrylic emulsion sealant complying with ASTM C 834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior exposures involving joint movement of not more than $\pm 7.5\%$.
 1. Products: Subject to compliance with requirements, provide with one of the following:
 - a. “Chem-Calk 600”; Bostik Construction Products Div.
 - b. “AC-20”; Pecora Corp.
 - c. “Tremflex 834”; Tremco Inc.
 2. Locations for Use: Interior joints in field-painted vertical and overhead surfaces at perimeter of metal door frames, gypsum drywall, plaster and concrete or concrete masonry; and all other interior locations not indicated otherwise.

2.4 JOINT SEALANT BACKING:

- A. General: Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Plastic Foam Joint-Fillers:
 1. Preformed, compressible, resilient, non-waxing, non-extruding strips of plastic foam of material indicated below, and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 2. Backer Rod: Premium grade, closed cell polyethylene foam rod; Sealtight Backer Rod, as manufactured by W.R. Meadows, Inc., or approved equivalent.
 3. Joint Filler: “Ceramar” flexible foam expansion joint filler, as manufactured by W.R. Meadows, Inc., or approved equivalent.
- C. Bond Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing bond between sealant and joint filler or other materials at back (3rd) surface of joint. Provide self-adhesive tape where applicable.

2.5 MISCELLANEOUS MATERIALS:

- A. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated.

- B. Cleaners for Nonporous Surfaces: Provide non-staining, chemical cleaner of type acceptable to manufacturer of sealant and sealant backing materials which are not harmful to substrates and adjacent nonporous materials.
- C. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surface adjacent to joints.
- D. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork in preformed strips.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Require Installer to inspect joints indicated to receive joint sealers for compliance with requirements for joint configuration, installation tolerances and other conditions affecting joint sealer performance. Obtain Installer's written report listing any conditions detrimental to performance of joint sealer work. Do not allow joint sealer work to proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION:

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; waterproofing; water repellents; water; surface dirt and frost.
 - 2. Clean concrete, masonry, unglazed surfaces of ceramic tile and similar porous joint substrate surfaces, by brushing, grinding, blast cleaning, mechanical abrading, acid washing or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealers. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove latence and form release agents from concrete.
 - 4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile and other non-porous surfaces by chemical cleaners or other means which re not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on preconstruction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by

cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALERS:

- A. General: Comply with joint sealer manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications and conditions indicated.
- C. Latex Sealant Installation Standard: Comply with requirements of ASTM C 790 for use of latex sealants.
- D. Installation of Sealant Backings:
 - 1. Install sealant backings to comply with the following requirements:
 - 2. Install joint-fillers of type indicated or recommended by sealant manufacturer to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint-fillers.
 - b. Do not stretch, twist, puncture or tear joint-fillers.
 - c. Remove absorbent joint-fillers which have become wet prior to sealant application and replace with dry material.
 - 3. Install bond breaker tape between sealants and joint-fillers, compression seals or back of joints where required to prevent third-side adhesion of sealant to back of joint.
- E. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants:
 - 1. Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
 - 2. Concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 PROTECTION AND CLEANING:

- A. Protect joint sealers during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of substantial completion. If, despite such protection, damage

or deterioration occurs, cut out and remove damaged or deteriorated joint sealers immediately and reseal joints with new materials to produce joint sealer installations with repaired areas indistinguishable from original work.

- B. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.

END OF JOINT SEALERS

SECTION 08 1100

STEEL DOORS AND FRAMES

PART - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 06 1000 - "Rough Carpentry"
 - 2. Section 08 7100 - "Finish Hardware"
 - 5. Section 09 9000 - "Painting"

1.2 DESCRIPTION OF WORK:

- A. Work described in this section includes steel doors and steel frames.
 - 1. All frames shall be equally and double rabbetted; except where single-rabbetted frames are specifically indicated on the Drawings - if any.

1.3 QUALITY ASSURANCE:

- A. Provide doors and frames complying with Steel Door Institute "Recommended Specifications: Standard Steel Doors and Frames" (SDI-100) and as herein specified.
- B. Fire-Rated Door Assemblies:
 - 1. Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows," and have been tested, listed and labeled in accordance with ASTM E 152 "Standard Methods of Fire Tests of Door Assemblies" by a nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
 - 2. Labels mounted on doors and door frames must indicate the time rating of the door/frame assembly.

1.4 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: Submit manufacturer's technical product data substantiating that products comply with requirements.
- C. Shop Drawings:
 - 1. Submit for fabrication and installation of steel doors and frames. Include details of each frame type, elevations of door design types, conditions at openings, details of

construction, location and installation requirements of finish hardware and reinforcements, and details of joints and connections. Show anchorage and accessory items.

2. Provide schedule of doors and frames using same reference numbers for details and openings as those on contract drawings.
3. Coordinate glazing frames and stops with glass and glazing requirements.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Comply with manufacturer's current written instructions and recommendations.
- B. Deliver hollow metal work cartoned or crated to provide protection during transit and job storage. Provide additional sealed plastic wrapping for factory finished doors.
- C. Inspect hollow metal work upon delivery for damage. Minor damages may be repaired provided finish items are equivalent in all respects to new work and acceptable to Architect; otherwise, remove and replace damaged items as directed.
- D. Store doors and frames at building site under cover. Place units on minimum 4-inch-high wood blocking. Avoid use of non-vented plastic or canvas shelters which could create humidity chamber. If cardboard wrapper on door becomes wet, remove carton immediately. Provide 1/4-inch spaces between stacked doors to promote air circulation.
- E. Refer to Division 1 Sections "Summary of Work" and "Special Conditions" for additional information and requirements regarding stored materials.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Manufacturer: Subject to compliance with requirements, provide steel doors and frames by one of the following:
 1. Steel Doors and Frames, (General):
 - a. Amweld Div, American Welding & Mfg. Co.,
 - b. Builder's Manufacturing Company
 - c. Ceco Corp.
 - d. Curries Manufacturing, Inc.
 - e. Dittco Products Inc.
 - f. Fenestra Corp.
 - g. Habersham Metal Products Company
 - h. Mesker Industries, Inc.
 - i. MPI Group.
 - j. Overly Manufacturing Company
 - k. Pioneer Bldrs. Products Corp./Div. CORE Industries, Inc.
 - l. Republic Builders Products Corp./Subs. Republic Steel.
 - m. SteelCraft/Div. American Standard Co.

2.2 MATERIALS:

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 569 and ASTM A 568.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM SA 568.
- C. Galvanized or Galvanealed Steel Sheets; Smooth and Paintable Finish: Zinc-coated carbon steel sheets of commercial quality, complying with ASTM A 526, with ASTM A 525, G60 zinc coating, mill phosphatized; or ASTM A60 Galvannealed.
- D. Supports and Anchors: Fabricate of not less than 18-gage galvanized sheet steel.
- E. Inserts, Bolts and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.
- F. Galvanizing Repair Paint: High zinc dust content paint for repair of galvanized surfaces damaged by fabrication or welding, complying with M.I. Specification MIL-P-21035.
- G. Shop Applied Primer: Rust-inhibitive enamel or paint, either air drying or baking, suitable as a base for specified finish paints.

2.3 FABRICATION:

- A. Fabricate steel door and frame units to be rigid, neat in appearance and free from defects, warp or buckle. Wherever practicable, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at project site.
- B. Fabricate exposed faces of doors and panels, including stiles and rails of non-flush units, from only cold-rolled steel.
- C. Fabricate frames, concealed stiffeners, reinforcement, edge channels, louvers and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).
- D. Fabricate exterior doors, panels and frames from galvanized sheet steel. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gauge inverted steel channels.
 - 1. Use galvanizing repair paint for surfaces damaged by fabrication or welding.
- E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.
- F. Thermal-Rated (Insulating) Assemblies:
 - 1. At exterior locations and elsewhere as shown or scheduled, provide doors which have been fabricated as thermal insulating door and frame assemblies and tested in accordance with ASTM C 236.
 - 2. Unless otherwise indicated, provide urethane insulated thermal-rated assemblies with U factor of 0.12 Btu, (hr. x sq. ft. x deg. F) at 15 mph exterior wind velocity when tested in accordance with ASTM C 1363, or better.

G. Finish Hardware Preparation:

1. Prepare doors and frames to receive mortise and concealed finish hardware in accordance with final Finish Hardware Schedule and templates provided by hardware supplier. Comply with applicable requirements of ANSI A 115 series specifications for door and frame preparation for hardware.
2. Reinforce doors and frames to receive surface applied hardware. Drilling and tapping for surface-applied finish hardware may be done at project site.
3. Locate finish hardware as indicated on final shop drawings, or if not indicated, in accordance with "Recommended Locations for Builders' Hardware," published by Door and Hardware Institute.

H. Shop Painting:

1. Clean, treat and paint exposed surfaces of steel door and frame units, including galvanized surfaces.
2. Clean steel surfaces of mill scale, rust, oil, grease, dirt and other foreign materials before application of paint.
3. Use galvanizing repair paint for surfaces damaged by fabrication or welding, prior to prime coat.
4. Apply shop coat of prime paint of even consistency to provide a uniformly finished surface ready to receive finish paint.
5. Do not paint fire labels on doors or frames.

2.4 STANDARD STEEL DOORS:

- A. Provide metal doors of types and styles as indicated on drawings or schedules, of seamless, hollow steel construction with 16-gauge face sheets. Form exterior doors of hot dip galvanized steel.

2.5 STANDARD STEEL FRAMES:

- A. Provide metal frames for doors, transoms, sidelights, borrowed lights, and other openings, of types and styles as shown on drawings and schedules. Conceal fastenings, unless otherwise indicated. Fabricated frames of minimum 16-gauge cold-rolled furniture steel.
1. Frames for doors 7'-10" or more in height and/or over 3'-5" in width: 14 gauge cold-rolled furniture steel, and one additional hinge, whether or not indicated in hardware schedule.
- B. Frames shall be formed by press brake with corners sharp and true. Corners shall be mitered and accurately fitted, and shall be fully electrically welded and then ground smooth. Removable spreaders shall be welded to the bottom of the frame. Frames shall be accurately mortised for hardware.
- C. A minimum of three wall anchors shall be provided at each jamb, except four at doors 7'-10" high or more, and six at doors 10-foot high or more. Anchors shall be attached to door frames, adjustable, suitable for wall conditions and job requirements, and shall be 16 gauge minimum. Floor anchors shall be provided and welded to foot of each jamb with two 5/16" holes for securing to the floor.

- D. Reinforcements of adequate gauge shall be provided for strikes, closers and brackets and other surface applied hardware for field drilling and tapping.
- E. Form exterior frames of hot dip galvanized steel.
- F. Door Silencers: Except on weatherstripped frames, drill stops to receive 3 silencers on strike jambs of single-swing frames and 2 silencers on heads of double-swing frames. Provide silencers equivalent to “GJ64” silencers as manufactured by Glenn-Johnson Corp., for metal frames, when not provided under the work of Section 08710 - “Finish Hardware.”
 - 1. Provide additional door silencers at doors over 3’-0” wide or 7’-0” in height.
- G. Plaster Guards: Provide 26-gauge steel plaster guards or mortar boxes, welded to frame, at back of finish hardware cutouts where mortar or other materials might obstruct hardware operation.

2.6 DOOR LOUVERS:

- A. Provide prefinished louvers according to SDI 111C, at locations indicated, with blades or baffles formed of 0.0239-inch (0.6-mm) thick cold-rolled steel sheet set into minimum 0.0359-inch (0.9-mm) thick steel frame; Galvanized at exterior.
 - 1. Sight-Proof Louvers: Stationary louvers constructed with inverted Y-shaped blades. Minimum free air area calculated per AMCA shall be 36-percent.
 - a. Refer to Division 15 “Mechanical” for door louvers with fire dampers.
 - 2. Finish:
 - a. Surface Preparation: Solvent clean surfaces to comply with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel, to comply with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling).
 - b. Pretreatment: Immediately after surface preparation, apply conversion coating of type suited to organic coating applied over it.
 - c. Baked Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer’s standard 2-coat baked enamel finish, consisting of prime coat and thermosetting topcoat that complies with ANSI A250.3. Comply with paint manufacturer’s current written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils (0.0508 mm).
 - d. Color and Gloss: As selected by Architect from manufacturer’s full range of choices for standard non-metallic colors and gloss.
 - 3. Final finish painting is specified in Section 09900 - “Painting,” not the work of this Section 08110.
- B. Provide removable bird screens for exterior louvers.
 - 1. Fabricate screen frames of same metal and finish as louver units to which secured, unless otherwise indicated.
 - 2. Provide frames consisting of U-shaped metal for permanently securing screen mesh.
 - 3. Use 1/4-inch x 1/4-inch mesh formed with 0.063-inch diameter aluminum wire.
 - 4. Color: To match louver, or black.

5. Locate screens on inside face of louvers. Secure screens to louver frames with machine screws, spaced at each corner and at 12-inch o.c. between.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. General: Install standard steel doors, frames and accessories in accordance with final shop drawings and manufacturer's data, and as herein specified.
- B. Placing Frames:
 1. Comply with provisions of SDI-1-06 "Recommended Erection Instructions for Steel Frames," unless otherwise indicated.
 2. Except for frames located at in-place concrete or masonry, place frames prior to construction of enclosing walls and ceilings. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged.
 3. In masonry construction, locate a minimum of 3 wall anchors per jamb at hinge and strike levels. Add 1 wall anchor per jamb at hinge and strike levels for each whole 1'-10" height increment over 6'-0"; Similar at glazed and cased openings. Fill solid with grout as adjacent construction progresses.
 4. At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.
 5. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. Attach wall anchors to studs with tapping screws. Add additional anchors as indicated in Paragraph 3.1-B3 above.
 6. Install fire-rated frames in accordance with NFPA Std. No. 80.
- C. Door Installation:
 1. Fit hollow metal doors accurately in frames, within clearances specified in SDI-100.
 2. Place fire-rated doors with clearances as specified in NFPA Std. No. 80.
 3. Install silencers after all painting of doors and frames has been completed.

3.2 ADJUST AND CLEAN:

- A. Prime Coat Touch-up:
 1. Immediately after erection, sand smooth any rusted or damaged areas of prime coat and apply touch-up of compatible air-drying primer.
 2. Use galvanizing repair paint for galvanized surfaces, prior to prime coat.
- B. Final Adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

END OF STEEL DOORS AND FRAMES

SECTION 08 3310

OVERHEAD COILING DOORS

PART I - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 04 2000 - "Unit Masonry"
 - 3. Section 06 1000 - "Rough Carpentry"
 - 4. Section 09 9000 - "Painting"

1.2 SUMMARY:

- A. This Section includes the following types of overhead coiling doors:
 - 1. Manual operated, prefinished powder-coat finish, non-rated, galvanized, overhead doors, with complete weatherstripping, hood with internal baffle, and all standard accessories, controls, and as indicated on the Drawings, and all related work.

1.3 DEFINITIONS:

- A. Operation Cycle: One complete cycle of a door begins with the door in the closed position. The door is then moved to the open position and back to the closed position.

1.4 PERFORMANCE REQUIREMENTS:

- A. Structural Performance: Provide overhead coiling doors capable of withstanding the effects of gravity loads and the following loads and stresses without evidencing permanent deformation of door components, and as otherwise required by applicable codes and actual project conditions:
 - 1. Wind Load (minimum): Wind Speed of **100 MPH** unless higher wind speed is indicated on Structural Drawings or otherwise required by applicable codes and authorities having jurisdiction; Uniform pressure (velocity pressure) of not less than 20 lbf/sq. ft., acting inward and outward for exterior conditions, and 5lbf/sq. ft. at interior conditions.
- B. Operation-Cycle Requirements: Design overhead coiling door components and operator to operate for not less than 20,000 cycles and for 10 cycles per day.
 - 1. Include tamperproof cycle counter.

1.5 SUBMITTALS:

- A. Product Data: For each type and size of overhead coiling door and accessory. Include details of construction relative to materials, dimensions of individual components, profiles, and finishes.

Provide roughing-in diagrams, operating instructions, and maintenance information. Include the following:

1. Setting drawings, templates, and installation instructions for built-in or embedded anchor devices.
 2. Summary of forces and loads on walls and jambs.
- B. Shop Drawings: For special components and installations not dimensioned or detailed in manufacturer's data sheets.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of standard and custom colors available for units with factory-applied powder-coat finishes.
- D. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.
- E. Sample of written warranties and guarantees.

1.6 QUALITY ASSURANCE:

- A. Installer Qualifications: Engage an experienced installer who is an authorized representative of the overhead coiling door manufacturer for both installation and maintenance of units required for this Project.
- B. Source Limitations: Obtain overhead coiling doors through one source from a single manufacturer.
1. Obtain operators and controls from the overhead coiling door manufacturer.

1.7 WARRANTIES AND GUARANTEES:

- A. Manufacturer's Warranty: Manufacturer's standard guarantees and warranties for products, components, finishes, labor and materials, and total overhead coiling door assemblies. Signed by an authorized representative of overhead coiling doors manufacturers, on form published with current product literature as of date of Contract Documents.
- B. The Guarantees and Warranties shall be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents, and shall not deprive or limit the Owner of any other rights the Owner may have for remedy.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
1. Alpine Overhead Doors, Inc.
 2. Atlas Door Corp.; Div. of Clopay Building Products Co.
 3. The Cookson Company.
 4. Cornell Iron Works Inc.

5. Dynamic Closures (1995) LTD.
6. Mahon Door Corp.
7. McKeon Rolling Steel Door Company, Inc.
8. Overhead Door Corporation (*Basis of Design, quality and warranty*).
9. Pacific Rolling Door Co.
10. Raynor Garage Doors.
11. Roll-Lite Door Corp.; Div. of Clopay Building Products Co.
12. Southwestern Steel Rolling Door Co.
13. Wayne-Dalton Corp.
14. Windsor Door; A United Dominion Company.

2.2 SERVICE DOORS:

- A. Manual Operated Overhead Coiling Door - Non-Rated: Provide Series No. 625, galvanized steel assembly and construction, as manufactured by Overhead Door Corporation; Dallas, Texas (1-800-887-3667 or 1-706-548-0534), and as specified, or equivalent by one of the above named manufacturers, complete with all standard features and accessories, and as follows:
1. Flat profile 24-gauge galvanized steel insulated slats; Steel Door Curtain Slats: Zinc-coated (galvanized), cold-rolled structural steel sheet; complying with ASTM A 653/A 653M, with G90 (Z275) zinc coating; nominal sheet thickness (coated) of 0.028 inch (0.71 mm) and as required to meet requirements.
 2. Insulation: CFC-free and HCFC-free polyurethane.
 3. Finish: Factory prepared and applied custom color baked enamel powder-coat finish; Color selection shall be from full range of standard and custom non-metallic colors.
 4. Galvanized structural steel angles at bottom bar with astragal, with combination bottom weatherseal and pneumatic sensor edge.
 5. Roll-formed galvanized steel guides, with weatherstripping, end-locks and wind-locks.
 6. Torsion springs counterbalance mechanism.
 7. Galvanized steel hood, box-shaped, 24-gauge, with internal weather / wind baffle.
 8. Manual operation, with interior slide bolt locking bars equipped to accept padlocks.
 9. Designed for face-of-wall mounting, unless between jambs mounting is indicated on the Drawings.
 10. Weatherseals: Bottom, exterior guides, interior hood, and interior guides.
 11. Push/Pull Handles: For manual push-up- emergency operation of doors, provide galvanized steel lifting handles on each side of door and chain hoist operator.
 - a. Provide pull-down straps or pole hooks for doors more than 84-inches high.

2.4 FINISHES, GENERAL

- A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. General: Install doors and operating equipment complete with necessary hardware, jamb and head mold strips, anchors, inserts, hangers, and equipment supports according to reviewed Shop Drawings, manufacturer's current written instructions, and as specified.
- B. Provide complete installation with all standard and listed optional accessories and features, so as to provide complete, properly operating and fully functional installations.

3.2 ADJUSTING:

- A. Lubricate bearings and sliding parts; adjust doors to operate easily, free from warp, twist, and/or distortion, and fitting weathertight for entire perimeter.
- B. Repair damaged components and restore damaged finishes, to original and unnoticeable condition, or replace.

END OF OVERHEAD COILING DOORS

SECTION 08 7100

FINISH HARDWARE

PART 1 - GENERAL

1.1 WORK INCLUDED:

- A. The work in this section shall include the furnishing of all items of finish hardware as hereinafter specified, or obviously necessary to complete the building, except those items which are specifically excluded from this section of the specification.
- B. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 RELATED WORK:

- A. The following section of this specification should be examined in order to identify materials or equipment which may be obtained through this section.
 - 1. Section 08 110 - "Steel Doors and Frames"

1.3 DESCRIPTION OF WORK:

- A. Finish Hardware: Hardware used in building construction but particularly that used on or in connection with doors, frames, cabinets and other movable members. It also has a finished appearance as well as functional purpose and may be considered as a part of the decorative treatment of a room or building.

1.4 QUALITY ASSURANCE:

- A. Hardware has been specified herein by manufacturers' name, brand and catalog numbers for the purpose of establishing a basis for quality, finish, design and operational function. No other products will be furnished unless approved by means of 1.4 Paragraph "D".
- B. To insure a uniform basis of acceptable materials, it is the intention that only manufacturers' item specified as "acceptable and approved" be furnished for use on this project.
- C. Deviation from or modification of items will be permitted only for special instances caused by reason of construction characteristics and for the purpose of providing proper operational function. The contractor shall be responsible for checking any necessary deviations in order that hardware shall fit and function properly.
- D. Substitutions: Request for substitutions of items of hardware other than those listed as "acceptable and approved" shall be made to the architect no later than ten (10) days prior to bid opening. Approval of substitutions will only be given in writing or by Addenda. Requests for substitutions shall be accompanied by samples and/or detailed information for each manufacturer of each product showing design, functions, material thickness and any other pertinent information needed to compare your product with that specified. Substitution requests for mortise locks, door closers and exit devices shall include a physical sample. Lack of this information will result in a refusal.

- E. Supplier: A recognized builders hardware supplier whose principal office and place of business is located within 150 miles of the project site, who has been furnishing hardware in the project's vicinity for a period of not less than five (5) years; and who is, or has in full time employment an Architectural Hardware Consultant (AHC) in good standing as certified by the American Society of Architectural Hardware Consultants, or equivalent, and who is a direct distributor of the products approved, for warranty purposes. This paragraph will be strictly enforced. All schedules shall be signed by an AHC.

The supplier must have demonstrated willingness to coordinate field problems, and (upon reasonable compensation) to assist the Owner in re-keying and service operations. He must have a reputation for supplying quality material. Pre-bid approval is required; the following are accorded such approval in advance:

1. Mullins Building Products; Montgomery, AL
2. Brabner & Hollon; Mobile, AL
3. Builders Door & Hardware; Dothan, AL
4. Building Specialties; Birmingham, AL
5. Commercial Door Products; Montgomery, AL
6. Contract Hardware and Specialty Co.; Columbus, GA
7. Dothan Commercial Door; Dothan, AL
8. Mullins Building Products; Birmingham, AL
9. Rayford & Associates, Inc., Mobile, AL
10. Scarborough Door & Hardware; Florence, AL
11. Southern Sash; Montgomery, AL
12. U. S. Security Systems; Montgomery, AL
13. Wagstaff Taylor; Birmingham, AL
14. Kelley Brothers, Daphne, AL
15. Alabama Door & Hardware, Vance, AL

- F. Products and installation under the work of this Section shall be in compliance with, in part, at least the more stringent provisions of the following, either the latest edition or latest adopted edition of the locality, and all revisions and amendments thereto:

1. Americans With Disabilities Act of 1990 (ADA) "Accessibility Guidelines" (ADA-AG), and all revisions and amendments thereto.
2. "2010 ADA Standards for Accessible Design", Published in the Federal Register September 15, 2010.
3. American National Standards Institute (ANSI), ANSI A 117.1, 2009.
4. Uniform Federal Accessibility Standards (UFAS).
5. International Building Code, either the latest edition or latest adopted edition of the locality as applicable at the project locale.
6. Where this requires any substitution of products specified herein, advise Architect in writing for necessary approvals.

1.5 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. The finish hardware supplier shall, after award of a formal contract submit to the architect, six (6) complete computerized or typewritten (handwritten are not acceptable) copies of the

proposed finish hardware schedule for approval. The schedule shall be prepared using the “sequence and format” for the Door and Hardware Institute (DHI). After approval of the schedule the hardware supplier shall provide three (3) copies of this approved schedule to the contractor for file and distribution purposes. Hardware will not be ordered by the hardware supplier until an approved schedule has been received. Horizontal schedules will not be acceptable. Provide vertical format.

- C. When submitting schedules for approval, include two manufacturers’ cut sheets on each hardware item proposed. Index it with the use of number or letters or a combination of both, with the hardware schedule. The index numbers/letters are to be in right hand column on the same line as the respective manufacturers’ numbers. All manufacturers’ numbers shall be indexed even when appearing more than once.
- D. Templates: The hardware supplier shall provide necessary templates and/or physical hardware to all trades requiring them in order that they may cut, reinforce or otherwise prepare their material or product to receive the hardware item. If physical hardware is required by any manufacturer the hardware supplier shall ship to them such hardware via prepaid freight in sufficient time to prevent any delay in the execution of their work.

1.6 DELIVERY, STORAGE, AND HANDLING:

- A. Comply with manufacturer’s current written instructions and recommendations.
- B. All items of hardware to be delivered to the job site shall be of completely packaged with all necessary screws, bolts, miscellaneous parts, instructions and where necessary installation templates for manufacturers’ suggested installation. All boxes are to have a typed label with door hand, room location, item number and keying to conveniently identify them and their intended location in the building.
- C. A representative of the general contractor shall receive the hardware when delivered at the job site. A dry locked storage space complete with shelving, shall be set aside for the purpose of unpacking, sorting, checking and storage.
- D. Finish hardware shall be delivered to the general contractor by the hardware supplier. Direct factory shipments to the job site are not acceptable.
- E. The hardware shall be jointly inventoried by the representative of the general contractor and the hardware supplier.
- F. Items damaged in shipment shall be replaced promptly and with proper material without additional cost to the general contractor.
- G. All hardware shall be handled in a manner to minimize marring, scratching or damage.

1.7 WARRANTY:

- A. Provide manufacturers warranties from hardware supplier as follows:
 - 1. Surface Door Closers: Ten years.
 - 2. Exit Devices: Mechanical: three years, Electro-Mechanical: one year.
 - 3. Locksets: Mortise: three years.
 - 4. All other Hardware: One year.

- B. The above warranties shall be in addition to, shall be in effect simultaneously with, and shall not alter other project or product warranties or guarantees, nor shall they serve as a limitation to other remedies available to the Owner.

PART 2 - SPECIFIC REQUIREMENTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Requirements for design, grade, function, finish, size and other distinctive qualities of each type of finish hardware is indicated in the hardware schedule at the end of this section.

2.2 FINISH OF HARDWARE:

- A. Finish of hardware items shall conform to ANSI A156.18 and unless otherwise specified in the hardware sets, shall be as listed below:
- | | |
|---------------------|--|
| Butts: | 652 |
| Continuous hinges | 628, except provide matching Kynar paint finish at aluminum door openings. |
| Locks and Latches | 626 |
| Closers | 689 |
| Exit Devices | 630 |
| Armor, Kick Plates | 630 |
| Miscellaneous Items | 626 or 630 |

2.3 HINGES:

- A. Templates Hinges: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template hinges which conform to ANSI whenever applicable.
- B. Hinge pins, except as otherwise indicated, shall be as follows:
1. Steel Hinges: Steel Pins.
 2. Non-Ferrous Hinges: Stainless Steel Pins
 3. Exterior Doors: Non-Removable Pins (NRP) or Security Stud
 4. Out-Swing Corridor Doors: Non-Removable Pins (NRP), whether specified in the hardware sets or not.
 5. Interior Doors: Non-Rising Pins
 6. Tips: Flat button and matching plug, finished to match leaves, except where hospital tip indicated.
 7. Three Knuckle.
- C. Where projection of door trim is such as to prevent desired degree of opening, the proper hinge width shall be provided to allow the door to clear the trim.
- D. Acceptable and approved only as follows:
1. Ives
 2. McKinney
 4. Bommer
- E. Substitutions allowed only as described under paragraph 1.4.D of this section.

2.4 CYLINDERS, KEYS AND KEYING:

- A. All new keyed locks, keyed removable mullions and exit devices shall be provided with new master keyed cylinders. All lock cylinders shall be Assa Abloy Sargent Signature series, large format, key removable core, no substitution allowed. All cylinders shall be factory keyed by Sargent. Controlled access patented master key system is required. Finish of cylinders shall match lock or exit device. Match existing keyways. All specific keying requirements are to be determined between the owner and hardware supplier.
- B. Provide temporary brass construction cores for use in all keyed cylinders and locks. General contractor shall be responsible for removal of temporary cores at the completion of project and shall install permanent cores.
- C. Key Quantities:
 - 1. 3 Operating keys per cylinder, 8 for keyed alike groups.
 - 2. 5 Master keys for each new master key group created.
 - 3. 12 Construction master keys
 - 4. 2 Permanent control keys
 - 5. 2 Construction Control Keys.

2.5 MORTISE LOCKSETS & LATCHSETS:

- A. Accepted and approved as follows:
 - 1. Sargent 8200 Series; Design: LW1P. Provide functions specified in hardware sets.
 - 2. Equal products: None as Sargent is owner standard as established for Shelton State Community College.
 - 3. Note: All levers shall be solid forged brass, satin chrome finish. Hollow or plastic filled levers will not be accepted. Escutcheons shall be forged or wrought brass, bronze or stainless steel.
- B. Provide function specified in the door hardware sets. All locks shall be equipped with strike dust boxes. Strike size shall be ASA 4 7/8". All locks shall be ANSI grade 1, UL listed for fire door use.
- C. Substitutions allowed only as described in paragraph 1.4.D of this section.

2.6 SURFACE DOOR CLOSERS

- A. Accepted and approved as follows:
 - 1. Scheduled Manufacturer and Product: Sargent 281series.
 - 2. Equal products: None as Sargent is owner standard as established for Shelton State Community College.

2.7 FLAT GOODS:

- A. Accepted and approved only as follows:

1. Ives *
 2. Rockwood
 3. Trimco
- B. It is the responsibility of the hardware supplier to provide proper screw attachments per wall or floor conditions for door stops.
- C. Provide stops for each and every interior and exterior opening. Wall stops shall be of cast brass or bronze plated finish to match lock trim finish.
- D. Kickplates and armor plates shall be equal to Ives “8400 series” and shall be mounted by sheet metal screws where indicated in hardware sets. All kick plates shall be .050" satin stainless steel, **beveled all 4 edges**, with screw holes drilled. **Pan-head screws or substitution of manufacturer supplied screws will not be acceptable.**
- E. Substitutions allowed only as described under paragraph 1.4.D of this section.

2.8 THRESHOLDS AND WEATHERSTRIPPING:

- A. Accepted and approved as follows:
1. Zero
 2. National Guard
 3. Pemko
- B. Substitutions allowed only as described under paragraph 1.4.D of this section.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Mount hardware units at heights indicated in “recommended locations for builders hardware” for (standard steel doors and frames), (custom steel doors and frames), (wood doors and frames) by the Door and Hardware Institute (DHI), except if otherwise specifically indicated or to comply with requirements of governing regulations, requirements for the disabled or handicapped, or if otherwise directed by the Architect.
- B. Degree of opening for doors with overhead holders, closers, etc., shall be included in the hardware schedule for the Architect's approval.
- C. All hardware shall be installed by tradesmen skilled in the application of commercial grade hardware.
- D. Install each hardware item in compliance with the instructions and recommendations. Securely fasten all parts to be attached. Fit faces of mortised parts snug and flush. Make sure all operating parts move freely and smoothly without binding, sticking or excessive clearance. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted and finished in another way, the hardware shall be removed and stored prior to the painting or finishing. Items shall then be reinstalled only when the finishes have been completed on the surface to which the hardware is to be applied.

- E. After installation, representative templates, instruction sheets and installation details shall be placed in a file folder to be turned over to the owner when the building is accepted. Included shall be at least five each of any special adjusting and/or installation tools furnished with the hardware by the manufacturers.

3.2 ADJUSTING AND CLEANING:

- A. Adjust and check each operating item of hardware to ensure correct operation and function. Units which cannot be adjusted to operate as intended for the application made shall be replaced.
- B. Final Adjustment: Wherever hardware installation is made more than one month prior to building acceptance or occupancy of a space or area. The installer shall return to the work during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items. Hardware shall be cleaned as necessary to restore current operation, function and finish. Door control devices shall be adjusted to compensate for final operation of heating and ventilating equipment.

3.3 PROTECTION:

- A. Whenever hardware is located in areas where it may be subject to damage during construction by handling, cleaning, etc., (e.g., painting, cleaning of bricks) it shall be protected and/or removed from its location until the hazardous condition is terminated.

3.4 GENERAL NOTES:

- A. Before installation of any hardware begins the contractor's installer shall contact the hardware supplier to discuss any special installation requirements for all hardware items. Their discussion shall include, but not be limited to such items as proper closer mounting, proper fasteners to be used for hardware, locksets and exit device backsets, etc.
- B. Electric power tools should be used on hardware fasteners so as to prevent damage to screw heads.
- C. Hardware supplier should verify all quantities in the following schedule.

3.5 SCHEDULES:

- A. Refer to Drawings for a general listing of hardware requirements and is not intended for use as a final hardware schedule. Any items of hardware required by established standards of practice, or to meet state and local codes shall be furnished whether or not specifically called out in the following listed groups.
- B. Supplier shall supply hardware for every numbered opening, whether specified in the above hardware sets or not. Hardware shall be same as similar openings.

END OF SECTION

SECTION 09 9000

PAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification sections, apply to this section.

1.2 SUMMARY:

- A. This Section includes surface preparation, painting, and finishing of exposed interior and exterior items and surfaces, except where noted otherwise.
 - 1. Surface preparation, priming, and finish coats specified in this section are in addition to shop priming and surface treatment specified under other sections.
- B. Paint exposed surfaces whether or not colors are designated in “schedules,” except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces. If color or finish is not designated, the Architect will select from standard colors or finishes available.
 - 1. Painting includes field painting exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment.
 - 2. Pipe identification tags end markers or bands, direction of flow arrows, voltage identification, etc., if any, are provided under Division 15 - “Mechanical”, and Division 16 - “Electrical.”
- C. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts, and labels.
 - 1. Examples of prefinished items not to be painted include, in part, the following factory-finished components:
 - a. Metal and plastic laminate toilet enclosures and partitions.
 - b. Acoustic materials.
 - c. Plastic laminate casework.
 - d. Finished mechanical and electrical equipment.
 - e. Light fixtures.
 - f. Switchgear.
 - g. Distribution cabinets.
 - h. Signage, Plaques, Directories, and Bulletin Boards.
 - i. Storefront.
 - j. Finish Hardware.

2. Examples of concealed surfaces not to be painted include, in part, wall or ceiling surfaces in the following generally inaccessible areas:
 - a. Foundation spaces.
 - b. Furred areas.
 - c. Utility tunnels.
 - d. Pipe spaces or chases.
 - e. Duct shafts.

 3. Examples of Finished metal surfaces not to be painted include, in part, the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plate.
 - d. Copper.
 - e. Bronze.
 - f. Brass.
 - g. Prefinished aluminum windows and trim.

 4. Examples of operating parts not to be painted include, in part, moving parts of operating equipment such as the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.

 5. Labels: Do not paint over Underwriter's Laboratories, Factory Mutual or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
- D. Related Sections: The following sections contain requirements that relate to this section:
1. Divisions 5 Sections, for shop priming metal work.
 2. Division 6 Sections, for shop priming woodwork.
- E. Where walls are indicated or otherwise required to be fire-rated and/or smokestop partitions, and at all corridor partitions, exit enclosures, and fire walls, they shall be effectively and permanently identified with signs or stenciling in a manner acceptable to the authority having jurisdiction. Such identification shall be above any decorative ceiling and in concealed spaces. Suggested wording, "Fire and Smoke Barrier - Protect All Openings":
1. Minimum size of lettering to be 1-1/2" high.
 2. Minimum of one sign or stencil at each side of each such wall.
 3. Maximum spacing of signs or stenciling at each side of continuous walls to be 20'-0" on center.

1.3 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product Data: Manufacturer's most current technical information, label analysis, and application instructions for each material proposed for use.
 - 1. List each material and cross-reference to scheduled paint types, and including each specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.
- C. Samples for initial color selection in the form of manufacturer's color charts from paint manufacturer intended for use.
- D. Samples for verification purposes: Provide samples of each color and material to be applied, with texture to simulate actual conditions, on representative samples of the actual substrate. Define each separate coat, including fillers and primers. Use representative colors when preparing samples for review. Resubmit until required sheen, color, and texture are achieved.
 - 1. Submit samples on the following substrates for the Architect's review of color and texture only: Stained or Natural Wood: Provide two 4- by 8-inch samples of natural and stained wood finish on actual wood surfaces.

1.4 QUALITY ASSURANCE:

- A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats. Use only thinners approved by paint manufacturer, and use only within the recommended limits.
- B. Coordination of Work: Review other sections in which primers are provided to ensure compatibility of the total systems for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify the Architect of any problems anticipated using the materials specified, prior to proceeding with work.
- C. Material Quality: Provide the manufacturer's best quality grade paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary names used to designate colors or materials are not intended to imply that products named are required or to exclude approved equivalent products of other manufacturers.
- D. Color Pigments: Pure, non-fading, applicable types to suite substrates and service indicated.
- E. Lead content in pigments or other painting materials and components is not allowed.
- F. Solvents and V.O.C. Compliance: At the time of this writing, sufficient product data and information is not available from paint manufacturers to specify new products to replace

solvent based products specified. If new regulations are in effect restricting use of solvents and/or they are not available at the time painting is required for this project, submit and provide the equivalent water-borne products to those specified, at no additional cost to the Owner.

1.5 DELIVERY, STORAGE, AND HANDLING:

- A. Comply with manufacturer's current written instructions and recommendations.
- B. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:
 - 1. Product name or title of material.
 - 2. Product description (generic classification or binder type).
 - 3. Manufacturer's name, stock number, and date of manufacture.
 - 4. Contents by volume, for pigment and vehicle constituents.
 - 5. Thinning instructions.
 - 6. Application instructions.
 - 7. Color name and number.
- C. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 - 1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers, others present or passing through or inspecting work areas (painting or any other work), and the work areas themselves are protected from fire and health hazards resulting from handling, mixing, and application of materials.
- D. Refer to Division 1 Sections "Summary of Work" and "Special Conditions" for additional information and requirements regarding stored materials.

1.6 JOB CONDITIONS:

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F and 90 deg F, unless otherwise permitted by paint manufacturer's printed instructions.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F and 95 deg F, unless otherwise permitted by paint manufacturer's printed instructions.
- C. Do not apply paint in snow, rain, fog, or mist, or when the relative humidity exceeds 85 percent, or at temperatures less than 5 deg F above the dew point, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.
 - 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer, during application, drying and curing periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
1. Benjamin Moore and Co. (Moore).
 2. PPG Industries, Pittsburgh Paints (Pittsburgh).
 3. The Sherwin-Williams Company (S-W).
 4. TNEMEC Company, Inc.

PART 3 - EXECUTION

3.1 EXAMINATION:

- A. Examine substrates and conditions under which painting will be performed for compliance with requirements for application of paint. Do not begin paint application until unsatisfactory conditions have been corrected.
1. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

3.2 PREPARATION:

- A. General Procedures: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items in place that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items if necessary for complete painting of the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.
1. Clean surfaces before applying paint or surface treatments. Remove oil and grease prior to cleaning. Schedule cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- B. Surface Preparation: Clean and prepare surfaces to be painted in accordance with the manufacturer's instructions for each particular substrate condition and as specified.
1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing of problems anticipated with using the specified finish-coat material with substrates primed by others.
 2. Cementitious Materials: Prepare concrete, concrete masonry block, cement plaster, and mineral-fiber-reinforced cement panel surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.

- a. Use abrasive blast-cleaning methods if recommended by the paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
3. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
- a. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer before application of primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Fill cracks in wood or plywood floors with a latex filler and prime filled areas after sanding, except where otherwise recommended by paint manufacturer. Sand smooth when dried.
 - b. Prime, stain, or seal unfinished wood to be painted immediately upon delivery. Prime edges, ends, faces, undersides, and backsides of wood, including cabinets, counters, cases, and paneling.
 - c. When transparent finish is required, backprime with spar varnish.
 - d. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on backside.
 - e. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately upon delivery.
4. Ferrous Metals: Clean nongalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council.
- a. Treat bare, sandblasted, or pickled clean metal with a metal treatment wash coat before priming.
 - b. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.
5. Galvanized Surfaces: Clean galvanized surfaces with non-petroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.
- C. Materials Preparation: Carefully mix and prepare paint materials in accordance with manufacturer's directions.
1. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density; stir as required during application. Do not stir surface film into material. Remove film and, if necessary, strain material before using.

3. Use only thinners approved by the paint manufacturer, and only within recommended limits.
- D. Tinting: Tint each primer and undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat(s), but provide sufficient differences in shade of undercoats to distinguish each separate coat.
1. Finish coats as scheduled, shall be same color for each coat required.

3.3 APPLICATION:

- A. Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied. Use of spray equipment at the site is not allowed, except where specifically indicated.
1. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
 2. Paint surface treatments and finishes are indicated on the Drawings and in Specifications.
 3. Finish colors will be selected after Bidding, unless indicated otherwise.
 4. Provide finish coats that are compatible with primers used.
 5. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce an even smooth surface in accordance with the manufacturer's directions.
 6. Apply additional coats when undercoats, stains, or other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.
 7. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, connector covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas as required to maintain the system integrity and provide desired protection.
 8. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.
 9. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.
 10. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
- B. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
- C. Finish doors on tops, bottoms, and side edges same as faces.
1. Sand lightly between each succeeding enamel or varnish coat.

- D. Primers:
1. Omit primer on metal surfaces that have been shop-primed and touch-up painted, only after verifying full compatibility of shop primers with materials specified for the next coat and finish coats.
 2. Primer may be omitted at previously painted existing surfaces in good condition, except at interior concrete, plaster and drywall surfaces, after repairs to any existing damaged substrates and after spot priming of existing damaged paint finish, followed by cleaning and preparation recommended in writing by paint manufacturer.
- E. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb pressure and where application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.
- F. Minimum Coating Thickness: Apply materials at not less than the manufacturer's recommended spreading rate. Provide a total dry film thickness of the entire system as recommended by the manufacturer.
- G. Mechanical and Electrical Work: Painting mechanical and electrical work is limited to items exposed in mechanical equipment rooms and in occupied spaces.
1. Mechanical items to be painted include but are not limited to:
 - a. Piping, pipe hangers, and supports.
 - b. Tanks.
 - c. Ductwork.
 - d. Insulation.
 - e. Supports.
 - f. Accessory items.
 2. Electrical items to be painted include but are not limited to:
 - a. Conduit and fittings.
 - b. Switchgear.
- H. Block Fillers: Apply block fillers to new or previously unpainted concrete masonry block at a rate to ensure complete coverage with pores filled.
- I. Prime Coats: Before application of finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

- J. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.
- K. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.
 - 1. Provide satin finish for final coats.
- L. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

3.4 CLEANING:

- A. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
- B. Upon completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping, using care not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION:

- A. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.
- B. Provide “wet paint” signs to protect newly painted finishes. Remove temporary protective wrappings provided by others for protection of their work after completion of painting operations.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 EXTERIOR PAINT SCHEDULE:

- A. General: Provide the following paint systems for the various substrates indicated. (Abbreviations Note: ct = coat; cts = coats)

P-1: IRON AND STEEL SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (1ct): Pro Industrial Pro-Cryl Universal Primer, B66-310
 - b. Finish (2cts): Sher-Cryl HPA High Performance Acrylic (Gloss, B66-300 or Semi-Gloss, B66-350)

P-2: GALVANIZED STEEL AND ALUMINUM SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (1ct): Pro Industrial Pro-Cryl Universal Primer, B66-310

- b. Finish (2cts): Sher-Cryl HPA High Performance Acrylic, (Gloss, B66-300 or Semi-Gloss, B66-350)

P-3: PAINTEd CONCRETE SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (1ct): Loxon Concrete & Masonry Primer, A24W8300;
Brush and Roller application only.
 - b. Finish (2cts): A-100 Exterior Latex Flat House Paint, A6 Series;
Brush and Roller application only.

P-4: CMU AND MASONRY SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (2cts): PrepRite Interior / Exterior Block Filler, B25W25;
Brush and Roller application only.
 - b. Finish (2cts): A-100 Exterior Latex Satin House Paint, A82 Series
Brush and Roller application only.
 - c. All block pores shall be completely filled.

P-5: PAINTEd WOOD SURFACES - (Opaque Finish):

- 1. Sherwin-Williams:
 - a. Primer (1ct): Exterior Latex Wood Primer, A24W8041;
Option: Exterior Alkyd Wood Primer, Y24W8020
 - b. Finish (2cts): A-100 Exterior Latex Gloss House Paint, A8 Series

P-6: PAINTEd PLYWOOD SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (1ct): Exterior Latex Wood Primer, A24W8041
 - b. Finish (2cts): A-100 Exterior Latex Gloss House Paint, A8 Series

3.7 INTERIOR PAINT SCHEDULE:

- A. General: Provide the following paint systems for the various substrates, as indicated.

P-7: IRON AND STEEL SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (1ct): Pro Industrial Pro-Cryl Universal Primer, B66-310
 - b. Finish (2cts): Pro Industrial 0 VOC Acrylic, B66-600 Series
(Gloss, B66-600 Series / Semi-Gloss, B66-650 Series)

P-8: GALVANIZED STEEL AND ALUMINUM SURFACES:

- 1. Sherwin-Williams:
 - a. Primer (1ct): Pro Industrial Pro-Cryl Universal Primer, B66-310
 - b. Finish (2cts): Pro Industrial 0 VOC Acrylic, B66-600 Series

(Gloss, B66-600 Series / Semi-Gloss, B66-650 Series)

P-9: PLASTER AND CONCRETE SURFACES:

1. Sherwin-Williams:
 - a. Primer (1ct): Loxon Concrete & Masonry Primer, A24W8300
 - b. Finish (2cts): ProMar 200 Zero VOC Interior Latex Egg-Shell, B20-2600

P-10: WOOD SURFACES TO BE PAINTED (OPAQUE FINISH):

1. Sherwin-Williams:
 - a. Primer (1ct): Premium Wall & Wood Primer, B28W8111
 - b. Finish (2cts): ProMar 200 Zero VOC Interior Latex S/G, B31-2600;
Option: ProMar 200 WB Acrylic-Alkyd S/G, B34-8251

P-11: WOOD SURFACES TO RECEIVE NATURAL FINISH (STAINED):

1. Sherwin-Williams:
 - a. First Coat: Alkyd Interior Paste Wood Filler, fully compatible with other finish system products below.
 - b. Second Coat: WoodClassics "250" Interior Oil Stain, A49-800
 - c. Third Coat: WoodClassics WB Polyurethane, A68 Series
 - d. Fourth Coat: WoodClassics WB Polyurethane, A68 Series (Satin, A68F90 – Gloss, A68V91)
 - d. Fifth Coat: WoodClassics WB Polyurethane, A68 Series (Satin, A68F90 – Gloss, A68V91)
2. Natural finish (stained) shall be typical finish, unless indicated otherwise, for:
 - a. New wood doors, unless specifically indicated otherwise.
 - b. Elsewhere as indicated on the Drawings.

P-12: CMU AND BRICK SURFACES - (Dry Areas):

1. Sherwin-Williams:
 - a. Primer (2cts): PrepRite Interior / Exterior Block Filler, B25W25; **Brush and Roller application only.**
 - b. Finish (2cts): ProMar 200 Zero VOC Interior Latex S/G, B31-2600; **Brush and Roller application only.**
 - c. All block pores shall be completely filled.

P-13: CMU AND BRICK SURFACES - (Wet Areas: Toilets, Janitors Rooms, any room with a plumbing fixture):

1. Sherwin-Williams
 - a. Primer (2cts): Heavy Duty Block Filler, B42W46; **Brush and Roller application only.**
Option: Cement-Plex 875 Epoxy Block Filler, B42W200; **Brush and Roller application only.**

- b. Finish (2cts): Pro Industrial Zero VOC WB Catalyzed Epoxy, B73-300 Series; **Brush and Roller application only.**
- c. All block pores shall be completely filled.

END OF PAINTING

SECTION 10 1650

TOILET PARTITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Concealed pressure preservative treated (P.T.) 2 x 10 wood blocking for anchorage within stud walls is specified in Division 6 Section "Rough Carpentry".
- C. Toilet accessories are indicated on the Drawings and specified in Division 10 Section "Toilet Accessories".

1.2 DESCRIPTION OF WORK:

- A. Extent of toilet partitions is indicated on drawings.
- B. Types of toilet compartments include floor anchored toilet partitions, doors and screens, with overhead bracing of toilet partitions and screens where indicated, with institutional hardware package, fabricated from solid phenolic resin panels and standards with "graffiti-proof" finish.
- C. "Graffiti-proof" is defined as material from which graffiti can be removed without leaving a "ghosting" image.

1.3 SUBMITTALS:

- A. Product Data: Submit manufacturer's current detailed technical data for materials, fabrication, and installation, including catalog cuts of anchors, hardware, fastenings, and accessories.
- B. Shop Drawings: Submit shop drawings for fabrication and erection of toilet partition assemblies not fully described by product drawings, templates, and instructions for installation of anchorage devices built into other work.
- C. Samples: Submit manufacturer's full range of physical color samples for each type of unit required.

1.4 QUALITY ASSURANCE:

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible, to insure proper fitting of work. However, allow for adjustments within specified tolerances wherever taking of field measurements before fabrication might delay work.

- B. Coordination: Furnish inserts and anchorages which must be built into other work for installation of toilet partitions and related work; coordinate delivery with other work to avoid delay.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Manufacturers: Subject to compliance with specified requirements, provide products of one of the following:
1. Accurate Partitions Corp.
 2. American Sanitary Partition Corp.
 3. Ampco Products Inc.
 4. Bobrick Washroom Equipment, Inc.
 5. Bradley Corporation; Mills Partitions.
 6. Capitol Partitions, Inc.
 7. Flush-Metal Partition Corp.
 8. General Partitions Mfg. Corp.
 9. Global Steel Products Corp.
 10. Knickerbocker Partition Corp.
 11. Lambaton Universal.
 12. Metpar Corp.
 13. Partition Systems, Inc.
 14. Sanymetal Products Co.
 15. Tex-Lam Manufacturing, Inc.
 16. Weis-Robart Partitions, Inc.
 17. Young Group, Ltd. (The); DesignRite Partitions.
- B. Product/Manufacturer: Provide equivalent to “Duraline” 1182.67, as manufactured by Bobrick Washroom Equipment, Inc., by one of the above named manufacturers.
1. Colors: As indicated on the Drawing, or if not indicated, as selected by Architect after bidding from manufacturer’s full range of color selections available on Bid Date.

2.2 MATERIALS:

- A. General: Provide materials that have been selected for surface flatness and smoothness. Exposed surfaces that exhibit pitting, seam marks, roller marks, stains, discolorations, telegraphing of any core material, or other imperfections on finished units are unacceptable.
- B. Panels/Doors: Solid phenolic-core panel material with melamine facing on both sides fused to substrate during panel manufacture (not separately laminated), and with eased and polished edges. Provide minimum 3/4-inch thick doors and pilasters, and minimum 1/2-inch thick panels. Manufacturer’s standard dark color core.
- C. Pilaster Shoes and Sleeves (Caps): ASTM A 666, Type 302 or 304 stainless steel, not less than 0.0312 inch (0.8 mm) thick and 3 inches (75 mm) high, finished to match hardware.

- D. Stirrup Brackets: Manufacturer's standard design for attaching panels to floors, and fabricated of Type 302 or 304 stainless steel.
- E. Full-Height (continuous) Brackets (i.e.: channel, angle, and double-angle-channel): Manufacturer's standard satin finish stainless steel units, predrilled for fasteners, and designed for continuous anchorage of panels to walls and pilasters. Limit exposed angle flanges to interior of stalls where possible, and where permanence of installation will not be reduced or otherwise affected.
- F. Hardware and Accessories: Manufacturer's standard "Institutional" design, heavy-duty operating hardware and accessories of No. 4 satin finish stainless steel.
 - 1. Continuous Multi-Cam Hinges: Manufacturer's standard satin stainless steel units, predrilled for fasteners, and designed for continuous anchorage of door panels to pilasters, and which close doors to the extent of allowing doors to stand partially open when stalls are unoccupied.
- G. Overhead-Bracing - Where Indicated on the Drawings: Continuous extruded aluminum tubing in anti-grip profile, with clear anodized finish. Provide concealed anchorage where possible, with concealed anchorage blocks, and exposed ends neatly closed with either matching end cap and/or filler.
 - 1. Return to side and back/rear walls at ends of runs, and again to back/rear walls at any locations where partition layouts off-set.
- H. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel, chromium plated steel, or brass, finished to match hardware, with theft-resistant type heads and nuts. For concealed anchors, use hot-dip galvanized, cadmium-plated, or other rust-resistant protective-coated steel.

2.3 FABRICATION:

- A. General: Furnish standard doors, panels, screens, and pilasters fabricated for partition system, unless otherwise indicated. Furnish units with cutouts (if any), drilled holes, and internal reinforcement to receive partition-mounted hardware, accessories, and grab bars as indicated.
- B. Door Dimensions: Unless otherwise indicated, furnish 28-inch wide inswinging doors for ordinary toilet stalls and 32-inch wide (clear opening) outswinging doors at stalls equipped for use by handicapped.
 - 1. Verify clearances with fixtures and coordinate clearances with toilet accessories.
- C. Overhead-Braced Floor-Anchored Partitions: Furnish galvanized steel supports and leveling bolts at pilasters, as recommended in writing by manufacturer to suit floor conditions. Make provisions for setting and securing continuous aluminum overhead bracing tube at top of each pilaster. Furnish shoe at each pilaster to conceal supports and leveling mechanisms.
- D. Overhead-Braced Floor-Supported Screens: Furnish in-line pilasters not less than 1-inch in thickness, panels and pilasters of same construction and finish as toilet partitions. Furnish galvanized steel anchorage devices, complete with threaded rods, lock washers, and leveling

adjusting nuts at pilasters, to permit structural connection to floor. Furnish shoe at each pilaster to conceal anchorage.

1. Furnish wall anchors and overhead bracing same as specified for toilet partitions.
- E. Hardware: Furnish hardware for each compartment in partition system, as follows:
1. Continuous Hinges: Manufacturer's standard satin stainless steel multi-cam "Institutional" units, predrilled for fasteners, and designed for continuous anchorage of door panels to pilasters.
 2. Latch and Keeper: Manufacturer's standard "Institutional" surface-mounted latch unit, designed for emergency access, with combination rubber-faced door strike and keeper(s).
 3. Combination Bumper and Coat Hook (typical): Manufacturer's standard unit, combination hook and non-marring rubber-tipped bumper.
 - a. In addition, provide wall bumper at out swinging doors.
 - b. In addition, provide standard square-faced satin stainless steel coat hook from "commercial hardware" group, at interior of each door.
 4. Door Pull: Manufacturer's standard "Institutional" unit.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. General: Comply with manufacturer's current written instructions and recommendations for procedures and installation sequence. Install partitions rigid, straight, plumb, and level. Provide concealed clearances of not more than 1/4-inch between pilasters and panels, and not more than 1/2-inch between panels and walls (concealed within angle and channel mounting supports). Secure panels to walls with continuous stainless steel channels, double angles, and double-angle-channel supports, as appropriate for the location being anchored, with angle flanges limited to interior of stalls where possible. Secure panels to pilasters with continuous stainless steel channels, double angles, and double-angle-channel supports, as appropriate for the location being anchored, with angle flanges limited to interior of stalls where possible. Align with mounting supports at walls. Secure panels in position with anchoring devices recommended in writing by manufacturer, and by anchoring them securely into concealed P.T. minimum 2 x 10 wood blocking, or equivalent braced stud construction.
- B. Overhead-Braced and Floor-Anchored Partitions and Compartments: Secure pilasters to floor and level, plumb, and tighten installation, utilizing concealed anchoring devices furnished. Secure overhead-brace to each pilaster with not less than two fasteners. Hang doors and adjust so that tops of doors are parallel with overhead brace when doors are in closed position.
1. Provide and install additional overhead bracing at exposed sides of panel installations, anchored securely to pilaster at front and directly above side panel to wall at rear of stall.

- C. Overhead-Braced and Floor-Anchored Screens: Attach with concealed anchoring devices, as recommended in writing by manufacturer to suit supporting wall structure and floor. Set units to provide support and to resist lateral impact. Anchor to floor and wall, and provide overhead bracing same as for overhead-braced partitions.
 - 1. Pilasters shall be in-line with panel, so as not to encroach on clear access to fixture(s) being screened.
 - 2. Depth: 2'-0" unless otherwise indicated on the Drawings.

3.2 ADJUST AND CLEAN:

- A. Hardware Adjustment: Adjust and lubricate hardware for proper operation. Set hinges on inswinging doors to hold open approximately 30 degrees from closed position when unlatched. Set hinges on outswinging doors (and entrance swing doors) to return to fully closed position.
- B. Clean exposed surfaces of partition systems using materials and methods recommended by manufacturer, and provide protection as necessary to prevent damage during remainder of construction period.

END OF TOILET PARTITIONS

SECTION 10 8000

TOILET ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 04 2000 - "Unit Masonry"
 - 2. Section 06 1000 - "Rough Carpentry" (concealed P.T. 2 x 10 wood blocking at stud wall anchorages)

1.2 SUMMARY:

- A. The extent of toilet and other accessory items is indicated on the Drawings, in this Section 108000, and as follows:
 - 1. Paper towel dispensers.
 - 2. Toilet tissue dispensers.
 - 3. Soap dispensers.
 - 4. Grab bars.
 - 5. Mirrors.
 - 6. Coat hooks.

1.3 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specifications Sections.
 - 1. Product Data for each toilet accessory item specified, including details of construction relative to materials, dimensions, gauges, profiles, method of mounting, specified options, and finishes.
 - 2. Setting Drawings: Where cutouts are required in other work, provide templates, substrate preparation instructions, and directions for preparing cutouts and for installation of anchorage devices.

1.4 QUALITY ASSURANCE:

- A. Inserts and Anchorages: Furnish inserts and anchoring devices that must be set in concrete or built into masonry; coordinate delivery with other work to avoid delay.
- B. Single-Source Responsibility: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.

1.5 PROJECT CONDITIONS:

- A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference and to assure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

1.6 WARRANTY:

- A. Special Project Warranty: Provide manufacturer's written 15-year warranty against silver spoilage of mirrors, agreeing to replace any mirrors that develop visible defects within warranty period.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide toilet accessories by one of the following and which are equivalent to the units specified:
 - 1. Accessory Specialties, Inc.
 - 2. A & J Washroom Accessories.
 - 3. American Specialties, Inc. (ASI)
 - 4. Bobrick Washroom Equipment, Inc.
 - 5. Bradley Corporation.
 - 6. General Accessory Manufacturing Co.
 - 7. Columbia Accessories

2.2 MATERIALS, GENERAL:

- A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 22-gauge (.034-inch) minimum thickness, unless otherwise indicated.
- B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16, Castings, ASTM B-30.
- C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 20-gauge (.040-inch) minimum, unless otherwise indicated. Surface preparation and metal pretreatment as required for applied finish.
- D. Galvanized Steel Sheet: ASTM A 527, G60.
- E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.
- F. Baked Enamel Finish: Factory-applied, gloss white, baked acrylic enamel coating.
- G. Mirror Glass: Nominal 6.0-mm (0.23-inch) thick, conforming to ASTM C 1036, Type I, Class 1, Quality q2, and with silvering, electro-plated copper coating, and protective organic coating. Provide with continuous edge sealer prior to installation in frame.

- H. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.
- I. Fasteners: Screws, bolts, and other devices of same material as accessory unit or of galvanized steel where concealed.
- J. Keys: Unless otherwise indicated, provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of 6-keys to Owner's representative and obtain receipt.

2.3 PAPER TOWEL DISPENSERS:

- A. Surface-mounted towel dispensers: Fabricate of stainless steel sized to dispense not less than 400 C-fold or 525-multi-fold paper towels without use of special adapters, door equipped with tumbler lockset.
- B. Manufacturer/Model No.:
 - 1. ASI No. 0210.
 - 2. Bobrick No. B-262.
 - 3. Bradley No. 250-15.
- C. Mounting Height: 3'-4" A.F.F. to towel dispensing opening.
- D. Location: At each lavatory and counter sink, unless specifically indicated otherwise on the Drawings.

2.4 TOILET TISSUE DISPENSERS:

- A. Double-Roll Dispenser: Size to accommodate two separate rolls of core type tissue to 5-inch diameter.
 - 1. Controlled delivery not permitted.
 - 2. Semi-recessed type required at toilet stalls for the disabled and handicapped.
- B. Fabrication: Molded plastic spindle with semi-recessed satin finished stainless steel housing at walls, and satin finished cast aluminum at toilet partition walls.
- C. Manufacturer/Model No.: Semi-Recessed: Surface Mounted:
 - 1. ASI Model No.: 74022-S 0264-1A
 - 2. Bobrick Model No.: B-6977 B-2740
 - 3. Bradley Model No.: 5124 5241
- D. Mounting:
 - 1. 1'-7" A.F.F., to horizontal centerline.
 - 2. 36-inches from wall behind toilet fixture to forward edge.
- E. Locations: At each toilet fixture.

2.5 SOAP DISPENSERS (IF ANY):

- A. Wall Mounted Liquid Soap Dispenser: Minimum 40-fluid ounce capacity dispenser.
 - 1. Equip unit with push-type valve for dispensing soap in liquid form.
- B. Location: 1-unit at each toilet room lavatory and other lavatory, at each counter sink, and as otherwise indicated.
- C. Manufacturer/Model No.:
 - 1. ASI No. 0342.
 - 2. Bobrick No. B-2112.
 - 3. Bradley No. 6542.
- D. Mounting Height: 40-inches A.F.F. to operating valve.

2.6 GRAB BARS:

- A. Stainless Steel Type: Provide 1-1/2-inches outside diameter heavy-duty grab bars with wall thickness not less than 18-gauge (.050-inch) and as follows:
 - 1. Mounting: Concealed, manufacturer's standard flanges and anchorages, with concealed mounting plate secured by four stainless steel vandal-resistant set screws.
 - 2. Clearance: 1-1/2-inches clearance between wall surface and inside face of bar.
 - 3. Gripping Surfaces: Manufacturer's standard nonslip texture.
 - 4. Locations, Size, and Configurations: As indicated on the Drawings.
- B. Manufacturer/Series No. - Straight Bars:
 - 1. ASI Series 3200 P.
 - 2. Bobrick Series B-6206.99.
 - 3. Bradley Series 8122.
- C. Manufacturer/Series No. - L-Shaped Shower Bars: 15 7/8" wide at back wall x 30 7/8" deep at water control / shower wall.
 - 1. ASI Series 3200 P; Similar to Type 60, except A = 16" x B = 30".
 - 2. Bobrick Series B-6861.99.
 - 3. Bradley Similar to Series 8122, except "L" configuration indicated above.
- D. Mounting Height:
 - 1. Horizontal Bars: 33" A.F.F. to horizontal centerline.
 - 2. 18" Vertical Bars At Toilets: 39" A.F.F. and 41" from wall behind toilet fixture to vertical centerline, and as otherwise required by ANSI A 117.1.
 - 3. 18" Vertical Bars At Showers: 4" to 6" above horizontal bar, vertical centerline 4" inside shower entrance on water control and shower fixture wall, and as otherwise required by ANSI A 117.1.

2.7 MIRROR UNITS:

- A. Stainless Steel Framed Mirror Units: Fabricate frame with angle shapes of not less than 18-gauge, with square welded corners mitered and ground smooth. Provide with No. 4 satin polished finish.
- B. Locations: At each lavatory in each Toilet Room, and as otherwise indicated. Provide tilt mirror with fully enclosed back at one lavatory in each toilet room, for use by the disabled and handicapped.
 - a. Provide 1 mirror per sink / lavatory unit, including any washfountain units.
- C. Mountings: Concealed type, manufacturer's standard.
- D. Manufacturer/Model No. Standard: Tilt: Size:
Standard Size Mirrors:
 - 1. ASI Series: 0600 0535 24-inches x 36-inches high.
 - 2. Bobrick Series: B-290 B-293 24-inches x 36-inches high.
 - 3. Bradley Series: 780 740 24-inches x 36-inches high.
- E. ADDITIONAL MIRRORS IN RESTROOMS AND TOILET ROOMS: Where larger sizes than above are indicated on the Drawings - Provide stainless steel framed series mirrors (see above) in sizes as indicated on the Drawings. Mounting height as indicated, or if not indicated, as directed by Architect; Tilt mirrors not required for larger mirrors.
- F. Standard Size Mirrors, Mounting Height: 40-inches A.F.F. to bottom of mirror.

2.8 COAT HOOKS:

- A. Manufacturer's standard stainless steel single robe hook, 2-inch x 2-inch flange, projecting approximately 2-inches from wall or door, with bright polished stainless steel finish. Concealed surface-mounted unit. Bright polished stainless steel.
- B. Manufacturer/Model No.:
 - 1. ASI No. 7340.
 - 2. Bobrick No. B-671.
 - 3. Bradley No. 9115.
- C. Mounting Height: 54-inches A.F.F. to top of horizontal projection of robe hook; 48-inches A.F.F. at accessible stalls and toilet rooms for the disabled and handicapped.
- D. Location:
 - 1. One each at back of each individual/single toilet room door, one each at back of each individual toilet stall door; Centered on door width.

2.9 FABRICATION:

- A. General: Only a maximum 1-1/2-inch diameter, unobtrusive stamped logo of manufacturer, as approved by Architect, is permitted on exposed face of toilet or bath accessory units. On either interior surface not exposed to view or back surface, provide additional identification by means of either a printed, waterproof label or a stamped nameplate, indicating manufacturer's name and product model number.
- B. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.
- C. Recessed Toilet Accessories, General: Except where otherwise indicated, fabricate units of all welded construction, without mitered corners. Hang doors or access panels with full-length stainless steel piano hinge. Provide anchorage that is fully concealed when unit is closed.
- D. Mirror Units, General: Provide mirror backing and support system that will permit rigid, tamper proof glass installation and prevent accumulation of moisture, as follows:
 - 1. Provide galvanized steel backing sheet, not less than 22-gauge (.034-inch) and full mirror size, with nonabsorptive filler material. Corrugated cardboard is not an acceptable filler material.
- E. Mirror Unit Hangers: Provide system of mounting mirror units that will permit rigid, tamper proof, and theft proof installation, as follows:
 - 1. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring special tool to remove.

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. Install toilet accessory units in accordance with manufacturers' current written instructions, using fasteners appropriate to substrate and recommended by manufacturer of unit. Install units plumb and level, firmly anchored in locations and at heights indicated.
- B. Secure mirrors to walls in concealed, tamper proof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, in accordance with manufacturer's instructions for type of substrate involved.

3.2 ADJUSTING AND CLEANING:

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces in strict accordance with manufacturer's recommendations after removing temporary labels and protective coatings.

END OF TOILET ACCESSORIES

SECTION 220000

PLUMBING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General Provisions of the Contract, including General and Special Conditions, and Division 1 - General Requirements, apply to the work specified in this Section.
- B. Excavation and backfill, DIVISION 2.
- C. Painting, DIVISION 9.
- D. Toilet Room Accessories, DIVISION 10.
- E. Electrical, DIVISION 26.
- F. All parts of this Section of the Specification take precedence over other sections of Division 22 and 23 (in connection with Plumbing work) unless noted otherwise.
- G. Comply with Section 230000 with it in its entirety, including "PRIOR APPROVAL" requirements.

1.2 DESCRIPTION OF WORK

- A. The work to be performed under this Section of the work shall consist of but is not limited to the following general categories.
 - 1. Provide complete and operable plumbing systems to serve all plumbing fixtures, equipment, hose bibbs, air conditioning equipment, etc.

1.3 SCOPE

- A. The plumbing system for this work includes all cold water distribution, domestic water heating and distribution, vents and wastes, floor drainage, plumbing fixtures and trim, connection of equipment furnished by others, assisting the other trades in the connection of the gas equipment to the gas supply and the fuel oil storage system. All other items indicated on drawings or described in these specifications, and all other plumbing items needed for a complete and proper installation. (See "General Conditions" and "Scope of Work", and "Mechanical General Provisions" which is a part of this contract.)

1.4 QUALITY ASSURANCE

- A. General: Provide all new materials, labor, tools, equipment, transportation, incidentals and services necessary for the complete installation in every respect and the satisfactory operation of the plumbing systems as specified below and as shown on the drawings.
- B. Contractor shall verify conditions and check all measurements at job site.
- C. Wherever the word "supply", "provide" or similar term is used in the sense of providing apparatus or materials, it shall mean that Contractor shall furnish and connect such apparatus or materials referred to, unless otherwise specifically called for, at no additional cost to Owner.
- D. All statements made throughout these Specifications shall be considered as orders, directives, instructions, etc., to the Contractor to whom this Contract is awarded whether the word "Contractor" is used or not, unless otherwise noted.
- E. Insulation of piping does not protect pipe against freezing. All water bearing pipe must be run on the heated side of the building insulated envelope or provided with heat trace. If heat trace is required, and none is shown, the contractor shall provide heat trace, as well as all power circuits and controls, as work of this project and without additional expense or change order to the contract.
- F. Codes, Permits:
 - 1. Obtain and pay for all permits and inspections required by all laws, ordinances, regulations, and public authority having jurisdiction. The following codes, standards and regulations in effect on the date of bid invitation shall be considered a part of this specification:
 - a. State Public Health Department Regulations
 - b. International Code Congress (ICC) Codes
 - c. Local and State Plumbing Codes
 - d. National Fire Protection Association
 - e. American Society of Mechanical Engineers
 - f. American Society for Testing Materials
 - g. Underwriters' Laboratories'
 - h. National Electrical Manufacturers Association
 - i. OSHA - Occupational Safety and Health Standards
 - j. Local Utilities' Requirements
 - 2. All material and workmanship shall comply with all latest applicable sections of local, municipal, parish or county, state, federal, industry and utilities company's rules, regulations, codes, ordinances and standards. Pipe sizes shown are minimum that will be allowed.
 - 3. Should the Contractor perform any work that does not comply with the requirements of the applicable codes, standards and regulations, he shall bear all costs arising from the deficiencies.
 - 4. Deliver copies of all certificates of inspection to Architect for delivery to Owner upon completion of the work.
 - 5. Do not conceal any work until it has been inspected and tested.

6. Terminology used in these specifications is that of the ICC International Plumbing Code (IPC).
7. Should work shown on these drawings and specifications be located in any area which levies a SEWER USE FEE or surcharge, this cost shall be included in the Contractor's bid unless specifically omitted by instructions in the General or Special Conditions.
8. Should local utility require any payment or fee for providing water or gas service to the facility, the cost shall be included in Bid.
9. All applications required shall be filled in the Owner's name.
10. Should work shown on the Contract Documents not be as strict as "local interpretations" of the local code, the Contractor shall make his bid in accordance with the local requirements and shall call the Architect's attention to the changes required to comply with the above.
11. Inspections: Obtain and pay for all inspections, required by all laws, ordinances, rules, regulations, or public authorities having jurisdiction. This Contractor shall obtain and pay for all certificates of such inspections, and file such certificates with the Owner.
12. Contractor shall be a licensed plumbing locally.

G. Drawings and Specifications:

1. Drawings and Specification are complementary to each other. What is called by one shall be binding as if called for by both.
2. All methods of construction, details of workmanship and detailed arrangement of all work where not specifically described herein or indicated on the drawings, shall be subject to the control and approval of the Architect.
3. Architect shall render a decision in writing as to the space allotment in congested areas, which decision shall be binding on all. No claims for "extras" due to such decisions will be allowed, even though the work has already been installed.
4. Submit shop drawings for review on all fixtures, equipment and accessories.
5. It shall be the responsibility of the Contractor to use the Contract Document Drawings and these Specifications for a basic layout of the Plumbing Systems. Contractor shall not be permitted to change this basic method of distribution of the system details without submitting drawings for review and acceptance before fabrication and installation, and in particular with reference to exposed piping.
6. Plumbing drawings are diagrammatic; see Architectural drawings and building for dimensions and conditions not shown. Drawings do not show all fittings or details, but must be followed generally. Changes must be approved in writing. Obtain Architect's written decision in case of doubt as to intent of drawings or specifications. Failure to obtain written decision will leave this contractor liable for damage to work of other trades and responsible for corrections required by Architect.
7. Plans and Riser Diagrams (Risers): Plumbing Plans and Risers are complementary to each other. What is called for by one shall be binding as if called for by both. Where pipe sizes differ from the plans to the risers, it shall be considered as a drafting inaccuracy and the larger of the sizes shall be provided.

1.5 RESPONSIBILITY OF THE CONTRACTOR

- A. Contractor shall examine all drawings, specifications, addendums, and the Site of the work. He should familiarize himself with the character of work, coordination required with other trades, and any conditions that affect the completion of this work. No consideration will be given at a

later date for any alleged misunderstanding as to the requirements, materials to be furnished, or any special requirements due to the nature of the job site or local conditions.

- B. Items obviously omitted from the plans and specifications shall be called to the attention of the Architect before bidding. After the award of the contract, any changes, additions, or rearrangements necessary to complete the work as outlined shall be at this Contractor's expense.
- C. The utilities shown are based on the best information available to the Designers and is for Bidding purposes and indication of desired routing only. The Contractor is required to coordinate with the required utilities prior to entering Bid, and Bid so as to include all costs of obtaining utilities as required by the drawings.

1.6 SUBMITTALS

- A. See paragraph on Submittals in Section 230000.
- B. Submit for review not less than five (5) copies of complete data, cuts, capacities, type, and grade for review of fixtures, trim, pipe, insulation (jackets and fittings), and all other major components. Submit within 30 days of signing of general contract. Submit all items at one time in a bound submittal package with a cover sheet identifying all items submitted. Partial submittals will be rejected.
- C. Where plumbing fixtures are specified by manufacturer name and model, and a substitution manufacturer and model fixture is proposed, the submittal shall include a cross reference guide published by the manufacturer actually specified indicating that the proposed fixture and manufacturer is an appropriate substitution. In such cases where no such cross reference is published, provide cut sheets for both the specified fixture and the proposed fixture to facilitate evaluation by the Engineer.
- D. Three (3) copies will be returned to the general contractor with comments, or reason for rejection. Resubmit at once on rejected items.
- E. Materials, fixtures, or equipment installed without review or after rejections shall be replaced by this contractor with acceptable items at Architect's direction.
- F. The supplier, by submitting, certifies that his materials and/or equipment are satisfactory for the application for which they are proposed.
- G. Contractor agrees that submittals processed by the Engineer are not change orders; that the purpose of submittal by the contractor is to demonstrate to the Engineer that the contractor understands the design concept, that he demonstrates his understanding by indicating which equipment and materials he intends to furnish and install and by detailing the fabrication and installation methods he intends to use.
- H. Contractor further agrees that if deviations, discrepancies or conflicts between submittals and specifications are discovered either prior to or after submittals are processed by the Engineer, the design drawings and specifications shall be followed.

1.7 COORDINATION DRAWINGS

- A. Prepare coordination drawings which fully coordinate the location and interface requirements (due to spatial limitations and constraints) of the work including Architectural, Structural, Fire Suppression (Protection), Plumbing, HVAC, Electrical, Owner furnished equipment, etc. to eliminate construction conflicts. This requirement is fully the responsibility of the Contractor and these drawings shall not be submitted for review but shall be maintained at the jobsite and updated as necessary to prevent conflicts. The designers shall assume, as a result of receiving and reviewing other required submittals, that this coordination has been accomplished, that these drawings have been made and kept up to date, and no other consideration shall be given for construction interferences which may arise.

1.8 WORKMANSHIP

- A. Work to be orderly, neat, workmanlike in appearance, done by skilled craftsmen. Any work not so installed shall be removed and replaced without additional cost to owner or Design Professionals.
- B. Work shall be first class and in accordance with best practice. Pipe shall be cut clean, properly reamed, threaded or soldered, erected plumb and secure. Make changes in pipe size with reducing fittings.
- C. At all stages of installation, protect pipe openings, fixtures, and equipment against the entrance of foreign materials.

1.9 SAFETY

- A. Perform all work in a safe manner. Protect all workmen and others on site. Barricade (light if necessary) all ditches, holes, openings through floors and other hazards. Comply with all health and safety regulations. Contractor is solely responsible for job site safety.

1.10 COOPERATION

- A. Cooperate with all crafts; schedule work as needed; do not delay other trades; maintain necessary competent mechanics and supervision on the job at all times.

1.11 INCIDENTAL WORK INCLUDED

- A. Cutting of structure (patching to be done by the affected trade at this contractor's expense). Secure Architect's approval where strength or appearance is affected.
- B. Necessary foundations not shown on Architectural or Structural plans.
- C. Motors, controls, control devices, control wiring, all as required for a complete system shall be by this contractor unless shown on the electrical drawings and included in that section. All electrical work shall comply with the Division 26 Electrical sections of the specifications.

- D. All ferrous metal exposed to weather shall be prime coated with a primer to match the metal and finished with a two coat application of finish paint of color and type selected by the Architect. Where the finish painting is specified in the section on painting, the two final coats may be omitted, but the metal shall be prime coated before rusts starts to form.

1.12 QUESTIONS AND CLARIFICATIONS

- A. Contractor shall not rely on any verbal clarification of the drawings and specifications. Any questions shall be referred to the Architect/Engineer at least seven (7) working days prior to the bid date to allow clarification by addendum. After seven days prior to bidding, the bidder shall make his own decision and, if necessary, qualify his bid.

1.13 AS-BUILT DRAWINGS

- A. Furnish a reproducible set of "AS BUILT" drawings showing dimensional location of pipes, cleanouts, etc. at the time of final review of the job.

1.14 QUALIFICATIONS

- A. Contractor shall have at least three (3) years of successful installation experience on plumbing work similar in size and scope to this project.
- B. Contractor shall have an established service department capable of providing service inspection or full maintenance contract if requested by the Owner. One year service for adjustment shall be included as a part of this contract.

1.15 CHANGES

- A. If during construction desirable or necessary changes become apparent, advise the Architect and secure his decision in writing; otherwise make no deviation from the system as detailed.

1.16 CLEARING AND ADJUSTING

- A. Upon completion of work, clear all drains, traps, pipe lines, and plumbing fixtures. Adjust all valves, pack stuffing boxes, remove rubbish and leave work in clean and operating condition.

1.17 FOUNDATIONS

- A. Provide foundations, supports, etc., not specified under other sections and as required to mount equipment in a workmanlike and structurally sound manner. Consult drawings pertinent to other trades to determine extent of their work.

1.18 TEMPORARY SERVICE

- A. Contractor shall be required to install permanent water and gas supply at the points indicated on the drawings by connecting to the permanent service line. Any temporary lines extended from the permanent service line shall be provided at the expense of The Contractor.

1.19 SYSTEM IDENTIFICATION

- A. All pipes shall be identified by stenciled letters at twenty (20) foot minimum intervals and their direction of flow indicated.
- B. All underground piping shall be identified with continuous underground-type plastic line marker tape located directly over buried piping at about 6" to 8" below finished grade.

1.20 GUARANTY

- A. All piping, equipment, fixtures, and related material shall be guaranteed in writing against defective materials and workmanship for a period of one year from date of acceptance. After notification, corrections shall be made promptly at no cost to the owner. Any defects due to faulty materials, equipment, method of installation or workmanship, and consequent damage resulting from such defects within the one-year guaranty period, shall be repaired or replaced promptly upon notice and without any expense to the Owner.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All products shall comply with the applicable sections of the Plumbing Code in effect in the building location. Where bidder is not sure, he is advised to determine what limitations, if any, are imposed at the site. All bids are assumed to be on approved material. Bidders/Contractors shall not use a lesser material than that specified even if allowed by code at the building site.
- B. Lead-Free Requirements:
 - 1. Any product designed for dispensing potable water must meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.
 - 2. This requirement supersedes specific model numbers stated either in these specifications or on the drawings, should a non lead-free model number be specified for products designed for dispensing potable water.
- C. For ease of maintenance and part replacement, and to the maximum extent possible, use equipment of a single manufacturer. The Architect reserves the right to reject any materials list which contains equipment from various manufacturers if suitable equipment can be obtained from fewer manufacturers, and to require source of materials to be unified to the maximum extent possible.

- D. All materials and equipment installed in HVAC return air plenums shall have a 25/50 flame spread/smoke developed index maximum when tested in accordance with ASTM E 84.
- E. All products shall be new, of first line quality of grade and type shown on the drawings and specified, or equals accepted by the Architect/Engineer in writing.
- F. All products shall be in current production with no notice having been given that such product is to be drastically changed, modified, or discontinued from production.
- G. The supplier, by submitting, certifies that equipment being processed is proper for the application intended and that it has the capacity specified.

2.2 MATERIALS

A. Building Soil, Waste, Storm and Vent Piping:

- 1. Underground: service weight cast iron, bell and spigot, conforming to ASTM A74 as manufactured by AB&I, Charlotte, or Tyler, with lubricated rubber compression joints conforming to ASTM C1563 or lead and oakum.
- 2. Above ground: Solid wall (no cellular core) Schedule 40 PVC pipe with solvent cement fittings. See paragraph 3.4.G. for fire penetration requirements.
- 3. All cast iron soil pipe, fittings and clamps shall conform to the requirements of CISPI Standard 301, ASTM A-888 or ASTM A-74 and be marked with the collective trademark of the Cast Iron Soil Pipe Institute. All pipe and fittings shall be certified and marked NSF.
- 4. Stub-out to fixtures shall be made with Schedule 80 galvanized steel pipe for urinals and DWV copper tubing and fittings or Schedule 80 galvanized steel for other fixtures.

B. Hot and Cold Piping (Inside Building):

- 1. Underground: Use Type "K" copper, soft drawn; in tunnels: use Type "K" hard drawn; ASTM B-88, with wrought copper fittings ANSI B16.22. Join underground or in tunnel fittings with silver solder AWS-ASTM BCUP-5. Pipe below floor slabs shall have joints made by looping up in wall out of the slab, no joints under the slab will be permitted.
- 2. Above ground: Use Type "L" copper tubing, hard drawn, with same fittings as specified above, joined with lead free 95-5 solder, ASTM B32 alloy, Grade 5A except for any special systems requiring temperatures higher than 250 degree F or pressures above 125 psi for which alloy E, alloy HB, or brazing materials shall be used. As an option, Viega ProPress jointing system may be utilized in accordance with all of the manufacturer's recommendations for pressure pipe jointing.
- 3. Nominal pipe sizes are shown on the Drawings.
- 4. Copper tubing air chambers shall be provided at each fixture supply and piece of equipment and shall be line size and 18 inches in length. Provide manufactured water hammer arrestors where shown.
- 5. Use dielectric unions at all dissimilar pipe connections.

2.3 INSULATION, ACCESSIBLE LAVATORIES

- A. Application Requirements: Provide pre-formed vinyl plastisol snap-on insulation for traps, waste arm, tailpiece elbows, supply line and shut-off valve. Insulation to comply with ANSI and ADA requirements, Trap Wrap or equal.

2.4 VALVES AND COCKS

- A. Valves and cocks shall be installed where called for on drawings and where found to be necessary for proper operation of equipment with at least one stop at supply connection to each sill cock, hydrant, and each piece of equipment, and each branch line to each group of fixtures in toilet rooms.
- B. Provide all gate, ball, globe and angle valves with suitable operating wheels, packing boxes and means for packing while open and under pressure.
- C. All valves shall be of the best quality of a particular manufacturer acceptable to the Architect. All valves shall be of the same manufacturer.
- D. Drain valves shall be "NIBCO", #763, 3/4" size, with approved anchors from flange to walls or columns. Provide screw-on type backflow preventers.
- E. Wall hydrants shall be as specified scheduled on the Drawings.
- F. Before installing valves with soldered joints, remove bonnet, stem and disc and reassemble valve after body has cooled.
- G. All valves regardless of size shall have brass or plastic number tags at least 1" x 3" in size and 0.051" thick. Legend shall be stamped in letters at least 1/8" high and shall include function of valve, normal position, fluid conveyed and other pertinent data.
- H. Valves shall be solid bronze through 2-1/2" size and cast on ductile iron, bronze fitted for larger sizes.
- I. Valves 1" and smaller shall be either globe or ball type with compression or solder connections.
- J. Valves above 1" shall be gate type with solder connections up through 2" and flanged above 2" size.
- K. Valves shall be type that can be repacked under pressure, with rising stems or OS&Y.
- L. Valves shall be rated at 125 psi SWP/200 psi WOG.
- M. Valve boxes for valves in underground pipelines shall be cast iron type with removable cast iron lid cast with the service designation in it (example: "water", "gas", etc.).
- N. Unless noted otherwise, all valves to be two piece, full port, brass ball valves with stainless steel trim, MSS SP-110, 150 psig, threaded.
- O. Manufacturers:

1. Nibco
2. Crane
3. Stockham
4. Kitz

2.5 ACCESS PANEL

- A. Provide access to all parts requiring service such as valves, regulators, traps, water hammer arrestors, etc., and where shown. Access doors shall be of the size required to properly service the item, but generally not smaller than 12" X 12". Where access doors cannot be provided for structural or architectural reasons, this shall be called to the Architect's attention.
- B. Access panels and doors shall have the same fire rating as the wall, ceiling, floor, or construction in which installed.
- C. Access doors in painted areas shall be prime coated with finish painting under the Painting section.
- D. In wet areas or areas with ceramic tile floors or walls, the access doors shall be stainless steel or nickel brass.
- E. Access doors shall be provided with a concealed key operated lock and concealed hinges.

2.6 UNIONS

- A. Use a union in the connection to each valve and each piece of apparatus equipment, so that it may be readily removable. In copper lines, up to and including 4" sizes, use cast brass or bronze unions, with copper soldered connections and ground joints.
- B. Unions in drainage pipes on fixture side of traps may be slip or flanged joints with soft rubber or leather gaskets.
- C. Unions 2" and smaller shall be ground joint type with flanges being used in pipes larger than 2".

2.7 CLEANOUTS AND EXTENSIONS

- A. Cleanouts shall be cast iron bodies with brass plugs. They shall be extended full size to floors and wall faces, but shall not be larger than 4". Extension to floor shall be made with combination "Y" and eighth bends.
- B. Provide cleanouts in sanitary, waste and drain lines as shown, as required by local Code, and as follows:
 1. At the bottom of each exposed fixture trap which is not integral with the fixture.
 2. At the end of each branch drainage line.
 3. At each change of horizontal direction greater than 45 degrees.
 4. At the base of each stack and in horizontal drain lines at intervals of not more than 50 feet apart in lines smaller than 4", 75 feet apart in lines of 4" nominal size, and 100 feet apart in lines larger than 4".

- C. Install cleanouts so that they are readily accessible.
- D. Cleanouts in interior floor construction shall be equal to Smith 4020 or 4040 (for floors with square tile), with scoriated cover, nickel-bronze finish. Cleanouts in walls and ceilings shall be as specified under "Access Panels".
- E. Cleanouts at grade shall be provided with a 12" diameter by 4" thick monument to allow for locating and turf grooming.

2.8 TRAPS

- A. Traps for floor drains, hub drains, etc., shall be standard C.I.S.P.I. cast iron P-traps, with hub and spigot joints for lead caulking or no-hub systems coated with Coal Tar Varnish while hot, except traps for drains used in fan rooms, which shall be of similar type cast iron but deep seal P-traps having a minimum 4.75 inch seal.
- B. Traps for all floor drains - Install ProSet Trap Guard or Jay R. Smith Quad Close Trap Seal devices in all floor drains.
- C. Comply with trap requirements as specified for individual fixture type, in lieu as specified here, when specified differently for fixture type.

2.9 FLASHING

- A. Flashing for soil and vent stacks passing thru roof shall be furnished under this Section of the Specifications.
 - 1. Flashing for bituminous roofs shall be formed of minimum 4-pound sheet lead and shall be of thimble and counterflashing type. Base shall be made so that coverage of 12" plus the diameter of the boot is obtained. Height of flashing shall be sufficient to allow for ample turn-down into pipe.
 - 2. Flashing for membrane roof and metallic roofs shall be in accordance with the roofing manufacturer's recommendations.

2.10 SLEEVES AND ESCUTCHEONS

- A. Provide galvanized sheet metal sleeve for all pipes at floors, ceilings, partitions; steel pipe sleeve two pipe sizes larger than pipe at walls and footings.
- B. Sleeves in structural beams to be furnished by General Contractor at location set by this contractor.
- C. Provide nickel plated escutcheons with spring lock or set screw at ceilings, floors, and walls for all pipes.

2.11 SHOCK ABSORBERS (WATER HAMMER ARRESTORS)

- A. Shock absorbers shall be rated and sized by PDI Standards. Body of the unit shall be non-corrosive and non-toxic. Arrestors shall be mounted accessibly above the ceilings or shall be provided with access panels in the ceilings or wall above or behind the fixture which they are installed.

2.12 SUPPORTS, ANCHORS, AND SEALS

- A. Types of supports, anchors, and seals specified in this article include the following:
1. Horizontal-Piping Hangers and Supports.
 2. Vertical-Piping Clamps.
 3. Hanger-Rod Attachments.
 4. Building Attachments.
 5. Saddles and Shields.
 6. Miscellaneous Materials.
- B. QUALITY ASSURANCE:
1. MSS Standard Compliance:
 - a. Provide pipe hangers and supports of which materials, design and manufacture comply with ANSI/MSS SP-58.
 - b. Select and apply pipe hangers and supports, complying with MSS SP-69.
 - c. Fabricate and install pipe hangers and supports, complying with MSS SP-89.
 - d. Terminology used in this article is defined in MSS SP-90.
- C. SUBMITTALS:
1. Product Data: Submit catalog cuts, specifications, installation instructions, and dimensioned drawings for each type of support, anchor, and seal. Submit pipe hanger and support schedule showing Manufacturer's figure number, size, location, and features for each required pipe hanger and support.
- D. HORIZONTAL-PIPING HANGERS AND SUPPORTS:
1. General: Except as otherwise indicated, provide factory-fabricated horizontal-piping hangers and supports complying with ANSI-MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for copper-piping systems.
 2. Adjustable Steel Clevises: MSS Type 1.
 3. Pipe Slides and Slide Plates: MSS Type 35, including one of the following plate types:
 - a. Plate: Unguided type.
 - b. Plate: Guided type.

c. Plate: Hold-down clamp type.

E. VERTICAL-PIPING CLAMPS:

1. General: Except as otherwise indicated, provide factory-fabricated vertical-piping clamps complying with ANSI/MSS SP-58, of one of the following types listed, selected by Installer to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe. Provide copper-plated clamps for copper-piping systems.
2. Four-Bolt Riser Clamps: MSS Type 42.

F. HANGER-ROD ATTACHMENTS:

1. General: Except as otherwise indicated, provide factory-fabricated hanger-rod attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit horizontal-piping hangers and building attachments, in accordance with MSS SP-69 and manufacturer's published product information. Select only one type by one manufacturer for each piping service. Select size of hanger-rod attachments to suit hanger rods. Provide copper-plated hanger-rod attachments for copper-piping systems.
2. Swivel Turnbuckles: MSS Type 15.

G. BUILDING ATTACHMENTS:

1. General: Except as otherwise indicated, provide factory-fabricated building attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Installer to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods. Provide copper-plated building attachments for copper-piping systems.
2. Concrete Inserts: MSS Type 18.
3. Side Beam or Channel Clamps: MSS Type 20.
4. C-Clamps: MSS Type 23.
5. Side Beam Brackets: MSS Type 34.
6. Manufacturer: Subject to compliance with requirements, provide hangers and supports of one of the following:
 - a. Fee & Mason Mfg. Co., Div. of A-T- Inc.
 - b. ITT Grinnel Corp.

H. SADDLES AND SHIELDS:

1. General: Except as otherwise indicated, provide saddles or shields under piping hangers and supports, factory-fabricated, for all insulated piping. Size saddles and shields for exact fit to mate with pipe insulation.
2. Protection Saddles: MSS Type 39; fill interior voids with segments of insulation matching adjoining insulation.
3. Protection Shields: MSS Type 40; of length recommended by manufacturer to prevent crushing of insulation.
4. Thermal Hanger Shields: Constructed of 360° insert of high density, 100 psi, and waterproof calcium silicate, encased in 360° sheet metal shield. Provide assembly of same thickness as adjoining insulation.

5. Manufacturer: Subject to compliance with requirements, provide thermal hanger shields of one of the following:
 - a. Elcen Metal Products Co.
 - b. Pipe Shields, Inc.

I. HANGER RODS

1. Hanger Rods: Shall be all threaded rod and shall have the following diameters:
 - a. 3/8" for up to 2" diameter pipe.
 - b. 1/2" for 2-1/2" to 4" pipe.
 - c. 5/8" for 5" and 6" pipe.
 - d. 3/4" for 6" and 8" pipe.
2. Hanger Spacing: Shall be as followed (except not less than two hangers per length of pipe):
 - a. Cast Iron pipe: 5'-0" spacing maximum and at each hub, on both sides of horizontal no-hub fittings, and at each trap.
 - b. Steel Pipe: 6'-0" spacing up to 2" diameter and 10'-0" for 2-1/2" diameter and larger.
 - c. Copper pipe: 6'-0" spacing up 2" diameter and 10'-0" for 2-1/2" diameter and larger.
 - d. Plastic pipe: 4'0" for up to 2" diameter and 6'0" for 2-1/2" to 6" diameter, 10'0" for pipes larger than 6" diameter.
3. Hanger Locations in wood and light gage structures: No multiple hangers shall be permitted on a single building wooden or light gage steel member. Hangers shall be staggered to distribute loads evenly over the structure and additional longitudinal structural members provided to evenly distribute loads. Provide hanger locations as part of the required piping shop drawings.

J. MISCELLANEOUS MATERIALS:

1. Metal Framing: Provide products complying with NEMA STD ML 1.
2. Steel Plates, Shapes and Bars: Provide products complying with ANSI/ASTM A 36.
3. Heavy-Duty Steel Trapezes: Fabricate from steel shapes selected for loads required; weld steel in accordance with AWS standards.
4. Pipe Guides: Provide factory-fabricated guides, of cast semi-steel or heavy fabricated steel, consisting of a bolted two-section outer cylinder and base with a two-section guiding spider bolted tight to pipe. Size guide and spiders to clear pipe and insulation (if any), and cylinder. Provide guides of length recommended by manufacturer to allow indicated travel.

2.13 FIXTURE HANGARS

- A. Hangers for fixtures shall match the fixture and the wall construction and shall provide adequate support to prevent the fixture from pulling out of the wall or loosening from the wall.
- B. Minimum hanger acceptable for lavatories, drinking fountains, and urinals is the plate system equal to Zurn Z-1259.
- C. Hangers for wall hung toilets shall be the chair carrier type suitable for use with fixture provided.

2.14 WATER SYSTEM ACCESSORIES

- A. Water temperature limiting devices at single or multiple point-of-use fixtures (all lavatories and sinks) shall be rated for a minimum flow of 0.5 gpm or less, all brass or bronze body with brass and stainless steel internal components, integral checkstops on inlet connections, and must be certified to ASSE 1070 standard. Max pressure 125 psi.

2.15 FLOOR DRAINS

- A. Floor drains shall be the size of the pipe to which they are connected. Install temporary closures during construction. Each drain shall have deep seal P-trap.
- B. Floor drains shall be equal to the J. R. Smith figure numbers as indicated on the plans

2.16 WATER HEATER EQUIPMENT

- A. Instantaneous Type: Provide instantaneous water heater with replaceable electric element and ABS UL 94Vo cover. Heater shall have a replaceable inlet filter and outlet flow regulator. Heater(s) shall be equal to Eemax series SP and/or series EX.
- B. Provide water heater(s) with characteristics as indicated on the drawings.

PART 3 - EXECUTION

3.1 UTILITY SERVICES

- A. General: All work shall be done in accordance with the best practices and all products installed as directed by the manufacturer through his written instructions.
- B. Utility connections:
 - 1. Connect to exterior utilities provided by other sections of these specifications
- C. Excavations and Backfill
 - 1. Do all excavation and backfilling required. Trenches shall be wide enough for proper installation of the pipe. Grade the ditch bottom for proper slope and provide bell holes to allow the full bearing of the pipe barrel. Comply with all health and safety regulations relating to the work.
 - 2. Excavate rock 6" below the pipe and fill with sand up to the pipe grade.
 - 3. No excavation shall be done under or near footings without approval of the Architect.
 - 4. Where the ditch is under future pavement, finish surfaces, or footings, the fill shall be compacted in 6" layers with a power tamper.
- D. Pipe and Fittings

1. Install all domestic water soil, waste and vent, and storm piping generally as shown on drawings, with no deviation from diagrammed arrangements. If in any instance it is impractical to install piping as shown, or should approving agencies demand other arrangement, notify Architect in writing along with a diagram of proposed changes for Architect's approval, and said agencies' approval, all at no additional cost to Owner.
2. Carefully plan work to avoid existing utilities and other interferences. Architect and his Consulting Engineers have not attempted to indicate all existing utilities and other interferences. Prior to doing any plumbing work, carefully investigate and locate all existing conduits, pipes, and other utilities

3.2 WATER DISTRIBUTION PIPING

- A. Extend from the termination of the water service to every fixture, water heater, or outlet requiring hot or cold water. Provide stop valve and a drain for the system. Every low point shall be drained with a drain valve.
- B. Every fixture connection shall be provided with a stop valve.

3.3 BUILDING DRAIN, WASTE, AND VENTS

- A. Building drain terminates into the building sewer shown above approximately five feet outside the building line.
- B. The Waste and Vent system shall be generally as shown on the drawings with changes on the job as required to meet the job conditions. Any major change from that shown on the drawings shall be approved by the Architect.
- C. All pipe shall be supported in a manner such as to prevent excessive stress
- D. The bottom of all stacks shall be washed by a fixture whether required by local code or not.
- E. Extend vent stacks 12" above the roof and flash with lead flashing furnished by this contractor and installed into the roof by the roofer. Top of flashing turned into the stack by this contractor.
- F. There shall be no horizontal offset in vents less than 6" above the flood rim of the highest fixture in the group.
- G. For plastic waste or vent pipes passing through floor penetrations or fire rated wall assemblies, a manufactured penetration complying with ASTM E-814-09 shall be utilized with and intumescent element capable of sealing off the penetration in the case of pipe failure. This shall include all floor penetrations including pipe, water closet bends, bathtub drains, floor drains, etc. Penetrations shall be equal to Proset System "C".

3.4 TESTING

- A. Notify Architect, Engineer and local authorities three working days before test are to be made. No joints or fittings are to be concealed until tested, and any defects shall be corrected by replacement with new materials. Retest until satisfactory.

- B. Follow test as described in the 2009 edition of the ICC International Plumbing Code or as follows (whichever is most stringent):
1. Sewer System:
 - a. Water Test - fill system with water (minimum of 10' head) and hold for 45 minutes without drop in water.
 - b. Sewer Ball - pass wooden sewer ball through system using only water to wash through. Ball shall pass freely.
 - c. Peppermint Test - seal all traps of fixtures and introduce peppermint into vent from roof. There shall be no odor in building.
 2. Water System:
 - a. Impose pressure of 150 psi; with system full of water, hold for 4 hours without pressure drop. If air pressure is used, hold pressure for 8 hours without drop except as temperature drops. Provide pressure gauge and leave in place.

3.5 CAST IRON PIPE SYSTEMS

- A. Fittings of the no-hub, push type, or lead and oakum shall be installed as recommended by the manufacturer using tools as recommended by them. Take care to prevent shifting or settling of pipe.

3.6 SOLDER TYPE FITTINGS

- A. Solder type fittings below a slab are prohibited. Loop pipe up in wall and make soldered joint or fitting.
- B. All solder type fittings shall be made up using specified solder except for any special systems requiring temperatures higher than 250 degree F or pressures above 125 psi for which alloy E, alloy HB, or brazing materials shall be used. Clean pipe and fittings bright with sand paper or wire brush and apply paste flux (liquid flux is not acceptable) and assemble joint. Apply heat evenly to the pipe and fittings and apply solder to fill the joint by capillary action. Clean joint of excess solder before it cools. Fittings discolored by heat shall be removed and the joint remade.
- C. The Architect or Engineer may require the cutting out and destructive testing of up to five joints of their own selection to determine the type of workmanship being performed and the 'fullness' of the solder in the joint. Such joints shall be remade by the contractor at his expense. Should the joints tested show large voids or other indication of poor joints, the workman making the joints shall be replaced and other joints tested to determine the extent of such problems.
- D. Every connection between ferrous and non-ferrous metals in pipe, tanks, etc. shall be separated by a dielectric union or flange equal to Wedge Seal

3.7 PVC FITTINGS

- A. Clean with purple primer and apply solvent cement in accordance with manufacturer's recommendations.

3.8 LAYOUT

- A. This contractors responsibility includes:
1. Setting of floor and wall sleeves in proper locations.
 2. Informing other trades of location of and size of chases, stacks, cleanouts, etc., that will later relate to their work.
 3. Providing access to all items requiring routine service.
 4. Setting the elevation of the floor drain tops to provide for a slope of 1/16" per foot toward the drain. This requires coordination with the concrete subcontractor, the General Contractor and rechecking at the time the pour is being made.
 5. Coordinating with the HVAC Contractor to insure that the actual equipment installation will not interfere with the mechanical room floor drain locations shown and that adequate clearance is provided for the routing of condensate drains to these floor drains.

3.9 HANGARS AND SUPPORTS

- A. All pipe shall be supported in a manner such as to prevent excessive stress and variations in supporting forces onto the supporting forces onto the supporting structures. Anchor and hang in such a way as not to interfere with natural expansions and contraction and the anchors and guides shall be capable of withstanding such forces imposed on them by the expansion and contraction of piping.
- B. All vertical piping extending from floor to floor shall be supported vertically at each floor with approved riser clamps and secured horizontally.
- C. All pipe hangers shall be of sufficient size to allow for pipe insulation.
- D. All insulated lines shall have supports for piping placed on outside of insulation at every support anchor or guide. Hangers shall not be in contact with the pipe. Saddles between hangers and insulation shall be galvanized iron shields.

3.10 GRADES

- A. Pipe shall grade in direction of flow not less than the following
1. Building Sewer and Building Drain - 1/8" per foot.
 2. Waste and Vent 2-1/2" and smaller - 1/4" per foot.
 3. Waste and Vent 3" and larger - 1/8" per foot.
 4. Water piping shall be pitched to allow complete draining.

3.11 INSTALLATION OF PIPES

- A. All threaded pipes shall be reamed to remove all cutting lips from the inside edge and shall be threaded with clean dies to the proper depth. Cuts shall be clean and not gouged or rough. Apply lubricant to male thread only.
- B. All buried thermoplastic piping shall be installed per ASTM D2321.

- C. All copper pipes shall be reamed to remove all cutting lips from the inside edge.
- D. Pipe shall be laid or supported in a straight and true manner with fittings used to make all changes in direction.
- E. Cutting and Patching:
 - 1. No reinforcing steel in slabs, ceilings, roof, etc., shall be shifted or cut, nor will any structural members be cut or altered, without the specific approval of Architect unless the Contract Drawings show exact details for same. Do not make deep cuts into building framing without the specific approval of the Architect. Provide metal and/or timber reinforcing of joist, studs, plates, etc., where such cuts are made, as directed by the Architect.
 - 2. Provide basic patching between masonry openings and sleeves, drains, cleanouts, etc., up to the finished surfaces, by sealing these openings with an approved non-shrinking grout, installed according to manufacturer's written instructions. The surface patching and finishing shall also be done under this section of the work in a manner as approved by Architect.
 - 3. Where holes or cut-outs are made in flooring for the installation of drains, vents, etc., remove only enough concrete and reinforcing to install piping, etc. Preserve as much reinforcing steel as possible. Do not cut into grade beams or footings. Restore and add to floor reinforcing steel as directed by the Architect. Rebuild floor to original thickness and finish with non-shrinking 3,000 P.S.I. concrete.
- F. Pipe Sleeves:
 - 1. Each pipe passing through masonry and/or concrete construction shall be free from the structure and shall pass through a sleeve.
 - 2. Each sleeve shall extend through its respective floor, wall, etc., and shall be cut to be flush with each outer finished surface, except sleeves in floors, which shall extend one inch above finished floor unless noted otherwise. Sleeves shall be Schedule 40 galvanized steel pipe.
 - 3. Unless otherwise noted, the inside diameter of all sleeves shall be a minimum of one inch larger than the outside diameter of the pipe or conduit it serves, or a minimum of one inch in diameter larger than the outside diameter of the insulation on insulated lines.
 - 4. All holes required in concrete or masonry structures shall be cored with a diamond bit core drilling machine. No holes shall be cored through beams, joists or columns. Every safety precaution shall be taken in coring holes to prevent electric shock should any energized circuits be encountered.
 - 5. Caulk space full between sleeves and pipe or conduit, insulated or plain, above grade, to provide a positive smoke seal. Where holes have been cut in masonry for placing sleeves, the space between cut openings and sleeves shall be sealed as called for above under Paragraph "Cutting and Patching".
 - 6. Where exposed piping passes through walls, ceilings, floors or partitions, provide chromium plated, pressed steel escutcheons, Crane 10B and C, or approved equal.

3.12 PLUMBING FIXTURES

- A. Exact location of fixtures or equipment shall be as shown on Architectural drawings, as scheduled on the Plumbing drawings and as approved by Architect. Check Manufacturer's details of all roughing in.
- B. Provide all necessary supports in connection with all fixtures to be installed. Fixtures shall not be supported by piping connections.
- C. Install wall hangers and carriers by means of through bolts.
- D. Caulk all around fixtures which mount tight to walls, floors or counter tops with "Dow Corning" No. 780 or General Electric "RTC" Silicon sealant.

3.13 CLEANING AND DISINFECTING

- A. All potable water piping shall be flushed and disinfected prior to connection to domestic water supply. Disinfecting shall be carried out in accordance with State Sanitary Code and local regulations

3.14 BALANCING

- A. Before final acceptance, fully balance all systems furnished under this Section to achieve optimum performance. Systems shall be free from water hammer

3.15 TESTS:

- A. Make tight and test all piping, valves, fittings, specialties and equipment required by regulatory authorities.
- B. Do not conceal any work until it has been tested and inspected. Notify Architect and proper authorities in ample time when any work is ready for inspection and testing.

3.16 PAINTING:

- A. The painting of all material and equipment furnished and installed under these sections of the Specification shall be included as part of each trade of these Sections.
- B. All surfaces to be painted shall be cleaned free of rust, dirt, grease, etc.
- C. Paint all mechanical and electrical equipment (not considered as having an enameled or baked finish) and in areas exposed to view paint all piping, raw metal supports, hangers, bases and anchors.
- D. Paint shall be Rustoleum, Koppers, Pittsburgh, or approved equal, of the best type recommended by paint manufacturer for the surface conditions where used.

- E. The surfaces shall be prepared and the paint applied as per Manufacturer's written recommendations, with recommended number of primary and finish coats. Colors shall be selected by Architect.
- F. See DIVISION 9 for other painting requirements.

3.17 ELECTRICAL:

- A. All electrical work shown, noted and required to provide completely operating facilities shall be included as part of contract work.
- B. Refer to DIVISION 26 - ELECTRICAL for materials and methods.

3.18 PROTECTION DURING CONSTRUCTION:

- A. Install test plugs, wood plugs or caps in all open pipes at time of installation and do not remove until pipe is connected.
- B. Maintain pressure and pressure gauge on all water lines during construction. Use water except in cold weather.
- C. Drain all water from lines to prevent freezing.
- D. Protect all finished surfaces of fixtures and brass from any damage. Fixtures or brass of any type that is damaged, scratched, discolored shall be removed and replaced at this contractor's expense.

3.19 FIXTURE HANGERS:

- A. Lavatories shall be secured to a steel plate type hanger (or floor supported carrier when specified) imbedded in or secured to the wall in such a way that the fixture will be supported to the full extent of the strength of the wall. Provide a bolt from the plate hanger to the fixture carrier for each hole provided in the carrier.

3.20 START UP AND SERVICE:

- A. Place all items installed under this division into operation and instruct the owner's maintenance personnel in all points requiring service and maintenance: make all adjustments and/or service requirements to equipment during the warranty.

PART 4 - FIXTURES AND EQUIPMENT

4.1 GENERAL REQUIREMENTS

- A. Furnish all plumbing fixtures, drains, and equipment as shown on the Architectural drawings. If architectural drawings differ from plumbing drawings, this shall be called to the Architect's attention before bidding.
- B. Fixtures and other equipment shall be furnished complete with all trim, fittings, and other devices which are generally considered necessary by trade, by craft standards and/or the Architect.
- C. Fixtures and equipment shall have the manufacturer's name or trademark imprinted on or attached by metallic name plate.
- D. All fixtures and all trim may be of different manufacturer than fixtures, but equal to that specified. See Paragraph 1.6 for submittal requirements when submitting fixtures other than those specified and/or scheduled by name.
- E. All exposed trim shall be chrome plated. Tops of all floor drains shall be chrome or nickel bronze unless otherwise noted
- F. Furnish china or matching plastic bolt caps for all toilets and urinals.
- G. Faucets, fittings, etc. scheduled on the Drawings are the catalog numbers of Kohler or as identified by name. This reference is for identifications of quality, and equal products of recognized manufacturers (ie: American Standard, Zurn, Symmons, Crane, Elkay, Toto, T&S Brass) will be accepted as equal if submitted with full catalog data and engineering data.

END OF SECTION 220000

DIVISION 22 and 23

MECHANICAL

PLUMBING



BY: BARBARA H. MCCRARY, PE

SECTION 230000

MECHANICAL GENERAL PROVISIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK

- A. General: This section specifies several categories of provisions for mechanical work, including:
 - 1. Certain adaptive expansions of requirements specified in Division 1, as uniquely applicable to mechanical work.
 - 2. General performance requirements within the mechanical work as a whole.
 - 3. General work to be performed as mechanical work, because of its close association with mechanical work.

1.3 SUMMARY OF MECHANICAL WORK

- A. Drawings: Refer to the drawings for graphic representations, schedules and notations showing mechanical work.
- B. Specifications: Refer to Divisions-22 and 23 sections for the primary technical specifications of mechanical work.
- C. General Outline: The facilities and systems of the mechanical work can be described (but not by way of limitation) as follows:
 - 1. Plumbing systems
 - 2. Heating and ventilation system
 - 3. Testing, Adjusting and Balancing.

1.4 SCOPE

- A. This section shall consist of providing all materials, labor, tools, plant and incidentals necessary to install and make ready for owner's beneficial use, complete mechanical systems including a system of air tempering for the proposed building as shown on the Drawings and called for in the Specifications. Completed Mechanical Systems means ready for operation, and that items omitted from drawings that are required for a complete and operational system will be furnished by the Contractor at no additional cost to the Architect, Engineer, or Owner.

- B. It is understood that the responsibility for the work of the entire project falls upon one Contractor (sometimes, herein referred to as the General Contractor). The Designers, however, understand the relationship between the Contractor and other organizations, outside of his, which the Contractor employs to assist him with this work. The Division 23 Specifications are addressed to the Contractor and it is his responsibility to perform the work (regardless of whom he may employ for assistance). The Division 23 Specifications are written, however, in an effort to assist the Contractor with subcontract employment (herein referred to as "This Contractor", "Mechanical Contractor", "Electrical Contractor", "Plumbing Contractor", "Control Contractor", etc., or above listed as "Subcontractor" in lieu of "Contractor"). This shall not be construed by the Contractor to alleviate him of any responsibility for the work, including its coordination amongst various trades, and placement of the same on others, nor shall this be construed to direct the Contractor to the employment of Subcontractors (with the exception of Testing Agencies).
- C. All references to "Contractor(s)" or "Subcontractor(s)" are referring to the Contractor and his coordination of responsibilities within the work of the Contract.
- D. See the Architectural Plans and visit the site of work to observe dimensions, construction and details not shown on these Drawings.
- E. Wherever the word "supply", "provide" or similar term is used in the sense of providing apparatus or materials, it shall mean that Contractor shall furnish and connect such apparatus or materials referred to, unless otherwise specifically called for, at no additional cost to Owner.

1.5 DRAWINGS AND SPECIFICATIONS

- A. Consider as complementary each to the other. What is called for by one shall be binding as if called for by both. Where conflicts occur, obtain written clarification; otherwise provide the more expensive quality or quantity.

1.6 COORDINATION OF MECHANICAL WORK

- A. General: Refer to the Division 1 sections for general coordination requirements applicable to the entire work. It is recognized that the contract documents are diagrammatic in showing certain physical relationships which must be established within the mechanical work, and in its interface with other work including utilities and electrical work, and that such establishment is the exclusive responsibility of the Contractor.
- B. Arrange mechanical work in a neat, well organized manner with piping and similar services running parallel with primary lines of the building construction, and with a minimum of 7'0" overhead clearance where possible.
- C. Locate operating and control equipment properly to provide easy access, and arrange entire mechanical work with adequate access for operation and maintenance.
- D. Give right-of-way to piping which must slope for drainage.
- E. Advise other trades of openings required in their work for the subsequent move-in of large units of mechanical work (equipment).

- F. Coordination Drawings: For locations where several elements of mechanical (or combined mechanical and electrical) work must be sequenced and positioned with precision in order to fit into the available space, prepare coordination drawings (shop drawings) showing the actual physical dimensions (at accurate scale) required for the installation. Prepare and submit coordination drawings prior to purchase, fabrication, or installation of any of the elements involved in the coordination. Coordination drawings at 1/4-inch scale will be required for all mechanical rooms.
- G. Work for Other Trades: Refer to, read and study, all of the General and Technical specification sections in all Divisions for this project and provide all work required of the Division 23 trades which may be required therein or thereby including, but not by way of limitation, connection of utilities to equipment provided under other Divisions, providing and/or installing ducts, louvers and fans in connection with equipment provided under other Divisions (eg: kitchen exhaust hoods, emergency generator radiators, etc.), providing gas vents for equipment provided under other Divisions, etc.

1.7 MECHANICAL PLANS

- A. The mechanical plans are intended to be diagrammatic based on one manufacturer's equipment. The plans are not intended to show every item in its exact location, the exact dimensions, or all the details of the equipment. Verify the exact dimensions of the equipment proposed.
- B. Installation shall be within the limitations imposed by the architectural, structural, electrical and plumbing, and fire protection (sprinkler) requirements with adequate space for maintenance.

1.8 QUALITY ASSURANCE, STANDARDS, AND SYMBOLS

- A. Contractor for this DIVISION must have installed at least three (3) similar type and size jobs and mechanical contracting shall be their primary business.
- B. Qualifications of Subcontractors: They shall have had previous experience in the satisfactory installation of at least three systems of this type and size.
- C. General: Refer to the technical sections for general administrative/procedural requirements related to compliance with codes and standards. Specifically, for the mechanical work (in addition to standards specified in individual work sections), the following standards are imposed, as applicable to the work in each instance:
 - 1. AWS standards for welding.
- D. All work shall be in accordance with the latest editions adopted of following codes and regulations:
 - 1. National Fire Protection Agency
 - 2. Occupational Safety and Health Administration
 - 3. International Code Council, Inc. Codes
 - 4. State Building Code
 - 5. Local Building Codes

- E. Where any of the above are at variance with the drawings and specifications, the requirements of the above codes and regulations shall take precedence and the costs necessary to meet these shall be included in the bid price.
- F. The contractor is solely responsible for meeting all OSHA regulations and insuring job site safety.
- G. Symbols: Except as otherwise indicated, refer to the "ASHRAE Handbook of Fundamentals" for definitions of symbols used on the drawings to show mechanical work.

1.9 QUESTIONS AND CLARIFICATIONS OF BID DOCUMENTS

- A. Bidders shall not rely on any verbal clarification of the drawings or specifications. Any questions or clarifications shall be referred to the Architect/Engineer at least five (5) working days prior to bidding to allow for issuance of an addendum. After the five (5) day deadline, the bidder shall make his own decision and qualify his bid if he feels it necessary.

1.10 TEN (10) DAY PRIOR APPROVAL

- A. This requirement for prior approval is independent of others called for in other Divisions of these specifications.
- B. Any fixture, equipment, material, or components of fixtures and equipment proposed to be furnished for this project, other than manufacturer's equipment actually named in the bid documents, shall have pertinent submittal data with descriptive cover sheet submitted to the Architect with a copy to the Engineer. The request for prior approval shall include 1) the project bid date, 2) the specification section number referenced, 3) the paragraph referenced within that section, and 4) the manufacturer's name being requested for prior approval. This data shall be received by the Engineer ten (10) days and one hour prior to bid opening data for inclusion in an addendum if and when reviewed and accepted for bidding.
- C. This is for pre-bid review and is not to be regarded as submittals required for construction. It is understood that approval shall be for the manufacturer to quote the project during bidding, subject to the requirements of the contract documents.
- D. Bidder shall base his bid on items of equipment actually named in the bid documents or addendums issued prior to biddings. Verbal acceptance will not be accepted unless verified in writing. It is the bidders' responsibility to ascertain that all equipment has been accepted by requiring copies of the written acceptance.

1.11 GUARANTEES

- A. All equipment, materials and workmanship shall be guaranteed in writing for a period of one (1) year beginning with the date of acceptance. Special warranties will be called for under some sections of equipment. This warranty shall be in writing and shall include written copies of the factory warranties with expiration dates on items of equipment where the warranty date may differ from the acceptance date. No warranty shall start before the acceptance date.

- B. The contractor's warranty shall include at least two (2) inspections of the system to repair and/or replace any items found defective during this warranty period.
- C. After completion of the work, the Contractor shall operate the equipment he installs for a period of five (5) days, after which time it shall be considered as a test of satisfactory operation. During this time, he shall instruct the owner's operating personnel in the correct operation of the equipment.
- D. Contractor shall provide the owner with two (2) sets of manufacturer's operating and maintenance manuals and parts list for all equipment and materials furnished by him. In addition to the manufacturer's data, contractor shall provide a maintenance schedule listing routine maintenance operations and the frequency thereof.

1.12 SUBMITTALS:

- A. General: The Drawings and Specifications may make mention to specific Manufacturer's model numbers. It is understood that these model numbers direct the Contractor to a "Type" or "Series", and are not intended to indicate all suffix designations, prefix designations, or variations of types and models. The type, series, or variation of the model number given must be determined by including all specified items, performance, etc. specified, indicated, and/or detailed. Refer to the Division 1 sections for general requirements concerning work-related submittals (refer to other Divisions 1 sections for administrative submittals). For mechanical work, the following quantities are required for each category of submittal (in lieu of quantities specified in Division 1, unless otherwise indicated in individual work sections (quantity does not include copies required by governing authorities, or by Contractor for his own purposes):

- 1. Phasing Plan: 3 sets stamped as approved by the General Contractor
- 2. Shop Drawings: 6 sets, (including 2 for maintenance manuals.)
- 3. Product Data: 6 sets, (except 5 sets where required in maintenance manuals.)
- 4. Samples: 4 sets (unless otherwise noted and/or specified)
- 5. Certifications: 3 copies.
- 6. Test Reports: 3 copies.
- 7. Warranties (Guarantees): 8 copies, including 2 for maintenance manuals.
- 8. Maintenance Manuals: 2 final copies, including flow diagrams, maintenance instructions, operating instructions, parts listings, and copies of other submittals indicated for inclusion.
- 9. Maintenance Manuals: Organize each maintenance manual with index and thumb-tab marker for each section of information; bind in 2" (or larger if required) 3-ring, vinyl-covered binder with pockets to contain folded sheets, properly labeled on spine and face of binder.

B. SUBMITTALS

- 1. Thirty days subsequent to either the signing of the General Contract or from the Notice to Proceed, the submittals required by this paragraph shall be in the offices of the Prime Design Professional. All other materials and equipment not submitted within the above mentioned time shall be provided as specified in the contract documents without substitutions.
- 2. Prior to starting any construction, submit five (5) copies of schedule of items proposed for this work with approved substitutions to specified items clearly noted as such on the

summary page. Submit all items, equipment, materials, etc. at the same time together in a single tabbed, three ring bound, submittal package with descriptive cover and table of contents. Submittal shall be bound and include a summary page listing all items contained therein. Submittal shall include illustrations, drawings and engineering data for review by the Engineer. Submit in time to allow not less than fifteen (15) working days for checking and transmittal without delaying the construction schedule. Submit all items at one time and not less than thirty (30) days after the award of the contract. Submittals shall be clearly designated as to the intended item with identification as to unit number or other marking to show location, service and function.

3. Submittals shall be bound under one cover and submitted all at one time. Partial submittals or unbound submittals will not be accepted. Any item not submitted with this required bound submittal shall be provided as specified or indicated. Subsequent submittals for additional specific items shall not be accepted.
4. If electronic submittals are used, the submittal shall be in Adobe PDF format with each individual specification section bookmarked to allow for easy access to specific items. Specification sections to have nested bookmarks for each item/major piece of equipment covered by that specification.
5. The Contractor, by submitting, certifies that those submitted items, materials, equipment, etc., are those that, if not “rejected” or “returned for correction”, shall actually be installed, without exception, addition or substitution, as work of the project.
6. By submitting the required submittals, the Contractor certifies that the Electrical Installer has reviewed all electric power using equipment has been reviewed by the Electrical Installer and that any and/or all power circuits have been coordinated and that all power circuits shall match the equipment provided, whether properly indicated on the Electrical Drawings or not. See also Paragraph 2.4.
7. Any equipment installed without prior (review) acceptance shall be subject to rejection and replacement unless such items were identified by name on the bid documents.
8. The supplier, by submitting, certifies that the materials or equipment proposed is satisfactory for the application intended and that the materials and equipment are in current production with no anticipated plans to cease production.
9. Contractor agrees that submittals processed by the Engineer are not change orders; that the purpose of submittals by the contractor is to demonstrate to the Engineer that the contractor understands the design and specification concept, and that he demonstrates this understanding by indicating which equipment and materials he intends to furnish and install with the fabrication and installation methods he intends to use.
10. Contractor further agrees that if deviations, discrepancies or conflicts between submittals and contract documents are discovered either prior to or after submittals are processed by the Engineer, the contract documents shall control and shall be followed.
11. Submittals shall include:
 - a. 1/4 scale shop drawings of equipment.
 - b. Power and fuel consumption, voltage and ampere rating.
 - c. Capacity and conditions at which rated.
 - d. 1/8 scale shop drawings of duct systems; piping systems; drain, waste, vent systems, domestic water systems
 - e. Volts, phase and full load amps of each electrical item
12. When major items of equipment or systems are submitted as substitution for that which is called for by the contract documents, and significantly different dimensions or concepts are encountered in such proposal, the submittals shall include 1/4" scale drawings of

proposed equipment and system layout with sections. These drawings shall indicate all spatial relationships between equipment, piping, duct, electrical work, building and space constraints, etc.

1.13 CONFLICTS

- A. Where any conflict between the requirements of these specifications and the requirements of the associated drawings occur, the more stringent requirements shall govern unless approval is obtained through the Engineer. All such conflicts shall be brought to the Engineer's attention.
- B. Where technical specifications include installation instructions, in their "Part 3 – Execution" paragraph, for materials, items, equipment, etc. which are not mentioned in their "Part 2 – Products" paragraph, it shall be considered as an editing inaccuracy and shall not be construed as Part 3 allowing the use of products not mentioned in Part 2.

PART 2 - PRODUCTS

2.1 GENERAL

- A. All products shall be new, of first line quality of grade and type shown on the drawings and specified, or equals accepted by the Architect/Engineer in writing.
- B. All products shall be in current production with no notice having been given that such product is to be drastically changed, modified, or discontinued from production.
- C. The supplier, by submitting, certifies that equipment being processed is proper for the application intended and that it has the capacity specified.
- D. Lead-Free Requirements:
 - 1. Any product designed for dispensing potable water must meet both the NSF 61 and NSF 372 test standards via third-party testing and certification.
 - 2. This requirement supersedes specific model numbers stated either in these specifications or on the drawings, should a non lead-free model number be used for products designed for dispensing potable water.

2.2 COMPLETE SYSTEM

- A. All products, materials and accessories shall be furnished and installed as required for a complete system ready for Owner's beneficial use.

2.3 PRODUCTS, MECHANICAL WORK

- A. General: Refer to Division 1 sections for general requirements on products, materials and equipment. The following provisions expand or modify the requirements as applicable to mechanical work:

1. **Product Listing:** Prepare the product listing for mechanical work, separately from the listing(s) of products for other work. Include listing of each significant item of equipment and material used in the work; and indicate the generic name, product name, manufacturer, model number, related specification section number(s), and estimated date for each start of installation. Bulk materials, including pipe and sheet metal, taken from Fabricator's/Installer's stock need not be listed.
 2. For principal equipment item, list the power and fuel consumption ratings, and the primary ratings.
- B. Submit list within 30 days of Contract Date.
- C. **Compatibility:** Provide products which are compatible with other products of the mechanical work, and with other work requiring interface with the mechanical work. Provide products with the proper or correct power characteristics, fuel-burning characteristics and similar adaption's for the project. Coordinate the selections from among options (if any) for compatibility of products.
- D. **Equipment and Material Deviations:** When any material or piece of equipment is specified on the plans or in the specification by reference to one manufacturer's name or model number, it is intended to establish the required standard of design and quality, and it is understood that the phrase "or approved equal" is hereby inserted following the one manufacturer's name, whether such phrase occurs or not.
- E. When the drawings and/or specifications indicate one or two manufacturer's names for materials and equipment, the bidder may submit his bid based on material or equipment of manufacturers not named but considered by the bidder to be equal to the standard of quality and design specified. However, such substitutions must be accepted by the Architect/Engineer as equal. If the bidder elects to bid on a substitution without obtaining the written consent of the Architect/Engineer prior to receipt of bids, then it will be understood that proof of compliance with specified requirements is the direct responsibility of the bidder and no such materials and/or equipment may be purchased or installed without written acceptance of the Architect.
- F. Bidders are advised to ascertain such acceptance from their suppliers by requesting copies of the acceptance in writing, signed by the Architect or Engineer. Bidders are also advised to submit a stamped, self-addressed envelope when requesting said copies.

2.4 ELECTRICAL PROVISIONS OF MECHANICAL WORK

- A. All electrical work required in association with the HVAC work (in order to provide complete operating systems of Fire Suppression, Plumbing, HVAC and HVAC controls) shall generally be a part of the Division 26 work. However, there are certain portions of the electrical requirements which shall be a responsibility of the Division 23 work, which shall be executed in accordance with applicable Division 26 Specification requirements. The electrical provisions of mechanical work, where it may be furnished integrally with mechanical work, can be summarized (but not by way of limitation) to include the following: 1) Motors, 2) Motor starters, 3) Wiring from mechanical equipment to electrical work termination (junction box or disconnect switch), 4) Control switch, pilot lights, interlocks, control transformers and similar devices, 5) Variable Frequency/Variable Speed Drives with Isolation Transformers where so required, 6) Electrical heating coils and similar elements in mechanical equipment, 7) Electrical work specified as

mechanical work in the HVAC control system, 8) Drip pans to protect electrical work, and 9) Work specified elsewhere and/or in other sections as part of the Mechanical Work Requirements.

- B. Responsibility: It is the sole responsibility of the Contractor to coordinate the electrical requirements of each item of equipment provided with the electrical circuits required and to insure their compatibility and compliance with the N.E.C.
- C. For the purposes of these Specifications, the term “single point power connection” (SPPC) shall mean explicitly that. A single point power connection shall require no other circuits to complete the system. If an item of equipment is provided which is scheduled and/or specified for SPPC but requires additional circuits, the Contractor shall be responsible for the additional circuits, transformers, circuit protection, sub-fusing, etc. in accordance with the NEC and/or the Division 26 specifications for this project.
- D. If such an instance occurs where an item of equipment, heat trace, control element, etc., is shown or required, and no electrical provisions are elsewhere specified, shown or indicated, the Contractor shall provide a properly sized and protected power circuit for it (them) as part of the Division 23 work in accordance with the Division 26 sections of these specifications and the N.E.C.
- E. If such an instance occurs where the electrical characteristics of an item of equipment indicated in/on Mechanical Drawings do not match those indicated in/on the Electrical Drawings, it shall be considered as a drafting inconsistency and the Contractor shall be required to provide equipment which is properly matched to the circuits and circuit protection provided.
- F. Where mechanical devices are to be incorporated into fabricated electrical units at the factory, furnish devices to the designated factory well in advance of time that the units are needed at the project.
- G. Where control transformers are provided, insure that they are compatible with the electrical circuits provided (example: if a 480volt/3phase/60 hz, 3-wire power circuit serves a mechanical item of equipment, provide 480 volt to low voltage transformer(s) for controls, if low voltage controls so require, not 277 volt transformers).
- H. Standards: Where not otherwise indicated, comply with applicable provisions of the National Electrical Code, NEMA standards, and sections of Division 26 of these specifications. All wiring, including controls, shall be installed in conduit with wire sizes according to NFPA 70 unless otherwise indicated on the plans.
- I. Motors:
 - 1. Manufacturer: Allis-Chalmers, Century/Gould, General Electric, Louis Allis, Marathon, Reliance or Westinghouse. Where selection of motor manufacturer is within Contractor's control (independent of mechanical equipment selection), provide motors produced by a single manufacturer to the greatest extent possible.
 - 2. Temperature Rating Class B insulation, or Class F when used with variable Frequency (Variable Speed) Drive(s), or as otherwise indicated or required for service indicated.
 - 3. Starting Capability: As required for service indicated, but not less than 5 starts per hour.
 - 4. Phases and Current: Refer to project drawings.
 - 5. Service Factor: 1.15 for polyphase; 1.35 for single-phase.

6. Direct drive motors served by variable speed drives: Provide shaft grounding rings.
7. Construction: General purpose, continuous duty; Design "B", except "C" for high starting torque applications.
8. Frames: NEMA No. 48, except 56 for heavy-duty applications.
9. Bearings: Ball or roller designed for thrust where applicable; shaft seals and regreasable, except provide permanently sealed where not accessible for greasing. Sleeve-type bearings permitted only where indicated for light-duty fractional hp motors.
10. Enclosure Type: Open drip-proof for normal concealed indoor use, guarded where exposed to employees or occupants. Type II for outdoor use, except weather-protected Type I where adequately housed. Totally Enclosed Fan Cooled (TEFC) motors shall include a rain cap if required for protection when mounted in a vertical configuration.
11. Overload Protection: Built-in thermal; with internal sensing device for stopping motor, and for signaling where indicated.
12. Noise Rating: "Quiet", except where otherwise indicated. Motors used with variable frequency/speed drives shall be selected such that neither the motor nor the drive whines or makes any objectionable noise.
13. All electric motors shall operate at a maximum of 1750 rpm and have open drip proof enclosures for dry indoor applications and totally enclosed fan cooled or air over motors for outdoor applications. Motors located on air handling units shall be mounted in rubber supports or the fan shall be independently supported on spring isolators. Motors located in the conditioned space shall be selected for quiet operation and shall not produce objectionable "motor noise" in the space.
14. Electrical characteristics shall be verified from the Electrical drawings, prior to bidding, and verified on the job by the Electrical Contractor (prior to ordering by the Electrical Installer).

J. Starters/Switches:

1. Manufacturer: Allen-Bradley, Cerus, Furnas, Cutler-Hammer, General Electric, or Westinghouse.
2. Motor starters shall be sized in accordance with the National Electrical Code and proper heater elements shall be provided and installed. Match AIC Rating of Electrical Panels serving the motor starter, 30K AIC minimum.
3. Starter Characteristics: Type I general purpose enclosure with padlock ears and supports for mounting as indicated. Starter type and size as recommended by motor manufacturer. Locate disconnect switch within sight of motor.
4. Manual Switches: Provide on motors 1/3 hp and smaller, except where automatic control or interlock is indicated; include pilot light. Provide overload protection where not protected by panelboard circuit breaker or fused disconnect switch.
5. Magnetic Starters: Provide for 1/2 hp and larger motors, and for smaller motors on automatic control or with interlock switch.
6. Starters shall consist of a horsepower rated magnetic contactor with a minimum of 1NO and 1NC auxiliary contacts and solid state electronic overload relay. Overload relay shall protect all three phases with a wide range current setting and trip class to allow field adjustment for specific motor FLA. Interchangeable heater elements are not acceptable. Overload relay shall provide phase failure, phase loss, locked rotor and stall protection.
7. Provide a manual reset pushbutton on the starter cover to restore normal operation after a trip or fault condition.

8. Each starter shall include an installed 50VA control power transformer (CPT) with protected secondary. The CPT must accept the available line voltage and the control voltage shall not exceed 120V.
9. Installed accessories shall include Hand-Off-Auto operation switch with 22mm style operator interfaces. Include LED pilot light indicators for Hand, Off, Auto, Run and Overload conditions. All pilot devices shall be water tight and dust tight.
10. When remotely controlled by an automation system, the starter shall include remote run terminals which accept both a voltage input signal and a contact closure. The voltage run input shall accept both AC and DC signals including 24VAC, 120VAC, 24VDC and 48VDC to allow direct connection of the transistorized automation signal to the starter.
11. In applications where the motor is interlocked with a damper or valve, the actuator control must reside within the starter enclosure. The starter must provide a voltage output to operate the actuator to open the damper or valve without closing the motor circuit. The starter will only close the motor circuit and start the motor after it has received a contact closure from a limit or end switch confirming the damper or valve position.
12. The starter shall provide a provision for Fireman's Override operation. When activated, the starter run the motor in any mode (Hand, Off or Auto) regardless of other inputs or lack of inputs either manual or auto. The purpose of the Fireman's Override input is to act as a smoke purge function. Fireman's Override has priority over the Emergency Shutdown input.
13. If the starter is controlled by a fire alarm or life safety system, the starter shall include an Emergency Shutdown input which will disable the starter from operating in either Hand or Auto mode regardless of other inputs either manual or auto.

K. Wiring/Connections:

1. Motors: Wire connections in flexible conduit, except where plug-in electrical cords are indicated and permitted by governing regulations.
2. General Wiring: Comply with applicable provisions of Division 26 sections.
3. Control wiring: This contractor is responsible for all line voltage control wiring required for interlocked valves, dampers and other control devices. Controls subcontractor is responsible for any and all low voltage control cable/wiring required for a complete and operational system. In general, Division 26 contracto rwill provide a single 120-volt circuit to the control panel.

L. Drip Pans:

1. Where possible to run mechanical piping elsewhere, do not run mechanical piping directly above electrical or electronic work which is sensitive to moisture; otherwise provide drip pans under mechanical piping, sufficient to protect electrical work from drips. Locate pan immediately below piping, and extend a minimum of 6" on each side of piping and lengthwise 18" beyond equipment being protected. Fabricate fans 2" deep, or reinforced sheet metal with rolled edged and soldered or welded seams; 20 gage copper, or 16 gauge steel with 2 oz. zinc finish hot dripped after fabrication. Provide 3/4" copper draining piping, properly discharged.

2.5 UNDERGROUND STRUCTURES AND FACILITIES

- A. All underground structures and facilities for Division 23 work including, but not by way of limitation, Fire Suppression/Fire Protection, Plumbing and HVAC, shall be DOT rated for H20 loading

PART 3 - EXECUTION

3.1 WORKMANSHIP

- A. All work shall be performed by competent mechanics using proper tools and equipment to produce first quality work. All work shall be neatly installed, accessible for maintenance and complete with all accessories required.

3.2 ACCESSIBLE PROVISIONS

- A. The Contractor shall comply with all provisions of the “Americans with Disabilities Act” (ADA), whether indicated or specified elsewhere or not.
- B. Thermostats shall be mounted at 54” above the floor where side reach is possible and at 48” where only forward reach as possible.

3.3 MECHANICAL SYSTEM IDENTIFICATION

- A. Equipment:
 - 1. Signs: Provide engraved plastic-laminate signs at locations of equipment. Provide text of sufficient clarity and lettering, of sufficient size to convey adequate information at each location, and mount permanently in an appropriate and effective location. Comply with recognized industry standards for color and design.

3.4 CUTTING AND PATCHING

- A. Cutting and Patching Requirements: Comply with the requirements of other Divisions for the cutting and patching of other work to accommodate the installation of mechanical work. Except as individually authorized by the Architect/Engineer, cutting-and-patching of mechanical work to accommodate the installation of other work is not permitted, other than necessary penetrations of mechanical sheet metal work for electrical conduit and similar purposes.

3.5 WORK BY OTHER TRADES

- A. Cutting, patching, furring or painting shall be done by the affected trade at this contractor’s expense for changes required in the finish work.

- B. Openings in walls, floors and roof to be furnished by the General Contractor. This contractor shall furnish the General Contractor with the location and size required. This contractor shall furnish all sleeves, frames including framing between joist (unless shown on the Structural plans), access doors, prefabricated curbs, roof flashing, counter flashing and other accessories necessary for a complete installation. Only those items specifically shown and/or specified in other sections are excluded.
- C. Power wiring, including final connections, is by the Electrical Contractor (However, this contractor is in some cases made responsible for power wiring by these specifications. It is in these cases that this contractor must arrange for and bear the cost of power wiring such as that associated with equipment auxiliaries, power for control circuits, etc.) This contractor shall install all motors and furnish all starting equipment to the Electrical Contractor for installation. Control wiring, including conduit, switches, thermostats, interlocks, etc., shall be furnished by this contractor unless specifically shown on the Electrical drawings. This contractor shall see that the electrical components mounted on the equipment do not block access to service areas of the equipment (such as disconnects switches mounted on the equipment).
- D. Power and fuel for testing shall be by the General Contractor.
- E. Door grilles shall be furnished by this contractor and installed by the General Contractor.
- F. Floor drains and hub drains shall be the responsibility of the Plumbing Contractor. This contractor shall connect drains from his equipment to these drains with an open site drain connection or air gap. This contractor shall review the drain locations and insure that mechanical equipment will not interfere with drain location. If a conflict is noted, notify the Architect and coordinate drain location.

3.6 PAINTING OF MECHANICAL WORK

- A. General: The work of this article is defined to include general painting of mechanical work at the project site. Coordinate the painting with the painting of other work of a similar nature, and comply with indicated color and color matching requirements. Except as otherwise indicated, paint surfaces of mechanical work which would normally be painted in the application and exposure indicated.
- B. General Standards: Except as otherwise indicated, comply with applicable provisions of other Sections for mechanical-work painting. Refer instances of uncertain applicability to the Architect/Engineer for resolution before proceeding.
- C. Painting Requirements: Refer to the mechanical drawings for the extent of mechanical work of various categories (as designated for painting). The painting requirements can be summarized as follows, but not necessarily by way of limitation:
 - 1. Work buried in soil or encased in concrete or insulation need not be painted (except for protective coatings specified with the piping system).
 - 2. Painting of mechanical work exposed in occupied spaces of the building (not including machine rooms and maintenance/service spaces), and work exposed on the exterior (outdoors), is not specified as work of this section (not mechanical-work painting).

- D. Paint the following categories of mechanical work which have not been fully factory-finished, except paint over factory finish which is not an acceptable color
 - 1. Accessible ferrous metal (does not include stainless steel), regardless of whether exposed or to be concealed behind ceilings, shaft enclosures or similar finish construction; exclusive of cast iron which is either concealed or set flush with floors or decks.
 - 2. Zinc-coated (galvanized) metal surfaces; but excluding surfaces which are concealed, except in "high humidity" areas.
 - 3. Aluminum surfaces which have not been specifically anodized as a final finish, and excluding surfaces which are concealed.
 - 4. Concrete, but only where adjacent non-mechanical-work concrete of a similar placement is required to be painted.
 - 5. Insulation on piping, ductwork, equipment and similar work; but excluding concealed surfaces and aluminum-foil-faced insulation.

- E. Do not paint over name plates on equipment, sliding/rotating shaft surfaces, non-ferrous hardware/accessories/trim, and similar items where painting would normally be omitted.

3.7 NOISE AND VIBRATION

- A. Install vibration isolators, flexible connectors, expansion joints and other safety measures to prevent noise and vibration from being transmitted to occupied areas. Equipment shall be selected to operate within the noise level recommended for the particular type installation in relation to its location.

- B. After installation, make proper adjustments to eliminate excessive noise and vibration.

3.8 EQUIPMENT AND DUCTWORK CLEANLINESS DURING CONSTRUCTION

- A. HVAC equipment and ductwork will be protected from dust and other pollutants during installation and during initial equipment operation.

3.9 CLEANING AND PATCHING

- A. Thoroughly clean all equipment and remove all trash, cartons, etc...Make any necessary corrections or repair/replace any damaged materials or equipment. Leave the entire system in a thoroughly clean and orderly manner.

- B. Any finished surfaces that have been scratched or discolored shall be touched-up or repainted to match the original color.

- C. All metal items subject to rusting, inside or exposed to the weather, shall be given one coat of proper type rust preventive type primer as soon as installed. If final paint finish is not specified in other sections, then this contractor shall apply two (2) finish coats with color to be selected by the Architect.

3.10 MECHANICAL WORK CLOSE-OUT

- A. General: Refer to the Division I sections for general closeout requirements. Maintain a daily log of operational data on mechanical equipment and systems through the closeout period.
- B. Record Drawings: Provide mylar reproducible record drawings of the Mechanical work, give special attention to the complete and accurate recording of underground piping and ductwork, other concealed and non-accessible work, branching arrangement and valve location for piping systems, locations of dampers and coils in duct systems, locations of control system sensors and other control devices, and work of change orders where not shown accurately by contract documents.
- C. Closeout Equipment/Systems Operation: Sequence operations properly so that work of project will not be damaged or endangered. Coordinate with seasonal requirements. Operate each item of equipment and each system in a test run of appropriate duration (with the Architect/Engineer present, and with the Owner's operating personnel present), to demonstrate sustained, satisfactory performance. Adjust and correct operations as required for proper performance. Clean and lubricate each system, and replace dirty filters, excessively worn parts and similar expendable items of the work.
- D. Operating Instructions: Conduct a full-day walk-through instruction seminar for the Owner's personnel to be involved in the continued operation and maintenance of mechanical equipment and systems. Explain the identification system, operational diagrams, emergency and alarm provisions, sequencing requirements, seasonal provisions, security, safety, efficiency and similar features of the systems. This seminar to be scheduled ten days in advance. The entire seminar shall be recorded in standard format video cassette. Provide cassette with close-out documents.
- E. Turn-over of Operation: At the time of substantial completion, turn over the prime responsibility for operation of the mechanical equipment and systems to the Owner's operating personnel. However, until the time of final acceptance, provide one full-time operating technician who is completely familiar with the work, to consult with and continue training the Owner's personnel.
- F. Provide bound maintenance manual to consist of:
 - 1. Table of Contents
 - 2. Letter of Guarantee on Letterhead
 - 3. For each major item of equipment
 - 4. Operating instructions
 - 5. Maintenance instructions
 - 6. Parts lists
 - 7. Equipment performance
 - 8. Control diagrams with parts lists.
 - 9. Operating Instructions
- G. Bound manual shall be used during training of the Owner's personnel (manual must be submitted to Engineer and approved prior to such training).

END OF SECTION 23 0000

SECTION 23 05 55

TESTING, ADJUSTING, AND BALANCING

PART 1 – GENERAL

1.1. RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. See Section 23 00 00 and comply with it in its entirety.

1.2. DESCRIPTION OF WORK:

- A. Extent of testing, adjusting, and balancing (T.A.B.) work is indicated by requirements of this section, and also by drawings and schedules, and is defined to include, but is not necessarily limited to, air distributions systems, hydronic distribution systems, plumbing systems, and associated equipment and apparatus of mechanical work. The work consists of setting speed and volume (flow) adjusting facilities provided for systems, recording data, conducting tests, preparing and submitting reports, and recommending modifications to work as required by contract documents.
- B. Components types of testing, adjusting, and balancing specified in this section includes the following as applied to mechanical equipment:
 - 1. Exhaust Fans

1.3. QUALITY ASSURANCE:

- A. This Contractor shall be independent of (any other Sub-Contractor) the Mechanical and Control Contractors (utilized for this) on this Project, and shall be under the direct supervision of the Mechanical Contractor.
- B. This Contractor shall submit proof of certification by either the National Environmental Balancing Bureau (NEBB) or the Associated Air Balance Council (AABC) as a part of the project submittals.
- C. All test reports shall be signed and sealed by a Registered Professional Engineer, registered in the state in which the work is to be performed.
- D. This Contractor shall familiarize himself with the drawings and specifications concerning the Mechanical work (See Section 230000) and coordinate with other trades to insure that

proper testing, adjusting, and balancing may be performed in a timely manner.

- E. Industry Standards: Comply with American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) recommendations pertaining to measurements, instruments and testing, adjusting and balancing, except as otherwise indicated.

1.4. SUBMITTALS:

- A. Submit certified test reports signed by Test and Balance Registered Professional Engineer and the General Contractor.
- B. Include a drawing or drawings which relates the test and balance data for inlets and outlets to the project documents.
- C. Include identification and types of instruments used and their most recent calibration date with submission of final test report.
- D. Maintenance Data: Include in maintenance manuals, copies of certified test reports.

1.5 JOB CONDITIONS:

- A. Do not proceed with testing, adjusting, and balancing work until work has been completed and is operable. Ensure that there is no latent residual work still to be completed.
- B. Do not proceed until work scheduled for testing, adjusting and balancing is clean and free from debris, dirt and discarded building materials.

PART 2. PRODUCTS

2.1. GENERAL:

- A. This contractor shall furnish all materials and equipment necessary to properly measure the air and water capacity of the system, the electrical voltage and current, fan speeds, static pressures, air velocity, refrigeration pressures and all other readings normally required to evaluate the performance of a system, adjust the quantities to those called for and test the system.
- B. This contractor is responsible to insure the performance of the equipment and the system (excluding defects in others workmanship); do not assume that the supplier will ship equipment adjusted to meet the job requirements.
- C. All equipment shall be checked for proper operation as soon as electrical power is available to do so. Any malfunction shall be reported to the manufacturer and corrective action taken as soon as possible to prevent delay of the acceptance of the work.

- D. Problems with mechanical equipment are to be expected to some extent and it is this contractor's responsibility to determine if there are any in the work and to correct them without causing any undue alarm on the part of the Owner and without delay of the job.
- E. Equipment required for this work shall have been calibrated within a period of six (6) months prior to balancing.

2.2. PATCHING MATERIALS:

- A. Except as otherwise indicated, use same products as used by original Installer for patching holes in insulation, ductwork and housings which have been cut or drilled for test purposes, including access for test instruments, attached jigs, and similar purposes.
- B. At Tester's option, plastic plugs with retainers may be used to patch drilled holes in ductwork and housings.

2.3. TEST INSTRUMENTS:

- A. Utilize test instruments and equipment for testing and balancing work required, of type, precision, and capacity as recommended in the following testing and balancing standards:
 - 1. AABC's Manual MN-1 "AABC National Standards".
 - 2. NEBB's Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems.

PART 3. EXECUTION

3.1. INITIAL BALANCING

- A. The T.A.B. Agency shall include as a part of this work, a minimum of two full T.A.B. sessions for the systems after the completion of the HVAC & HVAC Control systems installation, including reports. These shall include an initial T.A.B., and a final T.A.B. Each T.A.B. session shall be coordinated with the Engineer of Record. If the Engineer of Record is not notified prior to the T.A.B. session, that T.A.B. session is subject to being unacceptable to the Engineer who may require it to be re-performed at no extra cost to the Owner.
- B. As soon as electrical power is available, the contractor shall check all equipment for electrical problems, check rotation of motors, read voltage and current in each leg of each motor, heater, etc...and check his readings against the nameplate.
- C. Operate the system(s) with clean strainers and filters in place and adjust the pumps for

maximum water supply by reading motor amps.

3.2. RESPONSIBILITY FOR PROPER BALANCING AND TESTING

- A. The GENERAL CONTRACTOR is responsible for the performance of the work in this section. After this contractor has completed the installation, the Superintendent for the General Contractor SHALL MONITOR the testing and balancing of the systems and certify that the readings required under this section have actually been made and that all systems are in actual operation. The test and balance data Shall Be Signed By The General Superintendent. At the time of final review, if it is apparent that these readings have not been made, or that the equipment is not in operation, the expense for the return of the Engineer shall be pre-paid by General Contractor.

3.3. TESTING, ADJUSTING AND BALANCING:

- A. Examine installed work and conditions under which testing is to be done to ensure that work has been completed, cleaned and is operable. Do not proceed with testing and balancing work until unsatisfactory conditions have been corrected in manner acceptable to Tester.
- B. Test, adjust and balance environmental systems and components, as indicated, in accordance with procedures outlined in applicable standards.
- C. Prepare report of test results, including instrumentation calibration reports, in format recommended by applicable standards.
- D. Patch holes in insulation, ductwork and housings, which have been cut or drilled for test purposes, in manner recommended by original Installer.
- E. Mark equipment settings, including damper control positions, valve indicators, fan speed control levers, and similar controls and devices, to show final settings at completion of testing and balancing work. Provide markings with paint or other suitable permanent identification materials.
- F. Prepare a report of recommendations for correcting unsatisfactory mechanical performances when systems cannot be successfully balanced; including, where necessary, modifications which exceed requirements of contracts for mechanical work.
- G. Retest, adjust and balance systems subsequent to significant system modifications, and resubmit test results.
- H. The Test and Balance Contractor shall assist the Architect/ Engineer in verifying that proper measuring instruments and methods were used.

3.4. READINGS REQUIRED TO BE REPORTED

- A. The following readings shall be recorded and reported to the Engineer after the building is balanced and all equipment is operating properly.
- B. All readings shall be recorded on NEBB forms.
- C. Air quantity readings shall include: actual measured CFM at each supply, return and exhaust outlet.; the total CFM of each air moving device by main duct transverse or coil pressure drop transverse. Also, provide CFM of each hood with sash at various positions (100% open, 75%, etc...).
- D. Electrical readings shall include: measured voltage and amps on EACH leg of EACH motor while the equipment is under maximum normal load; nameplate data for each motor; same for each duct, unit or cabinet heater.
- E. Additional Readings: RPM of each fan; static pressure in all duct systems.

3.5. SYSTEM DIFFICULTIES

- A. The above readings shall be made on each unit or piece of equipment and these readings forwarded to the Engineer for review as early as possible so that any apparent difficulties can be resolved before the anticipated close of the job and before such problems are called to the attention of the Owner. Minor problems, such as the necessity to adjust a fan sheave, often will raise questions and doubts in the Owner's mind about the system. Such problems are normal and if corrected without delay, lead to a satisfied Owner.

3.6. REVIEW BY THE ENGINEER

- A. After the above referenced information is received by the Engineer, it will be reviewed and compared against the design. The Engineer or Architect will generally review the job for the Owner to recommend final acceptance. SUCH REVIEW WILL NOT BE SCHEDULED UNTIL THE ABOVE INFORMATION CAN BE REVIEWED AND ACCEPTED. Only then will the final review be scheduled. The work required is not complete until this information is accepted.

END OF SECTION

SECTION 230719

MECHANICAL PIPING INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes insulating the following PLUMBING piping systems:
 - 1. Domestic cold water, indoors.
 - 2. Domestic hot water water, indoors.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory and field applied if any).

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
- B. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.
 - 1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - 2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.6 COORDINATION

- A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in DIVISION 15 "Hangers and Supports for HVAC Piping and Equipment." for both hvac and plumbing piping.
- B. Coordinate clearance requirements with piping Installer for piping insulation application. Before preparing piping Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.
- C. Coordinate installation and testing of heat tracing.

1.7 SCHEDULING

- A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.
- B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

- A. Comply with requirements in "Piping Insulation Schedule, General," "Indoor Piping Insulation Schedule," "Outdoor, Aboveground Piping Insulation Schedule," and "Outdoor, Underground Piping Insulation Schedule" articles for where insulating materials shall be applied.
- B. Products shall not contain asbestos, lead, mercury, or mercury compounds.
- C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.
- D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.
- E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.
- F. Flexible Elastomeric Insulation: Closed-cell, sponge- or expanded-rubber materials. Comply with ASTM C 534, Type I for tubular materials.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Aeroflex USA, Inc.
 - b. Armacell LLC.

- c. K-Flex USA.

2.2 INSULATING CEMENTS

- A. Mineral-Fiber Insulating Cement: Comply with ASTM C 195.

2.3 ADHESIVES

- A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

- B. Flexible Elastomeric and Polyolefin Adhesive: Comply with MIL-A-24179A, Type II, Class I.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Aeroflex USA, Inc.
- b. Armacell LLC.
- c. Foster Brand; H. B. Fuller Construction Products.
- d. K-Flex USA.

- 2. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- C. ASJ Adhesive, and FSK and PVDC Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Childers Brand; H. B. Fuller Construction Products.
- b. Foster Brand; H. B. Fuller Construction Products.

- 2. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 MASTICS

- A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.

- 1. For indoor applications, use mastics that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- B. Vapor-Barrier Mastic: Water based; suitable for indoor use on below-ambient services.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Foster Brand; H. B. Fuller Construction Products.
 - b. Knauf Insulation.
2. Water-Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm at 43-mil dry film thickness.
 3. Service Temperature Range: Minus 20 to plus 180 deg F.
 4. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.
 5. Color: White.
- C. Vapor-Barrier Mastic: Solvent based; suitable for outdoor use on below-ambient services.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Childers Brand; H. B. Fuller Construction Products.
 - b. Foster Brand; H. B. Fuller Construction Products.
 2. Water-Vapor Permeance: ASTM F 1249, 0.05 perm at 30-mil dry film thickness.
 3. Service Temperature Range: Minus 50 to plus 220 deg F.
 4. Solids Content: ASTM D 1644, 33 percent by volume and 46 percent by weight.
 5. Color: White.

2.5 SEALANTS

- A. Joint Sealants:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Childers Brand; H. B. Fuller Construction Products.
 - b. Foster Brand; H. B. Fuller Construction Products.
 - c. Pittsburgh Corning Corporation.
 2. Materials shall be compatible with insulation materials, jackets, and substrates.
 3. Permanently flexible, elastomeric sealant.
 4. Service Temperature Range: Minus 100 to plus 300 deg F.
 5. Color: White or gray.
 6. For indoor applications, sealants shall have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of insulation application.

1. Verify that systems to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.
3. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.
- B. Surface Preparation: Clean and prepare surfaces to be insulated. Before insulating, apply a corrosion coating to insulated surfaces as follows:
 1. Carbon Steel: Coat carbon steel operating at a service temperature between 32 and 300 deg F with an epoxy coating. Consult coating manufacturer for appropriate coating materials and application methods for operating temperature range.
- C. Coordinate insulation installation with the trade installing heat tracing. Comply with requirements for heat tracing that apply to insulation.
- D. Mix insulating cements with clean potable water; if insulating cements are to be in contact with stainless-steel surfaces, use demineralized water.

3.3 GENERAL INSTALLATION REQUIREMENTS

- A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of piping including fittings, valves, and specialties.
- B. Install insulation materials, forms, vapor barriers or retarders, jackets, and thicknesses required for each item of pipe system as specified in insulation system schedules.
- C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.
- D. Install insulation with longitudinal seams at top and bottom of horizontal runs.
- E. Install multiple layers of insulation with longitudinal and end seams staggered.
- F. Do not weld brackets, clips, or other attachment devices to piping, fittings, and specialties.
- G. Keep insulation materials dry during application and finishing.
- H. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.
- I. Install insulation with least number of joints practical.
- J. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.
 1. Install insulation continuously through hangers and around anchor attachments.

2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
 3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.
 4. Cover inserts with jacket material matching adjacent pipe insulation. Install shields over jacket, arranged to protect jacket from tear or puncture by hanger, support, and shield.
- K. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.
- L. Install insulation with factory-applied jackets as follows:
1. Draw jacket tight and smooth.
 2. Cover circumferential joints with 3-inch-wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
 3. Overlap jacket longitudinal seams at least 1-1/2 inches. Install insulation with longitudinal seams at bottom of pipe. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.
 - a. For below-ambient services, apply vapor-barrier mastic over staples.
 4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
 5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to pipe flanges and fittings.
- M. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.
- N. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.
- O. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.4 PENETRATIONS

- A. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.
- B. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Install insulation continuously through penetrations of fire-rated walls and partitions.
1. Comply with requirements in Section "Penetration Firestopping" for firestopping and fire-resistive joint sealers.

3.5 GENERAL PIPE INSULATION INSTALLATION

- A. Requirements in this article generally apply to all insulation materials except where more specific requirements are specified in various pipe insulation material installation articles.
- B. Insulation Installation on Fittings, Valves, Strainers, Flanges, and Unions:
1. Install insulation over fittings, valves, strainers, flanges, unions, and other specialties with continuous thermal and vapor-retarder integrity unless otherwise indicated.
 2. Insulate pipe elbows using preformed fitting insulation or mitered fittings made from same material and density as adjacent pipe insulation. Each piece shall be butted tightly against adjoining piece and bonded with adhesive. Fill joints, seams, voids, and irregular surfaces with insulating cement finished to a smooth, hard, and uniform contour that is uniform with adjoining pipe insulation.
 3. Insulate tee fittings with preformed fitting insulation or sectional pipe insulation of same material and thickness as used for adjacent pipe. Cut sectional pipe insulation to fit. Butt each section closely to the next and hold in place with tie wire. Bond pieces with adhesive.
 4. Insulate valves using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. For valves, insulate up to and including the bonnets, valve stuffing-box studs, bolts, and nuts. Fill joints, seams, and irregular surfaces with insulating cement.
 5. Insulate strainers using preformed fitting insulation or sectional pipe insulation of same material, density, and thickness as used for adjacent pipe. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker. Fill joints, seams, and irregular surfaces with insulating cement. Insulate strainers so strainer basket flange or plug can be easily removed and replaced without damaging the insulation and jacket. Provide a removable reusable insulation cover. For below-ambient services, provide a design that maintains vapor barrier.
 6. Insulate flanges and unions using a section of oversized preformed pipe insulation. Overlap adjoining pipe insulation by not less than two times the thickness of pipe insulation, or one pipe diameter, whichever is thicker.
 7. Cover segmented insulated surfaces with a layer of finishing cement and coat with a mastic. Install vapor-barrier mastic for below-ambient services and a breather mastic for above-ambient services. Reinforce the mastic with fabric-reinforcing mesh. Trowel the mastic to a smooth and well-shaped contour.
 8. For services not specified to receive a field-applied jacket except for flexible elastomeric and polyolefin, install fitted PVC cover over elbows, tees, strainers, valves, flanges, and unions. Terminate ends with PVC end caps. Tape PVC covers to adjoining insulation facing using PVC tape.
 9. Stencil or label the outside insulation jacket of each union with the word "union." Match size and color of pipe labels.
- C. Insulate instrument connections for thermometers, pressure gages, pressure temperature taps, test connections, flow meters, sensors, switches, and transmitters on insulated pipes. Shape insulation at these connections by tapering it to and around the connection with insulating cement and finish with finishing cement, mastic, and flashing sealant.

3.6 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

- A. Seal longitudinal seams and end joints with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- B. Insulation Installation on Pipe Flanges:
 - 1. Install pipe insulation to outer diameter of pipe flange.
 - 2. Make width of insulation section same as overall width of flange and bolts, plus twice the thickness of pipe insulation.
 - 3. Fill voids between inner circumference of flange insulation and outer circumference of adjacent straight pipe segments with cut sections of sheet insulation of same thickness as pipe insulation.
 - 4. Secure insulation to flanges and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- C. Insulation Installation on Pipe Fittings and Elbows:
 - 1. Install mitered sections of pipe insulation.
 - 2. Secure insulation materials and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.
- D. Insulation Installation on Valves and Pipe Specialties:
 - 1. Install preformed valve covers manufactured of same material as pipe insulation when available.
 - 2. When preformed valve covers are not available, install cut sections of pipe and sheet insulation to valve body. Arrange insulation to permit access to packing and to allow valve operation without disturbing insulation.
 - 3. Install insulation to flanges as specified for flange insulation application.
 - 4. Secure insulation to valves and specialties and seal seams with manufacturer's recommended adhesive to eliminate openings in insulation that allow passage of air to surface being insulated.

3.7 FINISHES

- A. Pipe Insulation with ASJ, Glass-Cloth, or Other Paintable Jacket Material: Paint jacket with paint system identified below to match existing.
 - 1. Flat Acrylic Finish: Two finish coats over a primer that is compatible with jacket material and finish coat paint. Add fungicidal agent to render fabric mildew proof.
 - a. Finish Coat Material: Interior, flat, latex-emulsion size.
- B. Flexible Elastomeric Thermal Insulation: After adhesive has fully cured, apply two coats of insulation manufacturer's recommended protective coating.
- C. Do not field paint aluminum or stainless-steel jackets.

3.8 PIPING INSULATION SCHEDULE, GENERAL

- A. Acceptable preformed pipe and tubular insulation materials and thicknesses are identified for each piping system and pipe size range. If more than one material is listed for a piping system, selection from materials listed is Contractor's option.

3.9 INDOOR PIPING INSULATION SCHEDULE

- A. Domestic Water Piping, thickness shall be the following:
1. Domestic Cold water indoors: 1" Flexible Elastomeric
 2. Domestic hot water and recirculation:
 - a. For pipe sizes 1" diameter and less: 1" Flexible Elastomeric

END OF SECTION 230719

SECTION 233423

HVAC POWER VENTILATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
1. Ceiling-mounted ventilators
 2. Propeller Fans.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories. Also include the following:
1. Certified fan performance curves with system operating conditions indicated.
 2. Certified fan sound-power ratings.
 3. Motor ratings and electrical characteristics, plus motor and electrical accessories.
 4. Material thickness and finishes, including color charts.
 5. Dampers, including housings, linkages, and operators.
 6. Fan speed controllers.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 2. Wiring Diagrams: For power, signal, and control wiring.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For power ventilators to include in emergency, operation, and maintenance manuals.

1.5 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. AMCA Compliance: Fans shall have AMCA-Certified performance ratings and shall bear the AMCA-Certified Ratings Seal.
- C. UL Standards: Power ventilators shall comply with UL 705. Power ventilators for use for restaurant kitchen exhaust shall also comply with UL 762.

1.6 COORDINATION

- A. Coordinate size and location of structural-steel support members.

PART 2 - PRODUCTS

2.1 CEILING-MOUNTED VENTILATORS

- A. Subject to compliance with the plans and specifications, provide equipment by one of the following:
 - 1. Greenheck
 - 2. Cook
- B. Housing: Steel, lined with acoustical insulation.
- C. Fan Wheel: Centrifugal wheels directly mounted on motor shaft. Fan shrouds, motor, and fan wheel shall be removable for service.
- D. Grille: Stainless steel, louvered grille with flange on intake and thumbscrew attachment to fan housing.
- E. Electrical Requirements: Junction box for electrical connection on housing and receptacle for motor plug-in.
- F. Accessories:
 - 1. Variable-Speed Controller: Solid-state control to reduce speed from 100 to less than 50 percent.
 - 2. Manual Starter Switch: Single-pole rocker switch assembly with cover and pilot light.
 - 3. Time-Delay Switch: Assembly with single-pole rocker switch, timer, and cover plate.
 - 4. Motion Sensor: Motion detector with adjustable shutoff timer.
 - 5. Ceiling Radiation Damper: Fire-rated assembly with ceramic blanket, stainless-steel springs, and fusible link.
 - 6. Filter: Washable aluminum to fit between fan and grille.
 - 7. Isolation: Rubber-in-shear vibration isolators.
 - 8. Manufacturer's standard roof jack or wall cap, and transition fittings.

2.2 PROPELLER FANS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Acme Engineering & Manufacturing Corp.
 - 2. Carnes Company.
 - 3. Greenheck.
 - 4. Loren Cook Company.

- B. Housing: Galvanized-steel sheet with flanged edges and integral orifice ring with baked-enamel finish coat applied after assembly.

- C. Steel Fan Wheels: Formed-steel blades riveted to heavy-gage steel spider bolted to cast-iron hub.

- D. Fan Wheel: Replaceable, cast-aluminum, airfoil blades fastened to cast-aluminum hub; factory set pitch angle of blades.

- E. Fan Drive: Motor mounted in airstream, factory wired to disconnect switch located on outside of fan housing.

- F. Fan Drive:
 - 1. Resiliently mounted to housing.
 - 2. Statically and dynamically balanced.
 - 3. Selected for continuous operation at maximum rated fan speed and motor horsepower, with final alignment and belt adjustment made after installation.
 - 4. Extend grease fitting to accessible location outside of unit.
 - 5. Service Factor Based on Fan Motor Size: 1.4.
 - 6. Fan Shaft: Turned, ground, and polished steel; keyed to wheel hub.
 - 7. Shaft Bearings: Permanently lubricated, permanently sealed, self-aligning ball bearings.
 - a. Ball-Bearing Rating Life: ABMA 9, L_{10} of 100,000 hours.
 - 8. Pulleys: Cast iron with split, tapered bushing; dynamically balanced at factory.
 - 9. Motor Pulleys: Adjustable pitch for use with motors through 5 hp; fixed pitch for use with larger motors. Select pulley so pitch adjustment is at the middle of adjustment range at fan design conditions.

- G. Accessories:
 - 1. Gravity Shutters: Aluminum blades in aluminum frame; interlocked blades with nylon bearings.
 - 2. Motor-Side Back Guard: Galvanized steel, complying with OSHA specifications, removable for maintenance.
 - 3. Wall Sleeve: Galvanized steel to match fan and accessory size.

2.3 MOTORS

- A. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Section 230513 "Common Motor Requirements for HVAC Equipment."
 - 1. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
- B. Enclosure Type: Totally enclosed, fan cooled.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install power ventilators level and plumb.
- B. Ceiling Units: Suspend units from structure; use steel wire or metal straps.
- C. Install units with clearances for service and maintenance.
- D. Label units.

3.2 CONNECTIONS

- A. Drawings indicate general arrangement of ducts and duct accessories. Make final duct connections with flexible connectors.
- B. Install ducts adjacent to power ventilators to allow service and maintenance.
- C. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- D. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.3 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections:
 - 1. Verify that shipping, blocking, and bracing are removed.

2. Verify that unit is secure on mountings and supporting devices and that connections to ducts and electrical components are complete. Verify that proper thermal-overload protection is installed in motors, starters, and disconnect switches.
 3. Verify that cleaning and adjusting are complete.
 4. Disconnect fan drive from motor, verify proper motor rotation direction, and verify fan wheel free rotation and smooth bearing operation. Reconnect fan drive system, align and adjust belts, and install belt guards.
 5. Adjust belt tension.
 6. Adjust damper linkages for proper damper operation.
 7. Verify lubrication for bearings and other moving parts.
 8. Verify that manual and automatic volume control and fire and smoke dampers in connected ductwork systems are in fully open position.
 9. Disable automatic temperature-control operators, energize motor and adjust fan to indicated rpm, and measure and record motor voltage and amperage.
 10. Shut unit down and reconnect automatic temperature-control operators.
 11. Remove and replace malfunctioning units and retest as specified above.
- C. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Prepare test and inspection reports.

3.4 ADJUSTING

- A. Adjust damper linkages for proper damper operation.
- B. Adjust belt tension.
- C. Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing procedures.
- D. Replace fan and motor pulleys as required to achieve design airflow.
- E. Lubricate bearings.

END OF SECTION 233423

SECTION 238239.19

WALL AND CEILING UNIT HEATERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes wall and ceiling heaters with propeller fans and electric-resistance heating coils.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include rated capacities, operating characteristics, furnished specialties, and accessories.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include details of anchorages and attachments to structure and to supported equipment.
 - 4. Include equipment schedules to indicate rated capacities, operating characteristics, furnished specialties, and accessories.
 - 5. Wiring Diagrams: Power, signal, and control wiring.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For wall and ceiling unit heaters to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with the plans and specifications, provide equipment by one of the following:

1. Markel
2. Q-mark
3. Indeeco

2.2 DESCRIPTION

- A. Assembly including chassis, electric heating coil, fan, motor, and controls. Comply with UL 2021.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.3 CABINET

- A. Front Panel: Heavy gauge steel, with removable panels fastened with tamperproof fasteners.
- B. Finish: Baked enamel over baked-on primer with manufacturer's standard color selected by Architect, applied to factory-assembled and -tested wall and ceiling heaters before shipping.
- C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

2.4 COIL

- A. Electric-Resistance Heating Coil: Nickel-chromium heating wire, free from expansion noise and 60-Hz hum, embedded in magnesium oxide refractory and sealed in corrosion-resistant metallic sheath. Terminate elements in stainless-steel, machine-staked terminals secured with stainless-steel hardware, and limit controls for high-temperature protection. Provide integral circuit breaker for overcurrent protection.

2.5 FAN AND MOTOR

- A. Fan: Aluminum propeller directly connected to motor.
- B. Motor: Permanently lubricated.

2.6 CONTROLS

- A. Controls: Remote line voltage thermostat, surface mount on an interior wall. Provide with vandal resistant lockable and ventilated cover.
- B. Electrical Connection: Factory wire motors and controls for a single field connection.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive wall and ceiling unit heaters for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine roughing-in for electrical connections to verify actual locations before unit-heater installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install wall and ceiling unit heaters to comply with NFPA 90A.
- B. Install wall and ceiling unit heaters level and plumb.
- C. Install wall-mounted thermostats and switch controls in electrical outlet boxes at heights to match lighting controls. Verify location of thermostats and other exposed control sensors with Drawings and room details before installation.
- D. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- E. Connect wiring according to Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

END OF SECTION 238239.19

SECTION 311000

SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes Sections:
 - .. Section 31 2000 - "Earth Moving"

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Protection of existing trees and landscaping to remain, if any, and boundary and property line markers, bench marks, survey control points, and existing structures and improvements which are to remain.
 - 2. Environmental and erosion control measures, as indicated and as otherwise required by applicable codes, regulations, and authorities having jurisdiction.
 - 3. Removal of trees and other vegetation, as indicated, and within "controlled areas."
 - 4. Topsoil stripping, and stockpiling, as indicated, and within "controlled areas."
 - 5. Removing above-grade improvements as indicated, and as required to accommodate new construction.
 - 6. Removing below-grade improvements as indicated, and as required to accommodate new construction.

1.3 PROJECT CONDITIONS

- A. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction, unless specifically indicated elsewhere in contract documents.
- B. Protection of Existing Improvements:
 - 1. Provide protection necessary to prevent damage to existing improvements indicated to remain in place. Clearing, demolition and any excavation within 5'-0" of existing buildings and structures to remain shall be performed by hand.
 - 2. Protect improvements on adjoining properties and on Owner's property.

3. Protect boundary and property line markers, bench marks, and survey control points.
 4. Restore damaged improvements and markers to their original condition, as acceptable to property owners.
- C. Protection of Existing Trees and Vegetation:
1. Protect existing trees and other vegetation indicated to remain in place, against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary fencing, barricades, and/or other precautions as necessary to protect trees and vegetation to be left standing.
 2. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.
 3. Provide protection for roots over 1-1/2-inch diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt, or other acceptable coating, formulated for use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.
 4. Repair or replace trees and vegetation indicated to remain which are damaged by construction operations, in a manner acceptable to Architect. Employ a licensed arborist to repair damages to trees and shrubs.
 5. Replace trees which cannot be repaired and restored to full-growth status, as determined by arborist.

PART 2 - PRODUCTS

- A. Not applicable to this Section.

PART 3 - EXECUTION

3.1 SITE CLEARING

- A. General:
1. Remove trees, shrubs, grass and other vegetation, improvements, or obstructions as required to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated.
 2. Cut minor roots and branches of trees indicated to remain in a clean and careful manner, where such roots and branches obstruct installation of new construction.
- B. Topsoil:
1. Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and

other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

- a. Sift, rake, and/or hand work as required in order to ensure acceptable top soil properties
2. Strip topsoil to whatever depths encountered in a manner to prevent intermingling with underlying subsoil or other objectionable material. Sitework should begin with clearing and grubbing (stripping) of the site and should include the removal of the organic laden material, trees and root balls. It is recommended in the Owner's "Report of Geotechnical Evaluation" that a minimum of 6 inches of stripping be budgeted based upon the materials encountered in the limited number of borings performed. In the lower lying areas and valleys of the site additional stripping up to 12 inches should be anticipated.
 - a. Remove heavy growths of grass from areas before stripping.
 - b. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.
3. Stockpile topsoil in storage piles in areas as indicated or directed. Construct storage piles to provide free drainage of surface water. Cover storage piles, as required, to prevent wind erosion, or seed and mulch if left undisturbed for a period of time greater than 13 consecutive days. Contaminated materials cannot be used as fill or stored in portions of the site that contain uncontaminated soil. If contaminated soil is stockpiled it must be properly stored either in covered roll off boxes or on a double layer of thick contractor grade plastic and covered with plastic to prevent rain from washing soils away from stockpiles.
4. Legally dispose of off-site unsuitable soil, excess topsoil not to be stockpiled, and waste material debris. Any excess or unusable material that will be hauled offsite must first be tested for contaminants to determine the proper handling protocol.
5. Fill depressions caused by site clearing operations with satisfactory soil material, unless further excavation or earthwork is indicated.
 - a. Place fill material in horizontal layers not exceeding 8 inches loose depth, and thoroughly compact to a density equal to adjacent original ground, unless specific compaction is otherwise indicated in Section 31 2000 "Earth Moving", or, as directed in the geotechnical investigation.

C. Removal of Improvements:

1. Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction.

3.2 DISPOSAL OF WASTE MATERIALS

- A. Burning on Owner's Property: Burning will not be permitted on Owner's property.
- B. Removal from Owner's Property: Remove waste materials, trash and debris, and legally dispose of same off site.

END OF SECTION

SECTION 312000

EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - .. Section 01 2200 - "Unit Prices"
 - .. Section 02 3200- "Subsurface Investigation", "Report of Geotechnical Exploration"
 - .. Section 03 3000 - "Cast-In-Place Concrete"
 - .. Section 31 1000 - "Site Clearing",
 - .. Section 32 1313 - "Concrete Paving"
 - .. Division 22 - "Plumbing"
 - .. Division 23 - "Heating, Ventilating, and Air Conditioning"
 - .. Division 26 - "Electrical"

1.2 SUMMARY

- A. This Section includes unclassified excavation, grading and fill as follows:
 - 1. Earthwork for this project is to be bid as Unclassified Excavation.
 - a. Finished grades are shown in the plans. Subgrade is the ground surface below finishes such as pavement, building slabs, topsoil etc. Subgrade will be considered the "Cut-line" for this project in areas of cut. All grading work shown in the plans at and above the cut line is unclassified. No additional compensation will be given regardless of whether this material is soil, rock, debris, etc. Grading work below the cut line, except designated undercut areas, will be paid for by change order using the predetermined amounts in the "Unit Prices" for the particular material encountered.
 - b. Definitions for soil, rock, etc. are for descriptive purposes related to the handling of material and for additional work.
 - 2. Preparing of subgrade for building slabs, walks, and pavements; and additional work indicated on the Drawings and in the Project Manual.
 - a. Comply with recommendations in the Owner's "Report of Geotechnical Exploration", this Section, and other Division 31 Sections; Refer also to Civil and Structural Drawings for additional information and requirements.
 - b. Undercutting of building area as indicated in the Report of Geotechnical Exploration and in the Contract Documents.

- c. Perform excavation by hand within 5'-0" of existing buildings and structures to remain. Design and provide all necessary supports, shoring, etc., as required to prevent settlement, collapse, and/or other damage to existing buildings and structures to remain.
 - 1) DO NOT EXCAVATE BELOW THE EFFECTIVE BEARING AREA OF FOUNDATIONS OF EXISTING BUILDINGS AND STRUCTURES. In the event of conflict during construction, notify Architect prior to proceeding with work in the effected area.
 - d. Compaction of backfill at any basement and below grade walls shall only be by hand-directed compaction equipment. Heavy construction equipment and/or heavy trucks shall not be allowed within 10-feet of any basement walls, and within 5-feet of foundation walls.
- 3. Drainage fill course (porous fill) for support of building slabs is included as part of this work; compacted in place.
 - 4. Excavating and backfilling of trenches within building control areas and on site.
 - 5. Stripping and stockpiling of topsoil (if any) is specified in Section 31 1000 - Site Clearing.
 - 6. The extent of earthwork is indicated on the Drawings. This earthwork is to be included in the base bid as unclassified excavation, regardless of material encountered. All work required in delivering the undercut and rock free zone, as indicated on the drawings, shall also be unclassified and in the base bid.
 - 7. Removal of existing improvements may also be specified under various Division 31 Sections.
- B. Excavating and Backfilling for Plumbing, HVAC, and Electrical Work: Refer to Divisions 22, 23, and 26 sections for excavation and backfill required in conjunction with underground mechanical and electrical utilities and buried mechanical and electrical appurtenances, not work of this Section.
- 1. However, construction materials and execution for Plumbing, HVAC, and Electrical work shall comply with requirements of this Section, and related Division 31 Sections, when the work and/or materials required are not indicated or only partially indicated in Divisions 22, 23, and 26.
- C. Placement and compaction of at least 4-inches of topsoil up to finish grades is included in the work of this Section.
- 1. Allow for thickness of topsoil and sod.

1.3 DEFINITIONS

- A. "Excavation" consists of removal of materials and existing improvements encountered to subgrade elevations indicated, and subsequent disposal of materials removed.

- B. “Unauthorized” excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Owner’s Geotechnical Engineer. Unauthorized excavation, as well as remedial work directed by Owner’s Geotechnical Engineer, shall be at Contractor’s expense.
1. Under footings, foundation bases, or retaining walls, fill unauthorized excavation by extending indicated bottom elevation of footing or base to excavation bottom, without altering required top elevation. Lean concrete fill may be used to bring elevations to proper position, when acceptable to Owner’s Geotechnical Engineer.
 2. In locations other than those above, backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Owner’s Geotechnical Engineer.
- C. “Additional Excavation”: When excavation has reached required subgrade elevations, notify Owner’s Geotechnical Engineer, who will make an inspection of conditions. If Owner’s Geotechnical Engineer determines that bearing materials at required subgrade elevations are unsuitable, continued excavation may be required. If additional excavation is required, replace excavated material as directed by Owner’s Geotechnical Engineer.
1. The Contract Sum will be adjusted by Change Order, or as provided in General Conditions, for additional excavation and its replacement appropriately authorized in writing prior to beginning the work, and for which the Contractor is due payment from the Owner.
- D. “Subgrade”: The undisturbed earth or the compacted soil layer immediately below pavement base course, select drainage fill, bottom of indicated undercut areas, or topsoil materials.
- E. “Structure”: Buildings, foundations, slabs, tanks, curbs, or other man-made stationary features occurring above or below ground surface.
- F. “Building Control Area” and/or “Controlled Area”: Below and at least 10-feet beyond building foot print or exterior walls, and below roofs, to include covered porches and canopies, and below and at least 5-feet beyond all walks and pavements subject to bearing vehicular traffic.
- G. “Mud Footings” (if any): The at least 2-inches to 4-inches of lean 2,500 psi (minimum) concrete placed in the bottom of footing and foundation trenches and excavations, which is required if permanent or structural concrete cannot be placed the same day they are excavated.
1. Unless mud footings are indicated on Structural Drawings, their depth shall be compensated for by over-excavation.
 2. Mud footings (if any) shall be completely clean prior to placement of any reinforcing and/or permanent or structural concrete.

3. Refer to the Owner’s “Report of Geotechnical Exploration”, and Structural Drawings for additional information and requirements for other “mud footings” (or “mud mats”, or “mud seals”).
- H. Rock: Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cu. yd. (0.76 cu. m) for bulk excavation or 3/4 cu. yd. (0.57 cu. m) for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch- (1065-mm-) wide, short-tip-radius rock bucket; rated at not less than 120-hp (89-kW) flywheel power with bucket-curling force of not less than 25,000 lbf (111 kN) and stick-crowd force of not less than 19,000 lbf; measured according to SAE J-1179.
 2. Bulk Excavation: Late-model, track-mounted dozer equipped with a single tooth ripper; rated at not less than 250-hp flywheel power and developing a minimum of 45,000-lbf (200-kN) breakout force; measured according to SAE J-732.
 3. Refer to Owner’s “Report of Geotechnical Exploration” for additional information regarding recommendations when rock is encountered.

1.4 SUBMITTALS

- A. Test Reports: Submit the following reports directly to Architect, Civil Engineer, Structural Engineer, and the Owner, directly from the testing service, with copy to Contractor:
1. Test reports on fill and borrow material.
 2. Verification of suitability of each foundation, floor slab and subgrade condition and material, in accordance with specified requirements.
 3. Field reports; and in-place soil density tests.

1.5 QUALITY ASSURANCE

- A. Codes and Standards: Perform excavation work on site and in rights-of-way in compliance with applicable requirements of authorities having jurisdiction.
- B. Testing and Inspection Service: All required soil testing and inspection services during earthwork operations shall be performed by a qualified independent geotechnical testing laboratory.
1. Refer to Section 01 0150 - “Special Conditions”, for additional information and requirements.

1.6 PROJECT CONDITIONS

- A. Site Information: Refer to Section 31 1000 - "Site Clearing", Owners "Report of Geotechnical Exploration", and Civil Drawings, for additional information and recommendations.
1. On site borings revealed the presence of highly plastic ($PI > 30$) clay (CH) soils that were encountered in some of the borings. Highly plastic (HP) clays (CH) have the potential of shrinking and swelling with a corresponding loss or gain in soil moisture. Such volume changes can cause settlement and heave of foundations, floor slabs, and pavements causing cracks and damage. It is recommended in the Owner's "Report of Geotechnical Exploration" to provide a layer of low plasticity select fill material to cap the HP soils within the pavement areas. The grading activities on the site should be directed to provide a "cap" layer consisting of a minimum of 12 inches of low plasticity select fill in pavement areas. Material management during site grading would likely be required to reduce the use of HP clays within the proposed paving areas.
- B. Existing Utilities: Locate existing underground utilities in areas of excavation work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations in the vicinity, and as may also be required for other construction work.
1. Notify Georgia 811 at least 2-full working days (48 hours), excluding weekends and holidays, prior to any excavation work. This organization will contact its member utility companies to locate and mark all of their own underground facilities.
 - a. Notify non-member companies directly, for them to perform this service.
 2. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions and record locations on as-built record drawings. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.
 3. Do not interrupt existing utilities serving facilities occupied by Owner or others, during occupied hours, except when permitted in writing by Architect and then only after acceptable temporary utility services have been provided.
 - a. Provide minimum of 48-hour notice to Owner and copy Architect and receive written notice to proceed before interrupting any utility.
 4. Demolish and completely remove from the site any existing underground utilities to be removed, and all existing underground utilities in "controlled areas". Coordinate with utility companies for shutoff of services if lines are active.
- C. Use of Explosives: **Use of explosives is not permitted.**

- D. Protection of Persons and Property:
1. Barricade open excavations occurring as part of this work and post with warning lights.
 2. Operate warning lights as recommended by authorities having jurisdiction.
 3. Comply with requirements of current regulations of OSHA, applicable Codes, ordinances, and authorities having jurisdiction.
 4. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
 5. Perform excavation by hand within 5'-0" of existing buildings and structures to remain, and within dripline of large trees to remain. Protect root systems from damage or dryout to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with moistened burlap. Paint root cuts of 1-inch and larger with emulsified asphalt tree paint.
 - a. Do not under-mine or excavate below footings and/or foundations which are to remain.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS - DEFINITIONS

- A. Satisfactory soil materials are defined as clean, non-saturated, non-organic sections of earth taken from acceptable sources with particle size no larger than 3 inches complying with ASTM D2487 soil classification groups included in recommendations of the Owner’s “Report of Geotechnical Exploration”, or if not included, as directed at the time of earthwork operations and/or acceptance resulting from acceptable test results obtained on soil materials proposed by the Contractor and tested by the project Geotechnical Engineer, as required by the Bid and Contract Documents.

Plasticity Index (PI)	Less than 30%
Liquid Limit	Less than 50%
Maximum Dry Density	Greater than 100 pcf
Maximum Particle Size	3 inches or less
Organic Matter	Less than 5%

- B. Unsatisfactory soil materials are defined as those complying with ASTM D2487 soil classification groups other than those indicated above and as indicated in the Owner’s “Report of Geotechnical Exploration”.
- C. Drainage Fill (or “porous fill” or “drainage aggregate”): Clean, washed, evenly graded mixture of free-draining pea gravel, coarse sand, or crushed stone, with not more than 50

percent passing a No. 50 sieve and not more than 10 percent passing a No. 200 sieve, and subject to approval by the project geotechnical engineer and testing laboratory; **Minimum 4-inches compacted completed thickness.**

- D. Backfill and Fill Materials (Grassed areas only; Cuts and fills outside “controlled areas”, during general grading): Satisfactory soil materials from on-site excavations, free of clay, rock or gravel larger than 2-inches in any dimension, debris, waste, frozen materials, vegetation and other deleterious material.
 - 1. All fill soils must be compatible with existing soils, so they can bond together.
- E. Topsoil: Refer to Section 31 1000 - “Site Clearing.” for suitable topsoil definition.
- F. Rock Fill: Refer to Geotechnical Report for recommendations regarding placement and compaction requirements.

PART 3 - EXECUTION

3.1 PROOFROLLING

- A. Areas throughout significant slopes and beneath and 10'-0" beyond new building and covered areas, and beneath and 5'-0" beyond new pavement areas (back-of-curb or other paving edge termination) shall be designated as “controlled areas.” Prior to placement of fill earth and following removal of cut earth, the controlled areas shall be proofrolled. Areas to be filled shall be proofrolled prior to any fill placement and again after fill is placed in the building-controlled area; cut areas shall be proofrolled after they are brought to subgrade level. Proofrolling shall be performed with a fully loaded tandem axle dump truck weighing 20 tons, or similarly weighted construction equipment. The proofroller shall make at least two passes over each section in perpendicular directions over the “controlled areas”. Soft, organic, or excessively wet soils found during the proofrolling operations shall be excavated and replaced with suitable compacted fill. The exposed subgrade must be well drained to prevent the accumulation of water. If any areas fail the proofroll, repair these areas as directed by the Owner’s Geotechnical Engineer.
 - 1. Proofrolling shall be conducted in the presence of testing lab’s Geotechnical Engineer.
 - 2. Prior to fill placement on the subgrade, the proposed building and pavement areas should be densified with a heavy-duty static roller to achieve a uniform subgrade. The subgrade underneath the building and the pavement should be thoroughly proofrolled after the completion of densification.
 - 3. Do not proofroll when the ground surface is wet or saturated with water.

3.2 EXCAVATION

- A. Earth Excavation includes excavation of pavements and other obstructions visible on surface; underground structures, utilities, and other items indicated to be demolished and

removed; together with earth and other materials encountered that are not classified as structures, foundations, rock or unauthorized excavation.

- B. The Contractor is responsible for performing his/her own quantity take-off. However, do not assume that the cut to fill quantities on this site balance. Excess material that is suitable for use as structural fill may be placed on site as directed. This material is to be placed and compacted as structural fill.
- C. Material not suitable for reuse is not to be placed in the structural fill mass and is to be discarded, hauled off site and legally disposed of.
- D. Soft, wet unsuitable soil is expected in low areas. Undercut these areas as directed by the Owner's Geotechnical Engineer. This material may be suitable for re-use in certain areas if properly moisture conditioned. This will be determined by the Owner's Geotechnical Engineer during construction
- E. Refer to "Definitions" paragraph above for any "mud footings" required.
- F. Perform excavation by hand within 5'-0" of existing buildings and structures to remain.
 - 1. Do not under-mine or excavate below footings and/or foundations which are to remain.

3.3 STABILITY OF EXCAVATIONS

- A. General: Comply with local codes, ordinances, and requirements of agencies having jurisdiction.
- B. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.
- C. Shoring and Bracing: Provide materials for shoring and bracing, such as sheet piling, uprights, stringers, and cross braces, in good serviceable condition. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Extend shoring and bracing as excavation progresses.

3.4 DEWATERING

- A. Prevent surface water and Geotechnical or ground water from flowing into excavations and from flooding project site and surrounding area.
 - 1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Contractor to provide and maintain, at their expense, pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavations to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.
3. The water table should be maintained at least two feet below the bottom of excavations.
4. Pumping equipment should be prepared if the above ditch system cannot effectively drain water away from the site, especially during the rainy season.

3.5 STORAGE OF EXCAVATED MATERIALS

- A. Stockpile excavated materials acceptable for backfill and fill where directed. Place, grade, and shape stockpiles for proper drainage.
 1. Locate and retain soil materials away from edge of excavations.
 2. Excess soil material may be placed on site as directed by the Owner or Architect. Place in a controlled manner, compacted in lifts as structured fill. Stabilize area with appropriate erosion control measures. Place 4 inches of topsoil, seed and mulch when complete.

3.6 EXCAVATION FOR STRUCTURES

- A. Conform to elevations and dimensions shown within a tolerance of plus or minus 0.10 foot and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services, and other construction and for inspection.
 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed. Trim bottoms to required lines and grades to leave solid base to receive other work.
 2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Structures: Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot; plus, a sufficient distance to permit placing and removal of concrete formwork, installation of services, and other construction and for inspection. Do not disturb bottom of excavations, intended for bearing surface.
 3. For areas within the "Building Controlled Area", excavate, scarify, moisture condition and recompact existing material as acceptable to the Geotechnical Engineer. If compaction requirements, provided in the Owner's "Report of Geotechnical Exploration", cannot be satisfied by recompacting existing material then remove the existing material and replace it with structural fill acceptable to the Geotechnical Engineer.

3.7 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Cut surface under pavements to comply with cross-sections, elevations and grades as indicated.
 - 1. In pavement areas and 5 feet beyond that are in cut, excavate in place material to a depth of 12 inches below pavement subgrade and provide a cap layer of low plasticity select fill. If compaction requirements, provided in the Owner's "Report of Geotechnical Exploration", cannot be satisfied by recompacting existing material then remove the existing material and replace it with structural fill acceptable to the Geotechnical Engineer. It is essential that the subgrade be restored to a properly compacted condition based on optimum moisture and density.

3.8 TRENCH EXCAVATION FOR PIPES AND CONDUIT

- A. Excavate trenches to uniform width, sufficiently wide to provide ample working room and a minimum of 6-inches to 9-inches of clearance on both sides of pipe or conduit.
- B. Excavate trenches and conduit to depth indicated or required to establish indicated slope and invert elevations and to support bottom of pipe or conduit on minimum of 4-inches of compacted "select fill" bedding. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
- C. Except as otherwise indicated, excavate for exterior water-bearing piping (water, steam, condensate, drainage, etc.) so top of piping is not less than 3'-0" below finished grade and/or paving.
- D. Where rock or concrete is encountered, carry excavation 6" below required elevation and backfill with a 6" layer of dense graded crushed stone, prior to installation of pipe.

3.9 COLD WEATHER PROTECTION

- A. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

3.10 BACKFILL AND FILL

- A. General: Place soil material in layers to required subgrade elevations, for each area classification listed below, using materials specified in Part 2 of this Section.
 - 1. Under all areas, use satisfactory excavated or borrow material. Refer to Owner's "Report of Geotechnical Exploration", and this Section, for minimum testing requirements.
 - 2. Under building slabs, use drainage fill material of compacted and finished depth indicated, or if not indicated, **at least 4-inches** compacted and completed thickness.

3. Within pavement areas, place and compact acceptable structured fill to a depth of 1 foot (minimum) below the future pavement subgrade elevation as directed by the Owner's Geotechnical Engineer
 4. Backfill trenches with concrete where trench excavations pass within 18-inches of column or wall footings and that are carried below bottom of such footings or that pass under wall footings. Place concrete to level of bottom of adjacent footing.
 - a. Concrete is specified in Division 3.
 - b. Do not backfill trenches until inspections and any required testing have been made and backfilling is authorized by Architect based on test results. Use care in backfilling to avoid damage or displacement of pipe systems.
 - c. Utility trenches shall be backfilled with acceptable borrow or dense graded crushed stone in 6" loose lifts compacted with mechanical piston tampers to the project requirements. Open graded stone is not to be used as backfill.
- B. Backfill excavations as promptly as work permits, but not until completion of the following:
1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, etc.
 2. Inspections, testing, approval, and recording locations of underground utilities have been performed and recorded.
 3. Removal of concrete formwork, if any.
 4. Removal of shoring and bracing, and backfilling of voids with satisfactory materials.
 - a. Cut off temporary sheet piling driven below bottom of structures and remove in manner to prevent settlement of the structure or utilities or leave in place if required.
 5. Removal of trash and debris from excavation.
 6. Permanent or temporary horizontal bracing is in place on horizontally supported walls, where necessary.

3.11 PLACEMENT AND COMPACTION - GENERAL

- A. Ground Surface Preparation:
1. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow strip or

- break up sloped surfaces steeper than 1-vertical to 4-horizontal so that fill material will bond with existing surface.
2. Prior to placement of fill earth and following removal of cut earth, the controlled areas shall be proofrolled. Areas to be filled shall be proofrolled prior to any fill placement; cut areas shall be proofrolled after they are brought to subgrade level. Proofrolling shall be performed with a fully loaded tandem axle dump truck (20 tons) or similarly weighted construction equipment. The proofroller shall make at least two passes over each section in perpendicular directions over the “controlled areas”. Soft, organic, or excessively wet soils found during the proofrolling operations shall be excavated and replaced with suitable compacted fill. The exposed subgrade must be well drained to prevent the accumulation of water. If any areas fail the proofroll, repair these areas as directed by the Owner’s Geotechnical Engineer.
 - a. Proofrolling shall be conducted in the presence of testing lab’s Geotechnical Engineer.
 - b. Do not proofroll when the ground surface is wet or saturated with water.
- B. Place backfill and fill materials in layers not more than 8-inches in loose depth for material compacted by heavy compaction equipment, and not more than 4-inches in loose depth for material compacted by hand-operated tampers.
- B. Before compaction, moisten or aerate each layer as necessary to provide optimum moisture content. Compact each layer to required percentage of maximum dry density or relative dry density for each area classification. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
- C. Place backfill and fill materials evenly adjacent to structures, piping, or conduit to required elevations. Prevent wedging action of backfill against structures or displacement of piping or conduit by carrying material uniformly around structure, piping, or conduit to approximately same elevation in each lift.
- D. General Fill Embankment Construction
1. Embankment construction shall commence at the toe of the proposed slope and continue upwards as additional fill is placed. The engineered fill placed shall be benched into the natural slopes.
 2. The embankment is to be overfilled and then cut back to the required geometry to remove the uncompacted material that is usually present on the face of fill slopes.
 3. The face of slopes shall be promptly vegetated according to the Erosion Control Plan, the CBMPP and Section 31 2500 Erosion and Sedimentation Control to prevent erosion after construction. Prior to vegetation 4” minimum topsoil is to be placed and tracked in by a dozer moving up and down the slope to create horizontal track lines.
- E. Rock fill:

1. Rock Fill is not to be used unless acceptable to the Owner's Geotechnical Engineer. Break larger particles down to 6 inches or less and treat as soil fill.

- E. Control soil and fill compaction, providing minimum percentage of density specified for each area classification indicated below. Correct improperly compacted areas or lifts as directed by Owner's Geotechnical Engineer if soil density tests indicate inadequate compaction.
 1. Percentage of Maximum Density Requirements: Compact soil to not less than the following percentages of maximum density, in accordance with ASTM D-698 :
 - a. Under structures, building foundations and slabs, and 10' beyond those perimeters, compact full depth of fill placement to at least 98% standard proctor maximum dry density in accordance with the recommendations made in the Owner's "Report of Geotechnical Exploration".
 - 1) Cut areas shall be proof rolled prior to and during scarification efforts and observed by the Owner's Geotechnical Engineer.
 - b. Under steps, pavements, covered areas, sidewalks, mechanical/utility and in all other "controlled areas", compact full depth of fill placement and scarify, moisture condition, and re-compact the upper 12" to at least 98% standard proctor maximum dry density.
 - c. Under lawn or unpaved areas beyond "controlled areas", compact each layer of backfill or fill material in accordance with the recommendations made in the Owner's "Report of Geotechnical Exploration".
 - d. On-site Borrow (where allowed): In accordance with the recommendations made in the Owner's "Report of Geotechnical Exploration".
 - e. Select and/or Structural Fill: In accordance with the recommendations made in the Owner's "Report of Geotechnical Exploration".
 - f. Porous Fill (drainage course): In accordance with the recommendations made in the Owner's "Report of Geotechnical Exploration".
 2. Moisture Control:
 - a. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade or layer of soil material. Apply water in minimum quantity as necessary to prevent free water from appearing on surface during or subsequent to compaction operations.
 - b. Remove and replace, or scarify and moisture condition, soil material that is too wet to permit compaction to specified density.

- c. Stockpile or spread soil material that has been removed because it is too wet to permit compaction. Assist moisture conditioning by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.
- d. At the time of densification, the moisture content of “engineered fill”, “structural fill”, and “select fill” should be within -3% to +3% of the materials’ ASTM D-698 optimum moisture content.
- e. Structural fill areas exposed to excessive wetting, drying or otherwise disturbed by the construction following acceptance for moisture and density should be retested followed by the correction of deficient areas just prior to the installation of additional fill or structures.
- f. In no instance should placement of structural fill or ground supported structures be permitted if the ground surface soils contain a moisture content in excess of 3% of the material’s optimum moisture content.
- g. In no case shall porous drainage backfill (except as specifically approved by the Geotechnical Engineer) or masonry sand material be used adjacent to foundations. Care shall be taken to prevent masonry brick/block debris from falling or being pushed into foundation excavations.

3.12 GRADING

- A. General: Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated or between such points and existing grades.
- B. Grading Outside Building Lines: Grade areas adjacent to building lines to drain away from structures and to prevent ponding. Finish surfaces free from irregular surface changes and as follows:
 - 1. Lawn or Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10-foot above-or-below required subgrade elevations.
 - 2. Walks: Shape surface of areas under walks to line, grade, and cross-section, with finish surface not more than 0.10-foot above-or-below required subgrade elevation.
 - 3. Pavements: Shape surface of areas under pavement to line, grade, and cross-section, with finish surface not more than 1/2-inch above or below required subgrade elevation.
 - 4. Connection of Existing and New Work: Provide flush transition, unless specifically indicated otherwise.
- C. Grading Surface of Fill under Building Slabs and “Building Control Areas”: Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 1/2-inch when tested with a 10-foot straightedge.

- D. Compaction: After grading, compact subgrade surfaces to the depth and indicated percentage of maximum or relative density for each area classification.

3.13 BUILDING SLAB DRAINAGE COURSE

- A. General: Drainage course consists of placement of drainage fill material, in layers of indicated thickness, over subgrade surface to support concrete building slabs, sidewalks, pads, and below canopies and covered porches, and elsewhere as indicated. Crushed stone may be considered optional subject to subgrade preparation and earthwork recommendations contained in the Owners "Report of Geotechnical Exploration".

1. **Minimum Completed Thickness: 4-inches of free-draining (less than 10% passing the U.S. No. 200sieve) crushed stone or a clean sand compacted to at least 98% of ASTM D698. A vapor retarder should be used on top of the granular layer, as required by the structure use.**

- B. Placing: Place drainage fill material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting material during placement operations.

1. When a compacted drainage course is indicated to be 6-inches thick or less, place material in a single layer. When indicated to be more than 6-inches thick, place material in equal layers, except no single layer more than 6-inches or less than 3-inches in thickness when compacted.

3.14 FIELD QUALITY CONTROL

- A. Quality Control Testing During Construction:

1. Allow testing service to inspect and approve each subgrade and fill layer before further backfill or construction work is performed.
2. Perform field density tests in accordance with ASTM D-698, or acceptable ASTM methods or nuclear testing method, as applicable.
3. New Footing Subgrade: All foundation excavations shall be observed by the Project Geotechnical Engineer or his representative to verify required design bearing capacities of the bearing soils.
4. New Paved Areas, New Building Slab and "Building Control Areas" Subgrade: Perform at least one field density test of subgrade for every 5,000-square feet of fill area for each foot of vertical thickness of fill placed in "controlled areas", with a minimum of one (1) test per lift.
5. Foundation Wall Backfill: Perform at least 2-field density tests at locations and elevations as directed.

6. Trenches: Perform at least one field density test for every 50-linear feet for each 8 inches of vertical thickness of fill placed in utility or similar trenches, which extend through the “controlled areas”.
 - a. Retaining walls, if any, same as for “Trenches”, as indicated above.
7. A laboratory soil particle size, Atterberg limit, and Proctor moisture density relationship test shall be performed on each different type of fill soil used in the “controlled areas”.
8. Based on the Project Geotechnical Engineer’s testing reports, inspections, and recommendations, subgrade or fills that are below specified density, additional earthwork, compaction, and/or other operations, and re-testing, shall be performed until specified density is obtained.

3.15 EROSION CONTROL

- A. Provide erosion control methods in accordance with requirements of authorities having jurisdiction and per drawings.

3.16 MAINTENANCE

- A. Protection of Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades in settled, eroded, and rutted areas to specified tolerances.
- C. Repair edges of existing pavements, sidewalks, etc., and other existing and/or new improvements flush with and to match existing materials and thicknesses, subject to acceptance by Owner and Architect.
- D. Reconditioning Compacted Areas: Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, reshape, and compact to required density prior to further construction.
- E. Settling: Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn, or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface or finish to match adjacent work and eliminate evidence of restoration to greatest extent possible.

3.17 DISPOSAL OF EXCESS AND WASTE MATERIALS

- A. Removal from Owner’s Property:
 1. Remove excess and waste materials, including unacceptable excavated material, trash, debris, and waste materials, and legally dispose of off Owner’s property.

END OF SECTION

SECTION 312500

EROSION AND SEDIMENTATION CONTROLS

PART 1 – GENERAL

1.1 SUMMARY

- A. This section covers the installation and maintenance of erosion control measures for the project.
- B. All necessary precautions to prevent erosion and siltation, as required by the Georgia Environmental Protection Division (GA EPD) storm water permit, shall be followed, including sediment barriers, silt fences, and other items as required by the Construction Stormwater General Permit.
- C. The CONTRACTOR shall maintain all erosion and sediment control measures installed on a regular basis. The CONTRACTOR shall repair or replace damaged measures at the direction of the ENGINEER at no additional cost to the OWNER.
- D. All stormwater field materials, appurtenances, and labor shall be included in the price bid, separately from the allowance herein for Stormwater. Contractor shall include all costs associated with products used to implement and maintain the Erosion and Sediment Control Plan in his bid. Additional monies will not be allocated to the contractor by the OWNER for erosion and sediment control measures. If an allowance is included in the bid price, and the Contractor expects costs to be greater than the amount set forth in the allowance, the Contractor shall place these additional costs in his bid.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary and Division 1 Specification Sections, apply to this Section.
 - 1. Section 31 1000 - Site Clearing
 - 2. Section 31 2000 – Earth Moving
 - 3. Georgia Environmental Protection Division (GA EPD) Stormwater Permit Requirements
 - A. Georgia Manual for Erosion and Sediment Control in Georgia, latest edition
 - 4. Erosion and Sediment Control Plan(s)

1.3 ENVIRONMENTAL REQUIREMENTS

- A. The Contractor shall protect adjacent properties and water resources from erosion and sediment damage throughout the life of the contract.
 - 1. The Contractor shall be responsible for the removal of sediments and debris escaping the project site, the remediation and/or repair of any damage that may occur as a result to adjoining and/or downstream affected properties or offsite structures and any fines or penalties levied against the project by regulatory agencies due to deficiencies of control measures.

- B. The Contractor will designate, by name, a Qualified Credentialed Professional (QCP) or equivalent person responsible for monitoring of all erosion control measures for this project. Specific responsibilities will include:
 - 1. Assuring and certifying the Contractor's construction sequence is in conformance with the specified schedule. In addition, a weekly certification stating compliance, any deviations, and corrective measures shall be filed with the Owners by this person.
 - 2. Inspection of all erosion control measures and drainage inlets within 24-hours after any significant rainfall. A significant rainfall shall be defined as over 3/4 inch of precipitation in any consecutive 24-hour period.
 - 3. Inspect areas for catch of grass. A minimum catch of 75 percent is required prior to warrant removal of erosion control measures.

- C. Other than the land clearing activities required to install the appropriate erosion and sediment control measure in accordance with the erosion and sediment control plans, any down slope erosion and sediment control measures, on-site stream channel protection and upslope diversion of drainage required by site conditions, shall be in place and functional before any clearing or earth moving operations begin and shall be constructed and maintained throughout the construction period.
 - 1. Temporary measures may be removed at the beginning of the workday but shall be replaced at the end of the workday.

- D. The angle for graded slopes and fills shall be no greater than the angle which can be retained by vegetative cover or other adequate erosion control devices or structures. Any slope or fill which has been graded shall, within thirteen (13) days of the completion of such grading or the completion of any phase of grading, be planted or otherwise be provided with ground cover, materials, devices, or structures sufficient to retain erosion. The devices, structures, and measures shall remain in place until the graded slope or fill is stabilized.

- E. All hazardous substances used for this project shall be stored in accordance with current Spill Prevention Control and Countermeasures (SPCC) regulations.

1. Store substances away from storm drains, ditches, and gutters in water-tight containers.
 2. Dispose of substances in accordance with GEPD/EPD regulations.
 3. Provide adequate trash containers on-site for the disposal of material waste.
 4. Prevent trash and debris from entering storm drainage system.
- F. All construction materials shall be properly stored, not exposed to rain, and stockpiled. All containers shall be stored closed or under cover. All excess or waste material shall be disposed of properly.
1. Provide a construction waste dumpster or trailer on-site for disposal of construction waste.
 2. Dispose of trash and waste to an acceptable offsite facility every week at a minimum.
 3. Prevent trash and debris from entering storm drainage system.
- G. There shall be no distinctly visible floating scum, oil, or other matter contained in the storm water discharge to a receiving water, must not cause an unnatural color (except dyes or other substances discharged for the purpose of environmental studies and which do not have a harmful effect on the receiving water) or odor in the receiving waters. The storm water discharge to receiving water must result in no material in concentration sufficient to be hazardous or otherwise detrimental to humans, livestock, wildlife, plant life, or fish and aquatic life in the receiving water.
1. Ensure all materials are handled appropriately.
 2. No pollutants are allowed to be disposed of on-site or allowed to enter the storm drainage system.
- H. Upon completion of the land disturbing activity and stable vegetation or other permanent controls have been established on all remaining exposed soil, the Contractor shall notify the Owner of this and request a final inspection.
1. The Owner, or his authorized agent, will inspect the site within 5 working days after receipt of notice.
- I. The Contractor shall prevent the tracking of mud and debris onto paved roadways from construction areas.
1. Provide a construction exit pad in accordance with the erosion and sediment control plans and in accordance with the approved installation procedures and maintain it on a daily basis.
 - a. Provide a spray hose for the washing of tires and equipment
 - b. Rework or supplement the construction exit pad stone as required to en-

sure its continued effectiveness throughout the duration of the construction period.

2. Remove any sediments tracked offsite or deposited on the adjacent roadways.
 - a. Utilize a mechanically operated street sweeper to remove any mud and sediment deposited on the adjacent roadways.
- J. The Contractor shall be responsible for keeping dust to a minimum through the use of water trucks or other dust controlling methods throughout the construction duration.

PART 2 - PRODUCTS

2.1 BEST MANAGEMENT PRACTICES

- A. The vegetative measures and structural practices shall be in accordance with chapter six of the "Manual for Erosion and Sediment Control in Georgia" as currently amended.

2.2 MATERIALS

- A. Quick growing grasses for temporary seeding (see seed mixes contained in CBMPP and in Plans).
- B. Fencing for siltation control as specified on the plans.
- C. Temporary mulches such as loose hay, straw, netting, wood cellulose or agricultural silage.
- D. Stone check dams shall be spaced according to the Plans.
- E. Stone Sediment Barriers or SiltSacksTM, or approved equal for inlet protection.
- F. High Density Poly-Ethylene (HDPE) Filters or Silt-SaverTM, or approved equal for inlet protection.
- G. A stabilized construction entrance shall be constructed temporarily.
- H. Riprap for slopes, culvert, storm drain inlet, and outlet aprons.
- I. Water for dust control.

- J. Wattle check dams shall be spaced according to plans.
- K. Erosion control blankets and/or turf reinforcement mats to protect seed and prevent erosion on slopes.
 - a. All mats and blankets (ECB's) shall conform to the Georgia Manual for Erosion and Sediment Control in Georgia, latest edition for the slope specified in the construction plans.

PART 3 – EXECUTION

3.1 PREPARATION

- A. Review site erosion and sediment control plan attached to this section of the specifications.
- B. Deficiencies or changes in the erosion control plan as it is applied to current conditions will be brought to the attention of the Engineer for remedial action.

3.2 IMPLEMENTATION

- A. Provide catalog cuts and information concerning the erosion control products which will be used for construction for review by the Engineer.
- B. Provide information concerning the installation of the erosion and sedimentation control including anchorage trench provisions and anchorage devices and spacing for review by the Engineer.
- C. Provide construction exit pad in accordance with the erosion and sediment control plan and in accordance with the approved installation procedures.
- D. Place erosion control systems in accordance with the erosion and sediment control plan and in accordance with approved installation procedures.
- E. The Engineer has the authority to limit the surface area of erodible earth material exposed by clearing and grubbing, excavation, borrow and embankment operations. The Owner has the authority to direct the Contractor to provide immediate permanent or temporary pollution control measures. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practical time to minimize the need for temporary controls. Cut slopes shall be permanently seeded and mulched as the excavation proceeds to the extent considered desirable and practical.

- F. The temporary erosion control systems installed by the Contractor shall be maintained as directed by the Engineer to control siltation at all times during the life of the Contract. The Contractor must respond to any maintenance or additional work ordered by the Engineer within a 48-hour period.
- G. Any additional material work required beyond the extent of the erosion control plan shall be paid for by the Owner except where such measures are required to correct deficiencies caused by the failure of the Contractor to construct the work in accordance with the erosion and sediment control plan.
- H. Slopes that erode easily shall be temporarily seeded as the work progresses according to the GA EPD seeding schedule or according to the seeding schedule contained in the plans.
- I. Remove and properly dispose of accumulated silt and sediment from all erosion control measures on a daily basis off site unless material is reusable.
- J. Remove and properly dispose of all trash and sediments accumulated in existing and new storm drainage inlets, structures, and pipes on a daily basis off site unless material is reusable.
- K. Provide temporary diversion berms and ditches as required during construction to protect work areas from up-slope runoff and/or to divert sediment-laden water to appropriate sediment control devices, traps, or stabilized outlets.
- L. Provide water trucks or other adequate method for controlling dust throughout the construction period.
- M. Channel Stabilization - Where necessary, all trees, brush, stumps, and other objectionable materials shall be removed so they will not interfere with the construction or proper functioning of the channel. Trees and their root system should be left intact where possible.

3.3 INSPECTION AND MAINTENANCE

- A. It is the CONTRACTOR'S responsibility to perform all required inspections in accordance with all Authorities having Jurisdiction.
- B. The CONTRACTOR is responsible for continually maintaining all temporary erosion control measures until permanent measures are properly installed and performing as required.

END OF SECTION

SECTION 321216

ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.
- B. Related work described elsewhere includes:
 - .. Section 31 2000 - "Earth Moving"
 - .. Section 32 1313 - "Concrete Paving"
 - .. Section 32 1613 - "Curbs and Gutters"

1.2 DESCRIPTION OF WORK

- A. Work described in this section includes new bituminous paving, a new base, and otherwise as indicated on drawings. In the event of conflict between this Section and Drawings, the more stringent requirements shall be provided.
- B. Work shall also include pavement patching for any utility trenches under existing paving and this Contract, with prepared subgrade, 8" base material, 6-inch thick 3,000 psi concrete, prime coat, and 2 inches bituminous concrete overlay, and as indicated on the Drawings.
 - 1. Pavement patch shall extend 9" to 1'-0" beyond each side or edge of trench, and to abut flush with edge where existing paving was cut out.

1.3 QUALITY CONTROL

- A. Certifications: The Contractor shall submit to the Architect copies of certificates from suppliers of bituminous materials and other manufactured items, certifying that these products comply with specifications and standards listed hereinafter.
 - 1. All asphalt used for pavement shall be produced by a plant certified by the Georgia Department of Transportation (GDOT).
- B. Standard Specifications: Unless otherwise noted, all specifications referred to shall be the "GDOT Standard Specifications Construction of Transportation Systems", latest edition.
- C. Testing: All laboratory and field testing required to ensure compliance with these specifications will be performed by an independent testing laboratory. Refer to Section 01 0150 - "Special Conditions," for additional information.

1.4 JOB CONDITIONS

- A. Any base or sub-base areas damaged by weather or construction operations shall be scarified, remixed and recompact in accordance with requirements before application of the prime coat.
- B. Special care and attention shall be given to be certain that paving operations and/or equipment do not cause damage to any existing and/or new buildings, structures, or improvements which are to remain.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide the paving system(s) indicated on the Drawings, installed in accordance with Part 3 of this Section, as per City of Dalton, Whitfield County, and referenced standards.

PART 3 - EXECUTION

3.1 PRIME COAT

- A. Application rates and construction requirements shall be as specified in GDOT Standard Specifications for Asphalt Cement.

3.2 TACK COAT

- A. Construction requirements, including preparation of the existing surface or substrate and maximum application rates, are as specified in GDOT Standard Specifications.

3.3 PLANT MIX BITUMINOUS CONCRETE BINDER LAYER AND BITUMINOUS CONCRETE WEARING SURFACE

- A. Construction details, including finished surface tolerance, density requirements, and maintenance and protection shall be as specified in GDOT Standard Specifications. Rate of application shall be not less than the number of pounds per square yard for a 1-inch wearing surface or pavement patching layer, pro-rated for other thicknesses, as indicated, or if not indicated as required by the GDOT Standard Specifications.

3.4 GRADED AGGREGATE BASE

- A. Construction requirements shall comply with requirements shall comply with the GDOT Standard Specifications for the materials indicated; compacted in accordance with the recommendations made in the geotechnical investigation.

3.5 COMPACTION EQUIPMENT

- A. Compaction equipment shall be self-propelled, capable of compacting the mixture throughout the depth of the layer while it is still in a workable condition without damage to the material.

1. Self-propelled rollers shall have a minimum weight of 10 tons.

3.6 PAVEMENT PATCH

- A. Saw cut perimeter of existing paving to a neat straight line where removal is indicated and/or required.
 1. Protect edges of paving and base exposed to prevent cracking, breaking-up, wash-out, erosion, and/or other damage; apply prime coat as specified and at all such vertical edges prior to placing new pavement.
- B. Patch pavement with components stated in Paragraph 1.2-B above, in compliance with each component's specified requirements, and as per details and sections on Drawings, if any.

END OF SECTION

SECTION 321313

CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 312000 - "Earth Moving"
 - 2. Section 033000 - "Cast-In-Place Concrete"
 - 3. Section 079200 - "Joint Sealants"

1.2 DESCRIPTION OF WORK:

- A. Extent of portland cement concrete paving is shown on drawings, including exterior walks, paving, entry pads, dumpster pads and any similar new work indicated. Finished appearance of new walks and paving shall be as indicated, and flush with and generally to match adjacent similar existing installations.
 - 1. The work shall include verification of existing subgrades where new concrete is to be poured; to include in part, compacted stone base and modified roadbed at vehicular paving, compacted stone base at sidewalks, and select fill where necessary to supplement depth and/or soundness of existing subgrades, and all related work.

1.3 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with "Georgia Department Transportation Standard Specifications Construction of Transportation Systems", (GDOT) latest edition, and local governing regulations if more stringent than herein specified.
- B. Testing: All laboratory and field testing required to ensure compliance with these specifications will be performed by a qualified independent testing laboratory.
- C. Flooring/Walkway Products: Products and installation, surfaces' co-efficient of friction (slip-resistance), etc., under the work of this Section shall be in compliance with the more stringent of applicable provisions of the following; and revisions and amendments thereto:
 - 1. Americans With Disabilities Act of 1990 (ADA) "Accessibility Guidelines" (ADA-AG).
 - 2. "2010 ADA Standards for Accessible Design", Published in the Federal Register September 15, 2010.
 - 3. American National Standards Institute (ANSI), ANSI A 117.1, 2009.

4. “Uniform Federal Accessibility Standards” (UFAS);
5. International Building Code, either the latest edition or latest adopted edition of the locality as applicable at the project locale.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Forms:

1. Steel, wood, or other suitable material of size and strength to resist movement during concrete placement and to retain horizontal and vertical alignment until removal. Use straight forms, free of distortion and defects.
2. Use flexible spring steel forms or laminated boards to form radius bends as required.
3. Coat forms with a non-staining form release agent that will not discolor or deface surface of concrete.

B. Welded Wire Mesh:

1. Welded plain cold-drawn steel wire fabric, ASTM A 185.
 - a. Size: 6” x 6” W1.4 / W1.4 (6x6 10/10) at sidewalks, pedestrian only traffic areas and mechanical pads, and 6” x 6” W2.9 /W2.9 (6x6 6/6) at any vehicular paving areas and dumpster pads, unless heavier mesh is indicated on the Drawings.
2. Furnish in flat sheets, not rolls, unless otherwise acceptable to Architect, for all concrete paving subject to possibility of bearing the weight of vehicular traffic.
3. Furnish in rolls or flat sheets for all concrete paving accessible only to pedestrian traffic, unless indicated otherwise on civil or structural drawings.
4. Locations for Use: All concrete pads and paving, at 1/3 of total depth of concrete from top of slab.

C. Reinforcing Bars: Deformed steel bars, ASTM A 615, Grade 40 or 60.

D. Concrete Materials: Comply with requirements of 033000 - “Cast-In-Place Concrete” for concrete materials, admixtures, bonding materials, and other materials as required.

A. E. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork in preformed strips.

F. Expansion Joint Materials: Comply with requirements of Section 079200 - “Joint Sealants” for preformed and pourable expansion joint fillers and sealers.

G. Curing and Sealing Compound: Conform to TT-C-800, with 30% solids content minimum.

2.2 CONCRETE MIX, DESIGN AND TESTING:

- A. Comply with requirements of Section 033000 “Cast-In-Place Concrete”, for concrete mix design, sampling and testing, and quality control, and as herein specified.
- B. Design mix to produce normal-weight concrete consisting of portland cement, aggregate, water-reducing or high-range water-reducing admixture (super-plasticizer), air-entraining admixture and water to produce the following properties:
 - 1. Sidewalks and any entry pads, and mechanical equipment pads subject only to pedestrian traffic, unless indicated otherwise on the Drawings:
 - a. Compressive Strength: 3,000 psi, minimum at 28 days (minimum 550 psi flexural strength at 28 days).
 - b. Max Slump: Slip formed-2”, Non Slip-4”
 - c. Air Content: 4% to 6%.
 - d. Thickness: 4”, unless indicated otherwise.
 - e. Subgrade: 4” modified roadbed compacted to 100% Modified Proctor
 - 2. Paving and pads subject to vehicular traffic, curb and gutters, valley gutters, dumpster pads, and where indicated (if any), unless indicated otherwise on the Drawings:
 - a. Compressive Strength: 4,000 psi, minimum at 28 days (minimum 550 psi flexural strength at 28 days).
 - b. Max Slump: Slip formed-2”, Non Slip-4”
 - c. Air Content: 4% to 6%; and as required by referenced standards.
 - d. Thickness: 7” at typical vehicular pavement, unless greater thickness is indicated on the Drawings.
 - e. Subgrade: Unless otherwise indicated on the Drawings or required to match existing base material, provide 8” of GDOT graded aggregate base compacted to 100% Modified Proctor

PART 3 - EXECUTION

3.1 SURFACE PREPARATION:

- A. Remove loose material from compacted subbase surface immediately before placing concrete.
- B. Proof-roll or verify by other acceptable method, the prepared subbase surface to check for unstable areas and need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.
- C. Subgrade shall be approved by Contractor’s Project Geotechnical Engineer and Architect’s representative, and test reports shall be issued and received - before paving is begun.

3.2 FORM CONSTRUCTION:

- A. Set forms to required grades and lines, rigidly braced and secured. Install sufficient quantity of forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.
- B. Check completed formwork for grade and alignment to following tolerances - ALSO REQUIRED FOR COMPLETED CONCRETE WORK:
 - 1. Top of forms not more than 1/8" in 10'.
 - 2. Vertical face on longitudinal axis, not more than 1/4" in 10'.
- C. Clean forms after each use, and coat with form release agent as often as required to ensure separation from concrete without damage.

3.3 REINFORCEMENT:

- A. Locate, place and support reinforcement as specified in Section 033000 "Cast-In-Place Concrete", unless otherwise indicated. Install welded wire fabric in as long lengths as practicable, lapping at least one mesh.

3.4 CONCRETE PLACEMENT:

- A. Comply with requirements of Section 033000 "Cast-In-Place Concrete", for mixing and placing concrete, and as herein specified.
- B. Do not place concrete until subbase and forms have been checked for line and grade. Moisten subbase, if required, to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
 - 1. Concrete sidewalks shall slope as indicated, including in part, away from buildings and in the direction of existing or newly indicated drainage.
- C. Place concrete using methods which prevent segregation of mix. Consolidate concrete along face of forms and adjacent to transverse joints with internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand-spreading and consolidation. Consolidate with core to prevent dislocation of reinforcing, dowels, and joint devices.
 - 1. Deposit and spread concrete in a continuous operation between transverse joints, as far as possible. If interrupted for more than 1/2-hour, place a construction joint.

3.5 JOINTS:

- A. General: Construct expansion, weakened-plane (contraction), and construction joints true-to-line with face perpendicular to surface of concrete. Construct transverse joints at right angles to the centerline, unless otherwise indicated.
- B. Weakened-Plane (Contraction) Joints:

1. Provide weakened-plane (contraction) joints, sectioning concrete into areas as shown on drawings. Construct weakened-plane joints for a depth equal to at least 1/4 concrete thickness, as follows below.
 2. Tooled Joints: Form weakened-plane joints in fresh concrete by grooving top portion with a recommended cutting tool and finishing edges with a jointer.
 3. Sidewalks shall be scored in “squares” or at 5’-0” intervals, unless otherwise indicated or directed.
- C. Construction Joints: Place construction joints at end of placements and at locations where placement operations are stopped for a period of more than 1/2-hour, except where such placements terminate at expansion joints.
- D. Expansion Joints:
1. Provide expansion joints with premolded joint filler at locations abutting concrete curbs, catch basins, manholes, inlets, structures, walks and other fixed objects, unless otherwise indicated.
 2. Extend joint fillers full-width and depth of joint.
 3. Furnish joint fillers in one-piece lengths for full width being placed, wherever possible. Where more than one length is required, lace or clip joint filler sections together.
 4. Expansion joints for sidewalks shall be placed at 30-foot maximum intervals and along all intersections with other walks, steps, curbs, or other vertical surfaces.
- E. Fillers and Sealants: Comply with the requirements of Section 079200 - “Joint Sealants”, for preparation of joints, materials, installation and performance.

3.6 CONCRETE FINISHING:

- A. After striking-off and consolidating concrete, smooth surface by screeding and floating. Using hand methods only where mechanical floating is not possible. Adjust floating to compact surface and produce uniform texture.
- B. After floating, test surface for trueness with a 10’ straightedge. Distribute concrete as required to remove surface irregularities, and refloat repaired areas to provide a continuous smooth finish.
- C. Work edges of slabs and formed joints with an edging tool, and round to 1/4” radius, unless otherwise indicated. Eliminate tool marks on concrete surface.
- D. After completion of floating and troweling, when excess moisture or surface sheen has disappeared, complete surface finishing, as follows:
1. Light and smooth broom finish, by drawing a fine-hair broom across concrete surface, perpendicular to line of traffic. Repeat operation as required to provide a fine line texture acceptable to Architect.
 2. MATCH ADJACENT FINISHED / EXISTING SIMILAR CONCRETE FINISHED APPEARANCE.

- E. On inclined slab surfaces, provide a coarse, non-slip finish by scoring surface with a stiff-bristled broom, perpendicular to line of traffic.
- F. Do not remove forms for 24 hours after concrete has been placed. After form removal, clean ends of joints and point-up any minor honeycombed areas. Remove and replace areas or sections with major defects, as directed by Architect.
 - 1. Provide rubbed finish for exposed edges of concrete work, and apply light and smooth broom finish.

3.7 CURING:

- A. Protect and cure finished concrete paving, complying with applicable requirements of Section 033000 "Cast-In-Place Concrete". Use curing and sealing compound or approved moist-curing methods.
- B. Begin initial curing as soon as free water has disappeared from exposed surfaces. Where possible, keep continuously moist for not less than 72 hours. Continue curing by use of moisture-retaining cover or membrane-forming curing compound. Cure formed surfaces by moist curing until forms are removed. Provide protections as required to prevent damage to exposed concrete surfaces.

3.8 REPAIRS AND PROTECTIONS:

- A. Repair or replace broken or defective concrete, as directed by Architect.
- B. Drill test cores where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory pavement areas with portland cement concrete bonded to pavement with epoxy resin grout.
- C. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14 days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
 - 1. Sweep concrete pavement and wash free of stains, discolorations, dirt and other foreign material just prior to final inspection.

END OF SECTION

SECTION 321613

CURBS AND GUTTERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division I Specification Sections, apply to this section.
- B. Related work specified elsewhere includes:
 - .. Section 31 2000 - "Earth Moving"
 - .. Section 32 1313 - "Concrete Paving"
 - .. Section 03 3000 - "Cast-In-Place Concrete"
 - .. Section 07 9200 - "Joint Sealants"

1.2 DESCRIPTION OF WORK

- A. Work described in this section includes the construction of new concrete curbs and gutters, and/or straight curbs where indicated, and patching between any existing paving and new curb and gutters, sidewalks, etc., to match existing pavement.
- B. Refer to Drawings and Owner's Report of Geotechnical Exploration, for additional information and base requirements.
- C. Refer to Section 31 2000 - "Earth Moving" for subgrade requirements below and beyond curbs and gutters.
- D. Refer to Section 32 1313 - "Concrete Paving", for valley gutters, turn-outs, and paving.

1.3 QUALITY CONTROL

- A. Certifications: The Contractor shall submit to the Architect copies of certificates from suppliers of ready-mix concrete, reinforcing steel, curing material, joint fillers, and other manufactured items, certifying that these products comply with the specifications and standards listed hereinafter.
- B. Standard Specifications: Unless otherwise noted, all specifications referred to shall be the "GDOT Standard Specifications Construction of Transportation Systems", latest edition.

- C. Testing: All laboratory and field testing as required to ensure compliance with these specifications shall be performed by a qualified independent testing laboratory. Refer to Section 01 0150 - "Special Conditions", for additional information.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Concrete shall be Class "A", Type 4 (4,000 psi), in accordance with the "GDOT Standard Specifications Construction of Transportation Systems", latest edition. A modified mix shall be used if optional machine laid curb and gutter is constructed.
- B. Reinforcing steel, where called for on the drawings, shall meet the requirements of "GDOT Standard Specifications Construction of Transportation Systems", latest edition, "Steel Reinforcement".
- C. Curing material shall be either burlap cloth, waterproof paper, polyethylene sheeting, or impervious membrane.
- D. Joint filler and sealer for expansion and construction joints shall meet the appropriate requirements of Section 07 9200 - "Joint Sealants" herein.
- E. Asphalt for repairs shall comply with referenced GDOT Specifications, and city requirements, and shall match existing pavement at location(s) requiring patching.

PART 3 – EXECUTION

3.1 CURBS AND GUTTERS

- A. Comply with requirements of Section 32 1313 - "Concrete Paving," Section 03 3000 - "Cast-In-place Concrete," and the following:
 - 1. Construction requirements, including foundation, forms, sections, joints, placing and finishing concrete, curing and protection, and backfilling shall be as specified in "GDOT Standard Specifications Construction of Transportation Systems", latest edition. Curbs and gutters shall match the profile of existing adjoining curb and gutter, if any, and otherwise as detailed.
 - 2. Curb and gutter shall be constructed in sections having a maximum length of 10-feet. Transverse expansion joints with filler and joint sealer shall be installed at all curb returns and in curb and gutter at intervals not exceeding 40-feet. Similar joints shall be installed behind the curb where sidewalks adjoin the curb and gutter, and at all fixed objects which adjoin or extend through the curb and gutter.
 - 3. Care shall be exercised that "tilt-out" curb and gutter is installed where pavement slopes away from the curb, and that 10-foot long transition sections are used where required to transition between "standard" and "tilt-out" curb and gutter.

3.2 REPAIRS AND PROTECTIONS

- A. Repair or replace broken or defective concrete, as directed by Architect.
- B. Protect concrete from damage until acceptance of work. Exclude traffic from pavement for at least 14-days after placement. When construction traffic is permitted, maintain pavement as clean as possible by removing surface stains and spillage of materials as they occur.
 - 1. Sweep concrete pavement and wash free of stains, discolorations, dirt and other foreign material just prior to final inspection.

END OF SECTION

SECTION 321723

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work described in this section includes marking of graphic symbols, lane separations, parking stripes, and lettering on concrete and asphalt pavements, if any, at locations indicated and as shown on the Drawings.
- B. Related work specified elsewhere includes:
 - .. Section 32 1216 - "Asphalt Paving"
 - .. Section 32 1313 - "Concrete Paving"

1.2 QUALITY CONTROL

- A. Certifications: The Contractor shall submit to the Architect copies of certificates from suppliers of materials, certifying that these products comply with specifications and standards listed hereinafter.
- B. Standard Specifications: Unless otherwise noted, all specifications referred to shall be Georgia Department of Transportation (GDOT), "Standard Specifications Construction of Transportation Systems", latest edition.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Paint for pavement marking shall be, traffic marking paint complying with Section 652, 653 and 654 of the GDOT specifications, and as follows:
 - 1. Class 1, Type A, Thermoplastic (reflective) in public Right-of-Ways.
 - 2. Class 1, Type B (non-reflective) within property lines of this project's site, 2 coats.
 - 3. Comply with requirements of Drawings and locality where project is located, if more stringent than above.

PART 3 - EXECUTION

3.1 PAVEMENT MARKING:

- A. Each individual painted parking stripe shall be 4-inches wide and shall be laid out as indicated on the drawings. Construction requirements shall conform to the applicable parts of (GDOT), "Standard Specifications Construction of Transportation Systems", for Class 1, Type as specified, traffic stripe.

1. Color shall be white for asphalt, yellow for concrete pavement, and international blue for striping and graphics for parking spaces for the disabled and handi-capped.
2. Use same materials and construction methods for any arrows and symbols indicated on paved areas.
3. Mark paving at each accessible parking space with acceptable international graphics symbol, unless otherwise indicated, approximately 4' x 4' in size. Locate centered in space width and approximately 2'-0" from end of space where vehicle enters.

END OF SECTION

SECTION 32 8310

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 31 2000 - "Earthwork"
 - 2. Section 32 1313 - "Concrete"

1.2 SUMMARY:

- A. This Section includes the following:
 - 1. Polyvinyl Chloride (PVC) coated galvanized steel chain link fence, gates and accessories; Typical fencing unless specifically indicated otherwise.
 - 2. Galvanized Steel chain link fence, gates and accessories (only where exposed galvanized finish is specifically indicated - if any).
 - 3. Round heavy-duty PVC coated padlocks for all gates, keyed alike.
 - 4. All gate frames shall be welded construction and include a horizontal center cross-brace, in addition to other requirements.
 - 5. All corner and gate posts shall be cross-braced horizontally at center, to next post, in addition to other requirements.
- B. Installation of each type fencing shall be at locations indicated on the Drawings.

1.3 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data in the form of manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories.
 - 2. Manufacturer's current written instructions and recommendations for grounding and bonding for fencing systems furnished under the Work of this Contract.
- B. Shop Drawings: Show locations of fence, each gate, posts, rails, and tension wires and details of any extended posts, gate swing or other operation, hardware, and accessories. Indicate materials, dimensions, sizes, weights, and finishes of components. Include plans, elevations, sections, gate swing and other required installation and operational clearances, and details of post anchorage and attachment and bracing.

C. Maintenance Data: For the following to include in maintenance manuals specified in Division 1:

1. Polymer finishes.

1.4 QUALITY ASSURANCE:

A. Single-Source Responsibility: Obtain gates as complete units, and chain link fences, and gates, including necessary erection accessories, fittings, and fastenings from a single source or manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturers: Subject to compliance with requirements provide products by one of the following:

1. PVC Coated Galvanized Steel Fencing and Fabric:
 - a. American Fence Corp.
 - b. Anchor Fence, Inc.
 - c. Boundry Fence and Railing Co.
 - d. Colorguard Fence Products, Inc.
 - e. Cyclone Fence Div./USX Corp.
 - f. Master-Halco, Inc.
 - g. MMI Products, Inc.
 - h. Robertson Fence
 - i. Security Fence Manufacturing & Supply Co., Inc.
 - j. Semmerling Fence & Supply, Inc.
 - k. Sonco Fence Manufacturing Co.
 - l. Southeastern Wire

2.2 FABRIC:

- A. Selvage: All mesh shall be knuckled at bottom and at top.
- B. Steel Fabric: Comply with Chain Link Fence Manufacturers Institute (CLFMI) Product Manual.
 1. Size: 2-inch mesh; 9-gage (0.148-inch diameter) wire (prior to galvanizing or PVC coating).
- C. Polyvinyl Chloride (PVC) Finish: Comply with ASTM F 668, with core wire diameter (gage) measured prior to application of PVC coating with not less than 0.30 oz. zinc per sq. ft. of uncoated surface on 9 gage wire.

1. General: Class 2a, minimum 0.015-inch, maximum 0.025-inch-thick PVC coating thermally extruded and adhered to zinc-coated steel core wire.
2. Color: ASTM F 934, Black, or equivalent priced color selected by Architect from manufacturer's standard colors.
3. Fence height: 4'-0" exposed height, unless otherwise indicated on the Drawings.
4. Posts, Rails, Tie Wires, Fittings, and Accessories Finishes: PVC coating similar to and to match fence fabric color.

2.3 FRAMING:

A. Strength requirements for posts and rails conforming to ASTM F 669.

1. Pipe shall be straight, true to section, material, and sizes specified, and shall conform to the following weights per foot:

<u>NPS in Inches:</u>	<u>Outside Diameter (OD) in Inches:</u>	<u>Type I Steel:</u>	<u>Type II Steel:</u>
1	1.315	1.68	1.35
1-3	1.660	2.27	1.84
1-2	1.900	2.72	2.28
2	2.375	3.65	3.12
2-2	2.875	5.79	4.64
3	3.500	7.58	5.71
3-2	4.000	9.11	6.56
4	4.500	10.79	----
6	6.625	18.97	----
8	8.625	28.55	----

B. Steel Framework - Supplemental Color Coating: (Posts, rails, braces, gate frames, etc.)

1. At locations where typical PVC coated fencing is indicated, and in addition to above metallic coatings, provide posts and rails with manufacturer's standard polymer coating according to ASTM F 1234, 10-mil minimum polyvinyl chloride (PVC) or 3-mil minimum polyester plastic resin finish applied to exterior surfaces and, except to tubular shapes, to exposed interior surfaces. Color to match chain link fabric.

C. End, corner, and pull posts for following fabric heights:

1. Up to 6 feet: 2.375-inch OD Type I or II steel pipe.
2. Over 6 feet: 2.875-inch OD Type I or II steel pipe.
3. Over 6 feet to 13 feet: 4.00 inch OD Type I or II steel pipe.
4. Over 13 feet to 18 feet: 6.625 inch OD Type I steel pipe.

D. Line or intermediate posts for following fabric heights:

1. Up to 6 feet: 1.90-inch OD Type I or II steel pipe.
 2. Over 6 feet: 2.375-inch OD Type I or II steel pipe.
 3. Over 6 feet to 13 feet: 4.00 inch OD Type I or II steel pipe.
 4. Over 13 feet to 18 feet: 6.625 inch OD Type I steel pipe.
- E. Gate Posts: Furnish posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
1. Up to 6 feet: 2.875-inch OD Type I or II steel pipe.
 2. Over 6 feet to 13 feet: 4.00-inch OD Type I or II steel pipe.
 3. Over 13 feet to 18 feet: 6.625-inch OD Type I steel pipe.
- F. Top Rail: Manufacturer's longest lengths, with expansion-type couplings, approximately 6 inches long, for each joint. Provide means for attaching top rail securely to each gate corner, pull, and end post. Top rail for following fabric heights:
1. Up to 4'-0" In Height: 1-inch NPS (1.315-inch OD) Type I or II steel pipe.
 2. 5'-0" In Height and Higher: 1-3-inch NPS (1.66-inch OD) Type I or II steel pipe.

2.4 FITTINGS AND ACCESSORIES:

- A. Material: Comply with ASTM F 626. Mill-finished aluminum or galvanized iron or steel, to suit manufacturer's standards. Add PVC coating (10-mil minimum) at locations where PVC coated fencing is indicated.
1. Zinc Coating: Unless specified otherwise, galvanize steel fence fittings and accessories in accordance with ASTM A 153, with zinc weights per Table I, and prior to any PVC coating.
- B. Bottom Tension Wire: 0.177-inch-diameter metallic-coated steel marcelled tension wire conforming to ASTM A 824 with finish to match fabric, and of one of the following:
1. Type I Aluminum Coated with minimum coating weight of 0.40 oz. per sq. ft. of uncoated wire surface, as determined by ASTM A 428.
 2. Type II Zinc Coated, Class 2, with a minimum coating weight of 1.20 oz. per sq. ft. of uncoated wire surface, as determined by ASTM A 90.
- C. Tie Wires: 12-gage (0.106-inch diameter) galvanized steel with a minimum of 0.80 oz. per square feet of zinc coating of surface area in accordance with ASTM A 641, Class 3, or 9-gage (0.148-inch-diameter) aluminum wire alloy 1350-H19 or equivalent, to match fabric core material, and prior to PVC finish at locations where PVC coated fencing is indicated.
- D. Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at midheight of fabric. Use same material as top rail for brace, and truss to line posts with 3/8-inch diameter rod and adjustable tightener. Provide manufacturers standard galvanized steel or cast iron or cast aluminum cap for each end, with PVC coating similar to and in color to match fence fabric.

- E. Center Rail: Same material as top rail. Provide manufacturer's standard galvanized steel or cast iron or cast aluminum cap for each end, and with PVC coating similar to and in color to match fence fabric at locations where PVC coated fencing is indicated.
- F. Post and Line Caps: Provide weathertight closure cap for each post. Provide line post caps to receive top rail; Typical PVC finish at locations where PVC coated fencing is indicated.
- G. Tension or Stretcher Bars: Hot-dip galvanized steel with minimum length 2 inches less than full height of fabric, minimum cross-section of 3/16 inch by 3/4 inch and minimum 1.2 oz. zinc coating per sq. ft. of surface area. Provide one bar for each gate and end post, and two for each corner and pull post, except where fabric is integrally woven into post; plus typical PVC finish at locations where PVC coated fencing is indicated.
- H. Tension and Brace Bands: Minimum 3/4-inch-wide hot-dip galvanized steel with minimum 1.2 oz. zinc coating per sq. ft. of surface area.
 - 1. Tension Bands: Minimum 14-gage (0.074-inch) thick.
 - 2. Tension and Brace Bands: Minimum 12-gage (0.105-inch) thick.
 - 3. Plus typical PVC finish at locations where PVC coated fencing is indicated.

2.5 GATES:

- A. Fabrication: Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories. Space frame members maximum of 8 feet apart unless otherwise indicated.
 - 1. Provide same fabric as for fence unless otherwise indicated. Install fabric with tension bars and bands at vertical edges and at top and bottom edges.
 - 2. Install diagonal cross-bracing consisting of 3/8-inch-diameter adjustable-length truss rods on gates to ensure frame rigidity without sag or twist.
 - 3. Provide typical PVC finish in addition to other requirements, for gates, hardware and accessories, at locations where PVC coated fencing is indicated.
- B. Swing Gates: Comply with ASTM F 900.
 - 1. Up to 6 feet High and 8 feet Wide: Fabricate perimeter frames of minimum 1.660-inch OD Type I or II steel pipe or 1.50-inch square galvanized steel tubing weighing 1.90 lb per sq. ft.
 - 2. Over to 6 feet High and 8 Feet Wide: Fabricate perimeter frames of minimum 1.90-inch OD Type I or II steel pipe or 2.00-inch square galvanized steel tubing weighing 2.60 lb per square feet.
- C. Gate Hardware: Provide hardware and accessories for each gate, galvanized per ASTM A 153 and in accordance with the following:
 - 1. Hinges: Size and material to suit gate size, non-lift-off type, offset to permit 180-deg gate opening. Provide 1-1/2 pair of hinges for each leaf over 6-foot nominal height.

2. Latch: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as integral part of latch.
 3. Gate Stops: Provide gate stops for double gates, consisting of mushroom-type flush plate with anchors, set in concrete, and designed to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.
- D. Provide heavy-duty PVC coated round padlocks, keyed-alike, for all new gates required. Provide one set of keys to the Owner and keep at least one set in the Contractor's job office, also to be delivered to Owner upon "Final Acceptance." Obtain a signed receipt for all keys delivered.

2.6 CONCRETE:

- A. Provide one of the following:
1. Concrete: Provide concrete consisting of portland cement per ASTM C 150, aggregates per ASTM C 33, and potable water. Mix materials to obtain concrete with a minimum 28-day compressive strength of 3,000 psi. Use at least four sacks of cement per cubic yard, 1-inch maximum size aggregate, and 5-inch maximum slump.
 2. Packaged Concrete Mix: Mix dry-packaged normal-weight concrete (3,000 psi), conforming to ASTM C 387, with clean water, to obtain a 3- to 4-inch slump.

2.7 FENCING GROUNDING:

- A. Conductors: Bare, solid wire for No. 6 AWG and smaller; stranded wire for No. 4 AWG and larger.
- B. Material Above Finished Grade: Copper.
- C. Material On or Below Finished Grade: Copper.
- D. Bonding Jumpers: Braided copper tape, 1 inch (25 mm) wide, woven of No. 30 AWG bare copper wire, terminated with copper ferrules.
- E. Connectors and Ground Rods: Listed in UL 467.
- F. Ground Rods: Copper-clad steel.
1. Size: 5/8 inch by 96 inches (16 by 2400 mm).

PART 3 - EXECUTION

3.1 INSTALLATION:

- A. General: Install fence in compliance with ASTM F 567. Do not begin installation and erection before final grading is completed, unless otherwise permitted.

1. In addition, comply referenced standards, manufacturer's current written instructions and recommendations, and with reviewed and accepted submittals and Shop Drawings.
- B. Excavation: Drill or hand-excavate (using post-hole digger) holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.
 1. If not indicated on drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than 4 times largest cross-section of post.
 2. Unless otherwise indicated, excavate hole depths approximately 3 inches lower than post bottom, with bottom of posts set not less than 36 inches below finish grade surface.
 3. Setting Posts: Center and align posts in holes 3 inches above bottom of excavation. Space maximum 10 feet o.c., unless otherwise indicated.
 4. Protect portion of posts above ground from concrete splatter. Place concrete around posts and vibrate or tamp for consolidation. check each post for vertical and top alignment, and hold in position during placement and finishing operations.
 - a. Unless otherwise indicated, extend concrete footings 2 inches below grade and trowel to a crown to shed water.
- C. Top Rails: Run rail continuously through line post caps, bending to radius for curved runs and at other posts terminating into rail end attached to posts or post caps fabricated to receive rail. Provide expansion couplings as recommended by fencing manufacturer.
- D. Center Rails: Provide center rails only where indicated. Install in one piece between posts and flush with post on fabric side, using rail ends and special offset fittings where necessary.
- E. Brace Assemblies: Install braces so posts are plumb when diagonal rod is under proper tension.
- F. Bottom Tension Wire: Install tension wire within 6 inches of bottom of fabric before stretching fabric and tie to each post with not less than same gage and type of wire. Pull wire taut, without sags. Fasten fabric to tension wire with 11-gage hog rings of same material and finish as fabric wire, spaced maximum 24 inches o.c.
- G. Fabric: Leave approximately 2 inches between finish grade and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so that fabric remains in tension after pulling force is released.
- H. Tension or Stretcher Bars: Thread through or clamp to fabric 4 inches o.c., and secure to end, corner, pull, and gate posts with tension bands spaced not over 15 inches o.c.
- I. Tie Wires: Use U-shaped wire of proper length to secure fabric firmly to posts and rails with ends twisted at least 2 full turns. Bend ends of wire to minimize hazard to persons or clothing.

1. Maximum Spacing: Tie fabric to line posts 12 inches o.c. and to rails and braces 24 inches o.c.
- J. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- K. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.
- L. Finishes: Restore galvanized and PVC or paint finishes damaged by gate fabrication or other cause, back to original quality, or if not restorable, replace with new material.

3.2 GROUNDING AND BONDING:

- A. Fence Grounding: Install at maximum intervals of 500 feet, except as follows:
 1. Fences within 100 Feet (30 m) of Buildings, Structures, Walkways, and Roadways: Ground at maximum intervals of 250 feet.
 - a. Gates and Other Fence Openings: Ground fence on each side of opening.
 - 1) Bond metal gates to gate posts.
 - 2) Bond across openings, with and without gates, except openings indicated as intentional fence discontinuities. Use No. 2 AWG wire and bury it at least 18 inches (460 mm) below finished grade.
- B. Protection at Crossings of Overhead Electrical Power Lines: Ground fence at location of crossing and at a maximum distance of 150 feet (45 m) on each side of crossing.
- C. Fences Enclosing Electrical Power Distribution Equipment: Ground as required by IEEE C2, unless otherwise indicated.
- D. Grounding Method: At each grounding location, drive a ground rod vertically until the top is 6 inches (150 mm) below finished grade. Connect rod to fence with No. 6 AWG conductor. Connect conductor to each fence component at the grounding location, including the following:
- E. Bonding Method for Gates: Connect bonding jumper between gate post and gate frame.
- F. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be galvanically compatible.
 1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 2. Make connections with clean, bare metal at points of contact.
 3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.

4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

G. Desired Maximum Grounding Resistance Value: 25 ohms.

3.3 ADJUSTING:

- A. Gate: Adjust gate to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware, gates, and other moving parts.

3.3 MAINTENANCE:

- A. Demonstration:
 1. Test and adjust safety devices, hardware, and other operable components. Replace damaged or malfunctioning operable components.
 2. Train Owner's personnel on procedures and schedules for troubleshooting, servicing, and maintaining equipment.
 3. Review data in maintenance manuals. Refer to Division 1 Section "Project Closeout."
 4. Schedule training with Owner, with at least seven days' advance notice.
- B. Repair or replace all damaged fencing, gates, and/or components as damage occurs.
- C. Replace all bent posts.
- D. Replace any top rail which becomes more than just slightly bowed, defined as 3/8-inch or more in 10'-0".

3.4 CLOSE-OUT:

- A. Re-check and repair any portion of fencing work which is damaged or missing, just prior to "Final Acceptance."

END OF CHAIN LINK FENCES AND GATES

SECTION 32 8423
IRRIGATION WORK

SECTION 1.0 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The general provisions of the Contract, including General and Supplementary Conditions, and General Requirements apply to the work specified in this Section.
- B. Section 32 9000 - "Landscape Work"

1.2 DESCRIPTION OF WORK:

- A. Furnish all labor, materials, equipment and services necessary for the complete installation of the landscape irrigation system as drawn and specified. The work includes, but is not limited to:
 - 1. Trench, backfill and compaction for irrigation lines.
 - 2. Automatically controlled landscape irrigation system; backflow preventer; pressure reducing valve; isolation gate valves; piping and sleeves under paving; repair of paving, main and lateral lines; electrical valves and wiring; valve boxes and controllers; sprinklers; couplings; connectors; fittings; and if needed, tape and meter.
 - 3. Test all systems and make operative.
 - 4. Submit Record Drawings and Maintenance Manual.
 - 5. One-year Guarantee Period.
 - 6. Maintain and operate for 1-year beyond Date of completion of Substantial Completion punch list.

1.3 QUALITY CONTROL:

- A. Installer Qualifications: Firm shall hold Georgia General Contractors License for Specialty Construction, Subclassification - Landscaping or Other Specialty Construction (specified as Irrigation). Firm experienced in the successful installation of a minimum of five (5) projects within the past five (5) years similar in scope, quality, and contract value to that indicated for this project. Firm shall have sufficient manpower, equipment and financial resources to complete the Work of this Section.
- B. The Owner and the Landscape Architect reserve the right to reject any and all materials and workmanship, which they deem to be not in accordance with Drawings and Specifications.

Rejected materials and work shall be removed from site immediately and replaced with that of the specified quality.

C. Applicable Standards:

1. ASTM:
 - a. D1785: Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedule 40.
 - b. D2464: Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Threaded, Schedule 40.
 - c. D2466: Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Socket Type, Schedule 40.
 - d. D2564: Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

D. Applicable Codes:

1. Most current edition of Uniform Plumbing Code.
2. Applicable Building Code.
3. All applicable local codes and ordinances.
4. National Electrical Code.
5. Should Specification's requirements differ from local requirements, consider Contract Document requirements to be the minimum acceptable and comply with any more stringent local requirements.

E. Permits and Fees:

1. Obtain all permits and pay required fees to any agency having jurisdiction over the work.
2. Arrange inspections required by local ordinances during the course of construction.
3. Upon completion of the work, furnish satisfactory evidence to show that all work has been installed in accordance with the ordinances and code requirements.

F. Testing:

1. Perform testing and inspections required by specifications and by regulating authorities.

2. Give 24-hours notice that such tests are to be conducted.

1.4 SUBMITTALS:

- A. Qualification data for firms specified in "Quality Control" article to demonstrate their capabilities and experience. Include a list of a minimum of 5-similar projects completed within the last 5-years with project name, address, names of Architects and Owners, overall description of scope of work and contract value.
- B. Shop Drawings:
 1. Submit with Shop Drawings manufacturer's catalog sheet showing full specifications of each type sprinkler proposed including discharge of GPM, minimum allowable operating pressure at sprinkler, maximum allowable spacing and distance of throw (coverage).
- C. Record Drawings:
 1. Prepare and submit a reproducible Record Drawing showing deviations from the Contract Documents made during construction affecting the main line pipe, controller location, valve locations, and all sprinkler head locations. Record Drawings shall also indicate and show approved substitutions of size, material, and manufacturer's name and catalog number and name.
 2. Deliver Record Drawings with request for inspection and acceptance.
 3. Deliver one (1) set of record drawings, reduced in size and laminated. Drawings should be suitable for mounting adjacent to irrigation controller.
- D. Maintenance Manual:
 1. Prepare and submit irrigation system maintenance and operating instructions, with relevant manufacturer's literature. Include complete parts list covering all operating equipment.
 2. Submit in a hardcover, 3-ring binder.
 3. Include full name, address, and telephone number of Installer.

1.5 COORDINATION:

- A. Coordinate and cooperate with the Architect and other contractors and trades to enable the work to proceed as rapidly and efficiently as possible, and to be completed on schedule.

- B. Anticipate last minute delays, which may necessitate overtime work to complete the work on schedule. Sleeves under paving shall be placed by Site Contractor. Coordinate with other trades on site for sequencing of work.

1.6 SITE INSPECTION:

- A. Become familiar with all site conditions.
- B. Should utilities not shown on plans be found during excavations, promptly notify the Architect for instructions as to further action.
- C. Make necessary adjustments in the layout as may be required:
 - 1. To connect to existing stubouts (should such stubs not be located exactly as shown); or
 - 2. To work around existing work. Such adjustments shall be made with no increase in cost to the Owner.
 - 3. To avoid existing utilities.

1.7 PROTECTION OF EXISTING CONDITIONS:

- A. Take necessary precautions to protect site conditions to remain.
- B. Should damage be incurred, repair the work to its original condition at no additional cost to the Owner.

SECTION 2.0 - PRODUCTS

2.1 PVC PIPE - (Polyvinyl Chloride Pipe):

- A. PVC pipe shall be manufactured in accordance with standards noted herein.
- B. Marking and Identification: PVC pipe shall be continuously and permanently marked with the following information:
 - 1. Manufacturer's name, pipe, size, type of pipe and material, SDR number, ASTM standard number and NSF (National Sanitation Foundation) seal.
- C. Irrigation Water Piping:

1. Main Lines: ASTM D-1785, Schedule 40.

2. Lateral Lines: ASTM D-1785, Class 200.

D. This Contractor is responsible for determining if sleeves were installed prior to submitting a bid. If not installed, boring under paving, and/or hand excavation is required.

2.2 PIPE FITTINGS:

A. PVC: Meeting specified standards, Schedule 40, Standard Weight, at PVC pipe; joints solvent welded as recommended by manufacturer, except swing joints and riser to head, which shall be threaded with Teflon Tape. Swing joints shall be Schedule 80.

2.3 SOLVENT CEMENT:

A. Meeting ASTM D-2564 and of proper consistency.

2.4 RISERS:

A. Spray Heads in all areas use swing pipe. Submit sample of swing joint for approval.

B. Rotor heads use triple elbow swing joint, submit sample of swing joint for approval.

2.5 VALVES:

A. Electric Remote-Control valve sized as per manufacturer's recommendations, mechanical joint.

2.6 BACKFILL UNDER PAVING:

A. Crushed stone of the following gradation, placed and compacted to 100%:

1. 100% passing ½-inch sieve.
2. 90-100% passing 3/8-inch sieve.
3. 60-85% passing #4 sieve.
4. 40-70% passing #8 sieve.
5. 10-25% passing #50 sieve.
6. 1-5% passing #200 sieve.

2.7 VALVE BOX and COVER:

A. Ametek or equal with provision for locking.

2.8 AUTOMATIC CONTROLLER:

- A. Provide controller with ample stations for system, 120 Volt power will be supplied by others.

2.9 CONNECTION TO WATER MAIN:

- A. Install backflow preventer as per City recommendations.
- B. If needed, install irrigation water meter and tap as per City recommendations.
- C. Contractor to check pressure at water meter and install a pressure reducing valve if pressure is too excessive for irrigation system.

SECTION 3.0 - EXECUTION

3.1 GENERAL:

- A. Verify existing and proposed locations of all site utilities (i.e. gas, water, electric, telephone) prior to any trenching and laying of pipe.
- B. Coordinate all irrigation work with that of all other site work trades and contractors.
- C. All piping to be installed directly behind curb where possible and in all cases to be routed around existing or proposed site elements, including root balls of proposed trees and shrubs. Refer to the landscape planting Drawings for approximate tree locations and closely coordinate work and schedule with grading and planting work.
- D. Contractor is responsible for full and complete coverage of all areas designated on the Drawings to be irrigated and shall make any necessary adjustments at any time, at no additional cost to the Owner.
- E. Exact location and configuration of islands and other features may vary from that shown on these Drawings. Verify location and configuration at the site prior to trenching for sleeves and piping under paving, and make any minor adjustments to irrigation systems layout. Notify Architect of substantial changes.
- F. Maintain all warning signs, barricades, bracing, flares, and red lanterns as required by safety regulations and local ordinances.

3.2 INSTALLATION:

- A. General:
 - 1. Lay out according to site coordinates and actual field dimensional controls; verify piping and sleeve locations before trenching.
- B. Excavating and Trenching:

1. Perform all excavation required for installation of the work included under this Section, including shoring and bracing of earth banks to prevent cave-in.
2. Restore all surfaces and existing underground installations damaged or cut as a result of the excavations, to their original condition and in a manner approved by the Owner.
3. All excavation shall be unclassified. Trenches shall be 4-inches wide and to the depth required as specified herein and shown in the Drawings.
4. Over-excavation shall be backfilled at the Contractor's expense with cushion sand. Remove all unsuitable or excess material from the site.
5. Dewater excavations as required for dry work including both surface and ground water.
6. Trenches shall have sides as nearly vertical as possible and bottoms shall be shaped to provide continuous bedding of each section of pipe along its entire length in undisturbed soil or thoroughly compacted fill.
7. Trenches for piping shall be of sufficient depths to provide 12-inches minimum cover for pipes from finished grade. In Public Right-Of-Way, provide 18-inches minimum cover over top of main and lateral lines, or greater depth if required by local authorities.

C. Pipe Installation:

1. Pipe installation includes all irrigation piping required for water and electrical wiring to complete the automatic irrigation system.
2. Provide firm, uniform bearing for entire length of each pipeline to prevent uneven settlement. Wedging or blocking of pipe will not be permitted. Remove foreign matter or dirt from inside of pipe before joining and keep piping clean by approved means during and after laying of pipe.
3. Assemble pipe and solvent weld. Clean joint thoroughly of dust, dirt, and moisture before applying solvent with non-synthetic bristle brush.
4. Install all pipe and wiring under paving in sleeves as specified, whether or not shown on Drawings. Pressure test all piping under paving prior to paving. All mains and piping under pavement to be pressure tested and activated immediately.

D. Pipe Fitting:

1. Solvent: Use only solvent recommended by manufacturer to make solvent welded joints. Thoroughly clean pipe and fittings of dirt, dust and moisture before applying solvent.

2. PVC to Metal Connection: Work metal connection first. Use a TEFLON pipe fitting tape on threaded PVC to metal joints. Use only light wrench pressure.
 3. Threaded PVC Connections: Where required, use threaded PVC adapters into which pipe may be welded.
- E. Irrigation Heads:
1. Prior to installation, verify configuration of planting areas and tree locations, and stake head layout accordingly. Obtain approval of staked head locations from Landscape Architect before proceeding.
 2. Rotor and Pop-up Spray Heads: Attach sprinkler as specified. Adjust riser height after planting.
- F. Wiring:
1. Supply #14 UL listed single strand U.F. direct burial wire from automatic controllers to the valves in accordance with the Specifications. Use PVC conduit for all locations of wire under paving; in landscaped areas, the Contractor may add conduit for wires at his option, in lieu of tucking wire under main lines and lateral lines.
 2. Secure all wire-to-wire connections by approved means.
 3. All wire from controllers to valves shall be tucked under piping.
 4. Test wires prior to backfilling to insure continuity from valve location to controller location. Any wire not indicating continuity shall be repaired or replaced immediately.
- G. Controller:
1. Coordinate controller location with Architect and Contractor.
 2. Coordinate with Georgia Power Company to provide temporary power to controller location. This Contractor shall make power available for system.
 3. Pull valve wires, program controller, and put controller in operations.
- H. Electrical Valves: Supply and install in accordance with the materials list and the manufacturer's recommendations; set in a level position.
- I. Valve Boxes: Set flush with finish grade (adjust as necessary); set over all valves.
- J. Drainage: Place a minimum 12-inches depth of crushed stone under each box containing either

water meter, pressure regulator, valve or backflow preventer.

3.3 TESTING:

- A. Conduct test in presence of Architect. Notify Architect 48-hours in advance of testing date and time:
 - 1. Thoroughly flush out all water lines before installing heads and valves.
 - 2. Operational Test: After backfilling and adjusting heads to final positions, show that system meets coverage requirements and controls function properly. Adjust heads to be not more than ½-inches above finish grade.

3.4 BACKFILL and COMPACTING:

- A. Do not backfill until pipe systems have been hydrostatic tested and approved.
- B. After system is operating and required tests and inspections have been made, backfill excavations and trenches as follows:
 - 1. Backfill Under Paving:
 - a. Backfill for full depth of excavation with the specified crushed stone. Compact in lifts. Backfill shall be free of debris, large clods, roots or other deleterious material.
 - b. Place backfill material evenly in lifts not to exceed 6-inches and compact to 100-percent of maximum density.
 - c. Contractor is responsible for establishing compaction in trenches equal to or exceeding overall compaction of paving base. Leave top of trench ready for asphalt by others.
 - 2. Backfill in Landscape Areas:
 - a. Backfill trenches with material removed during excavation and compacted to 85-percent except where rock is encountered. In this case lay pipe in a cushion sand bed surrounding the pipe, a minimum of 4-inches deep.
 - b. Compact all excavation to prevent settling. Hand rake excavation areas and adjoining areas to leave grade at the previous elevation and in a good or better condition than before installation. Water-floor compaction will not be permitted.

- c. Repair settled areas throughout Guarantee Period, including repair of affected landscape work.

3.5 FINAL ADJUSTMENT:

- A. After planting and irrigation installation has been completed, make final adjustment to irrigation system prior to the Architect's final inspection.
- B. The system shall be completely flushed to remove any and all debris from the lines by removing nozzles from all heads on ends of lines and turning on the system.
- C. Check all heads for correct operation, alignment, and direction of throw.
- D. Check each section of spray heads for operating pressure, and balance in relation to all other sections by use of the flow adjustment on top of each valve.
- E. Check nozzles for complete coverage. Prevailing wind or other conditions may indicate the arc or angle of spray should be other than as shown on plan. In this case, revise nozzle degree to provide correct coverage, at the Contractor's expense.
- F. Adjust head and valve heights as necessary. Make any other adjustments determined necessary by the Landscape Architect to provide complete and uninterrupted coverage.

3.6 CLEAN-UP:

- A. Keep site clean on a daily basis by removing trash and debris resulting from construction operation.
- B. Keep all walks, roads, and circulation routes free from debris, materials, and equipment at all items.
- C. Upon completion of the irrigation work, clean up all work and storage areas by removing trash piles, surplus material, or other material from site.
- D. Restore pavement, curbs, ground, and any other disturbed surface to its original condition.

3.7 MAINTENANCE and COMPLETION OF THE WORK:

- A. Complete the irrigation system as specified and operate and maintain same from time of installation until Substantial Completion and for a period of 1-year beyond Substantial Completion.
- B. Instruct Owner's personnel in complete operation and maintenance of irrigation system.

SECTION 4.0 - ACCEPTANCE and GUARANTEE

4.1 SUBSTANTIAL COMPLETION:

- A. Submit request for inspection for Substantial Completion to the Landscape Architect at least 24-hours prior to anticipated date of inspection and testing (refer to Paragraph 3.3 TESTING, herein).
- B. Submit Record Drawings and Maintenance Manual to the Landscape Architect with request for inspection (refer to Paragraph 1.4 SUBMITTALS, C. and D., herein).
- C. Review the work jointly with the Owner and Landscape Architect for Substantial Completion.
- D. Upon completion of repairs and replacements found necessary at time of review, the Owner and Architect will confirm the date of Substantial Completion of the work.
- E. The date of completion of repairs and replacements found necessary at time of Substantial Completion, will constitute the beginning date of the 1-Year Guarantee.

4.2 GUARANTEE:

- A. Guarantee all work, products, equipment, and materials for 1-year, beginning at date of completion of punch list from Substantial Completion.
- B. During the period of the Guarantee, replace immediately, with no additional compensation, all work not functioning correctly; make adjustments as necessary to maintain complete coverage; make good any other damage, loss, destruction, or failure. Repairs and replacements shall be done promptly and at no additional cost to the Owner.
- C. Repair damage to grade, plants, and other work or property as necessitated due to irrigation defects, repairs, replacement, or adjustment.
- D. If the replacement is not acceptable during or at the end of the Guarantee Period, the Owner may elect either subsequent replacement or credit. Replacement products shall have a similar 1-year guarantee from time of replacement.
- E. Guarantee applies to all losses with the exception of those due to Acts of God, Vandalism, or Owner neglect, as determined by the Landscape Architect.

4.3 FINAL INSPECTION and ACCEPTANCE:

- A. At end of Guarantee Period and upon request for inspection, jointly review all guaranteed work for Final Acceptance.

- B. Submit written request for inspection for Final Acceptance to the Landscape Architect at least 2-weeks prior to anticipated date of inspection; include list of work provisionally accepted and list of work replaced during Guarantee Period.
- C. Upon completion by the Contractor of all required repairs and replacements; the Owner and the Landscape Architect will confirm the date of Final Acceptance of the Work.

END OF IRRIGATION WORK

SECTION 32 9000

LANDSCAPE WORK

SECTION 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. The general provisions of the Contract, including General and Supplementary and General Requirements apply to the work specified herein.

1.2 DESCRIPTION:

- A. Provide all labor, equipment, materials and services necessary to complete the Work of this Section, including:
 - 1. Providing, placing, grading topsoil and/or sand for landscape grading as indicated in the Drawings.
 - 2. Providing and installing trees, shrubs, ground covers, and solid sod for landscape planting.
 - 3. Maintenance for thirty days after Substantial Completion.

1.3 SUBMITTALS:

- A. Qualification Data for firms specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include a list of a minimum of five (5) similar projects completed with the last five (5) years with project name, address, names of Architects and Owners, overall description of scope of work, and contract value.
- B. Materials Lists:
 - 1. Within ten (10) days of award of Contract, submit a complete list of materials and unit prices demonstrating source, availability, and complete conformance with requirements specified.
 - 2. Substitutions not permitted unless proof is submitted to the Landscape Architect's satisfaction that the material is unavailable as specified.
- C. Certificates: Deliver all certificates of inspection to the Engineer.
- D. Product Data:
 - 1. Submit manufacturer's product literature, instructions and guaranteed analysis for fertilizer.

1.4 DEFINITIONS:

- A. Trees, shrubs, and groundcovers are plant materials listed in Plant Schedule on Drawings.

1.5 JOB CONDITIONS:

- A. Coordinate the Work of this Section with that of other trades.
- B. Examine conditions under which Work is to be performed and notify Landscape Architect and Landscape Architect in writing of unsatisfactory conditions.
- C. Do not perform Work until conditions are satisfactory and acceptable.
- D. Notify utility companies, prior to digging, for locations of underground utilities (electrical power, telephone, cable, water, sewer and gas) and perform Work in a manner which will avoid all possible damage. Hand excavate as required.
- E. Maintain stakes or other location markers and controls set by others until removal is mutually agreed upon by all parties.

1.6 QUALITY ASSURANCE:

- A. Codes and Standards:
1. Applicable Sections of Georgia Highway Department (GDOT) Standard Specifications for Highway Construction, latest Edition as amended.
 2. All plant materials to comply with State and Federal laws relating to inspection for disease and insect control.
 3. Plant material quality to conform to *American Standard for Nursery Stock*, American Association of Nurserymen, Inc., 1986, ANSI Z-60.1.1
 4. Plant Material nomenclature to conform to:
 - a. *Hortus Third*, a Concise Dictionary of Plants Cultivated in the United States and Canada, MacMillan Publishing Company, Inc., New York, 1976 Edition.
 - b. Names not listed in the above standard to comply with those most commonly used in the trade.
 - c. In all cases, botanical names take precedence over common names.
- B. Installer Qualifications: Firm shall hold Georgia General Contractor's License for Classification S - Specialty Construction, Subclassification 4 - Landscaping. Firm experienced in the successful installation of a minimum of five (5) projects within the past five (5) years similar in scope, quality, and contract value to that indicated for this project. Firm shall have sufficient manpower, equipment and financial resources to complete the Work of this Section.

- C. Personnel: Use adequate numbers of skilled workmen trained and experienced in the Work and familiar with requirements and methods needed for performance of the Work. At all times during planting operations, have on the site a person knowledgeable in horticultural practices as a superintendent.
- D. Inspection and Approval:
 - 1. All plant material is subject to inspection and approval in the field or nursery before digging, by the Landscape Architect.
 - 2. All plant materials and other materials are subject to inspection and/or rejection at the site before planting or placing, or at any other time.
 - 3. Attach secure, durable, legible waterproof labels, stating correct botanical and common names as specified, to a least one (1) plant, bundle or container of each plant variety.
 - 4. Remove from site plant materials or other materials not complying with specified requirements within 5 days of rejection.
 - 5. Approval is for visual qualities only and does not relieve the Contractor of his obligation to provide materials and workmanship in full compliance with the requirements of the Contract Documents.

1.7 PRODUCT DELIVERY, STORAGE and HANDLING:

- A. Deliver packaged materials in manufacturer's original containers showing weight, analysis and name of manufacturer. Protect materials from deterioration during delivery, and while stored at the site.
- B. Deliver all non-packaged or non-containerized materials to site in a manner that will prevent loss, damage, deterioration or contamination.
- C. Store all materials in approved locations to prevent loss, damage, deterioration or contamination.
- D. Deliver, storage and handling of all plant materials shall conform to GDOT Specifications and the following:
 - 1. Deliver freshly dug plants, which have not been in cold storage or heeled-in.
 - 2. Do not prune prior to delivery.
 - 3. Do not bend or bind trees or shrubs in such a manner as to damage bark, break branches or destroy natural shape.
 - 4. Provide necessary protective covering during transport and delivery.
 - 5. Deliver plants after preparations for planting have been completed and approved, and

plant immediately.

1.8 SITE MAINTENANCE:

- A. Keep roads, paving and structures adjacent to maintenance operations clean and free of obstructions, mud and debris at all times.
- B. Do not permit flushing of roads or disposal of dirt or debris into sewers or drainage ditches.
- C. Control dust from maintenance operations.

SECTION 2 - PRODUCTS

2.1 SOIL MATERIALS:

- A. Topsoil:
 - 1. This Contractor shall furnish topsoil in sufficient quantity, to complete grading and planting operations as specified.
 - 2. Characteristics of topsoil to be furnished:
 - a. Fertile, friable, naturally occurring. Free of stones, clay, lumps, hardpan, roots, stumps, branches, sticks and other debris larger than two (2) inches in any dimension; free of noxious weeds, grasses, seeds, plants, extraneous matter and any substance harmful to plant growth. Topsoil from open fields will not be accepted.
 - b. Ph: 5.0 to 7.0
 - c. Organic Matter: 5% to 10%
 - d. Sand: 50% to 70%
 - e. Silt: less than 30%
 - f. Clay: 10% to 25%
 - g. Permeability Rate of 5 x 10 ⁻³ centimeters or greater at 85% compaction.
- B. Notify Engineer of location of proposed topsoil for his inspection before testing or transporting to site.
- C. Topsoil testing for furnished topsoil: Sample and test, minimum of three (3) samples, for compliance with specified characteristics. Tests to be performed by soil testing lab approved in advance by Engineer, by this Contractor at his expense. Submit Soil Test Reports to Landscape Architect for approval before transporting topsoil. Amend per recommendations of Soil Test Report and as approved to meet specified characteristics.

2.2 SOIL AMENDMENTS:

- A. Fertilizer:

1. Characteristics:
 - a. Uniform in composition.
 - b. Dry and free-flowing.
 - c. Commercially available.
 - d. Conforming to the State of Federal Fertilizer Laws.
 2. Of the formulation recommended in the Soil Test Report as specified.
- B. Lime:
1. Ground or crushed agricultural lime.
 2. Containing not less than 85% of total carbonates.
 3. 90% passing 20-mesh screen.
 4. Not less than 50% passing a 60-mesh screen.
 5. Dry and free-flowing.
 6. Apply at rate specified in Soil Test Report.

2.3 LANDSCAPE PLANTING MATERIALS:

- A. Water:
1. Provide fresh water, free of impurities or any substance harmful to plant growth.
 2. Provide all hose, attachments, and accessories necessary to complete the Work as specified.
- B. Topsoil: Refer to Paragraph 2.1.A, this Section, for specified topsoil for use in all planting operations.
- C. Topsoil Mix:
1. Prepare all topsoil mix used in tree and shrub pits and ground cover beds in the following proportions:
 - a. 2 parts by volume topsoil as specified. 2.1.A.
 - b. 1 parts by volume decomposed organic matter, 2.3.E.
 2. Add three (3) pounds of 12-6-6 fertilizer to each cubic yard of topsoil mix during the mixing process, for all plants.
- D. Decomposed Organic Matter:
1. Well rotted organic matter.
 2. Containing no weeds, grasses or plants, their seeds, or any substance harmful to plant growth.

3. Of uniform composition.
 4. Acceptable Materials:
 - a. Mushroom Compost
 - b. Ground pine bark
 - c. Approved equal.
- E. Chemical Weed Control
1. Pre-Emergent (in bed areas):
 - a. Selective pre-emergent with no residual soil activity. Active ingredient: Trifluralin.
 - b. Commercially available.
 - c. Adhere to manufacturer's recommendations for strength, rate, and method of application.
 - d. Acceptable Manufacturers:
 - 1) Elanco: Treflan
 - 2) Approved substitution.
 - e. Herbicide:
 - f. Non-selective post-emergent with no residual soil activity. Active ingredient: Isopropylamine salt of Glyphosate.
 - g. Commercially available.
 - h. Adhere to manufacturer's recommendations for strength, rate and method of application.
 - i. Acceptable Manufacturers:
 - 1) Monsanto Agricultural Products Company: Round Up.
 - 2) Approved substitution.
- F. Mulch:
1. Pine straw on slopes: Free from leaves, twigs, insects, grasses, weeds, plants and their seeds, other foreign material and any substances harmful to plant growth.
 2. Ground Pine bark: Free from leaves, twigs, insects, grasses, weeds, plants and their seeds, other foreign material and any substances harmful to plant growth.
- G. Solid Sod:
1. Obtain solid sod from sources having growing conditions similar to the area to be planted.
 2. Sod shall be true to name and type of the species named in the plant Schedule.
 3. Sod shall be 100 percent of the type specified and shall contain no other grasses.
 4. Sod shall be well cultivated and weed, disease and insect-free, of good texture, and free from extraneous roots, stones and other foreign material. The presence of nutgrass or other weeds shall be cause for rejection and replacement prior to Substantial

completion, or during the Guarantee Period.

5. Contractor shall lay sod within 24 hours of harvesting. Contractor shall not lay sod if dormant or if ground is frozen or muddy.

H. Seed (If shown on plans):

1. Use Winter Rye Grass as a temporary grass during the cool months, defined as October to March. Seed is to meet purity standards as outlined in AHD Section 860.01a.
2. Use Cynodon Dactylon (Common Bermuda) for seeding during the warm months, defined as April through September. Seed is to meet purity standard as outlined in the AHD Section 860.01a. Seed at a rate of 50 lbs. per acre.
3. Do not broadcast or drop seed when wind velocity exceeds 10 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
4. Sow seed at a total rate of 1.5 lb/1000 sf (Common Bermuda).
5. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

I. Plant Material:

1. Definition: Trees and shrubs listed in the Plant Schedule in the Drawings.
2. General:
 - a. Species, sizes, manner in which to be planted, and approximate quantities to complete the planting as indicated are included in the Plant Schedule.
 - b. Scientific and common plant names conform to those given in *Hortus Third*, or are those generally accepted in the nursery trade.
3. Quality:
 - a. Conform to the standards set forth in *American Standard for Nursery Stock*.
 - b. Standard quality and first-class representatives of their species or variety and true to name and type.
 - c. Nursery-grown, unless specified otherwise.
 - d. In compliance with State and Federal laws relating to disease and insect infestation; file certificates with Landscape Architect.
 - e. Having normal, well-developed branches and vigorous root systems, free from defects, decay, disfigurements, sun scaled, bark abrasions, plant diseases, insect pests or eggs, borers and any and all infestations.
4. Rejection of plants for:

- a. Lack of compactness or proper proportion;
- b. Weak, thin growth in rows too close together;
- c. Cut back from larger stock to meet specified requirements;
- d. Undersized, dry, cracked or broken balls, or plants that are loose in their balls;
- e. Root bound within container or ball;
- f. Lacking proper proportion as to height and spread and specified characteristics or plant material;

5. Size:

- a. Sizes and proportions of all plant materials shall equal those recommended by the *American Standard for Nursery Stock* for specified grades.
- b. Measure plants before pruning, with branches in normal position.
- c. Equal or exceed measurements specified in Plant Schedule, which are the minimum acceptable; provide 50-percent of plant material maximum size specified.
- d. Height and spread dimensions: General body mass of plant, not from branch tip to tip.
- e. Well-proportioned as to height; reject plants which meet specified measurements but do not possess an overall balance.
- f. Take caliper measurement on trunk six-inches above natural ground level up to and including four-inch caliper size; twelve-inches above natural ground level for larger sizes.
- g. B&B plants shall have firm natural balls of a diameter and depth not less than that recommended in *American Standard For Nursery Stock*.
- h. Container-grown plants: Conform to standards set forth in *American Standard For Nursery Stock* for container-grown plants.

6. Quantity: Furnish plants in sufficient quantity to satisfy the intent of the Drawings and Specifications. Locate in sufficient quantity to that time is not lost if some plants are rejected.

J. Guying and Staking Materials:

1. Wood Stakes:

- a. Pressure-treated Southern Yellow Pine, or other approved wood, 2-inches x 4-inches x length specified in the Drawings, pointed at one end.
- b. Free from insects and fungi.

2. Wire: Pliable #10 or #12 gauge galvanized steel wire, doubled and twisted.

3. Turnbuckles: As detailed and approved by Landscape Architect.

4. Protective Hose:

- a. Reinforced fiber-bearing rubber hose.
- b. Black.
- c. May be second-hand.
- d. Not less than 2-inches inside diameter.

SECTION 3 - EXECUTION

3.1 INSTALLATION:

A. Planting Season:

1. A period of acceptable weather conditions, during seasons in which satisfactory results can be expected as determined by acceptable practice in the locality and approved by the Landscape Architect.
2. Commence planting operations as soon as portions of the site are available, as approved by the Landscape Architect.

B. Site Inspection:

1. Examine areas and conditions under which Work is to take place.
2. Inform Landscape Architect in writing, prior to planting, of conditions existing which could be considered detrimental to the successful planting and growth of any plant material, including but not limited to, subsurface drainage conditions, utility locations, subgrade compaction, percolation rate and elevations.

C. Site Preparation:

1. Topsoil (4" in sod areas and 6" in shrub and groundcover beds) shall be spread by the Contractor and fine graded. Topsoil, regardless of the source, shall meet all requirements of the paragraph above.

Stockpile material that does not meet the requirements may, at the option of the contractor, be improved by screening and the addition of organic matter and chemical admixtures.

Do not place or spread topsoil in an area until subgrade is approved by Landscape Architect and is acceptable to this Contractor.

2. Remove all vegetative growth from topsoil by approved means before commencing with planting operations.
3. Remove all unwanted vegetative growth from areas designated to receive new planting or sod with chemical herbicide or by other approved means, prior to scarifying and placing topsoil.

4. Remove extraneous matter measuring 1-2-inch or larger in any dimension from top 4-inches of placed topsoil.
 5. Uniformly grade areas including adjacent transition areas to line and grade shown on Drawings.
 6. Obtain approval of finished grades before proceeding with planting operations; eliminate irregularities and ponding.
 7. Protect stockpiled or spread topsoil from erosion by force of wind, water, or other force; re-establish eroded, rutted or settled grades to proper finished grade.
- D. Plant Location Staking and Excavating Compacted Subgrade Tree Pits:
1. Stake plant locations and areas for approval prior to planting.
 2. Do not dig plant pits prior to obtaining Landscape Architect's approval of plant locations.
 3. Make adjustments in plant locations as directed.
 4. If underground obstructions are encountered in planting areas that would prevent the installation of the plant material, contact the Landscape Architect immediately. Alternate locations may be selected by the D & D at no additional cost to the Owner.
 5. All locations where trees are to be installed shall have the topsoil broken up to an 18" depth and 10' radius (if space allows) with a mini excavator.
- E. Topsoil Mix:
1. Prepare topsoil mix to specification 2.3.C off site, using approved topsoil.
 2. Obtain approval of topsoil mix before delivery to site, and prior to commencing planting operations. Do not mix in place with placed topsoil.
 3. Place topsoil mix as backfill for tree and shrub pits and beds as drawn. Place 2-inches of topsoil mix in all shrub beds unless otherwise indicated on the Drawings.
 4. Protect stockpiled topsoil mix from erosion by force of wind of water, or damaged by traffic.
- F. Planting:
1. Place plants comprising a planting composition in approved staked locates for approval by Landscape Architect.

2. Planting pits and beds:
 - a. Drainage:
 - 1) This Contractor is responsible for achieving and maintaining adequate drainage from all planting beds. Use specified drainage system, or other approved means, in all tree pits.
 - 2) 48-hours prior to planting, test each plant pit for adequate drainage.
 - 3) Owner reserves the right to test tree or plant pits at any time, before or after planting, for adequate drainage. Correct immediately any inadequate drainage encountered.
 - b. Pits are generally circular in outline with vertical sides.
 - c. Tree pits: 3-feet greater in diameter than ball or root spread.
 - d. Shrub pits: 1-foot greater in diameter than ball or root spread.
 - e. Excavate to specified dimensions and dispose of excavated material off site.
 - f. Prepare as specified in detail Drawings.
3. Setting plants:
 - a. Set plants uniformly 2-inches to 4-inches higher than surrounding grade or as necessary to provide adequate positive drainage away from roots. Slope soil gradually from saucer.
 - b. Cut rope, wire or string from top of ball after plant has been set; turn down and bury burlap.
4. Backfilling plants:
 - a. Backfill to 2/3 full with specified topsoil mix.
 - b. Water thoroughly to eliminate air pockets and settling before filling to grade.
 - c. Form shallow saucer at plant pit edge to hold water.
 - d. Water in thoroughly.
5. Pre-Emergent application:
 - a. Apply per manufactures instructions.
6. Staking:
 - a. Inspect tree trunks for injury, improper pruning and insect infestation; take corrective measure.
 - b. Immediately after planting, stake trees as detailed.
7. Pruning:

- a. Do not prune plants without approval.
 - b. Prune after plants are in place and *ONLY* at the direction of Landscape Architect.
 - c. Main leaders of trees to remain intact.
 - d. Paint all cuts over 2-inch diameter with approved tree wound dressing.
8. Finished Grading: Handgrade and rake planting areas so that grades conform to surrounding areas and surface water drains freely.
9. Mulching:
- a. Mulch all plant pits and beds with 4-inch deep specified mulch.
 - b. Spread mulch solid in planting beds.
 - c. Thickness is uniform throughout.
 - d. Mulch for trees shall be eight (8) feet in diameter from base of tree.
- G. Solid Sod:
1. Procure and handle sod per GDOT Section 860.05(b) 1-4.
 2. Preparation of Sod Bed:
 - a. Spread and scarify amended topsoil as specified.
 - b. Rake and otherwise manipulate to form smooth-draining grades, remove all stones and clay lumps 1-inch in diameter or larger.
 - c. Leave the surface of the topsoil 1- 1/2-inches below finished grade.
 - d. Do not move heavy objects over areas to be sodded after the soil has been prepared. Planting in compacted areas will not be permitted.
 - e. The finished surface of the areas to be sodded shall be approved by the Landscape Architect prior to sod placement.
 3. Solid Sod Placement:
 - a. Lay sod when sod bed is not excessively wet or frozen, but when soil is damp for a depth of 4-inches.
 - b. Immediately upon approval of bed preparation, lay sod smoothly, edge-to-edge, with staggered joints.
 - c. Press firmly into contact with sod bed by tamping or rolling by approved means to eliminate all air pockets, providing a true and even surface, and assuring knitting.
 - d. Fill cracks between sod blocks with strips of living sod, topsoil, or humus.
 - e. Water thoroughly by use of sprinkler or spray, without erosive force.
- H. Seeding: (may not be applicable if Seeding specification is included)

1. Furnish, sow, establish and maintain an acceptable growth of specified grass over all disturbed areas not otherwise designated to receive planting, mulch or sod.
2. Ground Preparation: Spread and scarify amended topsoil as specified. Ground preparation shall consist of cultivation to loose depth approximately four (4) inches (minimum). The plowing, harrowing, cultivating, and all other operations shall be performed with proper equipment and in such a manner as to break up all clods, lumps or earth balls, and remove all boulders, stumps, large roots, or other particles which will interfere with the Work. The resultant surface is to be smooth, uniform, loose, well broken, and fine grained soil providing a suitable bed for seed grass. The ground shall be plowed to the required depth, then cultivated with a rotary tiller and/or disc harrow, in both directions if feasible, until approved. In small or inaccessible areas use of hand tools will be permitted. After removal of all large particles which cannot be broken, the surface shall then be harrowed and tilled. Add sufficient water to wet the soil in order to prepare the ground.
3. Sowing:
 - a. Sowing seed shall follow promptly after the addition of the fertilizer in a uniform manner at the rates specified by Soil Test Reports.
 - b. Sowing shall be done by approved mechanical seeders. Without prejudice to power equipment or seeders of other types and makes, hand operated cyclone sowers, in sufficient number, will be considered mechanical seeders. No sowing shall be done during windy weather, or when the prepared surface is crusted, or when the ground is frozen, wet or otherwise in a non-tillable condition.
 - c. Care shall be exercised during covering operations to preserve the line, grade and cross-section of the seeded areas and to see that areas adjacent to pavement, curbs, etc., are not left higher than the paved surface. Unless otherwise directed, after seed has been sown the seedbed shall be compacted immediately by means of a cultipacker, light roller or approved drag.
4. Mulching: Spread hay or straw mulch to seeded areas at specified rate within 24 hours after the area has been seeded.
5. Care During Construction:
 - a. Water, fill washes, and otherwise protect and maintain the seeded areas including any mulch or cover used until the Work is accepted.
 - b. Repair damage caused by pedestrian and/or vehicular traffic, or other causes.
6. Satisfactory Stand:
 - a. The acceptance of areas designated to be seeded under this Section will be based on verification of a satisfactory stand of grass as determined by an on-site observation by the Landscape Architect.

- b. A satisfactory stand is defined as a cover of living grass of specified species, after true leaves are formed in which no gaps larger than five (5) inches square occur. Areas viewed by the Landscape Architect to be solid rock will be exempt from this requirement.
 - c. If a satisfactory stand is not established in any area, the area shall be reseeded until a satisfactory stand is established, without additional compensation.
7. Should the site be ready for seeding during a season when, in the opinion of the Landscape Architect, the specified grass will not form a satisfactory cover, establish a cover of Winter Rye and reseed specified grass at earliest time when acceptable growth can be established at no additional cost to the Owner.

3.2 LANDSCAPE MAINTENANCE:

- A. See Section 32 9005 Landscape Maintenance

3.3 SUBSTANTIAL COMPLETION and GUARANTEE:

- A. Substantial Completion and Payment:
 - 1. Submit written requests for inspection for Substantial Completion to Landscape Architect at least three calendar days prior to anticipated date of inspection and testing.
 - 2. Substantial Completion cannot be granted and at the same time no further applications for payment shall be for more than 85 percent of Contract until there has been a walk - thru for planting at which time a "punch list" will be written consisting of items to be addressed and corrected by Landscape Contractor immediately. Depending on extent of work on "punch list", Landscape Architect will determine job to be "substantially complete" or pending the completion of punch list".
 - 3. Submit Record Drawings and Maintenance manuals to Landscape Architect with written request for inspection.
 - 4. Review "punch list" work jointly with Owner and Landscape Architect for Substantial Completion of total (contract) work.
 - 5. Upon completion of repairs and replacements found necessary at time of review, Owner and Landscape Architect will confirm date of Substantial Completion and issue written notice of Substantial Completion if items on punch list have been completed. If necessary, another punch list will be written to itemize deficiencies still existing and will be attached to written notice of substantial completion. Landscape Contractor shall complete all "punch list" items if possible within 30 days while continuing maintenance.
 - 6. Date of Substantial Completion will constitute beginning date of One - Year Guarantee. This date also constitutes beginning of warranty responsibilities and acceptance by Owner and Landscape Architect.
- B. Guarantee:
 - 1. Guarantee all materials and workmanship for a period of 1-year from the Date of Substantial Completion.

2. During the period of the Guarantee, replace with no additional compensation, and as soon as weather permits, all dead plant materials and all materials not in a thriving condition; replace all other workmanship and materials which are unsatisfactory in the opinion of the Landscape Architect; make good any other damage, loss, destruction, or failure to flourish sufficiently as the result of inferior or defective materials or workmanship, including, but not limited to inadequate drainage.
3. All replacement material shall match the size attained by original materials at the time of the replacement.
4. Remove dead or dying material from the site within 5 days of notice, refer to section 1.6 paragraph D(4).
5. Repair grades and other Work necessitated due to planting replacements.
6. If the replacement is not acceptable during or at the end of the Guarantee Period, the Owner may elect either subsequent replacement or credit. Replacements shall have a similar 1-year Guarantee from date of replacement.
7. Guarantee applies to losses or damage other than those due to vandalism, Owner neglect, or Acts of Nature, as determined by the Landscape Architect. Acts of Nature, but may not be limited to, high winds of hurricane or tornado force, sleet, hail, freezing rain, and extreme cold (as determined by the Landscape Architect). Contractor agrees to replace losses due to Acts of Nature at fifteen percent (15%) less than original contract price for the damaged work.

3.4 FINAL INSPECTION and ACCEPTANCE:

- A. Contractor is responsible for contacting the Landscape Architect at the end of the Guarantee Period to schedule final inspection. Should the Contractor fail to contact the Landscape Architect at this time, the Guarantee Period is automatically extended until he does so.
- B. At the end of the Guarantee Period, submit request for inspection for Final Acceptance to Landscape Architect at least 1-week prior to anticipated date of inspection; include list of Work substantially accepted and list of Work replaced during Guarantee Period.
- C. Upon request for inspection, jointly review with Landscape Architect all guaranteed Work for Final Acceptance.
- D. Remove tree staking apparatus and saucers from all trees, unless otherwise directed; replace mulch to specified thickness.
- E. Upon completion by the Contractor of all required repairs and replacements, the Landscape Architect will confirm the date of Final Acceptance of the Work.

END OF LANDSCAPE WORK

SECTION 331000

WATER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 31 2000 - "Earth Moving"
 - 2. Division 22 - "Plumbing"

1.2 SUMMARY:

- A. This Section includes water service piping system, meter, vaults, valves, and appurtenances from the existing on-site utility source of potable water to a point 5 feet outside the building, and as indicated on the Drawings, and in this Section of the Project Manual.
- B. Note that the Contractor shall furnish and install connection, water meter, etc., acceptable to the utility company and call on the utility company to approve the meter and inspect the installation prior to covering.
- C. All fees and charges for water service, meters, taps, permits, impact fees, etc., if any, shall be paid by the Contractor from their contract amount.
- D. The extent of water service piping system, fire hydrants, etc., is indicated on the Drawings, in this Section, other referenced Sections of the Project Manual, and as otherwise required by authorities having jurisdiction.
 - 1. All water pipe which run under roads, streets, driveways, and other vehicular paving shall be sleeved in AWWA C151 ductile iron sleeves.
- E. Utility Compliance: Comply with Dalton Utilities regulations and standards pertaining to sanitary sewerage systems.
 - 1. Where conflicts or discrepancies occur with the plans or these specifications, Dalton Utilities regulations and standards shall govern.

1.3 SUBMITTALS:

- A. General: Submit the following in accordance with conditions of Contract and Division 1 Specification Sections
 - 1. Product data for water service piping and fire protection pipe and specialties.

2. Shop drawings for vaults, junction boxes, valve boxes, manholes, meters, back-flow preventers, and other similar water service equipment.

PART 2 - PRODUCTS

2.1 PIPE AND PIPE FITTINGS - GENERAL:

- A. General: Pipe, valves, fittings and installation in R.O.W. and on site shall comply with requirements of this Section, other referenced Sections of the Project Manual, the Drawings, and Dalton Utilities.
 1. Pipe, fittings, hydrants and valves shall be as specified herein, subject to acceptance by Dalton Utilities, unless other specific materials acceptable to Dalton Utilities are indicated on the Drawings.
 2. PVC piping and fittings smaller than 4" shall be C900 PVC, Class 200 plastic pipe, Schedule 40, or Type K Copper; and pipe 4" and larger, below paving and fire lines shall be ductile iron, of type(s) acceptable to Dalton Utilities, unless other specific materials acceptable to Dalton Utilities are indicated on the Drawings.
 3. PVC water piping and fittings 4" and larger shall be C900, Class 250 plastic pipe of type acceptable to local utility company, unless other specific materials acceptable to utility company are indicated on the Drawings.
 4. Ductile iron pipe for fire lines, pipe below paving and where indicated shall meet ANSI A21.51, Grade 60-42-10, and special thickness pressure class 50, (For 6" Pipe this is the same 0.25" wall thickness as Class 350) ductile iron, of type(s) acceptable to local utility company, unless other specific materials acceptable to utility company are indicated on the Drawings.
 5. Note that all water pipe which run under roads, streets, driveways, and other vehicular paving shall be either ductile iron or shall be sleeved in ductile iron sleeves.
 6. Copper pipe where indicated, provide Soft Copper Tube, ASTM B 88-62, Type K hard drawn, water tube, annealed temper.
 - a. Copper, Solder-Joint Fittings: AWWA C800-6 and 66. Corp stops shall be ¾" Ford F-1000 CC x COMP or equal, curb stops shall be ¾" Ford B-41-233W COMP x FIP or equal, and service saddles shall be dresser style 194 or equal. Furnish only wrought-copper fittings if indicated.
- B. PVC Plastic, Schedule 40/80 PVC with pressure-rated fittings: Conform to ASTM D 1785 standard specifications for PVC plastic pipe.
- A. C. PVC Plastic, Water Pipe: AWWA C900, Class 200. Include elastomeric seal according to ASTM F477.
- B. C. 1. Ductile Iron Fittings: AWWA C110, ductile-iron; or AWWA C153, ductile-iron, compact type, and specifically designed for joining PVC pipe; Include

- elastomeric seals according to ASTM F 477 or as otherwise required for joining plastic pipe specified
- D.
- E. 2. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended in writing by piping system manufacturer, unless otherwise indicated.
- F.
- G. D. Where copper pipe is indicated, provide Soft Copper Tube, ASTM B 88, Type K, water tube, annealed temper.
- H.
- I. 1. Copper, Solder-Joint Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper, solder-joint pressure type. Furnish only wrought-copper fittings if indicated.
- E. Ductile-Iron, Push-on-Joint Pipe: AWWA C151 and ANSI C150, C151, A21.50, and A21.15 respectively, Class 350 as approved by Dalton Utilities, tar coated outside, with cement lining and seal coat according to AWWA C104. Include rubber compression gasket according to AWWA C111.
1. Ductile-Iron, Push-on-Joint Fittings: AWWA C110, ductile-iron; or AWWA C153, ductile-iron, compact type. Include cement-mortar lining and seal coat according to AWWA C104 and rubber compression gaskets according to AWWA C111 (ANSI 21.11) and according to ASTM D-3139.
2. Joining Materials: AWWA C111 rubber gaskets and lubricant according to ASTM F477 requirements.
- F. Ductile-Iron, Mechanical-Joint Pipe: AWWA C151, with cement-mortar lining and seal coat according to AWWA C104. Include gland, rubber gasket, and bolts and nuts according to AWWA C111.
1. Ductile-Iron, Mechanical-Joint Fittings: AWWA C110, ductile-iron; or AWWA C153, ductile-iron, compact type. Include cement-mortar lining and seal coat according to AWWA C104 and glands, rubber gaskets, and bolts and nuts according to AWWA C111.
2. Joining Materials: AWWA C111 ductile-iron or gray-iron glands, high-strength steel bolts and nuts, and rubber gaskets.
- G. PE Encasement for Ductile-Iron Piping: ASTM A 674 or AWWA C105, PE film, 0.008-inch (0.20-mm) minimum thickness, tube or sheet.
- H. Pipe Sleeves: Provide pipe sleeves at least one size larger than water service piping required below existing concrete and paving, and as follows.
1. Below Concrete, Entry Pads, and Paving Subject to Only Pedestrian Traffic, and for Future Irrigation: Schedule 40/80 PVC.
2. Below Concrete, Equipment Pads, Dumpster Pads, Valley Gutters, Curbs and Gutters, Paving Subject to Vehicular Traffic, and Where Indicated: Ductile Iron, as specified above herein this Section.

I. Identification for Underground Plastic Pipe:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allen Systems, Inc.; Reef Industries, Inc.
 - b. Brady (W.H.) Co.; Signmark Div.
 - c. Calpico, Inc.
 - d. Carlton Industries, Inc.
 - e. EMED Co., Inc.
 - f. Seton Name Plate Co.
2. Plastic Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid blue in color with continuously printed caption in blue letters "CAUTION - WATER LINE BURIED BELOW."

K. Domestic Water Meter – Provide in accordance with Dalton Utilities specifications.

1. Meter box and cover shall be traffic-bearing in all paved areas.

L. Tapping Sleeve and Valve:

1. Tapping sleeves and valves shall be Mueller, mechanical joint, 250 psi or equal.
2. Tapping sleeves shall have 24"x24"x8" concrete pad in undisturbed soil with solid blocking to support tapping valves.

M. Valves:

1. Unless otherwise specified, all gate valves up to 12" shall be resilient seat, and all gate valves larger than 12" shall be butterfly type. All valves larger than 12" shall receive approval from the City before installation.
2. Acceptable manufacturers of gate valves are American-Darling, Dresser M&H, or equal.

N. Valve Accessories:

1. All buried valves shall be furnished with cast iron, screw type; extendable valve boxes marked "WATER". Acceptable manufacturers are Mueller, M&H Valve, or equal.
2. Valve boxes shall be mounted plumb in an 18" round concrete valve pad and centered over the operating nut.
3. One concrete valve marker shall be furnished and set at each line valve. The marker shall be made of 3,000 psi concrete with four #4 reinforcing bars. The size shall be four feet long by 4" on each side.

O. Hydrants

1. Fire Hydrants shall meet AWWA C-502-80 as well as the local authorities having jurisdiction.

2. Hydrants shall be manufactured by Mueller or an approved equal.
3. Hydrants shall be equipped with tamper proof caps that will work with City operating wrenches to prevent unauthorized use of water.
4. Hydrants shall be warranted by the manufacturer against defects in materials or workmanship for at least 10 years from the date of manufacture.

PART 3 - EXECUTION:

3.1 INSTALLATION:

- A. Comply with requirements of Division 22, the International Plumbing Code, Drawings, Dalton Utilities and requirements of other authorities having jurisdiction.
- B. Comply with requirements of the State Health Department, the local Health Department, and authorities having jurisdiction.

3.2 DEPTH OF COVER:

- A. Provide minimum cover of 36-inches for all water bearing piping.

3.3 INSTALLATION OF IDENTIFICATION:

- A. Install continuous plastic underground warning tape during back-filling of trench for underground water service piping. Locate 6 to 8 inches below finished grade, directly over piping.

3.4 CLEANING:

- A. Clean and disinfect water distribution piping as follows, or as required by utility company, Code, and authorities having jurisdiction:
 1. Purge all new water distribution piping systems and parts of existing systems that have been altered, extended, or repaired, prior to use.
 2. Use the purging and disinfecting procedure prescribed by the authority having jurisdiction or, in case a method is not prescribed by that authority, use the procedure described in AWWA C651, or as described below:
 - a. Fill the system or part thereof with a water/chlorine solution containing at least 50 parts per million of chlorine. Isolate (valve off) the system or part thereof and allow to stand for 24 hours.
 - b. Drain the system or part thereof of the previous solution and refill with a water/chlorine solution containing at least 200 parts per million of chlorine and isolate and allow to stand for 3 hours.

- c. Following the allowed standing time, flush the system with clean, potable water until chlorine does not remain in the water coming from the system.
 - d. Submit water samples in sterile bottles to the authority having jurisdiction. Repeat the procedure if the biological examination made by the authority shows evidence of contamination.
- B. Prepare reports for all purging and disinfecting activities and submit for review and along with each set of “Record Documents”.

END OF SECTION

SECTION 333000

SANITARY SEWERAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - 1. Section 31 2000 - "Earth Moving"
 - 2. Section 03 3100 - "Concrete"
 - 3. Division 22 - "Plumbing"

1.2 SUMMARY:

- A. This Section includes sanitary sewerage system piping and appurtenances from a point 5 feet outside the building to the point of disposal.
- B. The extent of sanitary sewerage system is indicated on the Drawings, in this Section 33 3000, and as otherwise required by Dalton Utilities and any other authorities having jurisdiction.
- C. All fees and charges for sanitary sewerage service, taps, connections, permits, impact fees, etc., shall be paid by the Contractor from their contract amount.

1.3 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data for drainage piping and specialties.
 - 2. Shop drawings for precast concrete sanitary manholes, including frames and covers
 - a. Shop drawings for cast-in-place concrete or field-erected masonry sanitary manholes, if any, including frames and covers
 - 2. Test Reports.

1.4 QUALITY ASSURANCE:

- A. Environmental Compliance: Comply with applicable portions of local environmental agency regulations pertaining to sanitary sewerage systems.
- B. Utility Compliance: Comply with Dalton Utilities regulations and standards pertaining to sanitary sewerage systems.

1. Where conflicts or discrepancies occur with the plans or these specifications, the Dalton Utilities regulations and standards shall govern.

- C. Health Department Compliance: Comply with the State Department of Health Code or the local Health Department code, regulations and standards, whichever is more stringent.
- D. Comply with requirements of Dalton Utilities and any other authorities having jurisdiction, when more stringent than specified or otherwise indicated.

1.5 PROJECT CONDITIONS:

- A. Site Information: Perform site survey, research public utility records consult with Dalton Utilities Department and verify existing utility locations. Verify that sanitary sewerage system piping may be installed in compliance with original design and referenced standards.

1.6 SEQUENCING AND SCHEDULING:

- A. Coordinate any connection to public sewer with Dalton Utilities.
- B. Coordinate with interior building sanitary drainage piping.
- C. Coordinate with other utility work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cleanouts:
 - a. Ancon, Inc.
 - b. Josam Co.
 - c. Smith (Jay R.) Mfg. Co.
 - d. Wade Div.; Tyler Pipe.
 - e. Zurn Industries, Inc.; Hydromechanics Div.
 - 2. Underground Warning Tapes:
 - a. Allen Systems, Inc.; Reef Industries, Inc.
 - b. Brady (W.H.) Co.; Signmark Div.
 - c. Calpico, Inc.
 - d. Carlton Industries, Inc.
 - e. EMED Co., Inc.
 - f. Seton Name Plate Co.

2.2 PIPE AND FITTINGS:

1.1 A. Ductile-Iron, Gravity Sewer Pipe and Fittings:

A.

- B. 1. Pipe: Ductile iron pipe meeting AWWA C-150, C-151 and ANSI A21-50 and A 21.15 for coated outside and cement lined inside. Cement lining according to AWWA C104, Class 350.
- C. 2. Standard Fittings: AWWA C110, ductile or gray iron, for push-on joints.
- D. 3. Compact Fittings: AWWA C153, for push-on joints.
- E. 4. Gaskets: AWWA C111, rubber.

F.

B. Pipe 8-inches and smaller, unless indicated otherwise:

- 1. PVC (Polyvinyl Chloride) Sewer Pipe and Fittings: ASTM D 3034, SDR 26, for solvent cement or elastomeric gasket joints.
- 2. Solvent Cement: ASTM D 2564, for pipe 4-inches and smaller.
- 3. Gaskets: ASTM F 477, elastomeric seal, for pipe larger than 4-inches.

C. Couplings: Rubber or elastomeric sleeve and stainless-steel band assembly fabricated to match outside diameters of pipes to be joined.

- 1. Sleeves: ASTM C 425, rubber for vitrified clay pipe; ASTM C 443, rubber for concrete pipe; ASTM C 564, rubber for cast-iron soil pipe; and ASTM F 477, elastomeric seal for plastic pipe. Sleeves for dissimilar or other pipe materials shall be compatible with pipe materials being joined.
- 2. Bands: Stainless steel, one at each pipe insert.

D. PE Encasement for Ductile-Iron Piping: ASTM A 674 or AWWA C105, PE film, 0.008-inch (0.20-mm) minimum thickness, tube or sheet.

E. Couplings: Rubber or elastomeric compression gasket, made to match pipe inside diameter or hub, and adjoining pipe outside diameter.

2.3 MANHOLES (if any):

A. Precast Concrete Manholes: ASTM C 478, precast reinforced concrete, of depth indicated with provision for rubber gasket joints. All manhole covers shall be round.

- 1. Base Section: 6-inch minimum thickness for floor slab and 4-inch minimum thickness for walls and base riser section and having a separate base slab or base section with integral floor.
- 2. Riser Sections: 4-inch minimum thickness; 48-inch diameter, and lengths to provide depth indicated.
- 3. Top Section: Concentric cone type, unless flat-slab-top type is indicated suitable for mounting cast from manhole frames and covers. Top of cone to match grade rings.
- 4. Grade Rings: Provide 2 or 3 reinforced concrete rings, of 6 to 9 inches total thickness and match 24-inch diameter frame and cover.

5. Gaskets: ASTM C 443, rubber.
 6. Steps: Cast into base, riser, and top sections sidewall at 12-to 16-inch equally spaced intervals.
 7. Pipe Connectors: ASTM C 923, resilient, of size required, for each pipe connecting to base section.
 8. Channel and Bench: Concrete 8" wide.
- B. Cast-in-Place Manholes (if any): Reinforced concrete of dimensions and with appurtenances indicated. All manhole covers shall be round.
1. Bottom, Walls, and Top: Reinforced concrete.
 2. Channel and Bench: Concrete.
 3. Steps: Cast into sidewall at 12- to 16-inch intervals.
- C. Concrete: Portland cement mix, 4000 psi at 28 days
1. Cement: ASTM C 150, Type II with C3A content of 6.5% or less.
 2. Fine Aggregate: ASTM C 33, sand.
 3. Coarse Aggregate: ASTM C 33, crushed gravel.
 4. Water: Potable.
 5. Refer to Section 033000 – “Cast-In-Place Concrete” for additional information and requirements.
- D. Reinforcement: Steel conforming to the following:
1. Fabric: ASTM A 185, welded wire fabric, plain.
 2. Reinforcement Bars: ASTM A 615, Grade 60, deformed.
 3. Refer to Section 033000 – “Cast-In-Place Concrete” for additional information and requirements.
- E. Steps: Same as for precast concrete manholes.

2.4 MANHOLE STEPS:

1. General: Wide enough for a man to place both feet on one step and designed to prevent lateral slippage off the step.
 1. Material: Ductile iron or cast aluminum.

2.5 CLEANOUTS:

- A. General: Provide Mission adjustable repair coupling (or approved equal) with stainless steel bends and stainless-steel shear ring and a Zurn #ZN1400HD-3, Smith 4220 (or approved equal) cover set flush in a minimum 14" square concrete slab.

2.6 IDENTIFICATION:

- A. Plastic Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid green in color with continuously printed caption in black letters “CAUTION - SEWER LINE BURIED BELOW.”

PART 3 - EXECUTION

3.1 PREPARATION OF FOUNDATION FOR BURIED SANITARY SEWERAGE SYSTEMS:

- A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation, throughout the length of the pipe.
- B. Remove unstable, soft, and unsuitable materials at the surface upon which pipes are to be laid and backfill according to provisions in Section 31 2000 – Earth Moving.
- C. Shape bottom of trench to fit bottom of pipe. Fill unevenness with tamped sand backfill. Dig bell holes at each pipe joint to relieve the bells of all loads and to ensure continuous bearing of the pipe barrel on the foundation.

3.2 PIPE APPLICATIONS FOR UNDERGROUND SANITARY SEWERS:

- A. Refer to Paragraph 2.2 above.

3.3 INSTALLATION, GENERAL:

- A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of the underground sanitary sewerage system piping. Location and arrangement of piping layout take into account many design considerations. Install the piping as indicated, to the extent practical.
- B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer’s recommendations for use of lubricants, cements, and other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.
- C. Use fittings for changes in direction. Use fittings for branch connections, except where direct tap into existing sewer is indicated.
- D. Use proper size increasers, reducers, and couplings, where different size or material of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.
- E. Install piping pitched down in direction of flow, at minimum slope of 1 percent, except where indicated otherwise.
- F. Extend sanitary sewerage system piping to connect to building sanitary drains, of sizes and in locations indicated.

- G. Tunneling: Install pipe under streets or other obstructions that cannot be disturbed, by tunneling, jacking, or a combination of both.

3.4 PIPE JOINT CONSTRUCTION AND INSTALLATION:

- A. Join and install PVC pipe as indicated in Part 2 above, and the following:
 - 1. Solvent cement joint pipe and fittings, joining with solvent cement in accordance with ASTM D 2855 and ASTM F 402.
 - 2. Pipe and gasketed fittings, joining with elastomeric seals in accordance with ASTM D 3212, and for truss pipe ASTM D 2680, Appendix XI.
 - 3. Installation in accordance with ASTM D 2321.
- B. Join and install ductile iron pipe as indicated in Part 2 above.

3.5 CLEANOUTS:

- A. Install cleanouts and extension from sewer pipe to cleanout at grade as indicated. Set cleanout lid in concrete block 14 by 14 by 12 inches deep, except where location is in concrete paving. Set top of cleanout 1 inch above surrounding earth grade or flush with grade when installed in paving.

3.6 TAP CONNECTIONS:

- A. Make connections to existing piping and underground structures so that finished work will conform as nearly as practicable to the requirements specified for new work.
- B. When tapping into existing man holes, use flexible rubber boot in accordance with Dalton Utilities requirements.
- C. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye fitting plus 6-inch overlap, with not less than 6 inches of 3000-psi 28-day compressive-strength concrete.
- D. Make branch connections from side into existing 4- to 21-inch piping by removing section of existing pipe and installing wye fitting, into existing piping. Encase entire wye with not less than 6 inches of 3000-psi 28-day compressive-strength concrete.
 - 1. Provide concrete that will attain minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.
 - 2. Use epoxy bonding compound as interface between new and existing concrete and piping materials.
- E. Protect existing piping and structures to prevent concrete or debris from entering while making tap connections. Remove debris, concrete, or other extraneous material that may accumulate.

3.7 INSTALLATION OF IDENTIFICATION:

- A. Install continuous plastic underground warning tape during back-filling of trench for underground water service piping. Locate 6 to 8 inches below finished grade, directly over piping.

3.8 FIELD QUALITY CONTROL:

- A. Testing: Perform testing of completed piping in accordance with Dalton Utilities and any other authorities having jurisdiction.
- B. Cleaning: Clear interior of piping and structures of dirt and other superfluous material as work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.
 - 2. In large, accessible piping, brushes and brooms may be used for cleaning.
 - 2. Place plugs in ends of uncompleted pipe at end of day or whenever work stops.
 - 3. Flush piping between manholes, if required by local authority, to remove collected debris.
- C. Interior Inspection: Inspect piping to determine whether line displacement or other damage has occurred.
 - 3. Make inspections after pipe between manholes and manhole locations has been installed and approximately 2 feet of backfill is in place, and again at completion of project.
 - 2. If inspection indicates poor alignment, debris, displaced pipe, infiltration or other defects correct such defects, and reinspect.

END OF SECTION

SECTION 334000

STORMWATER UTILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.
- B. Related work specified elsewhere includes:
 - .. Section 31 2000 - "Earth Moving"
 - .. Section 03 3000 - "Cast-in-Place Concrete"

1.2 DESCRIPTION OF WORK:

- A. Work described in this section includes the construction of new storm drainage pipe and structures as shown on the Drawings

1.3 QUALITY CONTROL:

- A. Certifications: The Contractor shall submit to the Architect copies of certificates from suppliers of pipe, gaskets, reinforcing steel, cast iron downspout boots, cast iron frames, covers and grates, pre-cast structures, ready-mix concrete and other manufactured items, certifying that these products comply with the specifications and standards listed herein-after.
- B. Standard Specifications: Unless otherwise noted, all specifications referred to shall be the Georgia Department of Transportation (GDOT) "Standard Specifications Construction of Transportation Systems", Latest Edition.
- C. Testing: All laboratory and field testing as required to ensure compliance with these specifications will be performed by an independent testing laboratory.
- D. Comply with requirements of the International Plumbing Code, the American Concrete Pipe Association, and authorities having jurisdiction, when more stringent than specified or otherwise indicated

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Where indicated, pipe smaller than 12-inches in diameter shall be Schedule 80 PVC, Contech A2000 PVC (or approved equal), or ADS N-12 HP HDPE (or approved equal), or as indicated on the drawings.

1. Where indicated on the Drawings for “french drain”, “perforated underdrain”, foundation drain, planting or other areas, pipe shall be equivalent to ADS N-12 (perforated) corrugated HDPE pipe with smooth interior or perforated Contech A2000 PVC, complete with filter fabric “sock” and all required or necessary system accessories, fittings, and components, specified in in GDOT Standard Specifications Section 845.2.01, unless otherwise indicated on the Drawings..
- B. Pipe larger than 12-inches (or equivalent area in arch pipe) shall be one of the following unless specifically shown otherwise as specified in the GDOT Standard Specifications and as indicated on the Drawings:
 1. Class 3 minimum reinforced concrete pipe (RCP) with rubber o-ring type gaskets.
 2. Aluminized Type 2 “Ultra-flo” corrugated metal pipe (or approved equal) 16 gauge or thicker with hugger type bands and flat band style gaskets installed according to the manufacturer’s specifications.
- C. Concrete and reinforcing steel for headwalls, inlets, manholes, and other storm drainage structures shall comply with GDOT Standard Specifications. Concrete shall have a compressive strength of 4000 PSI.
- D. Masonry materials and precast concrete units shall conform to (GDOT) “Standard Specifications Construction of Transportation Systems”, Latest Edition
- E. Castings for frames, covers and grates in drainage structures shall comply with (GDOT) “Standard Specifications Construction of Transportation Systems”, Latest Edition.
 1. All manhole covers shall be round.
- F. Identification for Underground Plastic Pipe:
 1. Plastic Underground Warning Tapes: Polyethylene plastic tape with metallic core, 6 inches wide by 4 mils thick, solid yellow in color with continuously printed caption in black letters “CAUTION – STORM SEWER LINE BURIED BELOW.”
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allen Systems, Inc.; Reef Industries, Inc.
 - b. Brady (W.H.) Co.; Signmark Div.
 - c. Calpico, Inc.
 - d. Carlton Industries, Inc.
 - e. EMED Co., Inc.
 - f. Seton Name Plate Co.

PART 3 - EXECUTION

3.1 STORM DRAIN PIPE:

- A. Construction requirements, including excavation of trench, placing pipe, and backfilling around pipe shall conform to the applicable portions of (GDOT) “Standard Specifications Construction of Transportation Systems”, Latest Edition
- B. Bedding for storm pipe shall be as detailed in the construction plans and as per the pipe manufacturer’s requirements, Type 3 or better installation. Open graded stone, such as #57 stone, is not allowed as backfill.
- C. Compaction requirements for backfill shall be the same as specified for type of surface constructed over the trench, paved or planted areas as described in Section 31 2000 - “Earth Moving.”
- D. Properly coordinate with elevations of grades, footings, other below grade work, and etc.

3.2 INSTALLATION OF IDENTIFICATION:

- A. Install continuous plastic underground warning tape during back-filling of trench for underground water service piping. Locate 6 to 8 inches below finished grade, directly over piping.

3.3 STRUCTURES:

- A. Inlets, manholes, cleanouts and other storm drainage structures shall be installed or constructed in accordance with applicable portions of the following sections of the (GDOT) “Standard Specifications Construction of Transportation Systems”, Latest Edition:

END OF SECTION

Northeast Community Complex Soccer Field

DALTON, WHITFIELD COUNTY, GEORGIA

March 16, 2021

REPORT OF GEOTECHNICAL EXPLORATION

Prepared By



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GMC PROJECT NUMBER: GATL210002



Goodwyn Mills Cawood March 16, 2021

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Mr. Andrew Parker
The City of Dalton
PO Box 1205
Dalton, Georgia 30722

**RE: REPORT OF GEOTECHNICAL EXPLORATION
NORTHEAST COMMUNITY COMPLEX SOCCER FIELD
DALTON, WHITFIELD COUNTY, GEORGIA
GMC PROJECT GATL210002**


Dear Mr. Parker,

Goodwyn, Mills, Cawood, LLC. (Geotechnical & Construction Services Division) is pleased to provide this report of geotechnical exploration performed for the above referenced project. This report includes the results of our limited field and laboratory testing and recommendations for foundation design and site development.

We appreciate the opportunity to perform this study on this phase of the project for you and look forward to continued participation during the construction phase of this project. If you have any questions pertaining to this report, or if we may be of further service, please do not hesitate to call.

Sincerely,
GOODWYN, MILLS AND CAWOOD, INC.


Jay Shaddix
Geotechnical Professional


Kevin W. Wales, PE
Executive Vice President
Licensed Georgia PE046948

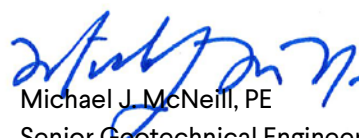

Michael J. McNeill, PE
Senior Geotechnical Engineer
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1.0 PROJECT INFORMATION AND SCOPE OF WORK

1.1 Project Information

A geotechnical exploration and evaluation have been conducted for the proposed new complex located at Park Creek Elementary School in Dalton, Whitfield County, Georgia. The proposed site is located just to the east of the school, at the end of Hale Bowen Drive. The site is heavily wooded with overhead power lines running east/west along the southern portion of the site. We understand the new development will consist of 2 regulations size soccer fields, restrooms, a parking lot, and a new drive entrance located along the southern border of the site. The elevation in the proposed development areas ranges from a high of about EL 706 feet in the middle to a low of about EL 690 feet around the perimeter of the site. We were provided with the preliminary site layout to locate our borings on the proposed site.

1.2 Scope of Work

The purpose of this exploration was to perform a general evaluation of the subsurface soil conditions at the site and to provide general sitework recommendations, pavement recommendations, and foundation recommendations. The scope of the exploration and evaluation included performing a total of twelve (12) soil test borings across the site. Four (S-1 through S-4) soccer field borings, four (P-1 through P-4) parking borings, three (R-1 through R-3) roadway borings and one (B-1) bathroom boring. It also included performing laboratory testing on selected samples and an engineering evaluation of the materials encountered.

The scope of services for the geotechnical study did not include any environmental assessment for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the boring records regarding odors, colors, or unusual or suspicious items or conditions are strictly for the information of the client.

2.0 FIELD EXPLORATION AND LABORATORY TESTING

2.1 Field Exploration

The boring locations and depths were selected by GMC personnel. Field-testing employed by GMC was performed in general accordance with ASTM standards or generally accepted methods. The field work and site drilling was performed on February 17, 2021.

The borings were performed using a Geoprobe 7822 drill rig equipped with a rotary head and hollow stem augers (HSA). Soils were sampled using a two-inch OD split barrel sampler with an automatic hammer in accordance with ASTM D1586.

2.2 Laboratory Analyses

The laboratory-testing program included visual classification of all soil samples and laboratory tests consisting of natural moisture contents, Atterberg Limits, grain size analysis, and Proctor moisture-density relationship tests were performed on selected samples. The laboratory testing program was conducted in general accordance



with applicable ASTM standards and the results are indicated on the Boring Records and summarized in the Appendix.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 General

The proposed site is located just to the east of the school, at the end of Hale Bowen Drive. The site is heavily wooded with overhead power lines running east/west along the southern portion of the site. We understand the new development will consist of 2 regulations size soccer fields, restrooms, a parking lot, and a new drive entrance located along the southern border of the site. Bases on previous Google Earth aerial images, the site has been previously graded but was never developed.

3.2 Site Geology

Published geologic information indicates the site is underlain by the Consauga Group Upper Unit which includes limestone and shale units.

The site is underlain by carbonate rock that is susceptible to solutioning and sinkhole development. Sinkholes can form spontaneously and are extremely difficult to predict. Sinkhole activity can be influenced by many factors, including both on-site and off-site activities. It is not possible to predict the probability of occurrence or potential magnitude of subsidence associated with sinkhole activity in a geologic setting such as this. However, the borings did not encounter voids or evidence of current sinkhole activity within the depths explored.

3.3 Subsurface Conditions

The site was explored by performing twelve (12) soil test borings advanced to the boring termination depth or auger refusal. Four (S-1 through S-4) soccer field borings, four (P-1 through P-4) parking borings, three (R-1 through R-3) roadway borings and one (B-1) bathroom boring. The boring logs did not indicated organic laden material (OLM) but it should be expected across the site with deeper areas expected in the lower heavily wooded areas. We would anticipate that a minimum of 6 to 12 inches of OLM would be present in the lower lying and heavily wooded areas of the site.

Due to the elevation changes across the site, multiple soils types were encountered at varying elevations. In general, the borings encountered moderately plastic “lean” clay (CL) to highly plastic “fat” clay (CH) with varying amounts of sand to depths ranging from 0 to 15.5 feet. Standard Penetration Test (SPT) N-values for these soils ranged from 3 to over 50 blows per foot (bpf), indicating consistencies of medium to hard. Very soft to soft fat clay (CH) was encountered at the surface of boring R-1 to about 3 feet. N-values ranged from 0 to 3 bpf in these soils. Loose clayey sand was encountered at the surface down to 3.5 feet in boring S-3 with an N-value of 7 and 8 bpf.

The subsurface descriptions contained herein are of a generalized nature to highlight the major soil stratification features and soil characteristics. The boring records included in the Appendix should be reviewed for specific information as to individual boring locations. The stratification shown on the boring records represents conditions only at the actual boring locations. Variations may occur and should be expected between boring



locations. The stratifications represent the approximate boundary between subsurface materials, and the transition may be gradual. The elevations shown on the individual boring logs reference the topographical information provided to us.

3.4 Groundwater Information

Groundwater was not encountered in the borings at the time of our drilling. Boring R-1 was drilled in a low-lying area and trapped water may be present in the softer soils. The borings were backfilled prior to leaving the site and therefore no long-term groundwater levels were recorded. It is important to note that the groundwater levels may not have stabilized in the borings. Furthermore, groundwater levels may vary due to seasonal conditions, proximity to bodies of water, and recent rainfall.

4.0 SITEWORK RECOMMENDATIONS

4.1 General

In our opinion, the site is suitable for development. One of the potential issues for this site is the presence of highly plastic ($PI > 30$) clay (CH) soils that were encountered in some of the borings. Highly plastic (HP) clays (CH) have the potential of shrinking and swelling with a corresponding loss or gain in soil moisture. Such volume changes can cause settlement and heave of foundations, floor slabs, and pavements causing cracks and damage. Depending upon site grading, these HP soils could be located at or near the proposed subgrade elevation, and we recommend providing a layer of low plasticity select fill material to cap the HP soils within the pavement areas. The grading activities on the site should be directed to provide a “cap” layer consisting of a minimum of 12 inches of low plasticity select fill in pavement areas. Material management during site grading would likely be required to reduce the use of HP clays within the proposed paving areas.

Although we did not encounter fill material in our borings, based upon old Google Earth photos of the site, fill material could be encountered due to past grading activity at the site. If fill is encountered, we recommend a geotechnical professional evaluate the material to provide further instruction.

4.2 Sitework Recommendations

Stripping

Sitework should begin with clearing and grubbing (stripping) of the site and should include the removal of the organic laden material, trees and root balls. We recommend that a minimum of 6 inches of stripping be budgeted based upon the materials encountered in the limited number of borings performed. In the lower lying areas and valleys of the site additional stripping up to 12 inches should be anticipated.

Highly Plastic Clay (CH)

The main development issue for this site is the presence of highly plastic clay (CH) soils ($PI > 30$) that were encountered in some of the borings. HP clays (CH) have the potential of shrinking and swelling with a corresponding loss or gain in soil moisture. Such volume change can cause settlement and heave of foundations, floor slabs, and pavements causing cracks and damage.



Low Consistency Soils

Soft soils (N-values ≤ 3 bpf) were encountered in boring R-1 down to approximately 3 feet below existing grade. Depending upon final site grading, these soils may require undercutting and replacement with properly compacted fill material. If these soils are not remediated as recommended during construction, they can lead to excessive differential settlement in the roadway. In pavement areas where unsuitable soils are encountered, stabilization using geotextile or geogrid with stone may be a more economical option than removal and replacement of the soils.

Proofrolling

Once the site is at grade and prior to the placement of any new fill, the areas should be proofrolled with repeated passes of a loaded tandem axle dump truck to locate deeper soft soils. Soils that are observed to rut or deflect excessively under the moving load should be undercut and replaced with properly compacted fill as described in Section 4.4. The proofrolling, undercutting, and filling activities should be witnessed by a qualified representative of the geotechnical engineer and should be performed during a period of dry weather.

Attempts can first be made to compact the problem soils. If dry weather conditions exist prior to and at the time of construction, re-compaction and densification may prove successful. The soils should be scarified and the soil moisture should be adjusted to within 3 percent of optimum moisture for low plasticity soils. Once proofrolling has been accomplished, then re-compaction of the soils may be attempted.

We recommend a GMC geotechnical engineer or qualified soils technician observe the proofrolling operations.

4.3 Time of Year Site Preparation Considerations

The time of the year that the sitework begins can affect the project considerably. In this area, the “wet” season is generally between the months of November and April, and the “dry” season from May to October. There are many considerations that need to be addressed prior to bidding a project that could affect the budget based on the time of year a project starts earthwork activities. The time of the year that the geotechnical borings were performed can provide a false sense of actual near surface conditions depending on the time of year and weather conditions. Below are considerations that should be addressed based on the time of the year earthwork is started.

“Wet” Season

During the “wet” season, the amount of undercutting may be greater, therefore resulting in greater excavation costs. The soils are typically proofrolled to determine their suitability for the placement of new fill or subgrade support. During the wet season, the surface soils have a higher moisture content and will tend to pump, therefore, hindering the placement of new fill. In addition, the drying time, time period between rain events, and temperature is not conducive to scarify soils, allow to dry, and recompact. At this time, the decision should be made by the owner to try either scarify/dry/compact the in-place soils, which could take time, or undercut and replace with suitable material, which could increase the sitework costs. Based on our experience, the amount of undercut could be an additional 1 to 2 feet (or greater in localized areas), whereas in drier weather, lesser amounts of undercutting may be necessary, if recompactation or stabilization of soils left in place can be achieved.

Some undercut soils are not always “unsuitable” soil and can be moisture conditioned and reused as fill in the deep areas, if drying conditions are favorable.



“Dry” Season

During the “dry” season, the surface soils have a lower moisture content and will tend to “bridge” or “crust” softer underlying soils. They will generally allow the placement of new fill, but the crust can break down if repeated passes with heavily loaded equipment is persistent. In addition, new fill from cuts or other sources may need to be moisture conditioned prior to compaction. The soils can dry significantly, requiring the addition of water for proper compaction. Water trucks should be used, as necessary, by the contractor to condition the soils within the required specifications.

Contractor Responsibility

The grading contractors have the option of performing their own evaluation of the site conditions to assess the excavation considerations based on the time of year a project is bid. We strongly suggest that the grading contractors conduct their own exploration and evaluation of the site conditions and material management requirements to cost effectively develop the site.

Typically, due to the movement of heavy equipment and weather conditions, the subgrade becomes disturbed during construction. As a result, fine grained clayey soils have a tendency to lose shear strength and support capability. Therefore, additional effort on the Contractor’s part will be required to reduce traffic and limit disturbance of soils. It is essential that the subgrade be restored to a properly compacted condition based on optimum moisture and density requirements. Restoration of the subgrade should be addressed in the project specifications.

4.4 Fill Placement

Soil Fill Material

We recommend that soil fill material placed within any structure or pavement areas should be placed in loose lifts not exceeding 8-inches in thickness with a maximum particle size of 3 inches. The following table summarizes the compacted fill requirements:

Location	Test Method	Compaction Required (minimum)	Moisture Content
Structural Area and 5’ beyond perimeter	ASTM D698 (standard)	98 %	-/+3 percentage points of optimum moisture
Roadways below pavement base material	ASTM D698 (standard)	Upper 12 inches - 98 % Below 12 inches – 95 %	-/+3 percentage points of optimum moisture



Select fill material should meet the following characteristics:

Property	Requirement
Organic Material	≤ 5%
Liquid Limit	< 50%
Plasticity Index	< 30%
Maximum Dry Density	≥ 100 lb/ft ³
Maximum Particle Size	3 inches or less

On-site materials meeting the requirements above should be suitable for reuse as fill material with the exception of highly plastic soils (CH); however, the moisture content of the soil may need to be adjusted to achieve the specified moisture content and compaction requirements. On-site soils not meeting these requirements may be used in deeper fills across the site or chemically stabilized. Samples of the proposed fill materials, either from on-site or borrow, should be provided to the geotechnical engineer for Proctor testing and evaluation prior to placement. Density tests should be performed to document compaction and moisture content of any earthwork involving soils and other applicable materials. Field density tests should be performed frequently, with a recommended minimum of one test per 5,000 square feet per lift of fill in structural areas and one test per 10,000 square feet per lift in other areas. Fill material must meet both the specified density and moisture requirements to be considered acceptable.

4.5 Backfilling of Utility Trenches

Backfilling of storm drain and utility trenches must be performed in a controlled manner to reduce settlement of the fill and cracking of overlying floor slabs and pavements. If the subgrade is to be lime stabilized, we recommend that all utility work be performed prior to lime stabilization the pavement subgrade materials. If excavations through the lime stabilized soils are performed, we recommend that the soils used to backfill the trenches consist of lime stabilized materials, or off-site borrow materials and not backfilled with the native clays on-site. We recommend that utility trenches be backfilled with acceptable borrow or dense-graded crushed stone in 6-inch loose lifts compacted with mechanical piston tampers to the project requirements. Should seepage occur in utility trenches, it may be necessary to “floor” the trench with dense-graded gravel to provide a working surface. If crushed stone is used to backfill utility trenches, we recommend that dense graded aggregate (GAB, compacted in lifts) be used. Open-graded crushed stone can serve as a channel for seepage toward structures and therefore is not recommended for use as utility trench backfill.

4.6 Subgrade Restoration

Typically, due to the movement of heavy equipment and weather conditions, the subgrade soil becomes disturbed during construction. As a result, these soils have a tendency to lose shear strength and support capability. Therefore, additional effort on the contractor’s part will be required to reduce traffic and limit disturbance of soils. It is essential that the subgrade be restored to a properly compacted condition based on optimum moisture and density.



5.0 STRUCTURAL RECOMMENDATIONS

5.1 Foundations

A monolithic turn-down slab on grade or a grade slab with shallow footings may be utilized for support of proposed restroom structure. Foundations should bear in the properly placed compacted select fill or stiff natural material. Properly designed foundations may be sized using a maximum net allowable bearing capacity ranges shown below:

Location	Allowable Bearing Pressure (pounds per sq. ft)	Minimum Bearing Depth (inches)
Restroom	2,000	18

All foundation excavations should be observed by the geotechnical engineer or his representative. The engineer can provide geotechnical guidance to the owner's design team should any unforeseen foundation problems develop during construction. If areas of foundation surfaces prove to be unsuitable, the foundation may need to be over-excavated. The over-excavated area can be backfilled with "lean" concrete, controlled low strength material (CLSM), or well-compacted dense graded aggregate base (GAB) up to the planned foundation bearing depth.

Foundation concrete should be placed the same day as footings are excavated so that the foundation bearing soils can remain near the existing moisture content. Foundation bearing surfaces should not be disturbed or left exposed during inclement weather. Saturation of the on-site soils can cause a loss of strength and increased compressibility. If bearing soils dry excessively, they can later swell and heave foundations. Excavations for footings should be hand cleaned to remove loose soil or mud and the bearing surface should be thoroughly compacted. If concrete placement is not possible immediately after excavation, we recommend that a thin layer (approximately 2 inches) of lean concrete or CLSM be placed on the bearing surface for protection after we have observed and evaluated the exposed bearing surfaces.

5.2 Floor Slabs

It is our opinion that floor slabs can be built on-grade achieving support from properly compacted fills as long as the site is prepared as mentioned in Section 4.2. Ground supported slabs should be founded on a minimum of 4 inches of compacted, granular materials such as crushed stone or a clean sand with less than 10% passing the #200 sieve. This layer should provide uniform and immediate support of the slab and act as a capillary break. A vapor retarder should be used on top of the granular layer, as required by the structure use.

Care should be taken so that fines from the subgrade are not allowed to contaminate the granular layer. If fines do contaminate this layer, capillary rise and subsequent damage to moisture sensitive floor coverings could occur. On most projects, there is some time lag between initial grading and the time when the contractor is ready to place concrete for the slab-on-grade. Inclement weather just prior to placement of concrete for the slab-on-grade can result in trapped water in the granular layer.



If desired, the structures can utilize a structural post-tension slab and reduced amount of undercut. Additional recommendations can be evaluated during a final geotechnical exploration.

6.0 PAVEMENTS

6.1 General

Traffic information for pavement design was not provided to us during report preparation. The recommended pavement is intended to provide a sufficient thickness of structural materials such that wheel loads are widely distributed.

The pavement subgrade should consist of a minimum of 12-inches of low-plasticity soils. Depending on the materials encountered at the final parking and drive elevations, a geosynthetic stabilization fabric, such as a Mirafi HP 270 covered with 12 inches of compacted stone, could be utilized as opposed to undercutting and replacing the soils. All pavement subgrade improvements should extend beneath the pavement surfaces and a minimum of 5 feet beyond the pavement edges with respect to drainage, compaction, density, and materials.

Typically, during construction, the pavement subgrade becomes disturbed because of traffic and environmental conditions. Prior to construction of pavements, it is essential that the subgrade be restored to a properly compacted condition. The specifications should include notes pertaining to subgrade restoration immediately prior to pavement construction. The on-site clayey soils will have a tendency to lose shear strength (and consequently pavement support capability) if they are exposed to excessive moisture. Thus, proper moisture conditioning of the subgrade prior to placement of the pavement base course will result in better pavement performance.

The pavement subgrades should be thoroughly proofrolled prior to fine grading to identify soft soils not encountered during the mass grading of the site. Those soft areas should be undercut and replaced with properly compacted fill.

6.2 Reinforced Concrete Pavement

All Portland cement concrete pavements should contain 4 to 6 percent entrained assuming the mix will contain ¾-inch to 1-inch nominal maximum aggregate size. Concrete slump should be no more than 2 inches when placed by slip forming and no more than 4 inches for non-slip formed concrete. Minimum 28-day concrete compressive strength should be 4,000 psi and minimum flexural strength of 550 psi. Based upon the subsurface conditions, anticipated traffic, and our experience, minimum rigid concrete pavement sections are provided below for reinforced concrete pavement.



Pavement Area	Rigid Concrete Pavement Thickness	Dense Graded Base Thickness ¹
Parking for Light Automobiles	5.0 inches	6.0 inches Graded Aggregate Base (98% Modified density)
Drives and Dumpster Pad	7.0 inches	8.0 inches Graded Aggregate Base (100% Modified density)

¹The Graded Aggregate Base may be substituted for 4 inches of 25 mm Superpave Black Base.

Pavement joints, reinforcing, and details should be designed in accordance with the applicable American Concrete Institute (ACI) standards.

6.3 Flexible Pavement

Standard Duty Pavement – Parking Lot

Based on a light duty traffic classification (passenger vehicles only with few trucks/delivery vehicles) pavements should include the following:

Pavement Materials	Thickness (inches)
Wearing Surface (12.5 mm superpave surface)	1.0
Binder (19 mm superpave intermediate)	2.0
Graded Aggregate Base (GAB) Compacted to 98% Modified Proctor Density	6.0

Heavy Duty Pavement – Hale Bowen Extension

The pavement thickness design is based on an assumed 10 trucks per day or less. Truck traffic will consist of a mixture of unloaded trucks ranging in weight from 30,000 to 34,000 pounds; normally loaded trucks ranging in weight from 50,000 to 60,000 pounds; and fully loaded trucks with a gross weight of 80,000 pounds. Therefore, an average truck EAL of 1.5 (asphalt) and 2.25 (concrete) was deemed appropriate for use in heavy-duty pavement design. The following table summarizes the results of our heavy-duty pavement thickness design:

Minimum Heavy Duty Paving Section

Pavement Materials	Thickness (inches)
Wearing Surface (12.5 mm superpave surface)	2.0
Binder (19 mm superpave intermediate)	3.0
Graded Aggregate Base (GAB) Compacted to 98% Modified Proctor Density	8.0



The pavement sections represent minimum recommended thickness for a pavement section designed for a 15-year life. However, periodic maintenance should be anticipated over the pavement design life. All pavement materials and construction procedures should conform to the Georgia Department of Transportation's *Standard Specifications for Highway Construction*. The graded aggregate base (GAB) stone should be an aggregate as outlined in Section 815, Group I, and should be compacted to at least 98 percent of the modified Proctor (AASHTO T-180/ASTM D1557) maximum dry density. The hot mix asphalt should conform to Section 828.

If the pavement loading conditions, traffic information, or required ESALs become available, GMC should be allowed to review our recommendations. It should be noted that the aforementioned pavement section is based on the assumption that the recommended site preparation procedures are followed. These recommendations have not been adjusted to meet any minimum local pavement standards that may exist and should be reviewed with and approved by all authorities having jurisdiction of such.

7.0 REPORT LIMITATIONS

The recommendations submitted are based on the available soil information obtained by GMC and design details furnished by GMC for the proposed project. Additional borings should be drilled at the site to help characterize the subsurface conditions. In addition, structure and loading condition specific geotechnical explorations should be performed for individual building sites so that site-specific recommendations can be provided.

The recommendations submitted are based on the available soil information obtained by GMC and design details furnished by GMC for the proposed project. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, we should be notified immediately to determine if changes in the foundation, or other, recommendations are required. If GMC is not retained to perform these functions, GMC cannot be responsible for the impact of those conditions on the performance of the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are more complete, the geotechnical engineer should be provided the opportunity to review the final design plans and specifications to check that our engineering recommendations have been properly incorporated into the design documents. At that time, it may be necessary to submit supplementary recommendations.

We emphasize that this report was prepared for design and informational purposes only and may not be sufficient to prepare an accurate construction budget. Contractors reviewing this report should acknowledge that the recommendations contained herein are for design and informational purposes only. A more comprehensive exploration and testing program would be required to assist the contractor in preparing the final structure pad preparation, grading, and foundation construction budgets. In no case should this report be utilized as a substitute for development of specific earthwork specifications.



The information contained in this report is not intended, nor is sufficient, to aid in the design of segmental or mechanically stabilized earth (MSE) retaining walls. Segmental or MSE wall designers and builders should not rely on this report and should perform independent analysis to determine all necessary soil characteristics for use in their wall design, including but not limited to, soil shear strengths, bearing capacities, global stability, etc.

APPENDIX

Figure 1 - Site Location Map

Figure 2 - Site Geology Map

Figure 3 - Boring Location Plan

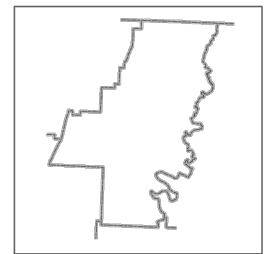
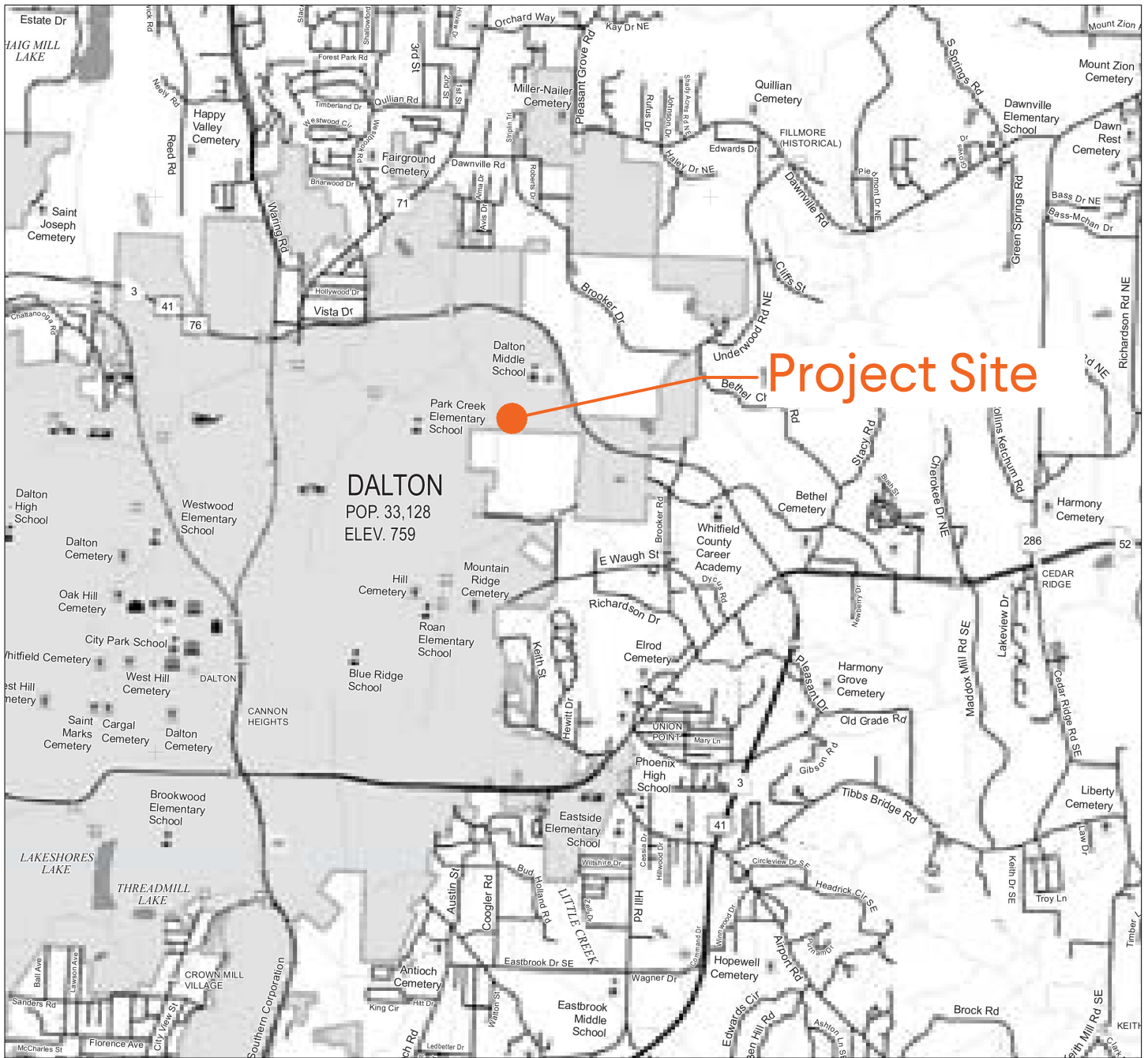
Soil Classification Chart

Subsurface Diagram

Boring Records

Summary of Laboratory Results

Field and Laboratory Procedures



WHITFIELD COUNTY 313

Reference: General Highway Map of Butler County, ALDOT, 2008

Northeast Community Complex Soccer Fields
Dalton, Georgia

Figure 1

SUPPLEMENTAL DRAWING

GMC # GATL210002

03/15/2021

DRAWN BY: J.S.

6120 Powers Ferry Road NW, Suite 350

Atlanta, GA 30339

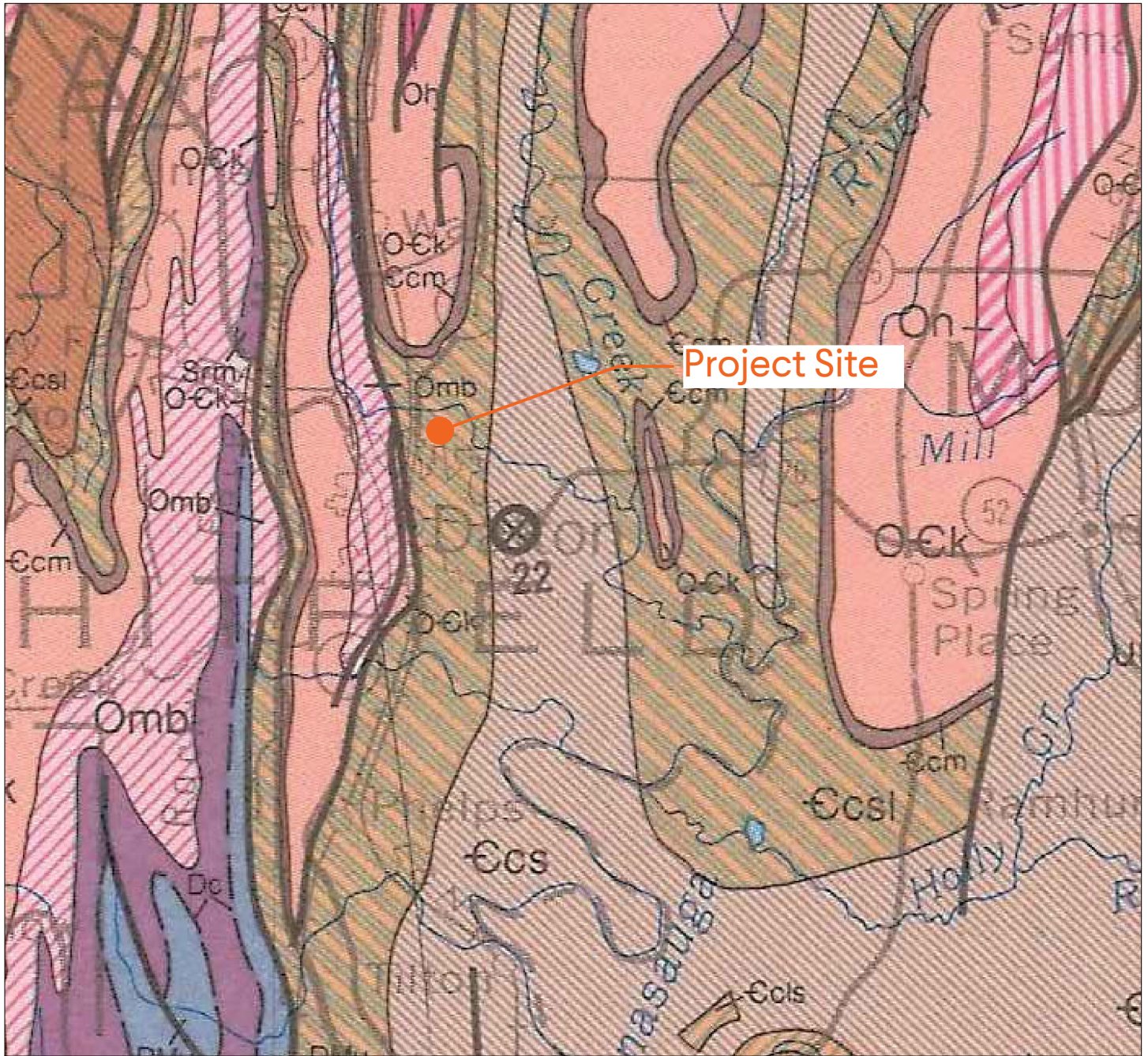
T 770.952.2481

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Site Location Map



Conasauga Group; Upper Unit - includes limestone and shale units.



Conasauga Group; Lower Unit - includes shale and sandstone units.

Reference: Lawton, D.E., Moye, F.J., Murray, J.B., O'Connor, B.J., Penley, H.M., Sandrock, G.S., Marsalis, W.E., Friddell, M.S., Hetrick, J.H., Huddlestun, P.F., Hunter, R.E., Mann, W.R., Martin, B.F., Pickering, S.M., Schneeberger, F.J., and Wilson, J.D., 1976, Geologic Map of Georgia, Georgia Dept. of Natural Resources, Geologic and Water Resources Division, Georgia Geological Survey.

Northeast Community Complex Soccer Fields
Dalton, Georgia

Figure 2

SUPPLEMENTAL DRAWING

GMC # GATL210002

03/15/2021

DRAWN BY: J.S.

6120 Powers Ferry Road NW, Suite 350

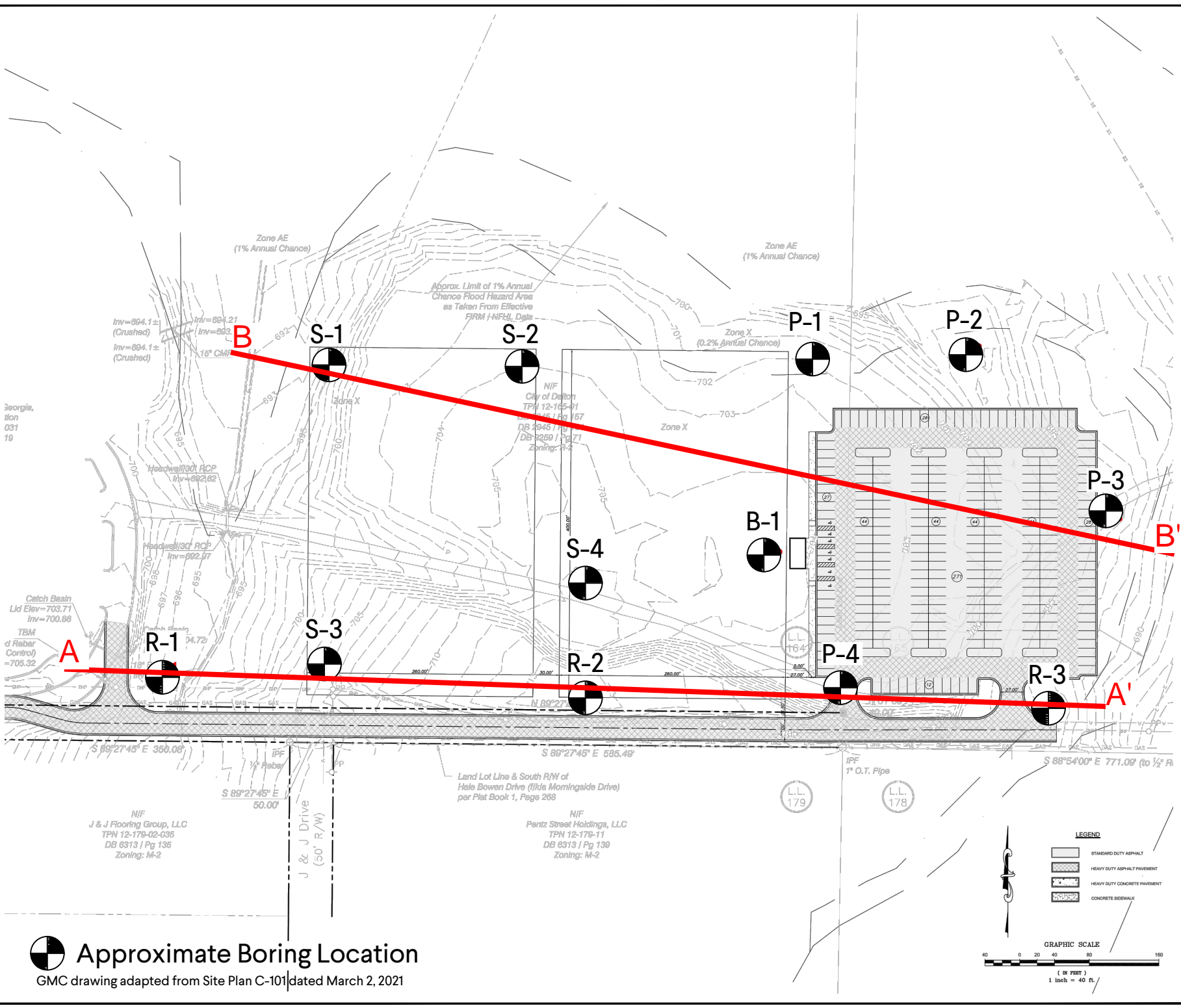
Atlanta, GA 30339

T 770.952.2481

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GMC

447



 **Approximate Boring Location**
 GMC drawing adapted from Site Plan C-101 dated March 2, 2021



6120 Powers Ferry Road NW, Suite 350
 Atlanta, GA 30339
 T 770.952.2481
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Figure 3

SUPPLEMENTAL DRAWING
 GMC # GATL20002
 03/15/2021
 DRAWN BY: J.S.

Northeast Community Complex Soccer Field
 Dalton, Georgia

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
				GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES	
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
				SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES	
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
	FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50			ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
				CH	INORGANIC CLAYS OF HIGH PLASTICITY	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS



SUBSURFACE DIAGRAM A-A'



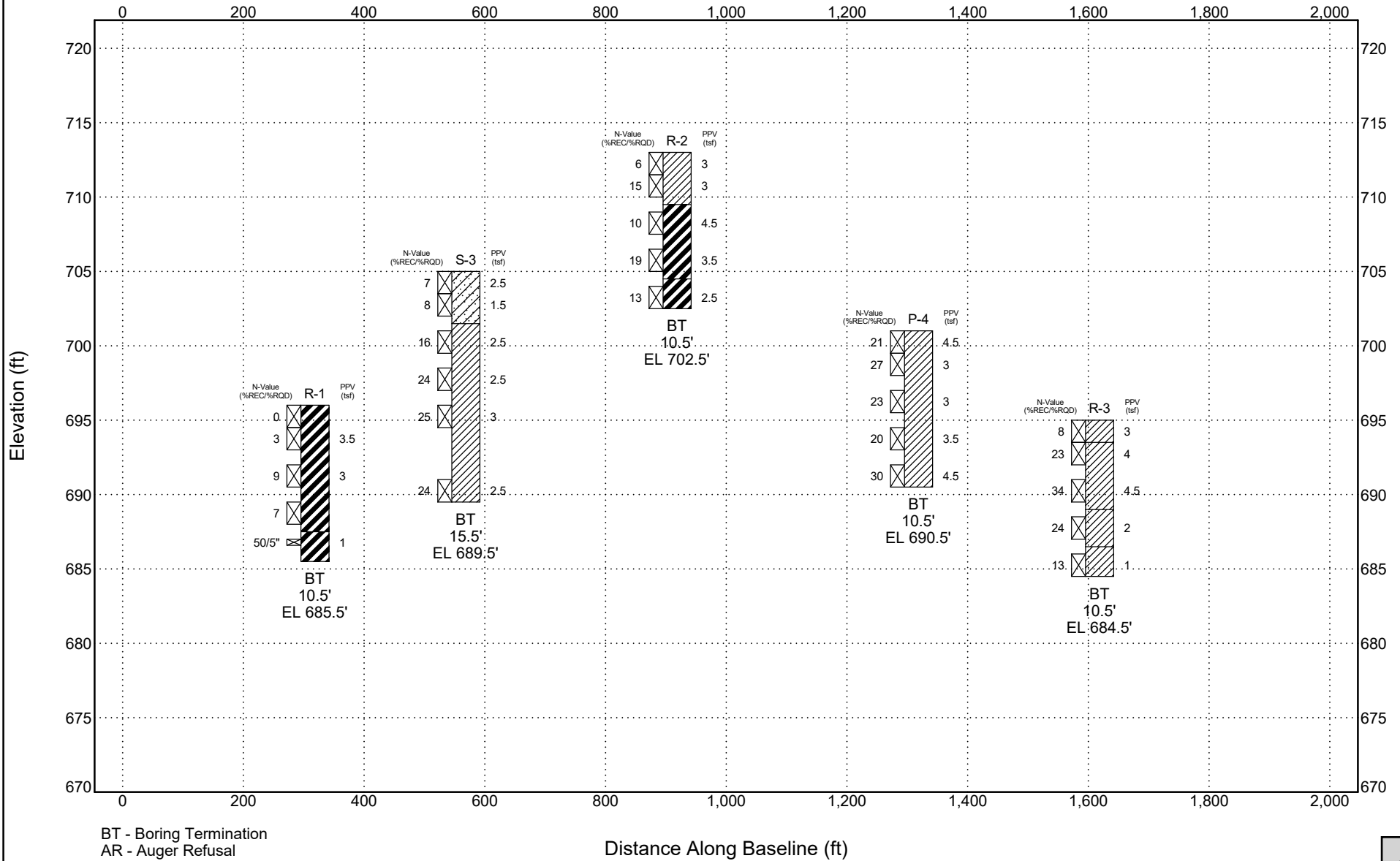
CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia

BT-AR DEPTH-ELEV LOG GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/12/21





SUBSURFACE DIAGRAM B-B'



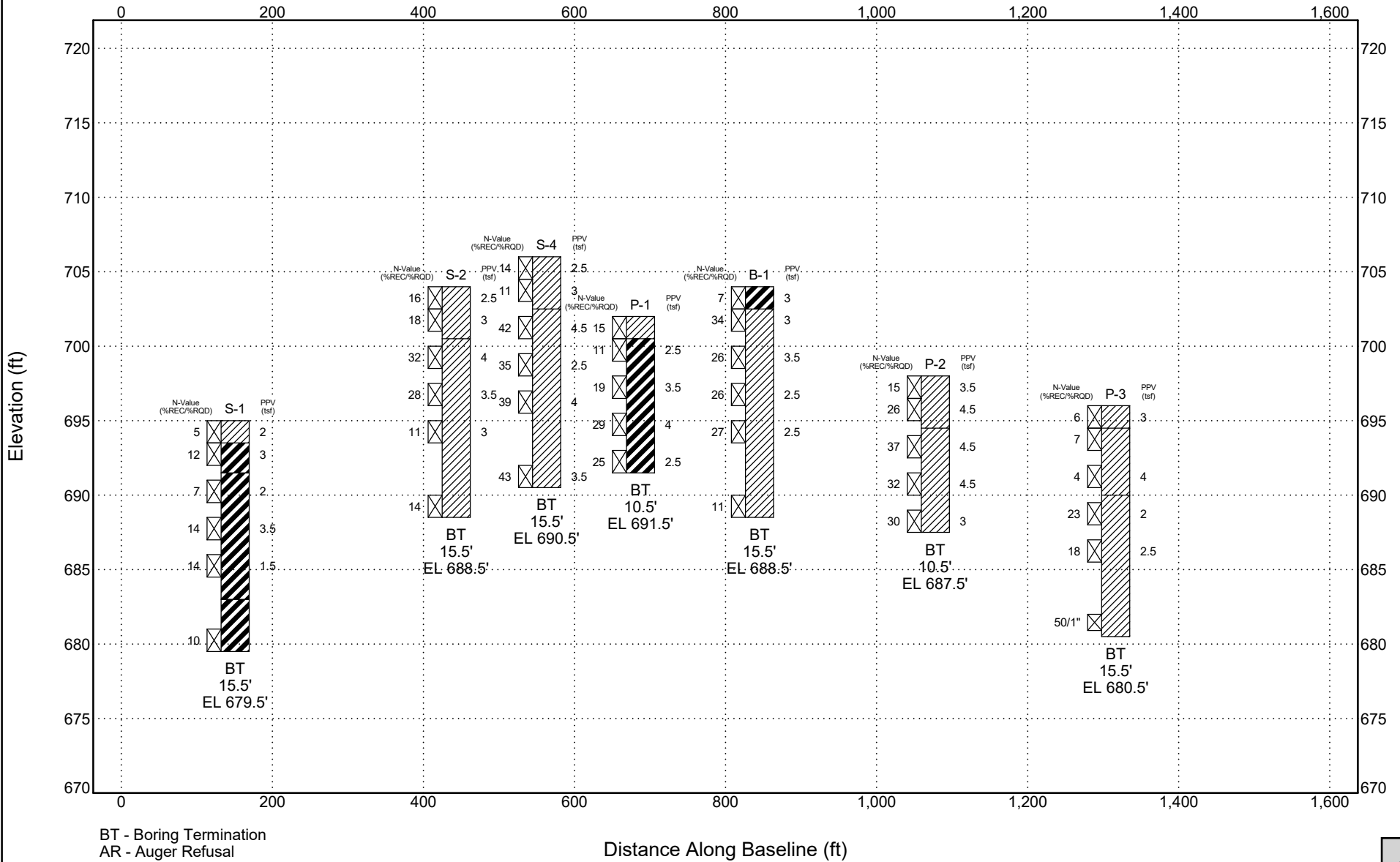
CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia

BT-AR DEPTH-ELEV LOG GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/12/21





CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 704 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0	0		FAT CLAY (CH), red, yellow, and gray, medium	SS		1-3-4 (7)	3		31	71	26	45	95
			LEAN CLAY (CL), reddish yellow, and gray, hard to stiff	SS		10-14-20 (34)	3		20				
700	5			SS		5-11-15 (26)	3.5		20				
				SS		11-13-13 (26)	2.5						
695	10			SS		9-14-13 (27)	2.5						
690	15			SS		3-4-7 (11)							
			Boring was terminated at 15.5 feet.										
685	20												
680	25												
675	30												
670	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 702 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
700	0		FAT CLAY (CH), brownish yellow and red, stiff	SS		5-10-5 (15)			12				
			FAT CLAY with GRAVEL (CH), brownish yellow and red, stiff to very stiff	SS		4-5-6 (11)	2.5		30	56	25	31	86
	5			SS		3-8-11 (19)	3.5		25				
				SS		11-13-16 (29)	4						
	10			SS		5-11-14 (25)	2.5						
			Boring was terminated at 10.5 feet.										
	15												
	20												
	25												
	30												
	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 698 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0	0		LEAN CLAY (CL), reddish brown, stiff	SS		2-5-10 (15)	3.5						
695				SS		9-12-14 (26)	4.5						
	5		LEAN CLAY (CL), reddish yellow, hard to very stiff	SS		10-14-23 (37)	4.5						
690				SS		12-13-19 (32)	4.5						
	10			SS		6-13-17 (30)	3						
			Boring was terminated at 10.5 feet.										
685	15												
680	20												
675	25												
670	30												
665	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 696 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
695	0		LEAN CLAY with SAND (CL), dark brown, medium	SS		3-3-3 (6)	3		19				
			LEAN CLAY with SAND (CL), brown and yellow, medium	SS			11-5-2 (7)			13			
690	5			LEAN CLAY with SAND (CL), yellow and gray, very stiff to hard	SS		1-2-2 (4)	4		16			
					SS		4-10-13 (23)	2					
685	10				SS		6-7-11 (18)	2.5					
680	15.5		Boring was terminated at 15.5 feet.	SS		12-14-50/1"							
675	20												
670	25												
665	30												
	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 701 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
700	0		LEAN CLAY (CL), red, yellow, and gray, very stiff	X SS		4-9-12 (21)	4.5						
				X SS		10-13-14 (27)	3						
	5			X SS		4-11-12 (23)	3						
695				X SS		4-8-12 (20)	3.5						
	10			X SS		8-14-16 (30)	4.5						
690			Boring was terminated at 10.5 feet.										
	15												
685													
	20												
680													
	25												
675													
	30												
670													
	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 696 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
695	0		FAT CLAY (CH), yellow and gray, very soft to medium	SS		0-0-0 (0)							
					SS		1-0-3 (3)	3.5	18				
	5				SS		2-4-5 (9)	3					
690					SS		2-3-4 (7)						
	10			FAT CLAY (CH), gray, hard	SS		50/5"	1					
685			Boring was terminated at 10.5 feet.										
680	15												
675	20												
670	25												
665	30												
	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 713 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0	0												
710	3		SANDY LEAN CLAY (CL), yellow, red, and gray, medium to stiff	SS		2-2-4 (6)	3		20	40	17	23	67
705	5		FAT CLAY (CH), yellow, red, and gray, medium to very stiff	SS		6-7-8 (15)	3		15				
705	5		FAT CLAY (CH), yellow, red, and gray, medium to very stiff	SS		3-4-6 (10)	4.5		15				
705	7		FAT CLAY (CH), yellow, red, and gray, stiff	SS		4-9-10 (19)	3.5						
700	10		FAT CLAY (CH), yellow, red, and gray, stiff	SS		4-6-7 (13)	2.5						
700	10.5		Boring was terminated at 10.5 feet.										
695	15												
690	20												
685	25												
680	30												
680	35												



BORING NUMBER R-2 Bulk

PAGE 1 OF 1

CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED _____ **COMPLETED** _____ **GROUND ELEVATION** _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____ **GROUND WATER LEVELS:**
DRILLING METHOD _____ **AT TIME OF DRILLING** ---
LOGGED BY _____ **CHECKED BY** _____ **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0	0								18	38	16	22	70
	5												
	10												
	15												
	20												
	25												
	30												
	35												

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 695 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
695	0		LEAN CLAY with GRAVEL (CL), dark reddish brown, medium	SS		2-3-5 (8)	3						
			LEAN CLAY with GRAVEL (CL), yellow and red, very stiff to hard	SS			6-9-14 (23)	4					
690	5				SS		9-16-18 (34)	4.5					
				LEAN CLAY (CL), brownish yellow, very stiff	SS		6-10-14 (24)	2					
685	10			LEAN CLAY (CL), dark brown, stiff	SS		5-6-7 (13)	1					
			Boring was terminated at 10.5 feet.										
680	15												
675	20												
670	25												
665	30												
660	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 695 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
695	0		LEAN CLAY (CL), yellowish red, medium	SS		2-2-3 (5)	2		25	49	22	27	58
			FAT CLAY (CH), yellowish red, medium	SS		4-6-6 (12)	3		16				
690	5		FAT CLAY (CH), brown, yellow, and red, medium to stiff	SS		2-2-5 (7)	2		29				
				SS		3-6-8 (14)	3.5		23				
685	10			SS		3-6-8 (14)	1.5						
			FAT CLAY (CH), dark gray and yellow, medium										
680	15			SS		3-4-6 (10)							
			Boring was terminated at 15.5 feet.										
675	20												
670	25												
665	30												
660	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 704 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
700	0		LEAN CLAY with SAND (CL), red, very stiff	SS		3-7-9 (16)	2.5						
					SS		8-10-8 (18)	3					
695	5			LEAN CLAY with SAND (CL), red, brown, and yellow, hard to stiff	SS		4-14-18 (32)	4					
					SS		9-13-15 (28)	3.5					
690	10				SS		4-7-4 (11)	3					
	15		Boring was terminated at 15.5 feet.	SS		3-6-8 (14)							
685	20												
680	25												
675	30												
670	35												



BORING NUMBER S-2 Bulk

PAGE 1 OF 1

CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED _____ **COMPLETED** _____ **GROUND ELEVATION** _____ **HOLE SIZE** _____
DRILLING CONTRACTOR _____ **GROUND WATER LEVELS:**
DRILLING METHOD _____ **AT TIME OF DRILLING** ---
LOGGED BY _____ **CHECKED BY** _____ **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
0	0								19	47	23	24	54
	5												
	10												
	15												
	20												
	25												
	30												
	35												

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 705 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	
705	0		CLAYEY SAND (SC), dark brown, medium	SS		1-3-4 (7)	2.5		19				
				SS		6-3-5 (8)	1.5		19	38	23	15	46
700	5		LEAN CLAY (CL), red, yellow, brown, very stiff	SS		4-7-9 (16)	2.5		24				
				SS		8-11-13 (24)	2.5						
695	10			SS		7-12-13 (25)	3						
690	15		Boring was terminated at 15.5 feet.	SS		9-11-13 (24)	2.5						
685	20												
680	25												
675	30												
670	35												



CLIENT The City of Dalton **PROJECT NAME** Northeast Community Complex Soccer Field
PROJECT NUMBER GATL210002 **PROJECT LOCATION** Dalton, Georgia
DATE STARTED 2/17/21 **COMPLETED** 2/17/21 **GROUND ELEVATION** 706 ft **HOLE SIZE** 6"
DRILLING CONTRACTOR Tri State Drilling **GROUND WATER LEVELS:**
DRILLING METHOD Geoprobe 7822, Auto-Hammer, HSA w/ SPT **AT TIME OF DRILLING** ---
LOGGED BY J. Shaddix **CHECKED BY** K. Wales **AT END OF DRILLING** ---
NOTES _____ **AFTER DRILLING** ---

1.GMC BORINGS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/16/21

ELEVATION (ft)	DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS			FINES CONTENT (%)	
										LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX		
705	0		LEAN CLAY (CL), reddish yellow, stiff	SS		4-6-8 (14)	2.5							
				SS		3-5-6 (11)	3							
700	5		LEAN CLAY (CL), red, gray, yellow, hard	SS		6-20-22 (42)	4.5							
				SS		9-13-22 (35)	2.5							
695	10			SS		12-18-21 (39)	4							
				SS		10-20-23 (43)	3.5							
690	15.5		Boring was terminated at 15.5 feet.											
685	20													
680	25													
675	30													
	35													



SUMMARY OF LABORATORY RESULTS

PAGE 1 OF 1

CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Max. Sieve Size Tested (mm)	% <#200 Sieve	Natural Moisture (%)	Classification	Opt. Moisture Content (%)	Max Dry Density (pcf)	Specific Gravity
B-1	0-1.5	71	26	45	4.75	95	30.6	CH			
B-1	1.5-3						20.1				
B-1	4-5.5						20.1				
P-1	0-1.5						12.3				
P-1	1.5-3	56	25	31	4.75	86	30.3	CH			
P-1	4-5.5						25.3				
P-3	0-1.5						18.8				
P-3	1.5-3						12.8				
P-3	4-5.5						15.8				
R-1	1.5-3						17.9				
R-2	0-1.5	40	17	23	9.5	67	20.2	CL			
R-2	1.5-3						15.4				
R-2	4-5.5						15.4				
R-2 Bulk	0-5	38	16	22	19	70	18.0	CL	15.9	109.3	
S-1	0-1.5	49	22	27	19	58	25.0	CL			
S-1	1.5-3						15.9				
S-1	4-5.5						28.5				
S-1	6.5-8						23.1				
S-2 Bulk	0-5	47	23	24	19	54	19.1	CL	16.7	105.9	
S-3	0-1.5						19.5				
S-3	1.5-3	38	23	15	19	46	18.9	SC			
S-3	4-5.5						24.4				

1.USCS SUMMARY GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/9/21



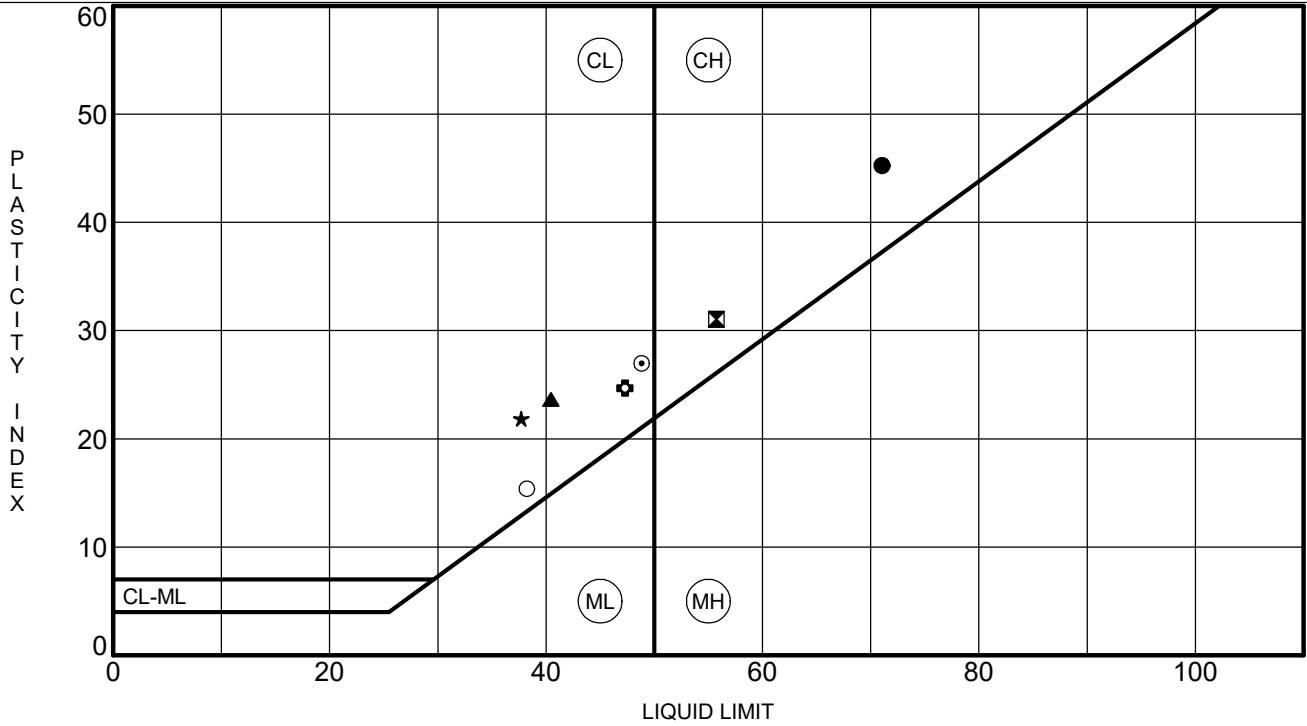
ATTERBERG LIMITS' RESULTS

CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia



Specimen Identification	LL	PL	PI	Fines	Classification	
● B-1	0.0-1.5	71	26	45	95	FAT CLAY(CH)
▣ P-1	1.5-3.0	56	25	31	86	FAT CLAY(CH)
▲ R-2	0.0-1.5	40	17	23	67	SANDY LEAN CLAY(CL)
★ R-2 Bulk	0.0-5.0	38	16	22	70	LEAN CLAY with SAND(CL)
⊙ S-1	0.0-1.5	49	22	27	58	SANDY LEAN CLAY(CL)
⊕ S-2 Bulk	0.0-5.0	47	23	24	54	SANDY LEAN CLAY(CL)
○ S-3	1.5-3.0	38	23	15	46	CLAYEY SAND(SC)

2.ATTERBERG LIMITS GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/9/21



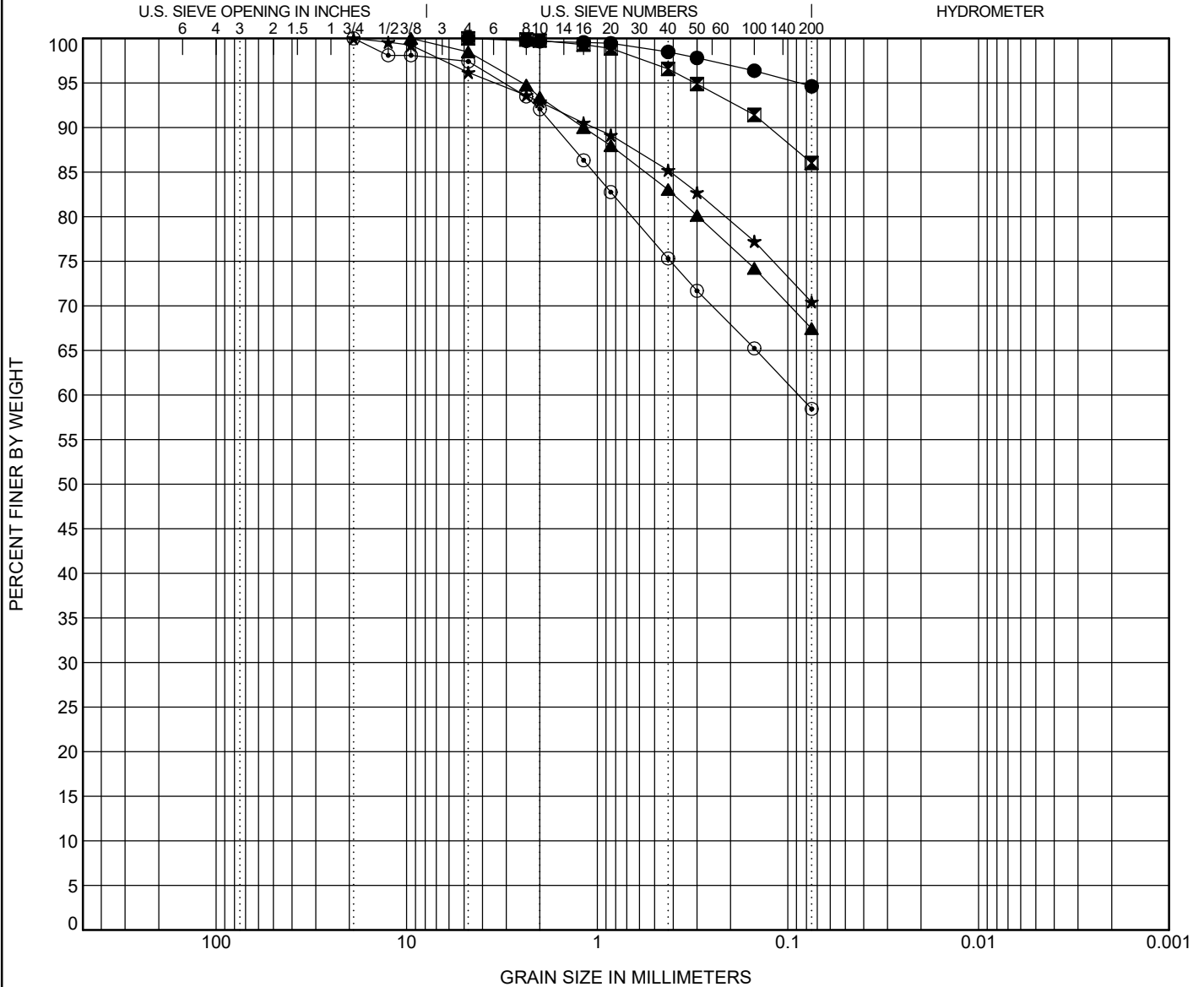
GRAIN SIZE DISTRIBUTION

CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification					LL	PL	PI	Cc	Cu
● B-1 0.0-1.5	FAT CLAY(CH)					71	26	45		
▣ P-1 1.5-3.0	FAT CLAY(CH)					56	25	31		
▲ R-2 0.0-1.5	SANDY LEAN CLAY(CL)					40	17	23		
★ R-2 Bulk 0.0-5.0	LEAN CLAY with SAND(CL)					38	16	22		
◎ S-1 0.0-1.5	SANDY LEAN CLAY(CL)					49	22	27		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-1 0.0-1.5	4.75				0.0	5.4	94.6	
▣ P-1 1.5-3.0	4.75				0.0	14.0	86.0	
▲ R-2 0.0-1.5	9.5				1.5	31.0	67.5	
★ R-2 Bulk 0.0-5.0	19				3.8	25.7	70.4	
◎ S-1 0.0-1.5	19	0.088			2.6	39.0	58.4	

7.GRAIN SIZE GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/9/21



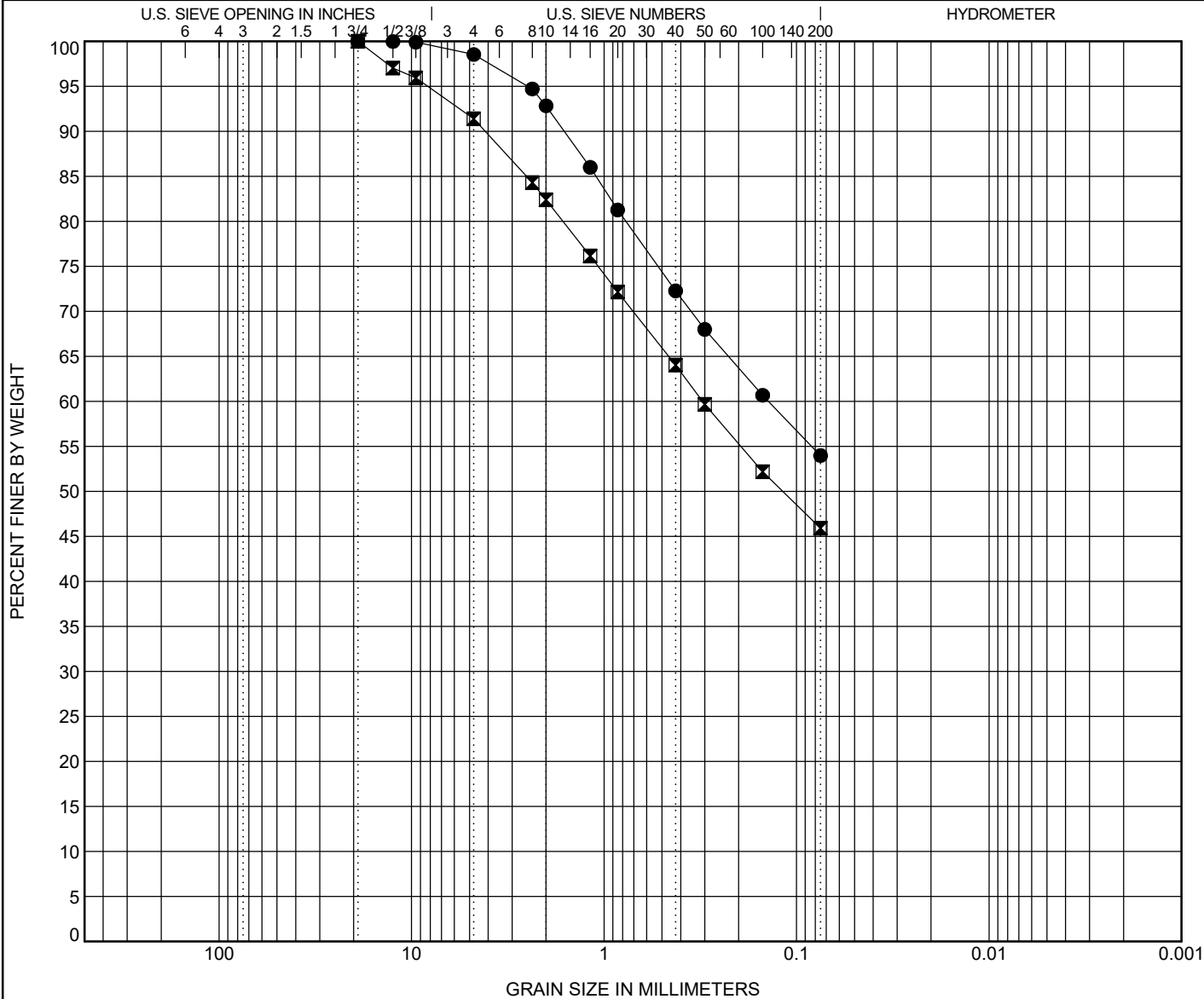
GRAIN SIZE DISTRIBUTION

CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification				LL	PL	PI	Cc	Cu
●	S-2 Bulk 0.0-5.0	SANDY LEAN CLAY (CL)				47	23	24		
☒	S-3 1.5-3.0	CLAYEY SAND (SC)				38	23	15		
Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay	
●	S-2 Bulk 0.0-5.0	19	0.14			1.5	44.6	54.0		
☒	S-3 1.5-3.0	19	0.308			8.6	45.5	45.9		

7. GRAIN SIZE GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/9/21



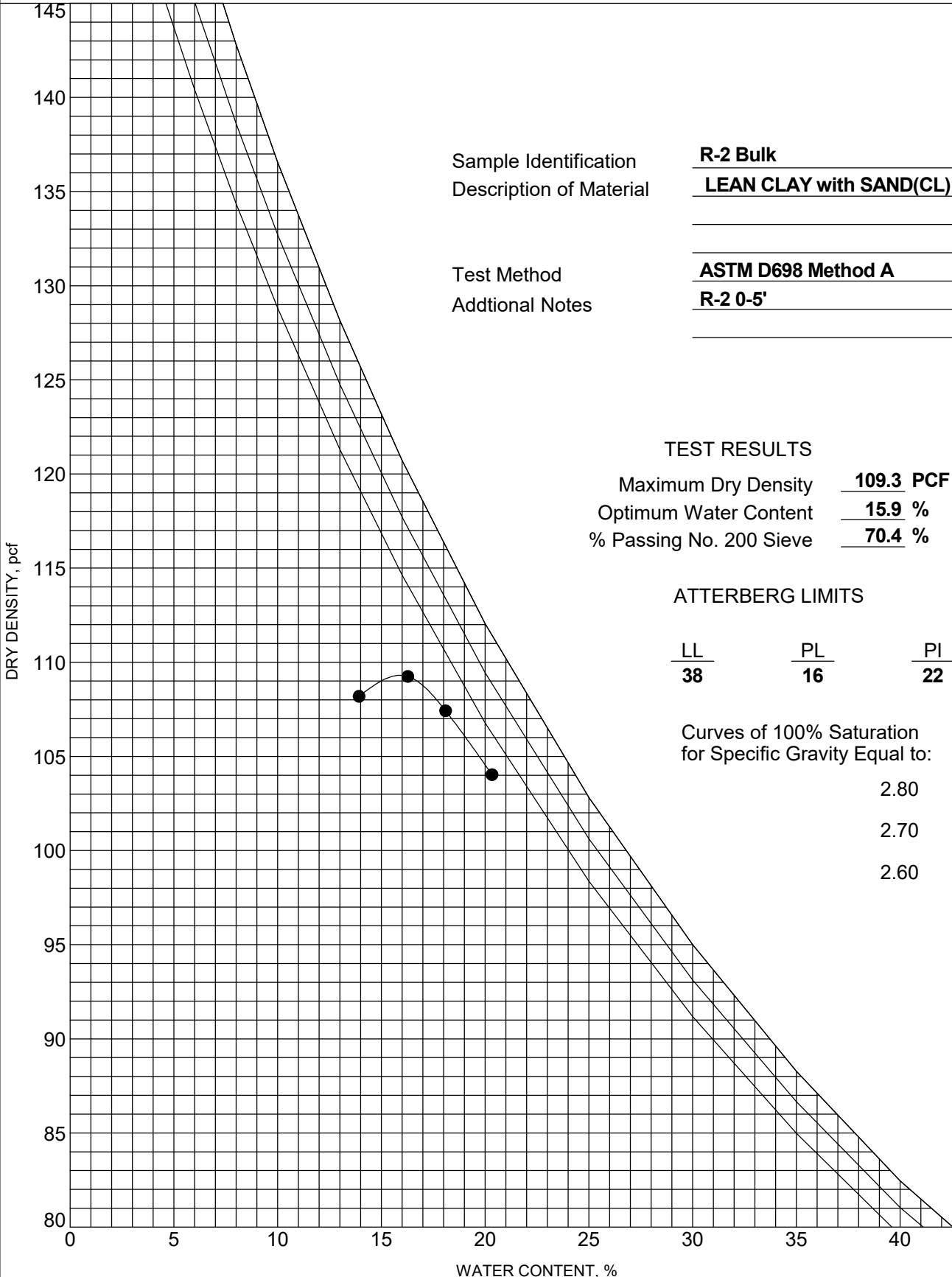
MOISTURE-DENSITY RELATIONSHIP

CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia



Sample Identification R-2 Bulk
 Description of Material LEAN CLAY with SAND(CL)
 Test Method ASTM D698 Method A
 Additional Notes R-2 0-5'

TEST RESULTS

Maximum Dry Density 109.3 PCF
 Optimum Water Content 15.9 %
 % Passing No. 200 Sieve 70.4 %

ATTERBERG LIMITS

<u>LL</u>	<u>PL</u>	<u>PI</u>
<u>38</u>	<u>16</u>	<u>22</u>

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.80
- 2.70
- 2.60

3-STD PROCTOR TEST GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/9/21



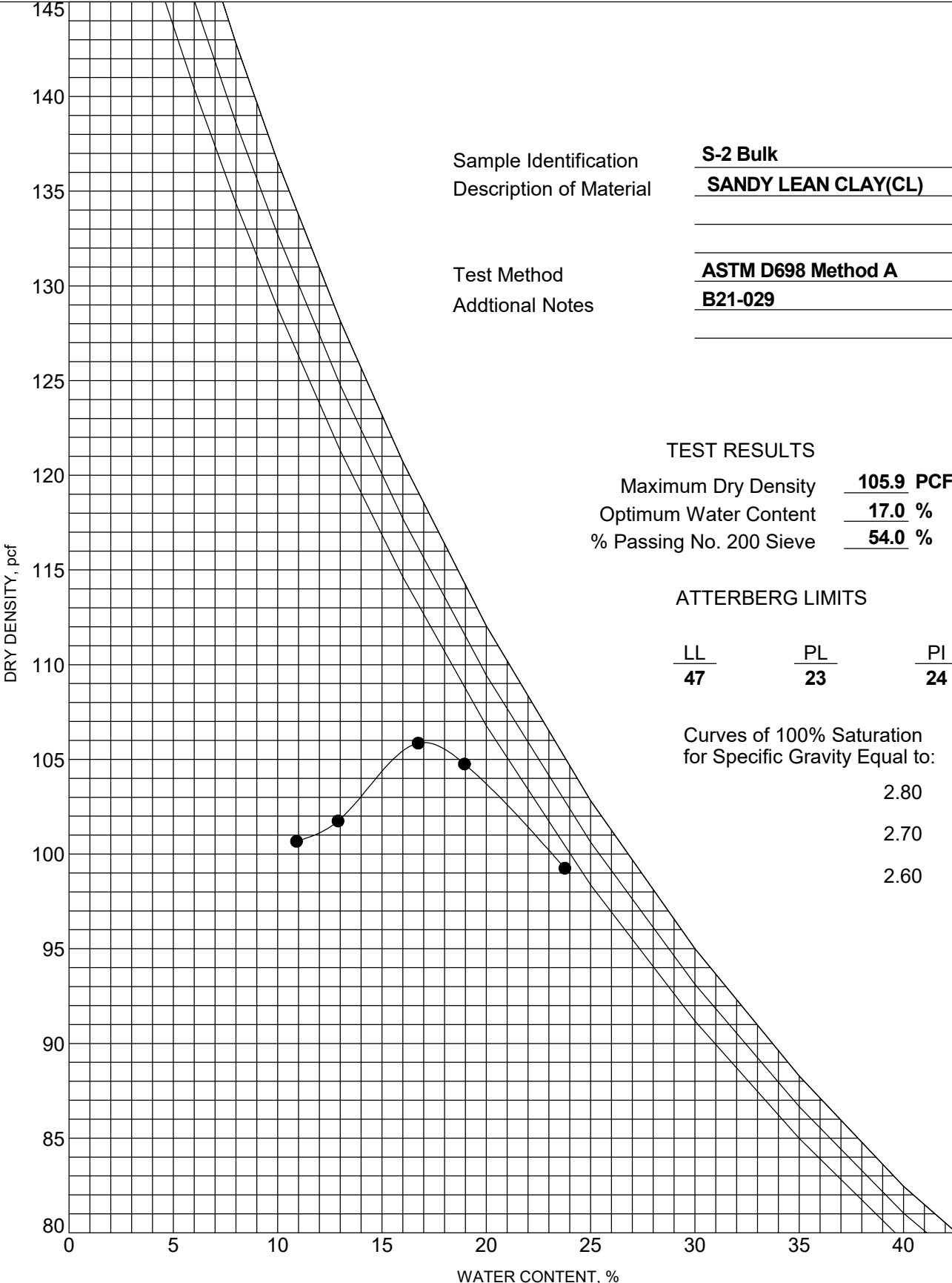
MOISTURE-DENSITY RELATIONSHIP

CLIENT The City of Dalton

PROJECT NAME Northeast Community Complex Soccer Field

PROJECT NUMBER GATL210002

PROJECT LOCATION Dalton, Georgia



Sample Identification S-2 Bulk
 Description of Material SANDY LEAN CLAY(CL)
 Test Method ASTM D698 Method A
 Additional Notes B21-029

TEST RESULTS

Maximum Dry Density 105.9 PCF
 Optimum Water Content 17.0 %
 % Passing No. 200 Sieve 54.0 %

ATTERBERG LIMITS

LL	PL	PI
47	23	24

Curves of 100% Saturation for Specific Gravity Equal to:

- 2.80
- 2.70
- 2.60

3-STD PROCTOR TEST GATL210002 NORTHEAST COMMUNITY COMPLEX SOCCER FIELD.GPJ GMC DATA TEMPLATE.GDT 3/10/21



FIELD TEST PROCEDURES

General

The general field procedures employed by Goodwyn, Mills and Cawood, Inc. (GM&C), are summarized in the American Society for Testing and Materials (ASTM) Standard D420 which is entitled "Investigating and Sampling Soil and Rock". This recommended practice lists recognized methods for determining soil and rock distribution and groundwater conditions. These methods include geophysical and in-situ methods as well as borings.

The detailed collection methods used during this exploration are presented in the following paragraphs.

Standard Drilling Techniques

General: To obtain subsurface samples, borings are drilled using one of several alternate techniques depending upon the subsurface conditions. These techniques are as follows:

In Soils:

- a) Continuous hollow stem augers.
- b) Rotary borings using roller cone bits or drag bits, and water or drilling mud to flush the hole.
- c) "Hand" augers.

In Rock:

- a) Core drilling with diamond-faced, double or triple tube core barrels.
- b) Core boring with roller cone bits.

Hollow Stem Auger: A hollow stem auger consists of a hollow steel tube with a continuous exterior spiral flange termed a flight. The auger is turned into the ground, returning the cuttings along the flights. The hollow center permits a variety of sampling and testing tools to be used without removing the auger.

Rotary Borings: Rotary drilling involves the use of roller cone or drag type drill bits attached to the end of drill rods. A flushing medium, normally water or bentonite slurry, is pumped through the rods to clear the cuttings from the bit face and flush them to the surface. Casing is sometimes set behind the advancing bit to prevent the hole from collapsing and to restrict the penetration of the drilling fluid into the surrounding soils. Cuttings returned to the surface by the drilling fluid are typically collected in a settling tank, to allow the fluid to be recirculated.

Hand Auger Boring: Hand auger borings are advanced by manually twisting a 4" diameter steel bucket auger into the ground and withdrawing it when filled to observe the sample collected. Posthole diggers are sometimes used in lieu of augers to obtain shallow soil samples. Occasionally these hand auger borings are used for driving 3-inch diameter steel tubes to obtain intact soil samples.

Core Drilling: Soil drilling methods are not normally capable of penetrating through hard cemented soil, weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound, continuous rock. Material that cannot be penetrated by auger or rotary soil-drilling methods at a reasonable rate is designated as "refusal material". Core drilling procedures are required to penetrate and sample refusal materials.

Prior to coring, casing may be set in the drilled hole through the overburden soils, to keep the hole from caving and to prevent excessive water loss. The refusal materials are then cored according to ASTM D2113 using a diamond studded bit fastened to the end of a hollow, double or triple tube core barrel. This device is rotated at high speeds, and the cuttings are brought to the surface by circulating water. Core samples of the material penetrated are protected and retained in the swivel-mounted inner tube. Upon completion of each drill run, the core barrel is brought to the surface, the core recovery is measured, and the core is placed, in sequence, in boxes for storage and transported to our laboratory.



Sampling and Testing in Boreholes

General: Several techniques are used to obtain samples and data in soils; however, the most common methods in this area are:

- a) Standard Penetrating Testing
- b) Water Level Readings

These procedures are presented below. Any additional testing techniques employed during this exploration are contained in other sections of the Appendix.

Standard Penetration Testing: At regular intervals, the drilling tools are removed and soil samples obtained with a standard 2-inch diameter split tube sampler connected to an A or N-size rod. The sampler is first seated 6 inches to penetrate any loose cuttings, and then driven an additional 12 inches with blows of a 140-pound safety hammer falling 30 inches. Generally, the number of hammer blows required to drive the sampler the final 12 inches is designated the "penetration resistance" or "N" value, in blows per foot (bpf). The split barrel sampler is designed to retain the soil penetrated, so that it may be returned to the surface for observation. Representative portions of the soil samples obtained from each split barrel sample are placed in jars, sealed and transported to our laboratory.

The standard penetration test, when properly evaluated, provides an indication of the soil strength and compressibility. The tests are conducted according to ASTM Standard D1586. The depths and N-values of standard penetration tests are shown on the Boring Records. Split barrel samples are suitable for visual observation and classification tests but are not sufficiently intact for quantitative laboratory testing.

Water Level Readings: Water table readings are normally taken in the borings and are recorded on the Boring Records. In sandy soils, these readings indicate the approximate location of the hydrostatic water table at the time of our field exploration. In clayey soils, the rate of water seepage into the borings is low and it is generally not possible to establish the location of the hydrostatic water table through short-term water level readings. Also, fluctuation in the water table should be expected with variations in precipitation, surface run-off, evaporation, and other factors. For long-term monitoring of water levels, it is necessary to install piezometers.

The water levels reported on the Boring Records are determined by field crews immediately after the drilling tools are removed, and several hours after the borings are completed, if possible. The time lag is intended to permit stabilization of the groundwater table, which may have been disrupted by the drilling operation.

Occasionally the borings will cave-in, preventing water level readings from being obtained or trapping drilling water above the cave-in zone. The cave-in depth is measured and recorded on the Boring Records.

Boring Records

The subsurface conditions encountered during drilling are reported on a field boring record prepared by the Driller. The record contains information concerning the boring method, samples attempted and recovered, indications of the presence of coarse gravel, cobbles, etc., and observations of ground water. It also contains the driller's interpretation of the soil conditions between samples. Therefore, these boring records contain both factual and interpretive information. The field boring records are kept on file in our office.

After the drilling is completed, a geotechnical professional classifies the soil samples and prepares the final Boring Records, which are the basis for all evaluations and recommendations. The following terms are taken from ASTM D2487 or Deere's Technical Description of Rock Cores for Engineering Purposes, Rock Mechanical Engineering Geology 1, pp. 18-22.



Relative Density of Cohesionless Soils From Standard Penetration Test		Consistency of Cohesive Soils	
Very Loose	≤ 4 bpf	Very Soft	≤ 2 bpf
Loose	5 - 10 bpf	Soft	3 - 4 bpf
Medium	11 - 30 bpf	Medium	5 - 8 bpf
Dense	31 - 50 bpf	Stiff	9 - 15 bpf
Very Dense	> 50 bpf	Very Stiff	16 - 30 bpf
(bpf = blows per foot, ASTM D 1586)		Hard	> 30 bpf
Relative Hardness of Rock		Particle Size Identification	
Very Soft Rock disintegrates or easily compresses to touch; can be hard to very hard soil.		Boulders	Larger than 12"
Soft Rock may be broken with fingers.		Cobbles	3" - 12"
Moderately Soft Rock may be scratched with a nail, corners and edges may be broken with fingers.		Gravel	
Moderately Hard Rock a light blow of hammer is required to break samples.		Coarse	3/4" - 3"
Hard Rock a hard blow of hammer is required to break sample.		Fine	4.76mm - 3/4"
		Sand	
		Coarse	2.0 - 4.76 mm
		Medium	0.42 - 2.00 mm
		Fine	0.42 - 0.074 mm
		Fines (Silt or Clay)	Smaller than 0.074 mm
Rock Continuity		Relative Quality of Rocks	
RECOVERY = $\frac{\text{Total Length of Core}}{\text{Length of Core Run}} \times 100 \%$		RQD = $\frac{\text{Total core, counting only pieces } > 4" \text{ long}}{\text{Length of Core Run}} \times 100 \%$	
<u>Description</u>	<u>Core Recovery %</u>	<u>Description</u>	<u>RQD %</u>
Incompetent	Less than 40	Very Poor	0 - 25 %
Competent	40 - 70	Poor	25 - 50 %
Fairly Continuous	71 - 90	Fair	50 - 75 %
Continuous	91 - 100	Good	75 - 90 %
		Excellent	90 - 100 %



LABORATORY TESTING

GENERAL

The laboratory testing procedures employed by Goodwyn, Mills and Cawood, Inc. (GM&C) are in general accordance with ASTM standard methods and other applicable specifications.

Several test methods, described together with others in this Appendix, were used during the course of this exploration. The Laboratory Data Summary sheet indicates the specific tests performed.

SOIL CLASSIFICATION

Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply his past experience to current problems. In our investigations, samples obtained during drilling operations are examined in our laboratory and visually classified by an engineer. The soils are classified according to consistency (based on number of blows from standard penetration tests), color and texture. These classification descriptions are included on our "Boring Records".

The classification system discussed above is primarily qualitative and for detailed soil classification two laboratory tests are necessary; grain size tests and plasticity tests. Using these test results the soil can be classified according to the AASHTO or Unified Classification Systems (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior. The soil classification and physical properties obtained are presented in this report.

POCKET PENETROMETER TEST

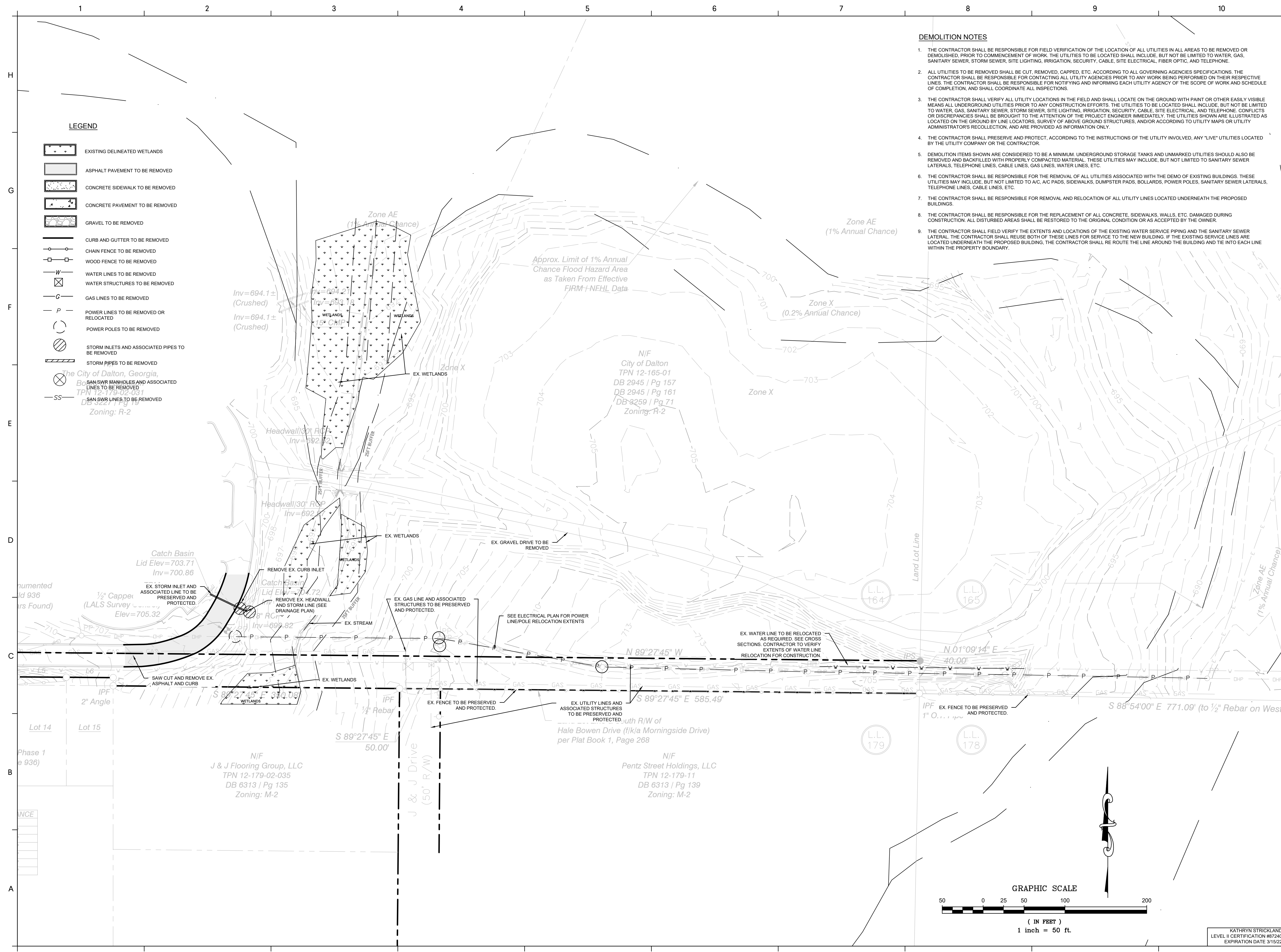
A pocket penetrometer test is performed by pressing the tip of a small, spring-loaded penetrometer with even pressure to a prescribed depth into a soil sample. This test yields a value for unconfined compressive strength, which may be correlated with unconfined compressive strengths obtained by other laboratory methods.

MOISTURE CONTENT

Moisture contents are determined from representative portions of the specimen. The soil is dried to a constant weight in an oven at 100° C and the loss of moisture during the drying process is measured. From this data, the moisture content is computed.

PARTICLE SIZE DISTRIBUTION

The distribution of soils coarser than the No. 200 (75-mm) sieve is determined by passing a representative specimen through a standard set of nested sieves. The weight of material retained on each sieve is determined and the percentage retained (or passing) is calculated. A specimen may be washed through only the No. 200 sieve, if the full range of particle sizes is not required. The percentage of material passing the No. 200 sieve is reported. The distribution of materials finer than the No. 200 sieve is determined by use of a hydrometer. The particle sizes and distribution are computed from the time rate of settlement of the different size particles while suspended in water. These tests are performed in accordance with ASTM D-421, D-422 and D-1140.



DEMOLITION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF THE LOCATION OF ALL UTILITIES IN ALL AREAS TO BE REMOVED OR DEMOLISHED, PRIOR TO COMMENCEMENT OF WORK. THE UTILITIES TO BE LOCATED SHALL INCLUDE, BUT NOT BE LIMITED TO WATER, GAS, SANITARY SEWER, STORM SEWER, SITE LIGHTING, IRRIGATION, SECURITY, CABLE, SITE ELECTRICAL, FIBER OPTIC, AND TELEPHONE.
2. ALL UTILITIES TO BE REMOVED SHALL BE CUT, REMOVED, CAPPED, ETC. ACCORDING TO ALL GOVERNING AGENCIES SPECIFICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY AGENCIES PRIOR TO ANY WORK BEING PERFORMED ON THEIR RESPECTIVE LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING AND INFORMING EACH UTILITY AGENCY OF THE SCOPE OF WORK AND SCHEDULE OF COMPLETION, AND SHALL COORDINATE ALL INSPECTIONS.
3. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS IN THE FIELD AND SHALL LOCATE ON THE GROUND WITH PAINT OR OTHER EASILY VISIBLE MEANS ALL UNDERGROUND UTILITIES PRIOR TO ANY CONSTRUCTION EFFORTS. THE UTILITIES TO BE LOCATED SHALL INCLUDE, BUT NOT BE LIMITED TO WATER, GAS, SANITARY SEWER, STORM SEWER, SITE LIGHTING, IRRIGATION, SECURITY, CABLE, SITE ELECTRICAL, AND TELEPHONE. CONFLICTS OR DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER IMMEDIATELY. THE UTILITIES SHOWN ARE ILLUSTRATED AS LOCATED ON THE GROUND BY LINE LOCATORS, SURVEY OF ABOVE GROUND STRUCTURES, AND/OR ACCORDING TO UTILITY MAPS OR UTILITY ADMINISTRATORS RECOLLECTION, AND ARE PROVIDED AS INFORMATION ONLY.
4. THE CONTRACTOR SHALL PRESERVE AND PROTECT, ACCORDING TO THE INSTRUCTIONS OF THE UTILITY INVOLVED, ANY "LIVE" UTILITIES LOCATED BY THE UTILITY COMPANY OR THE CONTRACTOR.
5. DEMOLITION ITEMS SHOWN ARE CONSIDERED TO BE A MINIMUM. UNDERGROUND STORAGE TANKS AND UNMARKED UTILITIES SHOULD ALSO BE REMOVED AND BACKFILLED WITH PROPERLY COMPACTED MATERIAL. THESE UTILITIES MAY INCLUDE, BUT NOT LIMITED TO SANITARY SEWER LATERALS, TELEPHONE LINES, CABLE LINES, GAS LINES, WATER LINES, ETC.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL UTILITIES ASSOCIATED WITH THE DEMO OF EXISTING BUILDINGS. THESE UTILITIES MAY INCLUDE, BUT NOT LIMITED TO A/C, A/C PADS, SIDEWALKS, DUMPSTER PADS, BOLLARDS, POWER POLES, SANITARY SEWER LATERALS, TELEPHONE LINES, CABLE LINES, ETC.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND RELOCATION OF ALL UTILITY LINES LOCATED UNDERNEATH THE PROPOSED BUILDINGS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF ALL CONCRETE, SIDEWALKS, WALLS, ETC. DAMAGED DURING CONSTRUCTION. ALL DISTURBED AREAS SHALL BE RESTORED TO THE ORIGINAL CONDITION OR AS ACCEPTED BY THE OWNER.
9. THE CONTRACTOR SHALL FIELD VERIFY THE EXTENTS AND LOCATIONS OF THE EXISTING WATER SERVICE PIPING AND THE SANITARY SEWER LATERAL. THE CONTRACTOR SHALL REUSE BOTH OF THESE LINES FOR SERVICE TO THE NEW BUILDING. IF THE EXISTING SERVICE LINES ARE LOCATED UNDERNEATH THE PROPOSED BUILDING, THE CONTRACTOR SHALL RE ROUTE THE LINE AROUND THE BUILDING AND TIE INTO EACH LINE WITHIN THE PROPERTY BOUNDARY.

LEGEND

- EXISTING DELINEATED WETLANDS
- ASPHALT PAVEMENT TO BE REMOVED
- CONCRETE SIDEWALK TO BE REMOVED
- CONCRETE PAVEMENT TO BE REMOVED
- GRAVEL TO BE REMOVED
- CURB AND GUTTER TO BE REMOVED
- CHAIN FENCE TO BE REMOVED
- WOOD FENCE TO BE REMOVED
- WATER LINES TO BE REMOVED
- WATER STRUCTURES TO BE REMOVED
- GAS LINES TO BE REMOVED
- POWER LINES TO BE REMOVED OR RELOCATED
- POWER POLES TO BE REMOVED
- STORM INLETS AND ASSOCIATED PIPES TO BE REMOVED
- STORM PIPES TO BE REMOVED
- SANITARY SEWER MANHOLES AND ASSOCIATED LINES TO BE REMOVED
- SANITARY SEWER LINES TO BE REMOVED

**NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS**
HALE BOWEN DRIVE, DALTON, GA

ISSUE	DATE
PERMIT SET	6/21/2021
COUNTY COMMENTS	8/2/2021

GMC
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ISSUE	DATE
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CHECKED BY:	

GMC #CATL210004



8/2/2021

KATHRYN STRICKLAND
LEVEL II CERTIFICATION #87240
EXPIRATION DATE 3/15/22

sheet of

GENERAL NOTES

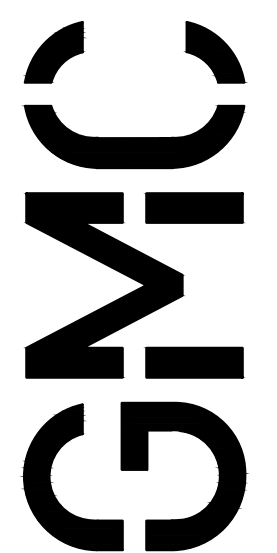
- 1. ALL WORK DESCRIBED, SHOWN, REFERENCED, OR OTHERWISE INDICATED IN OR ON THE DRAWINGS, PROPOSAL, ADVERTISEMENT AND SPECIFICATIONS ARE TO BE COMPLETED IN-PLACE AND SERVICEABLE ACCORDING TO THE PLANS, INSTRUCTIONS, SPECIFICATIONS, LINES AND GRADES INDICATED ON THE PLANS AND ALL APPLICABLE STATE, FEDERAL, AND MUNICIPAL CODES AND STANDARDS. INDIVIDUAL ITEMS OF WORK THAT ARE NECESSARY TO COMPLETE THE PROJECT TO THE LINES AND GRADES... 2. THE CONTRACTOR IS EXPECTED TO CAREFULLY EXAMINE THE PLANS, PROJECT MANUAL AND SITE OF THE WORK... 3. THE WORK ON THIS PROJECT SHALL ADHERE TO THE FOLLOWING SPECIFICATIONS, STANDARDS AND/OR REGULATIONS: -ENVIRONMENTAL PROTECTION DIVISION, GEORGIA (EPD) AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) -- "BEST MANAGEMENT PRACTICES MANUAL" AND THE REQUIREMENTS OF THE SITE SPECIFIC NPDES DISCHARGE PERMIT ISSUED FOR THIS PROJECT... 4. THE CONTRACTOR IS RESPONSIBLE FOR HAVING ALL EXISTING UTILITIES LOCATED PRIOR TO CONSTRUCTION... 5. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES CONCERNING CONFLICTS, RELOCATION, REMOVAL, AND INTERRUPTIONS OF SERVICE... 6. THE CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH REMOVING AND/OR RELOCATING EXISTING UTILITIES AND STRUCTURES TO CONSTRUCT THE IMPROVEMENTS SHOWN IN THESE PLANS... 7. THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ALL PERMITS FOR THIS PROJECT... 8. ANY CHANGES OR REVISIONS MADE TO THE SITE PLANS SHALL BE SUBMITTED FOR APPROVAL TO THE CITY OF DALTON AND ALL OTHER PERTINENT AGENCIES... 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXTENT, LOCATION AND ELEVATION OF THE EXISTING IMPROVEMENTS... 10. SEE THE REPORT OF GEOTECHNICAL INVESTIGATION PERFORMED BY GOODWYN, MILLS AND CAWOOD, INC... 11. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB, CENTER OF STRIPE, FACE OF BUILDING OR AS SPECIFIED IN THE PLANS... 12. THE CONTRACTOR SHALL COORDINATE THE ELECTRICAL CONNECTION POINT, SERVICE, SIZE, POLE LOCATIONS, AND TRANSFORMER LOCATIONS WITH THE SERVICE PROVIDER PRIOR TO CONSTRUCTION ACTIVITIES... 13. THE CONTRACTOR SHALL PAY ALL CONNECTION COSTS AND FEES, INCLUDING BUT NOT LIMITED TO TAPPING FEES, METER COSTS, SETTING CHARGES, AND CONNECTION CHARGES... 14. IF BLASTING IS REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PRE-BLAST SURVEYS AND ANY INCIDENTS ASSOCIATED WITH THE BLASTING... 15. ALL EXISTING AND NEW STORM DRAINAGE INLETS, STRUCTURES, AND PIPES SHALL BE CLEANED OF TRASH AND SEDIMENTS ON A REGULAR BASIS, WEEKLY AT A MINIMUM... 16. THE CONTRACTOR WILL BE RESPONSIBLE FOR TEMPORARY DIVERSION BERMS AND/OR DITCHES AND SHALL BE PROVIDED AS REQUIRED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS... 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING DUST TO A MINIMUM THROUGH THE USE OF WATER TRUCKS OR OTHER DUST CONTROLLING METHODS THROUGHOUT THE CONSTRUCTION PERIOD... 18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING EROSION AND SILTATION OFF OF ADJACENT AND DOWNSTREAM PROPERTIES AND/OR ADJOINING SITES... 19. ALL DISTURBED AND REGRADED AREAS NOT TO BE PAVED SHALL RECEIVE TOPSOIL AND BE SEEDED AND MULCHED ACCORDING TO GDOT PERMANENT SEEDING SCHEDULES... 20. THE CONTRACTOR MUST ADJUST ALL VALVE BOXES, COVERS, METERS, MANHOLE RIMS, AND OTHER WATER, STORM, POWER, TELECOMMUNICATIONS AND SANITARY SEWER SERVICE APPURTENANCES TO FINAL GRADE... 21. THESE PLANS HAVE NOT BEEN APPROVED BY ALL OF THE REGULATORY AGENCIES AT THIS TIME... 22. ALL UTILITY BORES SHALL BE A MINIMUM OF 4 FT DEEP... 23. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIR TO PUBLIC AND PRIVATE ROADS CAUSED BY HIS ACTIVITIES... 24. ALL PAVING WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF GDOTS STANDARDS AND SPECIFICATIONS... 25. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE CONSTRUCTION SEQUENCE OF ALL UNDERGROUND UTILITIES WITH THE BUILDING FOOTINGS/FOUNDATIONS, RETAINING WALLS, COLUMNS, STEPS, LIGHT POLES, INLETS, MANHOLES AND ALL OTHER ABOVE OR BELOW GRADE IMPROVEMENTS... 26. THE CONTRACTOR SHALL INCLUDE IN HIS BID ALL COSTS ASSOCIATED WITH SHORING/STABILIZING EXISTING UTILITIES DURING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS... 27. THE CONTRACTOR SHALL PROVIDE THE OWNER AND ENGINEER WITH AN AS-BUILT SURVEY OF THE ALL UTILITIES INCLUDING, SANITARY SEWER SYSTEMS, WATER SYSTEMS, ELECTRICAL SYSTEMS, COMMUNICATION CONTROL SYSTEMS, STORM SEWER SYSTEMS AND POND... 28. THE CONTRACTOR SHALL PLACE SANITARY SEWER CLEANOUTS A MAXIMUM OF 75 FEET ON CENTER ALONG THE SANITARY SEWER LATERALS.

GRADING AND DRAINAGE NOTES

- 1. UNSTABLE AND PUMPING SUB GRADE CONDITIONS MAY OCCUR DURING SITE PREPARATION AND UNDERCUTTING OPERATIONS... 2. ALL DRAINAGE STRUCTURES, INLETS BOXES, MANHOLES, ETC. SHALL BE POURED IN PLACE OR PRE CAST CONCRETE AS REQUIRED... 3. BRICK WILL ONLY BE ALLOWED TO ADJUST GRADE ON STORM MANHOLES... 4. ALL DRAINAGE STRUCTURES, INLET BOXES, AND CATCH BASINS SHALL HAVE 2" WEEP HOLES FORMED, OR DRILLED, ON ALL SIDES WHERE DRAINAGE PIPES DO NOT INTERFERE WITH THEM... 5. THE CONTRACTOR SHALL USE SPILL OUT CURB AND GUTTER AS REQUIRED TO ENSURE POSITIVE DRAINAGE AND THAT NO WATER IS HELD IN THE LOW POINTS OF GUTTERS... 6. THE CONTRACTOR SHALL ENSURE THAT ALL SIDEWALKS, RAMPS, AND ACCESSIBLE PARKING AREAS ARE CONSTRUCTED IN ACCORDANCE WITH THE MOST RECENT AMERICANS WITH DISABILITIES ACT AND ARCHITECTURAL BARRIERS ACT ACCESSIBILITY GUIDELINES... 7. ALL GRADING OPERATIONS SHALL BE MONITORED BY A QUALIFIED GEOTECHNICAL CONSULTANT AS CHOSEN AND PAID FOR BY THE OWNER... 8. ALL EXCESS EXCAVATION CREATED BY GRADING OPERATIONS SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF SITE... 9. ALL SPOT ELEVATIONS SHOWN REFLECT ELEVATIONS AT GUTTER LINE, ASPHALT, OR FINISHED GROUND ELEVATION... 10. ALL STORM DRAINAGE PIPE LABELED "RCP" SHALL BE CLASS 3 MINIMUM REINFORCED CONCRETE PIPE WITH TYPE 1, 2 OR 3 BEDDING UNLESS SPECIFICALLY SHOWN OTHERWISE... 11. ALL REINFORCED CONCRETE STORM SEWER PIPE JOINTS SHALL BE WRAPPED WITH FILTER CLOTH... 12. ALL EXISTING AND NEW STORM DRAINAGE INLETS, STRUCTURES, AND PIPES SHALL BE CLEANED OF TRASH AND SEDIMENTS ON A REGULAR BASIS, WEEKLY AT A MINIMUM...

Best Management Practices Notes

- 1. ALL BEST MANAGEMENT PRACTICES SHALL BE DEVELOPED AND MAINTAINED BY THE CONTRACTOR ACCORDING TO THE ENVIRONMENTAL PROTECTION DIVISION, GEORGIA (EPD) AND THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA) -- "BEST MANAGEMENT PRACTICES MANUAL" AND THE REQUIREMENTS OF THE SITE SPECIFIC NPDES DISCHARGE PERMIT... 2. THE MAINTENANCE OF ALL BEST MANAGEMENT PRACTICES, SO AS TO BE AN EFFECTIVE BARRIER TO EROSION AND SEDIMENTATION... 3. OTHER THAN LAND-CLEARING ACTIVITIES REQUIRED TO INSTALL THE APPROPRIATE BMP IN ACCORDANCE WITH THE BMP PLANS... 4. THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE WHICH CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES... 5. ALL HAZARDOUS SUBSTANCES USED FOR THIS PROJECT (PAINT, OIL, GREASE, AND OTHER PETROLEUM PRODUCTS) SHALL BE STORED IN ACCORDANCE WITH SPCC REGULATIONS... 6. ALL CONTROL MEASURES SHALL BE CHECKED, AND REPAIRED AS NECESSARY, MONTHLY IN DRY PERIODS, AND WITHIN 24 HOURS AFTER ANY RAINFALL... 7. ALL MATERIALS SHALL BE PROPERLY STORED, NOT EXPOSED TO RAIN, AND STOCKPILED... 8. THERE SHALL BE NO DISTINCTLY VISIBLE FLOATING SCUM, OIL, OR OTHER MATTER CONTAINED IN THE STORM WATER DISCHARGE... 9. WHEN THE LAND-DISTURBING ACTIVITY IS FINISHED AND STABLE VEGETATION OR OTHER PERMANENT CONTROLS HAVE BEEN ESTABLISHED... 10. THE CONTRACTOR SHALL MINIMIZE THE TRACKING OF MUD AND DEBRIS ONTO PAVED ROADWAYS FROM CONSTRUCTION AREAS... 11. ALL EXISTING AND NEW STORM DRAINAGE INLETS, STRUCTURES, AND PIPES SHALL BE CLEANED OF TRASH AND SEDIMENTS ON A REGULAR BASIS... 12. TEMPORARY DIVERSION BERMS AND/OR DITCHES SHALL BE PROVIDED AS REQUIRED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER... 13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING DUST TO A MINIMUM THROUGH THE USE OF WATER TRUCKS OR OTHER DUST CONTROLLING METHODS... 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING EROSION AND SILTATION OFF OF ADJACENT AND DOWNSTREAM PROPERTIES AND/OR ADJOINING SITES... 15. ALL DISTURBED AND REGRADED AREAS NOT TO BE PAVED SHALL RECEIVE TOPSOIL AND BE SEEDED AND MULCHED ACCORDING TO GDOT PERMANENT SEEDING SCHEDULES...



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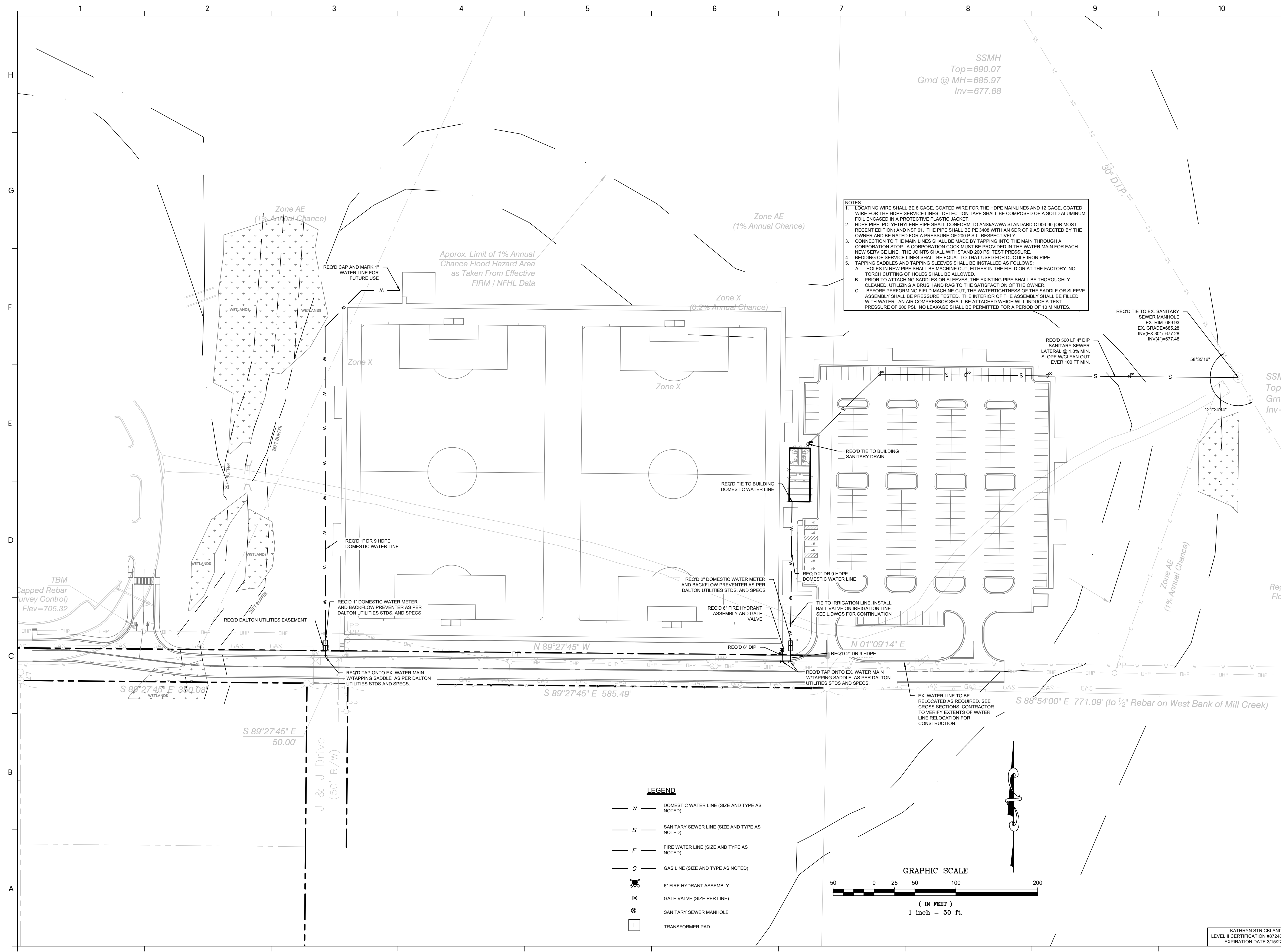
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NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA
GMC #CATL210004



8/2/2021

GENERAL NOTES
C-002
sheet of



SSMH
 Top=690.07
 Grnd @ MH=685.97
 Inv=677.68

NOTES:
 1. LOCATING WIRE SHALL BE 8 GAGE, COATED WIRE FOR THE HDPE MAINLINES AND 12 GAGE, COATED WIRE FOR THE HDPE SERVICE LINES. DETECTION TAPE SHALL BE COMPOSED OF A SOLID ALUMINUM FOIL ENCASED IN A PROTECTIVE PLASTIC JACKET.
 2. HDPE PIPE: POLYETHYLENE PIPE SHALL CONFORM TO ANSIAWWA STANDARD C 906-90 (OR MOST RECENT EDITION) AND NSF 61. THE PIPE SHALL BE PE 3408 WITH AN SDR OF 9 AS DIRECTED BY THE OWNER AND BE RATED FOR A PRESSURE OF 200 P.S.I., RESPECTIVELY.
 3. CONNECTION TO THE MAIN LINES SHALL BE MADE BY TAPPING INTO THE MAIN THROUGH A CORPORATION STOP. A CORPORATION COCK MUST BE PROVIDED IN THE WATER MAIN FOR EACH NEW SERVICE LINE. THE JOINTS SHALL WITHSTAND 200 PSI TEST PRESSURE.
 4. BEDDING OF SERVICE LINES SHALL BE EQUAL TO THAT USED FOR DUCTILE IRON PIPE.
 5. TAPPING SADDLES AND TAPPING SLEEVES SHALL BE INSTALLED AS FOLLOWS:
 A. HOLES IN NEW PIPE SHALL BE MACHINE CUT, EITHER IN THE FIELD OR AT THE FACTORY. NO TORCH CUTTING OF HOLES SHALL BE ALLOWED.
 B. PRIOR TO ATTACHING SADDLES OR SLEEVES, THE EXISTING PIPE SHALL BE THOROUGHLY CLEANED, UTILIZING A BRUSH AND RAG TO THE SATISFACTION OF THE OWNER.
 C. BEFORE PERFORMING FIELD MACHINE CUT, THE WATERTIGHTNESS OF THE SADDLE OR SLEEVE ASSEMBLY SHALL BE PRESSURE TESTED. THE INTERIOR OF THE ASSEMBLY SHALL BE FILLED WITH WATER. AN AIR COMPRESSOR SHALL BE ATTACHED WHICH WILL INDUCE A TEST PRESSURE OF 200 PSI. NO LEAKAGE SHALL BE PERMITTED FOR A PERIOD OF 10 MINUTES.

Approx. Limit of 1% Annual Chance Flood Hazard Area as Taken From Effective FIRM | NFHL Data

REQ'D TIE TO EX. SANITARY SEWER MANHOLE
 EX. RIM=689.93
 EX. GRADE=685.28
 INV(EX.30")=677.28
 INV(4")=677.48

REQ'D 560 LF 4" DIP SANITARY SEWER LATERAL @ 1.0% MIN. SLOPE W/CLEAN OUT EVERY 100 FT MIN.

TBM Capped Rebar Survey Control Elev=705.32

REQ'D DALTON UTILITIES EASEMENT

REQ'D 1" DOMESTIC WATER METER AND BACKFLOW PREVENTER AS PER DALTON UTILITIES STDS. AND SPECS

REQ'D 1" DR 9 HDPE DOMESTIC WATER LINE

REQ'D 2" DOMESTIC WATER METER AND BACKFLOW PREVENTER AS PER DALTON UTILITIES STDS. AND SPECS

REQ'D TIE TO BUILDING DOMESTIC WATER LINE

REQ'D 6" FIRE HYDRANT ASSEMBLY AND GATE VALVE

REQ'D 2" DR 9 HDPE DOMESTIC WATER LINE

REQ'D TIE TO BUILDING SANITARY DRAIN

TIE TO IRRIGATION LINE. INSTALL BALL VALVE ON IRRIGATION LINE. SEE L.DWG'S FOR CONTINUATION

REQ'D 2" DR 9 HDPE

REQ'D 6" DIP

REQ'D TAP ONTO EX. WATER MAIN W/TAPPING SADDLE AS PER DALTON UTILITIES STDS AND SPECS.

REQ'D TAP ONTO EX. WATER MAIN W/TAPPING SADDLE AS PER DALTON UTILITIES STDS AND SPECS.

EX WATER LINE TO BE RELOCATED AS REQUIRED. SEE CROSS SECTIONS. CONTRACTOR TO VERIFY EXTENTS OF WATER LINE RELOCATION FOR CONSTRUCTION.

S 89°27'45" E 310.08'

N 89°27'45" W

S 89°27'45" E 585.49'

N 01°09'14" E

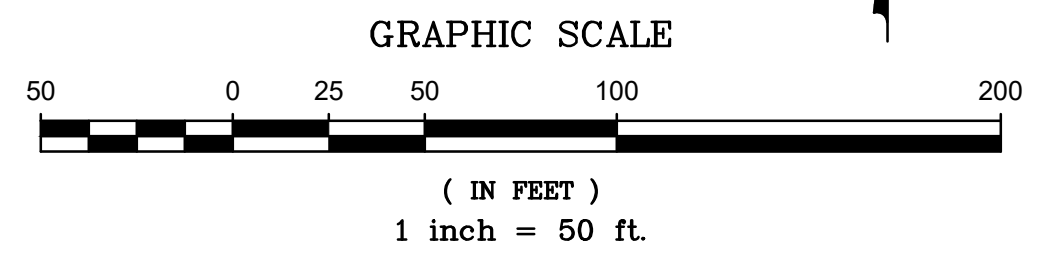
S 88°54'00" E 771.09' (to 1/2" Rebar on West Bank of Mill Creek)

S 89°27'45" E 50.00'

J & J Drive (50' R/W)

LEGEND

- W — DOMESTIC WATER LINE (SIZE AND TYPE AS NOTED)
- S — SANITARY SEWER LINE (SIZE AND TYPE AS NOTED)
- F — FIRE WATER LINE (SIZE AND TYPE AS NOTED)
- G — GAS LINE (SIZE AND TYPE AS NOTED)
- ⊕ 6" FIRE HYDRANT ASSEMBLY
- ⊕ GATE VALVE (SIZE PER LINE)
- ⊕ SANITARY SEWER MANHOLE
- ⊕ TRANSFORMER PAD



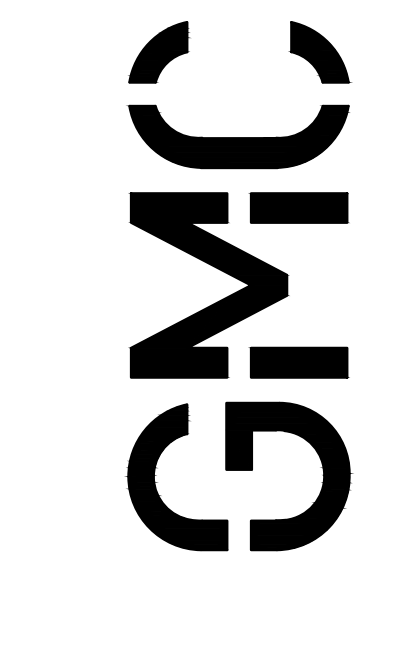
NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
 HALF BOWEN DRIVE, DALTON, GA

ISSUE	DATE
PERMIT SET	6/22/2021
COUNTY COMMENTS	8/2/2021

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UTILITY PLAN

C-201
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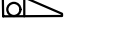
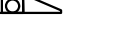



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KATHRYN STRICKLAND
 LEVEL II CERTIFICATION #87240
 EXPIRATION DATE 3/15/22

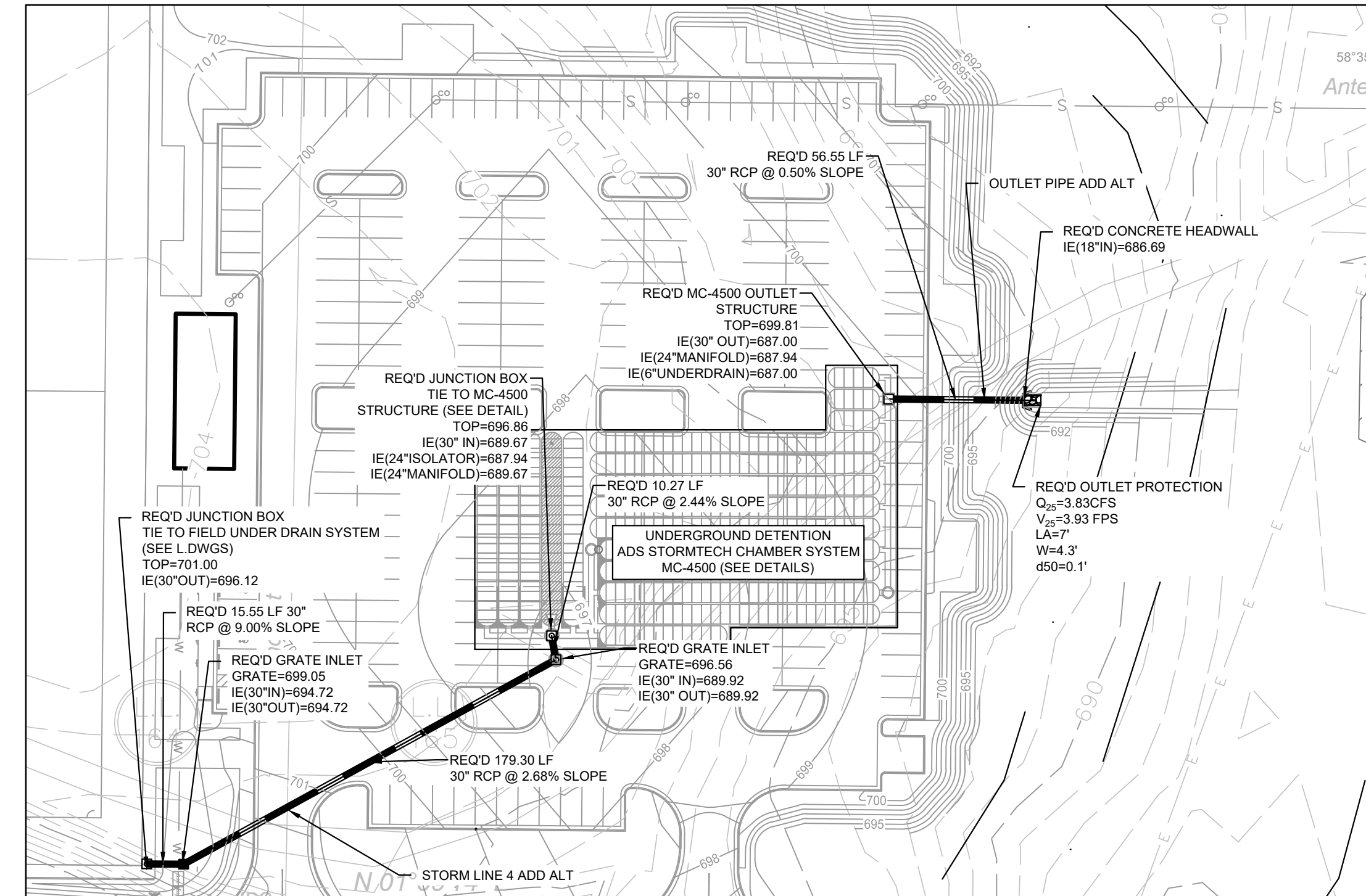
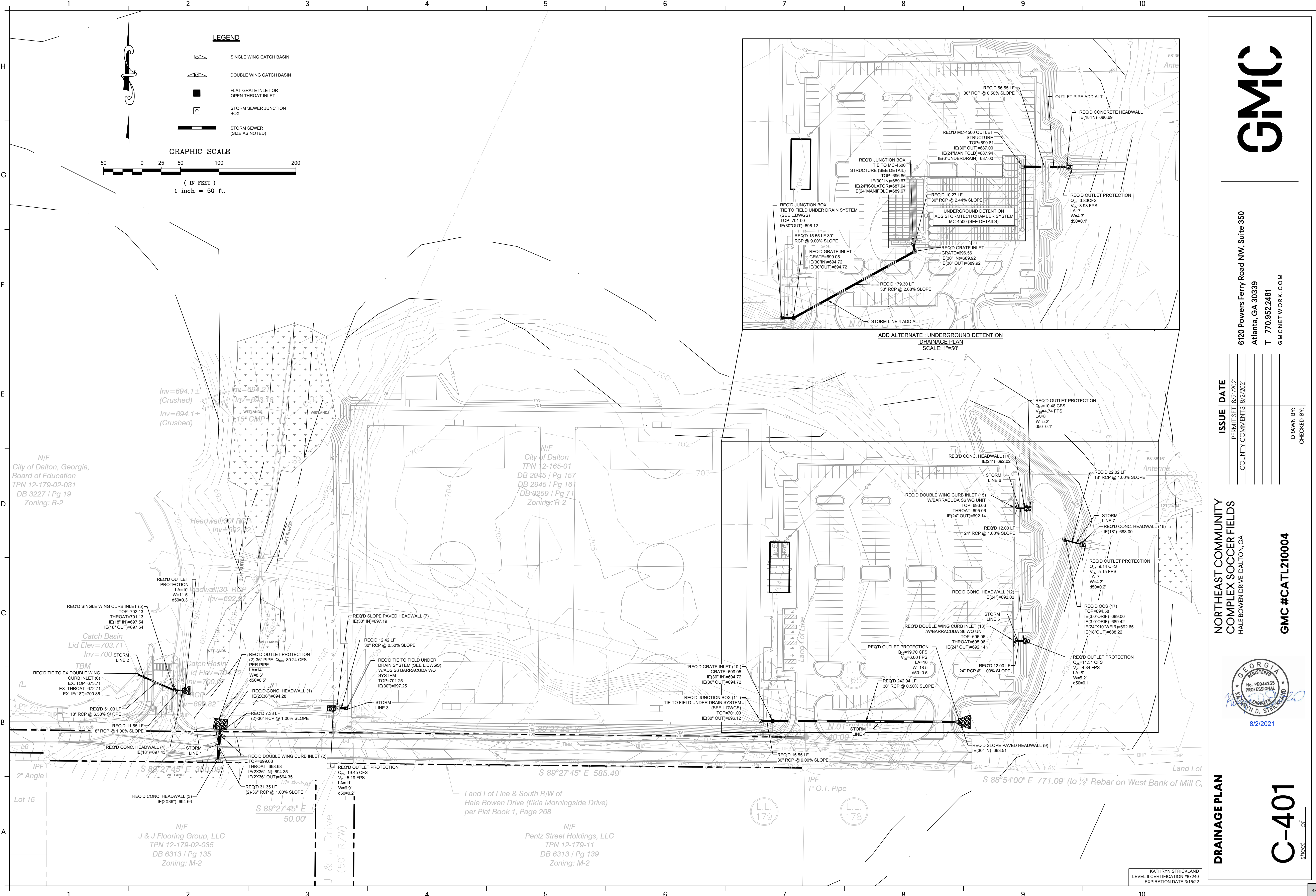
LEGEND

-  SINGLE WING CATCH BASIN
-  DOUBLE WING CATCH BASIN
-  FLAT GRATE INLET OR OPEN THROAT INLET
-  STORM SEWER JUNCTION BOX
-  STORM SEWER (SIZE AS NOTED)

GRAPHIC SCALE



(IN FEET)
1 inch = 50 ft.



ADD ALTERNATE : UNDERGROUND DETENTION DRAINAGE PLAN
SCALE: 1"=50'

N/F
City of Dalton, Georgia,
Board of Education
TPN 12-179-02-031
DB 3227 | Pg 19
Zoning: R-2

N/F
City of Dalton
TPN 12-165-01
DB 2945 | Pg 157
DB 2945 | Pg 167
DB 3259 | Pg 71
Zoning: R-2

**NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS**
HALE BOWEN DRIVE, DALTON, GA

ISSUE / DATE

ISSUE / DATE	PERMIT SET	COUNTY COMMENTS
	16/21/2021	8/2/2021

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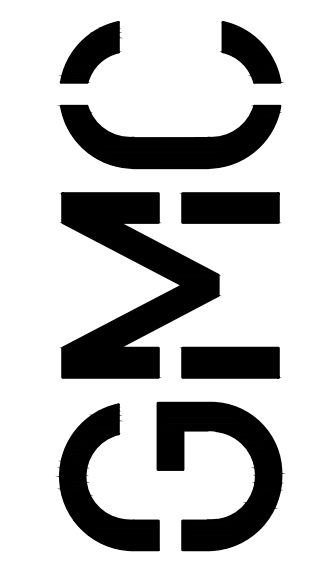


8/2/2021

DRAINAGE PLAN

C-401
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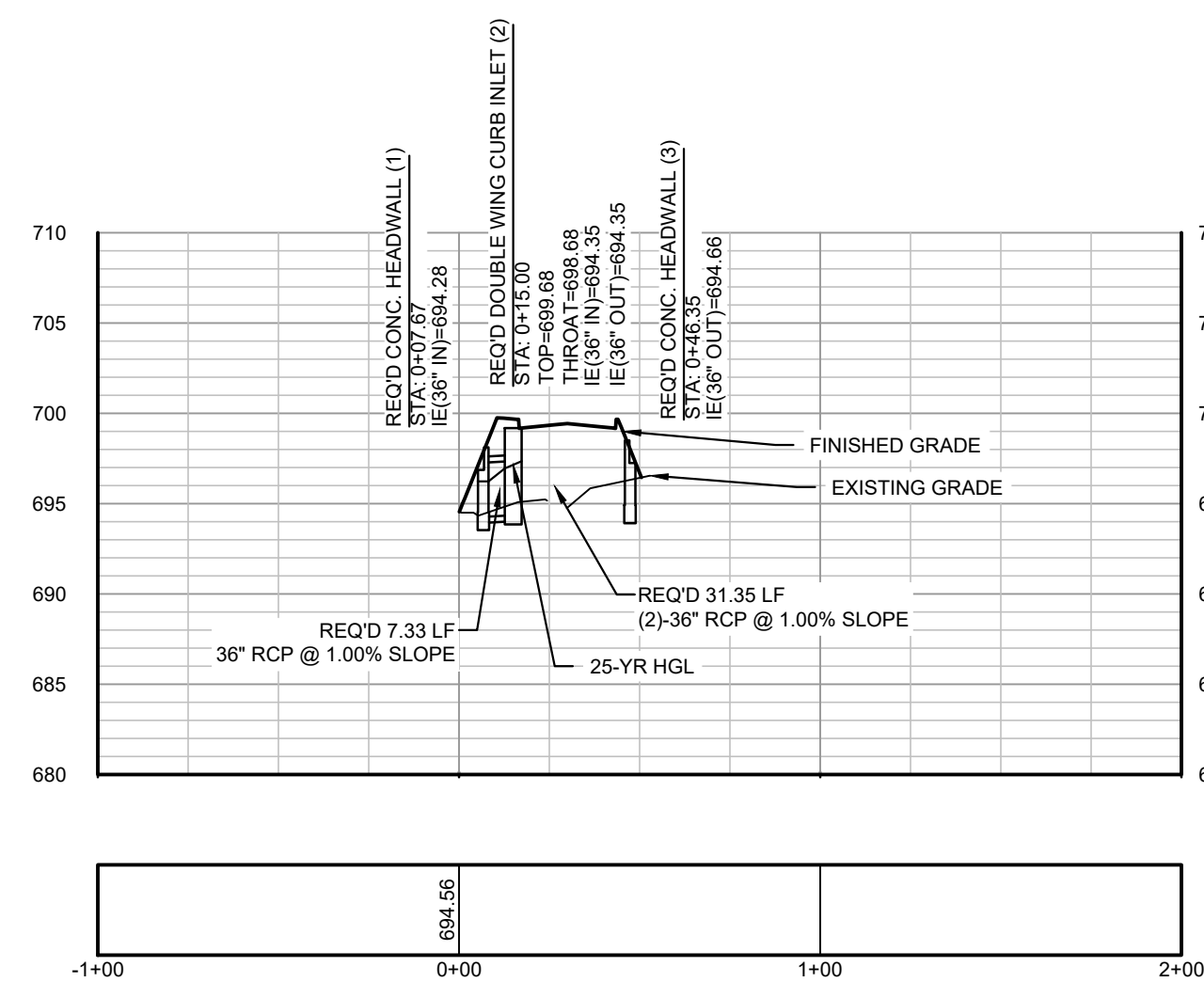
KATHRYN STRICKLAND
LEVEL II CERTIFICATION #87240
EXPIRATION DATE 3/15/22



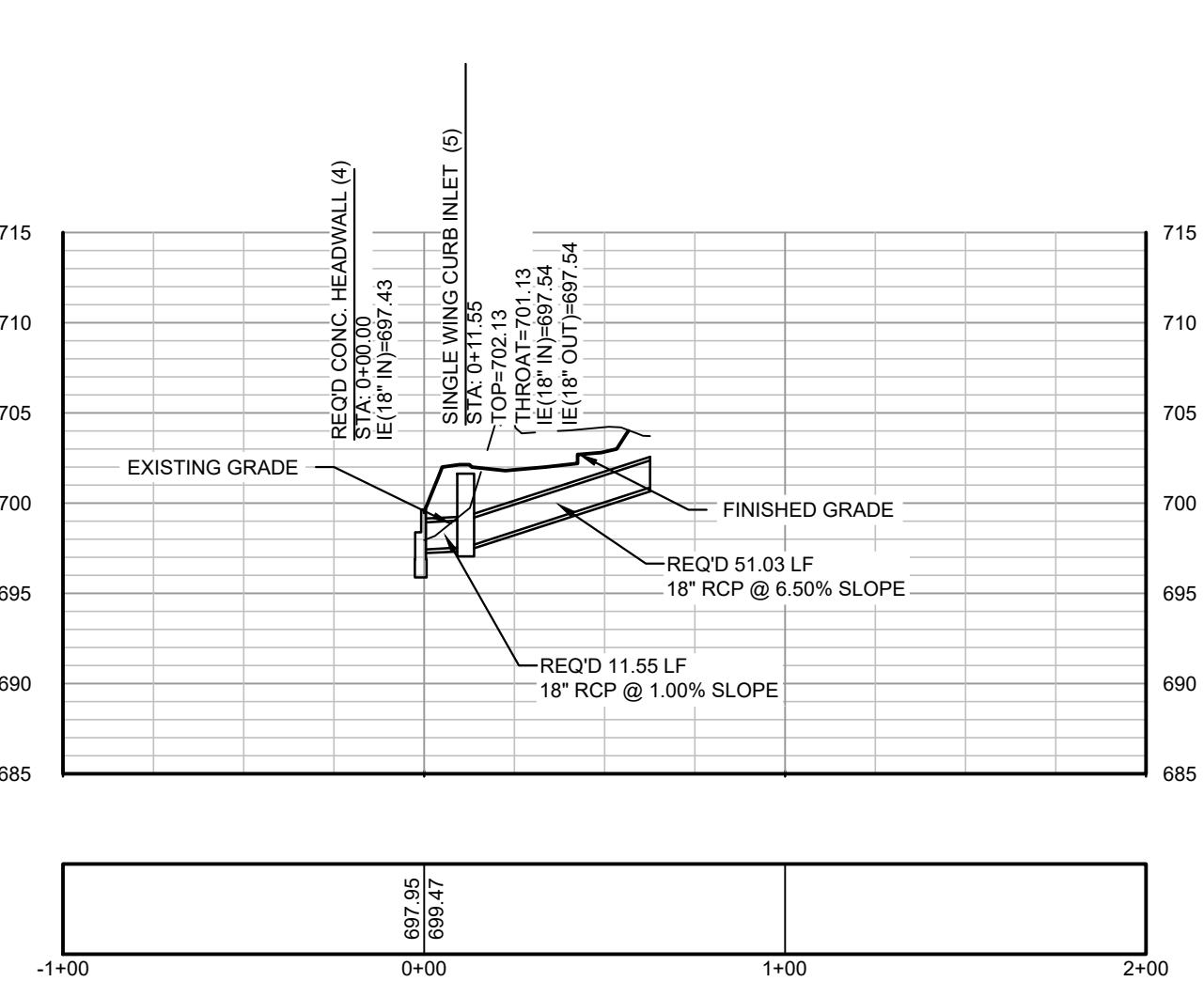
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GMC #CATL210004

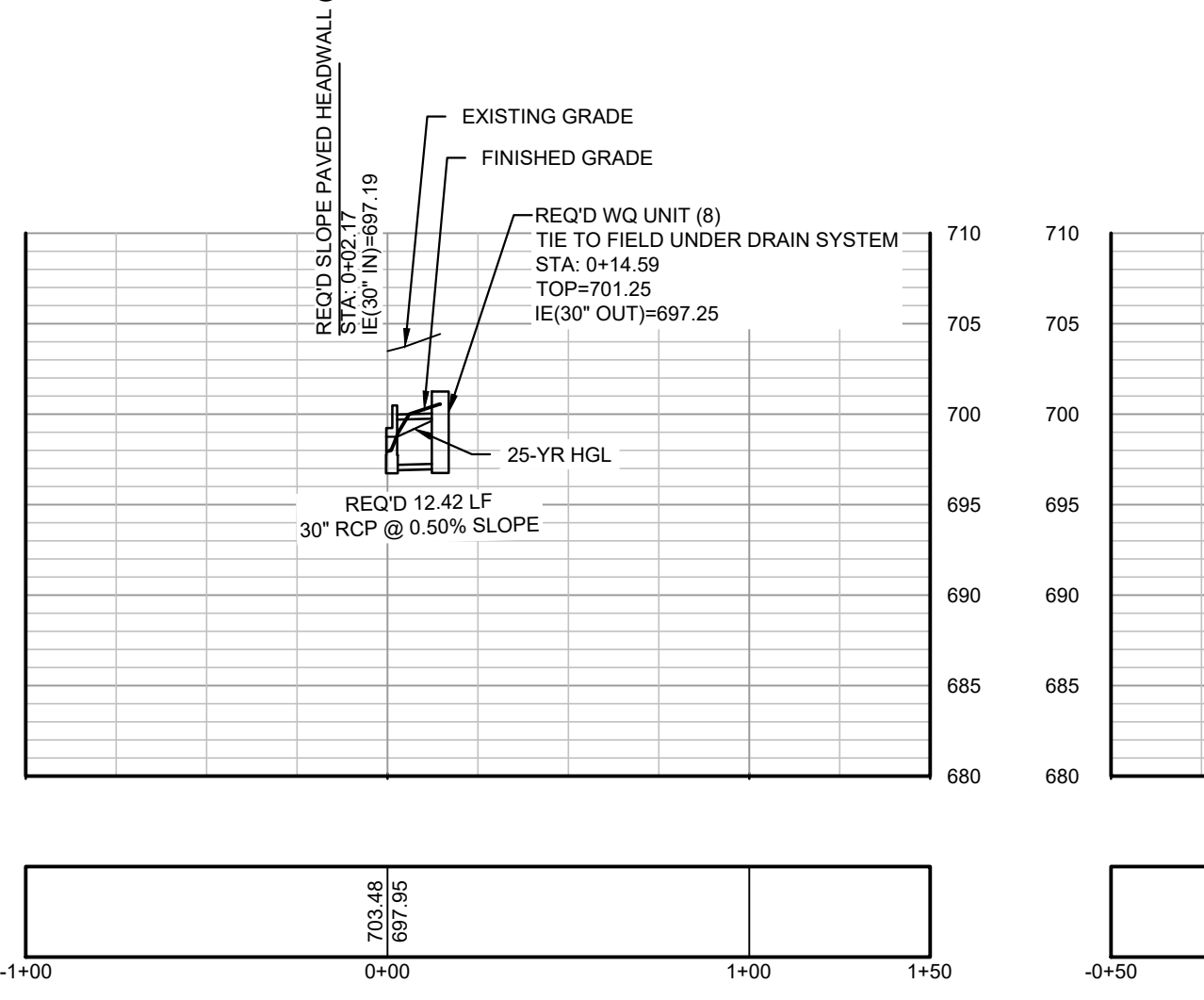
SCALE:
VERT.: 1"=10'
HORZ.: 1"=50'



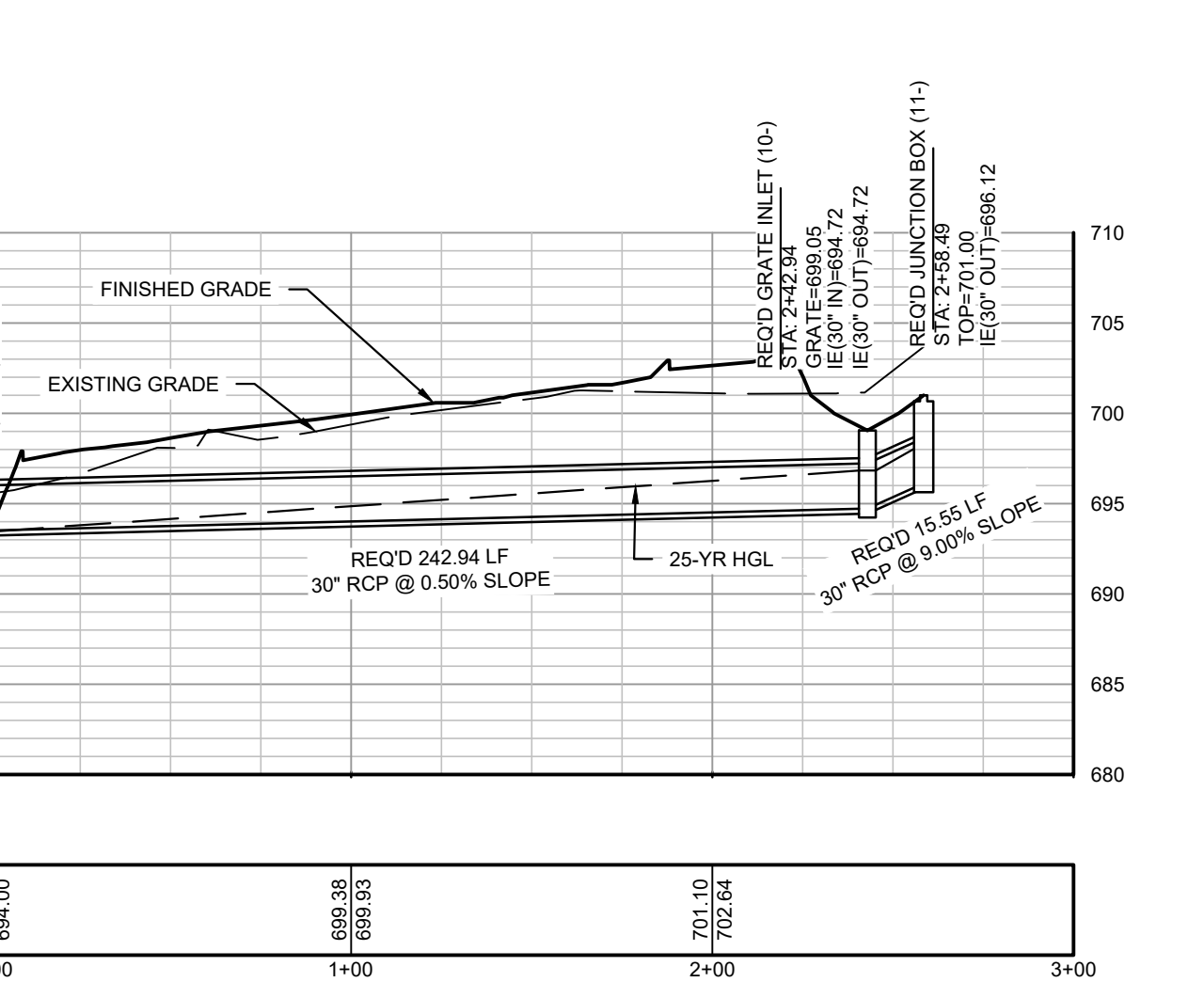
STORM LINE 1 PROFILE



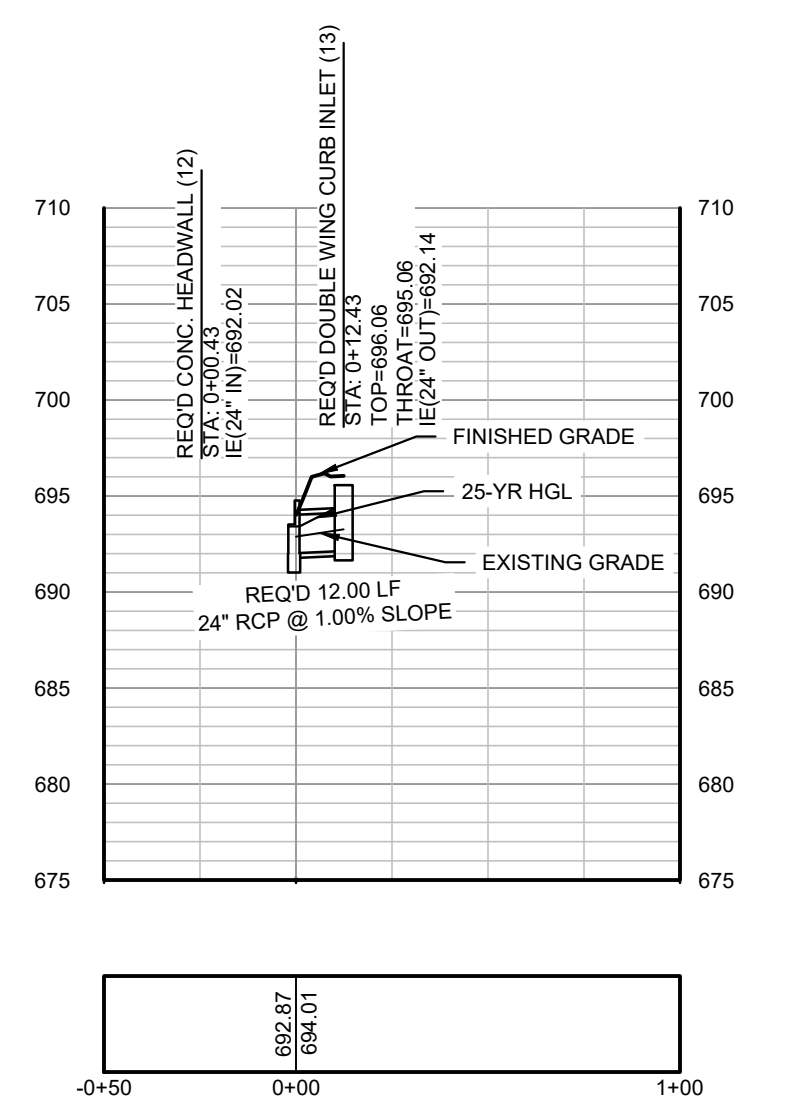
STORM LINE 2 PROFILE



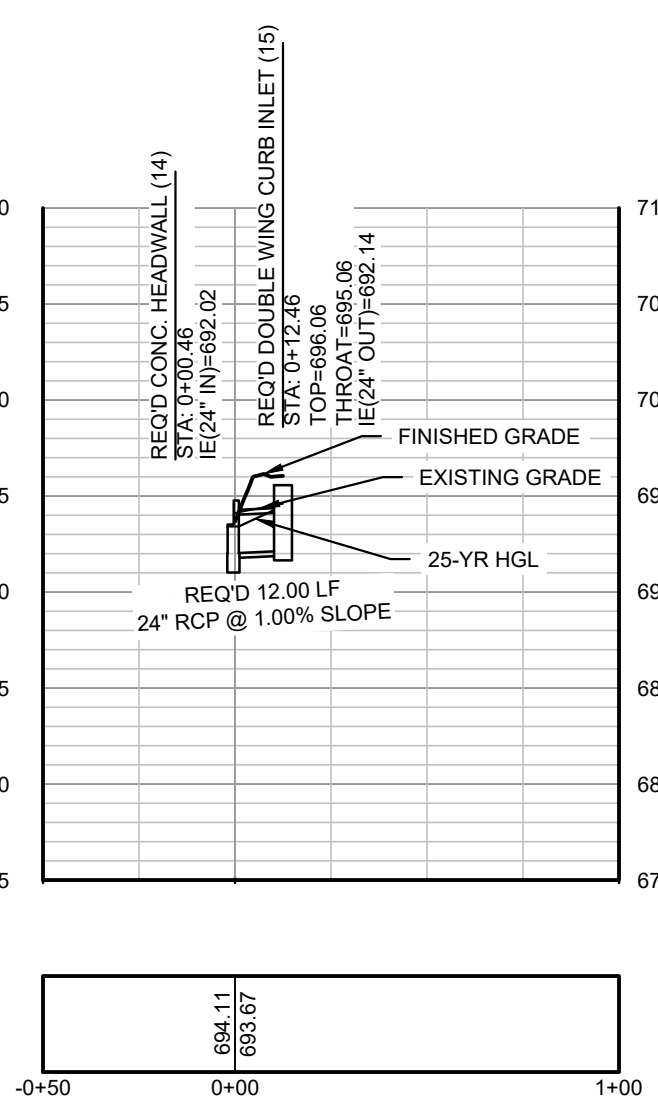
STORM LINE 3 PROFILE



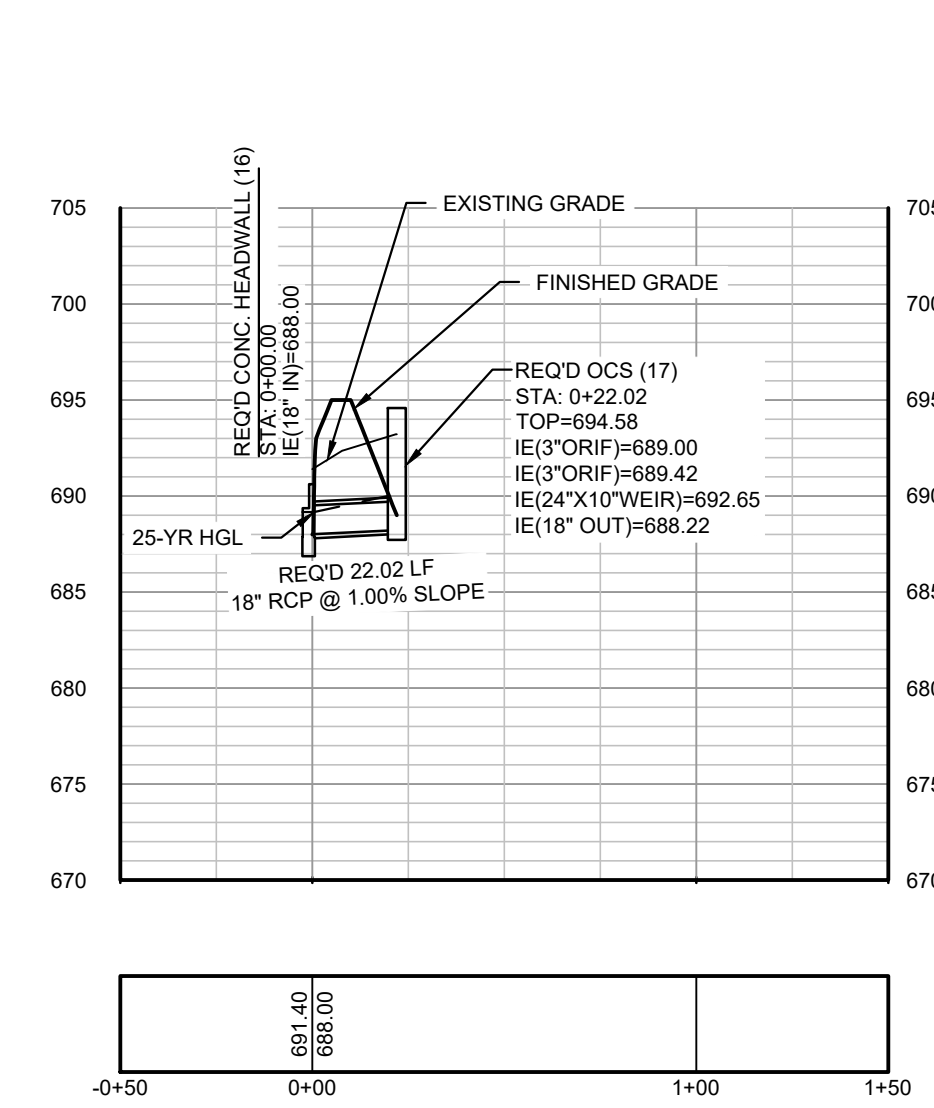
STORM LINE 4 PROFILE



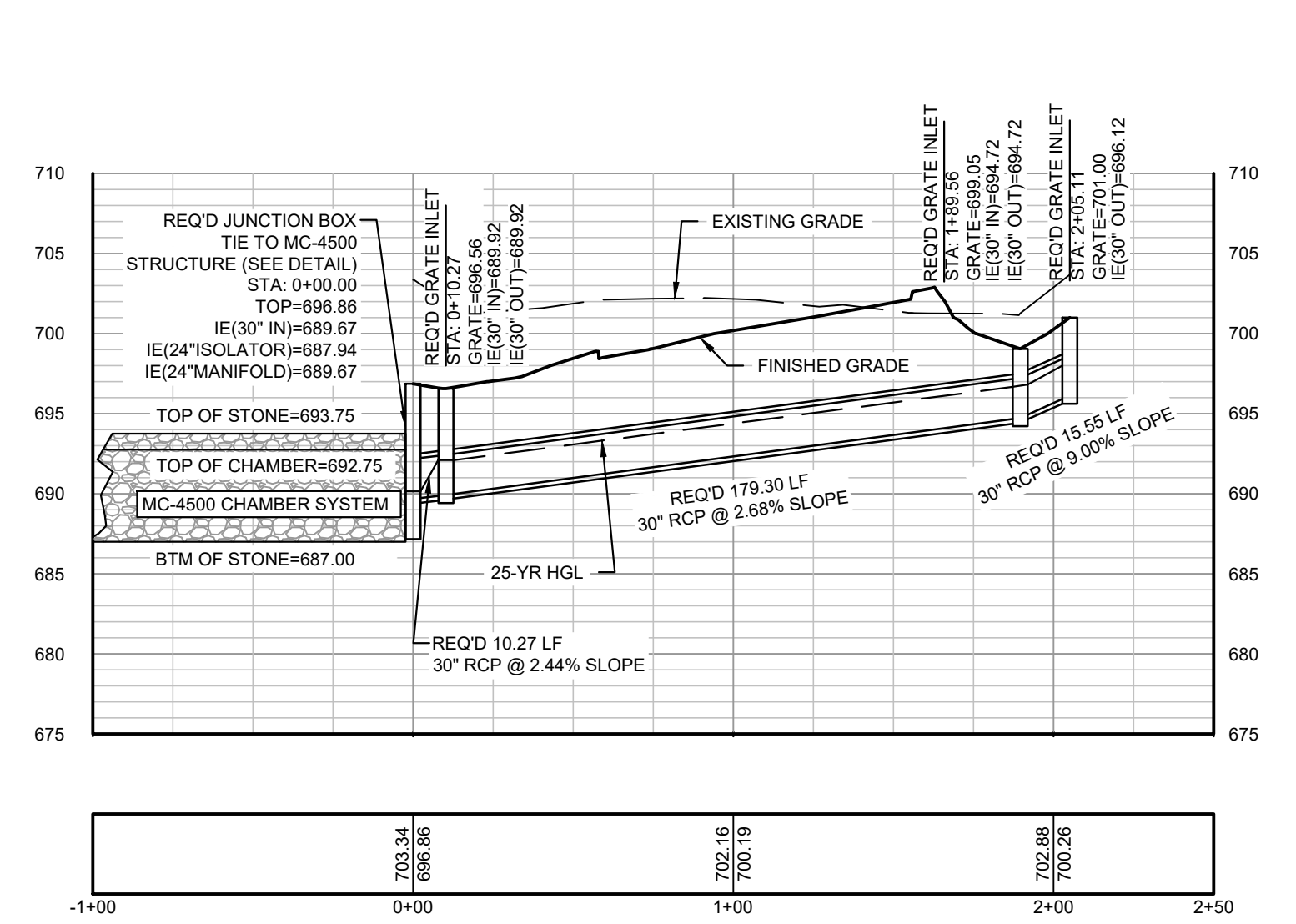
STORM LINE 5 PROFILE



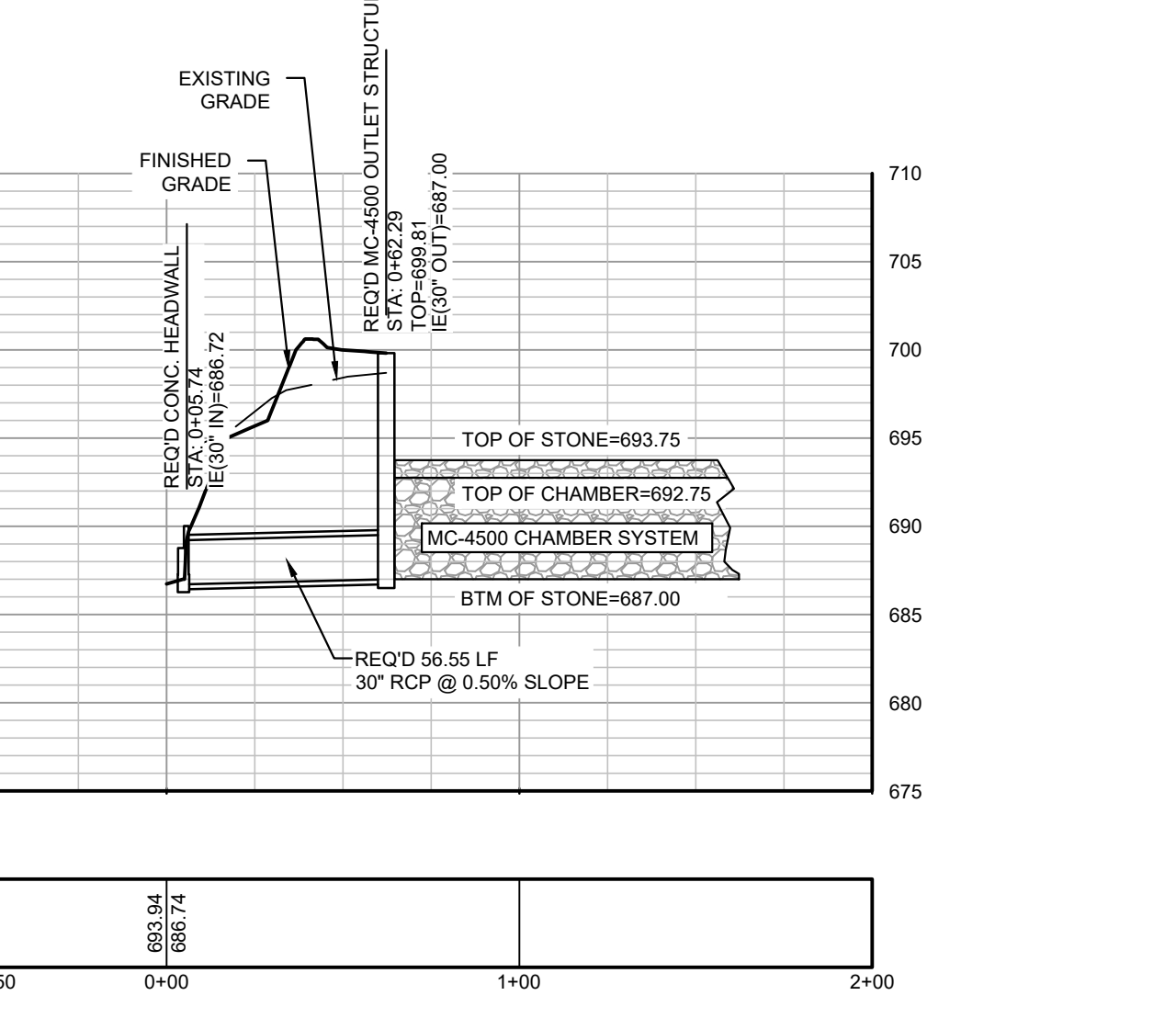
STORM LINE 6 PROFILE



STORM LINE 7 PROFILE



STORM LINE 4 ADD ALT PROFILE



OUTLET PIPE ADD ALT PROFILE

DRAINAGE PROFILES

**NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS**
HALE BOWEN DRIVE, DALTON, GA

ISSUE	DATE
PERMIT SET	6/21/2021
COUNTY COMMENTS	8/2/2021

GMC #CATL210004

DRAINAGE PROFILES

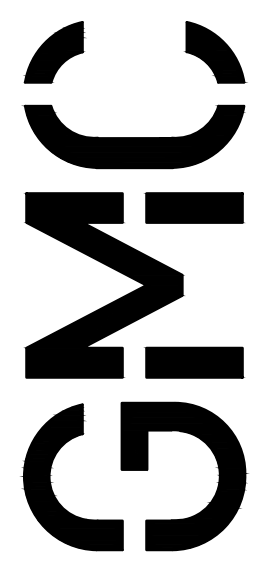
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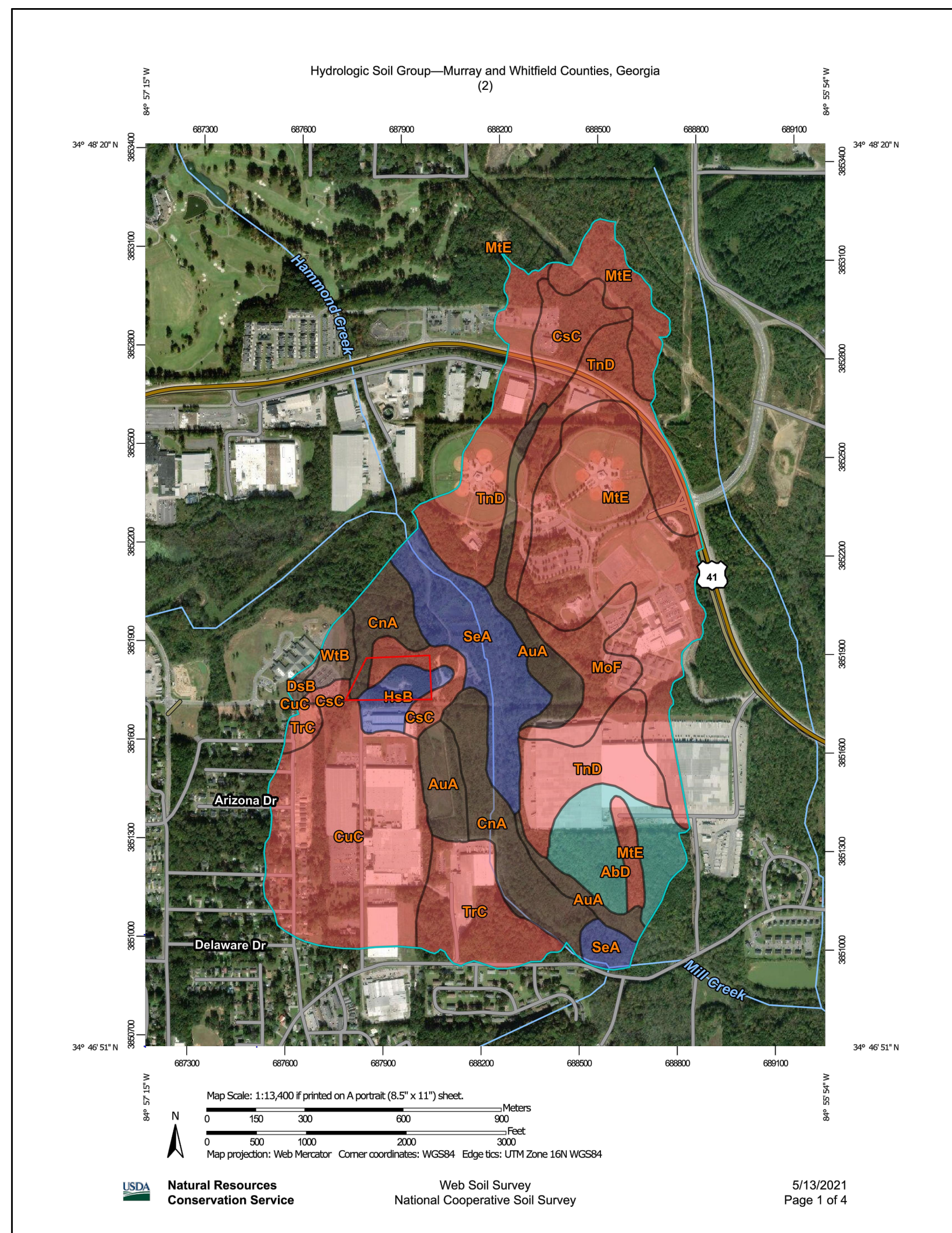


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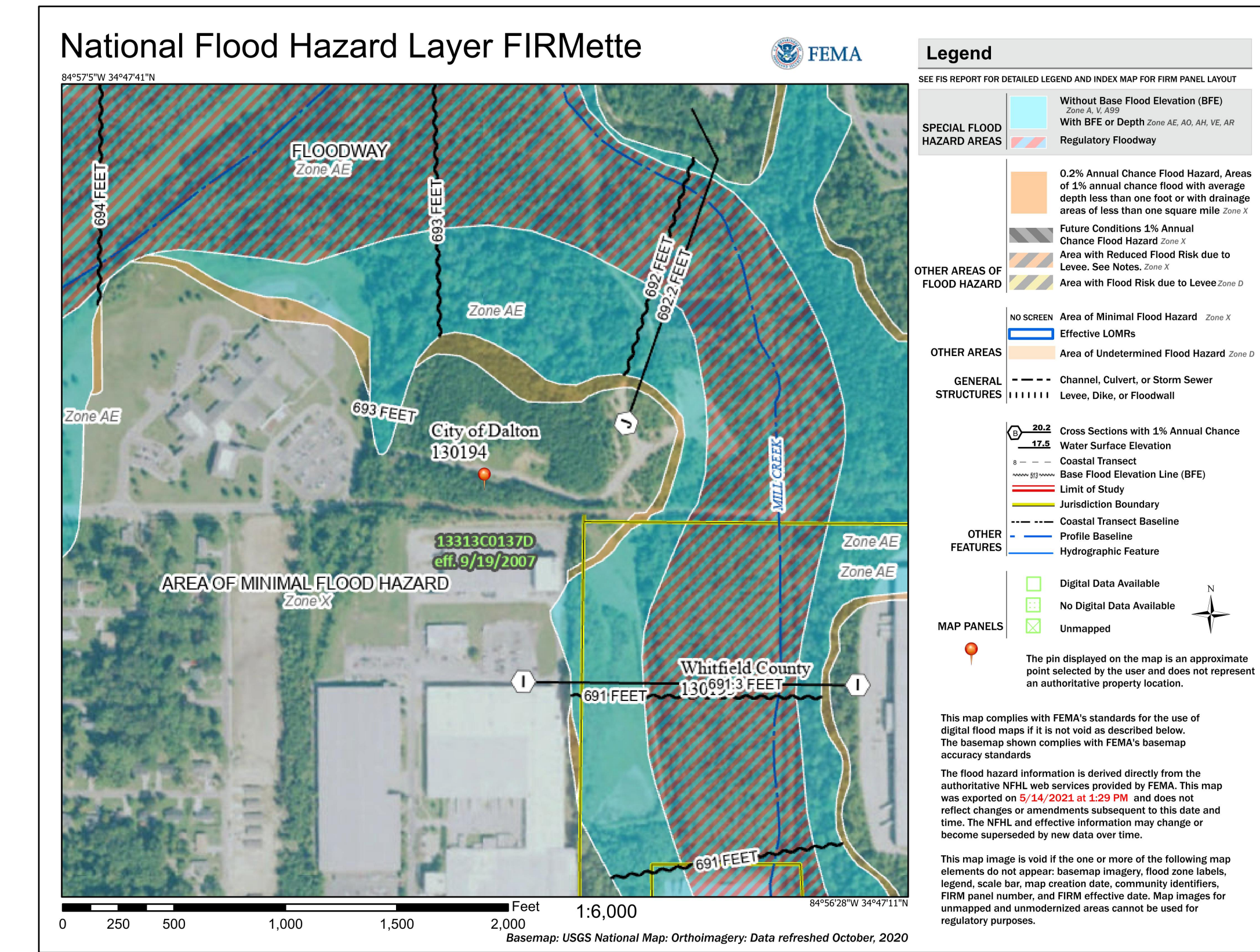
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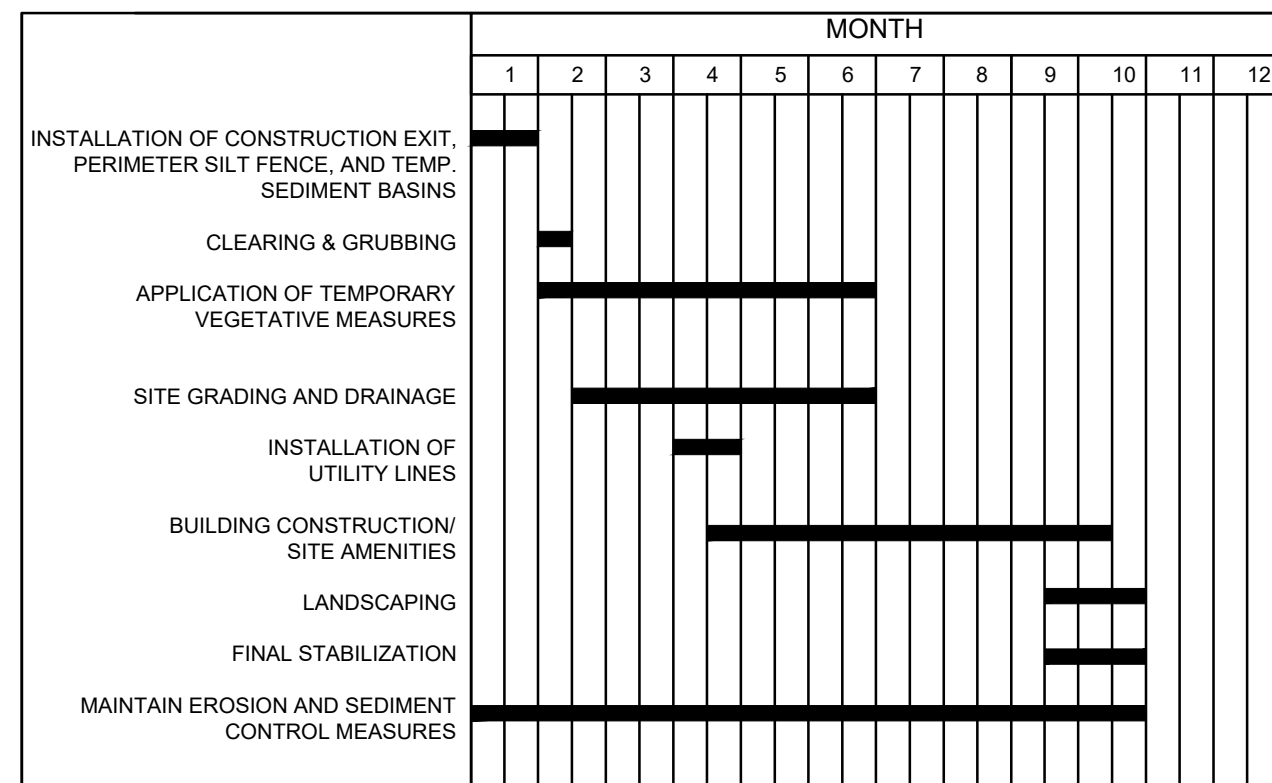


Map unit symbol	Map unit name	Rating
AbD	Alberville silt loam, 6 to 15 percent slopes	C
AuA	Arkabutla silt loam, 0 to 2 percent slopes, occasionally flooded	B/D
CnA	Chenney silt loam, 0 to 2 percent slopes, occasionally flooded	B/D
CsC	Conasauga silt loam, 6 to 10 percent slopes	D
CuC	Conasauga-Urban land complex, 2 to 10 percent slopes	D
DsB	Docena-Conasauga complex, 2 to 6 percent slopes	B/D
HsB	Holston fine sandy loam, 2 to 6 percent slopes	B
MoF	Montevallo very channery loam, 30 to 60 percent slopes	D
MIE	Montevallo-Townley complex, 15 to 30 percent slopes	D
SeA	Sheildbluff silt loam, 0 to 2 percent slopes, occasionally flooded	B
TnD	Townley silt loam, 6 to 15 percent slopes	D
TnC	Townley-Urban land complex, 2 to 15 percent slopes	D
WtB	Whitwell silt loam, 2 to 6 percent slopes	B/D

SOIL MAP



FIRMETTE



ANTICIPATED CONSTRUCTION SCHEDULE

NOTE: THE INSTALLATION OF EROSION AND SEDIMENTATION CONTROL MEASURES AND PRACTICES SHALL OCCUR PRIOR TO LAND-DISTURBING ACTIVITIES.

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Bf	BUFFER ZONE			Strip of undisturbed original vegetation, enhanced or restored existing vegetation or the reestablishment of vegetation surrounding an area of disturbance or bordering streams.
Cs	COASTAL DUNE STABILIZATION (WITH VEGETATION)			Planting vegetation on dunes that are denuded, artificially constructed, or re-nourished.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)			Establishing temporary protection for disturbed areas where seedlings may not have a suitable growing season to produce an erosion retarding cover.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMP. SEEDING)			Establishing a temporary vegetative cover with fast growing seedlings on disturbed areas.
Ds3	DISTURBED AREA STABILIZATION (WITH PERM SEEDING)			Establishing a permanent vegetative cover such as trees, shrubs, vines, grasses, or legumes on disturbed areas.
Ds4	DISTURBED AREA STABILIZATION (SOODING)			A permanent vegetative cover using sods on highly erodible or critically eroded lands.
Du	DUST CONTROL ON DISTURBED AREAS			Controlling surface and air movement of dust on construction site, roadways and similar sites.
Fl-Cq	FLOCCULANTS AND COAGULANTS			Substance formulated to assist in the solids/liquid separation of suspended particles in solution.
Sb	STREAMBANK STABILIZATION (USING PERM VEGETATION)			The use of readily available native plant materials to maintain and enhance streambanks, or to prevent, restore and repair small streambank erosion problems.
Ss	SLOPE STABILIZATION			A protective covering used to prevent erosion and establish temporary or permanent vegetation on steep slopes, shore lines, or channels.
Tac	TACKIFIERS AND BINDERS			Substance used to anchor straw or hay mulch by causing the organic material to bind together.

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Cd	CHECKDAM			A small temporary barrier or dam constructed across a swale, drainage ditch or area of concentrated flow.
Ch	CHANNEL STABILIZATION			Improving, constructing or stabilizing an open channel existing stream, or ditch.
Co	CONSTRUCTION EXIT			A crushed stone pad located at the construction site exit to provide a place for removing mud from tires thereby protecting public streets.
Cr	CONSTRUCTION ROAD STABILIZATION			A travelway constructed as part of a construction plan including access roads, subdivision roads, parking areas and other on-site vehicle transportation routes.
Dc	STREAM DIVERSION CHANNEL			A temporary channel constructed to convey flow around a construction site while a permanent structure is being constructed.
Di	DIVERSION			An earth channel or dike located above, below, or across a slope to divert runoff. This may be a temporary or permanent structure.
Dn1	TEMPORARY DOWNDRAIN STRUCTURE			A flexible conduit of heavy-duty fabric or other material designed to safely conduct surface runoff down a slope. This is temporary and inexpensive.
Dn2	PERMANENT DOWNDRAIN STRUCTURE			A paved chute, pipe, sectional conduit or similar material designed to safely conduct surface runoff down a slope.
Fr	FILTER RING			A temporary stone barrier constructed at storm drain inlets and pond outlets.
Ga	GABION			Rock filter baskets which are hand-placed into position forming soil stabilizing structures.
Gr	GRADE STABILIZATION STRUCTURE			Permanent structures installed to protect channels or waterways where otherwise the slope would be sufficient for the running water to form gullies.
Lv	LEVEL SPREADER			A structure to convert concentrated flow of water into less erosive sheet flow. This should be constructed only on undisturbed soils.
Rd	ROCK FILTER DAM			A permanent or temporary stone filter dam installed across small streams or drainageways.
Re	RETAINING WALL			A wall installed to stabilize cut and fill slopes where maximum permissible slopes are not obtainable. Each situation will require special design.
Rt	RETRO FITTING			A device or structure placed in front of a permanent stormwater detention pond outlet structure to serve as a temporary sediment filter.
Sd1	SEDIMENT BARRIER			A barrier to prevent sediment from leaving the construction site. It may be sandbags, bales of straw or hay, brush, logs and poles, gravel, or a silt fence.
Sd2	INLET SEDIMENT TRAP			An impounding area created by excavating around a storm drain drop inlet. The excavated area will be filled and stabilized on completion of construction activities.
Sd3	TEMPORARY SEDIMENT BASIN			A basin created by excavation or a dam across a waterway. The surface water runoff is temporarily stored allowing the bulk of the sediment to drop out.
Sd4	TEMPORARY SEDIMENT TRAP			A small temporary pond that drains a disturbed area so that sediment can settle out. The principle feature distinguishing a temporary sediment trap from a temporary sediment basin is the lack of a pipe or riser.
Sk	FLOATING SURFACE SKIMMER			A buoyant device that releases/drains water from the surface of sediment ponds, traps, or basins at a controlled rate of flow.
Spb	SEEP BERM			Linear control device constructed as a diversion perpendicular to the direction of runoff to enhance dissipation and infiltration, while creating multiple sedimentation chambers with the employment of intermediate dikes.
Sr	TEMPORARY STREAM CROSSING			A temporary bridge or culvert-type structure protecting a stream or watercourse from damage by crossing construction equipment.
St	STORMDRAIN OUTLET PROTECTION			A paved or short section of riprap channel at the outlet of a storm drain system preventing erosion from the concentrated runoff.
Su	SURFACE ROUGHENING			A rough soil surface with horizontal depressions on a contour or slopes left in a roughened condition after grading.
Tc	TURBIDITY CURTAIN			A floating or staked barrier installed within the water (it may also be referred to as a floating boom, silt barrier, or silt curtain).
Tp	TOPSOILING			The practice of stripping off the more fertile soil, storing it, then spreading it over the disturbed area after completion of construction activities.
Tr	TREE PROTECTION			To protect desirable trees from injury during construction activity.
Wt	VEGETATED WATERWAY OR STORMWATER CONVEYANCE CHANNEL			Paved or vegetative water outlets for diversions, terraces, berms, dikes or similar structures.

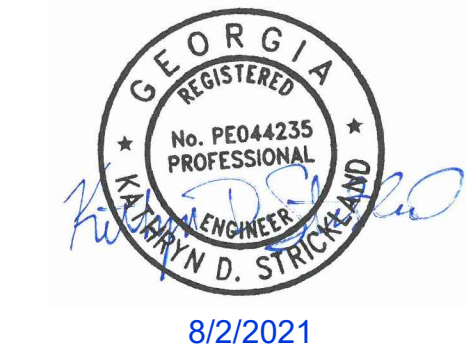
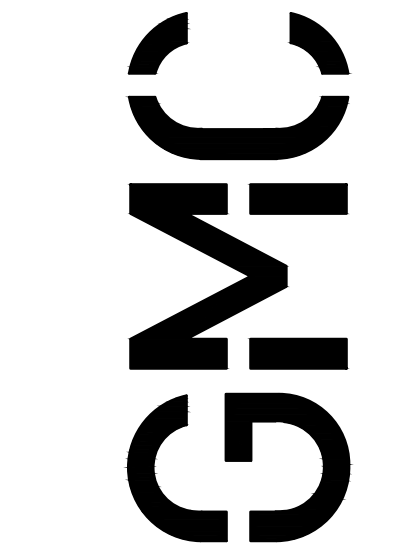
UNIFORM CODING SYSTEM FOR SOIL EROSION & SEDIMENT CONTROL PRACTICES

- NOTE:
- ALL PHASE 1 PRACTICES TO BE COMPLETED (INCLUDING THE SD3 SEDIMENT BASIN, IF ANY) PRIOR TO ANY OTHER LAND DISTURBANCE ACTIVITIES. PHASE 2 PRACTICES TO BE IMPLEMENTED AS NEEDED DURING CONSTRUCTION. PHASE 3 PRACTICES TO BE IMPLEMENTED AS SOON AS CONSTRUCTION IS COMPLETE ON DIFFERENT ASPECTS OF THE PROJECT, NOT AT END OF ALL CONSTRUCTION ACTIVITIES FOR ENTIRE SITE.
 - ALL TEMPORARY EROSION CONTROL MEASURES ARE TO BE REMOVED FROM SITE AT COMPLETION OF PROJECT OR WHEN CONTRIBUTING DRAINAGE AREA ACHIEVES FINAL STABILIZATION, UNLESS OTHERWISE NOTED, STORM DRAIN OUTLET PROTECTION AND ROCK CHECK DAMS TO REMAIN IN PERMANENT CONDITION.

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

ISSUE DATE
PERMIT SET 6/21/2021
COUNTY COMMENTS 8/2/2021

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8/2/2021

EROSION AND SEDIMENT CONTROL PLAN NOTES

C-501
Sheet of

KATHRYN STRICKLAND
LEVEL II CERTIFICATION #87240
EXPIRATION DATE 3/15/22

STORM WATER SAMPLING

SAMPLE ANALYSIS

STORM WATER SAMPLES ARE TO BE ANALYZED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40CFR PART 136 AND THE GUIDANCE DOCUMENT TITLES NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT EPA 833-B-92-001.

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) AT THE UPSTREAM AND DOWNSTREAM DRAINAGE STRUCTURE LOCATIONS INDICATED ON THE EROSION CONTROL PLANS. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN AN INCREASE IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 25 NTUS.

SAMPLE TYPE

ALL SAMPLING SHALL BE COLLECTED BY "GRAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.

PER NPDES PERMIT, GAR 100001 "SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES. SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER. LARGE MOUTH, WELL-CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED TO COLLECTING SAMPLES. THE JARS SHOULD BE CLEANSED THOROUGHLY TO AVOID CONTAMINATION. MANUAL, AUTOMATIC OF RISING STAGE SAMPLING MAY BE UTILIZED.

SAMPLING POINTS

THE SAMPLING LOCATION(S) ARE SHOWN ON THE EROSION CONTROL SHEETS. PER NPDES PERMIT GAR 100001, FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST COMPLETE ALL SAMPLING.

- IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORMWATER OUTFALL CHANNEL(S).
CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORMWATER CHANNEL.
THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
THE SAMPLINGS SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
PERMITTEES DO NOT HAVE TO SAMPLE SHEET FLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT.
ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY (INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORMWATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3. OR III.D.4. OF THE NPDES PERMIT GAR 100001, WHICHEVER IS APPLICABLE.

SAMPLING FREQUENCY

- THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW. FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE.
2. HOWEVER, WHERE MANUAL AND AUTOMATIC SAMPLING ARE IMPOSSIBLE (AS DEFINED IN THIS PERMIT), OR ARE BEYOND THE PERMITTEE'S CONTROL, THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.
3. SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:
A. FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT. AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE REPRESENTATIVE SAMPLING LOCATION.
B. IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THIS PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOT, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE REPRESENTATIVE SAMPLING LOCATION, WHICHEVER COMES FIRST.
C. AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS. UNLESS THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVENT INSPECTIONS DETERMINE THAT BMPs ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED.
D. WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A, MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS UNDER (A), (B) OR (C) ABOVE.
E. EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

"NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR MONITORING AT ANY TIME OF THE DAY OR WEEK.

REPORTING

- THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THIS PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORMWATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. SAMPLING REPORTS MUST BE SUBMITTED TO EPD USING THE ELECTRONIC SUBMITTAL SERVICE PROVIDED BY EPD. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.
2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
a. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
b. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
c. THE DATE(S) ANALYSES WERE PERFORMED;
d. THE TIME(S) ANALYSES WERE INITIATED;
e. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
f. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
g. THE RESULTS OF SUCH ANALYSES, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC USED TO DETERMINE THESE RESULTS.
h. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU," AND
i. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THIS PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT A DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI.

IF NO QUALIFYING EVENTS OCCURRED WITHIN A MONTHLY MONITORING PERIOD, A REPORT MUST BE SUBMITTED STATING SUCH ADDRESSES ARE PROVIDED BELOW:

GOVERNING AGENCY:

OWNER: CITY OF DALTON
535 ELM STREET
DALTON, GA 30722
706-278-7077

RETENTION OF RECORDS

- THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI:
a. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
b. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THIS PERMIT;
c. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THIS PERMIT;
d. A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THIS PERMIT;
e. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;
f. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THIS PERMIT; AND
g. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2). OF THIS PERMIT.
2. COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. OF THIS PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATE LOCATION UNTIL SUCH TIME AS THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

COMPLIANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS

THE CONTRACTOR WILL OBTAIN COPIES OF ANY AND ALL LOCAL AND STATE REGULATIONS THAT ARE APPLICABLE TO STORM WATER MANAGEMENT, EROSION CONTROL, AND POLLUTION MINIMIZATION AT THIS JOB SITE AND WILL COMPLY FULLY WITH SUCH REGULATIONS. THE CONTRACTOR WILL SUBMIT WRITTEN EVIDENCE OF SUCH COMPLIANCE IF REQUESTED BY THE OWNER OR ANY AGENT OF A REGULATORY BODY. THE CONTRACTOR WILL COMPLY WITH ALL CONDITIONS OF ANY AND ALL LOCAL, STATE AND FEDERAL AGENCIES HAVE GOVERNING AUTHORITY, INCLUDING THE CONDITIONS RELATED TO MAINTAINING THE ES&PC AND EVIDENCE OF COMPLIANCE WITH THE ES&PC AT THE JOB SITE AND ALLOWING REGULATORY PERSONNEL ACCESS TO THE JOB SITE AND TO RECORDS IN ORDER TO DETERMINE COMPLIANCE.

GENERAL

THIS VEGETATIVE PLAN WILL BE CARRIED OUT ON ROAD CUT AND FILL SLOPES, SHOULDERS AND CRITICAL AREAS CREATED BY CONSTRUCTION. SEEDING WILL BE DONE AS SOON AS CONSTRUCTION IN AN AREA IS COMPLETED. PLANTINGS WILL BE MADE TO CONTROL EROSION, TO REDUCE DAMAGE FROM SEEDING AND RUNOFF TO DOWNSTREAM AREAS AND TO IMPROVE THE SAFETY AND BEAUTY OF THE DEVELOPMENT AREA.

CONVENTIONAL SEEDING EQUIPMENT

GRADE, SHAPE AND SMOOTH WHERE NEEDED TO PROVIDE FOR SAFE EQUIPMENT OPERATION AT SEEDING TIME AND FOR MAINTENANCE PURPOSES. THE LIME AND FERTILIZER IN DRY FORM WILL BE SPREAD UNIFORMLY OVER THE AREA IMMEDIATELY BEFORE SEEDBED PREPARATION. A SEEDBED WILL BE PREPARED BY SCARIFYING TO A DEPTH OF 1 TO 4 INCHES AS DETERMINED ON SITE. THE SEEDBED MUST BE WELL PULVERIZED, SMOOTHED AND FIRMED. SEEDING WILL BE DONE WITH CULTIPACKER-SEEDER, DRILL, ROTARY SEEDER OR OTHER MECHANICAL OR HAND SEEDER. SEED WILL BE DISTRIBUTED UNIFORMLY OVER A FRESHLY PREPARED SEEDBED AND COVERED LIGHTLY WITHIN 24 HOURS AFTER SEEDING. STRAW OR HAY MULCH WILL BE SPREAD UNIFORMLY OVER THE AREA, LEAVING LESS THAN 10 PERCENT OF THE GROUND SURFACE EXPOSED. MULCH WILL BE SPREAD WITH BLOWER-TYPE MULCH EQUIPMENT OR BY HAND AND ANCHORED IMMEDIATELY AT IT IS SPREAD. A DISK HARROW WITH THE DISK SET OR A SPECIAL PACKER DISK MAY BE USED TO PRESS THE MULCH INTO THE SOIL. THE APPLICATION RATES ARE AS SHOWN IN THE DETAILS.

GENERAL NOTES:

- "THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN WILL INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs WITHIN SEVEN DAYS AFTER INSTALLATION."
2. "NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION OR WITHIN 25-FEET OF THE COASTAL MARSHLAND BUFFER AS MEASURED FROM THE JURISDICTIONAL DETERMINATION LINE WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS."
3. "AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL."
4. "WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT."
5. "THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES."
6. "EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE."
7. "ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING."
8. CONSTRUCTION AND BUILDING MATERIALS OR PRODUCTS WILL BE COVERED WITH TARP MATERIAL, OR SIMILAR, TO PROTECT THEM FROM AMBIENT WEATHER CONDITIONS AS NECESSARY.
9. AFTER CONSTRUCTION, EROSION AND SEDIMENTATION WILL BE MANAGED BY STABILIZED LOT CONSISTING OF PAVED DRIVES, GRASSING, LANDSCAPING, AND RECREATION FACILITIES.
10. MINIMIZING WIND EROSION AND CONTROLLING DUST WILL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:
A. COVERING 30% OR MORE OF THE SOIL SURFACE WITH NON-ERODIBLE MATERIAL
B. ROUGHENING THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND
C. FREQUENT WATERING OF EXCAVATION AND FILL AREAS
D. PROVIDING GRAVEL OR PAVING AT ENTRANCE/EXIT DRIVES
11. EROSION CONTROL AND TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY AND MAINTAINED UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
12. NO ACTIVITY SHALL BE CONDUCTED WITHIN THE DELINEATED STREAM BUFFER (IF ANY) WITHOUT PROPER VARIANCES FROM EPD AND/OR LOCAL ISSUING AUTHORITY.
13. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES WILL BE INSTALLED IF DEEMED NECESSARY BY THE ONSITE INSPECTOR.
14. EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES TO BE INSPECTED DAILY
15. CUT SLOPES ARE NOT TO EXCEED "2H:1V" FILL SLOPES ARE NOT TO EXCEED 3H:1V
16. INSPECTIONS BY QUALIFIED PERSONNEL PROVIDED BY THE PRIMARY PERMITTEE AND THE ASSOCIATED RECORDS SHALL BE KEPT ON SITE IN COMPLIANCE WITH GAR 100001.

APPENDIX B RATIONAL

Waters Supporting Warm Water Fisheries

Table with columns for Surface Water Drainage Area (square miles) and Site Size (acres). The table shows drainage area ranges from 0.4-9.9 to 500+ and site size ranges from 1.00-10 to 100.01+.

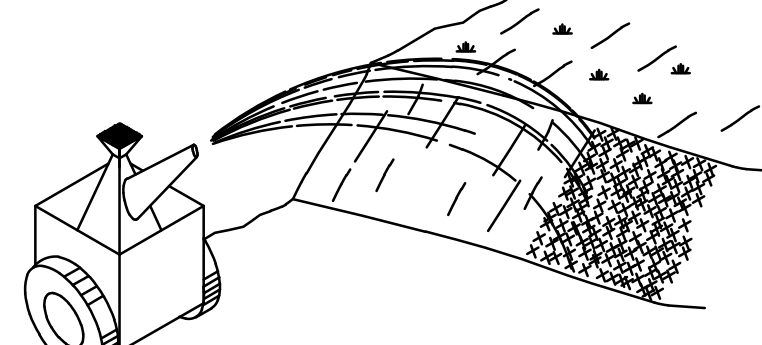
ES&PC CHECKLIST:

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST

Checklist form with columns for Item #, Y/N, and Description. Includes project information for NorthEast Community Complex Soccer Fields and a list of 52 items to be checked.

Vertical sidebar containing GMC logo, project address (6120 Powers Ferry Road NW, Suite 350), issue date (6/27/2021), county comments, and drawing information (DRAWN BY: KATHRYN D. STRICKLAND, CHECKED BY: [signature]).

A TEMPORARY COVER OVER BASE AREAS TO PREVENT EROSION AND REDUCE RUNOFF; TO CONSERVE MOISTURE; TO PREVENT SURFACE COMPACTION OR CRUSTING; TO CONTROL UNDESIRABLE VEGETATION; TO MODIFY SOIL TEMPERATURE AND TO INCREASE BIOLOGICAL ACTIVITY IN THE SOIL.



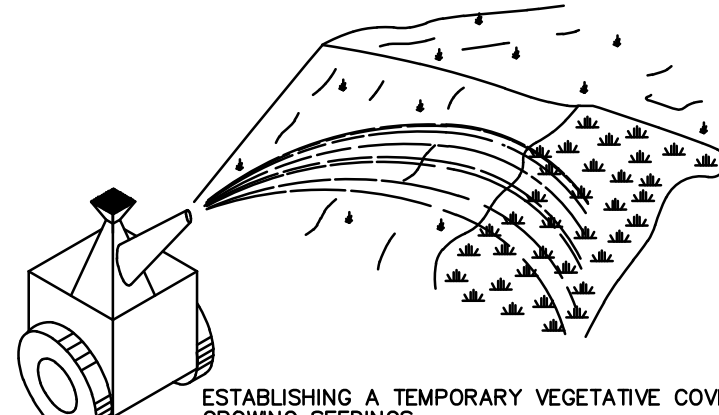
• ≤ 6 MONTHS OR WHEN SEEDING DOES NOT HAVE A SUITABLE GROWING SEASON

MATERIALS AND RATES:

MATERIAL	RATE
STRAW OR HAY	2" to 4" DEEP
WOOD WASTE, CHIPS, SAWDUST OR BARK	2"-3" DEEP (ABOUT 6 TO 9 TONS/ACRE)
POLYETHYLENE FILM	COMPLETELY COVER AREA

• MAY BE NECESSARY TO ANCHOR

Ds1 DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)



ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS

- ≤ 12 MONTHS OR UNTIL ESTABLISHMENT OF FINISHED GRADE OR PERMANENT VEGETATION
- SITE PREPARATION
 - GRADING AND SHAPING
 - SEED BED PREPARATION
 - APPLY LIME AND FERTILIZER
 - PLANT SEEDING, SELECT SPECIES BY SEASON AND REGION
 - APPLY MULCHING MATERIAL, IF NEEDED
 - IRRIGATE IF NEEDED BUT NOT AT A RATE TO CAUSE EROSION
- PLANTING DATES DEPEND ON SPECIES AND REGION (MOUNTAIN, PIEDMONT OR COASTAL)

PLANTING RATES AND PLANTING DATES FOR TEMPORARY COVER

SPECIES	RATE PER 1,000 SQ. FT.		PLANTING DATES		
	Rate	Per Acre	Mountains	Piedmont	Coastal
RYE	3.9 LB.	3 BU. (180 LBS)	7/15-12/1	8/15-1/1	9/1-3/1
RYEGRASS ANNUAL	0.9 LB.	40 LBS.	8/1-5/1	8/1-4/15	8/15-4/1
ANNUAL LESPEDEZA	0.9 LB.	40 LBS.	2/1-5/1	2/15-5/1	1/15-3/15
WEeping LOVEGRASS	0.1 LB.	4 LBS.	3/15-6/15	3/15-6/15	2/15-6/15
SUDANGRASS	1.4 LB.	60 LBS.	3/1-9/1	3/1-9/1	3/1-8/15
BROWN TOP MILLET	0.9 LB.	40 LBS.	4/1-7/1	4/1-7/15	4/1-7/15
WHEAT	4.1 LB.	3 BU. (180 LBS)	9/1-1/1	9/1-1/1	9/15-2/1

*UNUSUAL SITE CONDITIONS MAY REQUIRE HEAVY SEEDING RATES. SEEDING DATES MAY NEED TO BE ALTERED TO FIT TEMPERATURE VARIATIONS AND LOCAL CONDITIONS.

LIME AND FERTILIZER

AGRICULTURAL LIME IS REQUIRED UNLESS SOIL TESTS INDICATE OTHERWISE. APPLY AGRICULTURAL LIME AT A RATE OF ONE TON PER ACRE. GRADED AREAS REQUIRE LIME APPLICATION. SOILS CAN BE TESTED TO DETERMINE IF FERTILIZER IS NEEDED. ON REASONABLY FERTILE SOILS OR SOIL MATERIAL, FERTILIZER IS NOT REQUIRED. FOR SOILS WITH VERY LOW FERTILITY, 500 TO 700 POUNDS OF 10-10-10 FERTILIZER OR THE EQUIVALENT PER ACRE (12-16 LBS./1,000 SQ. FT.) SHALL BE APPLIED. FERTILIZER SHOULD BE APPLIED BEFORE LAND PREPARATION AND INCORPORATED WITH A DISK, RIPPER OR CHISEL.

FERTILIZER REQUIREMENTS FOR TEMPORARY VEGETATION:

Types of Species	Planting Year	Fertilizer (lb./P.A.)	Rate (lbs./acre)	N Top Dressing Rate (lbs./acre)
Cool season grasses	First	6-12-12	1500	50-100
	Second	6-12-12	1000	---
	Maintenance	10-10-10	400	30
Cool season grasses & legumes	First	6-12-12	1500	0-50
	Second	6-10-10	1000	---
	Maintenance	6-10-10	400	---
Temporary cover crops seeded alone	First	10-10-10	500	30
Warm season grasses	First	6-12-12	1500	50-100
	Second	6-12-12	800	50-100
	Maintenance	10-10-10	400	30

Ds2 (Ds2) DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDINGS)

PURPOSE:
1. TO PREVENT THE MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES
2. PREVENT THE MOVEMENT OF AIRBORNE SUBSTANCES THAT MAY BE HARMFUL TO HEALTH.

INSTALLATION:
1. APPLY ACCORDINGLY TO APPROVED PLAN, IF SHOWN.
2. MULCH DISTURBED AREAS AND TACKIFY WITH RESINS SUCH AS ASPHALT, QUIKSOIL OR TERRA-TACK ACCORDING TO MANUFACTURER'S RECOMMENDATIONS
3. STABILIZE DISTURBED AREAS WITH TEMPORARY OR PERMANENT VEGETATION.
4. IRRIGATE DISTURBED AREAS UNTIL SURFACE IS WET.
5. COVER SURFACES WITH CRUSHED STONE OR GRAVEL.
6. APPLY CALCIUM CHLORIDE AT A RATE TO KEEP SURFACE MOIST.
7. APPLY SPRAY-ON ADHESIVES TO MINERAL SOILS (NOT MUCK SOILS) AS DESCRIBED IN TABLE 1

TABLE 1

	7:1	COARSE SPRAY	1,200
ANIONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1,200
LATEX EMULSION	12.5:1	FINE SPRAY	235
RESIN-IN-WATER EMULSION	4:1	FINE SPRAY	300

MAINTENANCE:
1. PROHIBIT TRAFFIC ON SURFACE AFTER SPRAYING.
2. SUPPLEMENTAL SURFACE COVERING AS NEEDED.

Du DUST CONTROL ON DISTURBED AREAS

ESTABLISHING A PERMANENT VEGETATIVE COVER AS A DISTURBED AREA



* APPLICABLE ON HIGHLY ERODIBLE OR SEVERELY ERODED AREAS, SOMETIMES CALLED "CRITICAL AREAS" INCLUDING:
• CUT OR FILL SLOPES
• EARTH SPILLWAYS
• BORROW AREAS
• CHANNEL BANKS
• BERMS
• ROADSIDES
• SPILL AREAS
• GULLED LANDS

* GRADING AND SHAPING REQUIRED WHERE FEASIBLE AND PRACTICAL
* SEED BED PREPARATION
* NOT REQUIRED IF USING HYDRAULIC SEEDING AND FERTILIZING
* WHEN REQUIRED

SLOPE SEED BED
3:1 OR FLATTER 2" DEEP
2:1 TO 3:1 1" to 4" DEEP
2:1 OR STEEPER DEPRESSIONS EVERY 6" TO 8" APART WITH HAND TOOL
* HAVE SOIL ANALYZED FOR LIME AND FERTILIZER RATE
* MULCH SHALL BE APPLIED TO COVER 90% OF THE SOIL SURFACES.
* ANCHOR MULCH IMMEDIATELY

PERMANENT GRASSING

GRASS SEED ON LEVEL OR SLIGHTLY SLOPING GROUND SHALL CONSIST OF THE FOLLOWING FOR THE PLANTING DATES SPECIFIED:
(A) MARCH 1 TO JUNE 30
COMMON BERMUUDA (HULLED) 10 LBS./ACRE
TALL FESCUE 50 LBS./ACRE
(B) AUGUST 1 TO NOVEMBER 1
TALL FESCUE 50 LBS./ACRE
COMMON BERMUUDA (UNHULLED) 10 LBS./ACRE
(C) NOVEMBER 1 TO MARCH 1
COMMON BERMUUDA (UNHULLED) 10 LBS./ACRE

PERMANENT GRASSING

GRASS SEED ON LEVEL OR SLOPES 3:1 OR STEEPER AND INFREQUENTLY MOWED AREAS SHALL CONSIST OF THE FOLLOWING FOR THE PLANTING DATES SPECIFIED:
(A) MARCH 1 TO JUNE 15
WEeping LOVEGRASS 4 LBS./ACRE
SERICEA LESPEDEZA (SCARIFIED) 60 LBS./ACRE
(B) AUGUST 1 TO NOVEMBER 1
TALL FESCUE 50 LBS./ACRE
SERICEA LESPEDEZA (UNSCARIFIED) 75 LBS./ACRE
(C) NOVEMBER 1 TO MARCH 1
COMMON BERMUUDA (UNHULLED) 10 LBS./ACRE
SERICEA LESPEDEZA (UNSCARIFIED) 75 LBS./ACRE

WHEN AS DIRECTED BY THE ENGINEER, SEED OF AN APPROVED QUICK GROWING SPECIES OF GRASS, SUCH AS RYE, ITALIAN RYE, MILLET OR OTHER CEREAL GRASS, SHALL BE APPLIED AT A RATE OF 30 LBS./ACRE IN CONJUNCTION WITH LIME AND FERTILIZER RATE.

FERTILIZER
COMMERCIAL FERTILIZER SHALL COMPLY WITH THE STATE FERTILIZER LAWS AND SHALL BE OF AN ACCEPTED AND APPROVED COMMERCIAL BRAND. FERTILIZER SHALL BE A READY MIXED MATERIAL CONTAINING THE SOIL NUTRIENTS AS SPECIFIED AND IN A SUITABLE FORM COMPATIBLE WITH THE EQUIPMENT USED TO ACHIEVE UNIFORM DISTRIBUTION OF THE FERTILIZER. THE FERTILIZER MIXTURE SHALL CONTAIN THE FOLLOWING NUTRIENTS EXPRESSED IN PERCENT OF THE TOTAL WEIGHT: 6% NITROGEN 12% AVAILABLE PHOSPHORIC ACID, AND 12% WATER SOLUBLE POTASH (6-12-12) ANALYSIS. CONTAINER TAGS SHALL HAVE THE NAME AND ADDRESS OF THE MANUFACTURER, THE BRAND NAME, NET WEIGHT, AND CHEMICAL COMPOSITION OF ANALYSIS. FERTILIZER SHALL BE APPLIED AT THE RATE OF 1,500 LBS PER ACRE AT THE TIME OF SEEDING.

LIME
AGRICULTURAL DOLOMITE LIME SHALL BE A PULVERIZED LIMESTONE HAVING A CALCIUM CARBONATE EQUIVALENT CONTENT OF NOT LESS THAN 90% OF THE TOTAL MATERIAL SHALL PASS A 10-MESH SIEVE AND AT LEAST 25% SHALL PASS A 100-MESH SIEVE. LIME SHALL BE APPLIED AS INDICATED BY THE SOIL TEST, OR THE RATE OF 1 TO 2 TONS PER ACRE.

WATER
THE WATER USED IN THE GRASSING OPERATIONS MAY BE OBTAINED FROM ANY APPROVED SPRING, POND, LAKE, STREAM, OR MUNICIPAL WATER SYSTEM. THE WATER SHALL BE FREE OF EXCESS AND HARMFUL CHEMICALS, ACIDS, ALKALIZES, OR ANY SUBSTANCE WHICH MIGHT BE HARMFUL TO PLANT GROWTH.

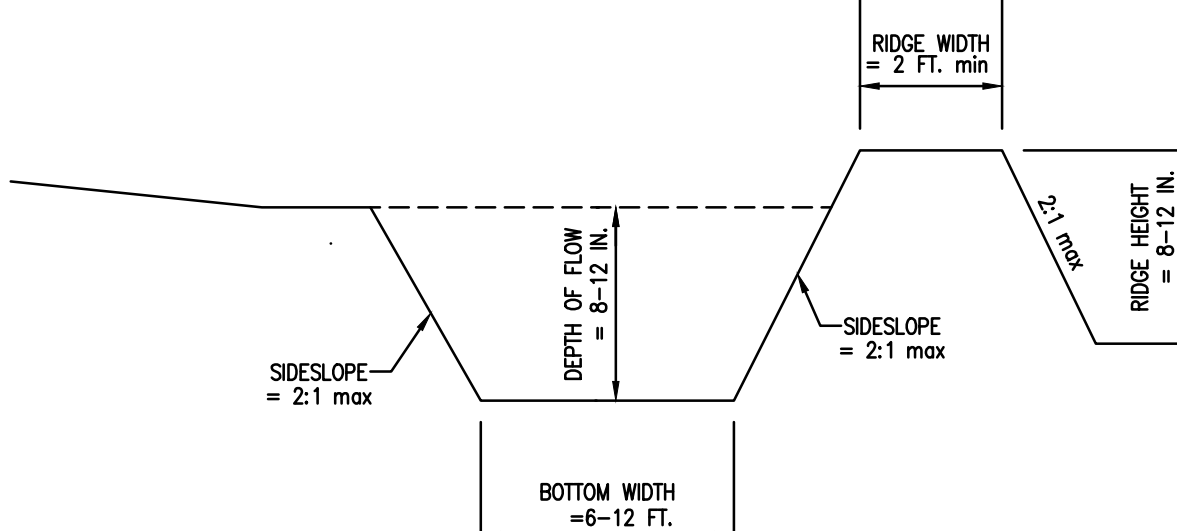
WATERING MAINTENANCE AND RESEEDING
CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE PROPER MOISTURE CONTENT OF THE SOIL TO INSURE ADEQUATE PLANT GROWTH UNTIL A SATISFACTORY STAND OF GRASS IS OBTAINED. WATERING SHALL BE PERFORMED TO MAINTAIN AN ADEQUATE WATER CONTENT IN THE SOIL.

THE CONTRACTOR SHALL MOW AND MAINTAIN ALL SEEDING AREAS WITHOUT ADDITIONAL PAYMENT UNTIL FINAL ACCEPTANCE OF THE WORK BY THE OWNER AND ANY REGRADING, REFERTILIZING, RELIMING, RESEEDING OR REMULCHING SHALL BE DONE AT HIS OWN EXPENSE. SEEDING WORK SHALL BE REPEATED ON DEFECTIVE AREAS UNTIL A SATISFACTORY UNIFORM STAND OF GRASS IS ACCOMPLISHED. DAMAGE RESULTING FROM EROSION, GULLIES, WASHOUTS, OR OTHER CAUSES SHALL BE REPAIRED BY FILLING WITH TOPSOIL, COMPACTING, AND PREPARING THE SEEDING WORK AT HIS EXPENSE.

EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. ADDITIONAL EROSION AND SEDIMENT CONTROL WILL BE INSTALLED IF DEEMED NECESSARY BY ON-SITE INSPECTION.

THE INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES SHALL BE INSTALLED PRIOR TO COMMENCING WITH LAND DISTURBING ACTIVITIES.

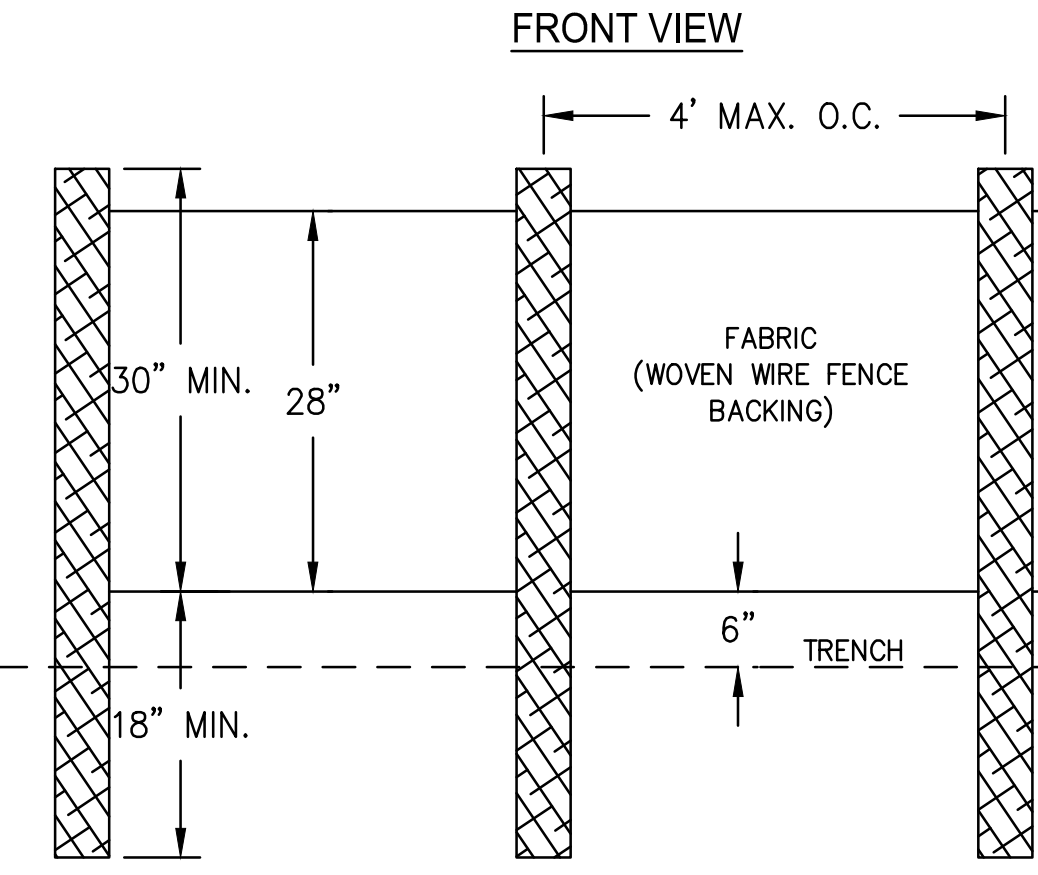
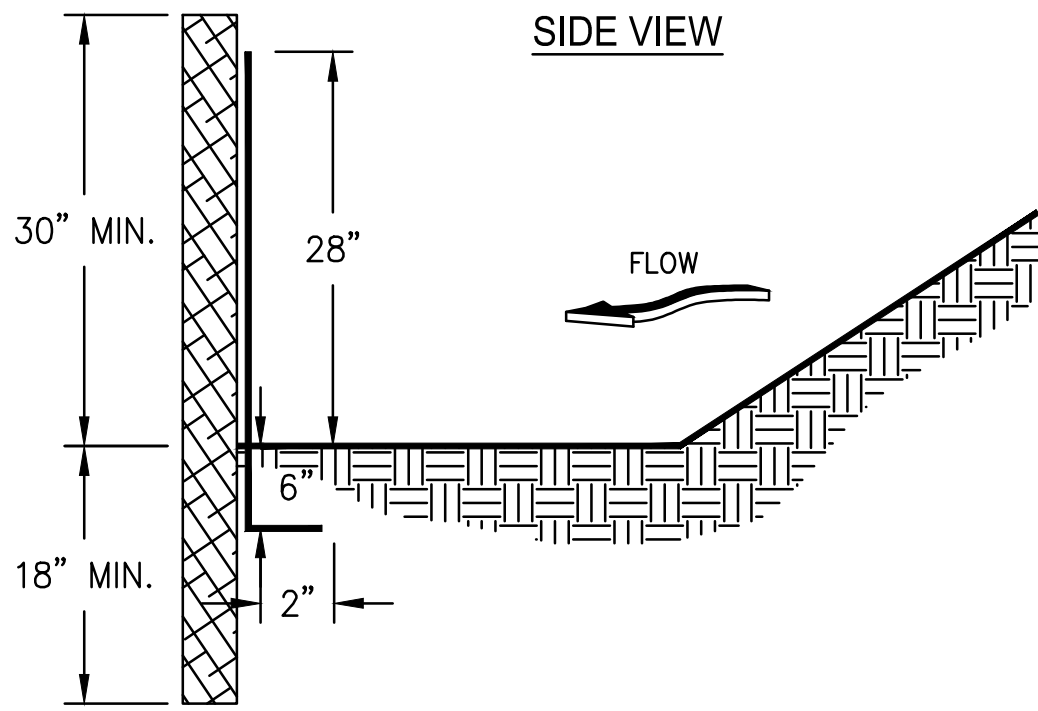
Ds3 (Ds3) DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)



CONSTRUCTION SPECIFICATIONS
1. All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the diversion.
2. The diversion shall be excavated or shaped to line, grade, and cross section as required to meet the criteria specified herein and free of irregularities which will impede normal flow.
3. All fills shall be machine compacted as needed to prevent unequal settlement that would cause damage in the completed diversion.
4. All earth removed and not needed in construction shall be spread or disposed of so that it will not interfere with the functioning of the diversion.
5. Diversion channel shall be stabilized in accordance with specification Ch - Channel Stabilization.

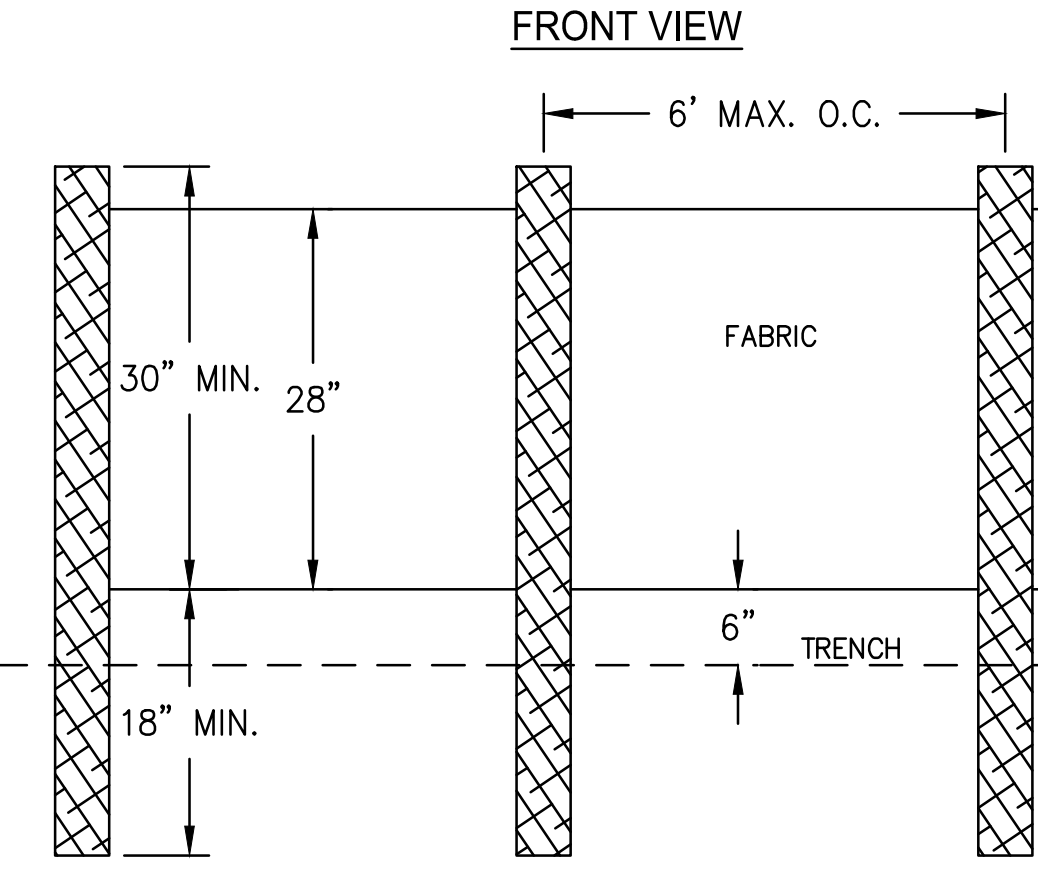
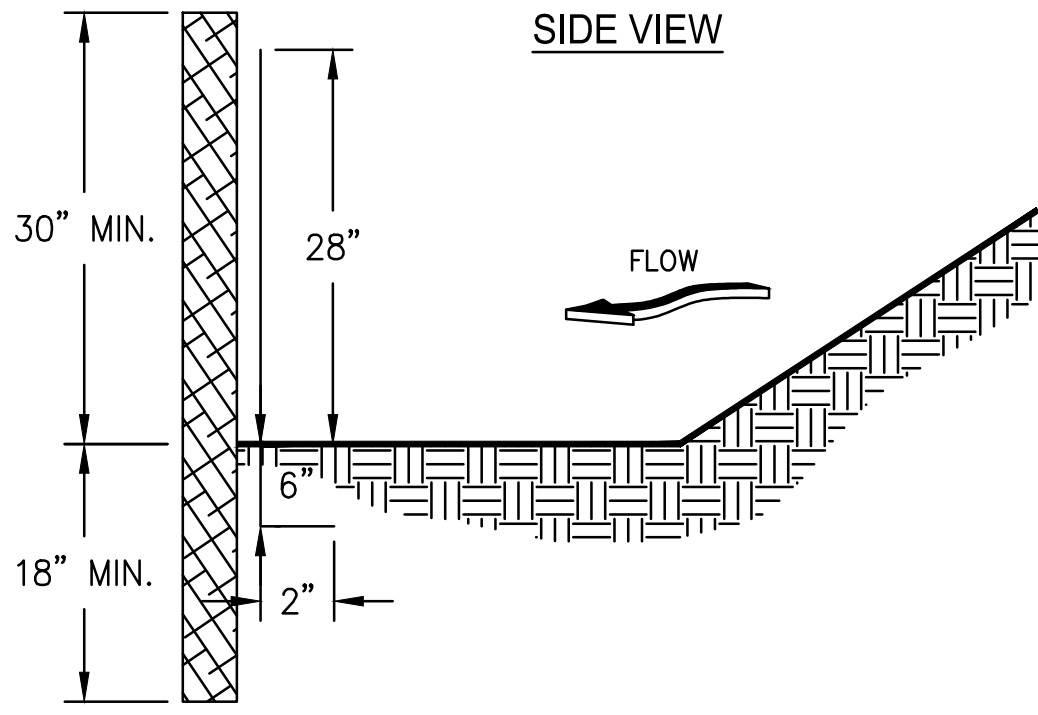
Di DIVERSION

SILT FENCE - TYPE SENSITIVE



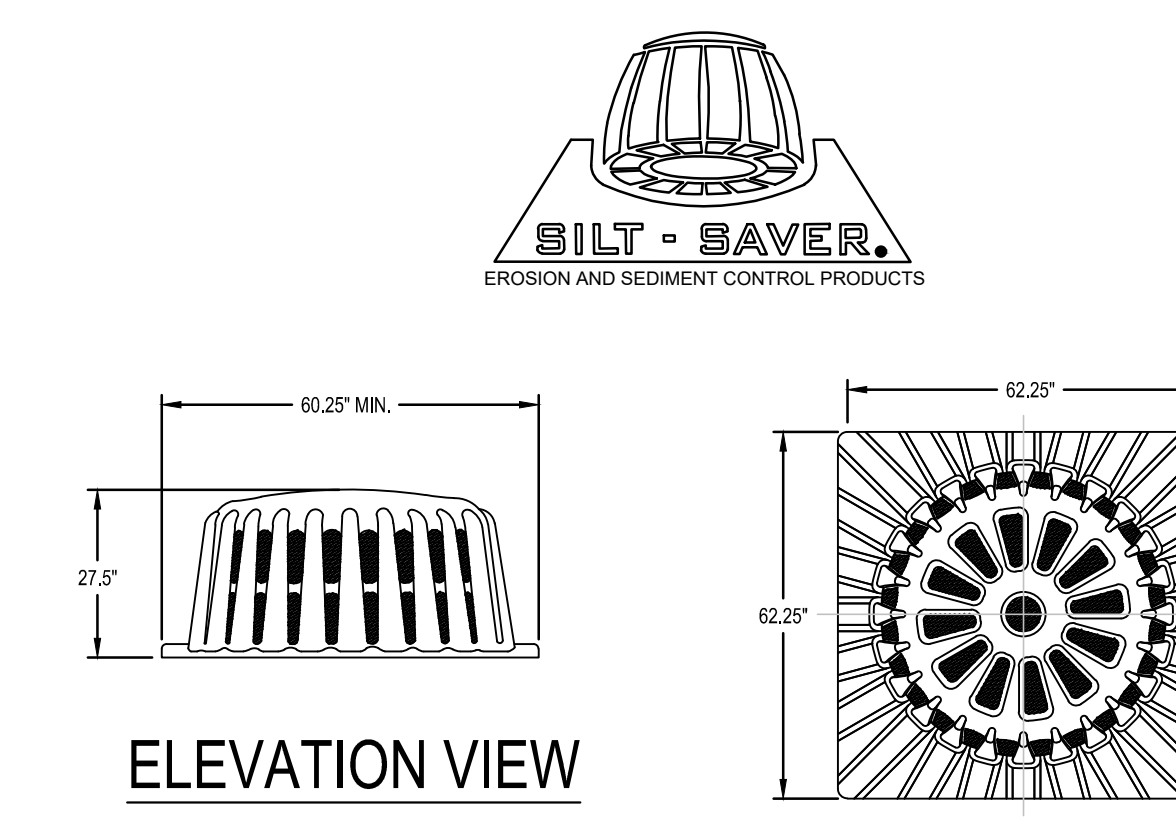
NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

SILT FENCE - TYPE NON-SENSITIVE

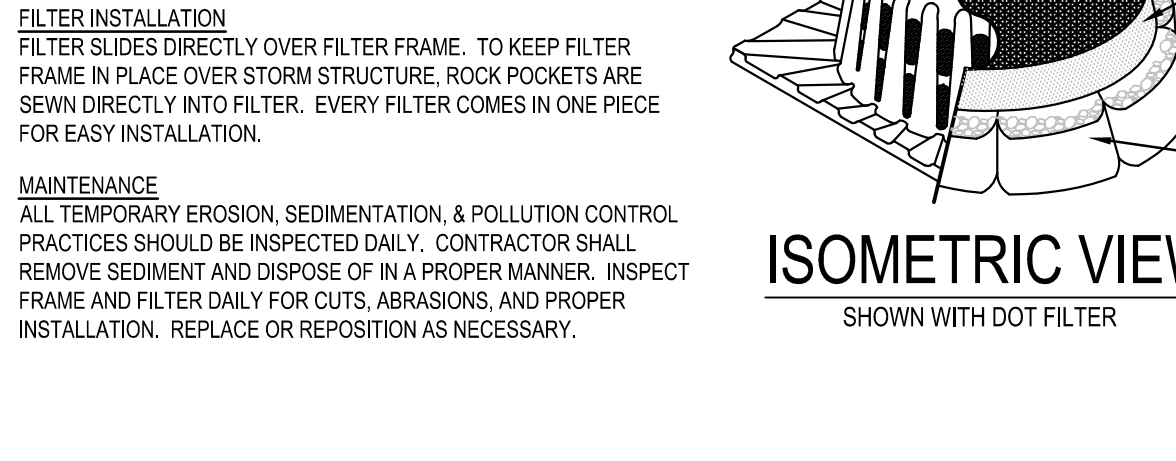


NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
2. HEIGHT (*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

Sd1 SEDIMENT BARRIER (Sd1-S) TYPE SENSITIVE (Sd1-NS) TYPE NON-SENSITIVE

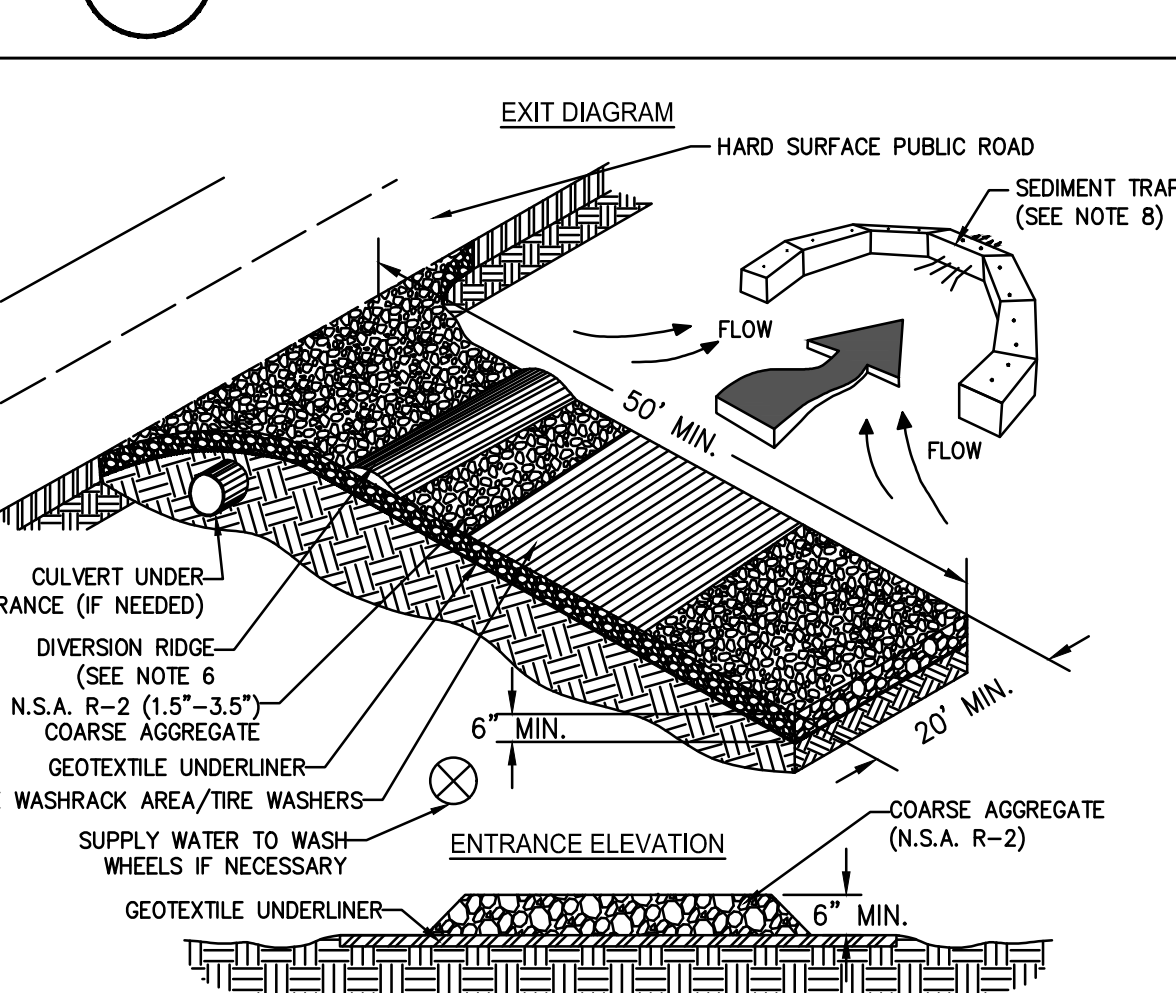


FRAME MATERIAL: BLACK 0.25" HWMP
FILTER FABRIC MATERIAL: REFER TO SPEC
SCALE: NOT TO SCALE
LAST UPDATED: AUGUST 2019



REPLACEMENT FILTERS: MODEL # S-240HF OR S-240 DT
SQUARE FRAME & FILTER ASSEMBLY
Model # S-200A AKA "SS-200A (Square)"
62" X 62"

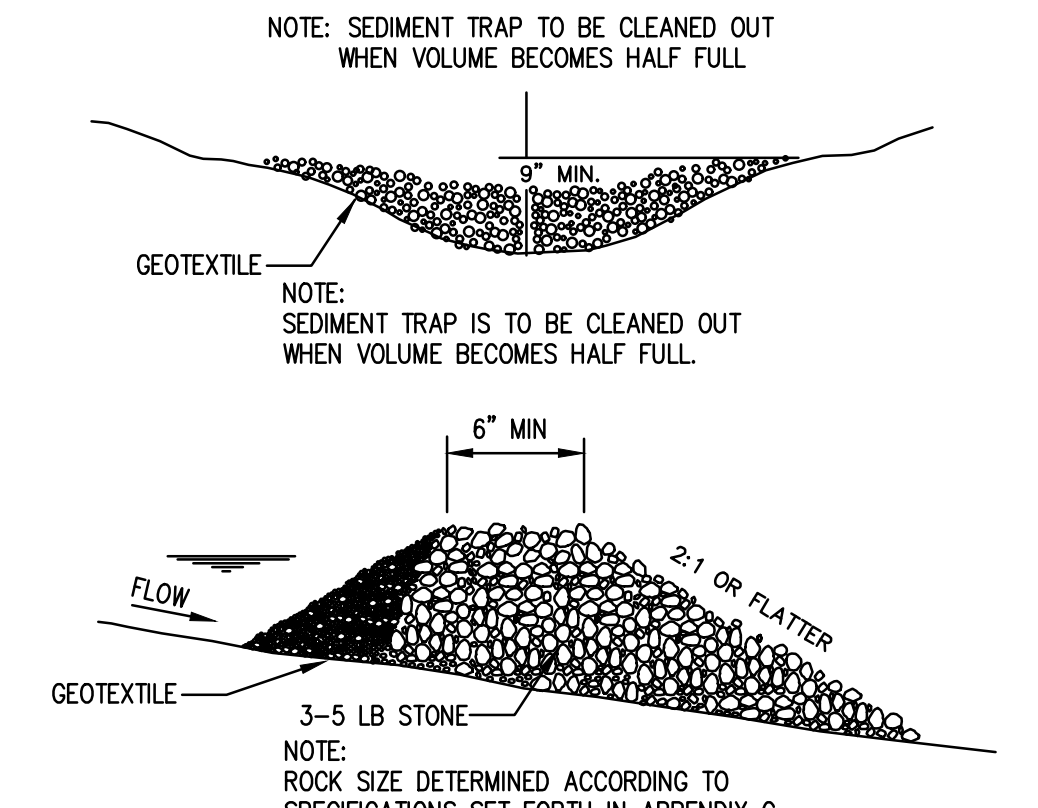
Sd2 INLET SEDIMENT TRAP



NOTES:
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20".
6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

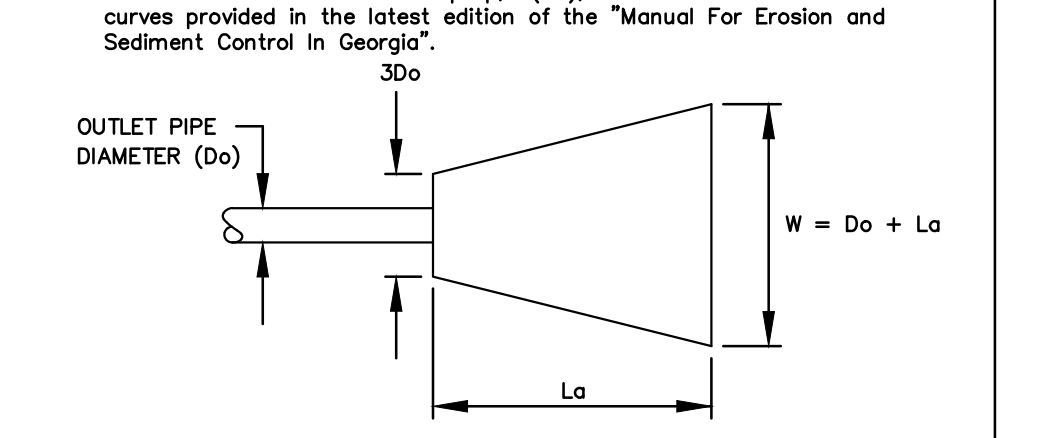
Co TEMPORARY CONSTRUCTION EXIT

CONSTRUCTION SPECIFICATIONS
MECHANICAL OR HAND PLACEMENT WILL BE REQUIRED TO ENSURE THAT THE ROCK DAM EXTENDS COMPLETELY ACROSS THE CHANNEL AND SECURELY TIES INTO BOTH CHANNEL BANKS. THE CENTER OF THE DAM MUST BE NO LESS THAN SIX INCHES LOWER THAN THE LOWEST SIDE, TO SERVE AS A TYPE OF WEIR. GABIONS CAN BE INSTALLED TO SERVE AS ROCK FILTER DAMS, BUT SHOULD FOLLOW RECOMMENDED SIZING AND INSTALLATION SPECIFICATIONS. REFER TO SPECIFICATION GA-GABION.



Rd ROCK FILTER DAM

NOTE:
ROCK SIZE DETERMINED ACCORDING TO SPECIFICATIONS SET FORTH IN APPENDIX C.



St STORM DRAIN OUTLET PROTECTION



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ISSUE / DATE

ISSUE	DATE
PERMIT SET	6/27/2021
COUNTY COMMENTS	8/2/2021

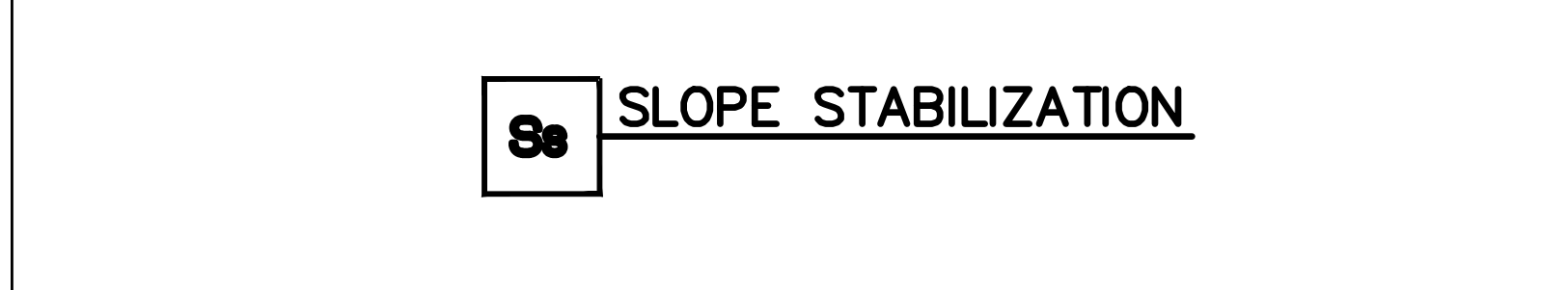
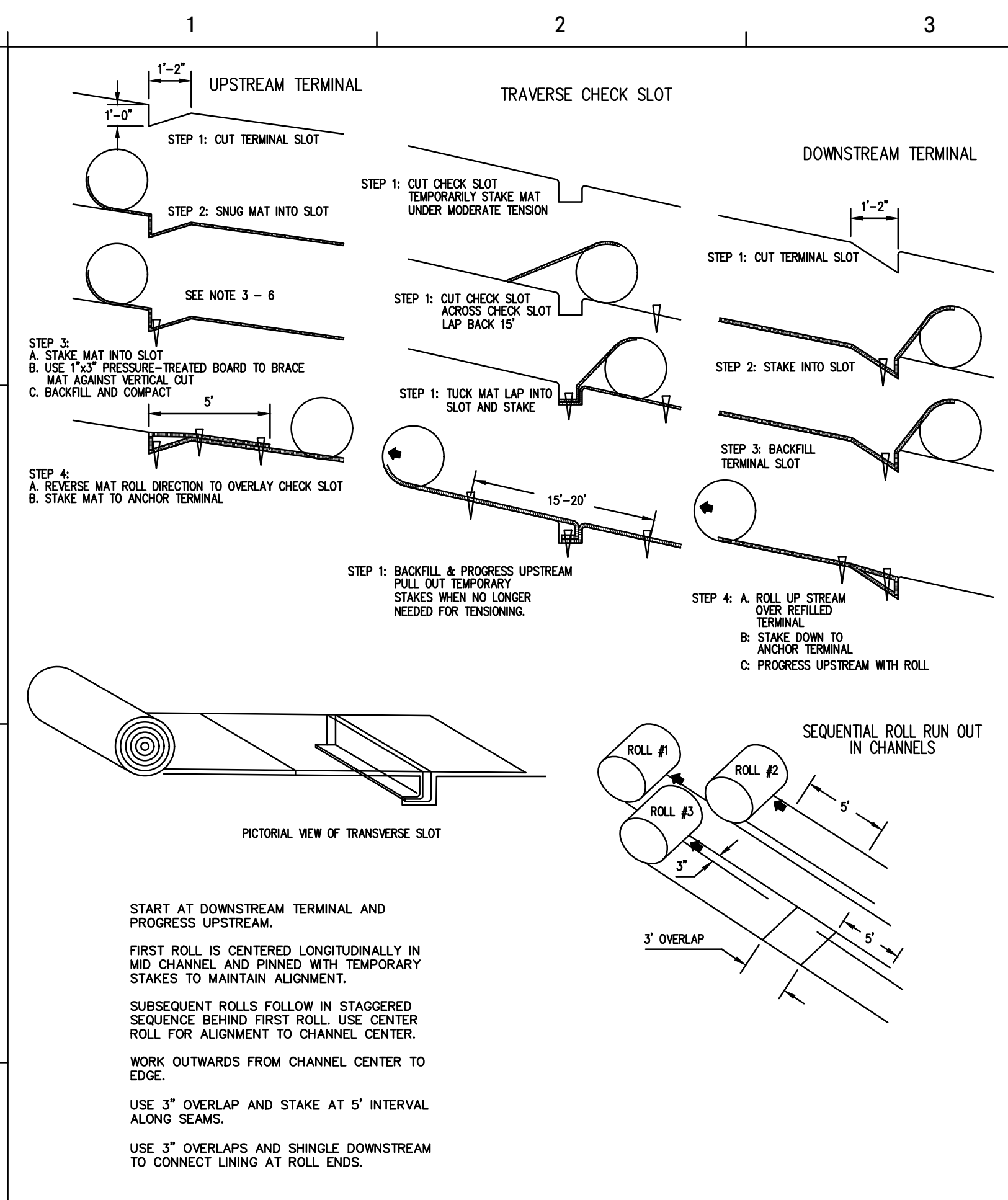
NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA
GMC #CATL210004



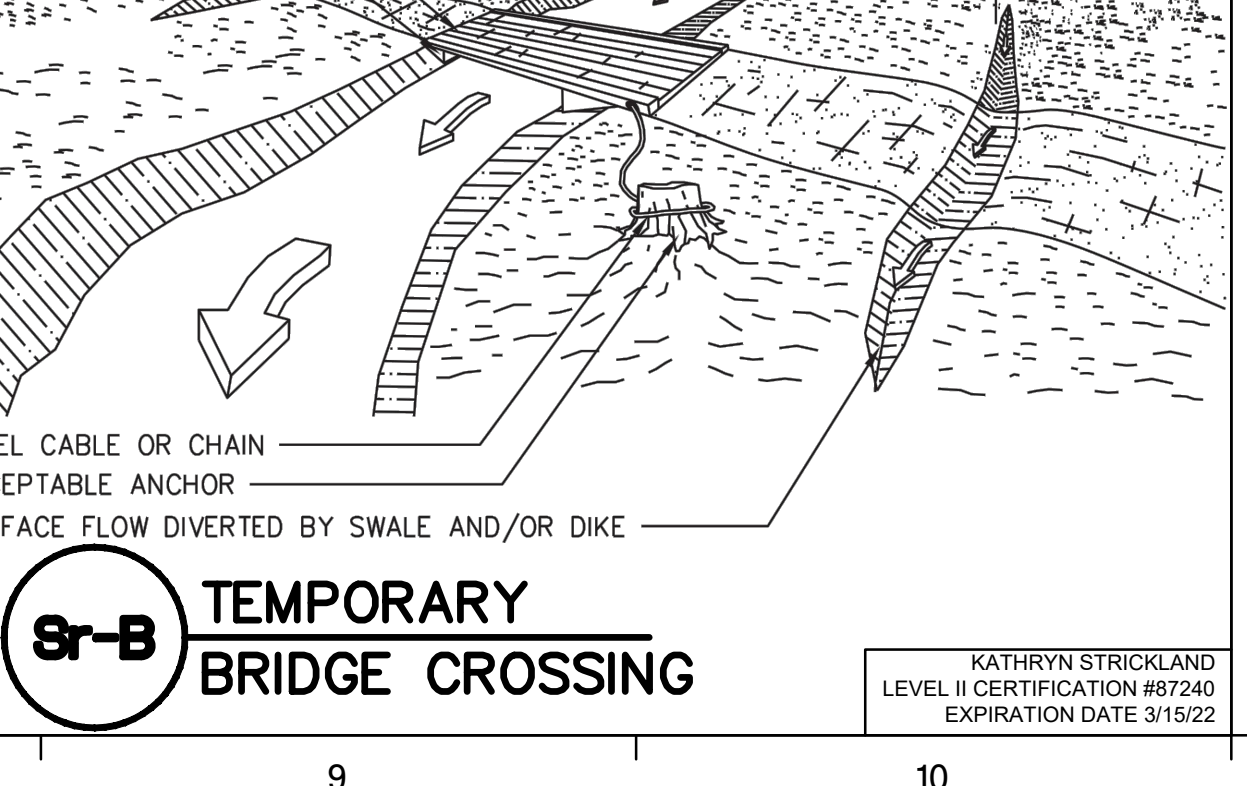
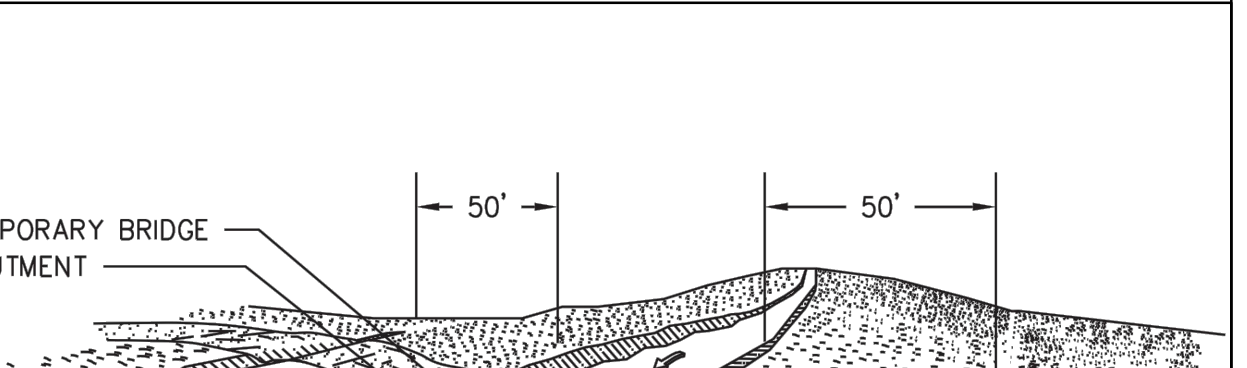
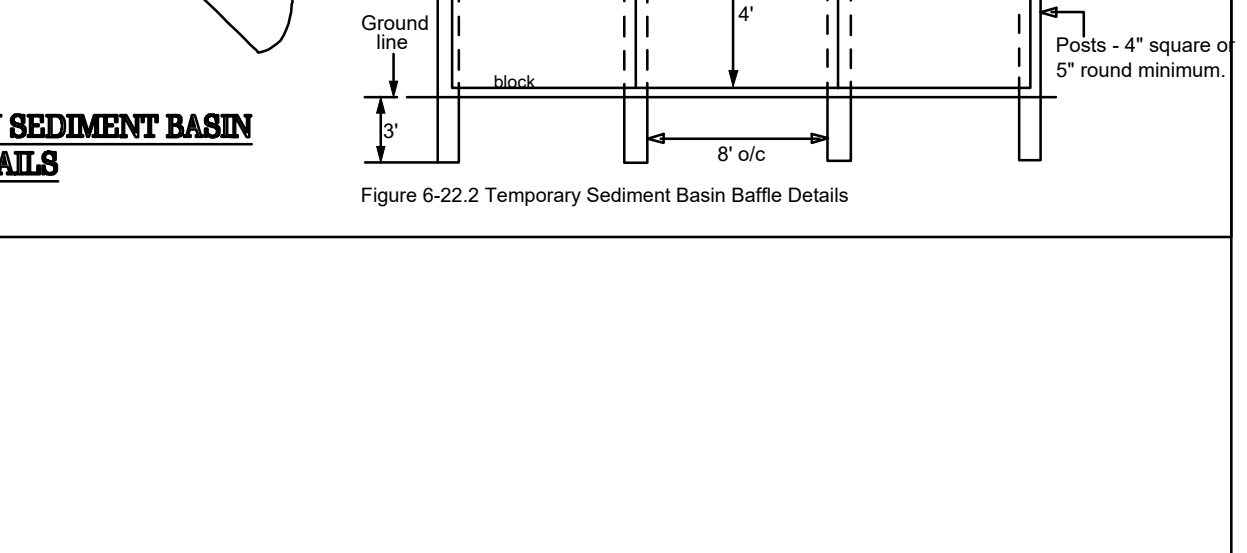
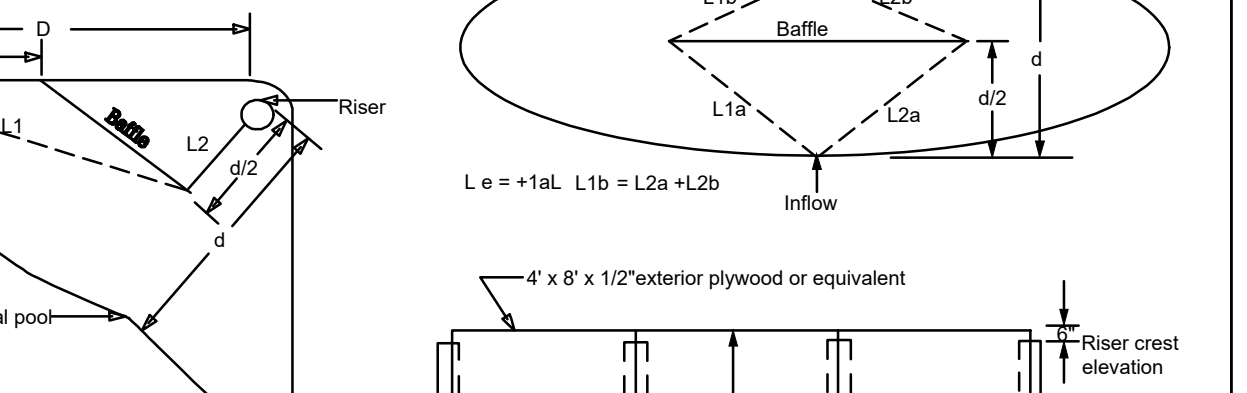
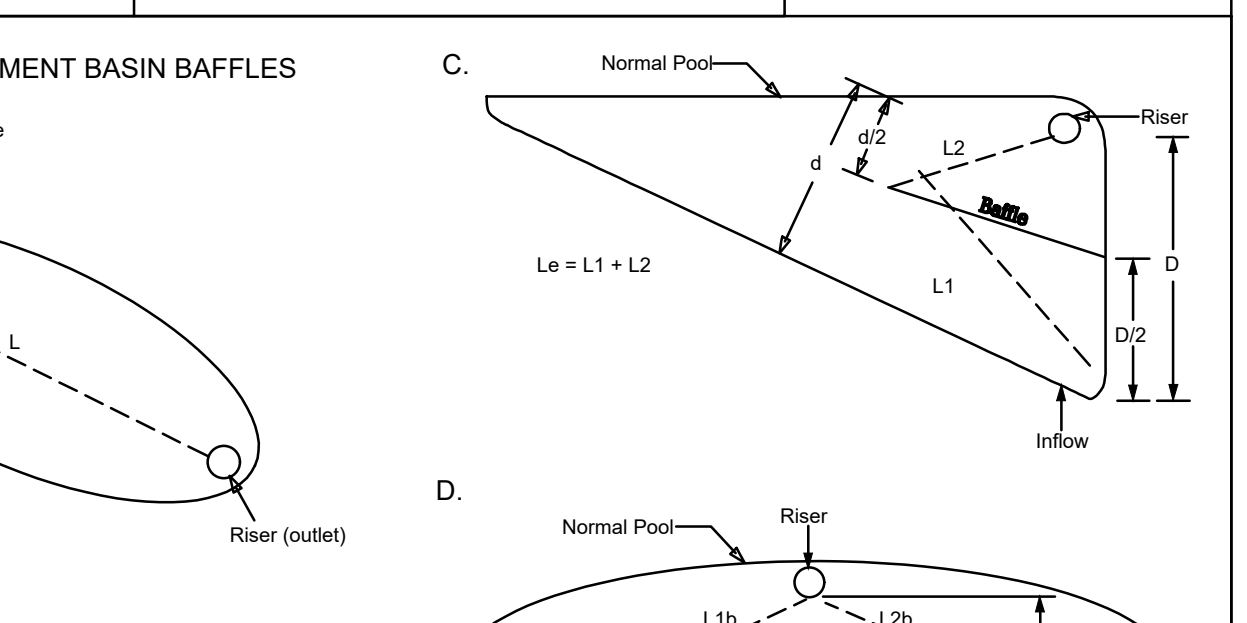
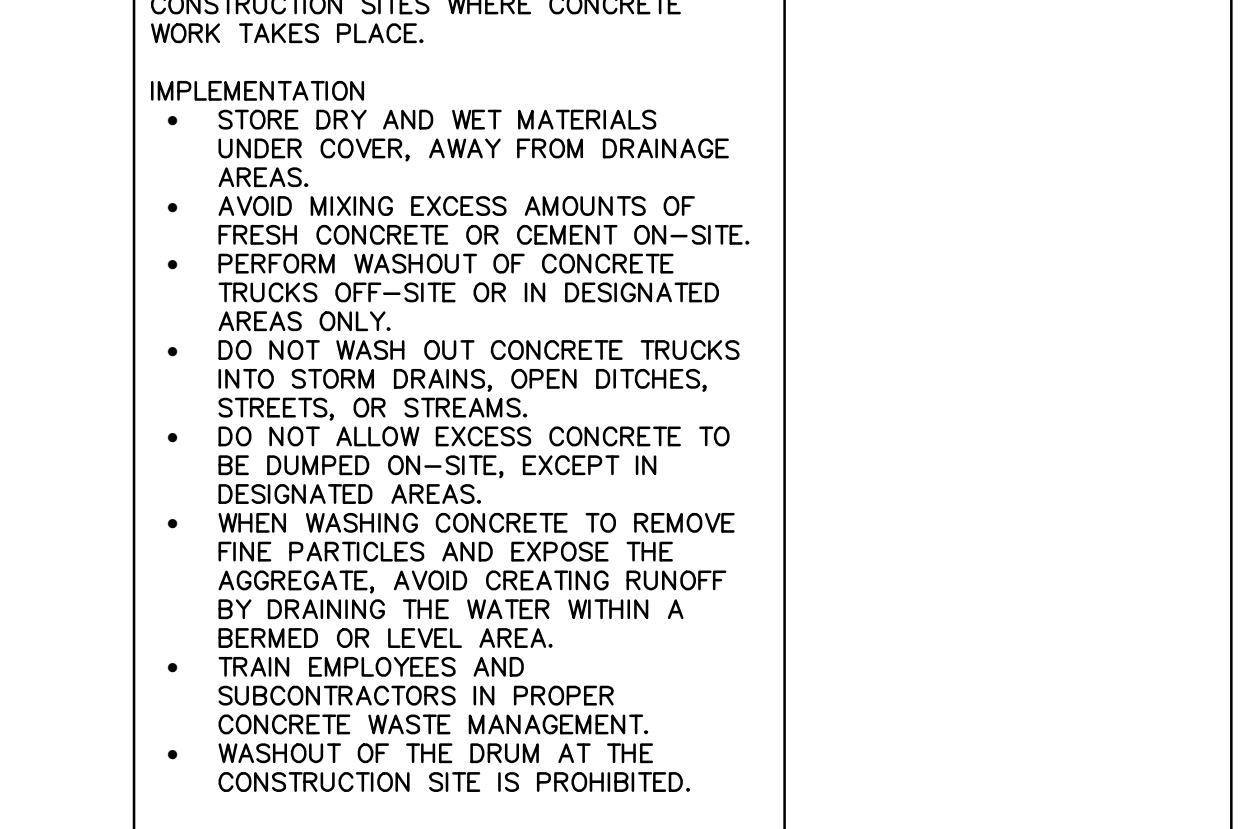
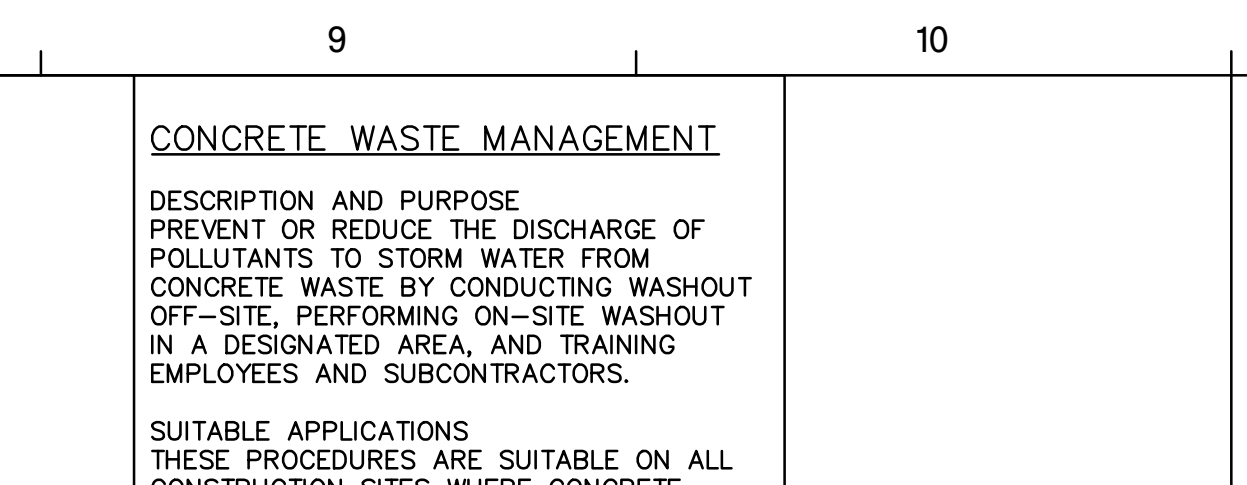
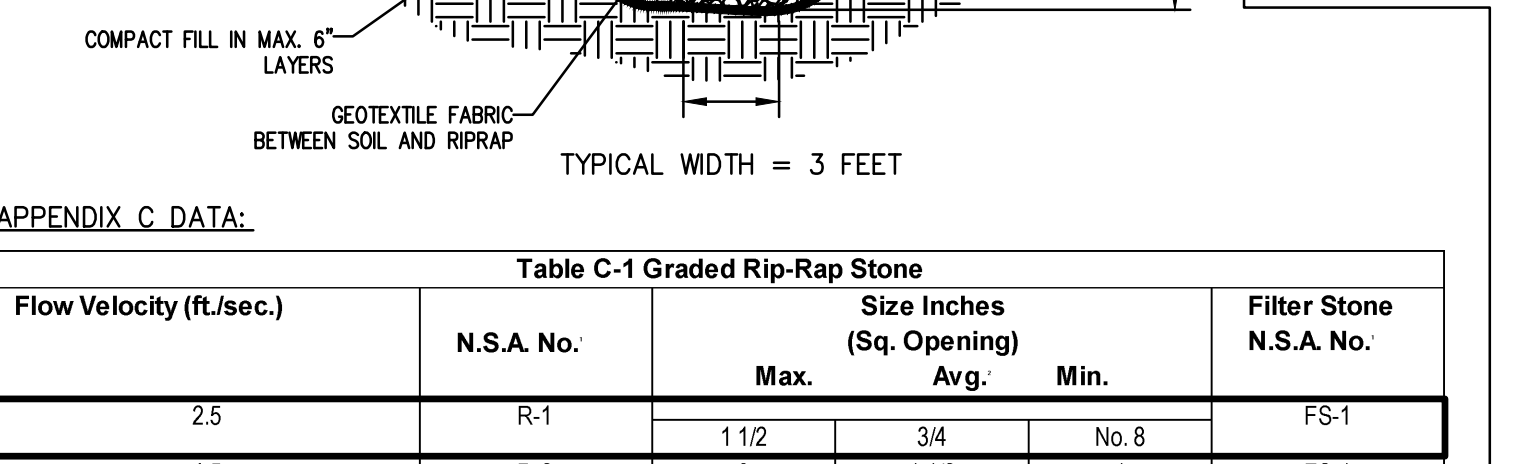
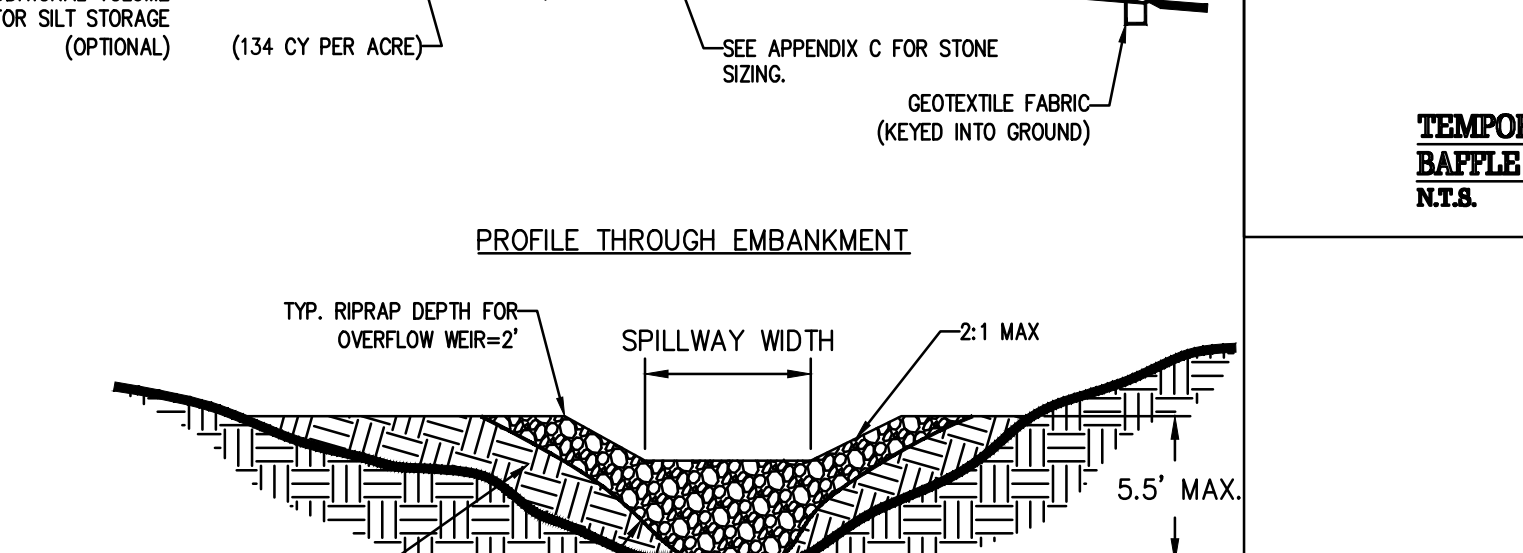
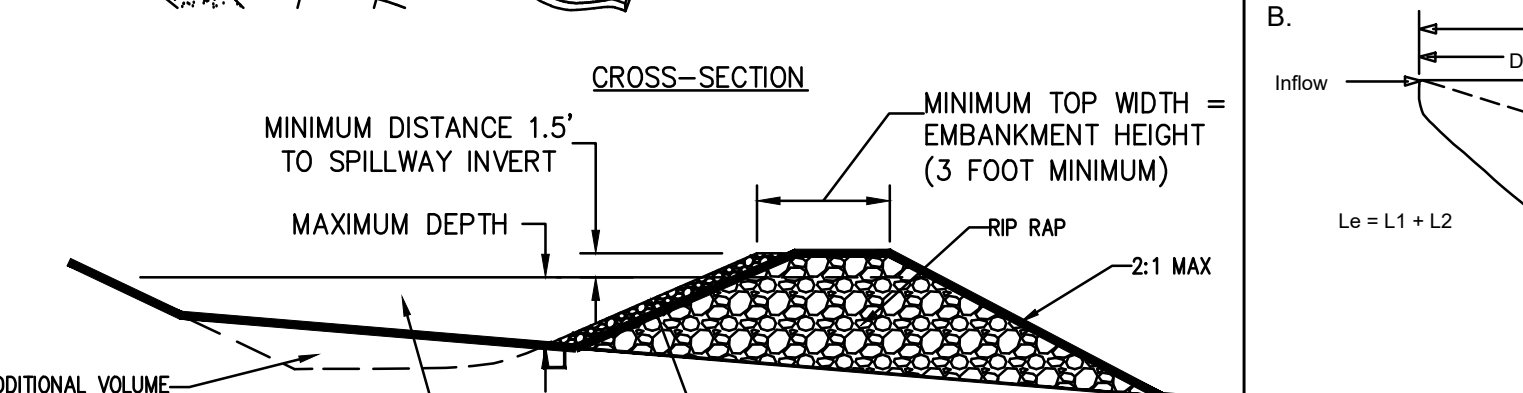
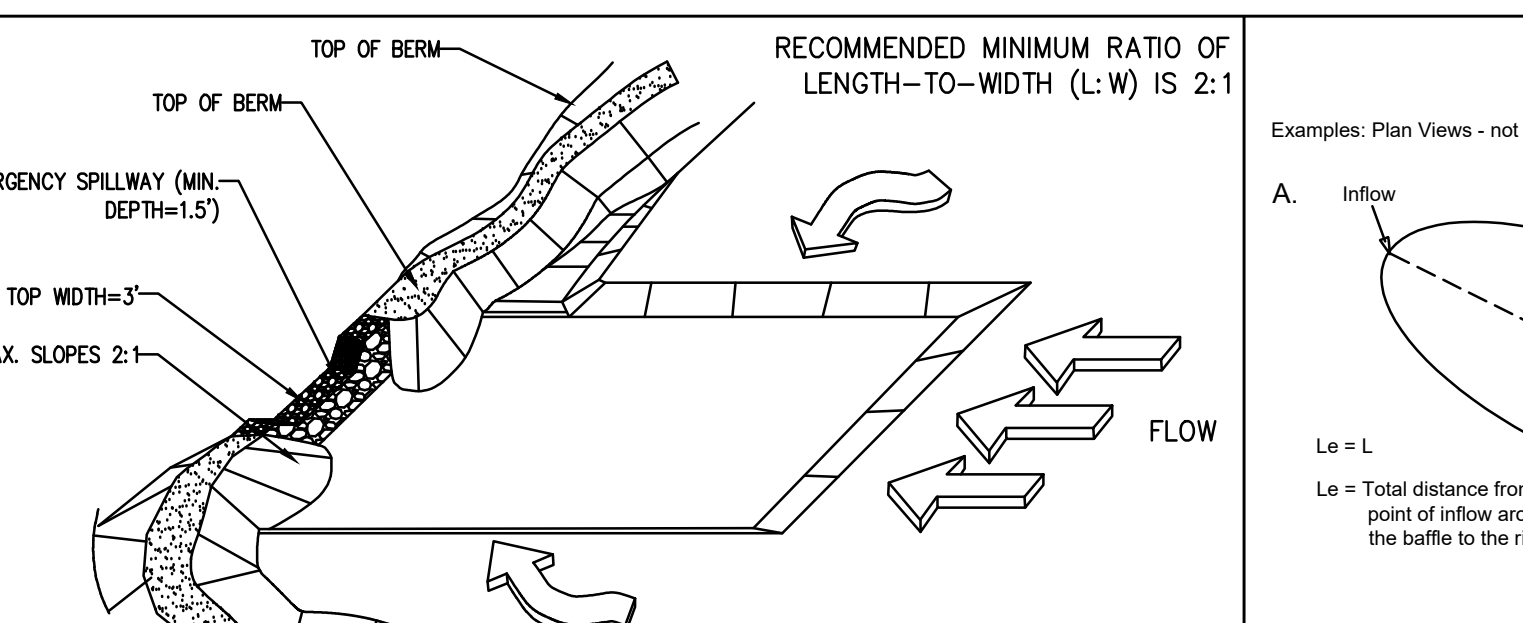
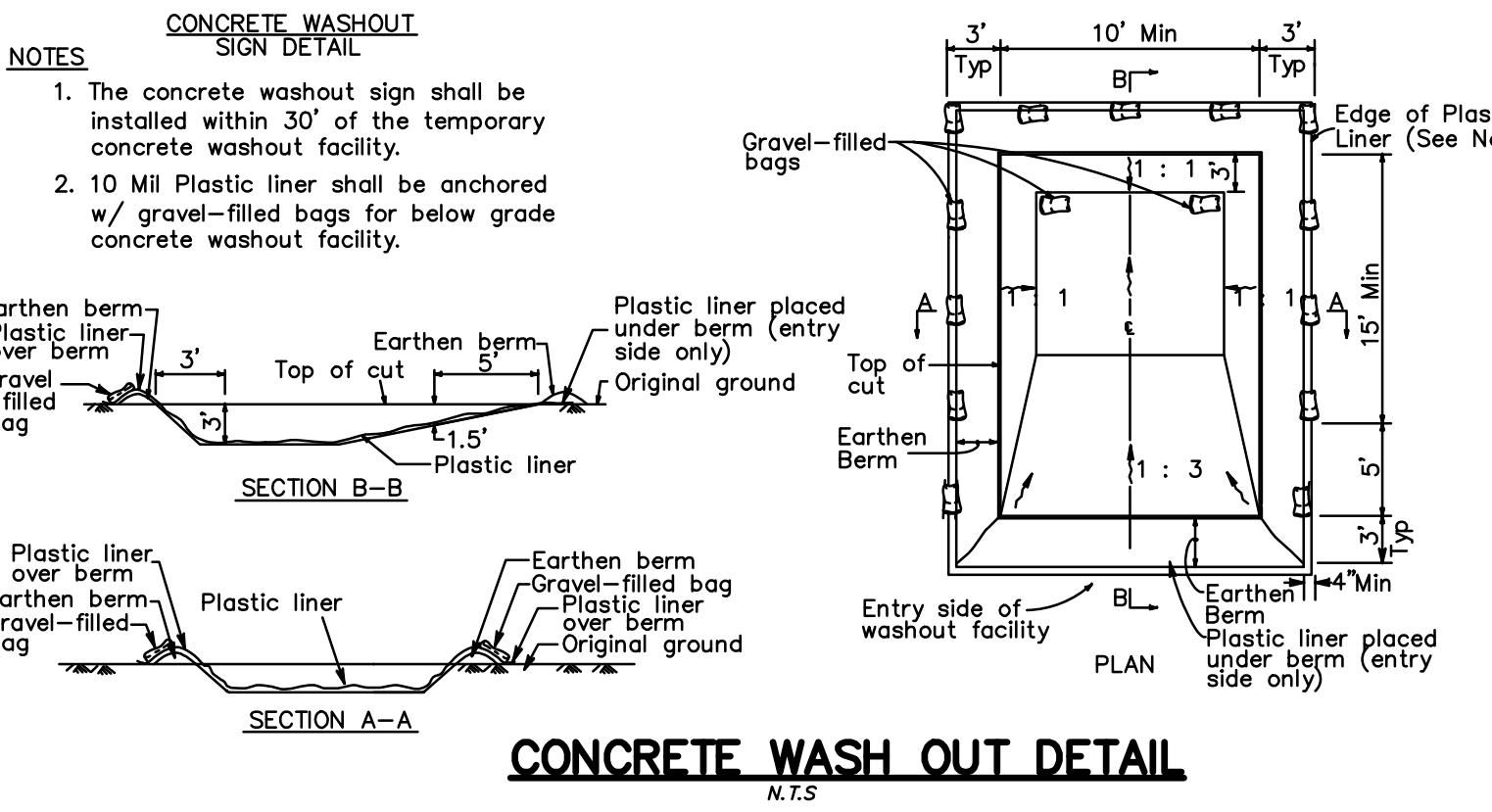
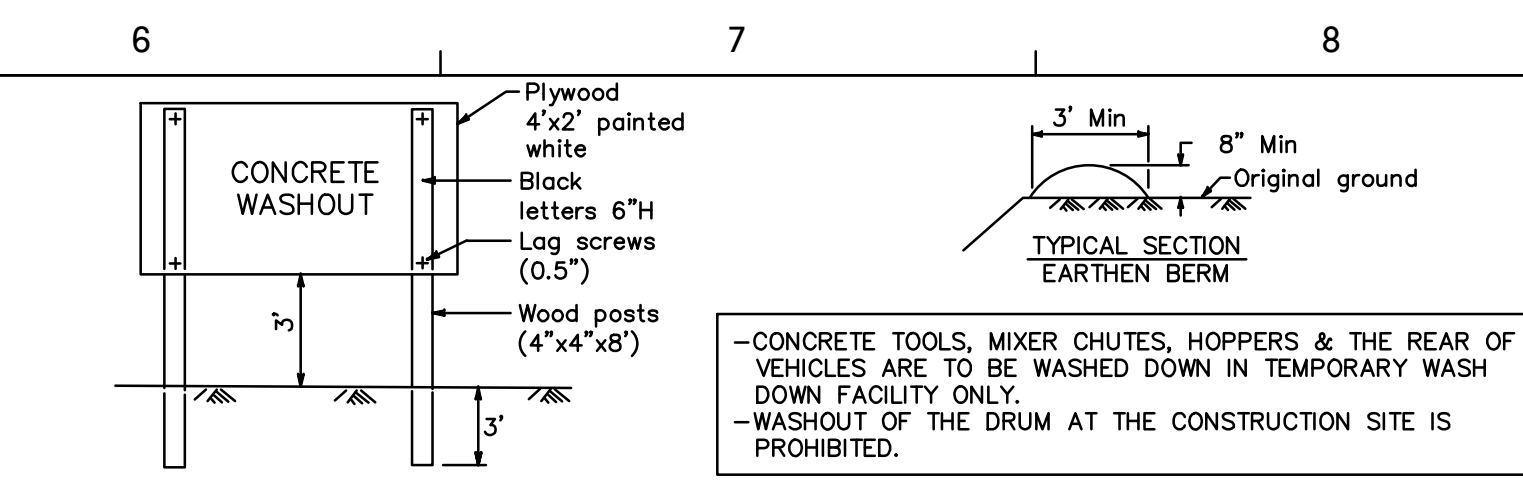
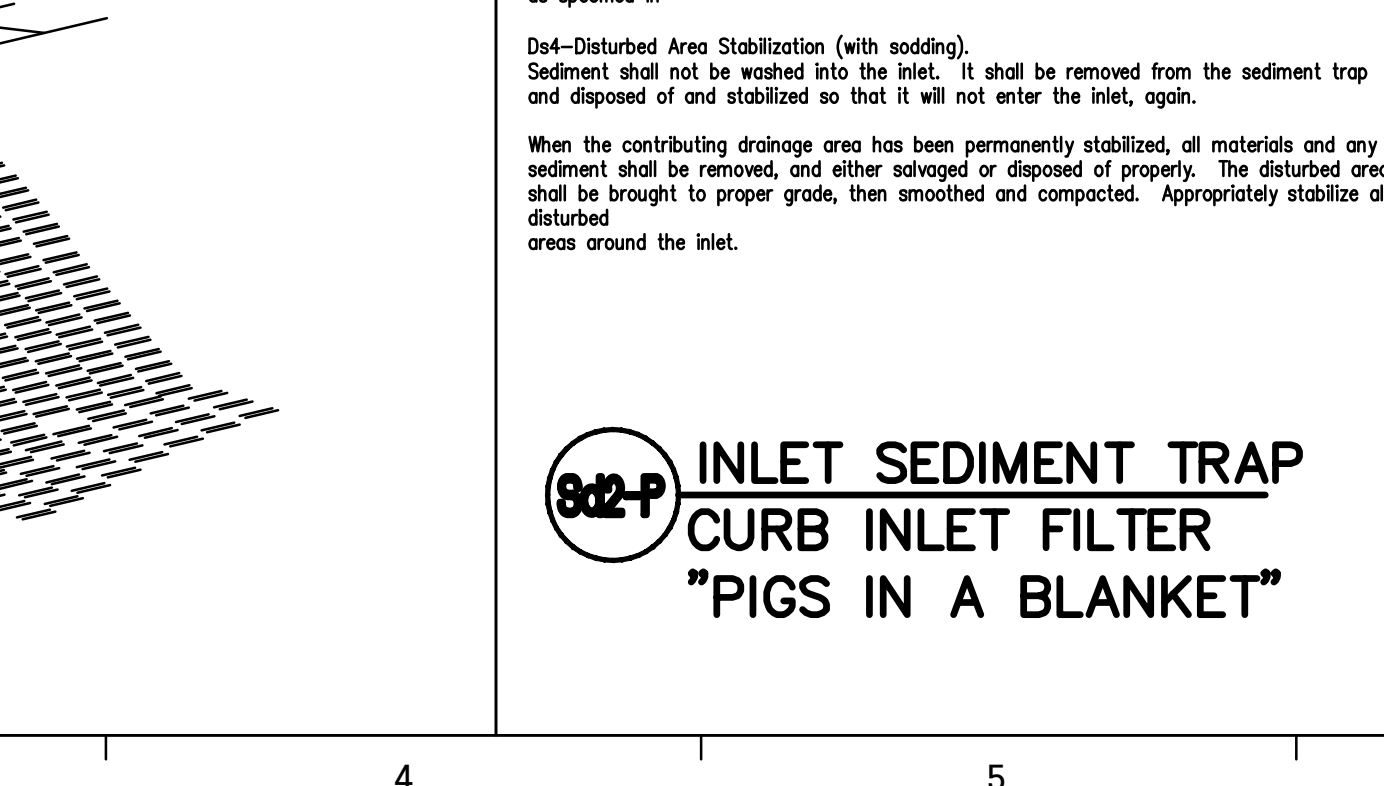
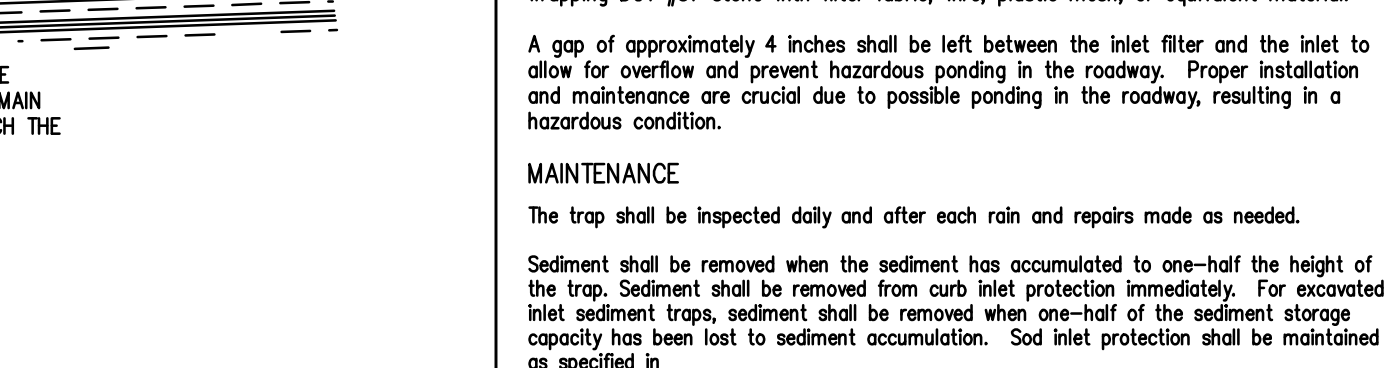
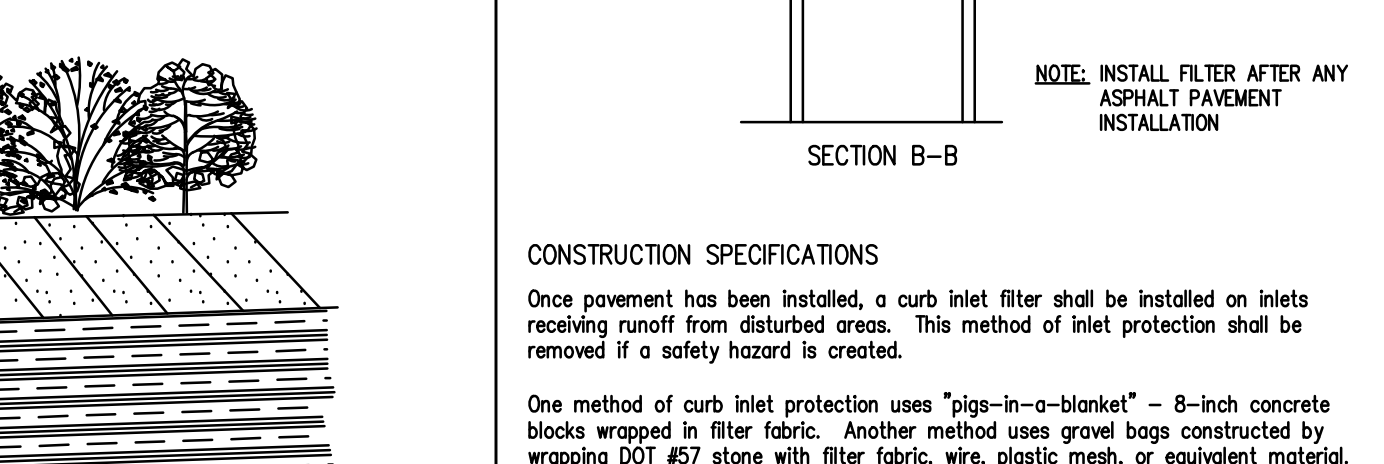
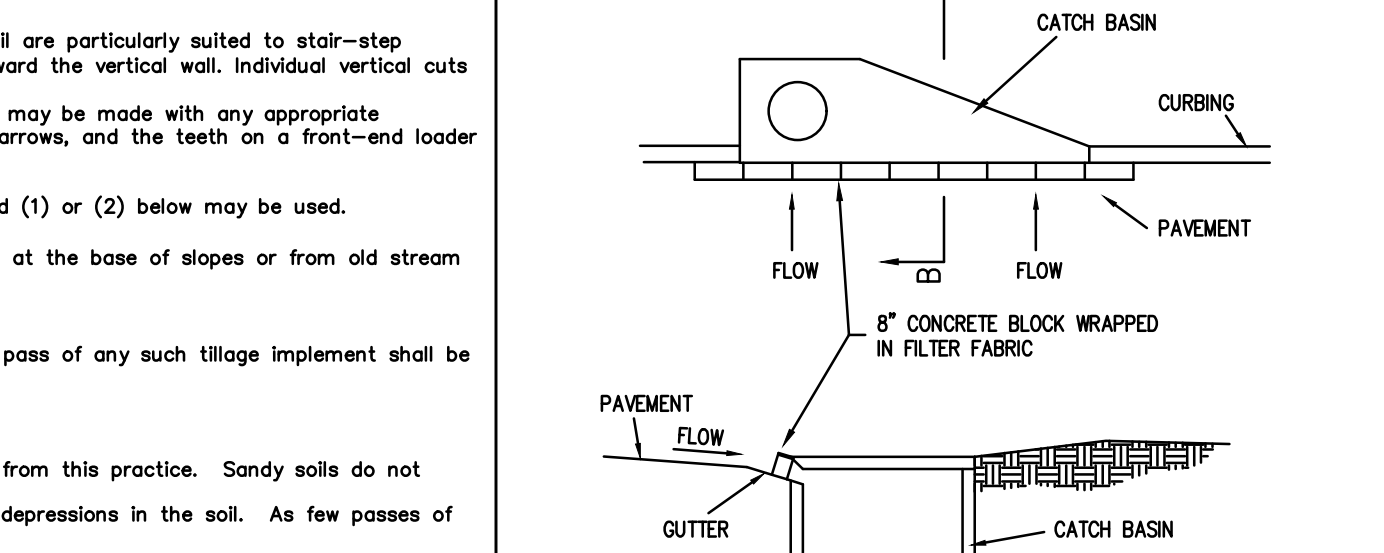
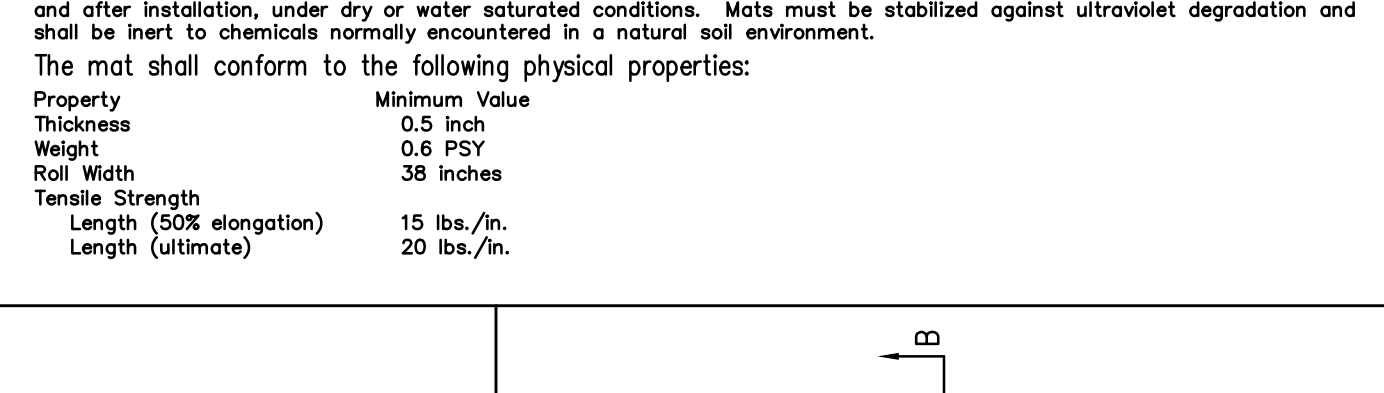
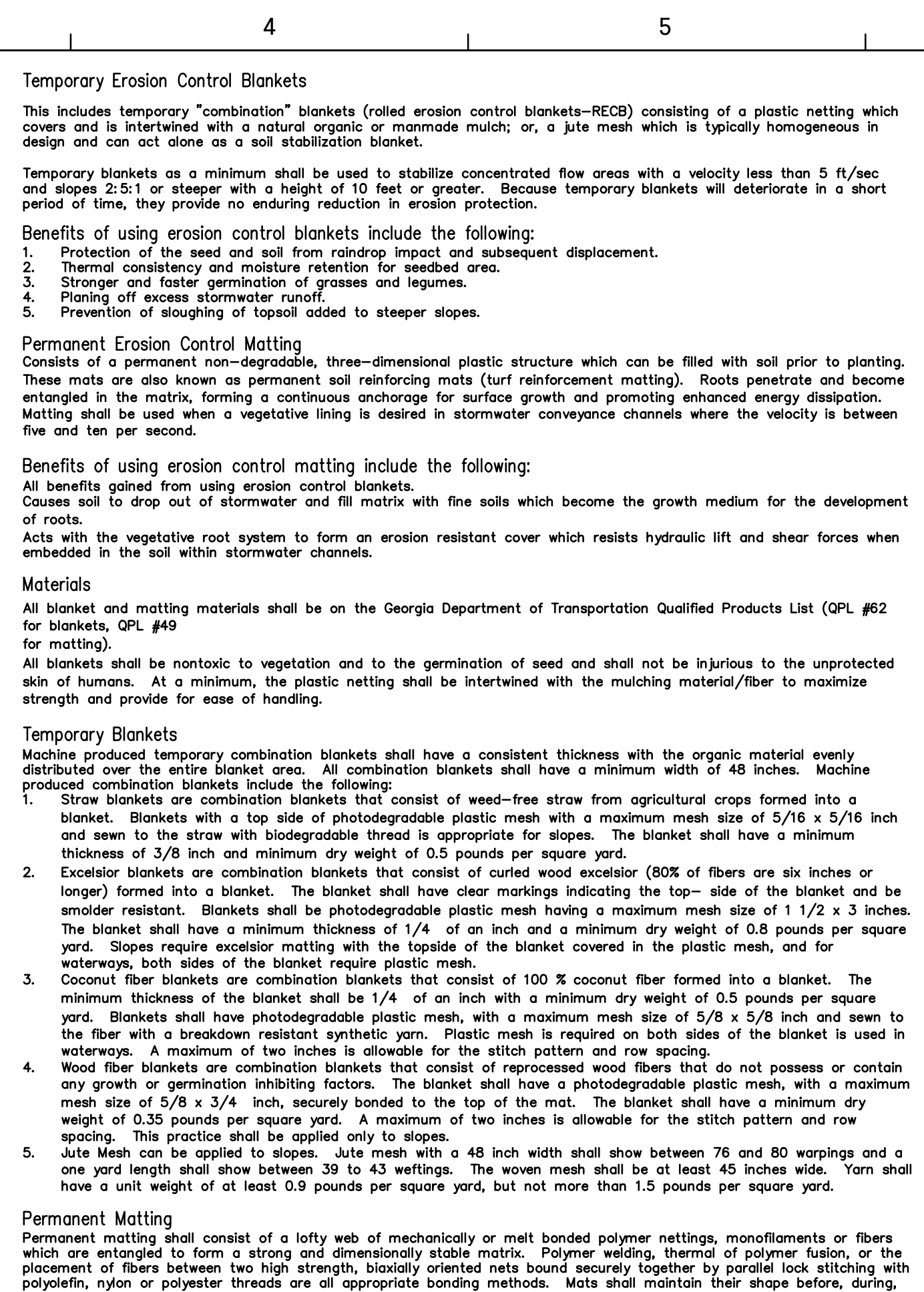
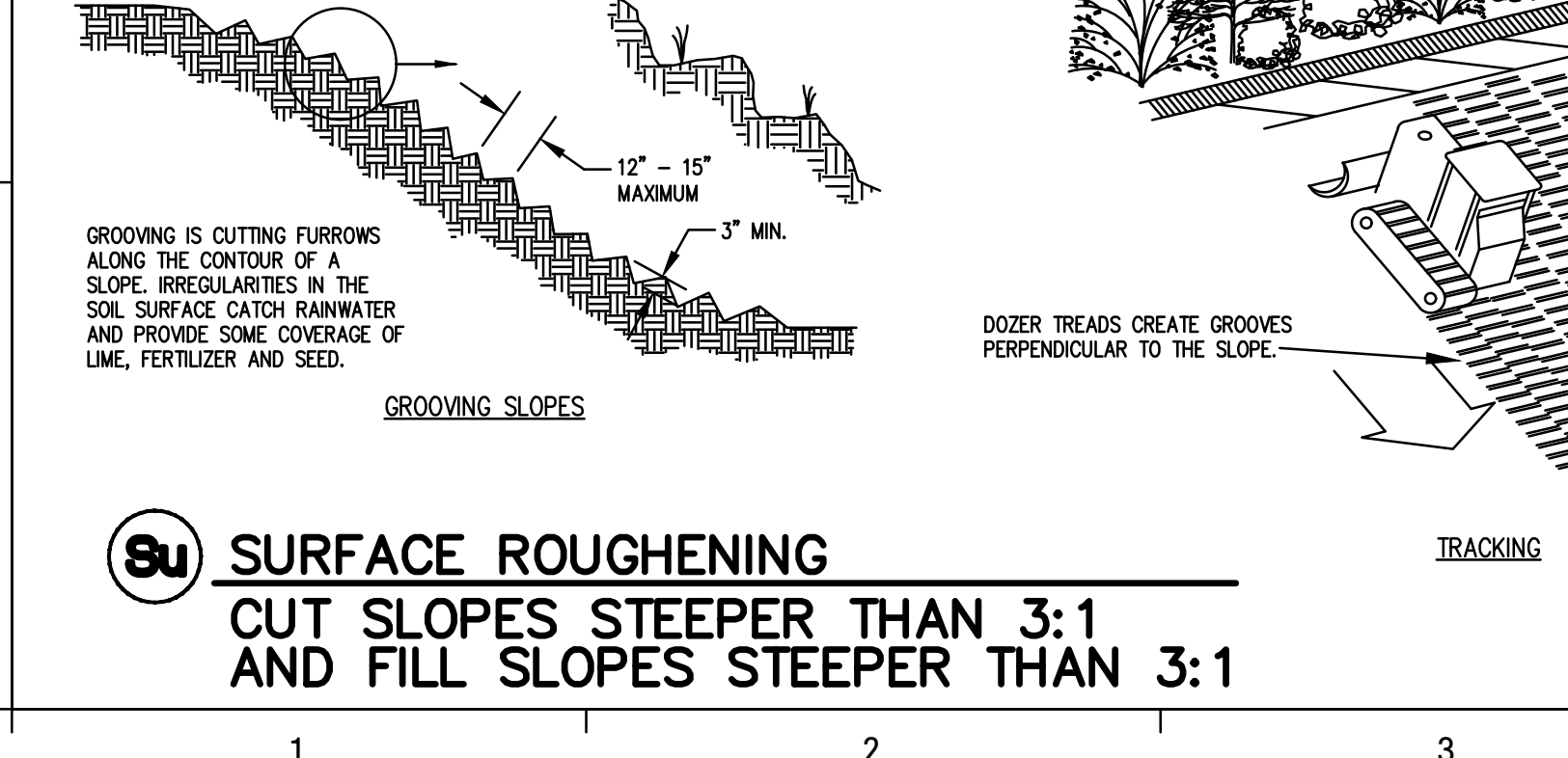
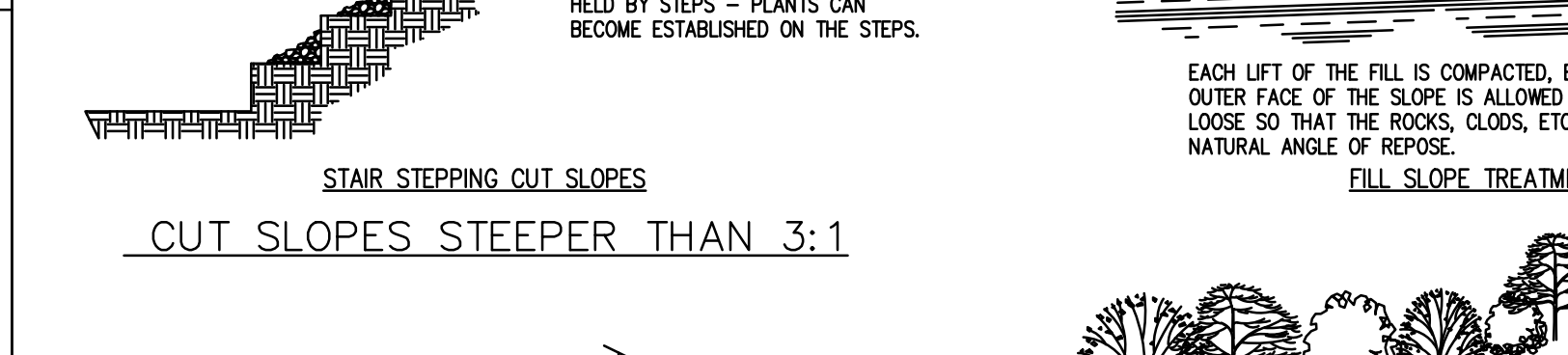
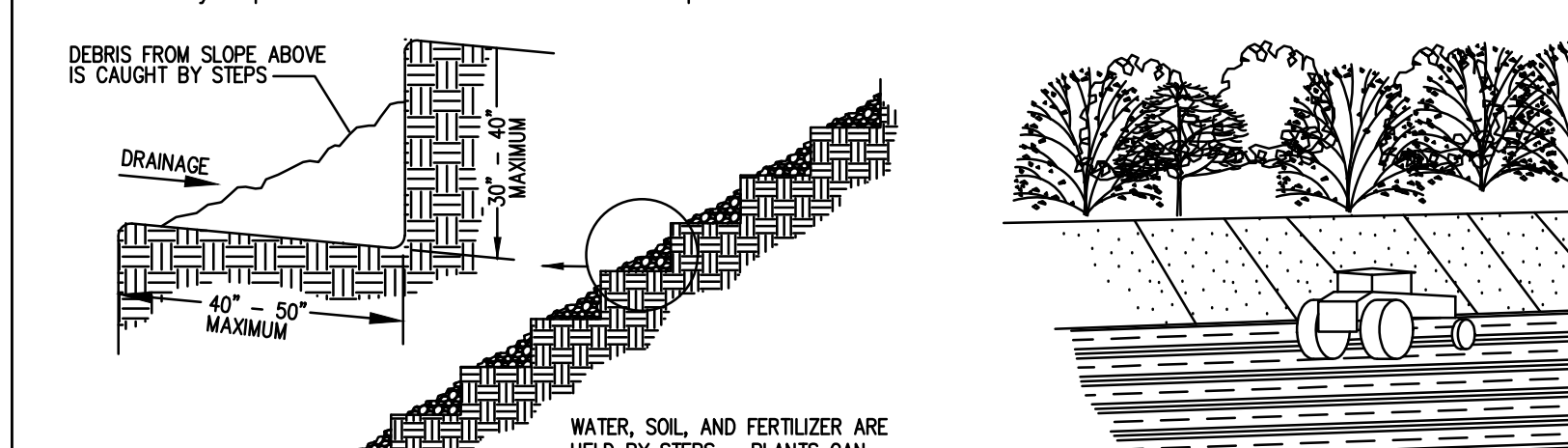
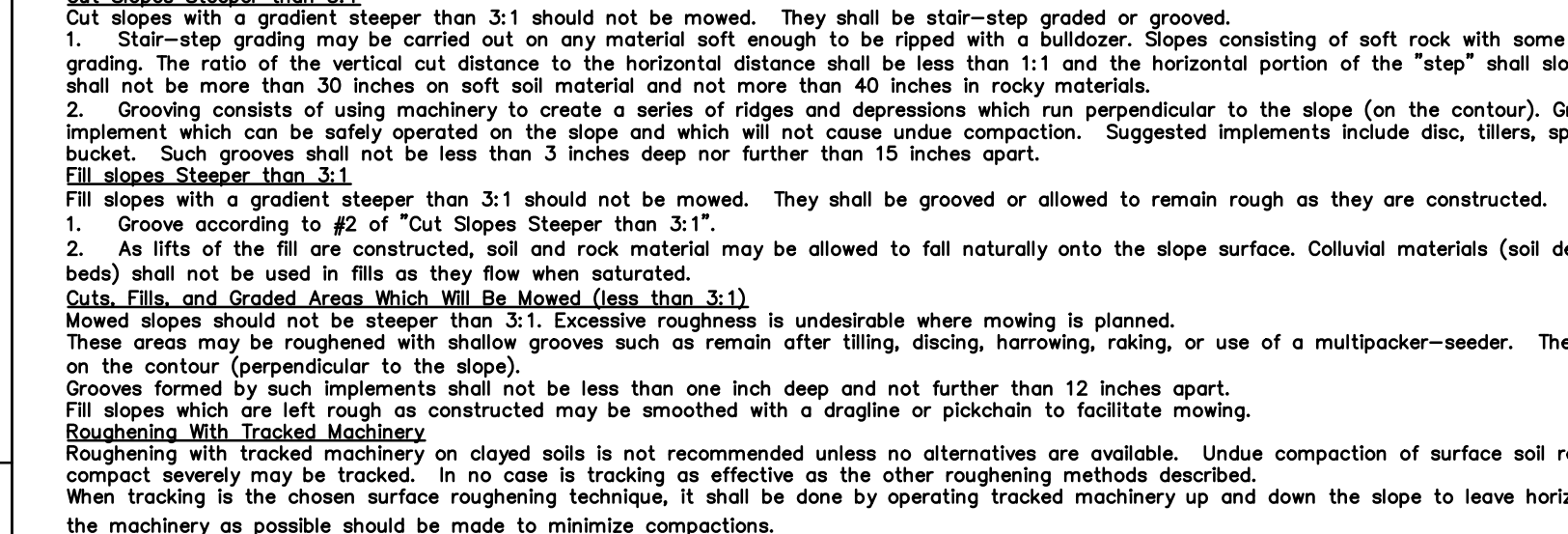
8/2/2021

DETAILS
C-901
sheet of

KATHRYN STRICKLAND
LEVEL II CERTIFICATION #87240
EXPIRATION DATE 3/15/22



86 SLOPE STABILIZATION



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PERMIT SET 16/21/2021

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DRAWN BY:

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8/2/2021

8r-B TEMPORARY BRIDGE CROSSING

KATHRYN STRICKLAND
LEVEL II CERTIFICATION #87240
EXPIRATION DATE 3/15/22

8u SURFACE ROUGHENING CUT SLOPES STEEPER THAN 3:1 AND FILL SLOPES STEEPER THAN 3:1

8d2-P INLET SEDIMENT TRAP CURB INLET FILTER "PIGS IN A BLANKET"

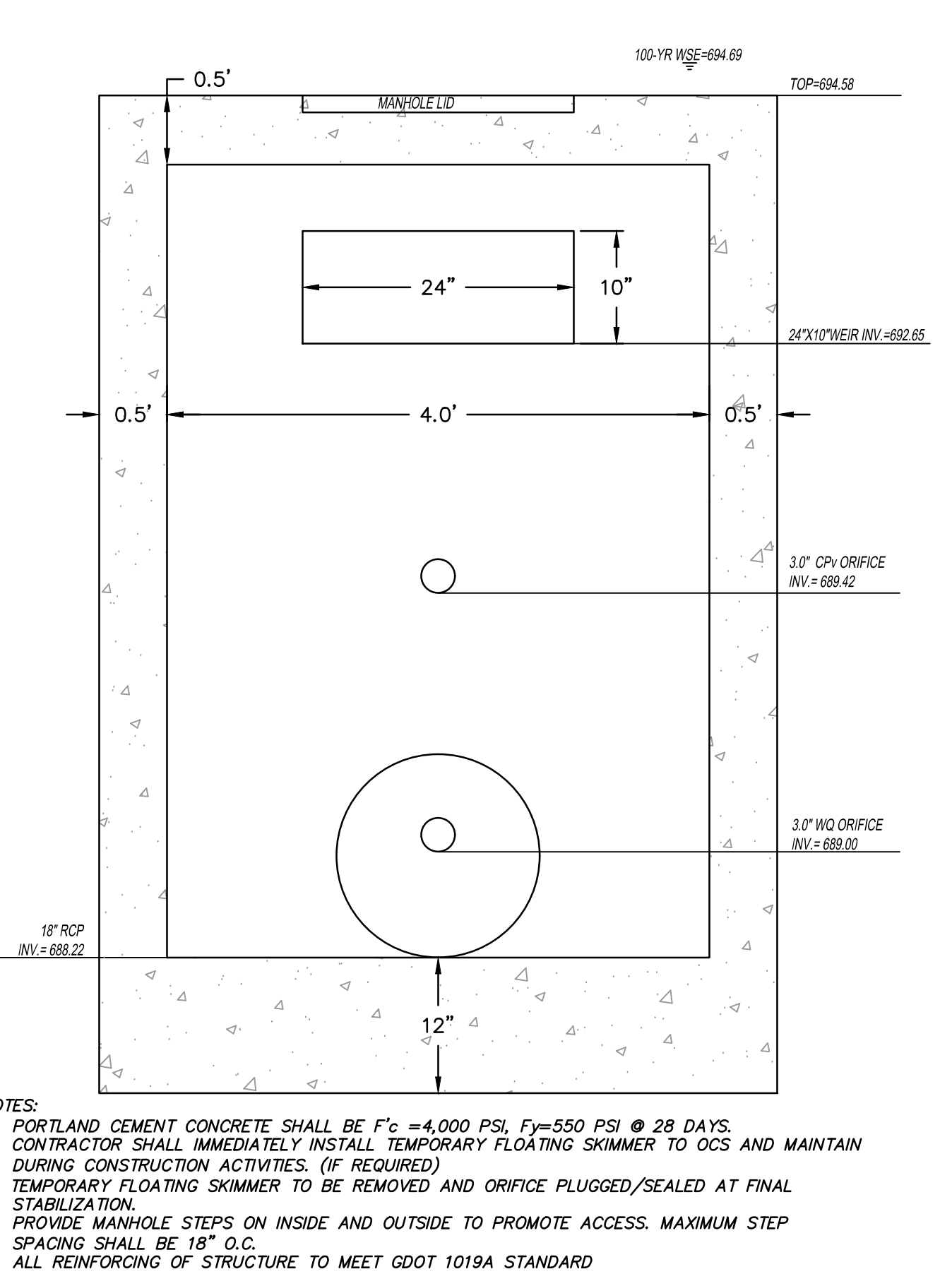
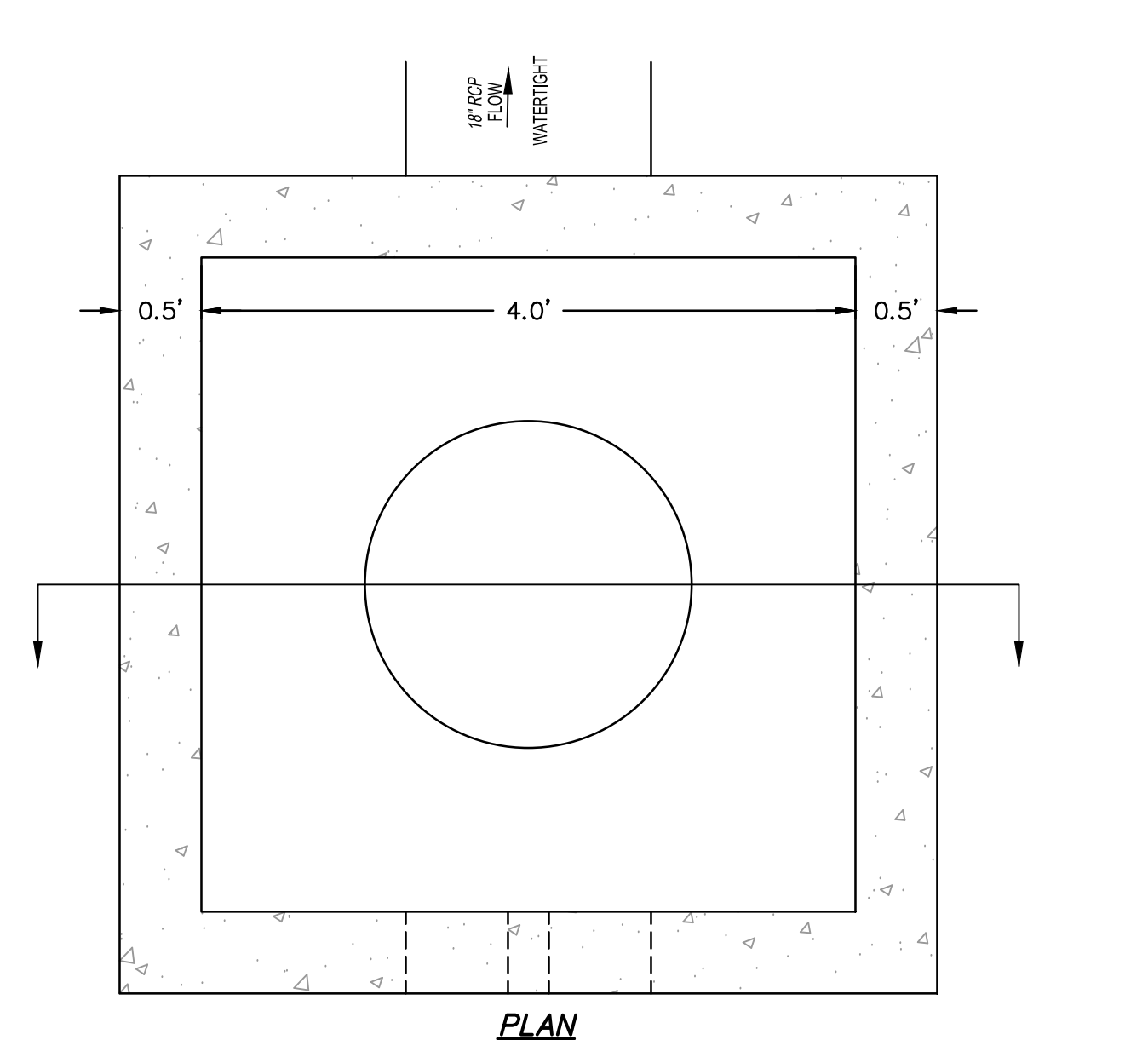
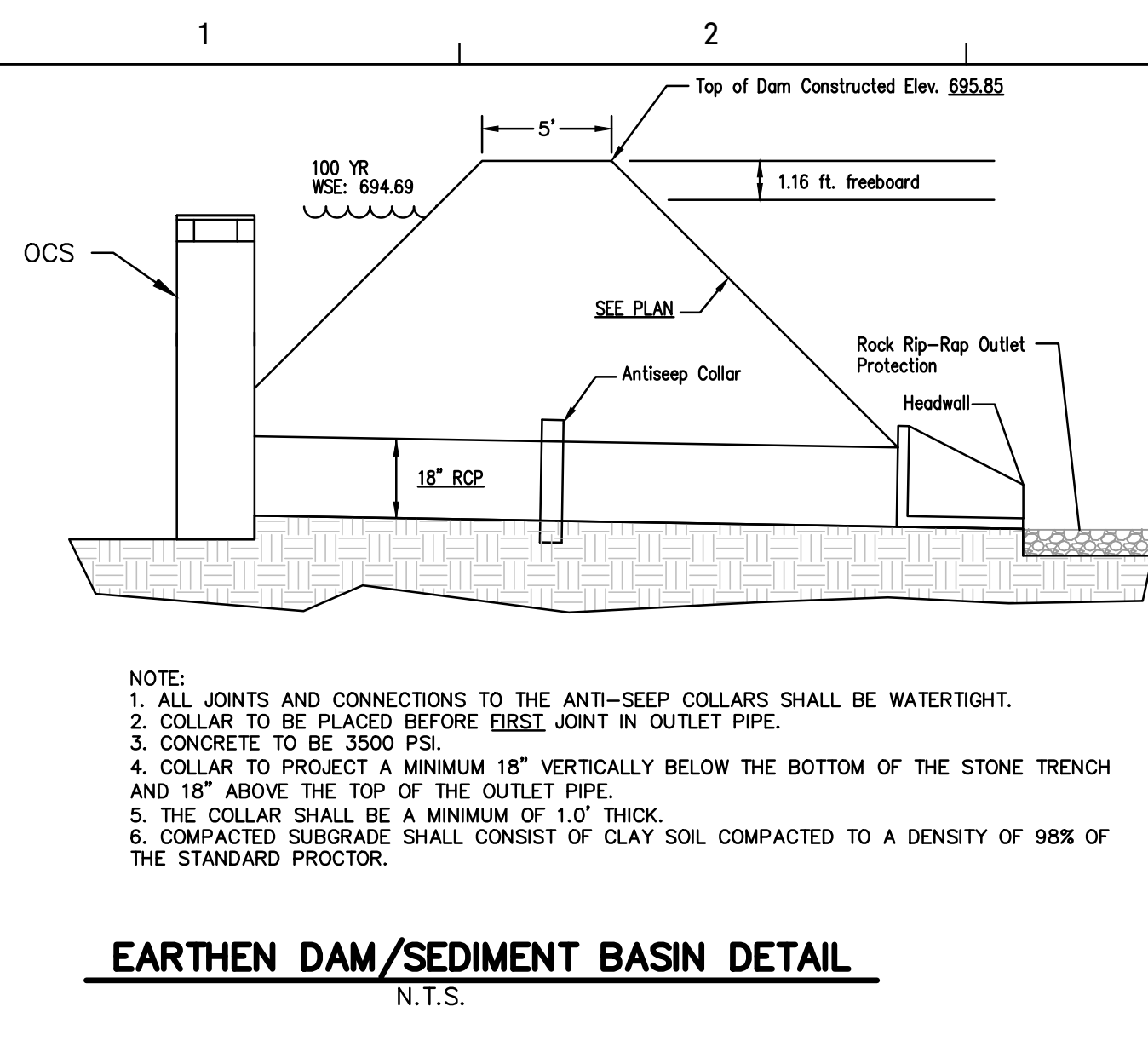
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86 SLOPE STABILIZATION

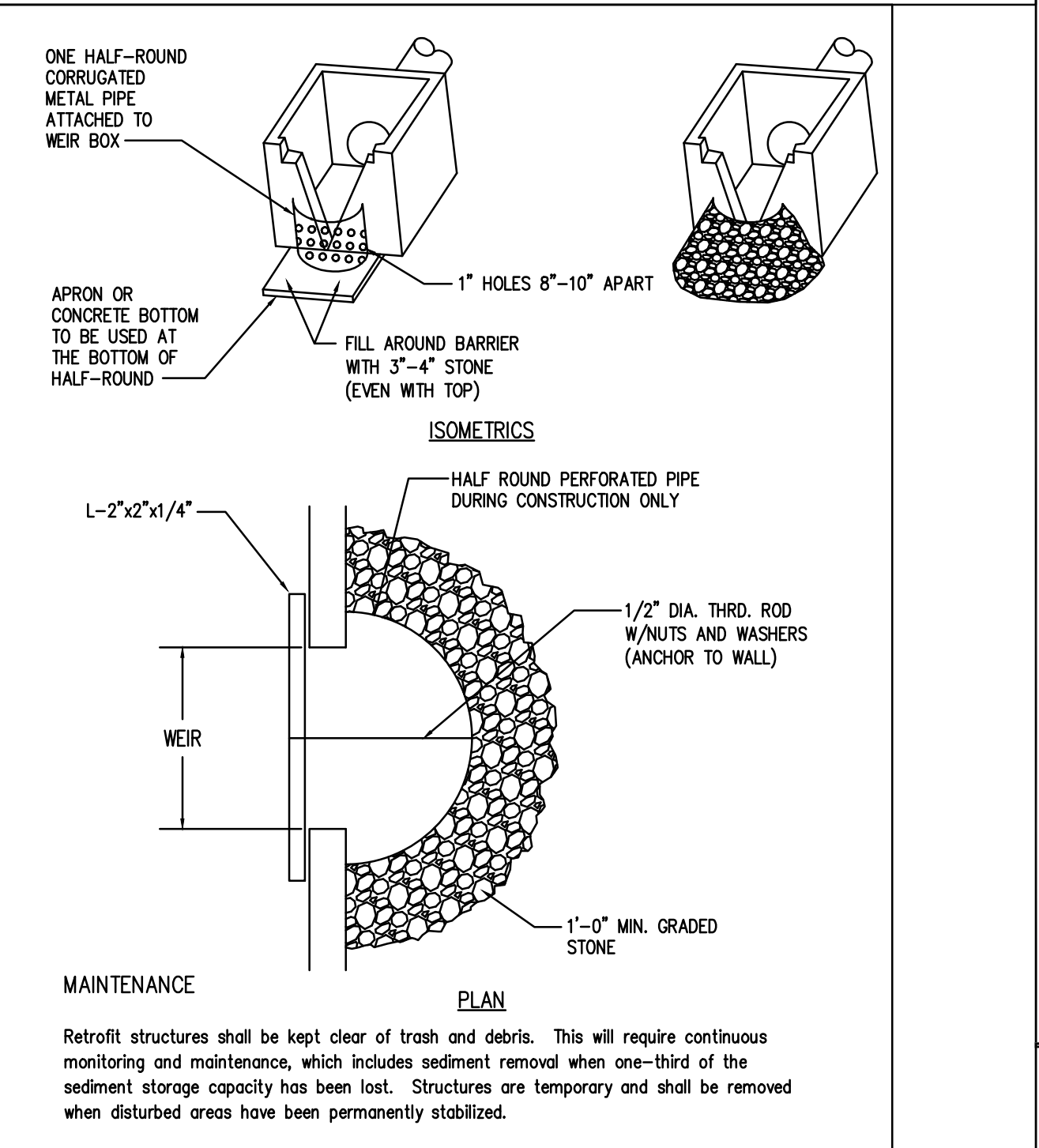
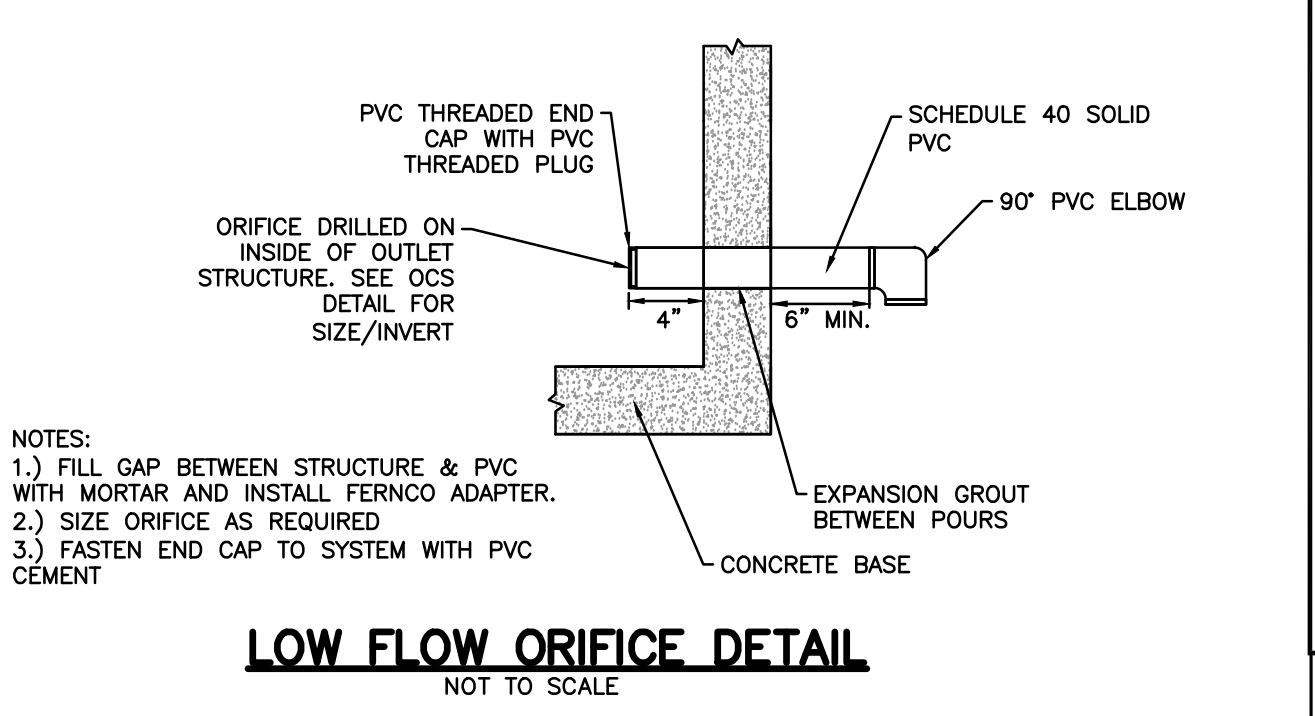
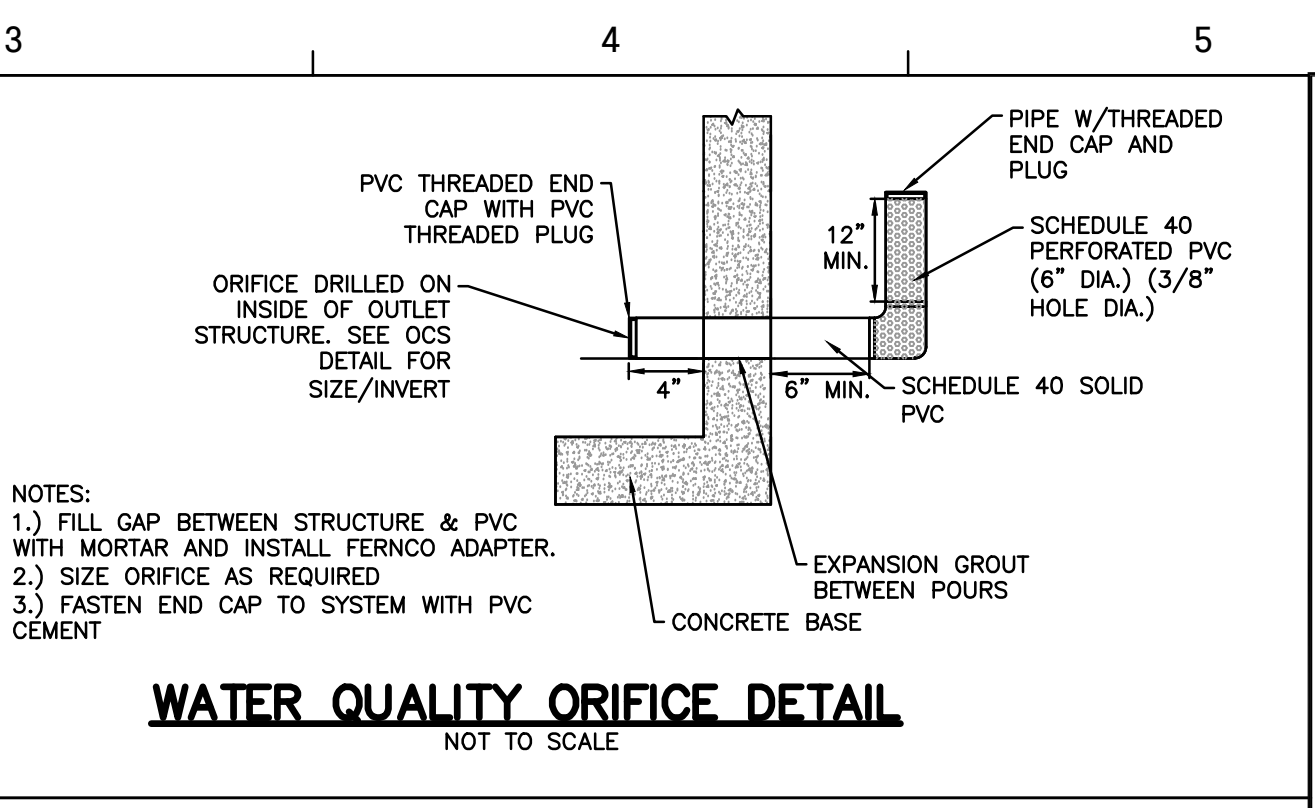
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C-902

Sheet of



POND OUTLET CONTROL STRUCTURE (#17) DETAIL (EARTHEN POND)



RETROFIT DESIGN SHEET

Project Name: Northeast Community Complex Soccer Fields

Total Area Draining to Basin (ac) = 4.86

VOLUME

1. Compute minimum req'd storage volume (Vs)
Vs = 134 cy/ac * X ac = 651 cy
17,583 cf

2. Compute volume of basin at clean-out (Vc)
Vc = 45 cy/ac * X ac = 219 cy
5,905 cf

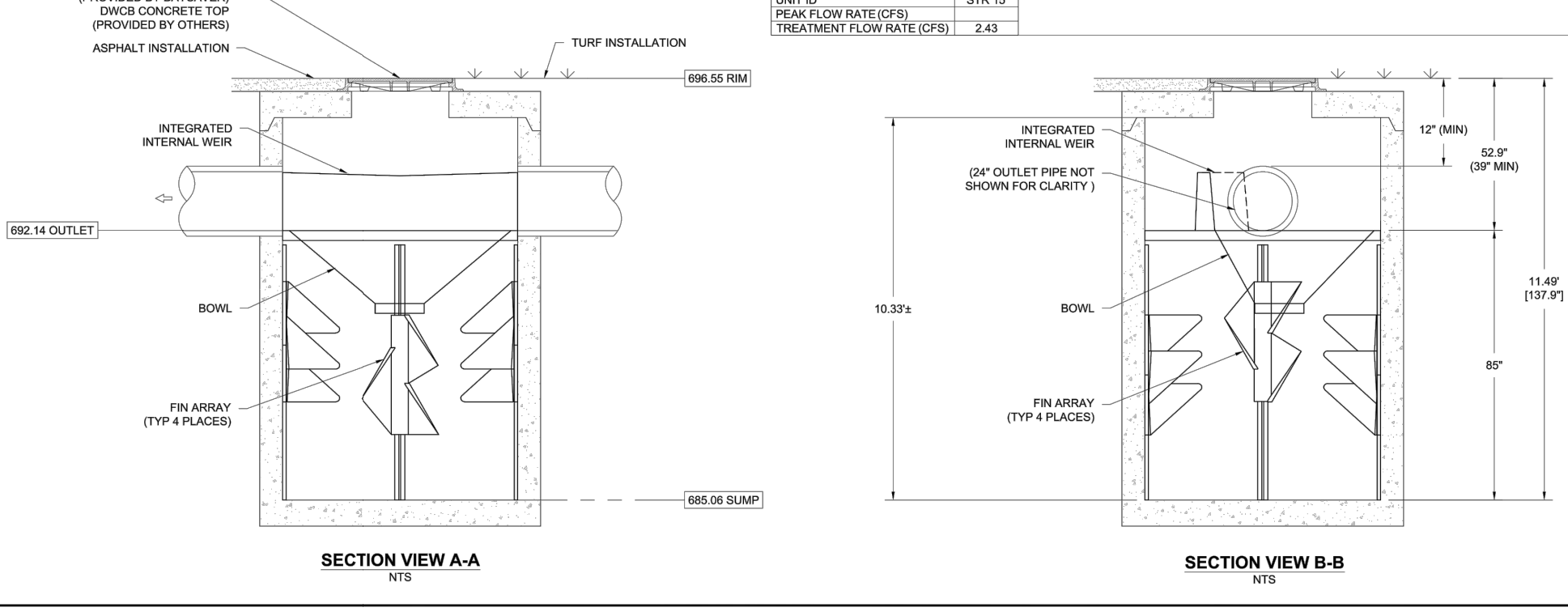
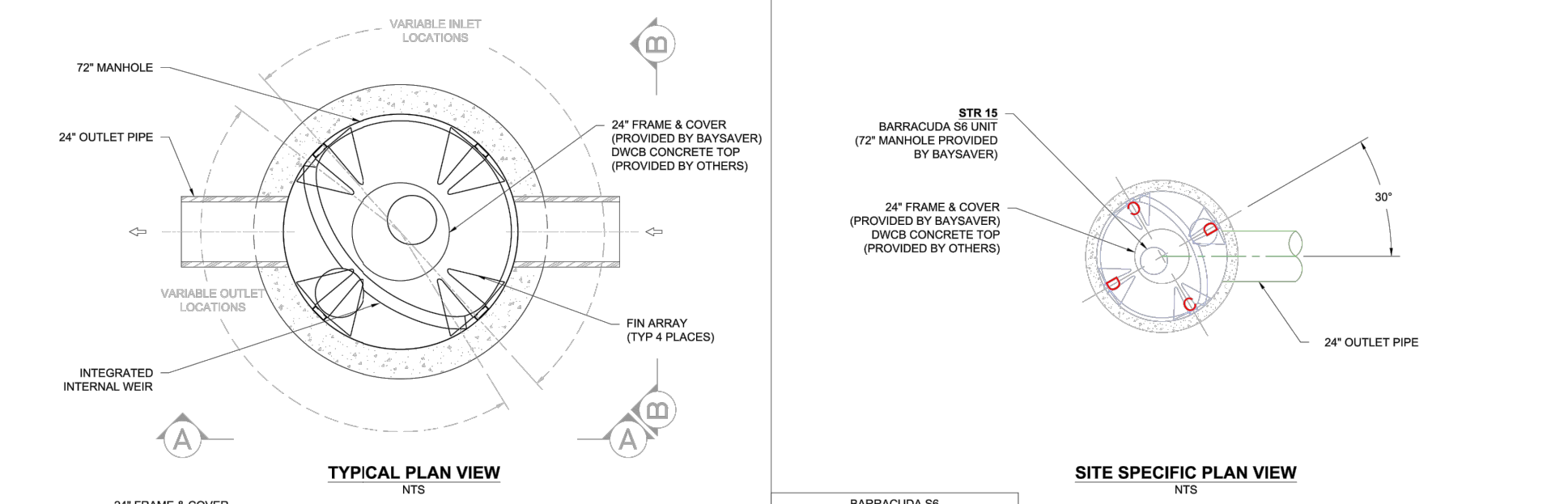
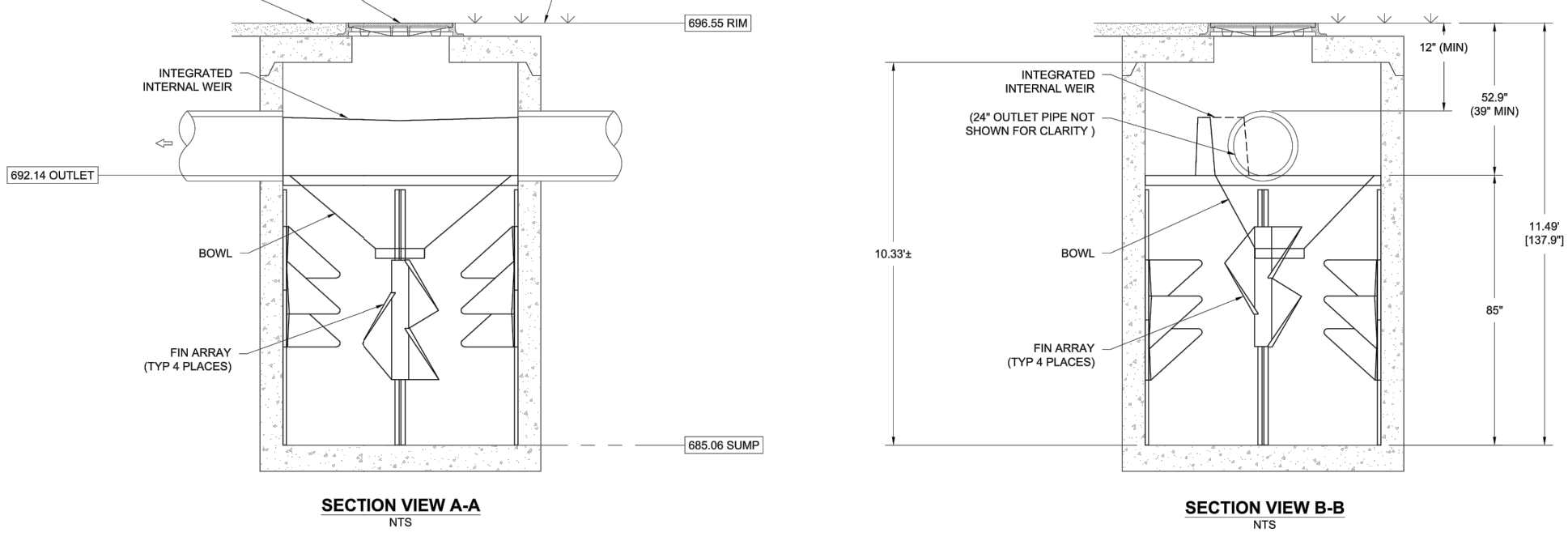
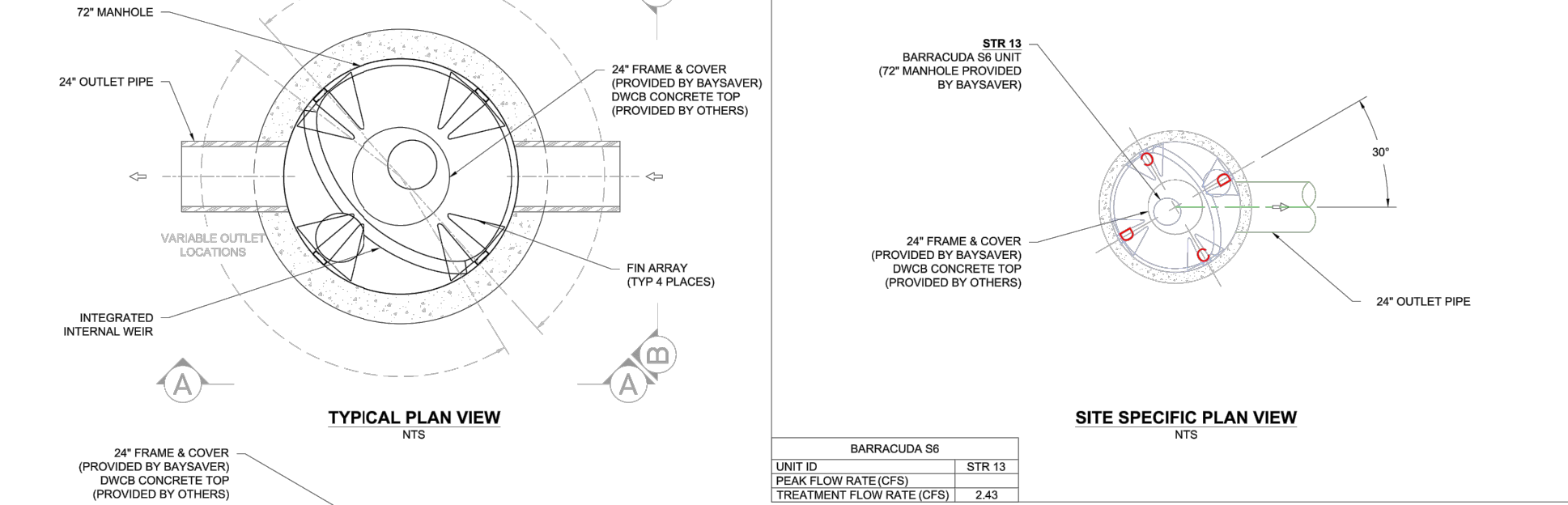
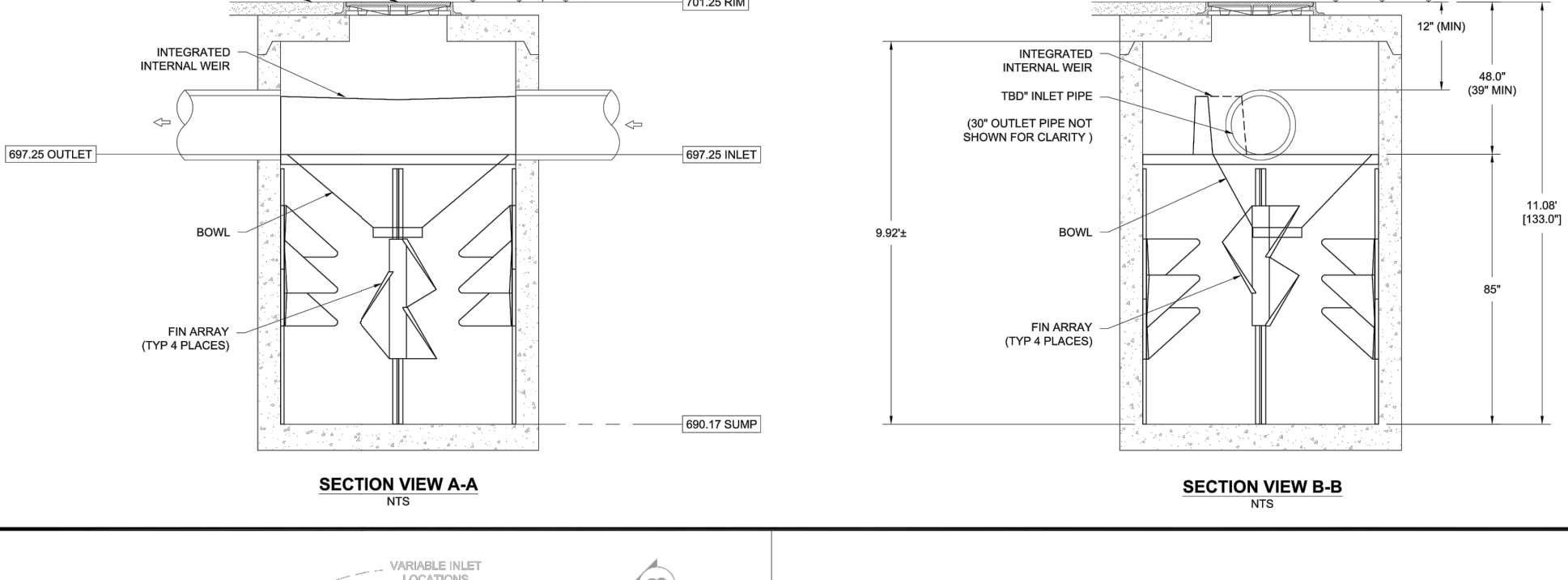
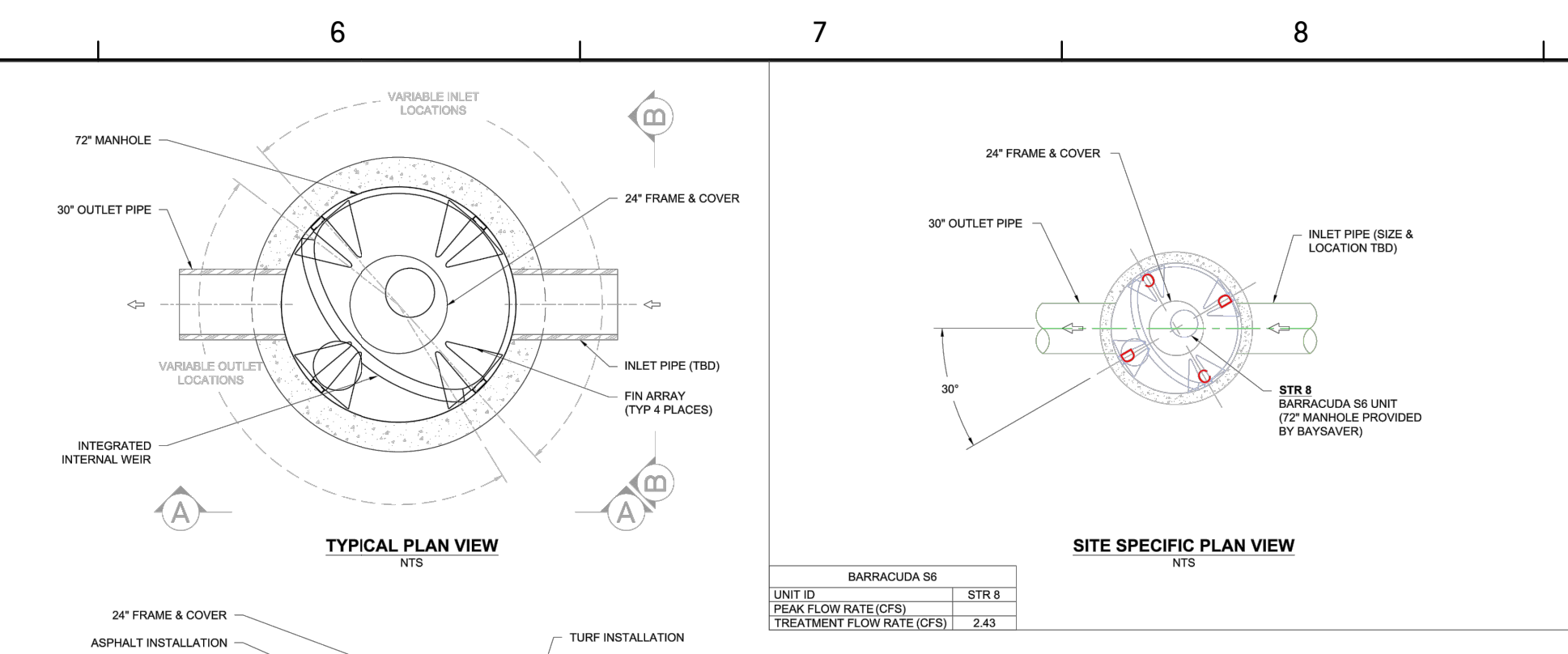
Elevation at Clean out = 691.68

3. Available Storage = 996 cy

4. Is the available storage greater than the total required storage? Yes

5. Compute req'd length to achieve 2:1 L:W ratio.
Average width = 27.00 ft
Req'd Length = 2*ave width = 54.00 ft
Available Length = 490.00 ft
2:1 L:W ratio satisfied? Yes

6. Req'd half round perforated pipe length.
Length (measured from bottom of OCS) = 4.40 ft



BAYSAYER BARRACUDA SPECIFICATIONS

MATERIALS AND DESIGN
CONCRETE STRUCTURES: DESIGNED FOR H20 TRAFFIC LOADING AND APPLICABLE SOIL LOADS OR AS OTHERWISE DETERMINED BY A LICENSED PROFESSIONAL ENGINEER. THE MATERIALS AND STRUCTURAL DESIGN OF THE DEVICES SHALL BE PER ASTM C507 AND ASTM C581.

FINAL THE ECCENTRIC CONE REDUCER SHALL BE MANUFACTURED FROM POLYETHYLENE MEETING ASTM D3350 CELL CLASS 21330C.

PERFORMANCE
THE STORMWATER TREATMENT UNIT SHALL BE AN INLINE UNIT CAPABLE OF CONVEYING 100% OF THE DESIGN PEAK FLOW. IF PEAK FLOW RATES EXCEED MAXIMUM HYDRAULIC RATE, THE UNIT SHALL BE INSTALLED OFFLINE.

THE STORMWATER TREATMENT UNIT INTERIORS SHALL CONSIST OF (1) SEPARATOR CONE ASSEMBLY, AND (2) SLUMP ASSEMBLY WHICH INCLUDES (A) LEGS WITH "TEETH".

THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 40% OF THE SUSPENDED SOLIDS ON AN ANNUAL ACCRETION REDUCTION BASIS. 80% REMOVAL SHALL BE BASED ON FULL-SCALE THRESHOLD TESTING USING 0#-15 MEDIA GRADATION OR EQUIVALENT AND 300 mg/L INFLUENT CONCENTRATION. SAID FULL SCALE TESTING SHALL HAVE INCLUDED SEDIMENT CAPTURE BASIS ON ACTUAL TOTAL SOLIDS COLLECTED BY THE STORMWATER TREATMENT UNIT.

THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS USING A MEDIA MIX WITH 60%-75 MICRON AND 200 MG/L INFLUENT CONCENTRATION.

THE BARRACUDA UNIT SHALL BE DESIGNED TO REMOVE AT LEAST 50% OF TSS PER CURRENT ADEQUATE HDS PROTOCOL.

MANUFACTURER
EACH STORMWATER TREATMENT SYSTEM SHALL BE A BARRACUDA SYSTEM AS MANUFACTURED BY BAYSAYER, LLC, 1030 DEER HOLLOW DR., MOUNTAIN VIEW, MO 64151, PHONE (816) 829-4470, FAX (816) 829-3747, TOLL FREE 1-800-229-7283, INFO@BAYSAYER.COM, WWW.BAYSAYER.COM

BARRACUDA MAINTENANCE
BARRACUDA SYSTEMS MUST BE INSPECTED AND MAINTAINED PERIODICALLY. INSPECTION IS MADE BY CHECKING THE DEPTH OF SEDIMENT IN EACH MANHOLE WITH A GRADE STICK OR SIMILAR DEVICE. MAINTENANCE IS REQUIRED WHEN THE SEDIMENT DEPTH IN EXCEEDS 20 INCHES. MINIMUM INSPECTION IS RECOMMENDED TWICE A YEAR TO MAINTAIN OPERATION AND FUNCTION OF THE UNIT.

MAINTENANCE INSTRUCTIONS
1. REMOVE THE MANHOLE COVER TO PROVIDE ACCESS TO THE POLLUTANT STORAGE. POLLUTANTS ARE STORED IN THE SLUMP BELOW THE BOWL ASSEMBLY VISIBLE FROM THE SURFACE. YOU'LL ACCESS THIS AREA THROUGH THE 10" DIAMETER ACCESS CONDUIT.
2. USE A VACUUM TRUCK OR OTHER SIMILAR EQUIPMENT TO REMOVE ALL WATER, DEBRIS, OILS AND SEDIMENT.
3. USE A HIGH PRESSURE HOSE TO CLEAN THE MANHOLE OF ALL THE REMAINING SEDIMENT AND DEBRIS. THEN, USE THE VACUUM TRUCK TO REMOVE THE WATER.
4. FILL THE CLEANED MANHOLE WITH WATER UNTIL THE LEVEL REACHES THE INVERT OF THE OUTLET PIPE.
5. REPLACE THE MANHOLE COVER.
6. DISPOSE OF THE POLLUTED WATER, OILS, SEDIMENT AND TRASH AT AN APPROVED FACILITY.

LOCAL REGULATIONS PROHIBIT THE DISCHARGE OF SOLID MATERIAL INTO THE SANITARY SYSTEM. CHECK WITH THE LOCAL SEWER AUTHORITY FOR AUTHORITY TO DISCHARGE THE LIQUID.
SOME LOCALITIES TREAT THE POLLUTANTS AS LEACHATE. CHECK WITH LOCAL REGULATORS ABOUT DISPOSAL REQUIREMENTS. ADDITIONAL LOCAL REGULATIONS MAY APPLY TO THE MAINTENANCE PROCEDURE.

BARRACUDA INSTALLATION NOTES
INSTALLATION OF THE STORMWATER TREATMENT UNITS SHALL BE PERFORMED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUCH INSTRUCTIONS CAN BE OBTAINED BY CALLING ADVANCED DRAINAGE SYSTEMS AT (800) 811-4710 OR BY LOGGING ON TO WWW.ADS-PIPE.COM OR WWW.BAYSAYER.COM

REGISTRATION INFORMATION
NORTH EAST COMMUNITY COMPLEX SOCCER FIELDS
DALTON, GA
DATE: 6/27/2021
PROJECT: DALTON, GA
DRAWN BY: KATHRYN D. STRICKLAND
CHECKED BY: KATHRYN D. STRICKLAND
SCALE: NOT TO SCALE
SHEET 2 OF 2

GMC

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Atlanta, GA 30339
T 770.952.2481
GMCNETWORK.COM

ISSUE DATE
PERMIT SET: 6/27/2021
COUNTY COMMENTS: 8/2/2021

DRAWN BY:
CHECKED BY:

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

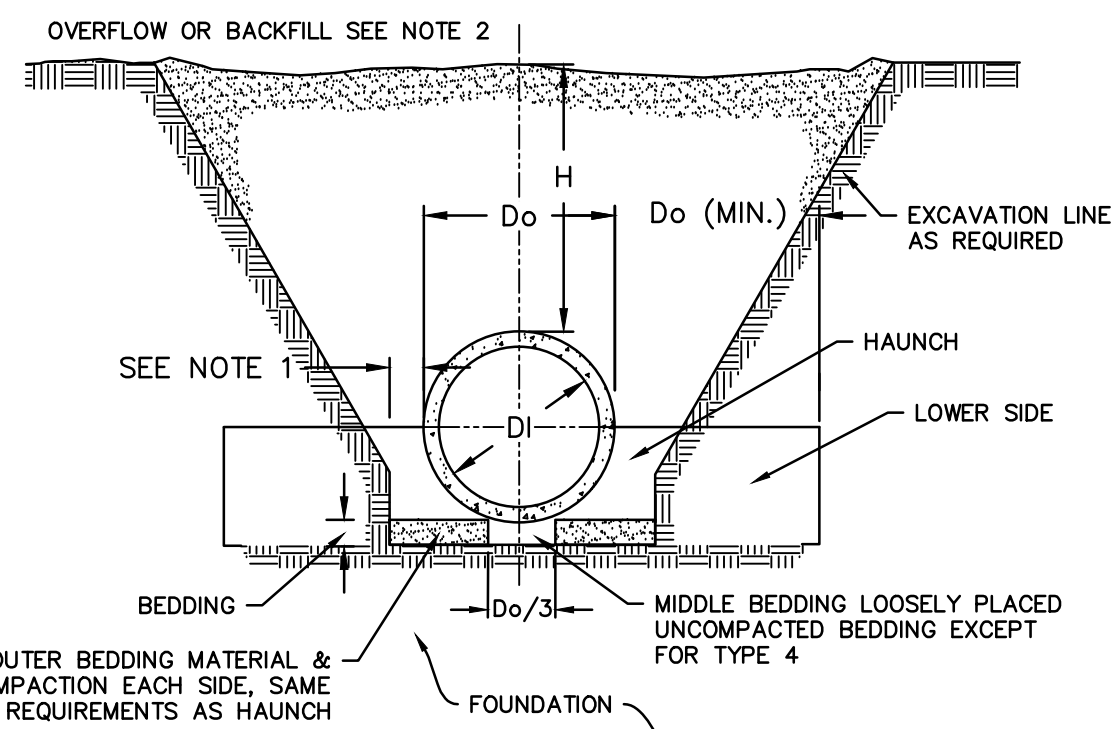
GMC #CATL210004

REGISTERED PROFESSIONAL ENGINEER
KATHRYN D. STRICKLAND
No. PE044235
8/2/2021

C-903
sheet of

DETAILS

KATHRYN STRICKLAND
LEVEL II CERTIFICATION #87240
EXPIRATION DATE 3/15/22

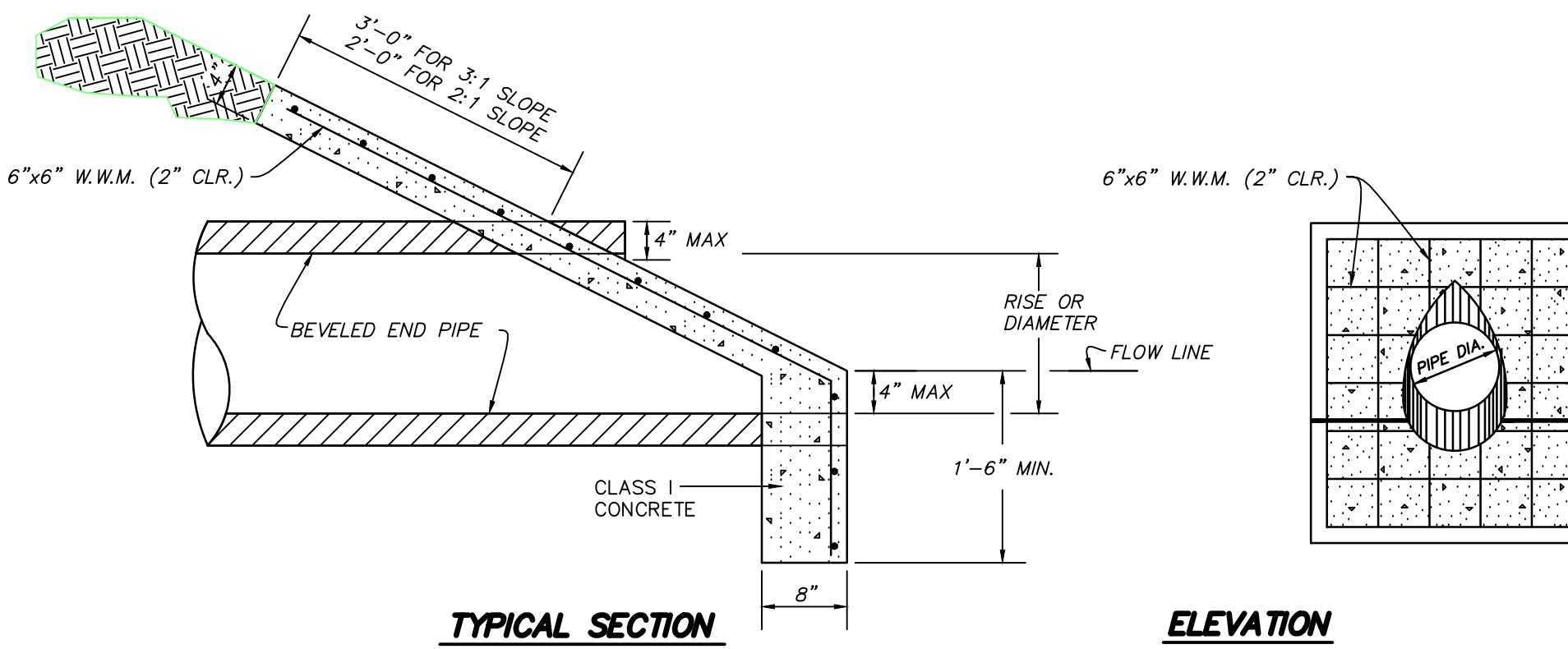


- CLEARANCE BETWEEN PIPE & TRENCH WALL SHALL BE ADEQUATE TO ENABLE SPECIFIED COMPACTION BUT NOT MORE THAN D_o/6.
- OVERFILL OR BACKFILL MATERIAL SHALL MEET THE REQUIREMENTS OF AASHTO A1, A3, A2-4, A2-5 OR A4.
- COMPACTION SHALL BE ACCORDING WITH TABLE NO. 1. PROCTOR STANDARD DENSITY SHALL FOLLOW THE AASHTO T-99, T310.
- WHEN THE TRENCH WIDTH SPECIFIED MUST BE EXCEEDED, THE OWNER AND THE ENGINEER OF RECORD SHALL BE NOTIFIED.
- THE TRENCH WIDTH SHALL BE WIDER THAN SHOWN IF REQUIRED FOR ADEQUATE SPACE TO ATTAIN THE SPECIFIED COMPACTION IN THE HAUNCH AND BEDDING ZONES.
- EMBANKMENT LOADING SHALL BE USED WHEN TRENCH WALLS CONSIST OF EMBANKMENT UNLESS A GEOTECHNICAL ANALYSIS IS MADE AND THE SOIL IN THE TRENCH WALLS IS COMPACTED TO A HIGHER LEVEL THAN THE SOIL IN THE BACKFILL ZONE.
- REQUIRED BEDDING THICKNESS IS THE THICKNESS OF THE BEDDING PRIOR TO PLACEMENT OF THE PIPE.

INSTALLATION TYPE	BEDDING THICKNESS	HAUNCH & OUTER BEDDING	LOWER SIDE
TYPE 1	D _o /24 MINIMUM; NOT LESS THAN 3". IF ROCK FOUNDATION, USE D _o /12 MINIMUM; NOT LESS THAN 6".	95% PROCTOR STANDARD FOR SOIL A1 & A3	UNDISTURBED NATURAL SOIL WITH FIRMNESS EQUIVALENT TO THE FOLLOWING PLACED SOILS: 90% PROCTOR STANDARD FOR SOIL A1 & A3 OR 95% PROCTOR STANDARD FOR SOIL A2-4 & A2-5 OR EMBANKMENT TO THE SAME REQUIREMENTS
TYPE 2	D _o /24 MINIMUM; NOT LESS THAN 3". IF ROCK FOUNDATION, USE D _o /12 MINIMUM; NOT LESS THAN 6".	90% PROCTOR STANDARD FOR SOIL A1 & A3 OR 85% FOR SOILS A2-4, A2-5 & A4	UNDISTURBED NATURAL SOIL WITH FIRMNESS EQUIVALENT TO THE FOLLOWING PLACED SOILS: 85% PROCTOR STANDARD FOR SOIL A1 & A3 OR 90% PROCTOR STANDARD FOR SOIL A2-4, A2-5 & A4 OR EMBANKMENT TO THE SAME REQUIREMENTS

NOTE: TYPE 2 MUST BE USED UNDER ALL PAVEMENT SECTIONS.

TYPICAL TRENCH DETAIL FOR REINFORCED CONCRETE PIPE
N.T.S.



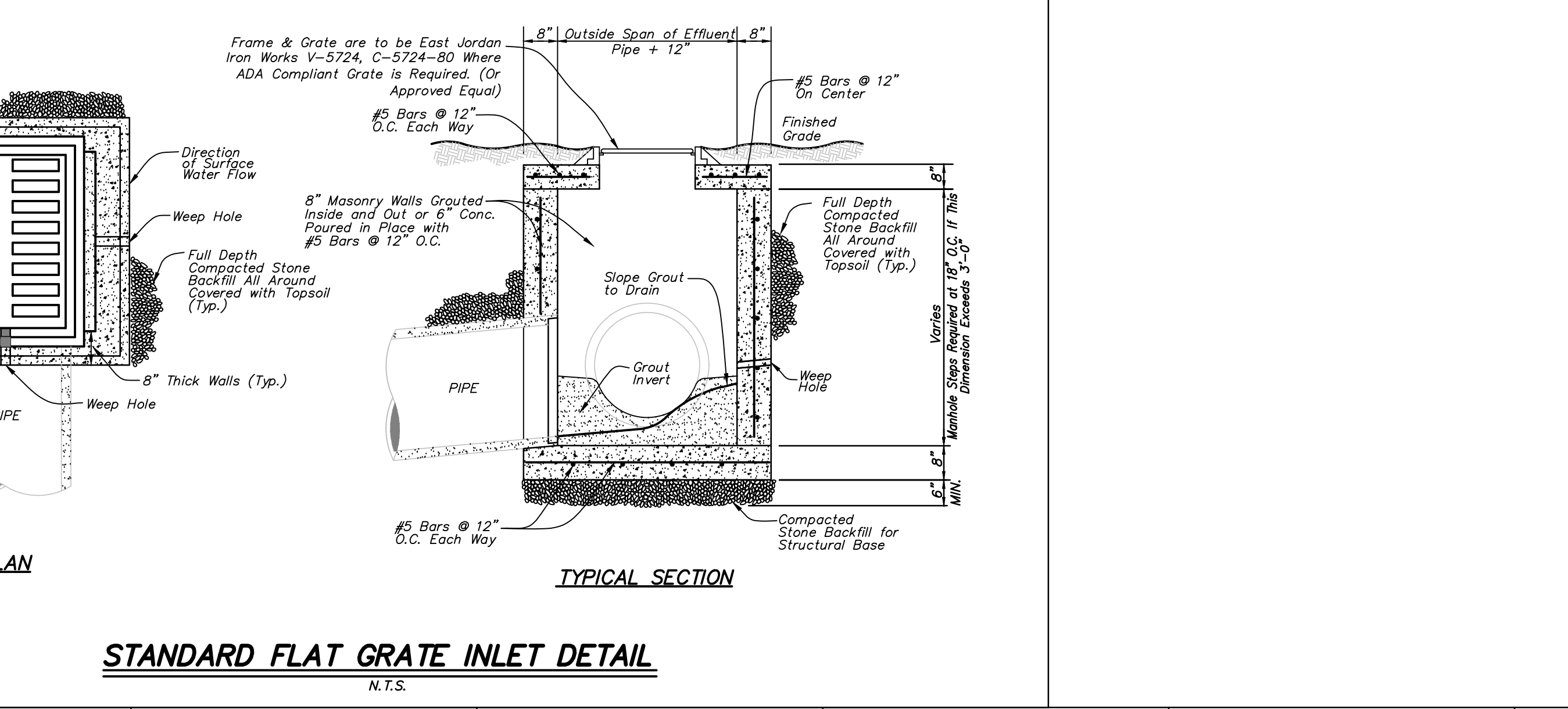
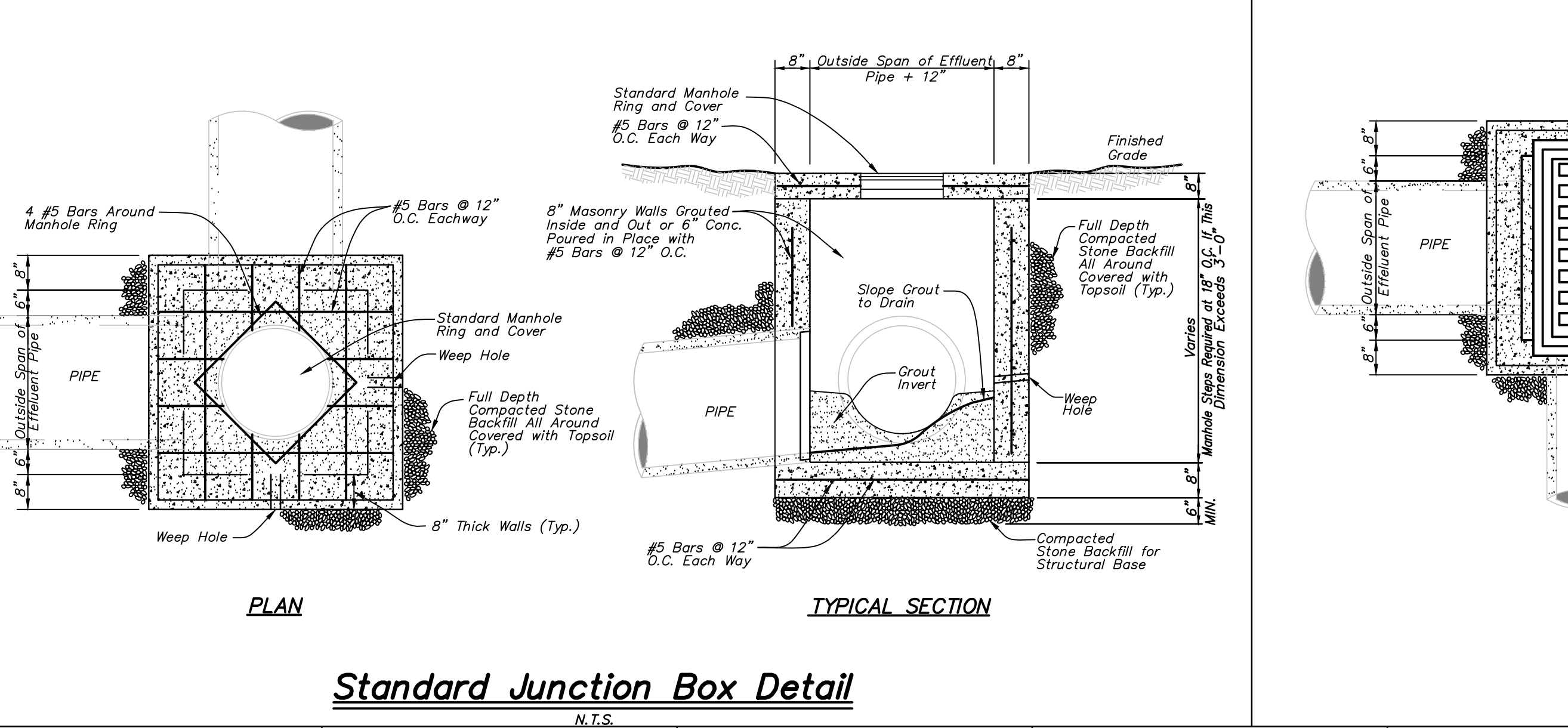
CONCRETE SLOPE PAVED HEADWALL
N.T.S.

OPENING	WALL	FOOTING	CLASS "B" CONCRETE	STEEL
8" x 12"	1.00	1.00	1.00	1.00
12" x 12"	1.50	1.50	1.50	1.50
16" x 16"	2.00	2.00	2.00	2.00
20" x 20"	2.50	2.50	2.50	2.50
24" x 24"	3.00	3.00	3.00	3.00
30" x 30"	3.50	3.50	3.50	3.50
36" x 36"	4.00	4.00	4.00	4.00
42" x 42"	4.50	4.50	4.50	4.50
48" x 48"	5.00	5.00	5.00	5.00
54" x 54"	5.50	5.50	5.50	5.50
60" x 60"	6.00	6.00	6.00	6.00

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
STANDARD
PIPE CULVERT
CONCRETE HEADWALL

SECTION I-I
SECTION J-J
SECTION A-A
SECTION G-G
SECTION H-H
SECTION F-F

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
STANDARD
CATCH BASINS
FOR USE WITH CURB (6" OR 12" & GUTTER (IN BAGG OR LOW POINTS))



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NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

ISSUE DATE: 6/21/2021
PERMIT SET: 6/21/2021
COUNTY COMMENTS: 8/2/2021

SCALE AS SHOWN

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
STANDARD
CATCH BASINS
FOR USE WITH CURB (6" OR 12" & GUTTER (IN BAGG OR LOW POINTS))

SCALE AS SHOWN

1034D

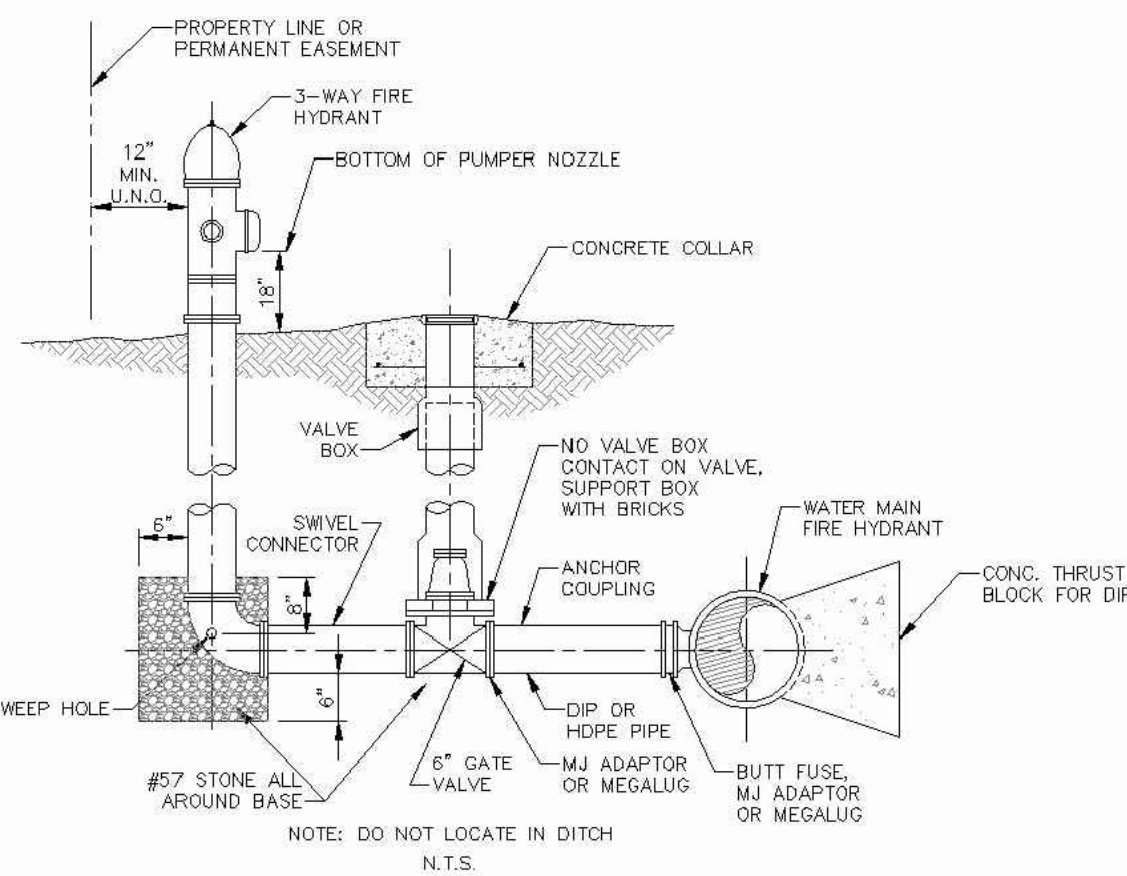
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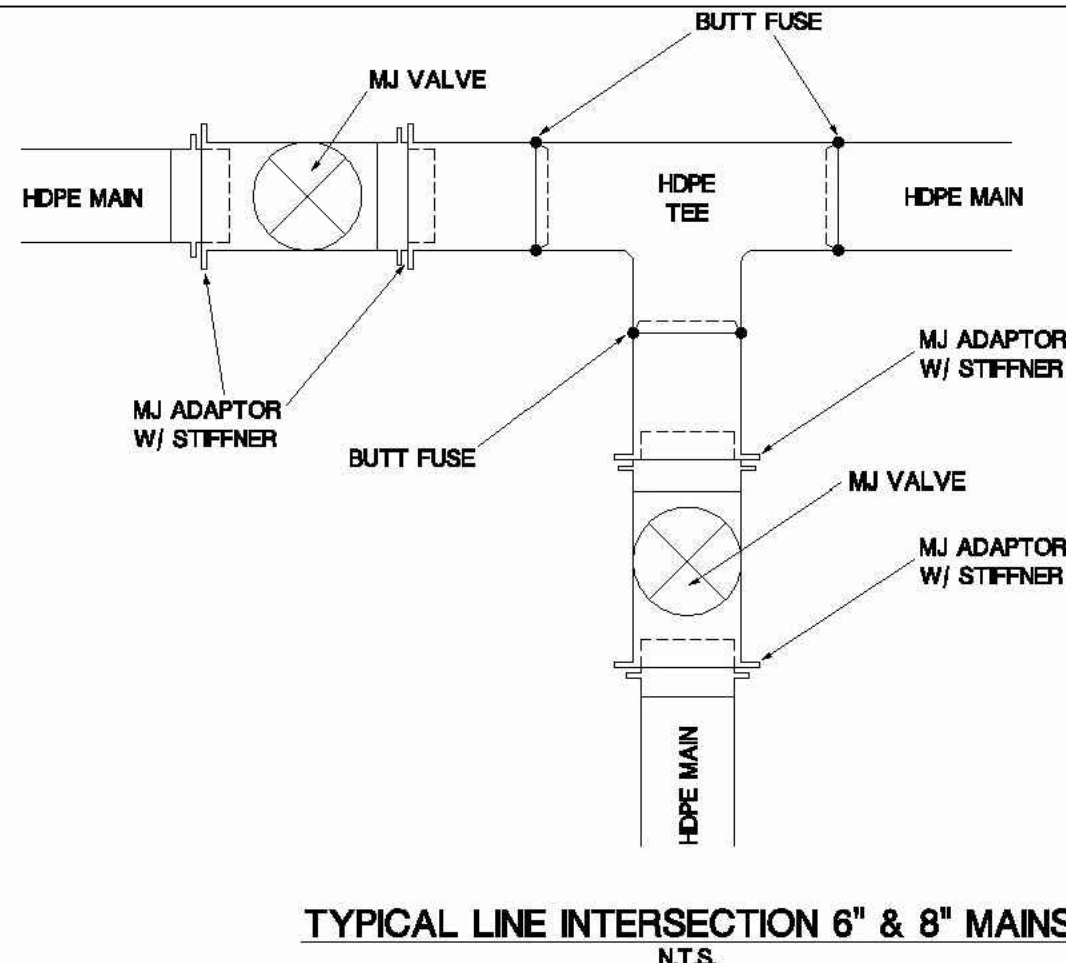
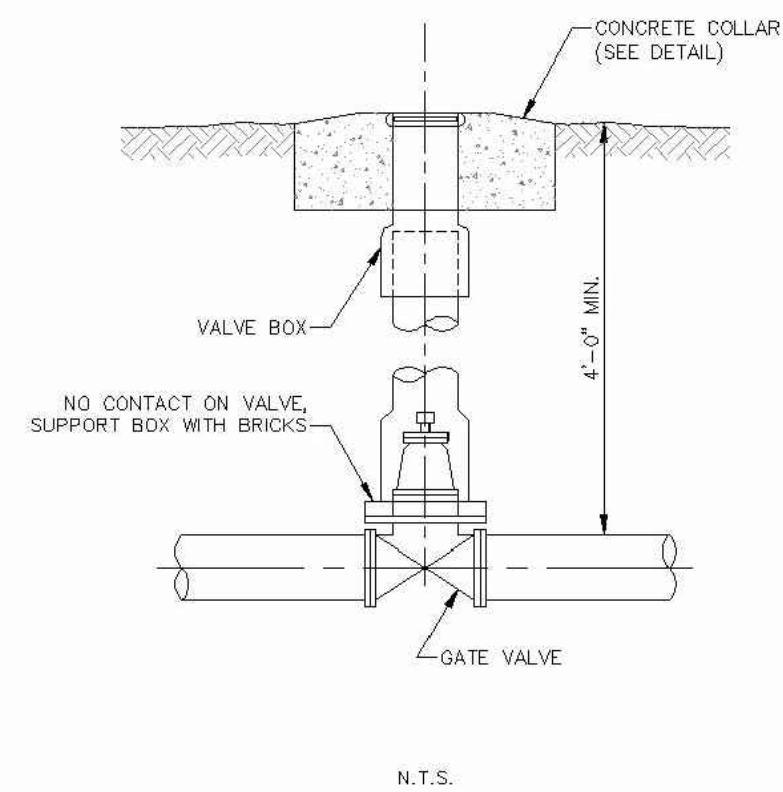
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EXPIRATION DATE 3/15/22

8/2/2021

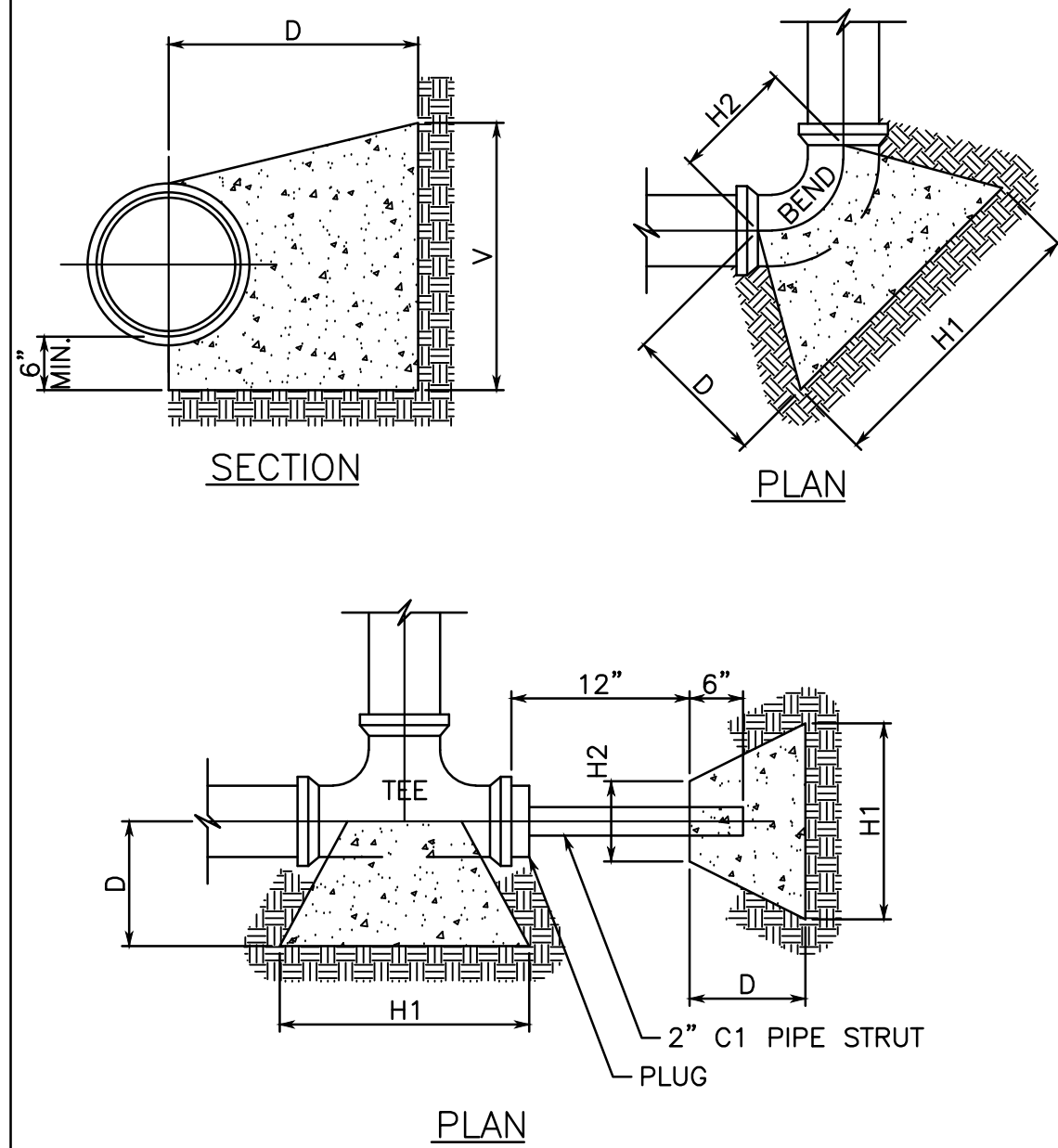
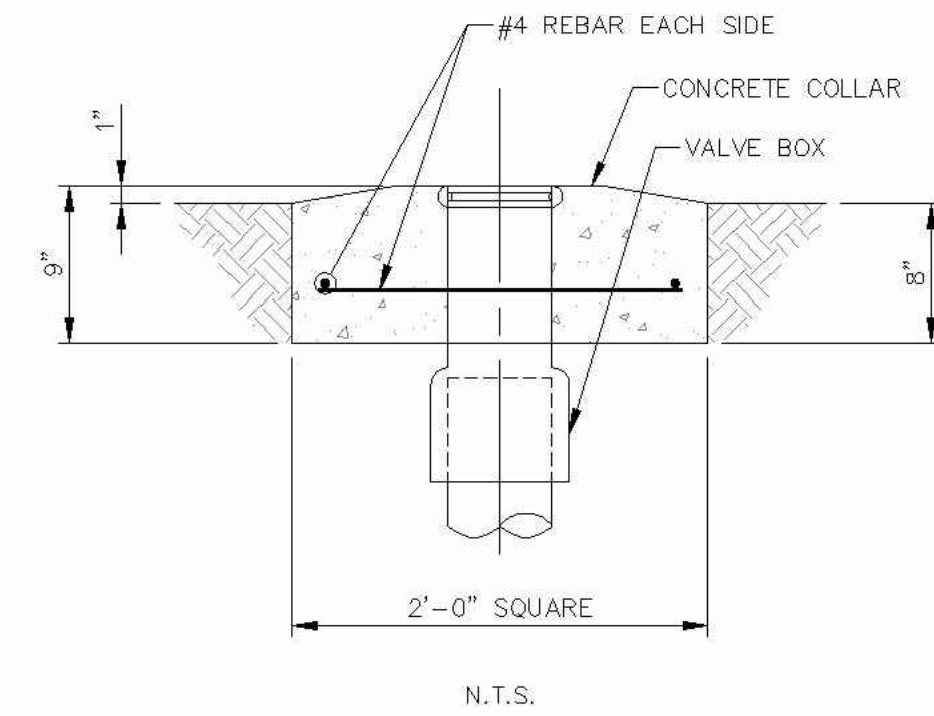
FIRE HYDRANT DETAIL



GATE VALVE INSTALLATION DETAIL



CONCRETE COLLAR FOR VALVE BOX



PIPE SIZE	11-1/4' BEND			
	H1	H2	D	V
4"	12"	8"	12"	12"
6"	16"	10"	18"	12"
8"	8"	11"	18"	16"

PIPE SIZE	22-1/2' BEND			
	H1	H2	D	V
4"	12"	8"	12"	12"
6"	18"	10"	18"	18"
8"	27"	11"	18"	20"

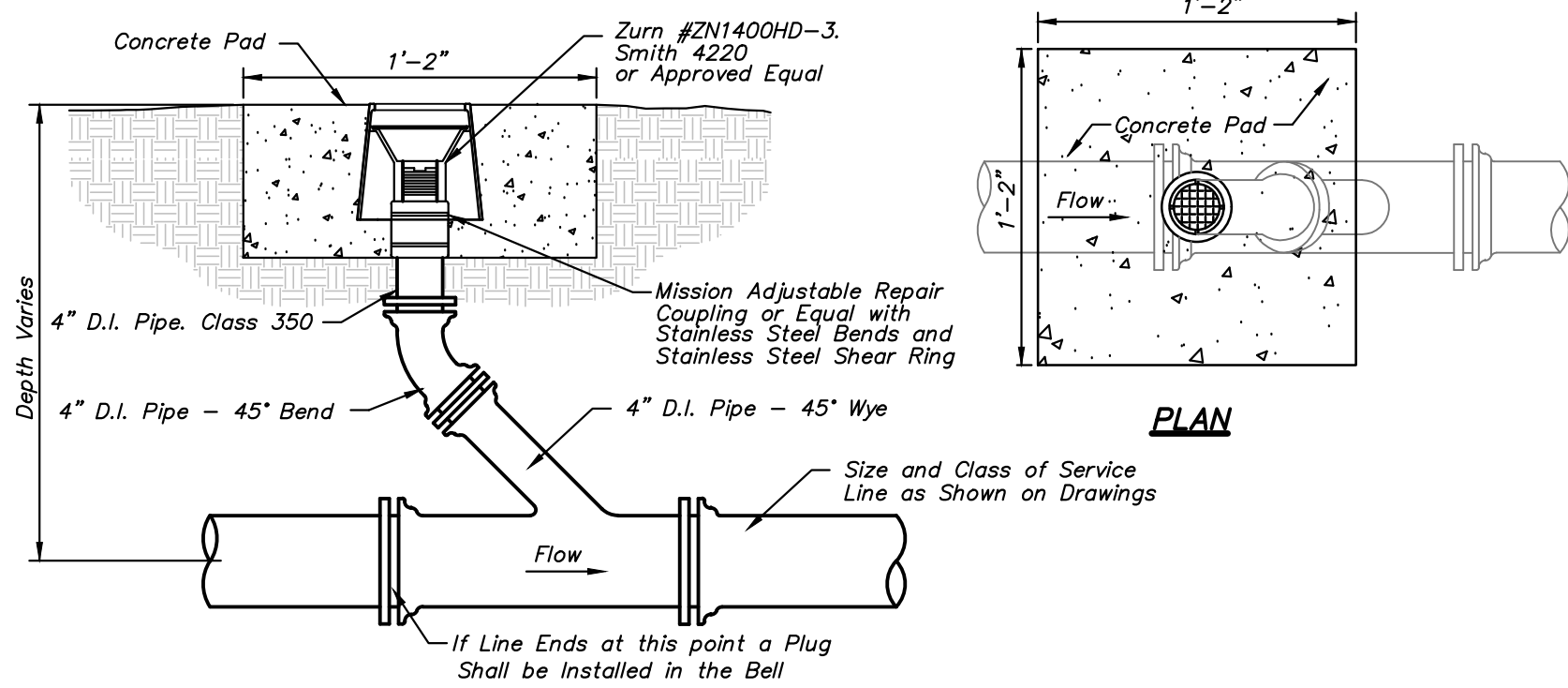
PIPE SIZE	45' BEND			
	H1	H2	D	V
4"	24"	8"	12"	12"
6"	30"	10"	18"	20"
8"	36"	11"	18"	30"

PIPE SIZE	90' BEND			
	H1	H2	D	V
4"	24"	12"	12"	24"
6"	36"	16"	18"	30"
8"	48"	18"	18"	36"

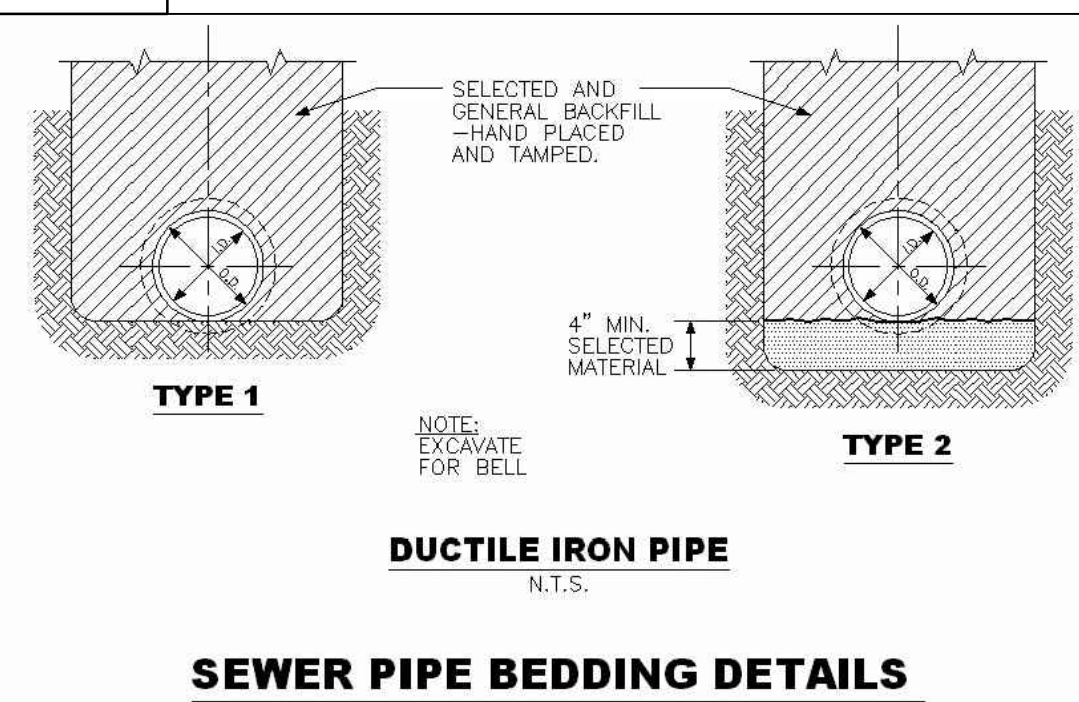
PIPE SIZE	TEES & PLUGS			
	H1	H2	D	V
4"	24"	12"	12"	16"
6"	30"	16"	18"	24"
8"	40"	18"	18"	30"

DIMENSIONS BASED ON SOIL BEARING CAPACITY OF 1000 PSF AND WATER PRESSURE OF 150 PSI (100 PSI PLUS 50% FOR WATER HAMMER).

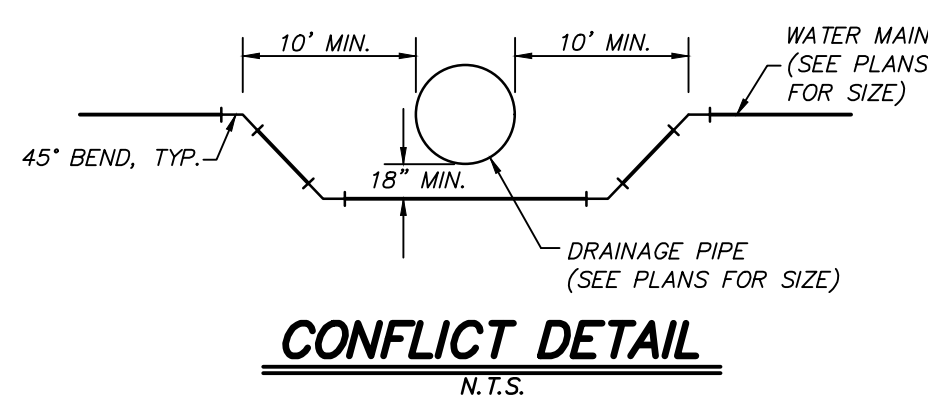
CONCRETE THRUST BLOCK DETAIL
NOT TO SCALE



TYPICAL GRAVITY SEWER CLEANOUT
N.T.S.



SEWER PIPE BEDDING DETAILS
N.T.S.

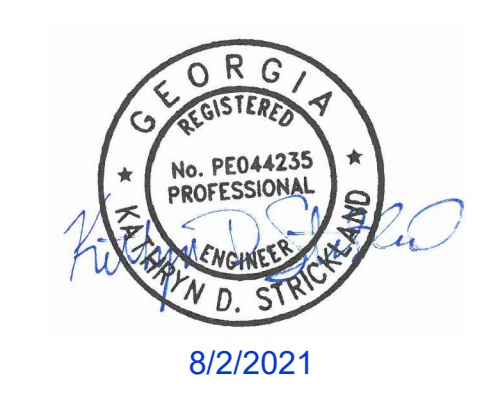


CONFLICT DETAIL
N.T.S.

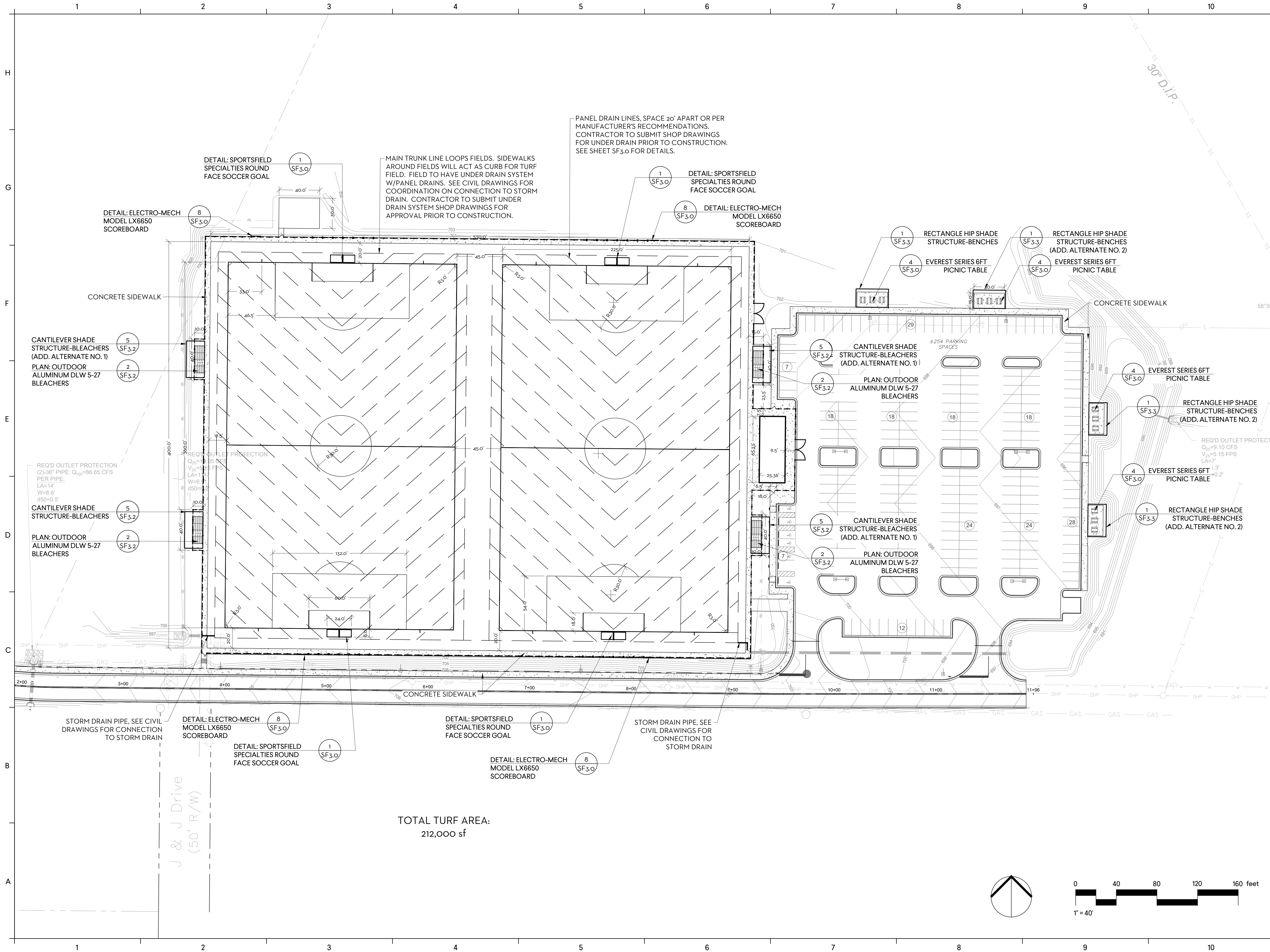
GMC
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Atlanta, GA 30339
T 770.952.2481
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ISSUE	DATE
PERMIT SET	6/21/2021
COUNTY COMMENTS	8/2/2021
DRAWN BY:	
CHECKED BY:	

NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA
GMC #CATL210004



DETAILS
C-907
sheet of 498



PANEL DRAIN LINES, SPACE 20' APART OR PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR UNDER DRAIN PRIOR TO CONSTRUCTION. SEE SHEET SF3.0 FOR DETAILS.

DETAIL: SPORTSFIELD SPECIALTIES ROUND FACE SOCCER GOAL

MAIN TRUNK LINE LOOPS FIELDS. SIDEWALKS AROUND FIELDS WILL ACT AS CURB FOR TURF FIELD. FIELD TO HAVE UNDER DRAIN SYSTEM W/PANEL DRAINS. SEE CIVIL DRAWINGS FOR COORDINATION ON CONNECTION TO STORM DRAIN. CONTRACTOR TO SUBMIT UNDER DRAIN SYSTEM SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.

DETAIL: SPORTSFIELD SPECIALTIES ROUND FACE SOCCER GOAL

DETAIL: ELECTRO-MECH MODEL LX6650 SCOREBOARD

RECTANGLE HIP SHADE STRUCTURE-BENCHES

RECTANGLE HIP SHADE STRUCTURE-BENCHES (ADD. ALTERNATE NO. 2)

CANTILEVER SHADE STRUCTURE-BLEACHERS (ADD. ALTERNATE NO. 1)
PLAN: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

CANTILEVER SHADE STRUCTURE-BLEACHERS (ADD. ALTERNATE NO. 1)

PLAN: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

CANTILEVER SHADE STRUCTURE-BLEACHERS
PLAN: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

CANTILEVER SHADE STRUCTURE-BLEACHERS (ADD. ALTERNATE NO. 1)

PLAN: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

EVEREST SERIES 6FT PICNIC TABLE

RECTANGLE HIP SHADE STRUCTURE-BENCHES (ADD. ALTERNATE NO. 2)

EVEREST SERIES 6FT PICNIC TABLE

EVEREST SERIES 6FT PICNIC TABLE

RECTANGLE HIP SHADE STRUCTURE-BENCHES (ADD. ALTERNATE NO. 2)

STORM DRAIN PIPE, SEE CIVIL DRAWINGS FOR CONNECTION TO STORM DRAIN

DETAIL: ELECTRO-MECH MODEL LX6650 SCOREBOARD

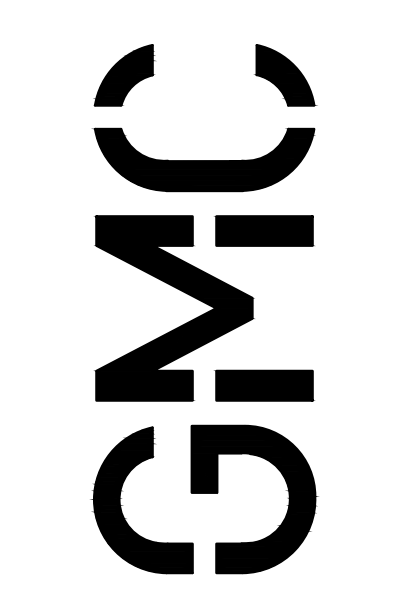
DETAIL: SPORTSFIELD SPECIALTIES ROUND FACE SOCCER GOAL

STORM DRAIN PIPE, SEE CIVIL DRAWINGS FOR CONNECTION TO STORM DRAIN

DETAIL: ELECTRO-MECH MODEL LX6650 SCOREBOARD

J & J Drive (50' R/W)

TOTAL TURF AREA: 212,000 sf



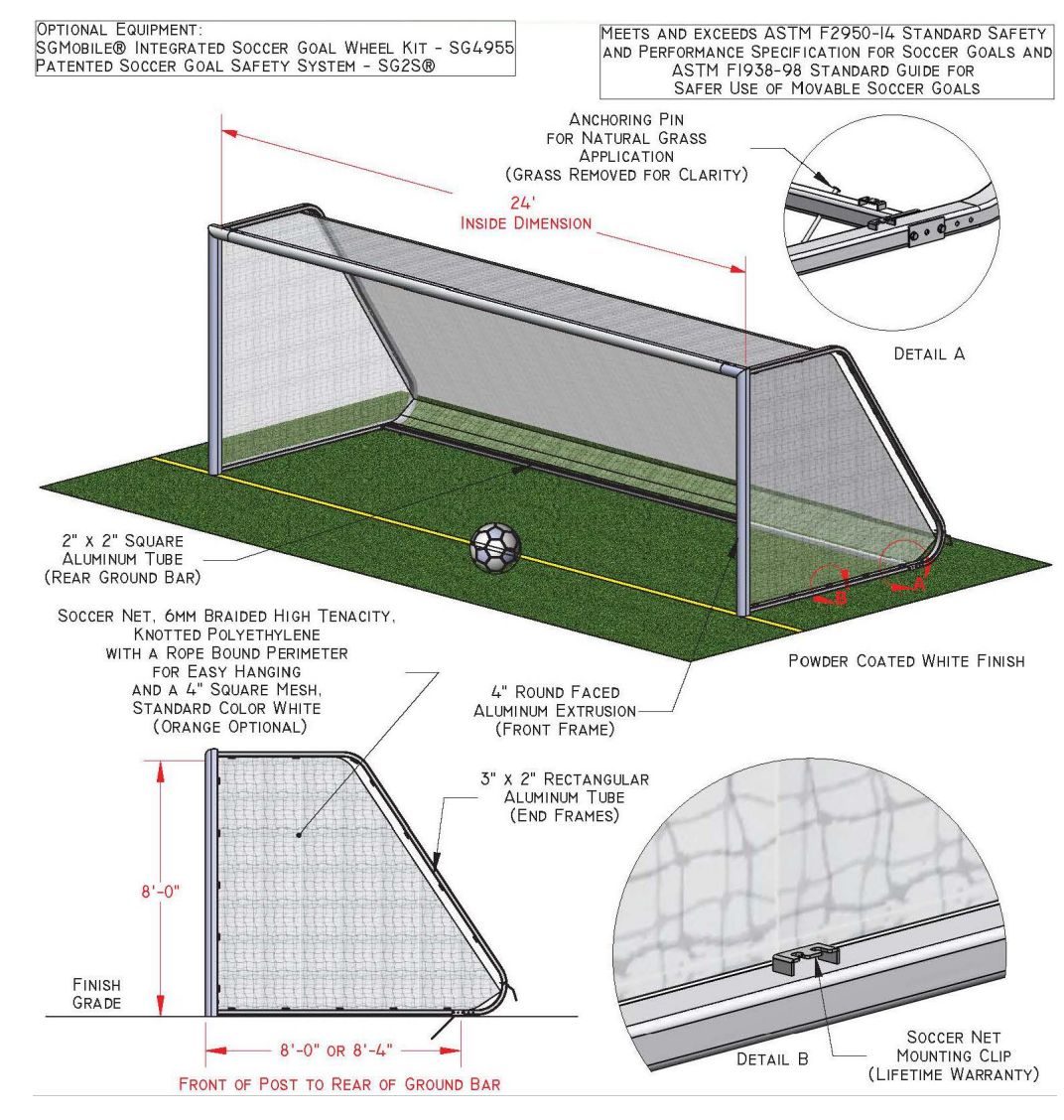
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ISSUE	DATE
PERMIT SET	6/21/2021
COUNTY COMMENTS	8/02/2021

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA
GMC #CATL210004

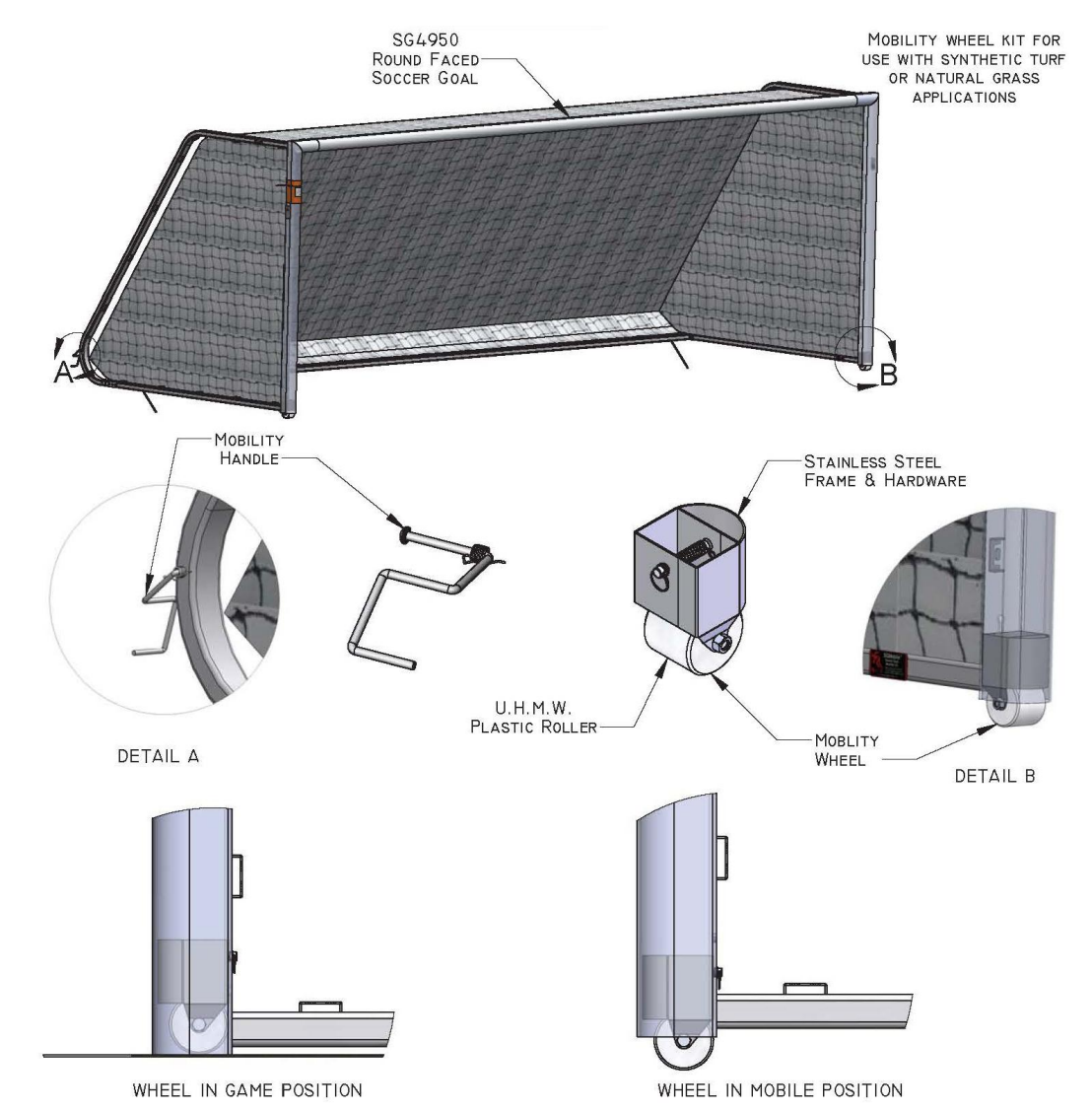


SOCCER FIELD PLAN
SF1.0
Sheet of



M2 EACH @ SOCCER FIELD FOR A TOTAL OF 4

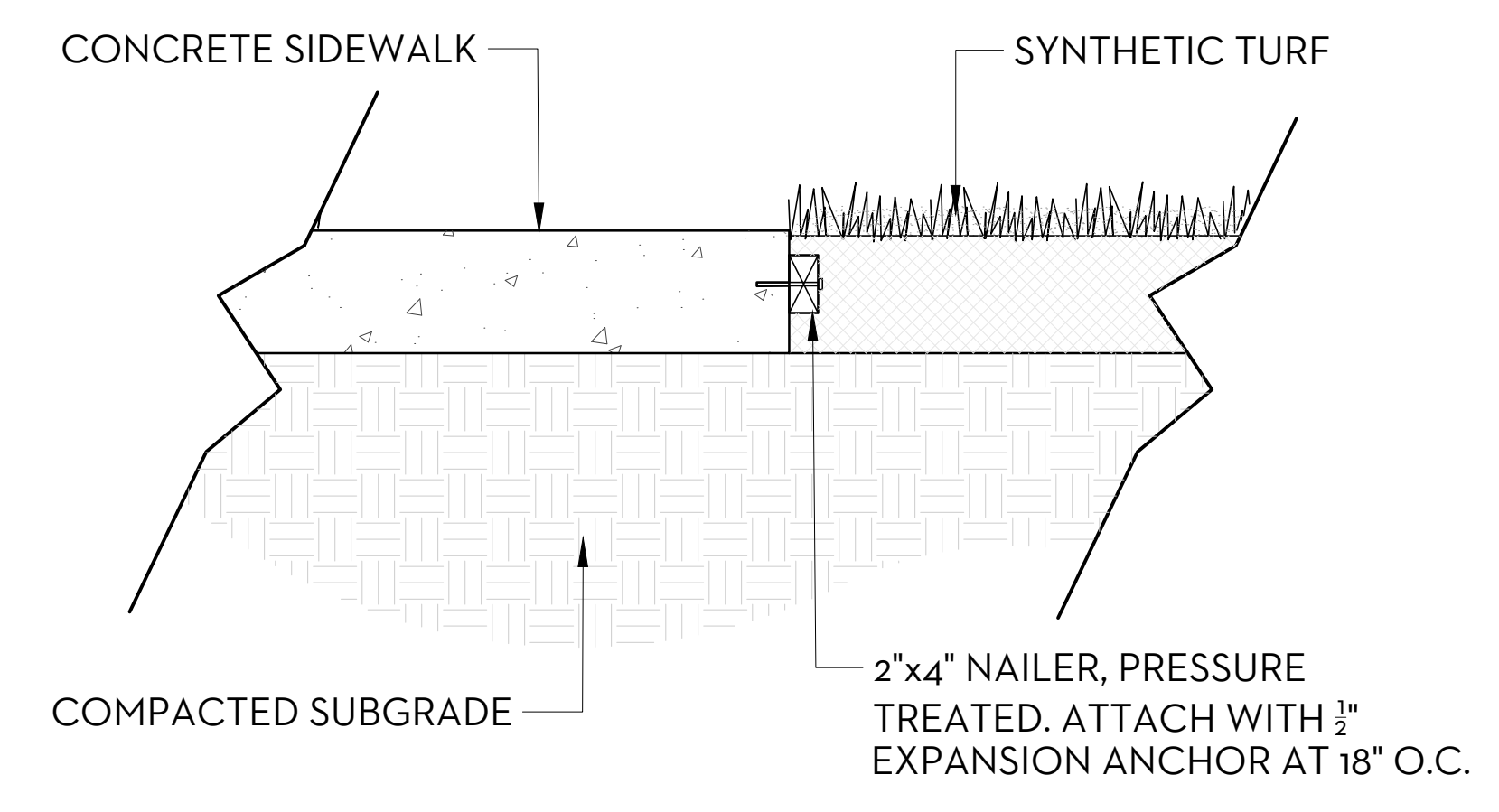
NOTES:
1. SOCCER GOAL FRAME COLOR TO BE WHITE.
2. SOCCER GOAL NETTING TO BE WHITE.
3. TO BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
EQUIPMENT BY: SPORTSFIELD SPECIALTIES SPORTSFIELDSPECIALTIES.COM 888-975-3343 OR APPROVED EQUAL



WHEEL KIT NEEDED @ EVERY SOCCER GOAL FOR A TOTAL OF 4

NOTES:
1. EQUIPMENT BY: SPORTSFIELD SPECIALTIES SPORTSFIELDSPECIALTIES.COM 888-975-3343 OR APPROVED EQUAL

SOCCER NOTE:
SHAW SPORTS IS RESPONSIBLE FROM SUB-GRADE UP. WORK TO INCLUDE 6" DRAINAGE STONE, PANEL DRAIN, PERIMETER DRAIN, AND SYNTHETIC TURF SYSTEM. GENERAL CONTRACTOR TO COORDINATE WITH SHAW SPORTS ON TIMING AND SEQUENCE OF CONSTRUCTION.



1 DETAIL: SPORTSFIELD SPECIALTIES ROUND FACE SOCCER GOAL
N.T.S.

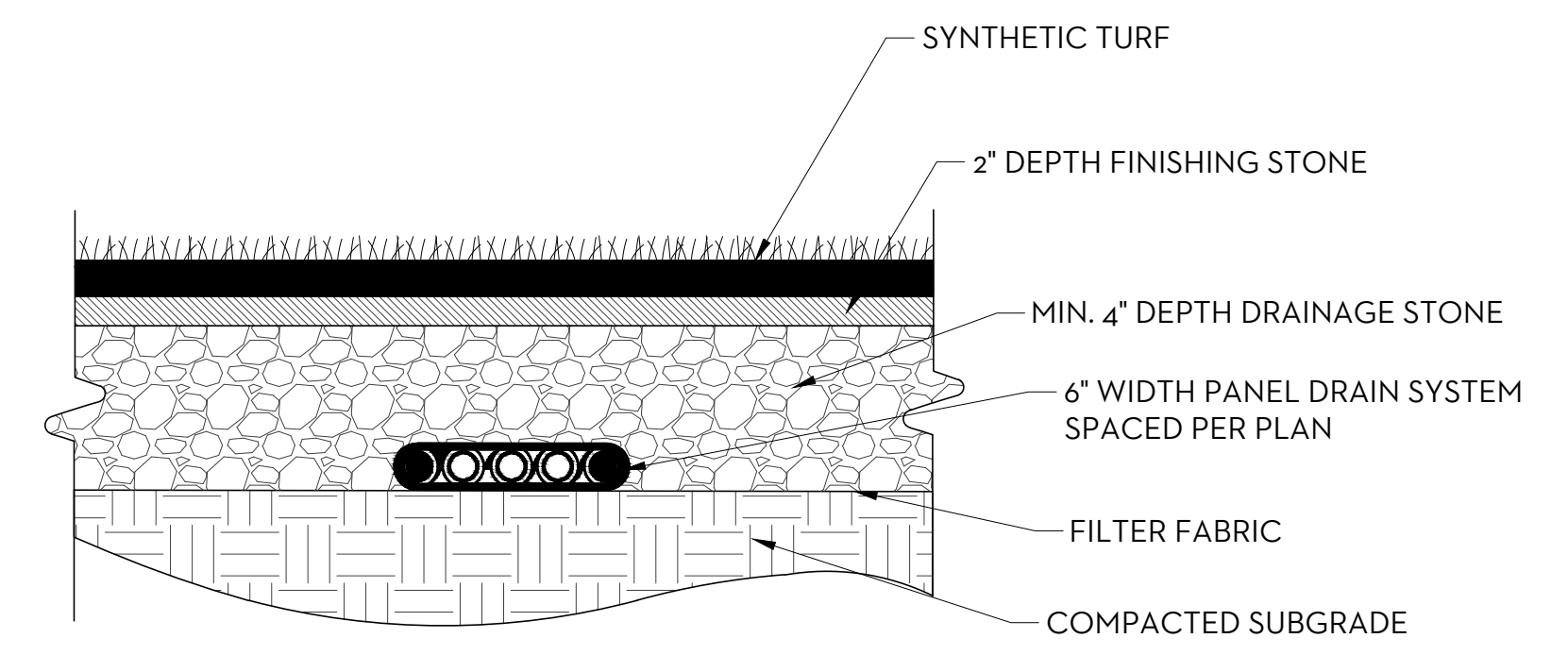
2 DETAIL: SPORTSFIELD SPECIALTIES INTEGRATED WHEEL KIT
N.T.S.

3 DETAIL: TURF ATTACHMENT AT CONCRETE SIDEWALK EDGE
N.T.S.

SOCCER NOTE:
SHAW SPORTS IS RESPONSIBLE FROM SUB-GRADE UP. WORK TO INCLUDE 6" DRAINAGE STONE, PANEL DRAIN, PERIMETER DRAIN, AND SYNTHETIC TURF SYSTEM. GENERAL CONTRACTOR TO COORDINATE WITH SHAW SPORTS ON TIMING AND SEQUENCE OF CONSTRUCTION.

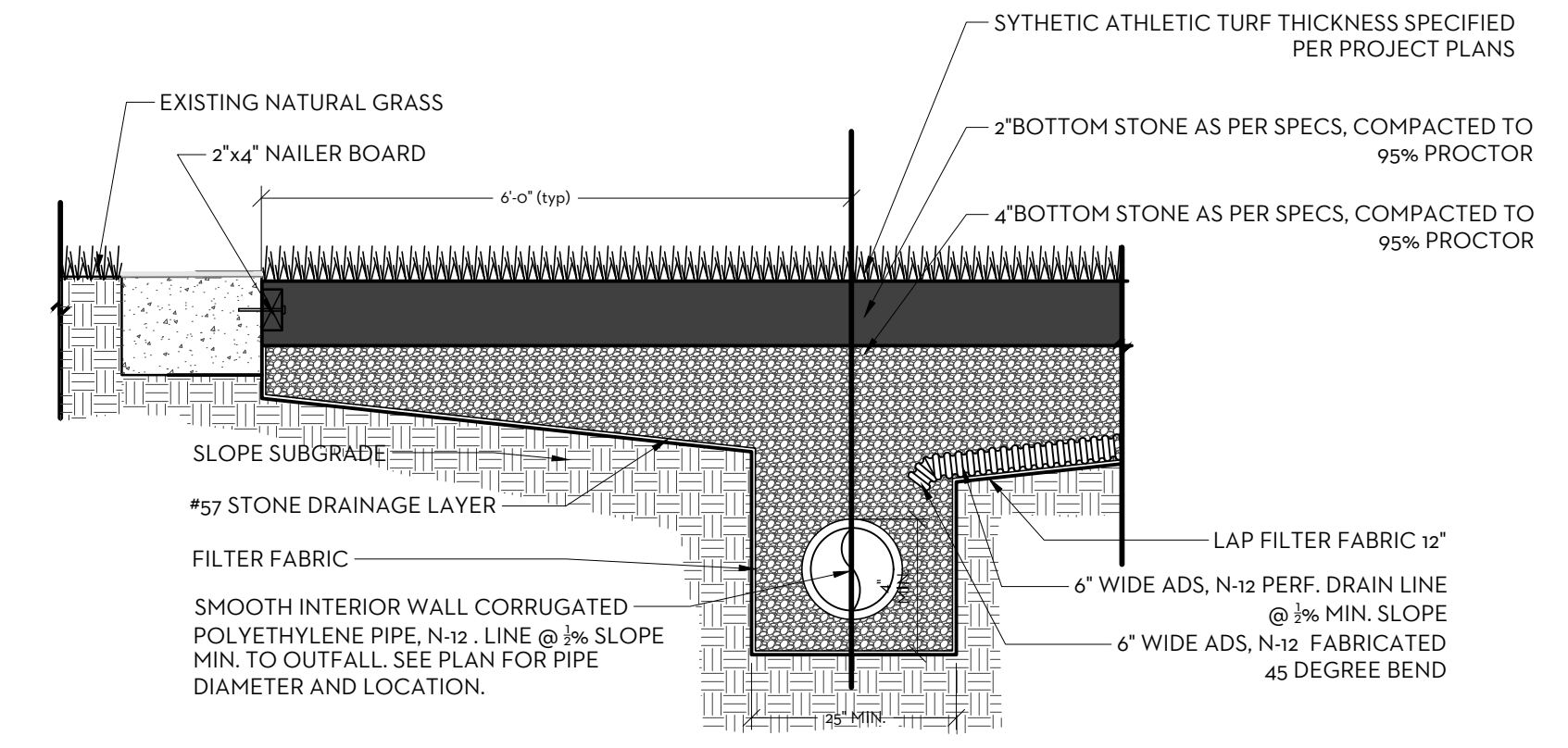


4 EVEREST SERIES 6FT PICNIC TABLE
N.T.S.

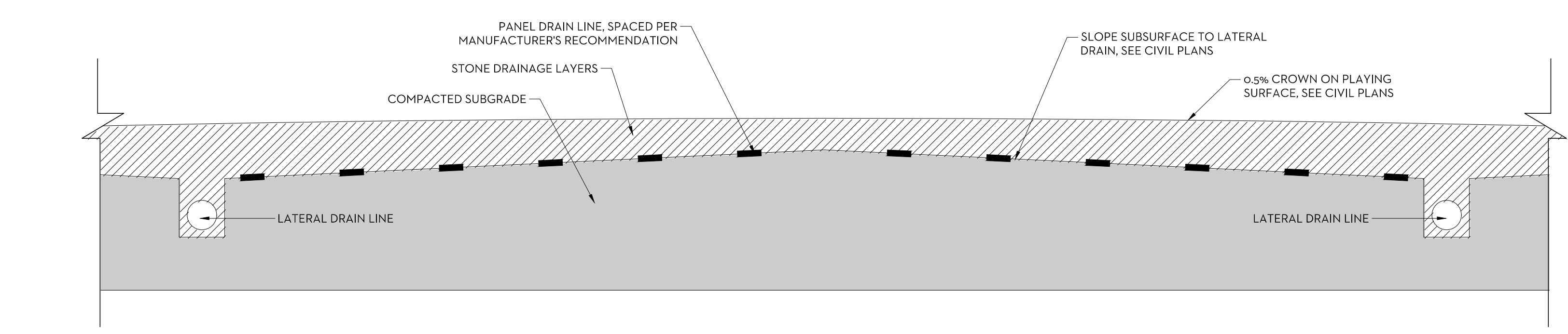


SOCCER NOTE:
SHAW SPORTS IS RESPONSIBLE FROM SUB-GRADE UP. WORK TO INCLUDE 6" DRAINAGE STONE, PANEL DRAIN, PERIMETER DRAIN, AND SYNTHETIC TURF SYSTEM. GENERAL CONTRACTOR TO COORDINATE WITH SHAW SPORTS ON TIMING AND SEQUENCE OF CONSTRUCTION.

5 DETAIL: PANEL DRAIN LINE (SYNTHETIC TURF)
N.T.S.

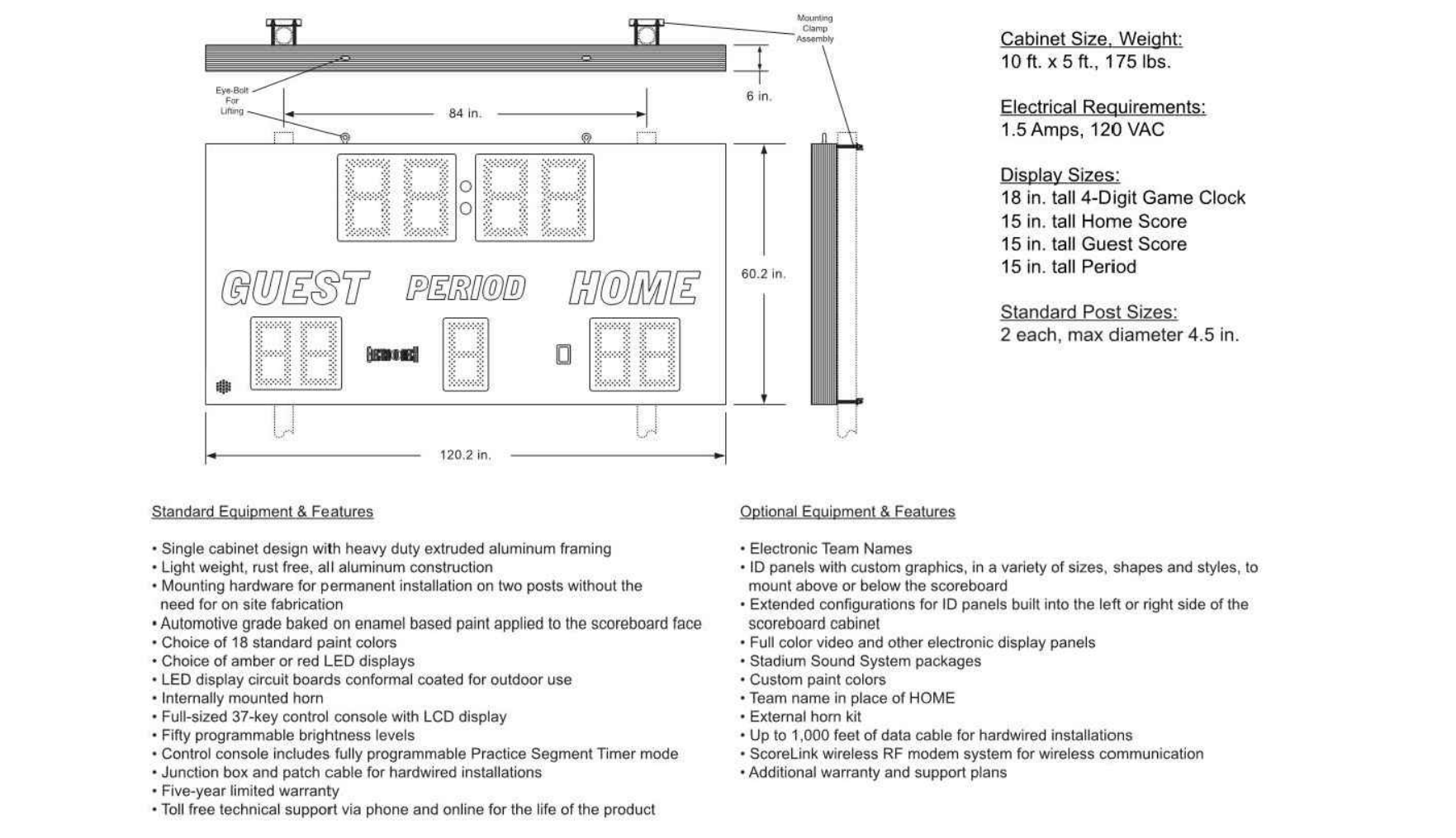


6 SECTION: PERIMETER DRAIN CONNECTION AT SYTHETIC TURF-NAILER
1" = 40'



SOCCER NOTE:
SHAW SPORTS IS RESPONSIBLE FROM SUB-GRADE UP. WORK TO INCLUDE 6" DRAINAGE STONE, PANEL DRAIN, PERIMETER DRAIN, AND SYNTHETIC TURF SYSTEM. GENERAL CONTRACTOR TO COORDINATE WITH SHAW SPORTS ON TIMING AND SEQUENCE OF CONSTRUCTION.

7 DETAIL: SPORTSFIELD SLOPED SUBGRADE
N.T.S.



8 DETAIL: ELECTRO-MECH MODEL LX6650 SCOREBOARD
N.T.S.

MULTI-PURPOSE/SOCCER SCOREBOARD BY:
OUTDOOR LED SCOREBOARD, MODEL LX6650
ELECTRO-MECH SCOREBOARD CO.
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www.electro-mech.com

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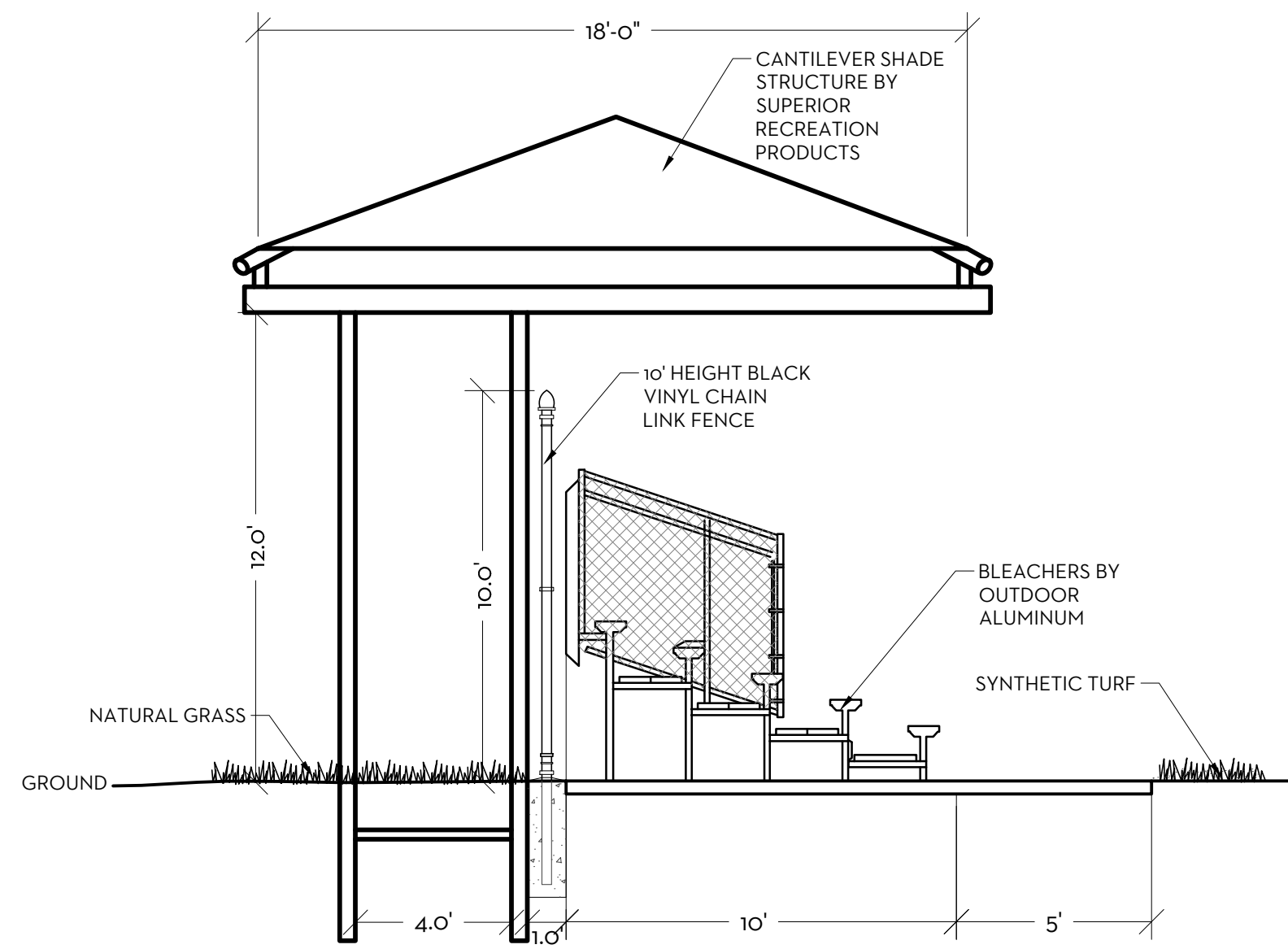
DRAWN BY: LMW
CHECKED BY: JJB

SPORTSFIELD DETAILS

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

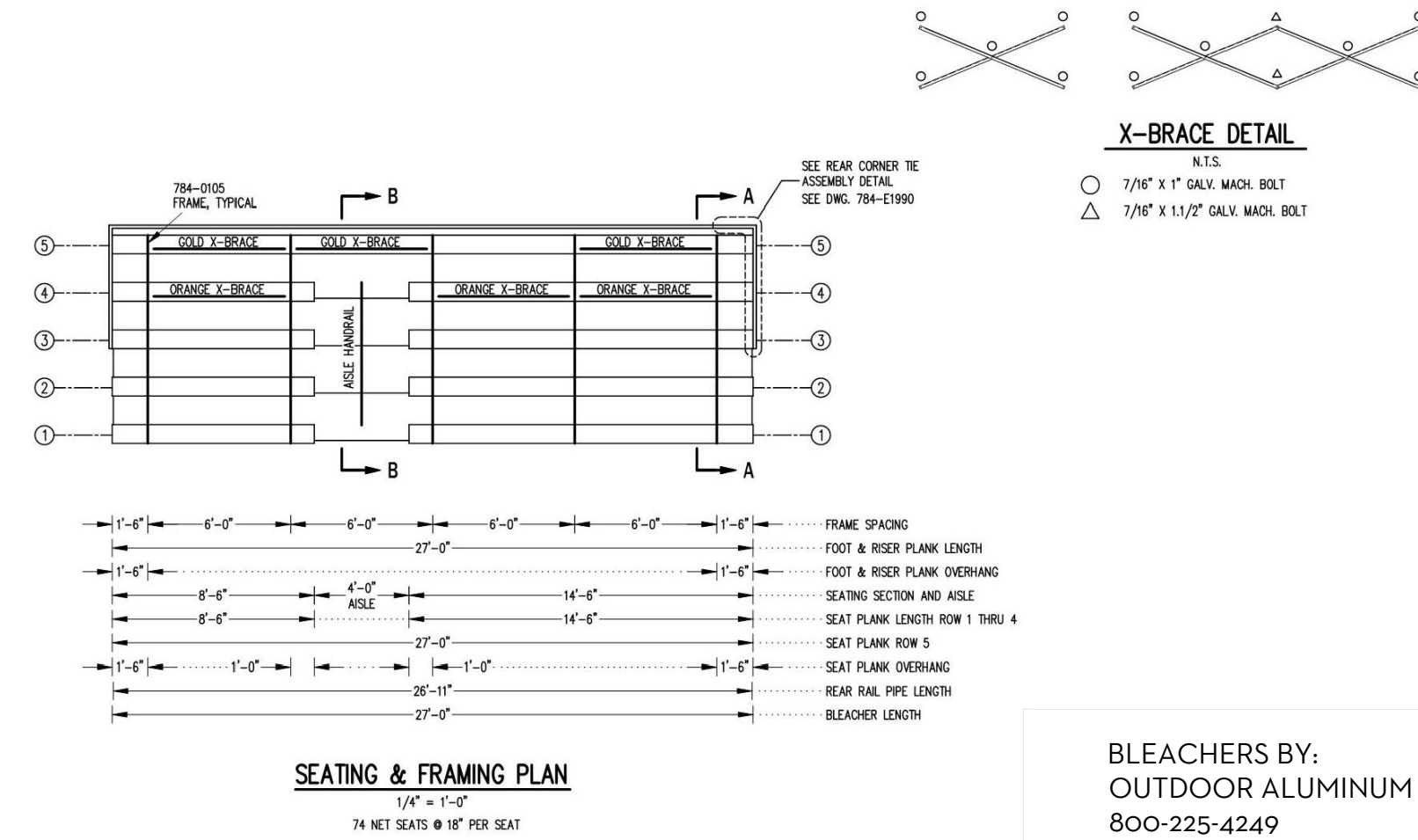
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SF3.0
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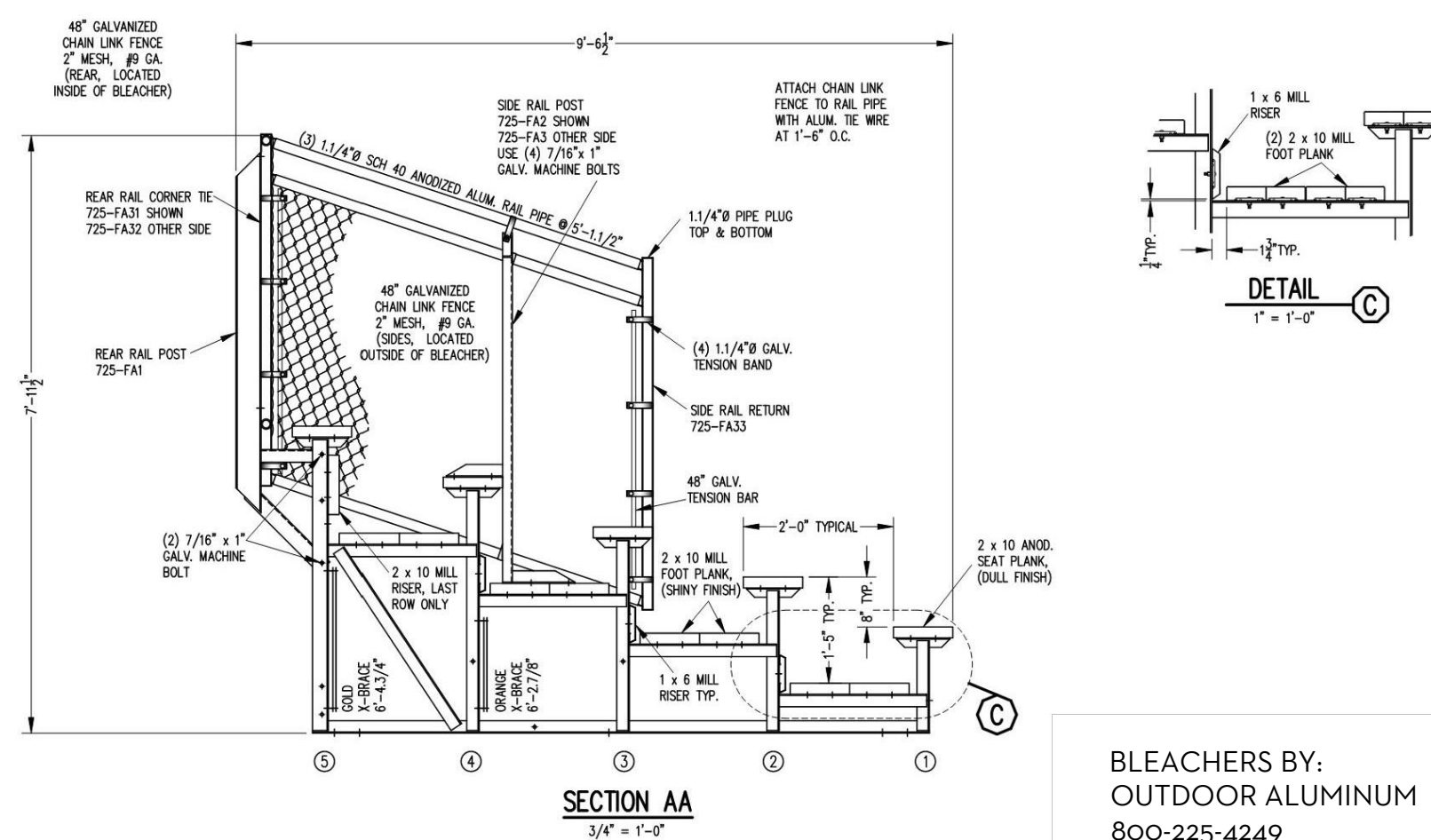
1 ELEVATION: FENCE, SHADE, BLEACHERS

1/4" = 1'-0"



2 PLAN: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

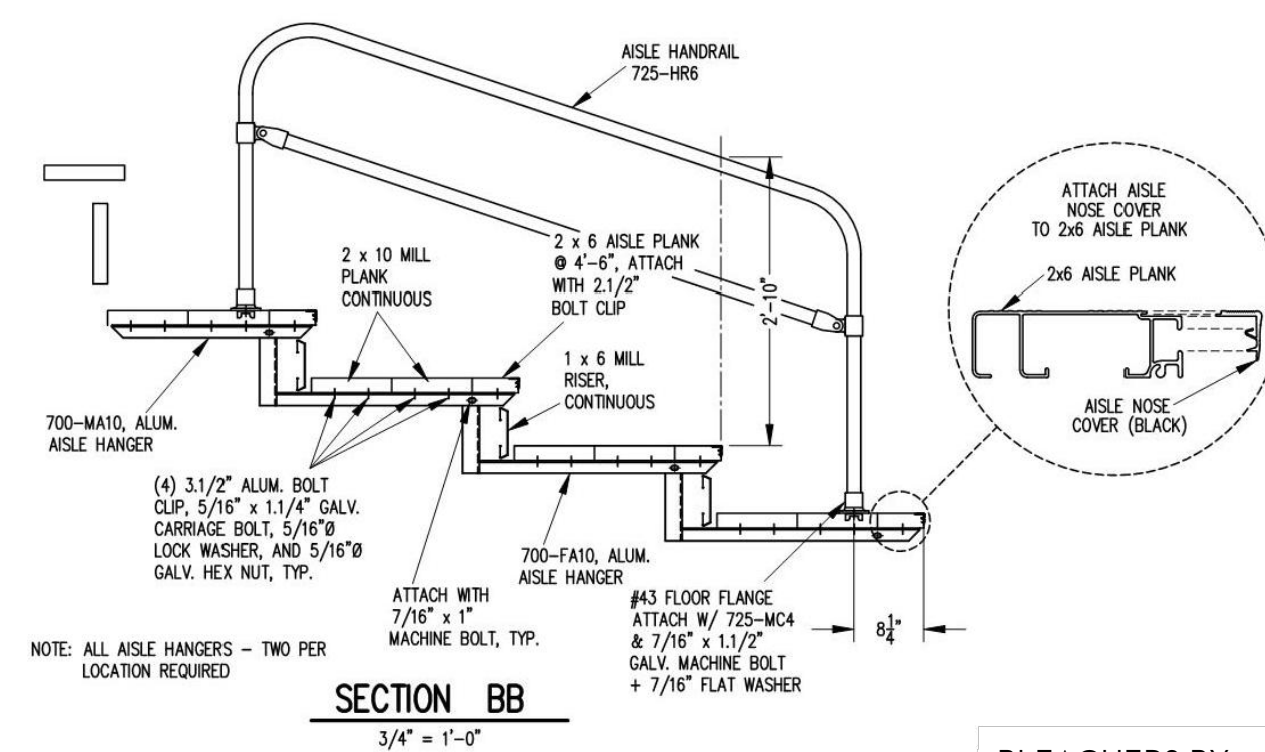
N.T.S.



BLEACHERS BY:
OUTDOOR ALUMINUM
800-225-4249
www.outdooraluminum.com

3 SECTION AA: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

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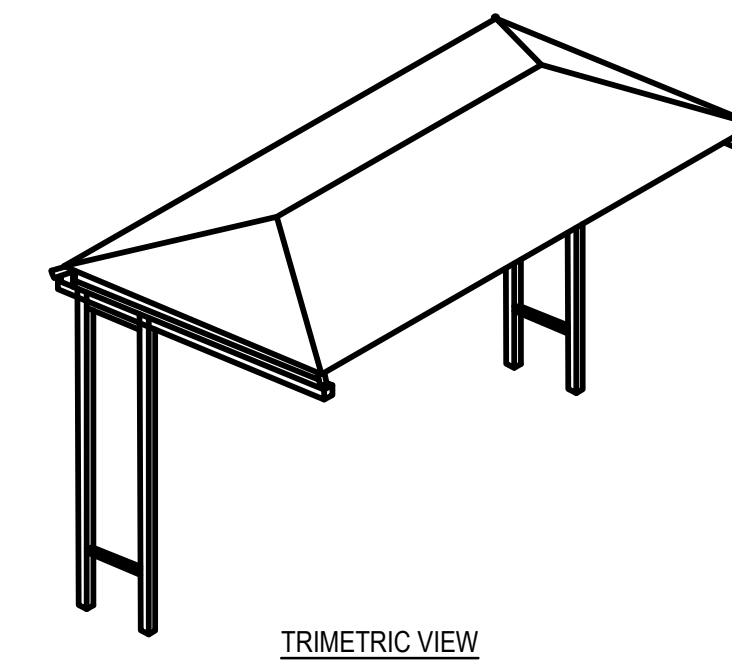
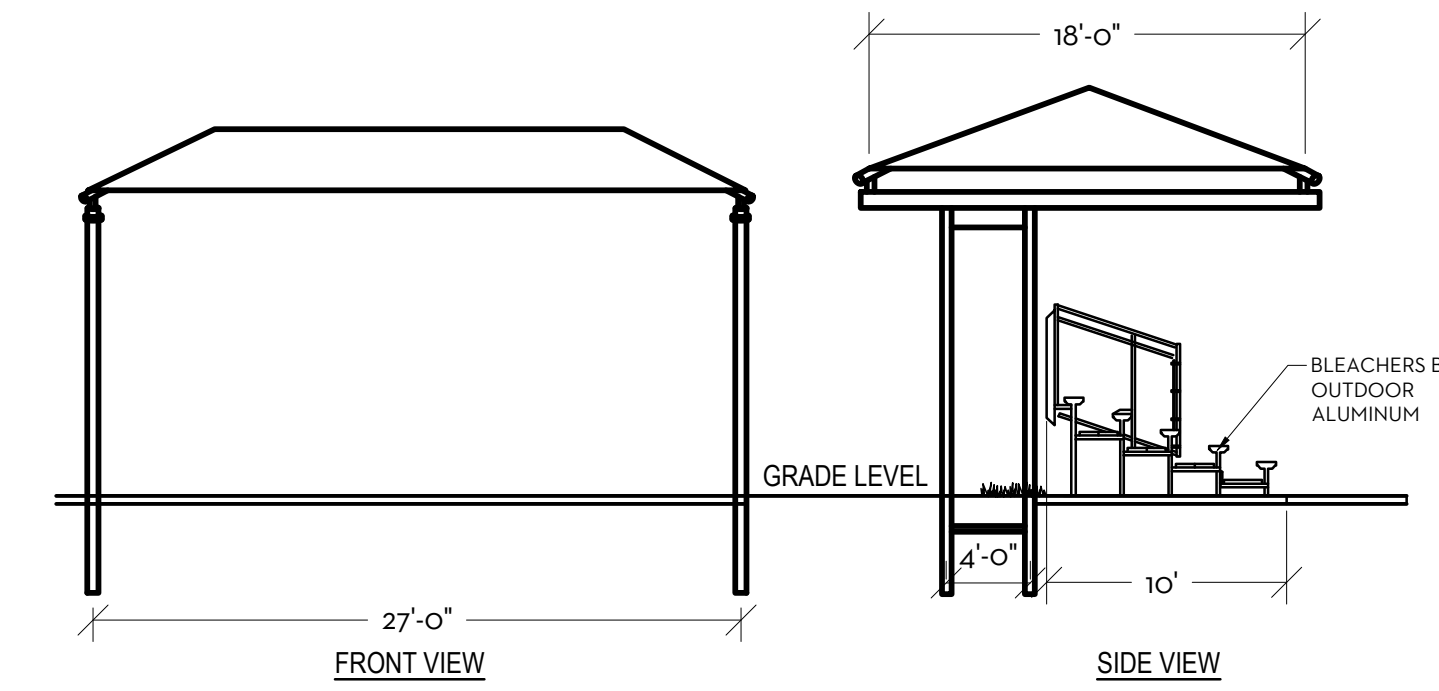
BLEACHERS BY:
OUTDOOR ALUMINUM
800-225-4249
www.outdooraluminum.com

4 SECTION BB: OUTDOOR ALUMINUM DLW 5-27 BLEACHERS

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www.srpsshade.com



TRIMETRIC VIEW

- NOTES:**
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
 2. DO NOT SCALE DRAWING.
 3. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
 4. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
 5. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER LATL210001 - SPORTSFIELD.

CANTILEVER SHADES - CC271809IG CANTILEVER STRUCTURE W/GLIDE ELBOW

LATL210001 - SPORTSFIELD
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REVISION DATE 07/30/2021
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5 CANTILEVER SHADE STRUCTURE-BLEACHERS

1/8" = 1'-0"

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NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

GMC #CATL210004



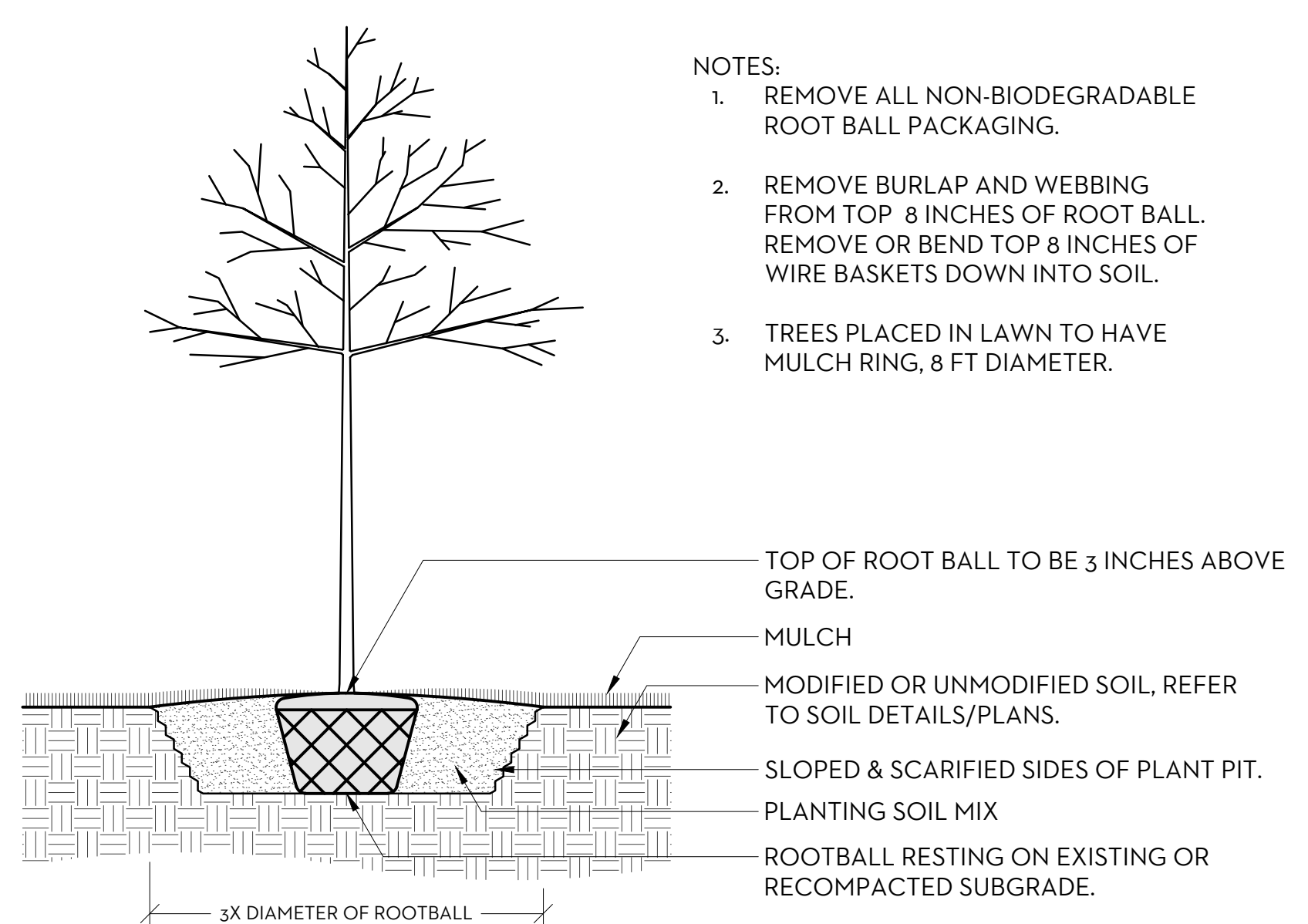
SPORTS FIELD DETAILS

SF3.2
Sheet of

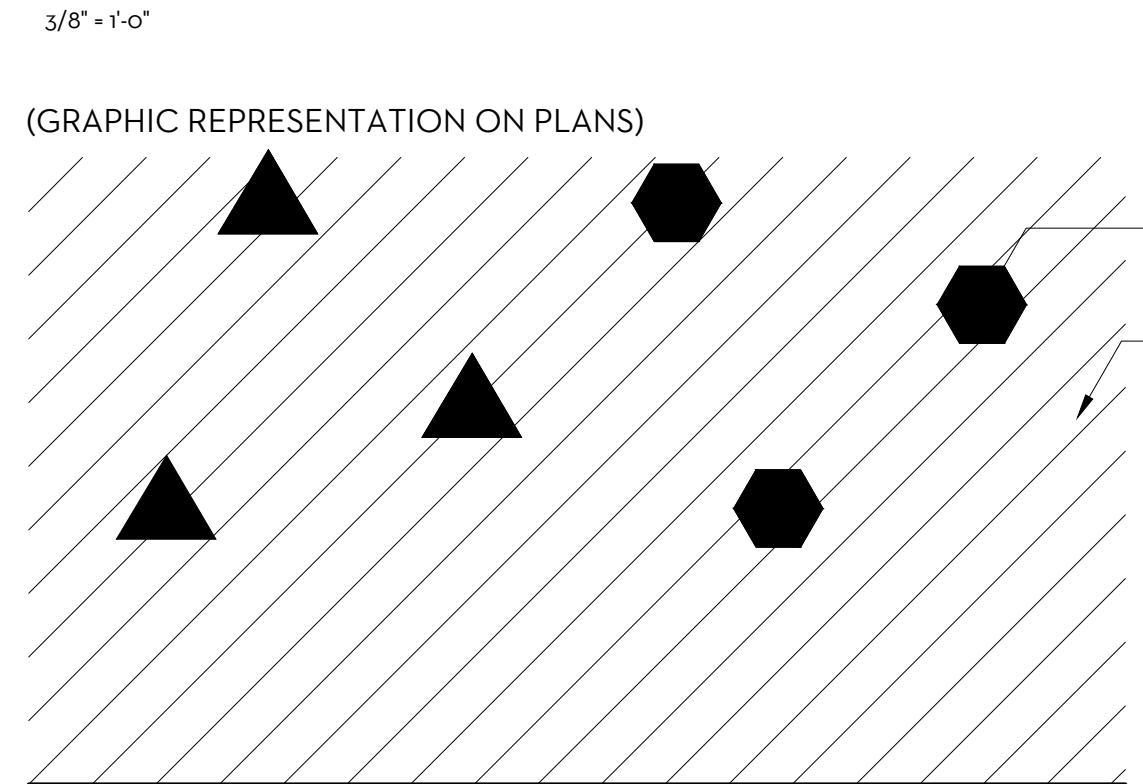
PLANT SCHEDULE							
TREES	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	CAL./SIZE		REMARKS
	CP	4	Pistacia chinensis / Chinese Pistache	B & B	2.5"		
	NO	12	Quercus nuttallii / Nuttall Oak	B & B	2.5"-3"		
	PAM	10	Ulmus americana 'Princeton' / Princeton American Elm	B & B	2.5"-3"		
SHRUBS	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	SIZE	SPACING	REMARKS
	DBH	34	Ilex cornuta 'Burfordii Nana' / Dwarf Burford Holly	7 gal		48" o.c.	
SHRUB AREAS	CODE	QTY	BOTANICAL / COMMON NAME	CONT.		SPACING	
	WL	3,437	Eragrostis curvula / Weeping Lovegrass	4"pot		18" o.c.	
SOD/SEED	CODE	QTY	BOTANICAL / COMMON NAME	CONT.	SIZE	SPACING	REMARKS
	BG	5,416 sy	Cynodon dactylon 'Tif 419' / Tif 419 Bermuda Grass	Sod/Seed		s.y.	

LANDSCAPE NOTES

- Contractor to carefully examine the contract documents and existing conditions before submitting bid proposal or commencing work.
- Contractor shall verify the total quantities indicated in the plant list with the quantities shown on the plan. The contractor shall provide the quantities required to complete the proposed planting as indicated on the plan.
- Contractor to verify location of all utilities prior to beginning work. Damage to existing utilities or site improvements caused by the contractor are the full responsibility of contractor.
- Contractor's base bid to include all materials, labor, permits, equipment, tools, insurance, ETC. to perform the work as described in the contract documents.
- Contractor to complete work within schedule established by owner.
- Contractor to provide one year warranty for all material from date of substantial completion.
- Contractor to provide interim maintenance (watering, pruning, fertilizing, mowing, trimming, adequate drainage of ponding areas, edging, weeding, mulching, application of insecticides/herbicides, and general landscape clean-up) until substantial completion notice is provided by the owner or landscape architect.
- Perform work in compliance with all applicable laws, codes, and regulations required by authorities having jurisdiction over such work and provide for permits required by local authorities.
- Layout all plant material according to landscape drawings. Landscape contractor to make adjustments to layout at no additional cost to the owner. Landscape contractor responsible for adjustment of layout in order to avoid utilities.
- All shrubs in parking lot islands are to be planted a minimum of 6" from back of curb to allow for better pedestrian circulation.
- All planted material shall conform to American Association of Nurserymen, latest edition, (ANSI Z60.1) All plants not conforming to ANSI Specifications will be rejected.
- Plant mater nomenclature to conform to Hortus Third, A Concise Dictionary of Plants Cultivated in the United States and Canada (2004 Edition). Names not listed will comply with those most commonly used in the trade in all cases, botanical names take precedence over common names.
- Plant material to be free of disease, insect pests, eggs, or larvae. Damaged plant material shall be rejected.
- Trees shall be installed 2-3" above finish grade in hardpan areas unless otherwise directed to provide drainage.
- Ground cover, shrub mass beds shall be cultivated to a depth of 12 inches below grade to break through compacted or hardpan soil. Remove all stones, roots, and inferior material greater than 2" in diameter. Add specified soil amendments and fertilizer. Elevate entire bed 6 inches above original grade. Rake to a consistent smooth surface. Install plants, edge bed area, mulch and water thoroughly.
- Set all plants plumb and turned so that the most attractive side is viewed.
- Plants shall be measured to their main structure, not tip to tip of branches.
- Remove top one-third burlap of B & B wrapping. Remove all binding. If rootball is wrapped in non-biodegradeable burlap, remove entire wrap after placed in pit.
- Tree pit and shrub pit to be twice the size of the root mass. Fill with plant mix. See details.
- Broken root balls for trees shall be rejected.
- Space shrubs, ground cover, and seasonal color evenly and in straight rows.
- All tree scars over 1-1/2" shall be rejected and tree to be replaced.
- All shrubs to be dense and full. All trees to have a symmetrical growth habit (360 degrees) unless uncharacteristic to plant type.
- Scarify root mass of shrubs and ground cover before installing.
- Remove all excess growth of trees and shrubs as directed by landscape architect. Do not cut central leader.
- All shrubs shall be dense and well-branched from bottom to top and all sides. "Leggy" shrubs will be rejected by L.A.
- Plant beds shall be neatly edged using a 3" wide by 6" deep trench unless otherwise noted. Provide 2/1 side slope behind trench edge.
- Mulch to be clean, fresh, new, pine straw, 4" deep. Use red, long-needle pine straw on slopes greater than 3:1
- Apply fertilizer and pre-emergent for weed prevention as per specification.
- Topsoil shall be natural, fertile, friable, sandy clay loam capable of sustaining plant growth, free of stones, stumps, ETC.
- For all turf lawn areas spread 4" of topsoil into existing soil to a depth of 6" below finish grade. Hand rake finished grades to provide even contours.
- Characteristics of topsoil to be furnished shall be fertile, friable, naturally occurring. Free of stones, clay, lumps, hardpan, roots, stumps, branches, sticks and other debris larger than two (2) inches in any dimension; free of noxious weeds, grasses, seeds, plants, extraneous matter and any substance harmful to plant growth. Topsoil from open fields will not be accepted.
 - Amendments and fertilizers to be added based on soil test report.
- Topsoil Mix Requirements shall be 2 parts by volume topsoil (as specified), 1 part by volume decomposed matter, and fertilizer in proportions based on soil test report. Prepare all topsoil mix used in tree and shrub pits and ground cover beds in the following proportions:
- Sight lines may not be obstructed between a height of 30-inches and 84-inches above the crown of the roadway surface.
- See civil drawings for further information regarding: erosion sediment control information, locations of existing and proposed structures, paving, driveways, cut and fill areas, and retention areas, limits of construction, locations of existing and proposed utilities or easements.
- Owner or landscape architect shall review project at completion of installation for substantial completion. Final completion shall be given at the end of the warranty period if all items are completed to the owner's satisfaction. Contractor shall be notified in writing of substantial and final completion dates.



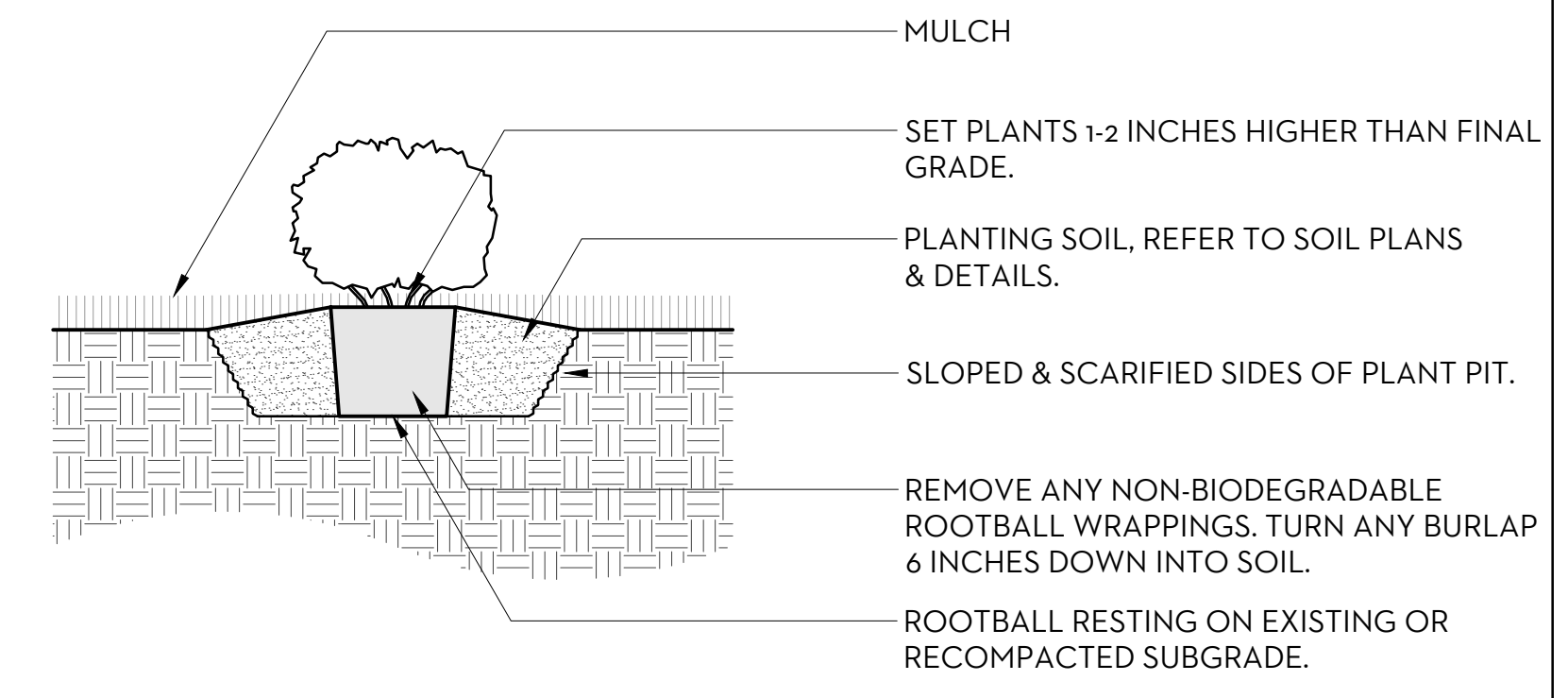
1 TREE PLANTING (TYPICAL)



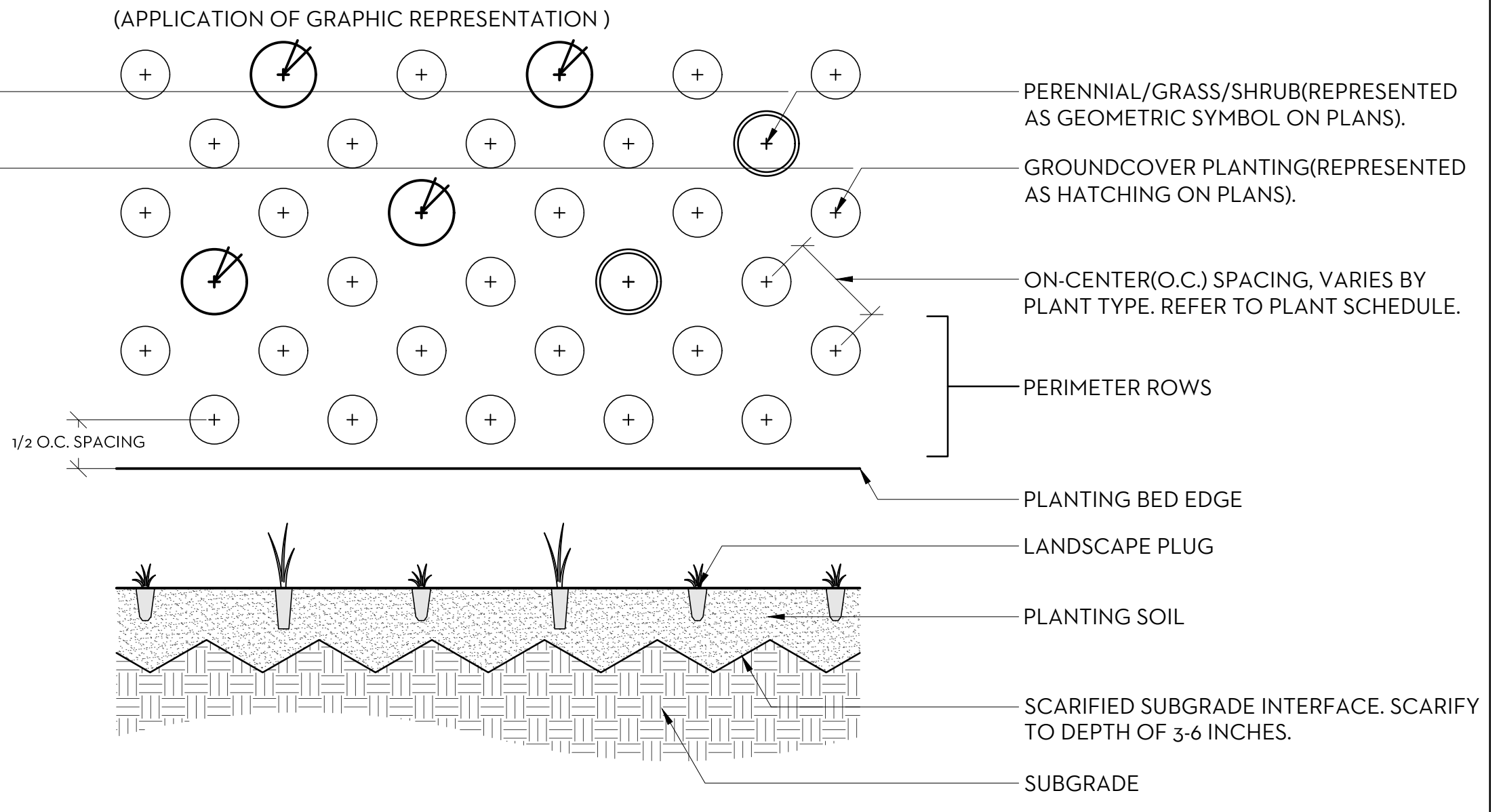
- NOTES:**
- LANDSCAPE ARCHITECT TO OVERSEE THE LAYOUT & PLANTING.
 - THE TWO PERIMETER ROWS OF PLANTS ARE TO BE INSTALLED FIRST AND AT EXACT SPACING AS INDICATED.
 - ANY SHRUBS LOCATED WITHIN THE LANDSCAPE PLUG PLANTING AREA WILL BE INSTALLED AS INDICATED IN THE SHRUB DETAIL.
 - THERE IS NO MULCH WITHIN THE LANDSCAPE PLUG PLANTING AREA.

3 LANDSCAPE PLUG PLANTING

- NOTES:**
- REMOVE ALL NON-BIODEGRADABLE ROOT BALL PACKAGING.
 - REMOVE BURLAP AND WEBBING FROM TOP 8 INCHES OF ROOT BALL. REMOVE OR BEND TOP 8 INCHES OF WIRE BASKETS DOWN INTO SOIL.
 - TREES PLACED IN LAWN TO HAVE MULCH RING, 8 FT DIAMETER.



2 SHRUB PLANTING



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CHECKED BY: JJB

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS

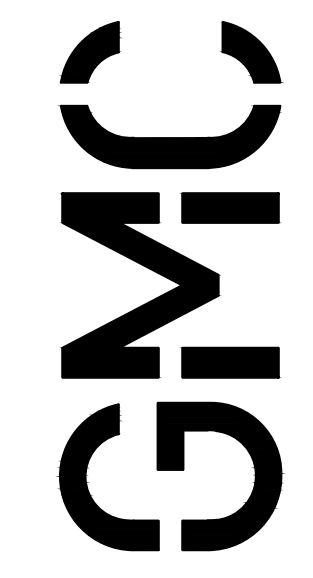
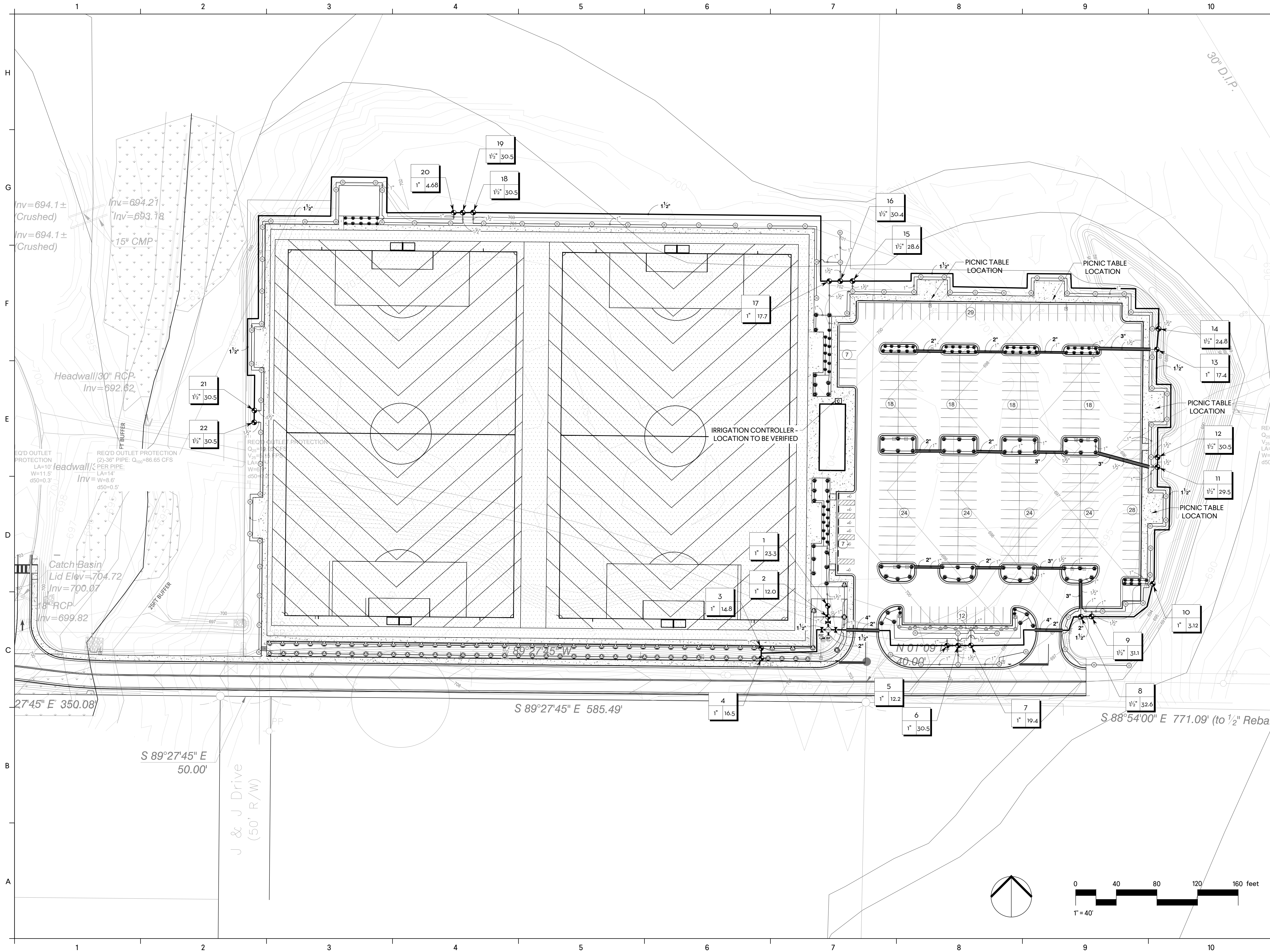
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PLANT SCHEDULE, NOTES, DETAILS

L2.0

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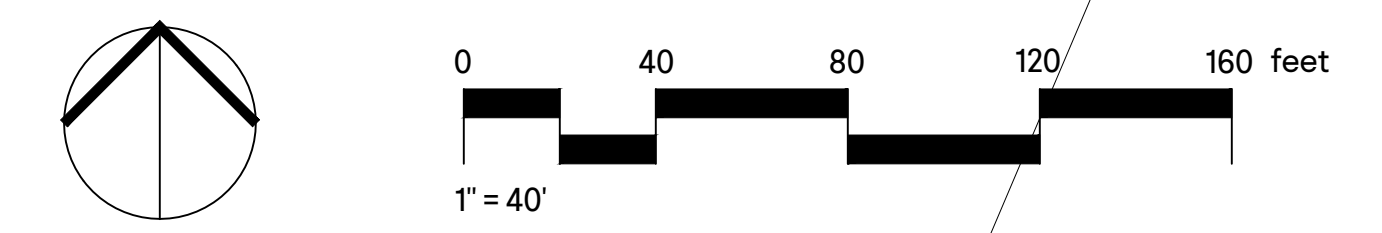
**NORTHEAST COMMUNITY
 COMPLEX SOCCER FIELDS**
 HALF BOWEN DRIVE, DALTON, GA

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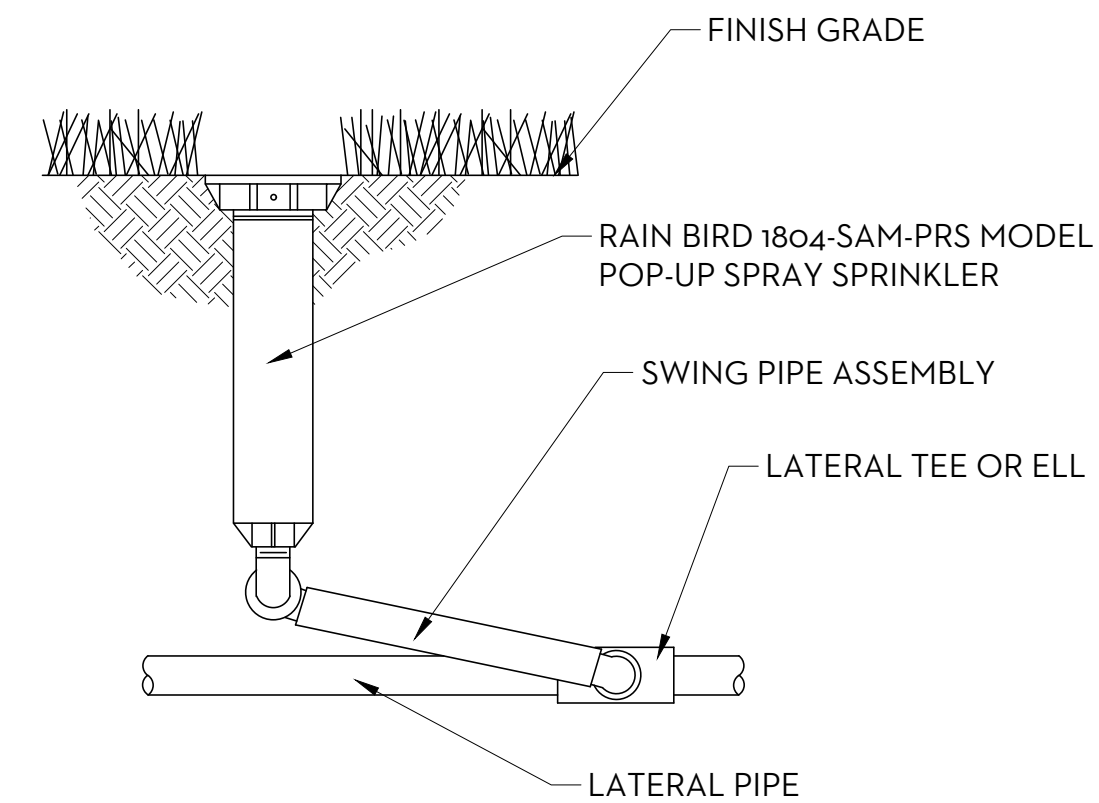
IRRIGATION PLAN

L3.0
 Sheet of 510

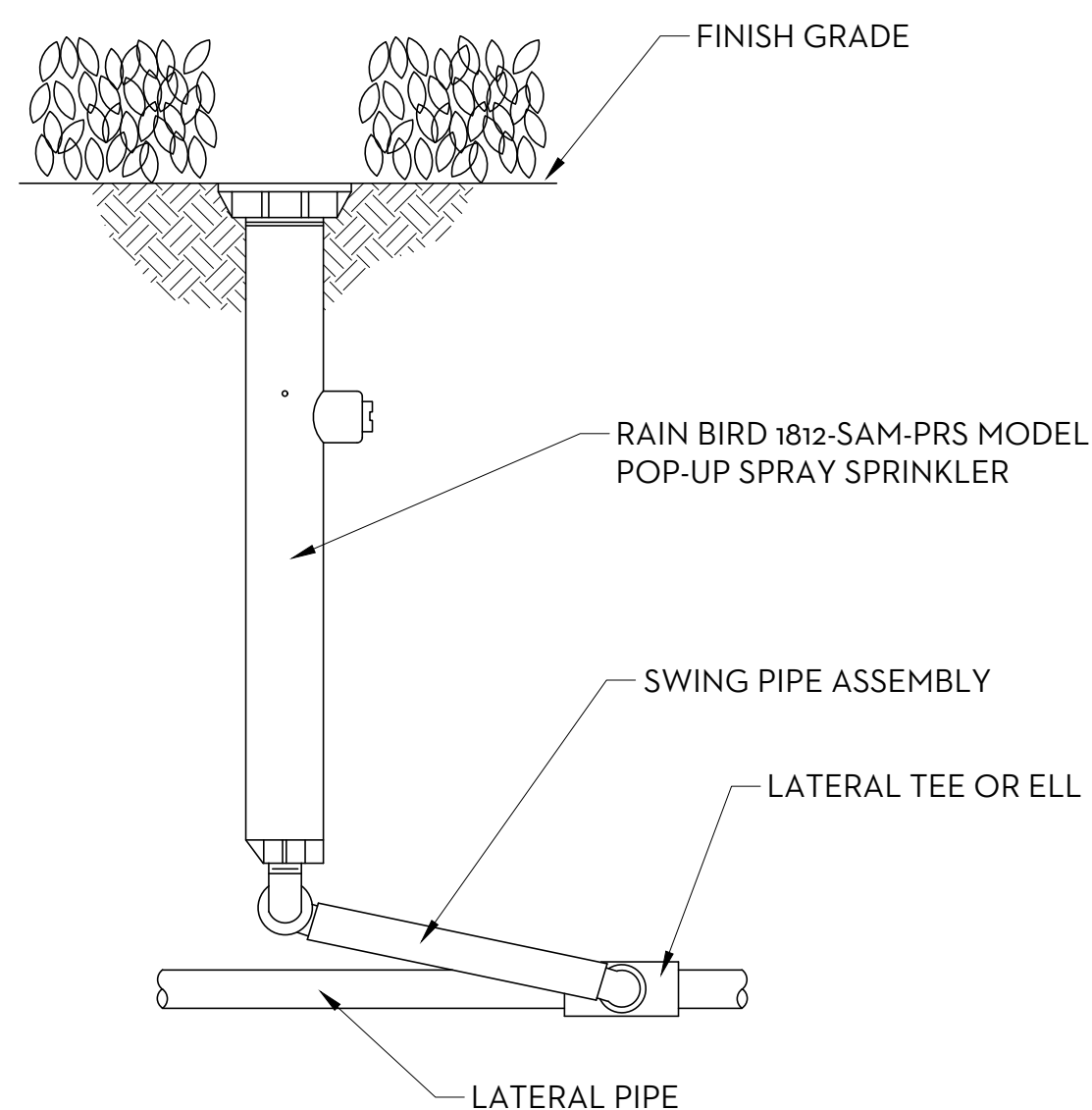


IRRIGATION SCHEDULE				
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI	
	Rain Bird 1804-SAM-PRS 8 Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet. With Seal-A-Matic Check Valve. Pressure Regulating.	83	30	
	Rain Bird 1804-SAM-PRS 15 Series MPR Turf Spray 4.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet. With Seal-A-Matic Check Valve. Pressure Regulating.	73	30	
	Rain Bird 1812-SAM-PRS 15 Strip Series Shrub Spray 12.0" Pop-Up Sprinkler with Co-Molded Wiper Seal. 1/2" NPT Female Threaded Inlet. With Seal-A-Matic Check Valve, and Pressure Regulating Device.	18	30	
	Hunter MP1000 PROS-04-PRS40-CV Turf Rotator. 4" pop-up with check valve, pressure regulated to 40 psi. MP Rotator nozzle on PRS40 body. M-Maroon adj arc 90 to 210, L-Light Blue 210 to 270 arc, O-Olive 360 arc.	76	40	
	Hunter MP2000 PROS-04-PRS40-CV Turf Rotator. 4" pop-up with factory installed check valve, pressure regulated to 40 psi. MP Rotator nozzle on PRS40 body. K-Black adj arc 90-210, G-Green adj arc 210-270, R-Red 360 arc.	3	40	
	Hunter MP3500 PROS-04-PRS40-CV Turf Rotator. 4" Pop-up with factory installed check valve, pressure regulated to 40 psi. MP Rotator nozzle on PRS40 body. LB-light brown adjustable arc. 90-210.	2	40	
	Hunter MP3500 PROS-12-PRS40-CV Shrub Rotator. 12" Pop-Up with factory installed Check Valve, pressure regulated to 40 psi. MP Rotator nozzle. LB-Light Brown, Adjustable Arc, 90-210, on PRS40 body.	2	40	
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY	PSI	RADIUS
	Rain Bird 5004-SAM-PC-FC-MPR Turf Rotor. 4.0" Pop-Up, Plastic Riser, Matched Precipitation Rotor (MPR nozzle). Arc and Radius as per Symbol. 25 ft=red, 30 ft=green, 35 ft=beige. With Seal-A-Matic Check Valve.	86	45	35'
SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY		
	Rain Bird PEB-PRS-D 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration. With Pressure Regulator Module.	22		
	Buckner-Superior VBM Brass Manual Angle Valve in 3/4", 1", 1-1/4", 1-1/2", and 2". Removable bonnet and internal assembly for easy service and cleaning. Same size as mainline.	3		
	Rain Bird EFB-CP-PRS-D 1" 1", 1-1/4", 1-1/2", 2" Brass Master Valve, that is Contamination Proof w/Self-Flushing Filter Screen. Globe Configuration, Reclaimed Water Compatible, and Purple Handle Cover Designates Non-Potable Water Use. With Pressure Regulator.	1		
	Backflow Preventer 1" Backflow Preventer as per Dalton Utilitier Standards and Specifications, by others.	1		
	Rain Bird ESP4ME3 with (3) ESP-SM6 22 Station, Hybrid Modular Outdoor Controller. For Residential or Light Commercial Use. LNK WIFI Module and Flow Sensor Ready.	1		
	Point of Connection 2" Domestic water line, see civil	1		
	Irrigation Lateral Line: PVC Class 200 SDR 21	5,995 l.f.		
	Irrigation Mainline: PVC Schedule 40	2,151 l.f.		
	Pipe Sleeve: PVC Schedule 40	419.3 l.f.		

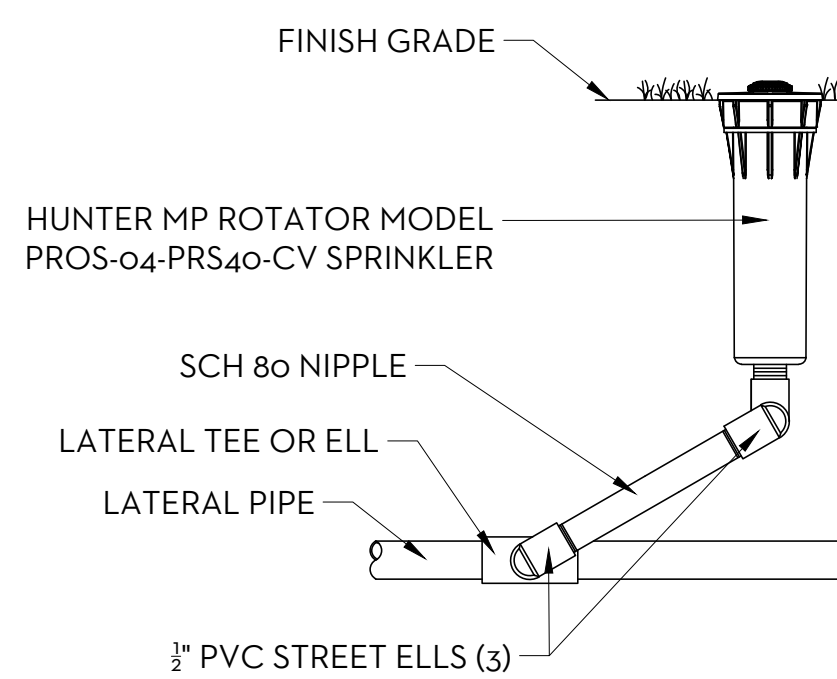
VALVE SCHEDULE									
NUMBER	MODEL	SIZE	TYPE	GPM	WIRE	DESIGN PSI	PSI	PRECIP	
1	Rain Bird PEB-PRS-D	1"	Turf Spray	23.28	1,236	30	34.83	1.22 in/h	
2	Rain Bird PEB-PRS-D	1"	Shrub Rotary	12.05	1,225	40	42.18	0.3 in/h	
3	Rain Bird PEB-PRS-D	1"	Turf Rotary	14.83	1,305	40	47.4	0.22 in/h	
4	Rain Bird PEB-PRS-D	1"	Turf Rotary	16.49	1,305	40	47.58	0.22 in/h	
5	Rain Bird PEB-PRS-D	1"	Turf Spray	12.23	1,081	30	32.73	0.99 in/h	
6	Rain Bird PEB-PRS-D	1"	Turf Rotor	30.48	1,071	45	51.4	0.63 in/h	
7	Rain Bird PEB-PRS-D	1"	Shrub Spray	19.38	1,058	30	33.53	2.67 in/h	
8	Rain Bird PEB-PRS-D	1-1/2"	Turf Spray	32.62	925.3	30	37.26	1.33 in/h	
9	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	31.05	914.8	45	50.54	0.92 in/h	
10	Rain Bird PEB-PRS-D	1"	Turf Spray	3.12	833.6	30	31.54	1.18 in/h	
11	Rain Bird PEB-PRS-D	1-1/2"	Turf Spray	29.52	692.2	30	37.51	1.38 in/h	
12	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	30.54	682.4	45	50.9	1.02 in/h	
13	Rain Bird PEB-PRS-D	1"	Turf Spray	17.36	549.7	30	35.72	1.52 in/h	
14	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	24.81	529.3	45	51.32	1.21 in/h	
15	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	28.62	140.7	45	51.51	0.91 in/h	
16	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	30.40	128.7	45	50.24	0.67 in/h	
17	Rain Bird PEB-PRS-D	1"	Turf Spray	17.73	128.7	30	33.94	1.16 in/h	
18	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	30.48	543.5	45	52.34	0.69 in/h	
19	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	30.51	553.8	45	52.03	1.1 in/h	
20	Rain Bird PEB-PRS-D	1"	Turf Spray	4.68	562.7	30	31.97	1.33 in/h	
21	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	30.51	1,037	45	52.56	1.42 in/h	
22	Rain Bird PEB-PRS-D	1-1/2"	Turf Rotor	30.54	1,049	45	52.93	1.07 in/h	
	Common Wire				2,158				



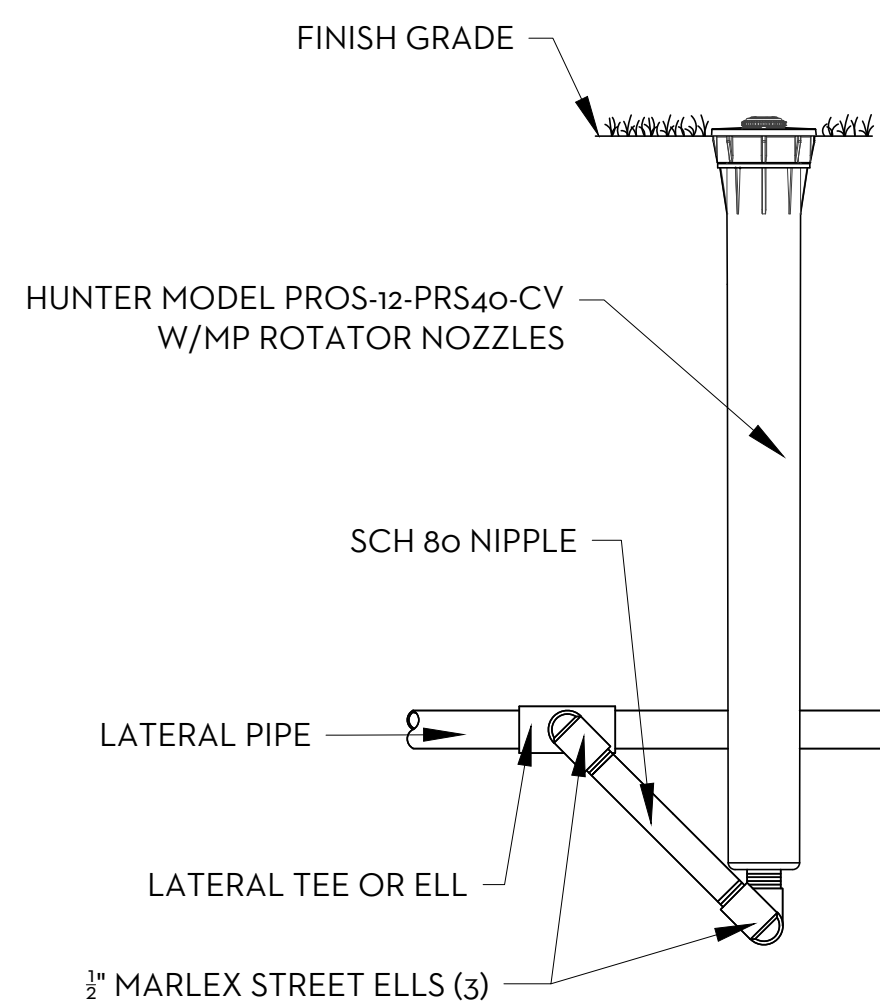
1 DETAIL: RAIN BIRD 4" POP-UP SPRAY SPRINKLER
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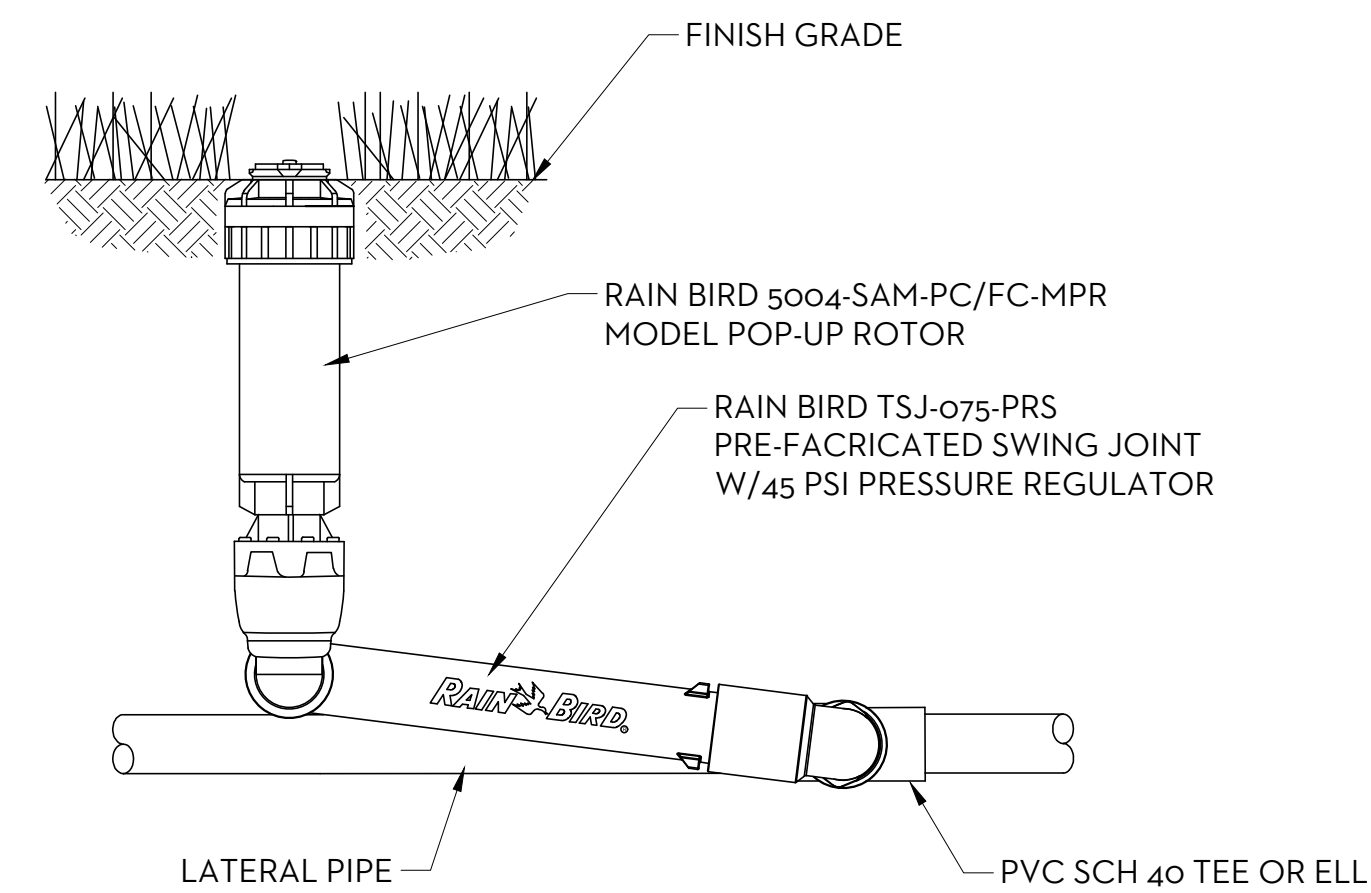
2 DETAIL: RAIN BIRD 12" POP-UP SPRAY SPRINKLER
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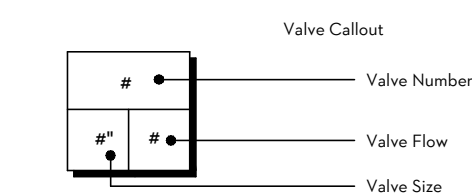
3 DETAIL: HUNTER MP ROTATOR 4" POP-UP SPRINKLER
N.T.S.



4 DETAIL: HUNTER MP ROTATOR 12" POP-UP SPRINKLER
N.T.S.

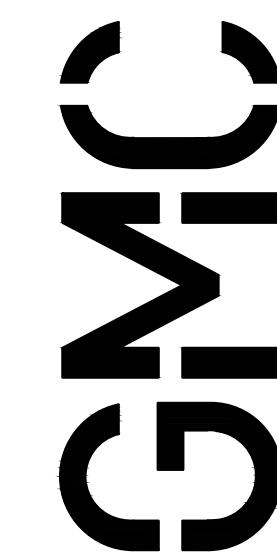


5 DETAIL: RAIN BIRD 5004 ROTOR
N.T.S.



IRRIGATION NOTES

- The drawings are diagrammatic in general and subject to the requirements of the planting plan. The irrigation drawings indicate generally the location of the component parts of the system, but are not intended to show all fittings or all details of the irrigation work.
- All irrigation work will be performed in compliance with all applicable codes and standards including city codes, ordinances, and regulations.
- The contractor shall submit as-built drawings of the system at the completion of the project.
- Piping for main line shall be PVC schedule 40 and all lateral lines shall be PVC class 200. Fittings will be PVC for corresponding service. Pipe depth will be a minimum of 12"-18" for all main and lateral lines. Pipe depth may vary depending on local frost depth and/or requirements of local governing authorities at site location.
- Acceptable manufacturer for irrigation products is indicated in the irrigation schedule, unless otherwise indicated. Alternate irrigation manufacturer's equipment may be substituted with approval of the landscape architect prior to bid. The contractor will submit shop drawings showing head layout, locations, valve locations, performance data, etc. should alternate irrigation manufacturer be used.
- Install all irrigation components as per manufacturer's recommendations or instructions.
- Remote control valves and other underground devices will be installed in plastic boxes with plastic covers of the size required to ensure adjustment of the device. Group devices in single boxes where possible.
- The contractor will be responsible for obtaining all permits, fees, and approvals from governing authority.
- Adjust irrigation as necessary to avoid existing utilities, light poles, buildings, or other unforeseen obstructions.
- The contractor is responsible for coordinating installation of water meter/tap, backflow preventer, and all fees, permits, etc. associated with irrigation connections.
- Contractor to verify exact location of irrigation controller with the owner prior to construction. Contractor to provide controller with appropriate enclosure for specific location whether interior, exterior, wall mount or pedestal enclosure application.
- Contractor shall install grounding, surge, and lighting protection as per irrigation manufacturer's recommendations.
- Valves, controllers, and all irrigation equipment to have proper grounding protection as per irrigation manufacturer's recommendations.

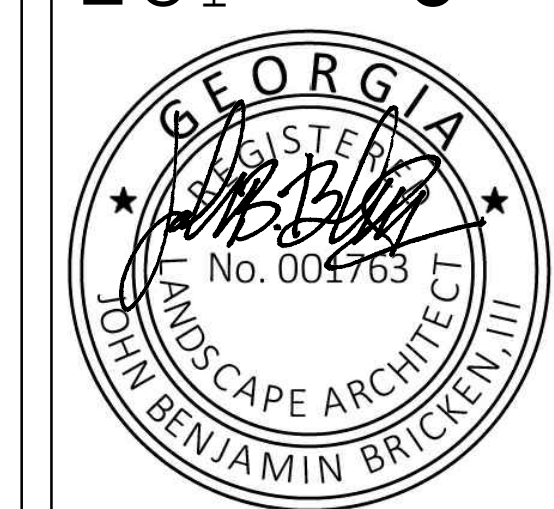


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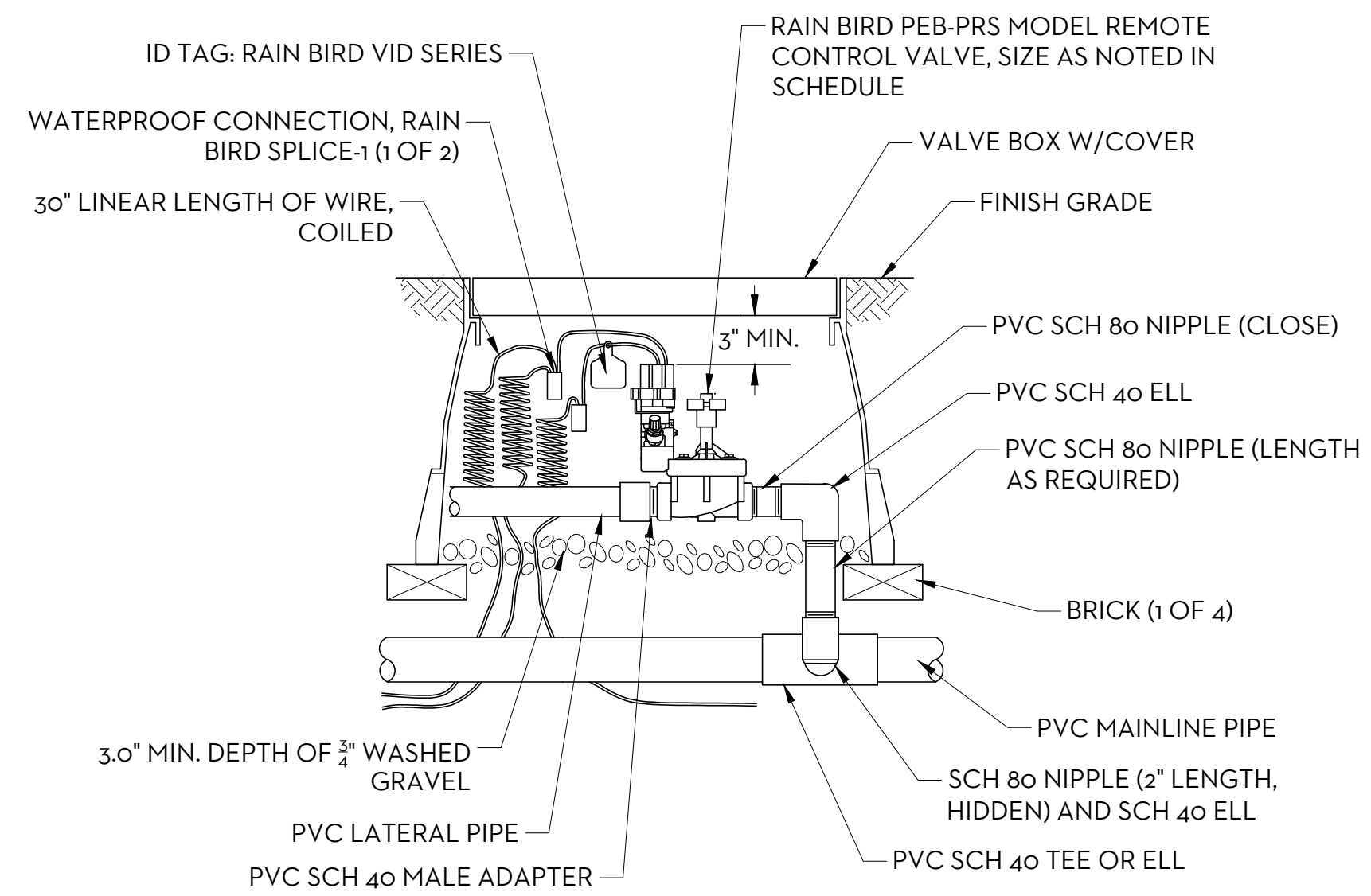
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COUNTY COMMENTS	8/02/2021

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CHECKED BY: JJB

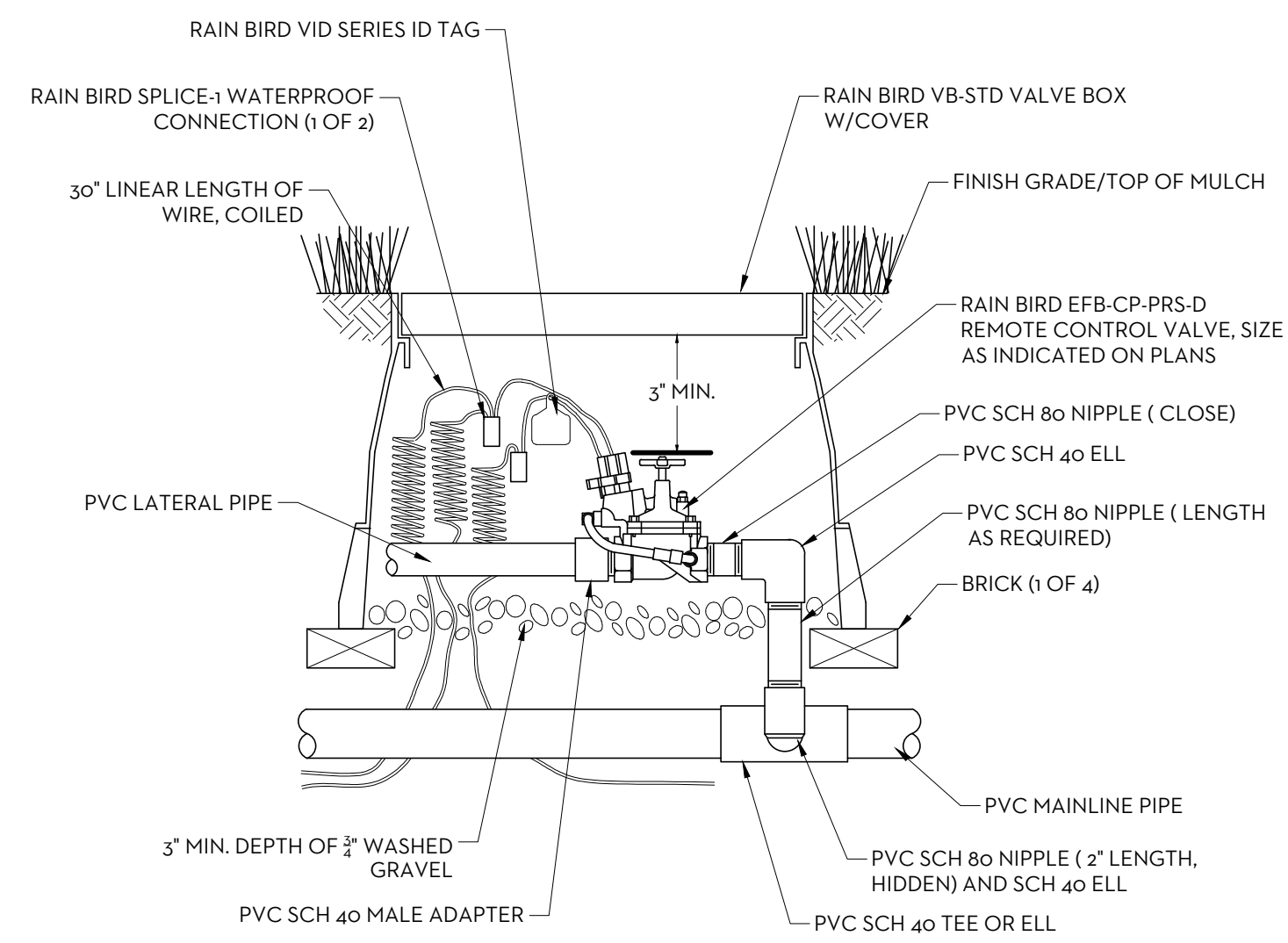
NORTHEAST COMMUNITY
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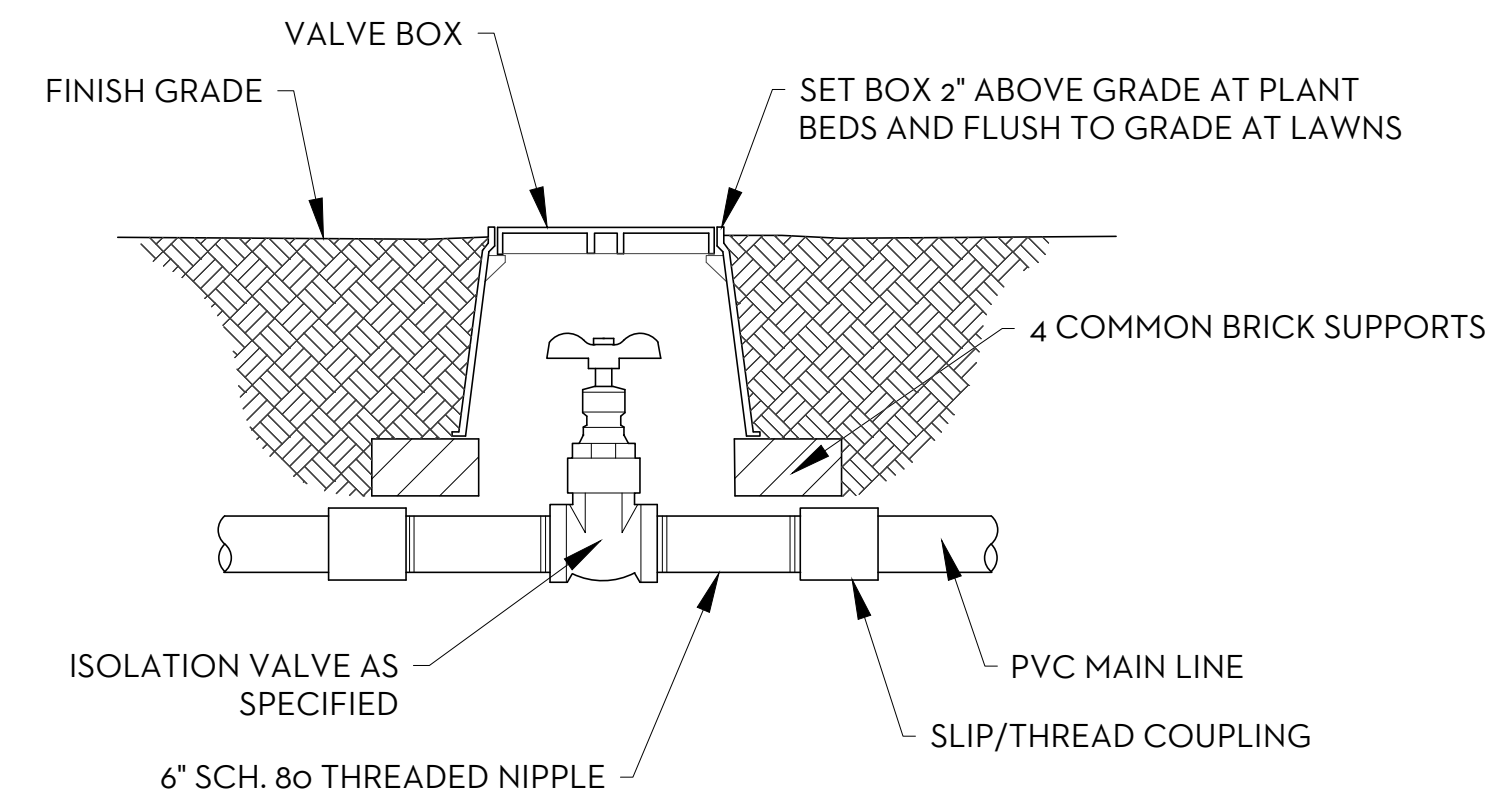
IRRIGATION SCHEDULE
NOTES, DETAILS
L4.0
Sheet of 511



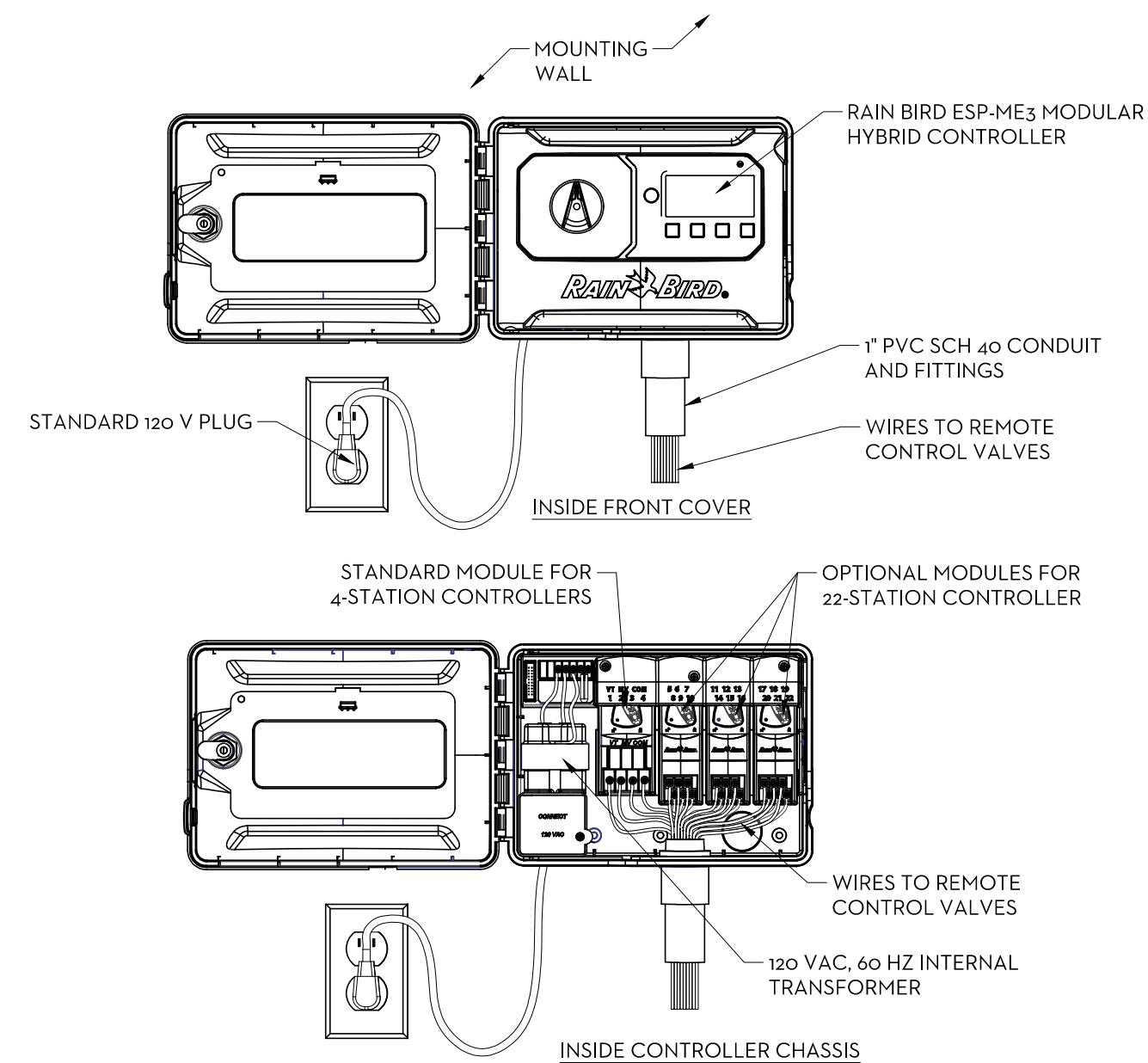
1 **DETAIL: RAIN BIRD ELECTRIC REMOTE CONTROL VALVE**
N.T.S.



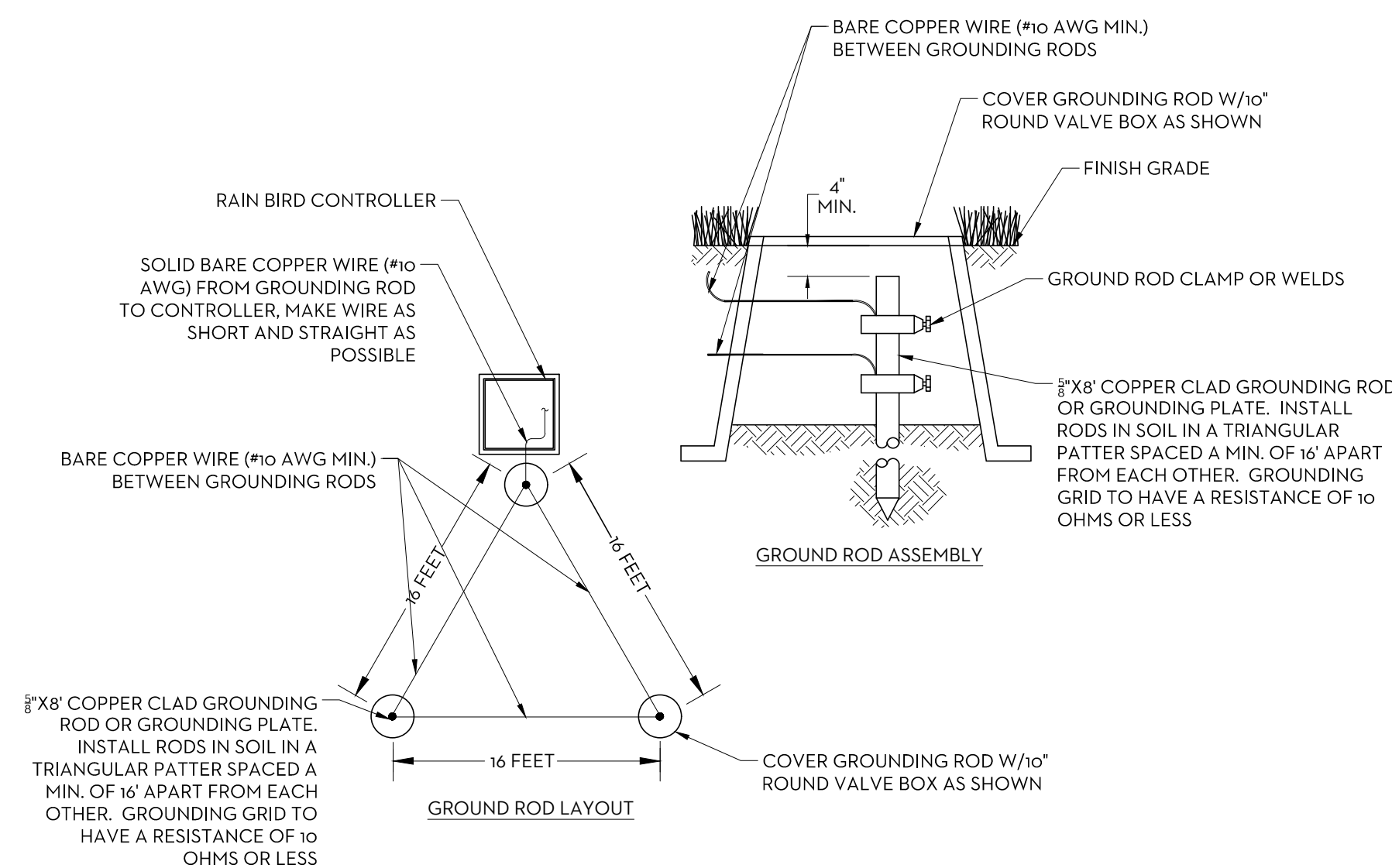
2 **DETAIL: RAIN BIRD REMOTE CONTROL MASTER VALVE**
N.T.S.



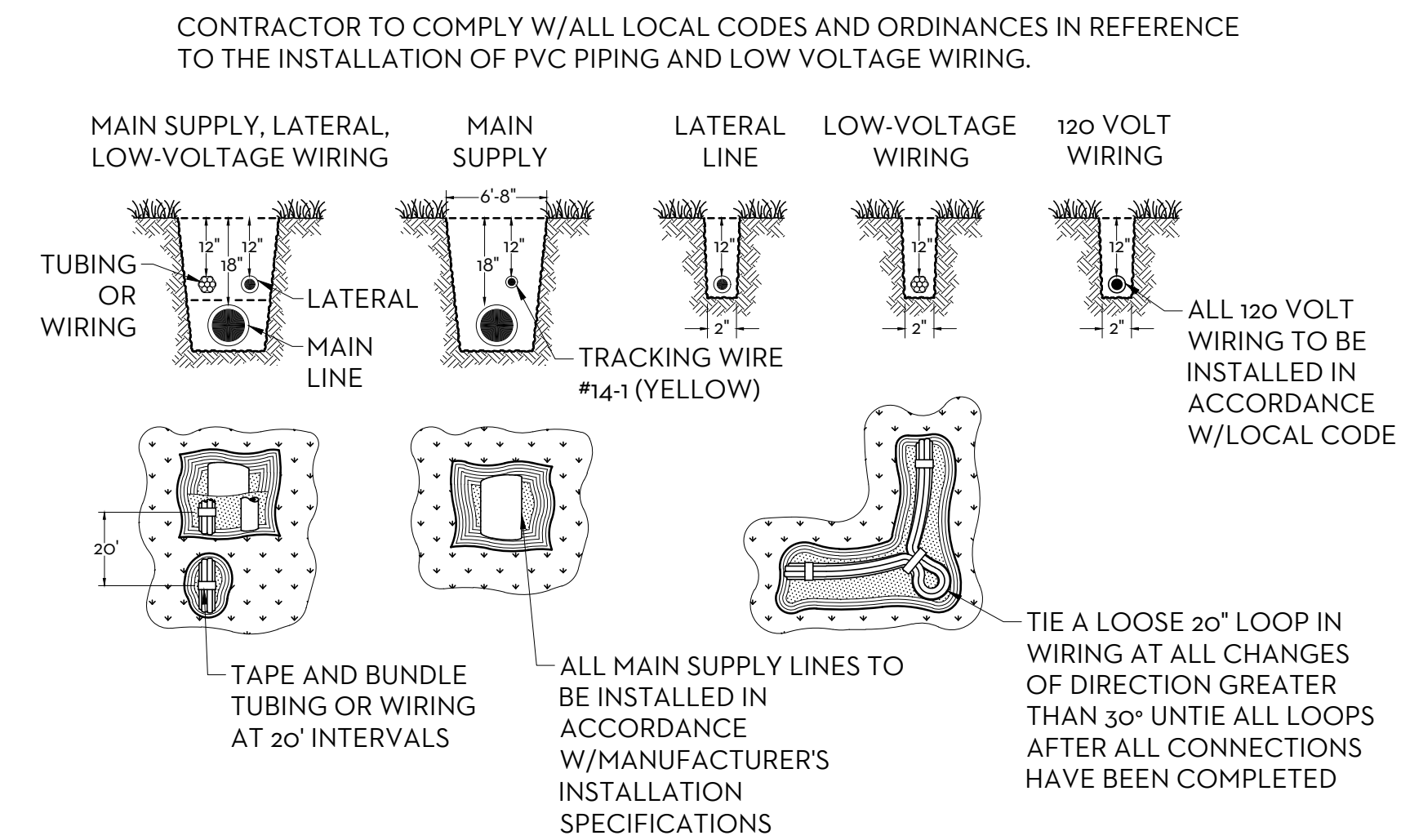
3 **DETAIL: SUPERIOR ISOLATION GATE VALVE**
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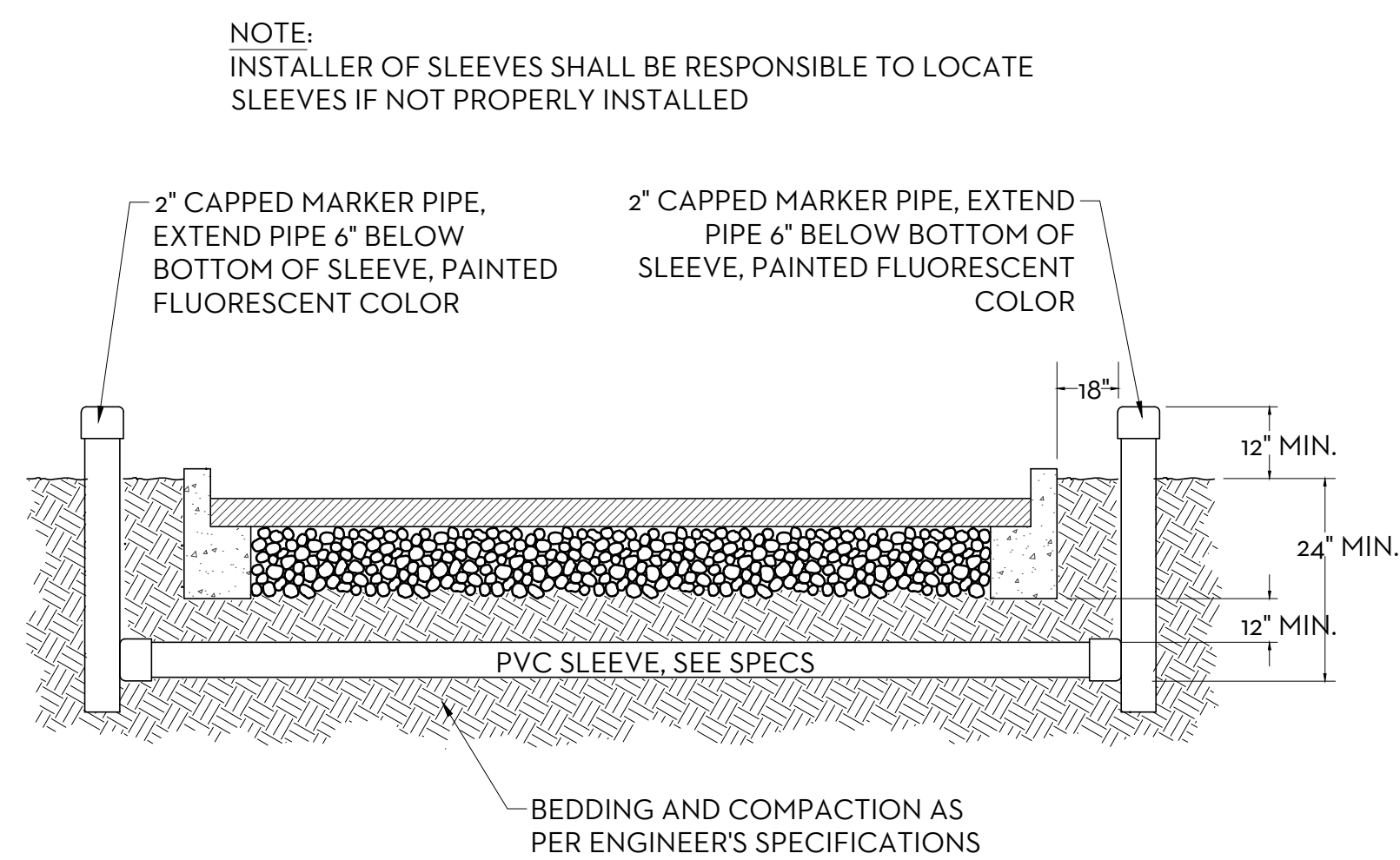
4 **DETAIL: RAIN BIRD ESP-ME3 CONTROLLER**
N.T.S.



5 **DETAIL: CONTROLLER GROUNDING GRID Y LAYOUT**
N.T.S.



6 **DETAIL: IRRIGATION TRENCHING**
N.T.S.



7 **DETAIL: IRRIGATION SLEEVING**
N.T.S.

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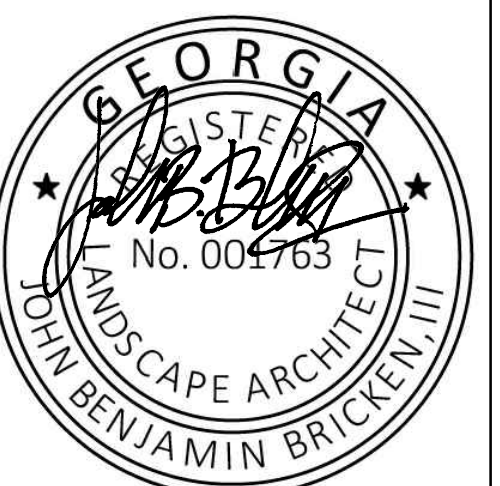
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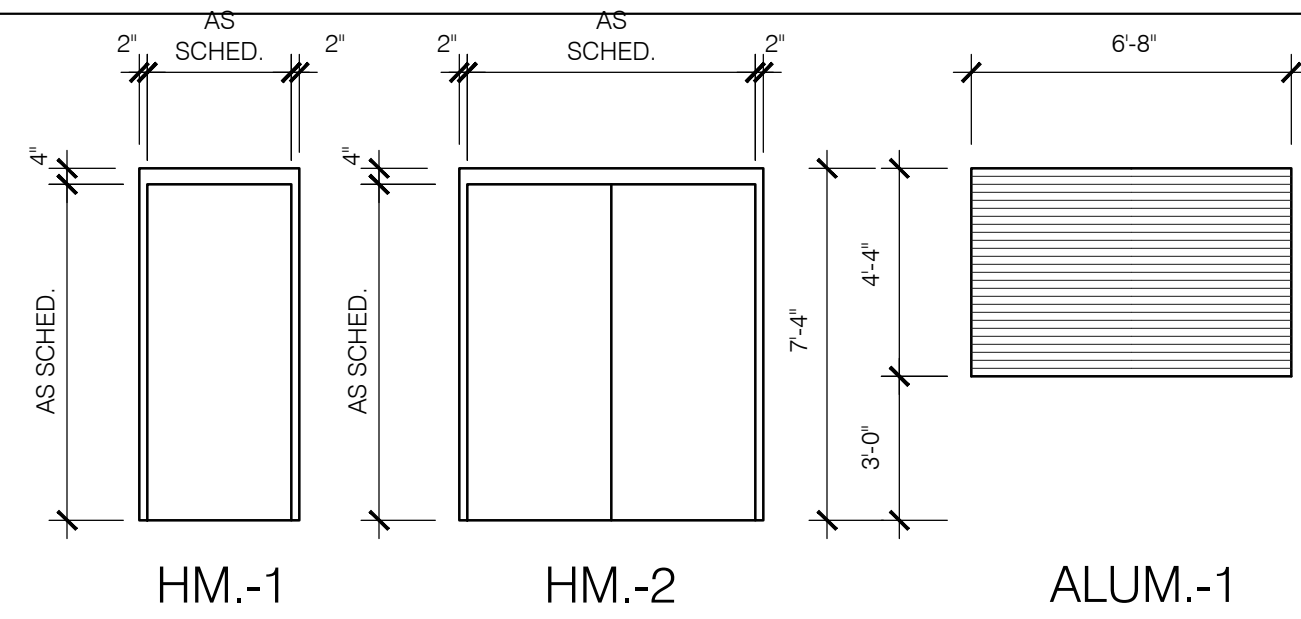
IRRIGATION DETAILS

L4.1
Sheet of

DOOR HARDWARE

SET-1 HINGES, CLOSER, WEATHER SEALS, LEVER, THRESHOLD, DEADBOLT LOCKSET.

SET-2 HINGES, WEATHER SEALS, LEVER, THRESHOLD, DEADBOLT LOCKSET.



DOOR/FRAME TYPE

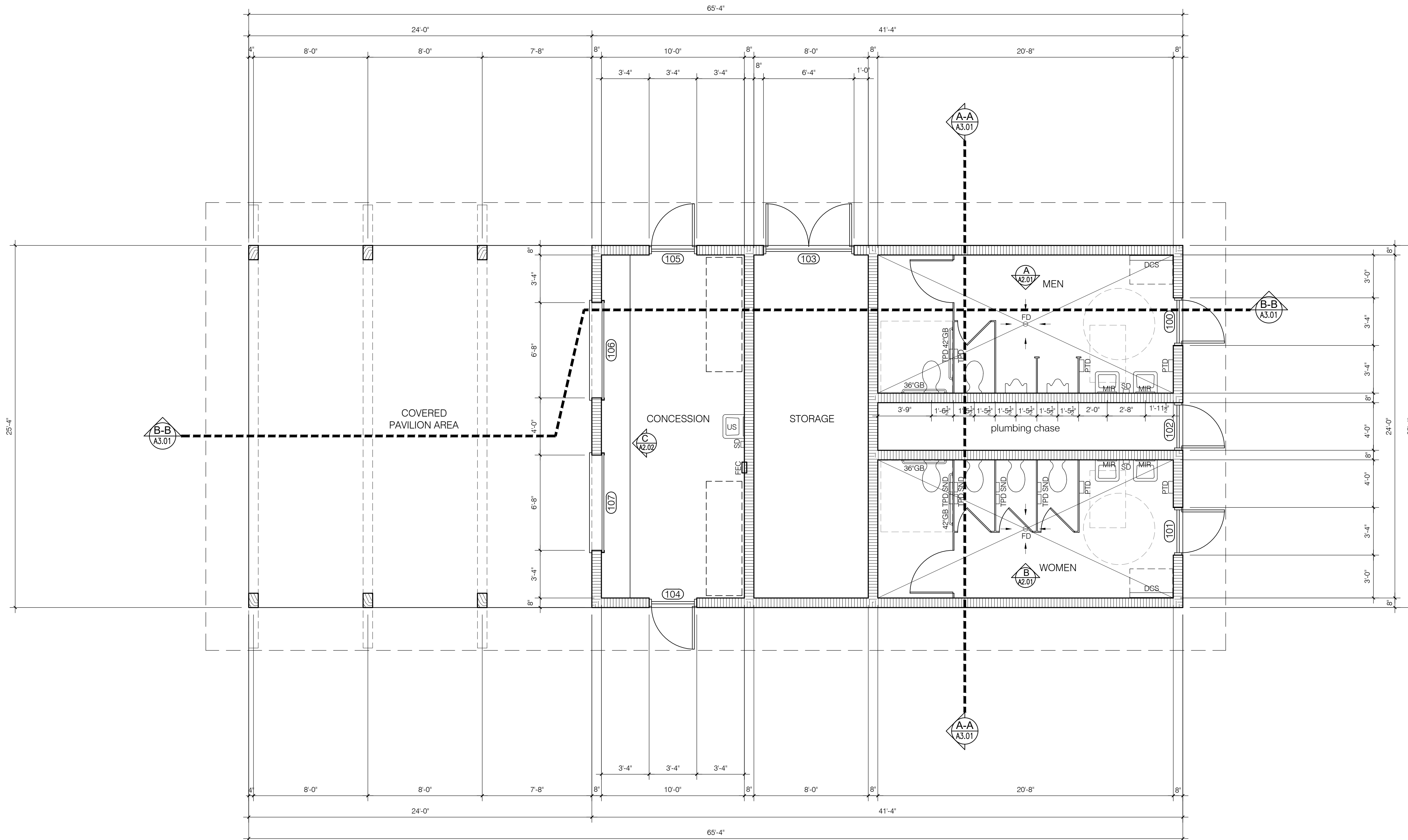
SCALE: 1/4" = 1'-0"

DOOR SCHEDULE

DOOR NO.	DOOR TYPE	SIZE			FRAME TYPE	FIRE RATING	HDWR. SET NO.	DETAILS			REMARKS
		WIDTH	HEIGHT	THICK.				HEAD	JAMB	THRESH.	
100	H.M. - 1	3'-0"	7'-0"	1 3/4"	H.M. - 1	-----	set no.-1	1/A3.01	2/A3.01	see plan	
101	H.M. - 1	3'-0"	7'-0"	1 3/4"	H.M. - 1	-----	set no.-1	1/A3.01	2/A3.01	see plan	
102	H.M. - 1	3'-0"	7'-0"	1 3/4"	H.M. - 1	-----	set no.-2	1/A3.01	2/A3.01	see plan	
103	H.M. - 2	3'-0" PR.	7'-0"	1 3/4"	H.M. - 2	-----	set no.-2	1/A3.01	2/A3.01	see plan	
104	H.M. - 1	3'-0"	7'-0"	1 3/4"	H.M. - 1	-----	set no.-1	1/A3.01	2/A3.01	see plan	
105	H.M. - 1	3'-0"	7'-0"	1 3/4"	H.M. - 1	-----	set no.-1	1/A3.01	2/A3.01	see plan	
106	ALUM. - 1	6'-8"	4'-4"	-----	-----	-----	AS PER MANUF.	-----	-----	-----	coiling counter door
107	ALUM. - 1	6'-8"	4'-4"	-----	-----	-----	AS PER MANUF.	-----	-----	-----	coiling counter door

FINISH SCHEDULE

ROOM NAME	FLOOR		BASE	WALL		CEILING			REMARKS
	MATL.	FINISH		MATL.	FINISH	MATL.	FINISH	HEIGHT	
COVERED PAVILION	CONCRETE	SEALED	-----	SPLITFACE CMU	PAINTED	PLYWD. W/ BATTENS	PAINTED	10'-0"	
CONCESSION	CONCRETE	SEALED	-----	CMU	PAINTED	PLYWD. W/ BATTENS	PAINTED	10'-0"	
STORAGE	CONCRETE	SEALED	-----	CMU	PAINTED	PLYWD. W/ BATTENS	PAINTED	10'-0"	
MEN	CONCRETE	SEALED	-----	CMU	PAINTED	PLYWD. W/ BATTENS	PAINTED	10'-0"	
WOMEN	CONCRETE	SEALED	-----	CMU	PAINTED	PLYWD. W/ BATTENS	PAINTED	10'-0"	



FLOOR PLAN LEGEND

- 8" (CMU) CONCRETE MASONRY UNIT (SPLIT FACE AT EXTERIOR)
- WOOD PAVILION COLUMN

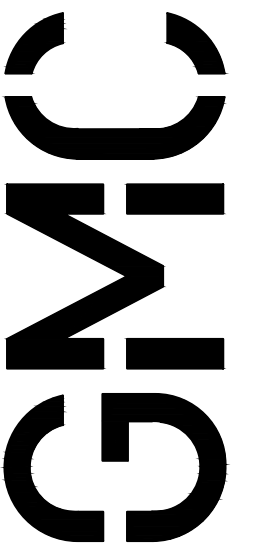
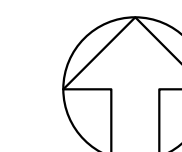
ABBREVIATIONS

- TPD TOILET PAPER DISPENSER
- PTD PAPER TOWEL DISPENSER
- SD SOAP DISPENSER
- MIR MIRROR
- GB GRAB BAR
- SND SANITARY NAPKIN DISPOSAL UNIT
- MT METAL THRESHOLD
- FD FLOOR DRAIN
- DCS DIAPER CHANGING STATION
- US UTILITY SINK
- FEC FIRE EXTINGUISHER CABINET

FLOOR PLAN

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

PAVILION AREA = 0,608 SQ.FT.
RESTROOM/STORAGE/CONCESSION = 1,047 SQ.FT.



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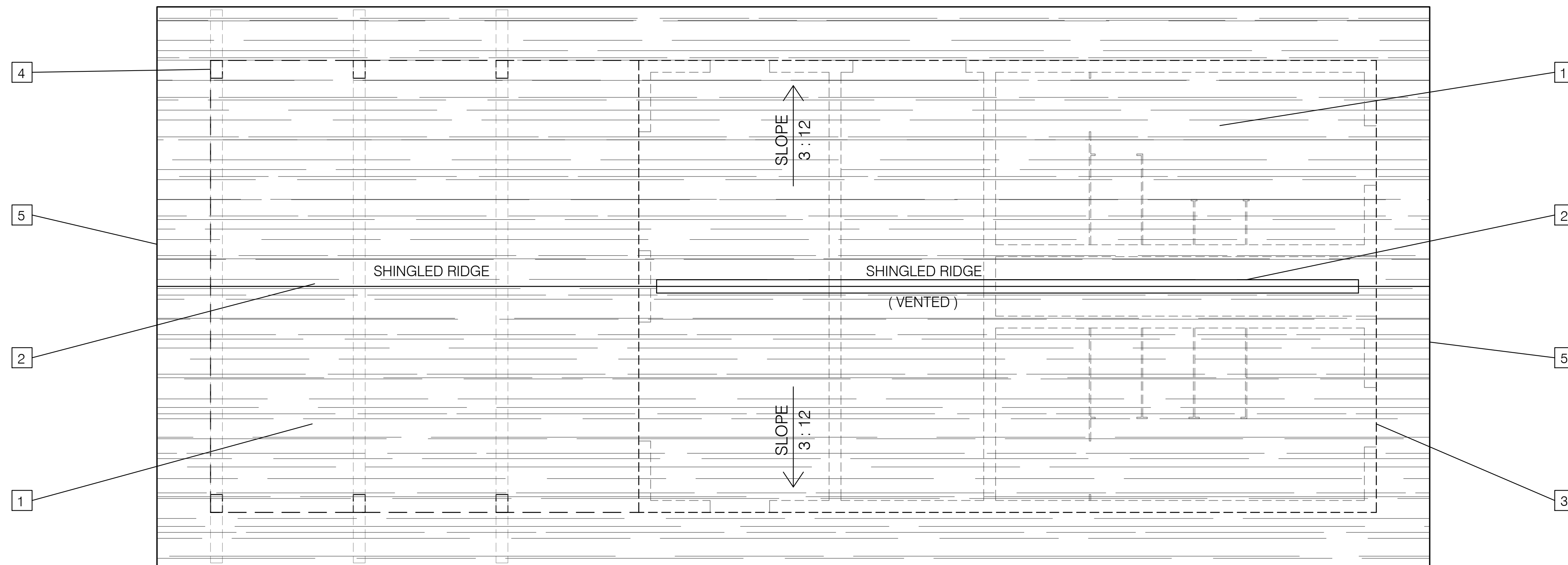
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FLOOR PLAN
AND SCHEDULES

A1.01
Sheet of



ROOF PLAN

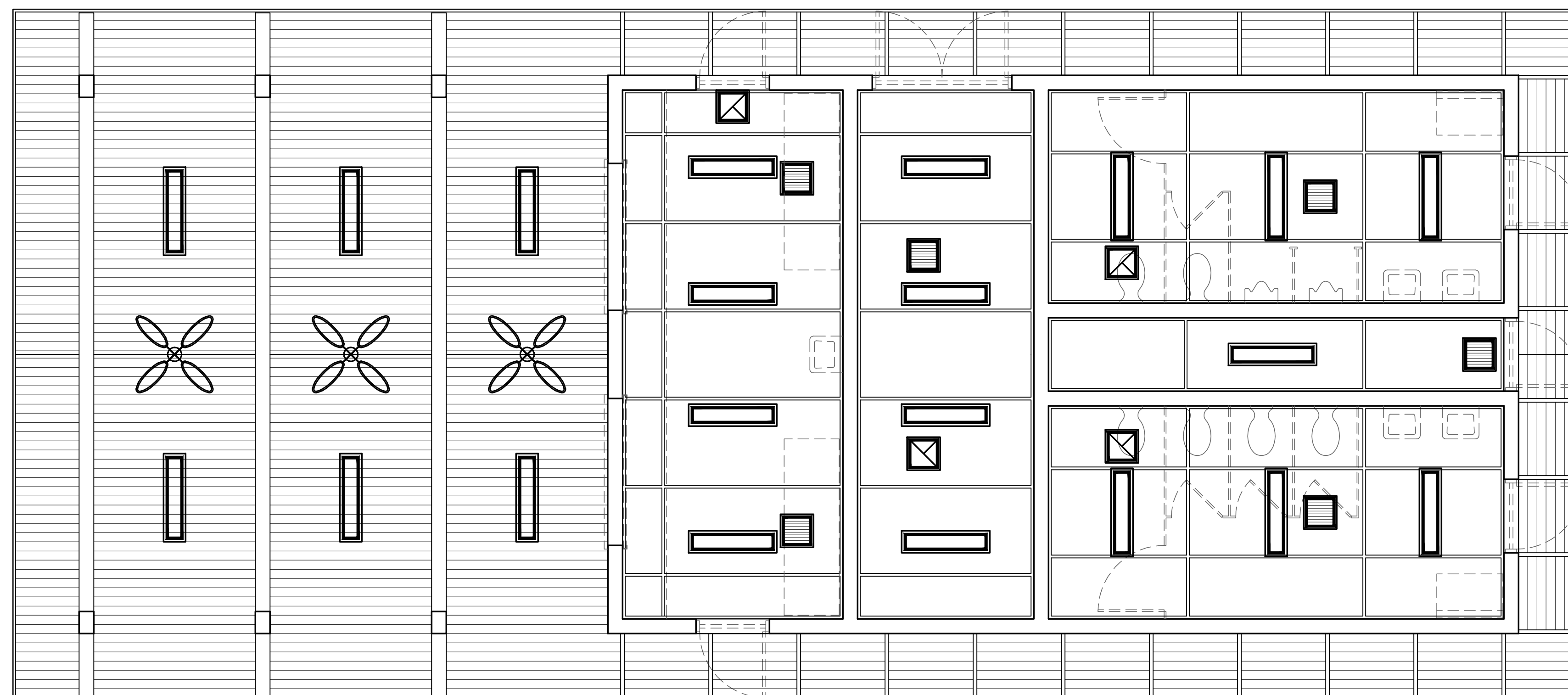
SCALE: 1/4" = 1'-0"

ROOF PLAN LEGEND

SHINGLE ROOFING AS SPECIFIED

ROOF KEY NOTES

- 1 SHINGLE ROOFING ON FELT
- 2 SHINGLED RIDGE
- 3 LINE OF CMU WALL BELOW
- 4 LINE OF WOOD COLUMN BELOW
- 5 PREFINISHED METAL DRIP EDGE



CEILING PLAN

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

CEIL. PLAN LEGEND

MATERIAL

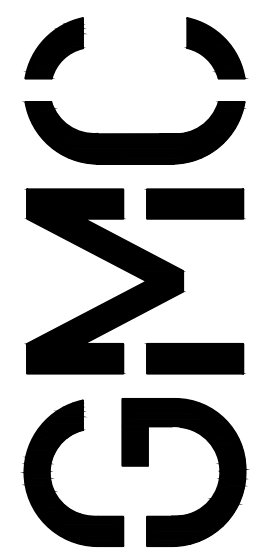
- 2x6 WOOD SOFFIT / DECKING
- PLYWOOD SOFFIT WITH 1x2 WOOD BATTENS

LIGHTING

- SURFACE MOUNTED LIGHT FIXTURE
- SUSPENDED CEILING FAN

MECHANICAL

- EXHAUST FAN GRILLE
- ELECTRIC HEATER SURFACE MOUNTED

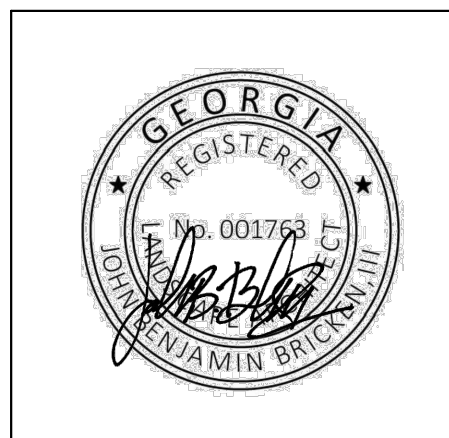


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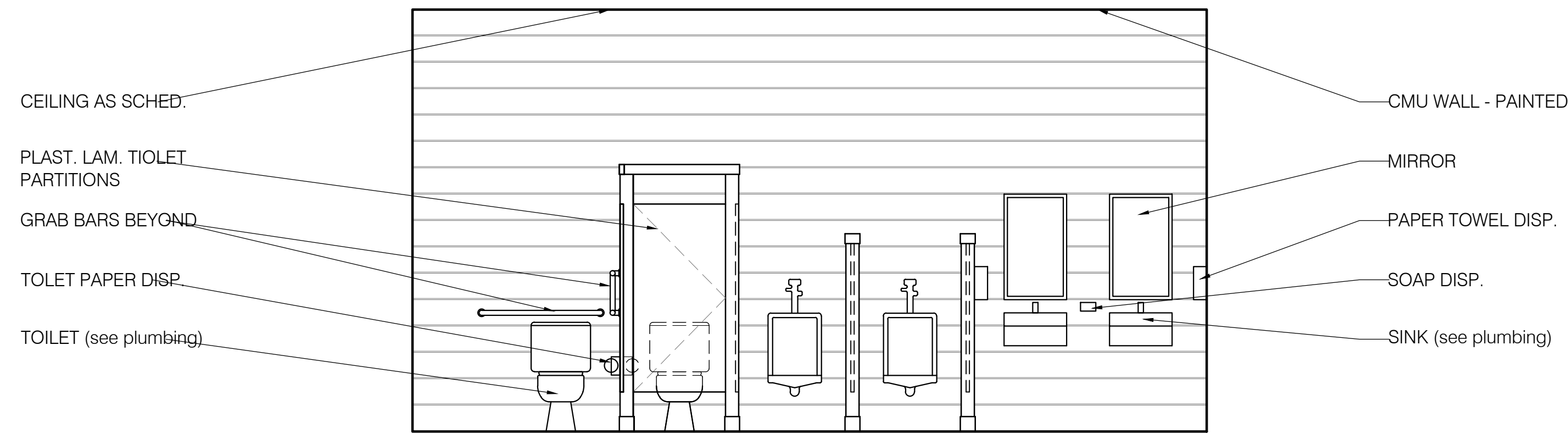
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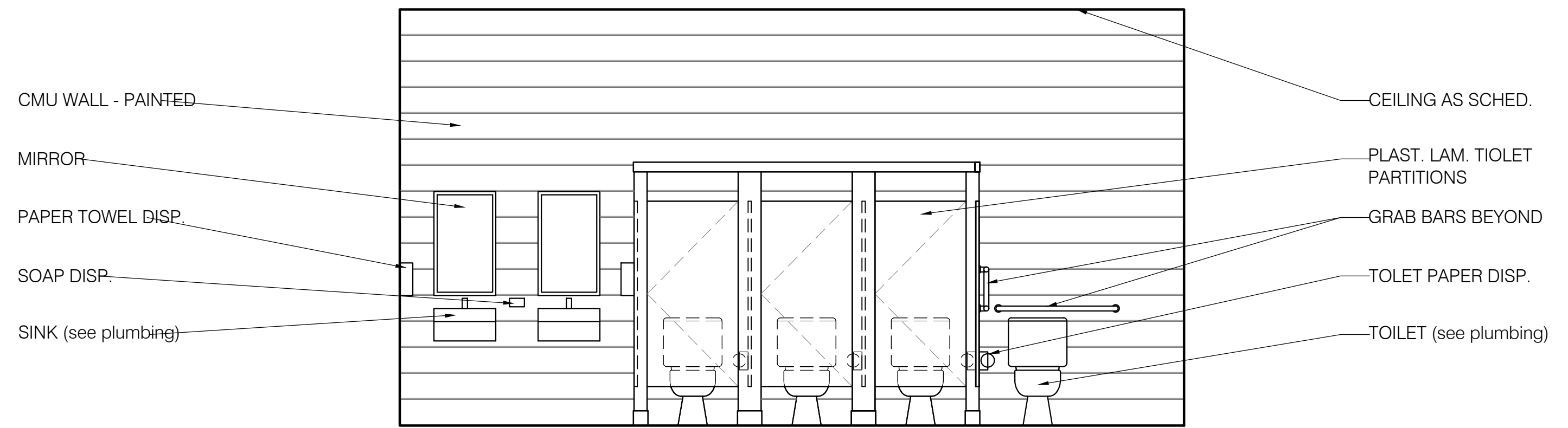


ROOF AND
 CEILING PLAN

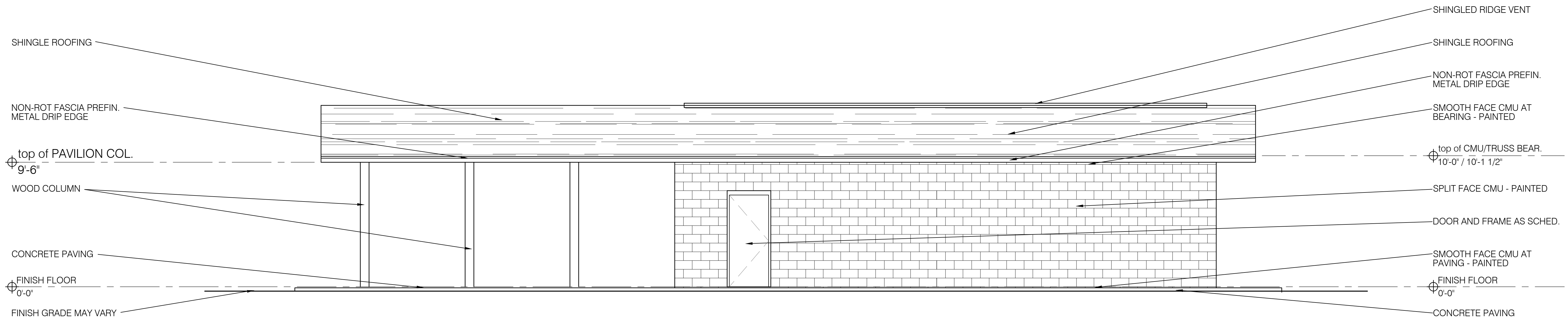
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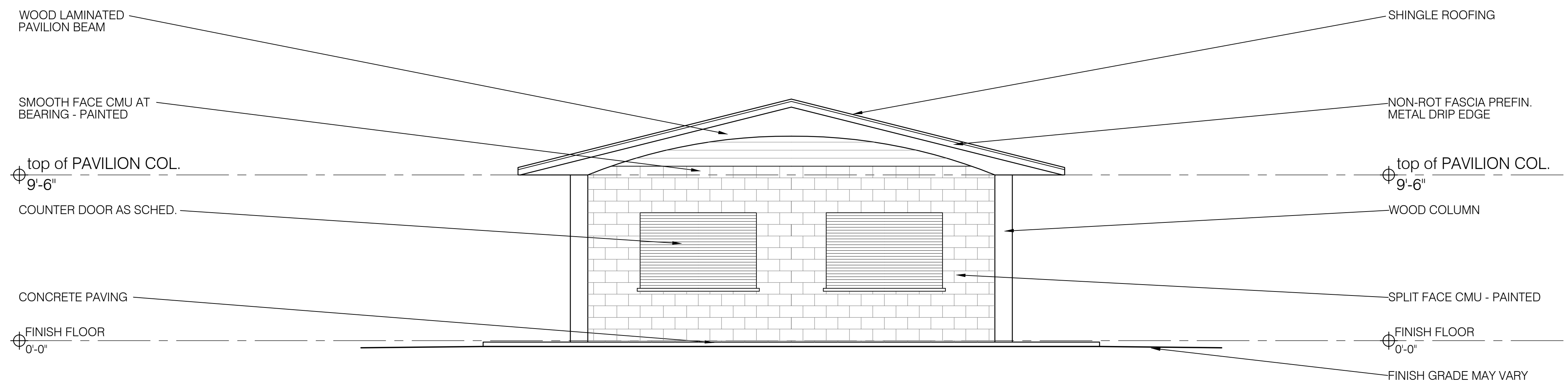
A INTERIOR ELEVATION
 A2.01 SCALE : 3/8" = 1'-0"



B INTERIOR ELEVATION
 A2.01 SCALE : 3/8" = 1'-0"



RIGHT SIDE ELEVATION
 SCALE : 1/4" = 1'-0"



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

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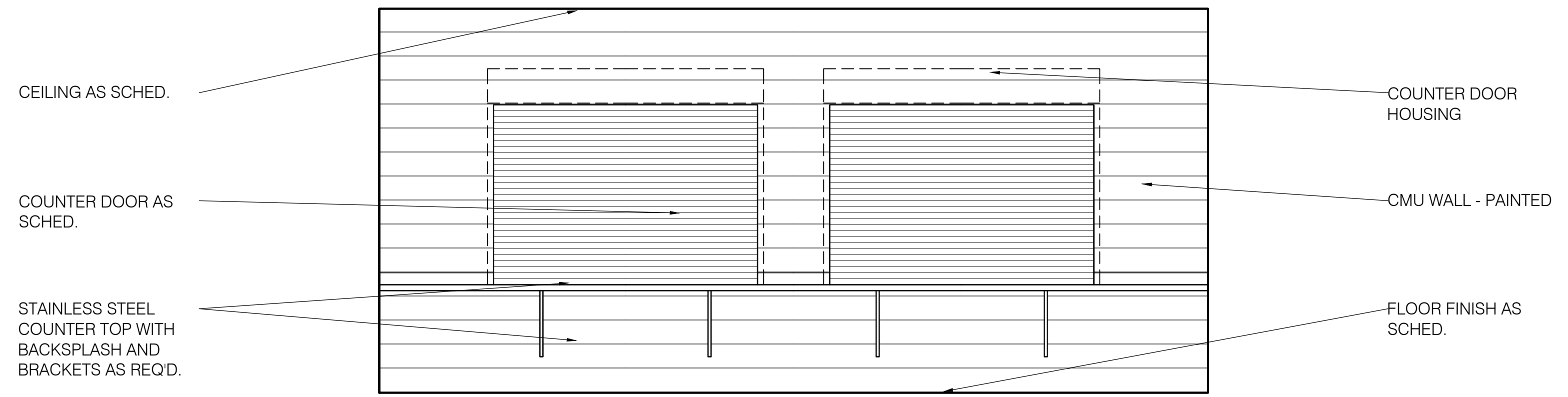
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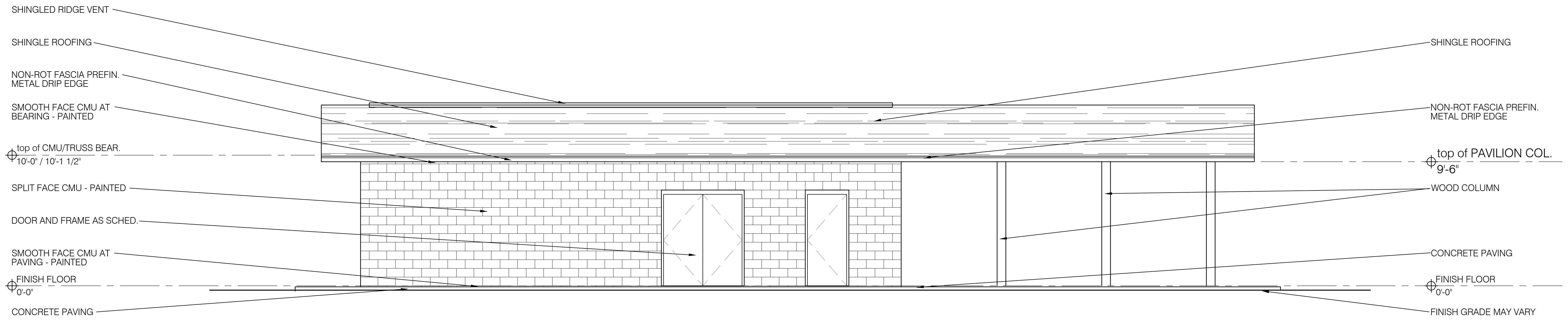


EXTERIOR AND
 INTERIOR
 ELEVATIONS

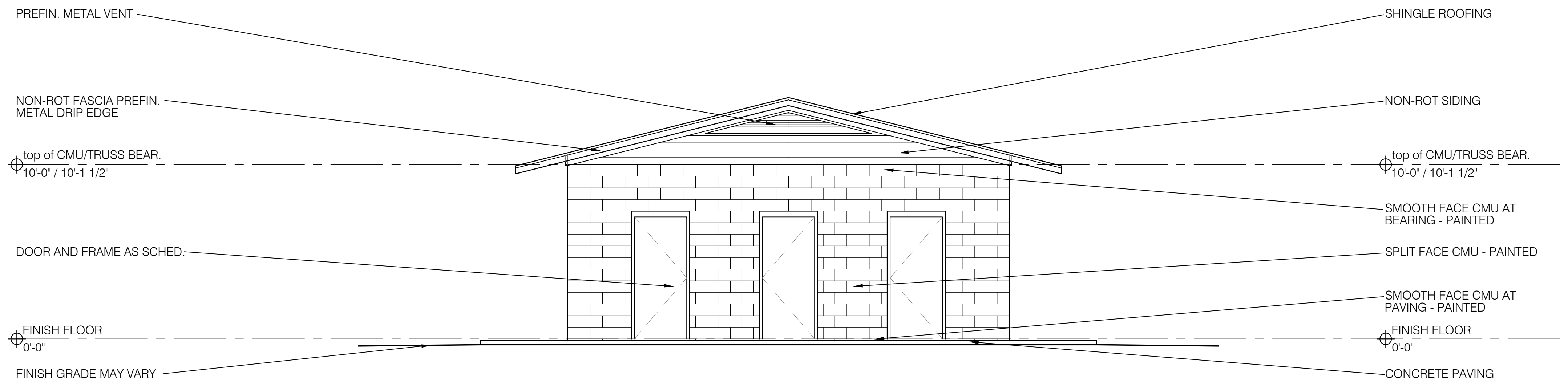
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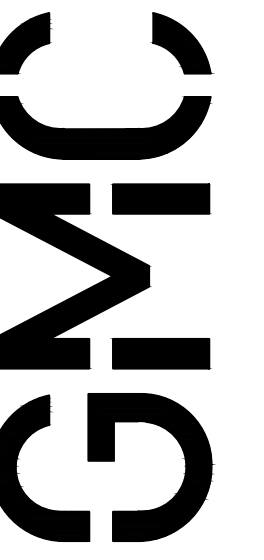
C
A2.02 **INTERIOR ELEVATION**
SCALE : 3/8" = 1'-0"



LEFT SIDE ELEVATION
SCALE : 1/4" = 1'-0"



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



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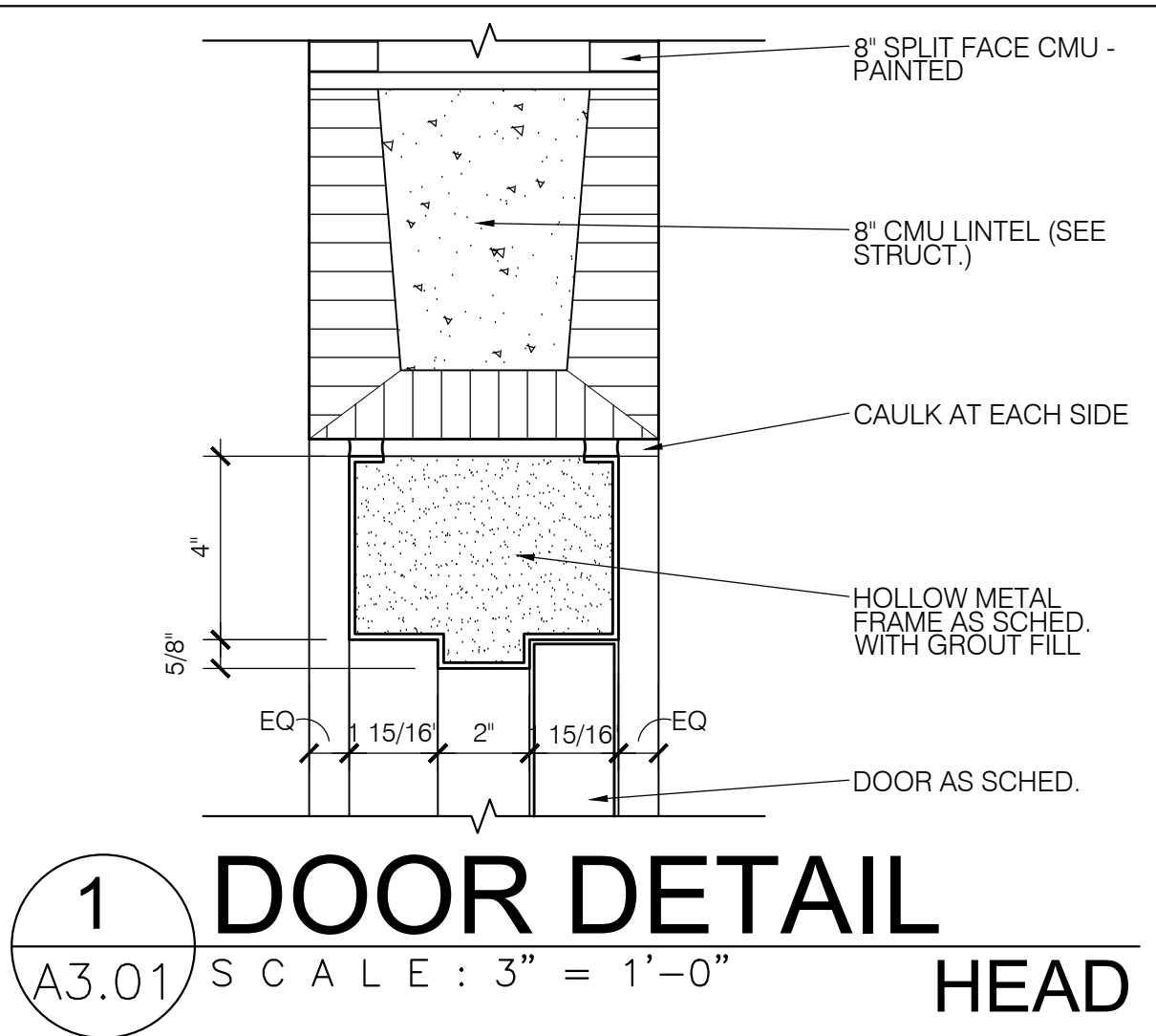
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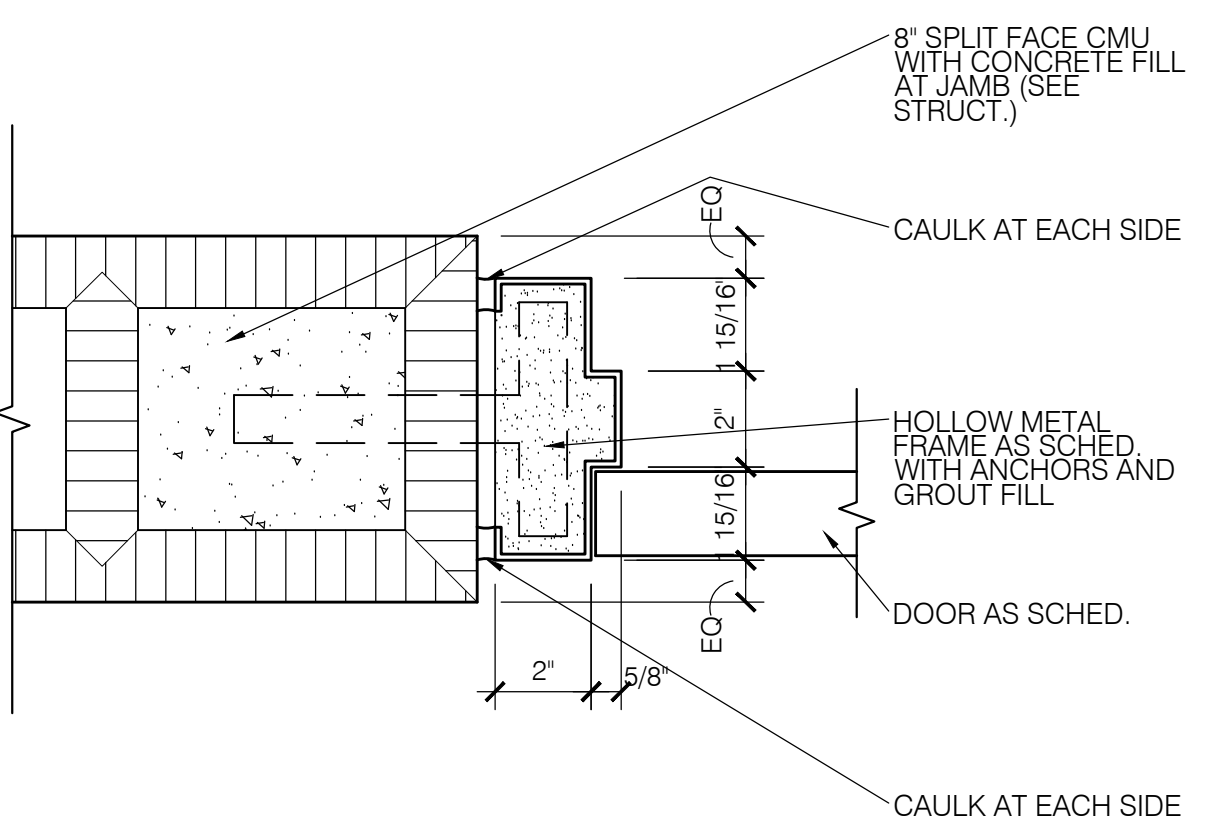


EXTERIOR AND
INTERIOR
ELEVATIONS

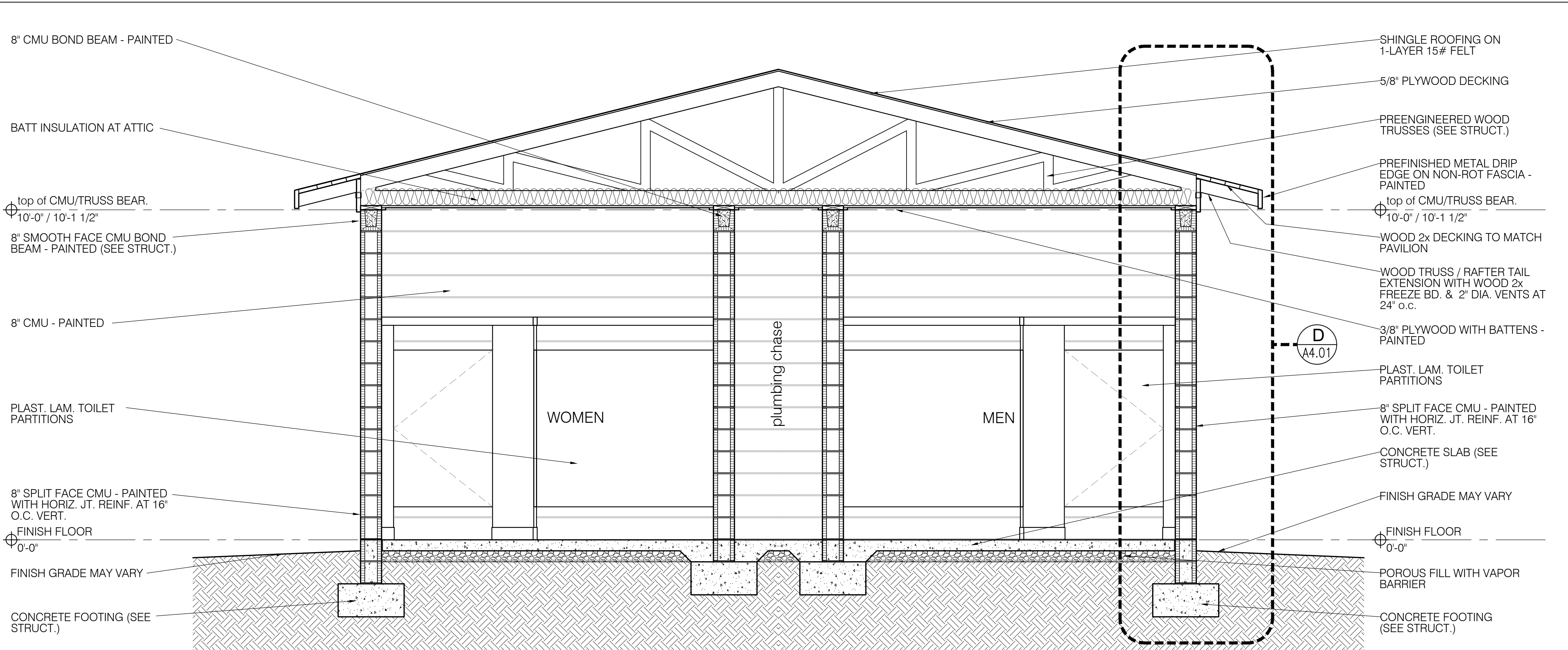
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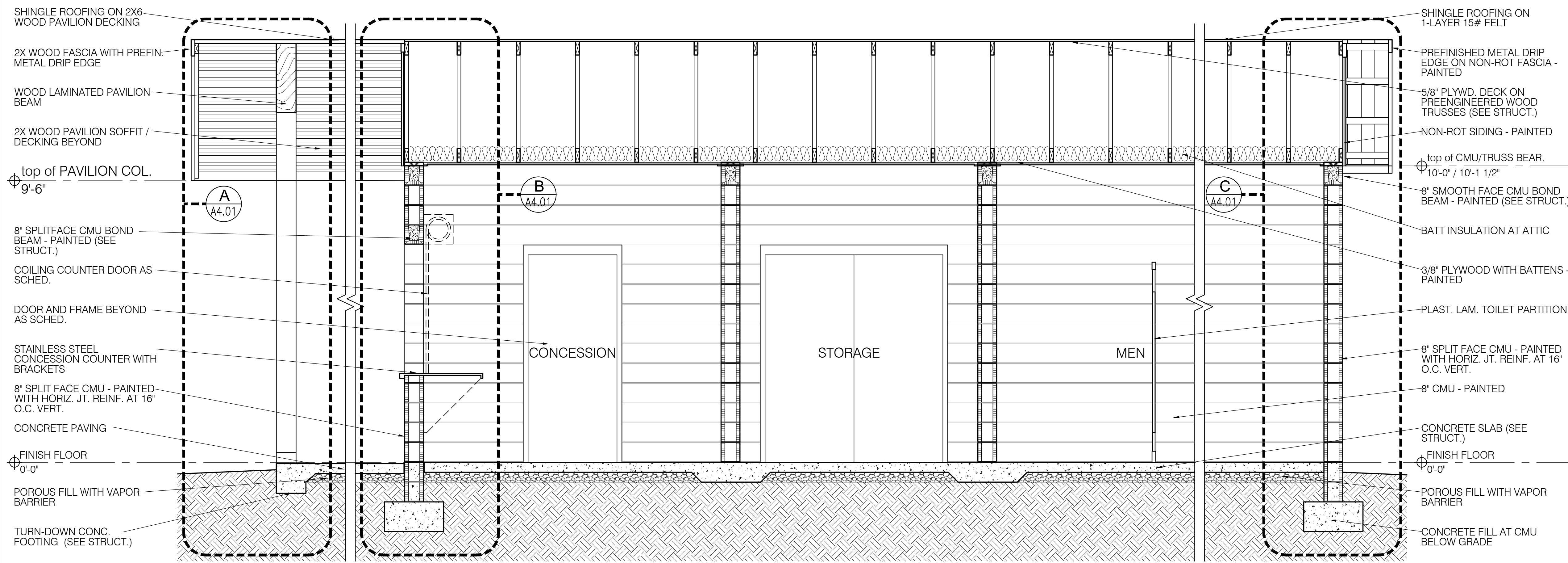
1 DOOR DETAIL
 A3.01 SCALE: 3" = 1'-0" HEAD



2 DOOR DETAIL
 A3.01 SCALE: 3" = 1'-0" JAMB



A-A BUILDING SECTION
 A3.01 SCALE: 1/2" = 1'-0"



B-B BUILDING SECTION
 A3.01 SCALE: 1/2" = 1'-0"

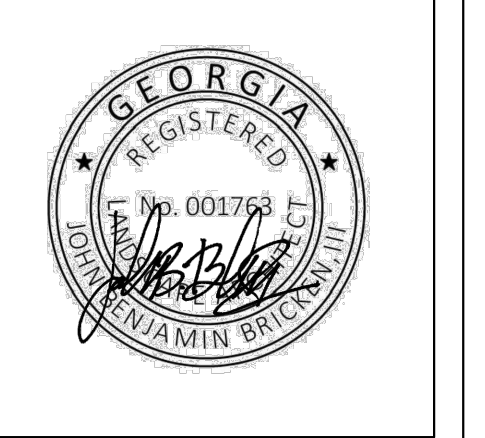
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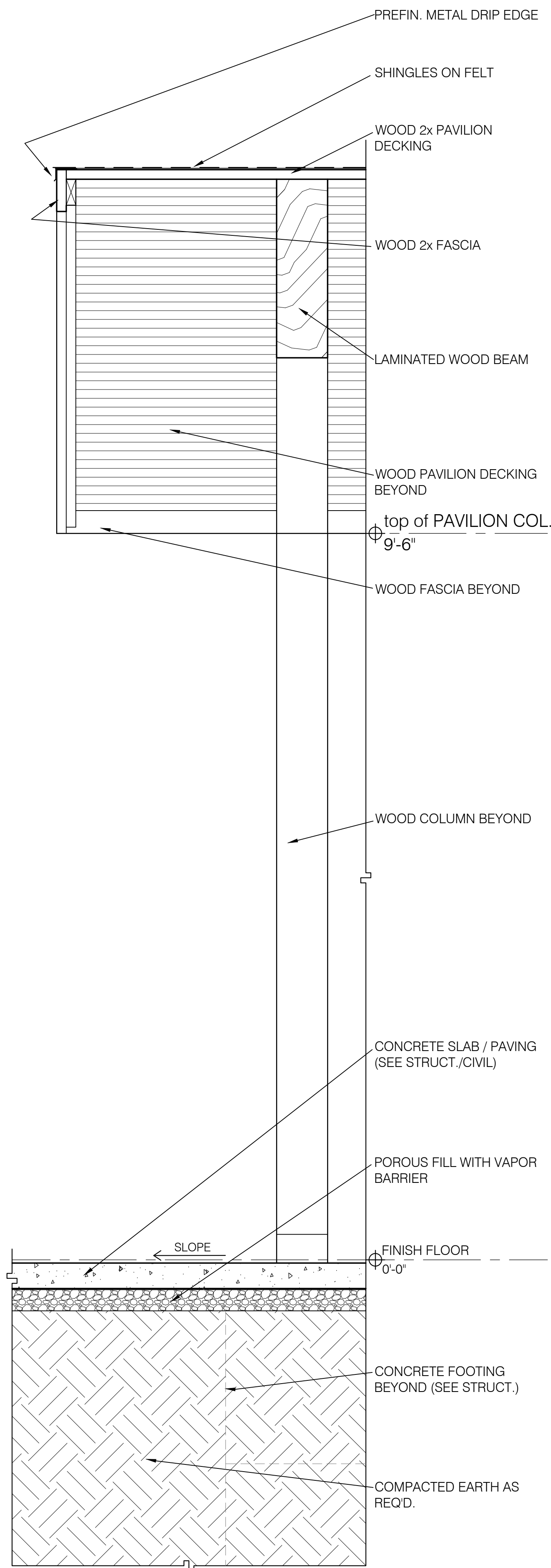
NORTHEAST COMMUNITY
 COMPLEX SOCCER FIELDS
 HALE BOWEN DRIVE, DALTON, GA

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 Construction Drawings

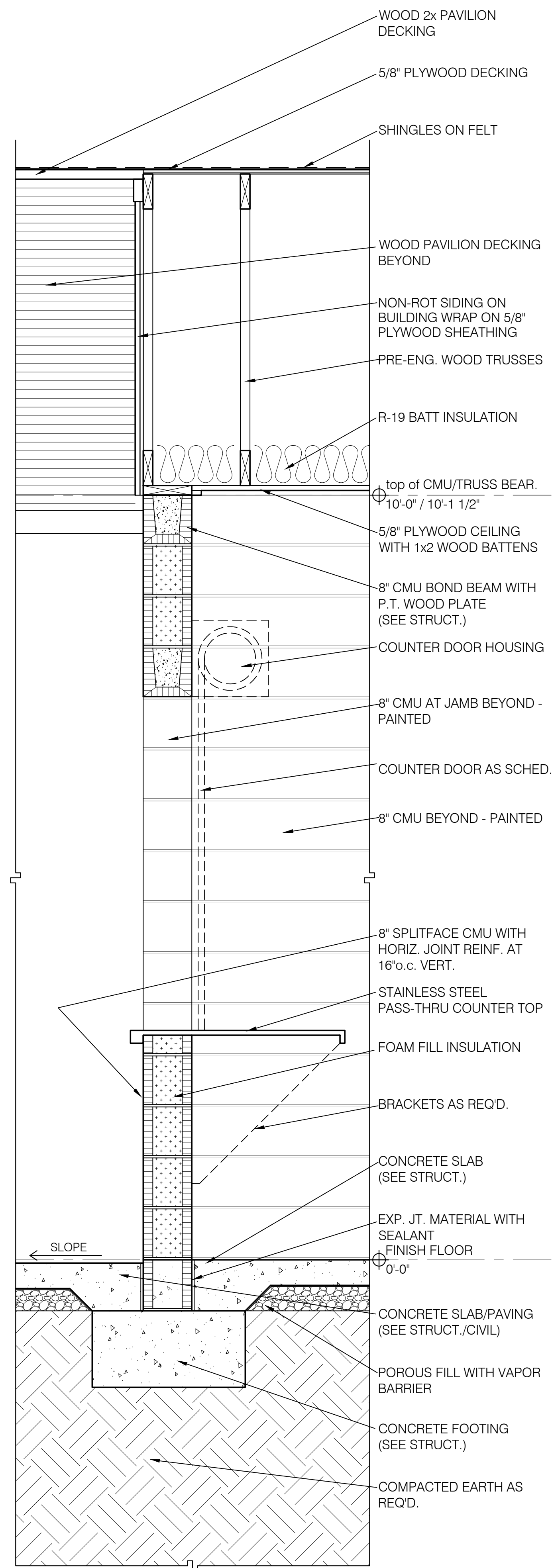


BUILDING SECTIONS

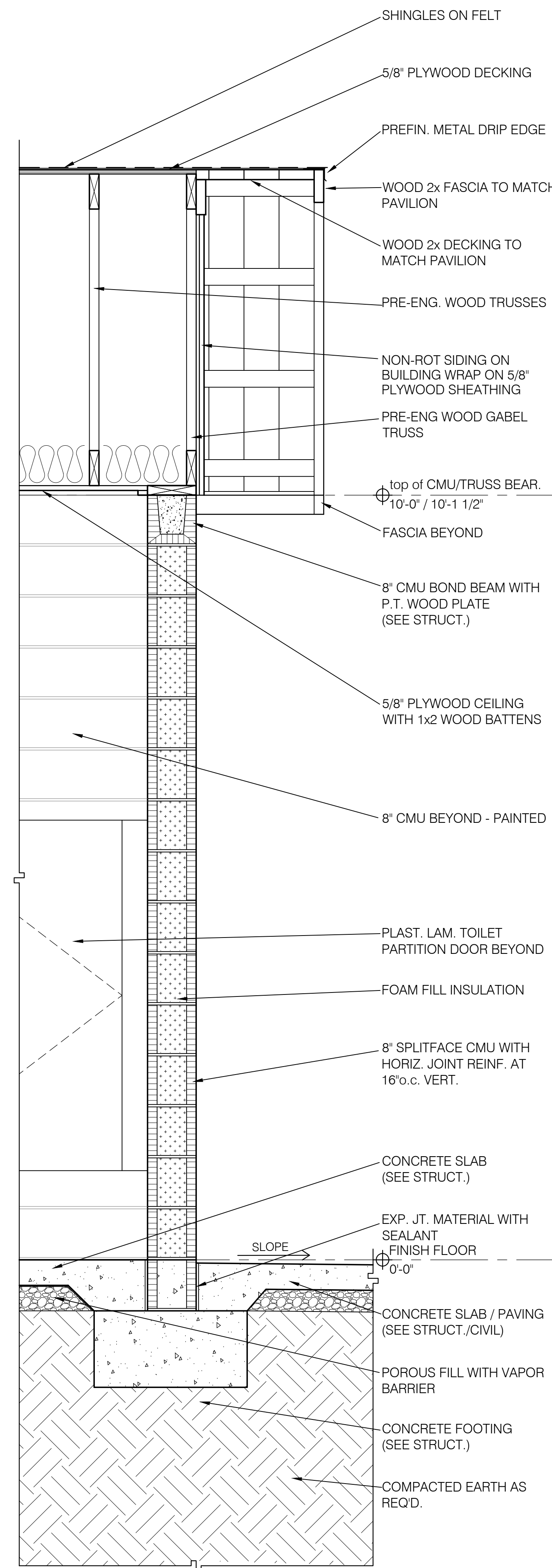
A3.01
 sheet of



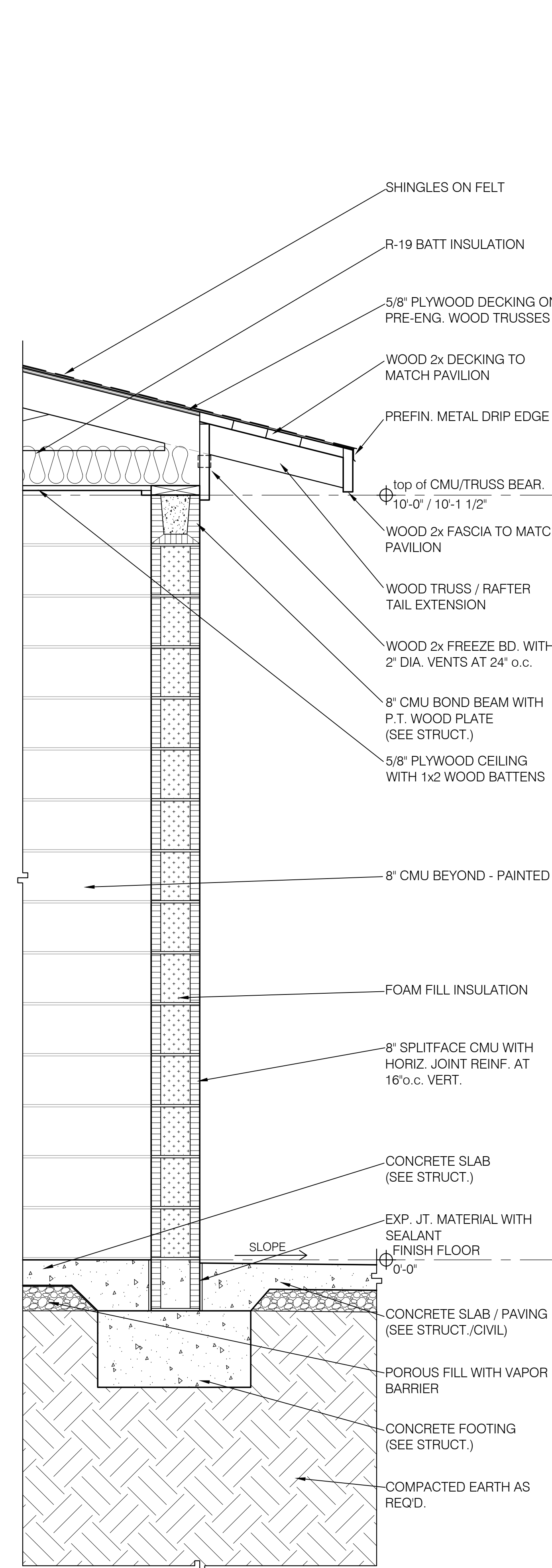
A WALL SECTION
A4.01 SCALE: 1" = 1'-0"



B WALL SECTION
A4.01 SCALE: 1" = 1'-0"



C WALL SECTION
A4.01 SCALE: 1" = 1'-0"



D WALL SECTION
A4.01 SCALE: 1" = 1'-0"

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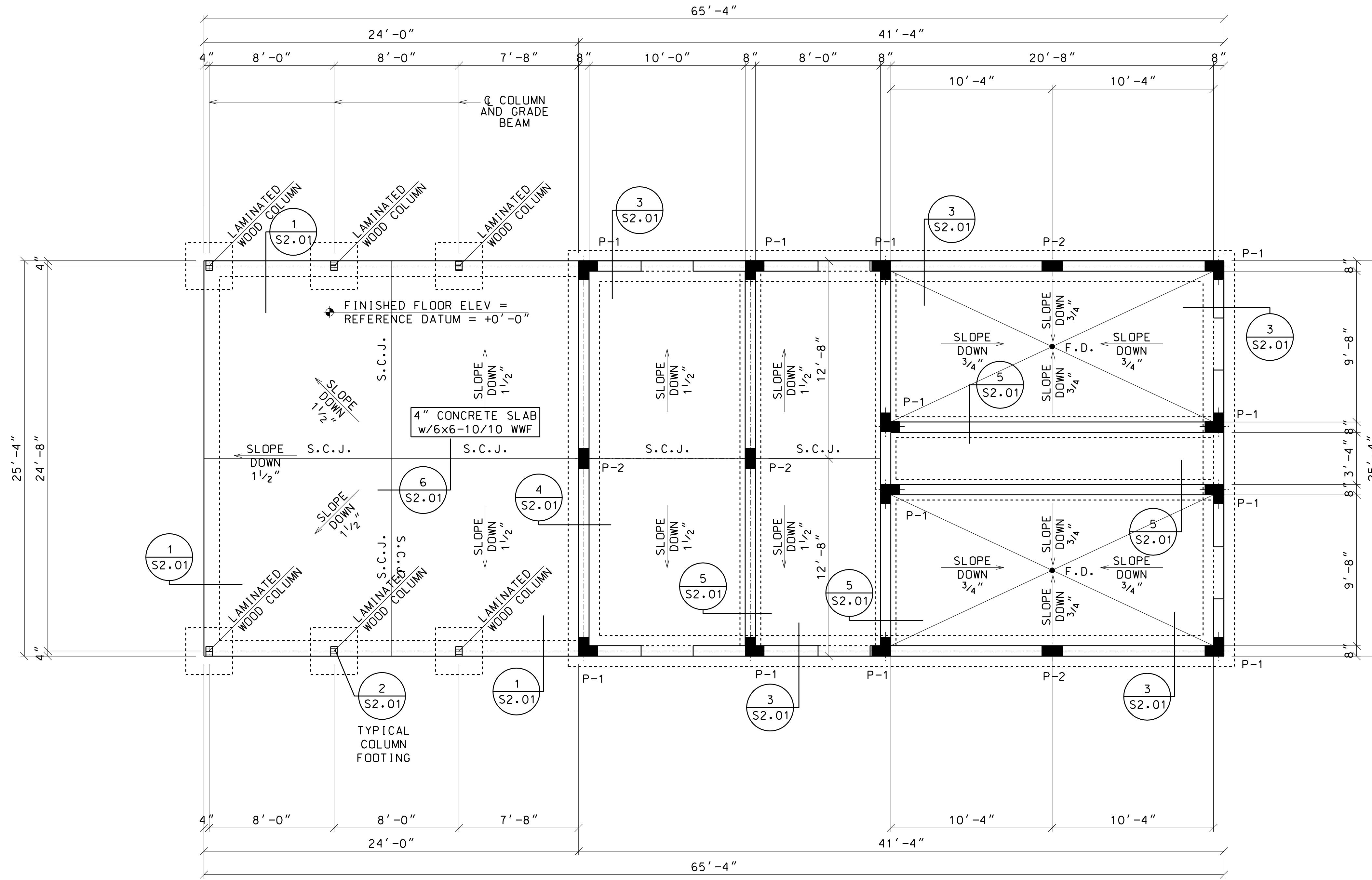
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WALL
SECTIONS

A4.01
Sheet of



FOUNDATION PLAN — SCALE: 1/4" = 1'-0"

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FOUNDATION PLAN

S1.01
 sheet 1 of 4



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NORTHEAST COMMUNITY
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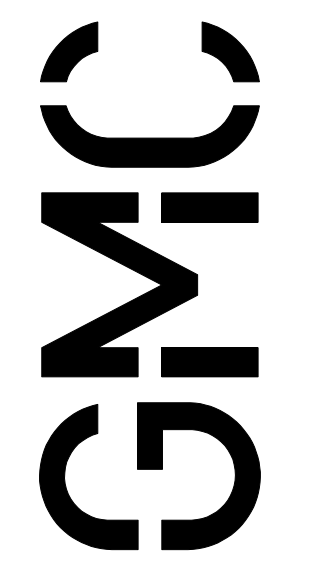
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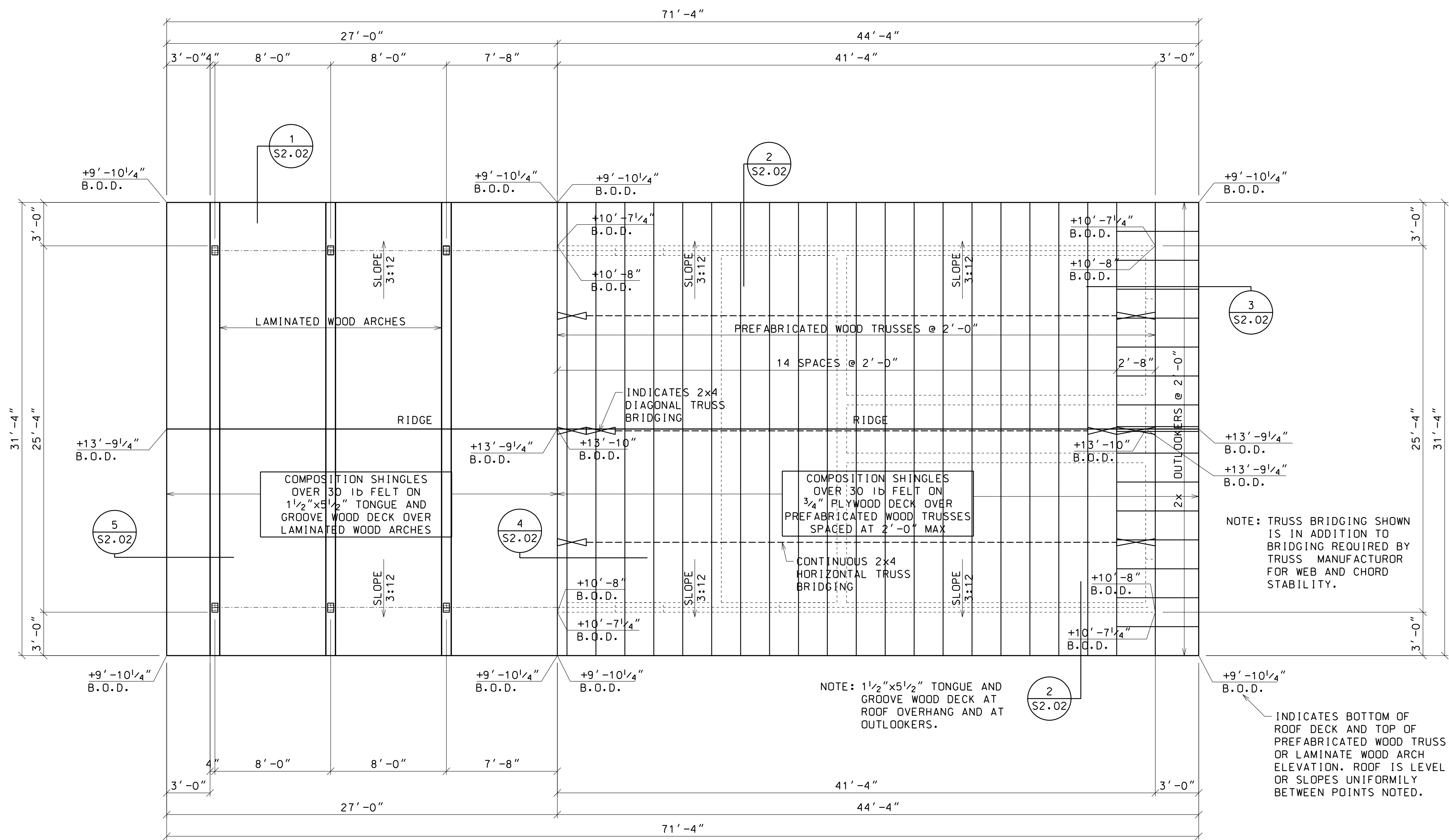
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P:\Projects\2021\21180\21180_Plans.dgn
 Model View - S1.02

Plotted: 7/30/2021 11:20:28 AM
 24x36 Sheet 4.0000' / IN.

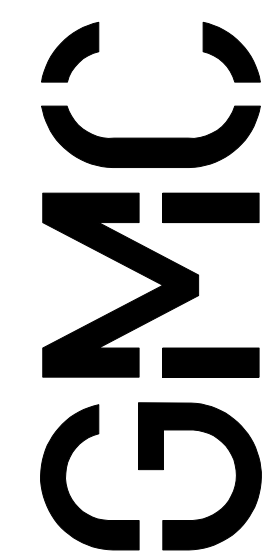


ROOF FRAMING PLAN — SCALE: 1/4"=1'-0"

NOTE: TRUSS BRIDGING SHOWN IS IN ADDITION TO BRIDGING REQUIRED BY TRUSS MANUFACTURER FOR WEB AND CHORD STABILITY.

INDICATES BOTTOM OF ROOF DECK AND TOP OF PREFABRICATED WOOD TRUSS OR LAMINATE WOOD ARCH ELEVATION. ROOF IS LEVEL OR SLOPES UNIFORMLY BETWEEN POINTS NOTED.

NOTE: 1 1/2" x 5 1/2" TONGUE AND GROOVE WOOD DECK AT ROOF OVERHANG AND AT OUTLOOKERS.




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S1.02
 sheet 2 of 4

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STRUCTURAL NOTES

APPLICABLE CODES AND SPECIFICATIONS

INTERNATIONAL BUILDING CODE - 2015
 AMERICAN CONCRETE INSTITUTE
 AMERICAN INSTITUTE OF STEEL CONSTRUCTION
 AMERICAN INSTITUTE OF TIMBER CONSTRUCTION
 AMERICAN IRON AND STEEL INSTITUTE
 AMERICAN SOCIETY FOR TESTING AND MATERIALS
 AMERICAN WELDING SOCIETY
 ASCE/SEI 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
 NATIONAL CONCRETE MASONRY ASSOCIATION

DESIGN LOADS

- A. ROOF LIVE LOAD (ON HORIZONTAL PROJECTION)
 FOR MEMBERS SUPPORTING 0-200 SQ. FT.20 psf
 FOR MEMBERS SUPPORTING 200-600 SQ. FT.20 psf to 12 psf
 FOR MEMBERS SUPPORTING MORE THAN 600 SQ. FT.12 psf
- B. GROUND SNOW LOAD (Pg)5 psf
 SNOW EXPOSURE FACTOR (Ce)0.90
 SNOW LOAD IMPORTANCE FACTOR (I_s)1.10
 THERMAL FACTOR (Ct)1.00
- C. WIND LOAD
 ULTIMATE DESIGN WIND SPEED (3-SECOND GUST)(V_{ult})120 mph
 NOMINAL DESIGN WIND SPEED (3-SECOND GUST)(V_{asd})95 mph
 WIND EXPOSURE1.00
 INTERNAL PRESSURE COEFFICIENT (CONCESSIONS AND RESTROOMS)+0.18/-0.18
 INTERNAL PRESSURE COEFFICIENT (COVERED PAVILION)0.00
 COMPONENTS AND CLADDINGSEE DIAGRAM
- D. FLOOR LIVE LOAD100 psf

FOUNDATIONS

DRILLED PIER FOUNDATIONS ARE DESIGNED FOR A MAXIMUM CAPACITY OF 40,000 LBS FOR 24" Ø PIERS BEARING AT A DEPTH OF 17'-0" BELOW EXISTING GRADE AT THE SURFACE OF DENSE UNSATURATED EXPANSIVE CLAY OR CHALK.
 FILL UNDER GRADE BEAMS AND SLAB SHALL BE COMPACTED TO A MAXIMUM OF 90% STANDARD PROCTOR DENSITY (ASTM D-698). SEE SPECIFICATIONS FOR COMPACTION AND TESTING REQUIREMENTS.
 DRILLED PIER ELEVATIONS SHOWN ON PLAN ARE MINIMUM DEPTH.
 UNUSUAL SOILS CONDITIONS MAY REQUIRE CHANGE IN FOOTING ELEVATION. CONTACT ARCHITECT AND/OR ENGINEER FOR APPROVAL TO CHANGE ELEVATION.

SLAB ON GRADE

UNLESS OTHERWISE NOTED, ALL SLABS ON GRADE SHALL BE REINFORCED WITH ONE LAYER OF REINFORCING SHOWN OR PLAN PLACED AT 1/2 SLAB THICKNESS FROM TOP.
 FILL UNDER SLAB SHALL BE COMPACTED TO A MAXIMUM OF 90% STANDARD PROCTOR DENSITY (ASTM D-698). SEE SPECIFICATIONS FOR COMPACTION AND TESTING REQUIREMENTS.

CONCRETE (CAST-IN-PLACE)

MINIMUM COMPRESSIVE STRENGTH OF CAST-IN-PLACE CONCRETE AT 28 DAYS SHALL BE:
 FOUNDATIONS/DRILLED PIERS AND GRADE BEAMS3000 psi
 STRUCTURAL SLAB3000 psi
 SEE SPECIFICATIONS FOR TESTING REQUIREMENTS.

REINFORCING STEEL

REINFORCING BARS SHALL BE DEFORMED BILLET STEEL BARS CONFORMING TO ASTM A615 SPECIFICATIONS.
 MINIMUM YIELD STRENGTHS (f_y) SHALL BE AS FOLLOWS:
 REINFORCING BARS60,000 psi
 BEAM STIRRUPS40,000 psi
 UNLESS OTHERWISE DETAILED, PROTECTIVE CONCRETE COVER FOR REINFORCING STEEL SHALL NOT BE LESS THAN:
 A. CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH3 in.
 B. EXPOSED TO EARTH OR WEATHER
 #6 BARS AND LARGER2 in.
 #5 BARS AND SMALLER1 1/2 in.
 LAP ALL CONTINUOUS REINFORCEMENT 24 DIAMETERS MINIMUM, UNLESS OTHERWISE NOTED. AT CORNERS AND INTERSECTIONS, PROVIDE HOOKS OR CORNER BARS.
 DOWEL ALL FOOTINGS, GRADE BEAMS AND WALLS, WHERE THEY ABUT, WITH SAME STEEL AS DETAILED HORIZONTAL REINFORCEMENT, 24 DIAMETERS MINIMUM LAP.

MASONRY

HOLLOW CONCRETE MASONRY UNITS, WHEN USED IN BEARING WALLS, SHALL CONFORM TO THE REQUIREMENTS OF ASTM C90. MORTAR SHALL BE TYPE S, WITH A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 1500 PSI, OR HIGHER.
 SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS AND DETAILS OF MASONRY CONTROL JOINTS. LOCATE CONTROL JOINTS AT WALL INTERSECTION AND 30'-0" MAXIMUM EXCEPT WHEN SHOWN CLOSER ON ARCHITECTURAL.
 HORIZONTAL JOINT REINFORCEMENT SHALL BE FOR TOTAL WIDTH OF SINGLE AND MULTIPLE UNIT WALLS, AND SHALL BE SPACED VERTICALLY AS INDICATED ON DRAWINGS.
 ALL U-BLOCK BEAMS SHALL BE REINFORCED AS INDICATED ON DRAWINGS, HOOKED AT CORNERS AND INTERSECTIONS.
 REINFORCE BUILDING CORNERS, SHOWN ON PLAN, WITH 1-#5 VERTICAL IN EACH OF THREE CONCRETE FILLED CORNER CELLS DOWELLED TO FOUNDATION AND HOOKED WITH BOND BEAM AT ROOF.

STRUCTURAL STEEL

MINIMUM MATERIAL STRENGTHS SHALL BE AS FOLLOWS:
 STEEL PLATE36 ksi yield point (ASTM A36)
 ANCHOR BOLTSASTM F1554-GRADE 36
 BOLTED STRUCTURAL JOINTSA-325X
 WELD ELECTRODESE70XX

PREFABRICATED WOOD TRUSSES

ALL PREFABRICATED WOOD TRUSS ELEMENTS SHALL BE DESIGNED, FABRICATED AND ERRECTED IN STRICT ACCORDANCE WITH APPLICABLE CODES AND SPECIFICATIONS TO SUPPORT ALL LIVE LOADS NOTED ABOVE, DEAD LOADS AND CONCENTRATED LOADS, REQUIRED LATERAL BRACING (TEMPORARY AND PERMANENT) SHALL BE DESIGNED AND NOTED ON ERECTION DRAWINGS BY THE MANUFACTURER.
 VERIFY ALL DIMENSIONS AND DETAILS SHOWN, NOTIFY ARCHITECT AND/OR ENGINEER OF ANY REQUIRED MODIFICATIONS.
 SUBMIT DESIGN DRAWINGS BEARING THE ENGINEER'S REGISTRATION SEAL OF THE DESIGN ENGINEER.

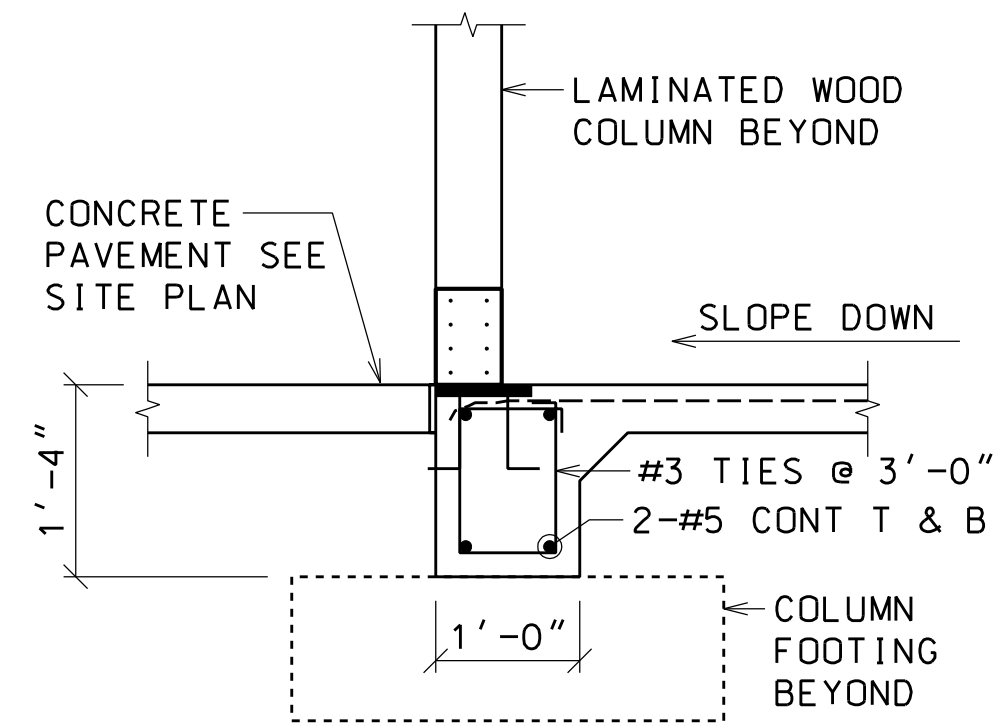
TIMBER FRAMING, LAMINATED WOOD

MINIMUM MATERIAL STRENGTHS SHALL BE AS FOLLOWS:
 TIMBER FRAMING1350F - 1.6E
 LAMINATED WOOD2500F - 2.0E
 UNLESS OTHERWISE NOTED OR DETAILED, ALL MEMBER CONNECTIONS SHALL HAVE STANDARD GALVANIZED METAL FRAMING ANCHORS OR CLIPS CONNECTING MEMBERS CARRYING ANY COMBINATION OF DEAD, LIVE AND WIND LOADS.

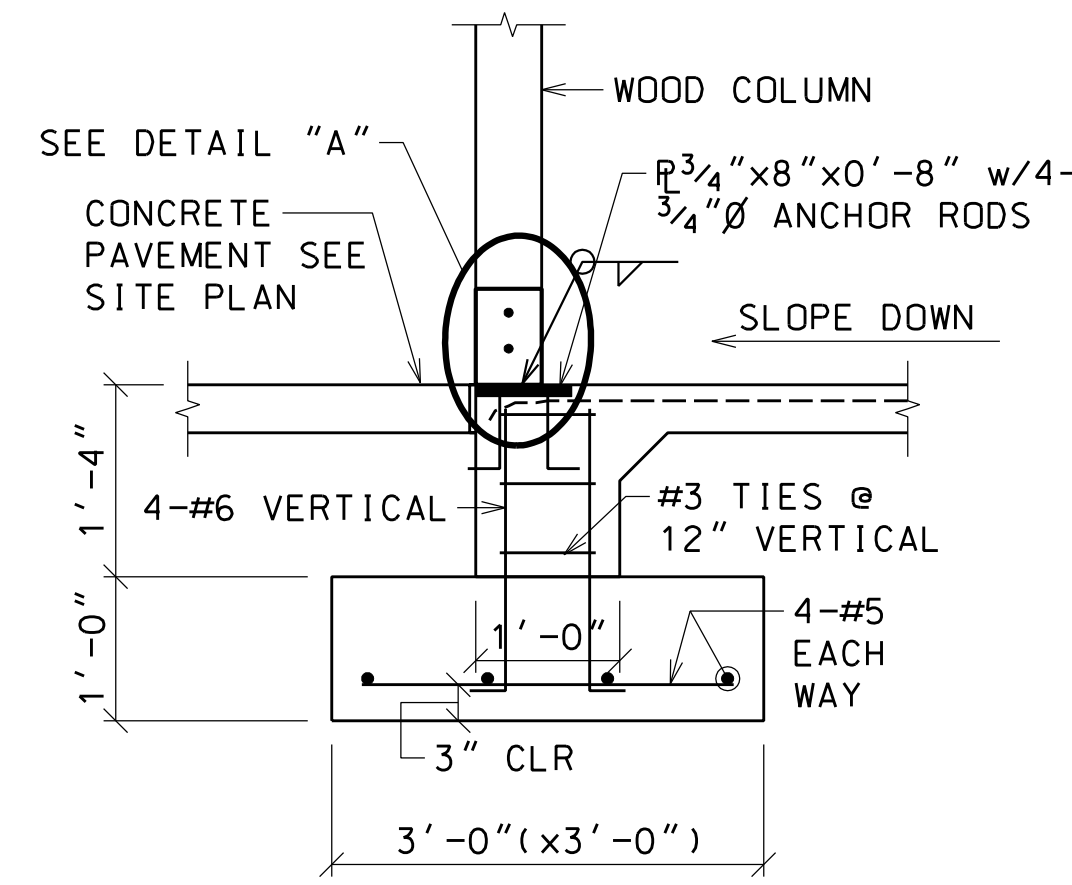
SHOP DRAWINGS

SUBMIT FOR REVIEW TO THE ARCHITECT AND/OR ENGINEER, IN ACCORDANCE WITH THE SPECIFICATIONS, AS FOLLOWS:
 A. PLACING PLANS AND DETAILS OF CONCRETE REINFORCEMENT, IN ACCORDANCE WITH THE LATEST ACI DETAILING MANUAL (ACI 315).
 B. LAYOUT AND DETAILS OF ALL LAMINATED AND/OR PREFABRICATED WOOD ELEMENTS.
 SUBMITTAL SHALL BEAR THE APPROVAL STAMP OF THE CONTRACTOR, VERIFYING THAT THE DIMENSIONS AND DETAILS COMPLY WITH THE CONTRACT DRAWINGS.

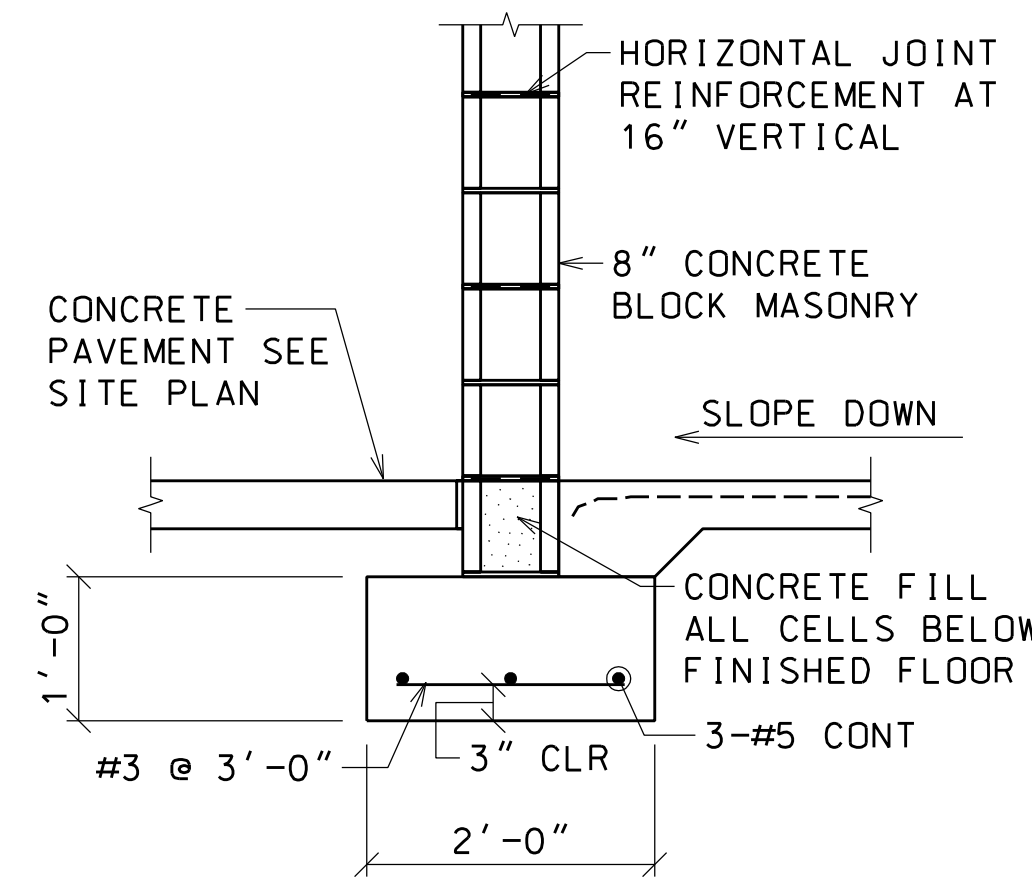
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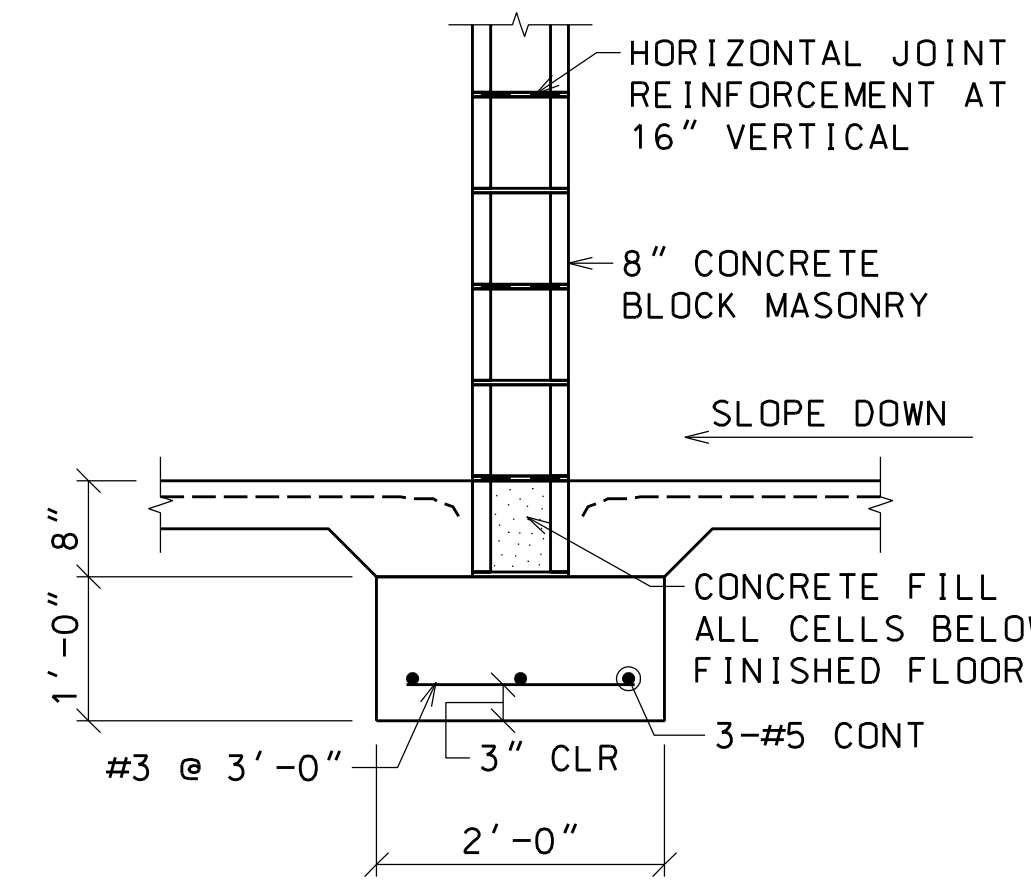
SECTION 1 3/4"=1'-0"



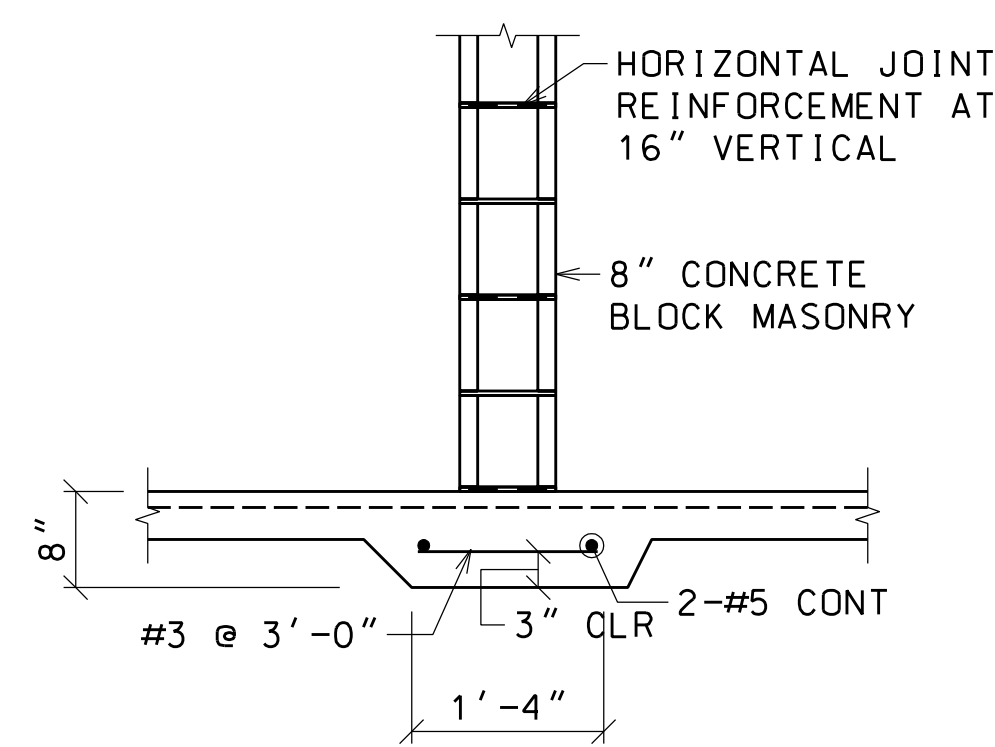
SECTION 2 3/4"=1'-0"



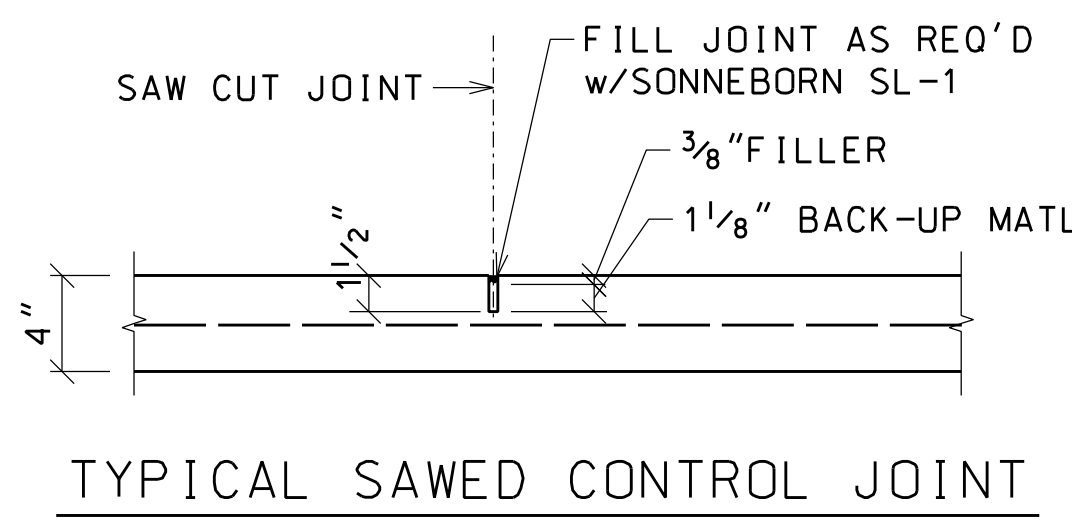
SECTION 3 3/4"=1'-0"



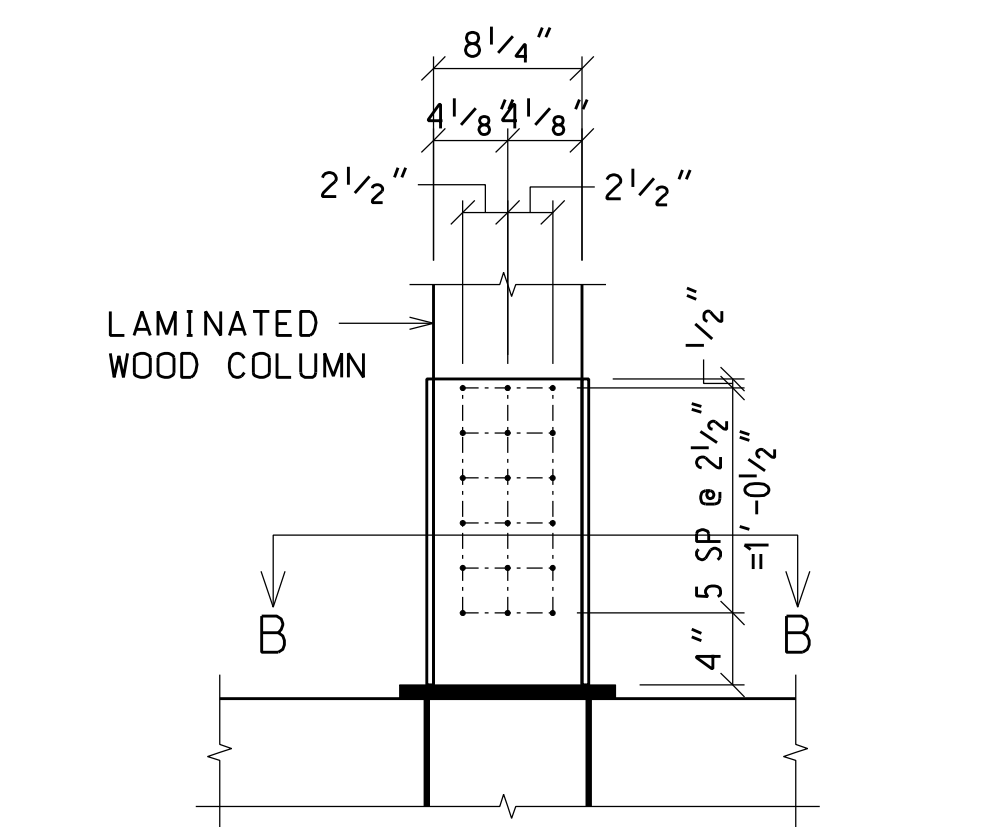
SECTION 4 3/4"=1'-0"



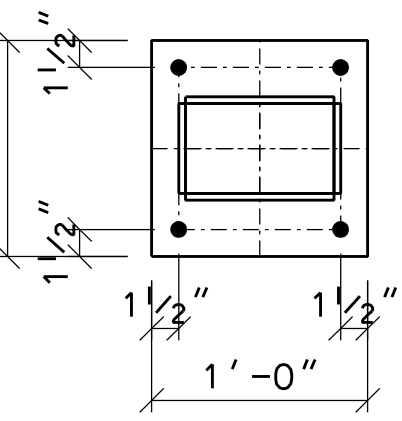
SECTION 5 3/4"=1'-0"



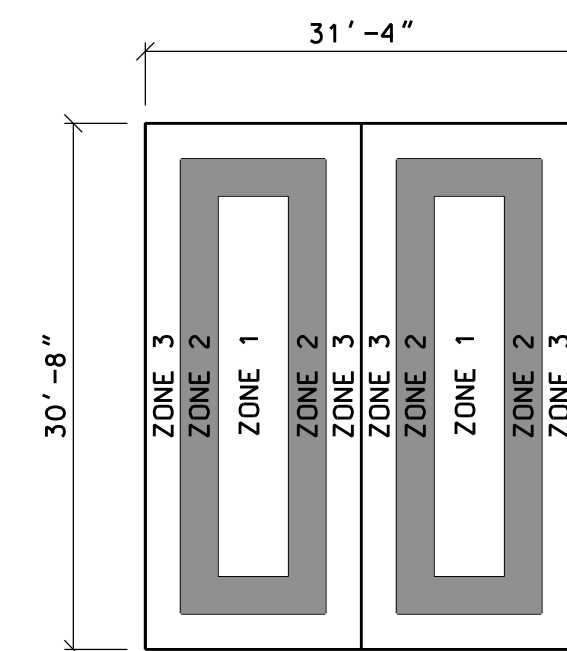
SECTION 6 1 1/2"=1'-0"



DETAIL A



SECTION B-B



WIND PRESSURE DIAGRAM FOR COMPONENTS & CLADDING

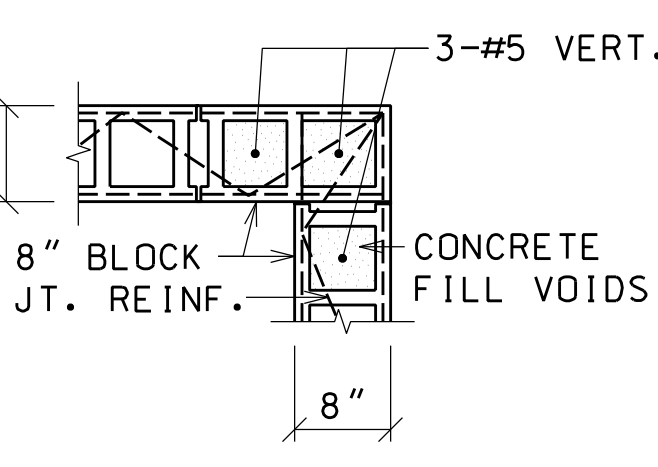
AREA (FT ²)	COMPONENTS AND CLADDING - WIND PRESSURES - ENCLOSED BUILDING							
	ROOF			WALL				
	INTERIOR ZONE	END ZONE	CORNER ZONE	OVERHANG	INTERIOR ZONE	END ZONE	END ZONE	
10	+ 18.1 psf	- 28.7 psf	+ 18.1 psf	- 50.0 psf	+ 18.1 psf	- 74.0 psf	- 31.4 psf	+ 31.4 psf
20	+ 16.5 psf	- 27.9 psf	+ 16.5 psf	- 46.0 psf	+ 16.5 psf	- 69.1 psf	- 31.4 psf	+ 31.4 psf
50	+ 14.4 psf	- 26.9 psf	+ 14.4 psf	- 40.7 psf	+ 14.4 psf	- 62.8 psf	- 31.4 psf	+ 31.4 psf
100	+ 12.8 psf	- 26.1 psf	+ 12.8 psf	- 36.7 psf	+ 12.8 psf	- 58.0 psf	- 31.4 psf	+ 31.4 psf
500	-----	-----	-----	-----	-----	-----	23.4 psf	- 26.1 psf

NOTES:

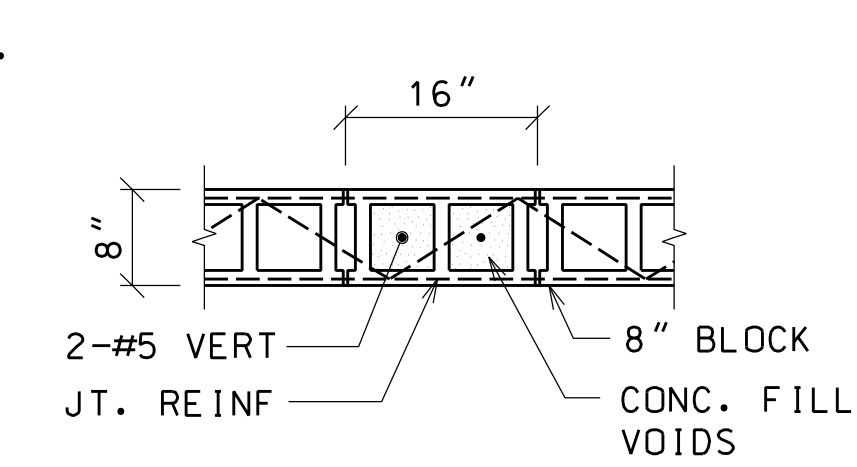
- o: 10% OF LEAST HORIZONTAL DIMENSION OR 0.4h, WHICHEVER IS SMALLER BUT NOT LESS THAN 4% OF LEAST HORIZONTAL DIMENSION OR 3 FEET.
- h: MEAN ROOF HEIGHT, IN FEET, EXCEPT THAT EAVE HEIGHT SHALL BE USED FOR ROOF ANGLES OR SLOPES < 10°.
- PRESSURES SHOWN ARE APPLIED NORMAL (PERPENDICULAR) TO THE SURFACE.
- PLUS SIGNS SIGNIFY PRESSURES INWARD.
- MINUS SIGNS SIGNIFY PRESSURES ACTING OUTWARD (SUCTION).
- PRESSURES INDICATED ARE FOR COMBINATIONS OF EXTERNAL AND INTERNAL PRESSURES.
- WIND PRESSURES ARE BASED UPON CHAPTER 30 - PART 1 (LOW RISE BUILDINGS) ASCE 7-10.
- PRESSURES INDICATED ARE BASED UPON WIND VELOCITIES INDICATED IN CHAPTER 26 - ASCE 7-10 AND ARE FOR STRENGTH DESIGN. MULTIPLY WIND PRESSURE SHOWN BY 0.77 FOR ALLOWABLE STRESS DESIGN PRESSURES.

COMPONENTS AND CLADDING - WIND PRESSURES - OPEN

AREA (FT ²)	ZONE 3	ZONE 2	ZONE 1
≤ 9	+ 25.9 psf	- 23.8 psf	+ 25.9 psf
> 9 & ≤ 36	+ 25.5 psf	- 23.8 psf	+ 40.0 psf
> 36	+ 25.5 psf	- 23.8 psf	+ 51.8 psf



P-1



P-2

PILASTER DETAILS



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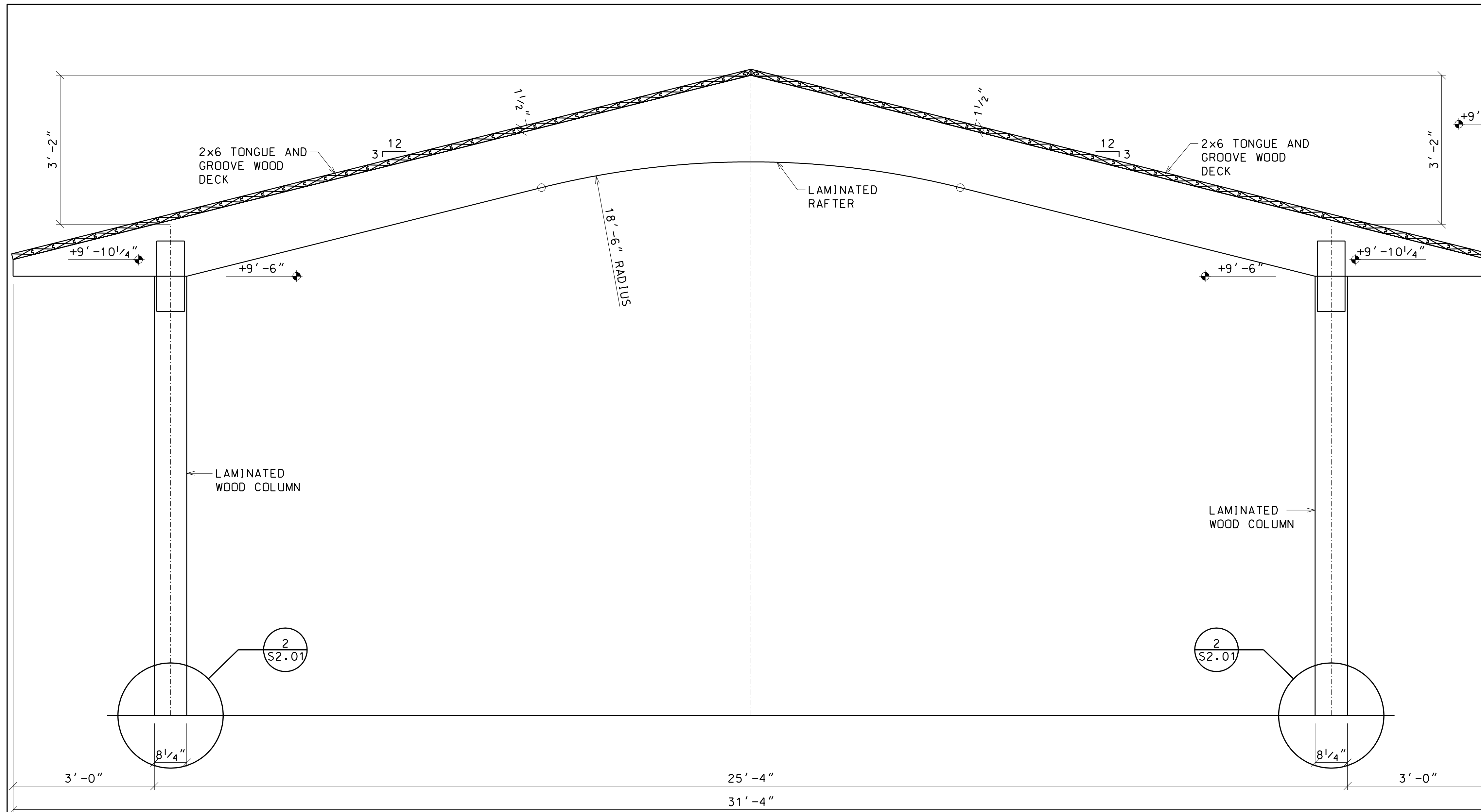
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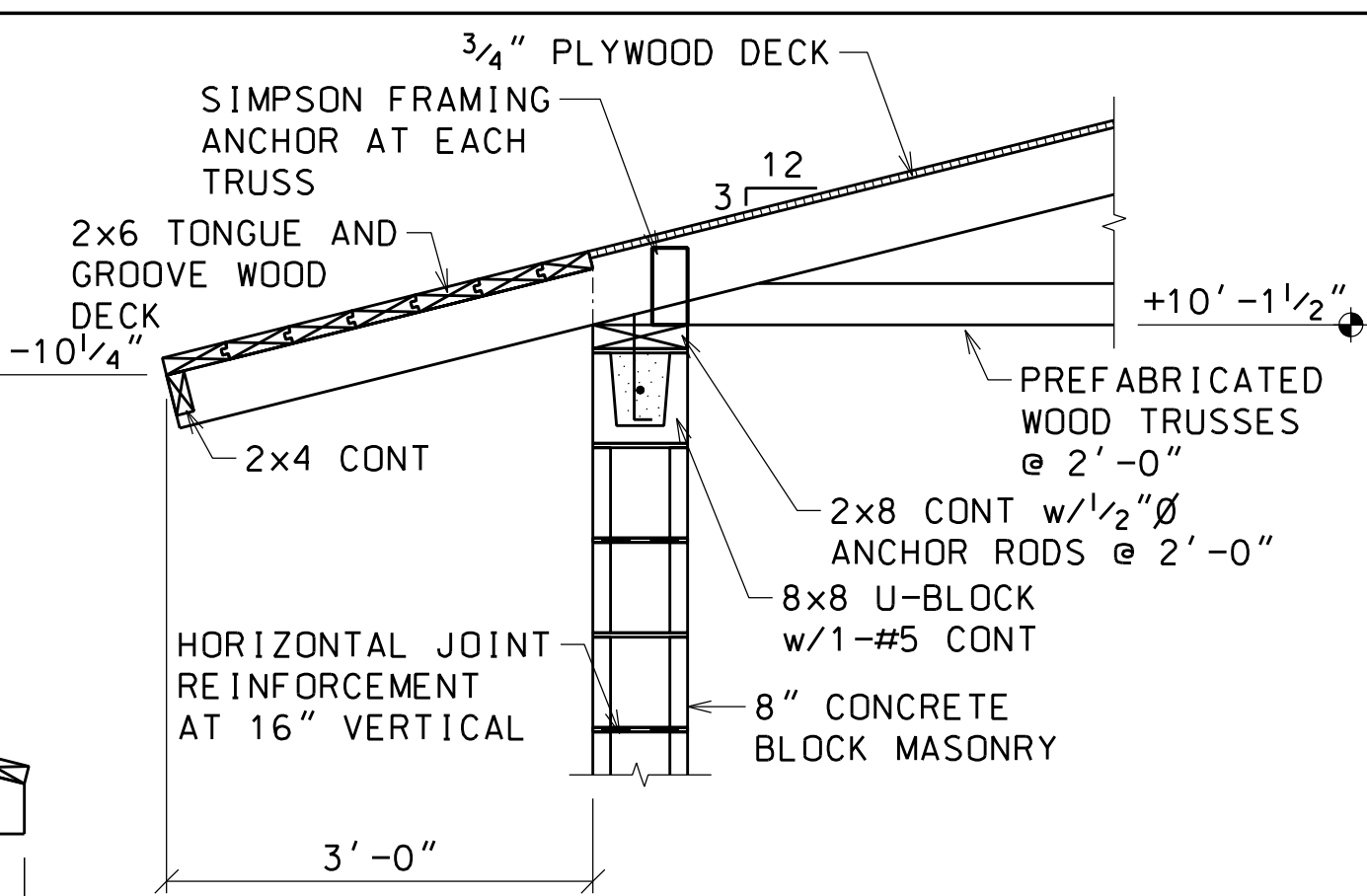


FOUNDATION
 DETAILS
 S2.01
 sheet 3 of 4

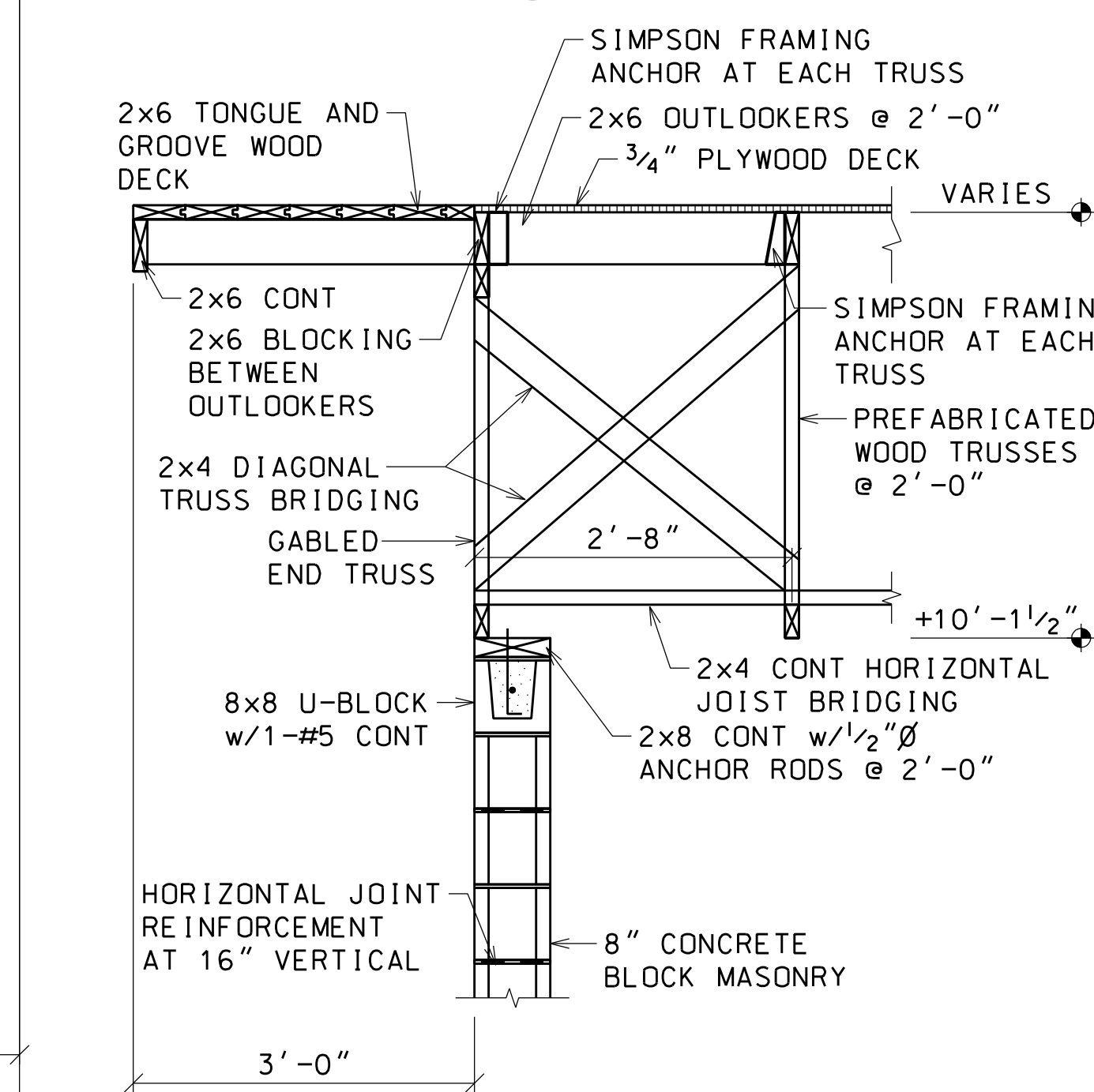
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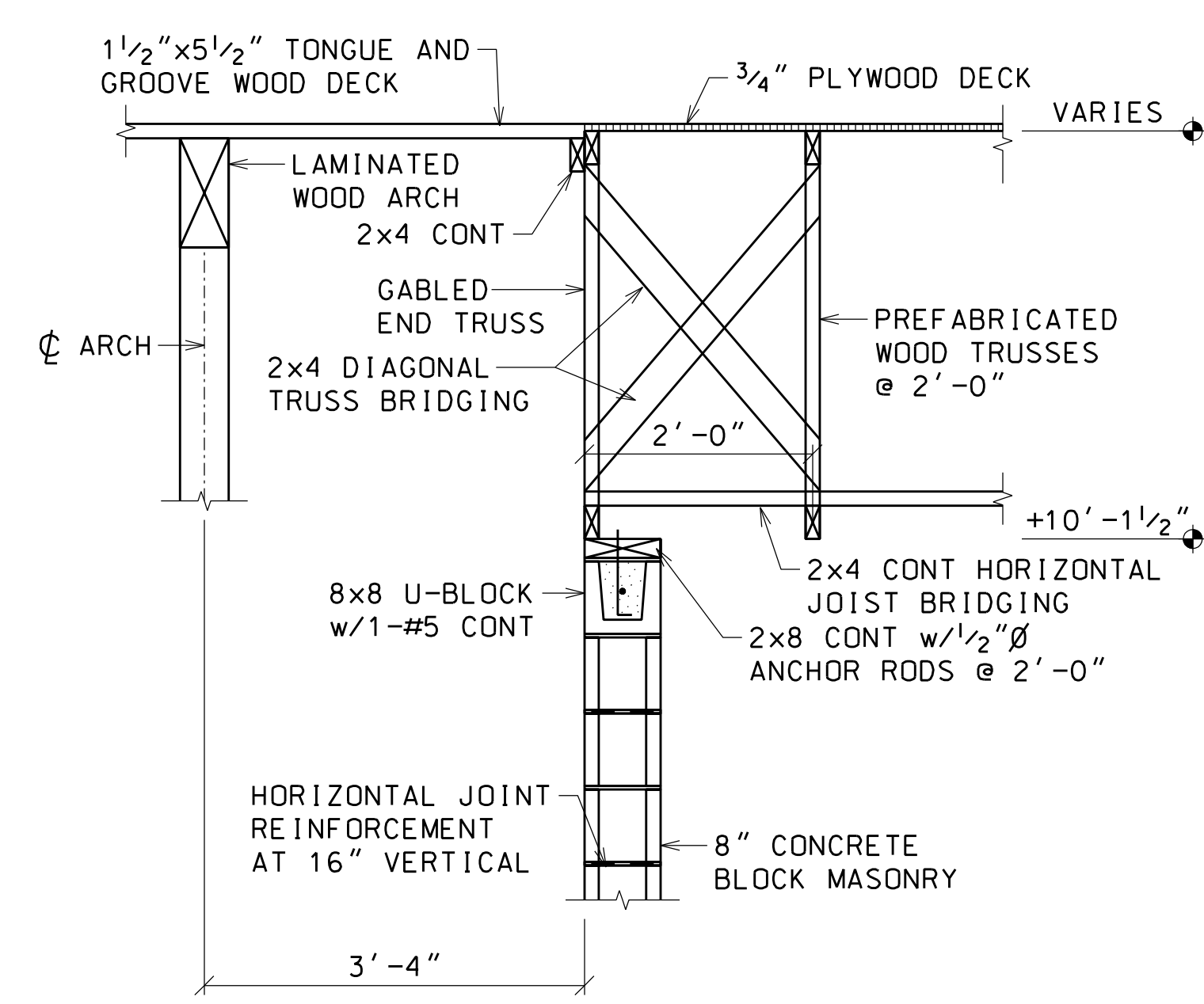
SECTION 1 $\frac{3}{4}''=1'-0''$
S2.02



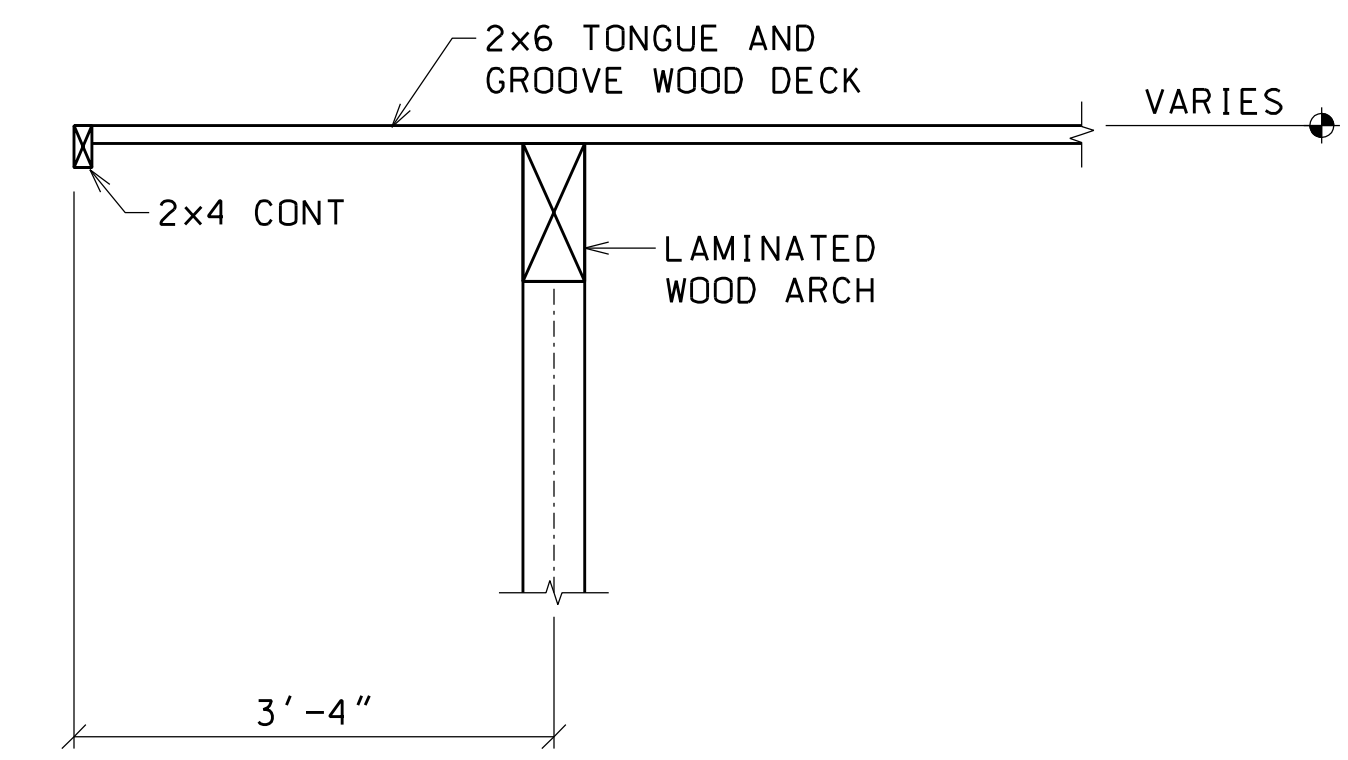
SECTION 2 $\frac{3}{4}''=1'-0''$
S2.02



SECTION 3 $\frac{3}{4}''=1'-0''$
S2.02



SECTION 4 $\frac{3}{4}''=1'-0''$
S2.02

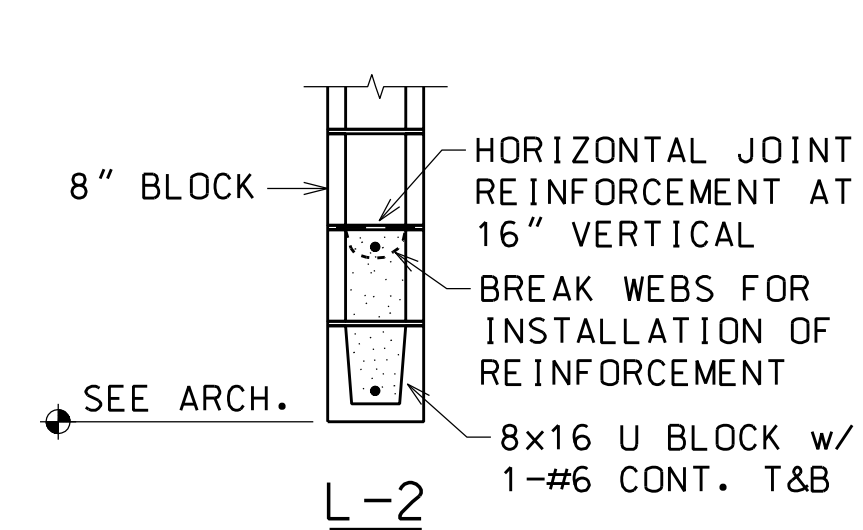
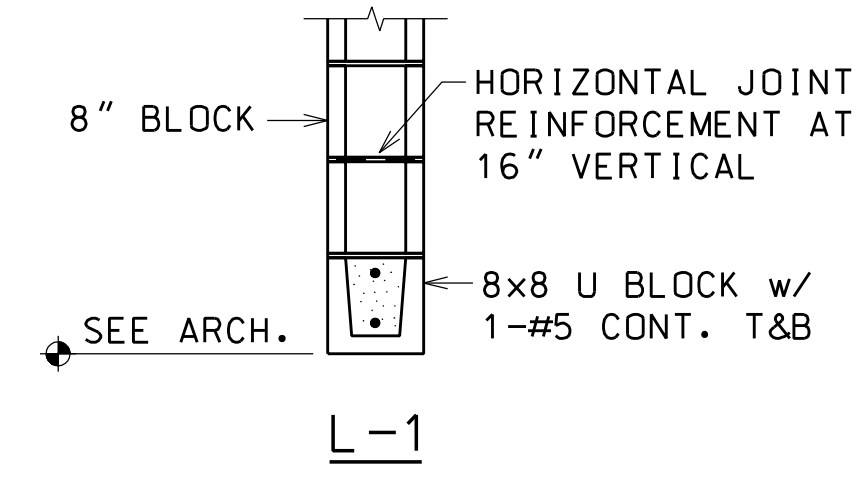


SECTION 5 $\frac{3}{4}''=1'-0''$
S2.02

LINTEL SCHEDULE			
LOCATION	MAX. SPAN	DESCRIPTION	DETAIL
OPENING IN 8" WALL	3'-4"	8x8 U-BLOCK w/1-#5 T & B	L-1
OPENING IN 8" WALL	6'-4"	8x16 U-BLOCK w/1-#6 T & B	L-2
OPENING IN 8" WALL	6'-8"	8x16 U-BLOCK w/1-#6 T & B	L-2

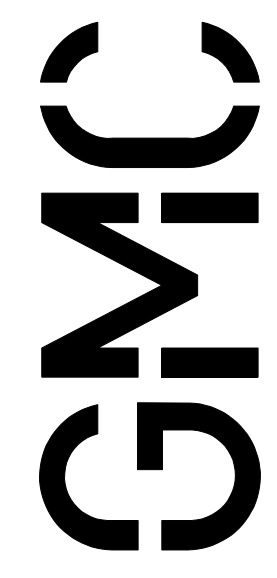
NOTES:

1. CONCRETE FILL ALL JAMB CELLS FROM FOUNDATION TO LINTEL BEARING.
2. BEAR 8 INCHES MINIMUM EACH END



LINTEL DETAILS

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ROOF FRAMING
DETAILS

S2.02
sheet 4 of 4

GENERAL ELECTRICAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE TO FURNISH ALL LABOR, EQUIPMENT, MATERIALS, AND SUPPLIES AS NECESSARY FOR A NEAT, COMPLETE, AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS WHICH CONFORMS TO ALL LOCAL CODES, PLANS, AND SPECIFICATIONS.
2. ELECTRICAL CONTRACTOR SHALL REVIEW ENTIRE SET OF CONTRACT DOCUMENTS INCLUDING BUT NOT NECESSARILY LIMITED TO ALL CIVIL, ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND ENTIRE PROJECT MANUAL. ELECTRICAL CONTRACTOR SHALL ACKNOWLEDGE AND INCLUDE IN THE SCOPE OF WORK (CONTRACT) ALL CONDITIONS PERTINENT TO THE COMPLETION OF THE ELECTRICAL WORK. ELECTRICAL CONTRACTOR SHALL FULLY COORDINATE ELECTRICAL WORK WITH THE INSTALLATION OF WORK BY ALL OTHER TRADES AND MAKE NECESSARY FIELD ADJUSTMENTS AS REQUIRED TO ACCOMMODATE THE INSTALLATION. ALL OF THE ABOVE SHALL BE INCLUDED IN THE SCOPE OF WORK AT NO ADDITIONAL COST TO THE OWNER.
3. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE, IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.
4. ALL INSTALLATIONS SHALL CONFORM TO THE LATEST EDITION OF ENFORCED INTERNATIONAL BUILDING CODE AND NFPA-70 AT THE TIME OF PERMIT.
5. EACH BIDDER SHALL VISIT THE JOB SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND TO ASCERTAIN THE EXTENT OF WORK REQUIRED. FAILURE TO VISIT SITE SHALL NOT EXCUSE CONTRACTOR FROM PERFORMING REQUIRED WORK NOR SHALL IT BE AN ACCEPTABLE REASON FOR REQUESTING ADDITIONS TO THE CONTRACT.
6. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY AN AGENCY SUCH AS UNDERWRITER'S LABORATORIES (UL), ELECTRICAL TESTING LABORATORY (ETL), ETC AND ACCEPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION. FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.
7. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION.
8. THE ELECTRICAL DRAWINGS INDICATE REQUIREMENTS OF MECHANICAL/PLUMBING/FIRE PROTECTION/KITCHEN EQUIPMENT BASED ON RESPECTIVE DRAWINGS AND SPECIFICATIONS. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL CONNECTIONS PRIOR TO ROUGH-IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS. ACTUAL EQUIPMENT SUPPLIED MAY DIFFER, ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADE DISCIPLINES TO INSURE ANY CHANGES WILL BE INSTALLED CORRECTLY AT THE EXPENSE OF THE DISCIPLINE RESPONSIBLE MAKING THE CHANGES AND/OR SUBSTITUTIONS THAT VARY FROM THE CONSTRUCTION DOCUMENTS.
9. ALL ELECTRICAL CONNECTIONS WILL BE CODE COMPLIANT WITH N.E.C.
10. WIRING SYSTEMS SHALL CONSIST OF COPPER WIRING INSTALLED IN CONDUIT, MINIMUM WIRE SIZE SHALL BE #12AWG, MINIMUM CONDUIT SIZE SHALL BE 3/4".
11. CONDUCTORS SHALL BE 99% COPPER (NO ALUMINUM CONDUCTORS WILL BE ACCEPTED).
12. SUBSURFACE CONDUIT SHALL BE SCHEDULE 40 PVC UNO. FOR RUNS GREATER THAN 50 FEET IN LENGTH, VERTICAL TURN UPS SHALL BE GRS SWEEP 90S WITH A BITUMASTIC COATING UNO.
13. CONTRACTOR SHALL REPAIR ANY DISTURBED AREA TO SAME COMPACTION, GRADE, SLOPE, ETC. AS ORIGINAL AREA INCLUDING REPLACEMENT OF SOD, GRASS, ROCK, GRAVEL, RIP-RAP, ETC. TO THE SATISFACTION OF THE OWNER AND ENGINEER.

LIGHTING LEGEND

	1' x 4' RECESSED TROFFER, WRAPAROUND OR ENCLOSED STRIP FIXTURE - SURFACE MOUNTED OR CHAINHUNG. LETTER "X" INDICATES FIXTURE TYPE, SEE LUMINAIRE SCHEDULE. THE LETTER "E" INDICATES THAT THE FIXTURE IS EQUIPPED WITH EMERGENCY BALLAST AND/OR WIRED AS A NIGHT LIGHT.
	4' STRIP LED UNO. SURFACE MOUNTED OR CHAIN HUNG. LETTER "X" INDICATES FIXTURE TYPE, SEE LUMINAIRE SCHEDULE. THE LETTER "E" INDICATES THAT THE FIXTURE IS EQUIPPED WITH EMERGENCY BALLAST AND/OR WIRED AS A NIGHT LIGHT.
	WALL MOUNTED LIGHT FIXTURE. LETTER "X" INDICATES FIXTURE TYPE, SEE LUMINAIRE SCHEDULE. THE LETTER "E" INDICATES THAT THE FIXTURE IS EQUIPPED WITH EMERGENCY BALLAST AND/OR WIRED AS A NIGHT LIGHT.
	EXIT SIGN WITH BATTERY BACKUP CEILING/WALL MOUNTED - FILLED IN SECTION INDICATES NUMBER OF FACES. ARROWS AS INDICATED ON PLANS - PROVIDE UNSWITCHED CONDUCTOR FOR 24 HOUR OPERATION. LETTER "X" INDICATES FIXTURE TYPE, SEE LUMINAIRE SCHEDULE.
	EMERGENCY LIGHT WITH BATTERY POWER, CONNECTED TO UNSWITCHED HOTLEG. LETTER "X" INDICATES FIXTURE TYPE, SEE LUMINAIRE SCHEDULE.

SWITCH LEGEND

	WALL SWITCH SPST 42" AFF TO CENTER UNO 20A 120/277V.
	CEILING FAN SPEED CONTROL SWITCH.
	WALL MOUNTED OCCUPANCY SENSOR SWITCH. LOCATE ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

RECEPTACLE LEGEND

	DUPLEX RECEPTACLE WALL MOUNTED 18" A.F.F. TO CENTER UNO.
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER (5mA) RECEPTACLE WALL MOUNTED 18" A.F.F. TO CENTER UNO.
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER (5mA) RECEPTACLE WALL MOUNTED 6" ACT OR 48" A.F.F. TO CENTER UNO.

ELECTRICAL ABBREVIATIONS

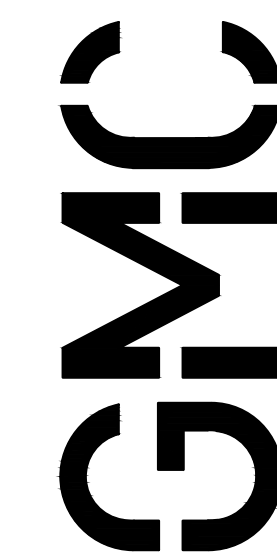
A, AMP	AMPERE	NEC	NATIONAL ELECTRIC CODE
ACSR	ALUMINUM CONDUCTOR STEEL-REINFORCED	PNL	PANEL
AF	AMPS FRAME	P	POLE
AFF	ABOVE FINISHED FLOOR	PH	PHASE
AIC	AMPS INTERRUPTING CAPACITY (SYM RMS)	PSI	POUNDS PER SQUARE INCH
AT	AMPS TRIP	PVC	POLYVINYL CHLORIDE
AWG	AMERICAN WIRE GAUGE	RECPT	RECEPTACLE
(#)C	FIXTURE DESIGNATION (#) INDICATES # OF FIXTURES TOTAL	REQD	REQUIRED
C	CONDUIT	RL	EXISTING ITEM TO BE RELOCATED
CKT	CIRCUIT	RM	EXISTING ITEM TO REMAIN
CU	COPPER	RU	RACK UNIT
DETD	DUAL ELEMENT TIME DELAY	RV	EXISTING ITEM TO BE REMOVED
EC	EMPTY CONDUIT	SPD	SURGE PROTECTIVE DEVICE
ELEC	ELECTRIC OR ELECTRICAL	SPEC	SPECIFICATIONS
EPR	ETHYLENE-PROPYLENE RUBBER INSULATION	ST	SHUNT TRIP
EXIST	EXISTING	SWBD	SWITCHBOARD
FACP	FIRE ALARM CONTROL PANEL	TEL	TELEPHONE
GFI	GROUND FAULT INTERRUPTER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
G	GROUND	TYP	TYPICAL
GFE	GOVERNMENT FURNISHED EQUIPMENT	UG	UNDERGROUND
GRS	GALVANIZED RIGID STEEL	UNO	UNLESS NOTED OTHERWISE
HD	HAND DRYER	V	VOLT
HP	HORSEPOWER	VA	VOLT AMPERE
KV	KILOVOLT	W	WATT
KVA	KILOVOLT AMPERES	WP	WEATHERPROOF
KW	KILOWATT	UNO	UNLESS NOTED OTHERWISE
MIN	MINIMUM	XFMR	TRANSFORMER
N12	NEMA 12 RATED FOR DUST ENCLOSURE	#	NUMBER
N3R	NEMA 3R RATED FOR EXTERIOR USE		
NIC	NOT IN THIS CONTRACT		
NL	NIGHT LIGHT		

BRANCH CIRCUIT LEGEND

	CONDUIT OR RACEWAY EXPOSED TO VIEW. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE CONCEAL FROM VIEW AS MUCH AS POSSIBLE.
	CONDUIT OR RACEWAY CONCEALED IN CEILING CAVITY OR WALL.
	CONDUIT OR RACEWAY UNDERGROUND OR CONCEALED IN FLOOR SLAB.
	OVERHEAD ELECTRICAL CABLE.
	UNDERGROUND PRIMARY.
	UNDERGROUND SECONDARY.
	PHASE CONDUCTOR, NEUTRAL CONDUCTOR AND ISOLATED GROUND CONDUCTOR.
	HOMERUN. TICK MARK INDICATES NUMBER OF CONDUCTORS NO TICK MARK INDICATES 1 PHASE, 1 NEUTRAL, 1 GROUND CONDUCTOR.
	UNDERGROUND HOMERUN. TICK MARK INDICATES NUMBER OF CONDUCTORS. NO TICK MARK INDICATES 1 PHASE, 1 NEUTRAL, 1 GROUND CONDUCTOR.

POWER LEGEND

	PANELBOARD, SURFACE MOUNTED.
	PANELBOARD, FLUSH MOUNTED.
	DISCONNECT SWITCH, NEMA 1, NON-FUSED, SUBSCRIPT INDICATES DISCONNECT SWITCH AMP RATING - SEE DISCONNECT SWITCH SCHEDULE.
	DISCONNECT SWITCH, NEMA 1, FUSED, SUBSCRIPT INDICATES DISCONNECT SWITCH AMP RATING - SEE DISCONNECT SWITCH SCHEDULE.
	DISCONNECT SWITCH, NEMA 3R, NON-FUSED, SUBSCRIPT INDICATES DISCONNECT SWITCH AMP RATING - SEE DISCONNECT SWITCH SCHEDULE.
	DISCONNECT SWITCH, NEMA 3R, FUSED, SUBSCRIPT INDICATES DISCONNECT SWITCH AMP RATING - SEE DISCONNECT SWITCH SCHEDULE.
	TIME CLOCK AS SPECIFIED ON PLANS.
	PHOTOELECTRIC CELL AS SPECIFIED ON PLANS. MOUNT IN INCONSPICUOUS LOCATION ABOVE ROOF FACING NORTH.
	MOTOR - HORSEPOWER AS INDICATED.
	JUNCTION BOX CEILING MOUNTED. REFER TO SPECIFICATIONS FOR COLOR REQUIREMENTS FOR COVER.
	JUNCTION BOX WALL MOUNTED AT HEIGHT REQUIRED WITH FLEXIBLE CONNECTION TO EQUIPMENT.
	120 VOLT CONNECTION TO MOTORIZED DAMPER - VERIFY LOCATION W/ MECH. CONTRACTOR.
	OCCUPANCY SENSOR LINE VOLTAGE.
	DTA OUTLET WITH EMPTY CONDUIT (1" C) ROUTED TO TELECOM BACKBOARD. CABLING FURNISHED & INSTALLED BY OTHERS.
	OUTLET FOR CCTV CAMERA W/ 1" EMPTY CONDUIT TO TELECOM BACKBOARD. CABLING & CAMERA BY OTHERS.
	TELECOM BACKBOARD. SIZE AS SHOWN ON PLANS, FIRE-RETARDANT PLYWOOD PAINTED WITH 2 COATS FIRE RETARDANT PAINT BOTH SIDES & ALL EDGES.
	OUTDOOR GROUND BOX, PRE-WIRED WITH 2-20A DUPLEX WEATHER RESISTANT RECEPTACLES WIRED TOGETHER ON A SINGLE CIRCUIT. CIRCUIT SERVING BOX GFCI PROTECTED. LEGRAND MODEL #XB814C520BN. WHEN INSTALLED AS COMPLETE UNIT INCLUDING MANUFACTURER'S RECOMMENDATION OF DRAINAGE UNIT WILL HAVE A UL50E, TYPE 6P & IP68 RATING IN OUTDOOR LOCATIONS.

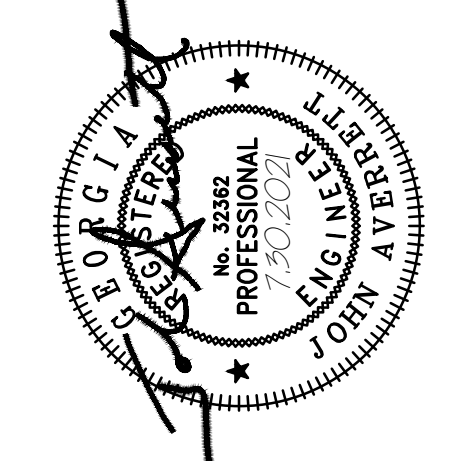


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COUNTY COMMENTS	18/02/2021
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DRAWN BY:	JMP
CHECKED BY:	UEA

NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

GMC #CATL210004



ELECTRICAL LEGENDS
& NOTES

GEO.01
sheet of

1. GENERAL: A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIALS, AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS. B. ALL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, NFPA, STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY. CONTRACTOR SHALL PAY FOR ALL REQUIRED PERMITS, FEES, INSPECTIONS, ETC. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES. C. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER. D. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, LUMINAIRES, LAMPS, BALLASTS, WIRING DEVICES, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), FIRE ALARM, TELECOMMUNICATIONS, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. ONE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB SITE. E. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRING, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR. F. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE INCORPORATED INTO THE ON-SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES. G. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE. ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND. H. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250. J. PROVIDE AN INTERSYSTEM BONDING TERMINATION DEVICE AT THE MAIN ELECTRICAL SERVICE PER NEC 250.94. K. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER. L. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE. M. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE. N. ALL ELECTRICAL JUNCTION BOXES, SWITCHGEAR, CABLING, VOICE/DATA OUTLETS, LOW VOLTAGE CABINETS, EMERGENCY RECEPTACLES, ETC. SHALL BE LABELED ACCORDING TO PANEL/RACK AND CIRCUIT NUMBER. O. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTOR AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT. P. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE PROJECT IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT. Q. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM. R. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION. S. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION ABOVE) ALL DISCONNECTING MEANS, OVERCURRENT PROTECTION AND WIRING REQUIRED TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE REQUIREMENTS. T. CONTRACTOR SHALL COORDINATE THE ROUGH-IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH-IN. U. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED. V. CONTRACTOR SHALL TEST ALL "LIFE SAFETY" EQUIPMENT AND SYSTEMS FOR PROPER FUNCTION AND OPERATION. UPON SUCCESSFUL COMPLETION OF TESTS, CONFIRMATION SHALL BE SENT TO THE ENGINEER OF RECORD IN THE FORM OF A LETTER STATING THE TESTS PERFORMED, THE RESULTS, AND THE DATE TESTS WERE SUCCESSFULLY COMPLETE. "LIFE SAFETY" EQUIPMENT AND SYSTEMS CONSIST OF THOSE AS SPECIFIED IN THE STATE BUILDING CODE, THE NATIONAL ELECTRICAL CODE (NEC), NFPA 101, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY. W. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK. X. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE. Y. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PROVIDING TEMPORARY POWER AND LIGHTING FOR ALL TRADES. AT NO TIME SHALL EXISTING BUILDING POWER SYSTEMS BE UTILIZED WITHOUT WRITTEN PERMISSION FROM THE OWNER. Z. COORDINATE LOCATION AND REQUIREMENTS FOR ELECTRICAL SERVICE WITH THE POWER COMPANY. WHERE MORE THAN ONE SERVICE IS SUPPLIED TO A BUILDING, PROVIDE IDENTIFICATION AT EACH SERVICE PER NEC 230-2(E). AA. EACH BIDDER SHALL VISIT THE JOB SITE PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND TO ASCERTAIN THE EXTENT OF WORK

REQUIRED. FAILURE TO VISIT SITE SHALL NOT EXCUSE CONTRACTOR FROM PERFORMING REQUIRED WORK NOR SHALL IT BE AN ACCEPTABLE REASON FOR REQUESTING ADDITIONS TO THE CONTRACT.

2. RACEWAY:

- A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.
- B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.
- C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE. ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL.
- D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE.
- E. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A CABLE TRAY SYSTEM OR J-HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'-0" CENTERS IN ALL ACCESSIBLE CEILINGS. WHERE THERE ARE INACCESSIBLE CEILINGS, PROVIDE CONDUIT FOR ENTIRE LENGTH OF INACCESSIBILITY.
- F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS TELECOMMUNICATIONS, FIRE ALARM, SECURITY, CCTV, CONTROLS, AND SIMILAR CONDUITS ABOVE THE CEILING AND BACKBOARD(S) SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE BE INSTALLED PRIOR TO PULLING LOW-VOLTAGE CABLES.
- G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE-RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON-SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB.
- H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.
- I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.
- J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMPERS.
- K. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR INTERIOR WORK, 1" FOR EXTERIOR WORK.
- L. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.
- M. LIQUID-TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'-0".
- N. FLEXIBLE METAL CONDUIT, MINIMUM SIZE 1/2", SHALL ONLY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURES, MAXIMUM LENGTH OF 6'-0".
- O. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS, THEY SHALL BE RGS.
- P. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
- Q. ALL UNDERGROUND RACEWAYS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM BITUMASTIC.
- R. ALL CONDUITS INSTALLED UNDERGROUND OR IN CONCRETE SHALL HAVE JOINTS MADE WATERTIGHT BY USE OF POLYETRA-FLUOROETHYLENE TAPE.
- S. THE USE OF AC OR NM CABLE IS NOT PERMITTED.
- T. MC CABLE MAY ONLY BE UTILIZED WHERE PERMITTED BY CODE AND IT SHALL ONLY BE ALLOWED WHERE CONCEALED BEHIND HARD WALLS AND HARD CEILINGS. MC CABLE SHALL NOT BE EXPOSED.
- U. APPROVED SEALS SHALL BE PROVIDED IN HAZARDOUS LOCATIONS AS REQUIRED BY THE NEC.
- V. ALL CONDUIT IN PATIENT CARE AND/OR EXAM ROOMS/AREAS SHALL BE NON-FLEXIBLE METALLIC. MC CABLE ASSEMBLIES APPROVED AND LISTED FOR USE IN PATIENT CARE AREAS MAY BE USED AS A SUBSTITUTE FOR CONDUIT AND WIRING.

3. OUTLET BOXES:

- A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE-HINDS, APPLETON (EMERSON), OR APPROVED EQUIVALENT.
- B. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS.
- C. ATTACH EMT WITH CONNECTORS HAVING INSULATED THROAT.
- D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT STUDS TO PREVENT TWISTING OF BOX IN WALL.
- E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES, BLANK IF NOT USED.
- F. ALL EXTERIOR BOXES SHALL BE WATER-TIGHT.

4. CONDUCTORS:

- A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE-LUBRICATED" BY THE MANUFACTURER.
- B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.
- C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN-2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.
- D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.
- E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE COLOR-CODED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE ALLOWED.
- F. INSULATION SHALL BE DUAL RATED TYPE THHN/THWN-2 FOR FEEDERS AND BRANCH CIRCUITS. FIXTURE TAPS SHALL BE #12 THHN/THWN-2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.
- G. ALL CONDUCTORS SHALL BE IN CONDUIT.
- H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
- I. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED, UNLESS EXPLICITLY INDICATED ON THE DRAWINGS. WHERE EXPLICITLY INDICATED ON THE DRAWINGS:

- 1) ALL 20A MULTI-WIRE RECEPTACLE CIRCUITS SHALL UTILIZE A #10 AWG NEUTRAL CONDUCTOR.
OR

2) ONLY WHERE PERMITTED UNDER "RACEWAYS", MC CABLE ASSEMBLIES CAN BE AFC "SUPER NEUTRAL" OR EQUAL, UNLESS OTHERWISE INDICATED ON THE DRAWINGS. WHERE MULTI-WIRE BRANCH CIRCUITS ARE EXPLICITLY INDICATED ON THE DRAWINGS, THEY SHALL BE INSTALLED PER NEC 210.4. MEANS SHALL BE PROVIDED TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES IN ADDITION TO OTHER REQUIREMENTS PER NEC 210.4.

- J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WIRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CONNECTOR OR WIRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.
- K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPACITY AND SHALL BE SIZED TO MATCH THE CONDUCTOR SIZE.
- L. CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.
- M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED.
- N. ALL SYSTEM FURNITURE CONNECTIONS SHALL COMPLY WITH NEC 605.
- O. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT, SIZED PER NEC 250-127.
- P. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC 300-19.
- Q. ALL BRANCH CIRCUIT CONDUCTORS FROM ISOLATED POWER SOURCES SHALL BE INSTALLED IN IMC CONDUIT AND SHALL BE TYPE XHHW-2, COLOR CODED ORANGE FOR CONDUCTOR #1, BROWN FOR CONDUCTOR #2, AND YELLOW FOR CONDUCTOR #3.

5. WIRING DEVICES:

A. WIRING DEVICES SHALL BE SPECIFICATION GRADE, MINIMUM, EQUAL TO COOPER QUALITY INDICATED BELOW OR AS MANUFACTURED BY HUBBELL, LEGRAND-PASS & SEYMOUR, LEVITON, OR APPROVED EQUAL, UNLESS OTHERWISE NOTED:

SWITCHES (120/277V) SHALL BE AS FOLLOWS:

SINGLE-POLE 20 AMP	COOPER AH1221
DOUBLE-POLE 20 AMP	COOPER AH1222
THREE-WAY 20 AMP	COOPER AH1223
FOUR-WAY 20 AMP	COOPER AH1224

DUPLEX RECEPTACLES SHALL HAVE A NYLON FACE AND SHALL BE AS FOLLOWS:

15 AMP DUPLEX	COOPER 5252
20 AMP DUPLEX	COOPER 5352
15 AMP DUPLEX GFCI	COOPER VGF15F
20 AMP DUPLEX GFCI	COOPER VGF20F
15 AMP DUPLEX TAMPER	COOPER TR5262
20 AMP DUPLEX TAMPER	COOPER TR5362
15 AMP DUPLEX GFCI-TAMPER	COOPER TRVGF15F
20 AMP DUPLEX GFCI-TAMPER	COOPER TRVGF20F

THE PART NUMBERS ABOVE ARE FOR WIRING DEVICE TYPE ONLY. SEE BELOW FOR WIRING DEVICE COLOR AND PLATE MATERIAL/COLOR.

- B. SEE MOUNTING HEIGHT ELEVATION DETAIL FOR STANDARD MOUNTING HEIGHTS OF ALL DEVICES, UNLESS OTHERWISE NOTED.
- C. ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) SHALL BE GRAY, UNLESS OTHERWISE NOTED. ALL COVER PLATES SHALL BE 302 STAINLESS STEEL. COVER PLATES IN MASONRY WALLS SHALL BE OVERSIZE TYPE. OR ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) AND PLATES SHALL MATCH EXISTING IN MATERIAL AND COLOR, UNLESS OTHERWISE NOTED. COVER PLATES IN MASONRY WALLS SHALL BE JUMBO SIZE. OR THE COLOR OF ALL WIRING DEVICES (SWITCHES AND RECEPTACLES) SHALL BE AS DIRECTED BY THE ARCHITECT, UNLESS OTHERWISE NOTED. ALL COVER PLATES SHALL BE 302 STAINLESS STEEL. COVER PLATES IN MASONRY WALLS SHALL BE JUMBO SIZE.
- D. ALL WIRING DEVICES FED FROM THE EMERGENCY POWER SYSTEM SHALL BE RED.
- E. ALL WIRING DEVICES FED FROM A UPS SOURCE SHALL BE BLUE.
- F. EACH DUPLEX RECEPTACLE INDICATED TO BE ON A DEDICATED CIRCUIT SHALL BE 20 AMP TYPE.
- G. ADJACENT DEVICES SHALL HAVE A COMMON WALL PLATE.
- H. WEATHERPROOF COVERS SHALL BE "WHILE-IN-USE" SO PLUGS MAY BE INSTALLED WITHOUT COMPROMISING THE WP FUNCTION. COOPER #WU-2 DOUBLE-GANG WITH CLEAR COVER OR APPROVED EQUAL.
- I. A MAXIMUM OF 10 GENERAL PURPOSE RECEPTACLES SHALL BE ON EACH BRANCH CIRCUIT.
- J. DIMMERS SHALL BE LINEAR SLIDE, PRESENT ON/OFF, SQUARE LAW DIMMING, W/RFI FILTERING AND VOLTAGE COMPENSATION CIRCUITING.
- K. ALL WALL MOUNTED OCCUPANCY/VACANCY SENSORS/SWITCHES SHALL BE INSTALLED WITH AN EQUIPMENT GROUNDING CONDUCTOR.
- L. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED IN ALL LOCATIONS PER NEC 210.8. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.

6. SUPPORTS:

- A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.
- B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.
- C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED.
- D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'-0" APART AND A MINIMUM OF 3'-0" FROM BOXES.
- E. LIGHTING FIXTURES MOUNTED IN OR ON CEILING SHALL BE SUPPORTED FROM STRUCTURE VIA 12 GAUGE STEEL WIRE. PROVIDE A MINIMUM OF FOUR WIRES, ONE ATTACHED TO EACH CORNER OF LAY-IN FIXTURES. RECESSED DOWNLIGHT FIXTURES SHALL BE SUPPORTED THE SAME. DO NOT SUPPORT RACEWAY OR FIXTURES FROM CEILING GRID OR DUCT WORK. USE U.L. LISTED GRID CLIPS ON ALL LAY-IN FIXTURES.

7. PAINTING:

- A. SUITABLE FINISH COAT SHALL BE PROVIDED FOR ALL EQUIPMENT. PANEL TUBS, COVERS, ETC. SHALL BE PRIMED AND ENAMELED TO BLEND WITH ADJACENT SURFACES, OR SHALL BE MANUFACTURER'S STANDARD COLOR BAKED ENAMEL FINISH.

OR AS DIRECTED BY THE ARCHITECT.
CONTRACTOR TO PAINT WHERE EXISTING EXPOSED PANELBOARDS, SURFACE RACEWAY, SURFACE BOXES, ETC. HAVE BEEN REMOVED DURING THE DEMOLITION PHASE, EITHER FOR TEMPORARY WORK OR PERMANENTLY.

8. LIGHTING FIXTURES:

- A. TYPES AND MANUFACTURERS ARE SCHEDULED ON THE PLANS. EQUIVALENT FIXTURES BY OTHERS MAY BE SUBMITTED ONLY AS INDICATED ON THE PLANS AND ARE SUBJECT TO THE APPROVAL OF THE OWNER AND ENGINEER.
- B. ALL FIXTURES SHALL BE U.L. LISTED AND LABELED.
- C. BALLASTS SHALL BE AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE OR AS OTHERWISE NOTED.
- D. CATALOG NUMBERS ARE FOR GENERAL IDENTIFICATION OF FIXTURES ONLY. ALL RELATED PARTS, SUCH AS PLASTER RINGS, JUNCTION BOXES, LOUVERS, SHIELDS, MOUNTING STEMS, CANOPIES, CONNECTORS, STRAPS, NIPPLES, HARDWARE, ACCESSORIES, ETC., TO FIT THEM PROPERLY TO THE CONSTRUCTION, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. CONTRACTOR SHALL PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL AS SPECIFIED IN ARCHITECTURAL FINISH SCHEDULES REGARDLESS OF CATALOG NUMBER GIVEN.
- E. ALL FIXTURES SHALL BE GROUNDED PER THE NEC.
- F. FIXTURES CONNECTED WITH FLEX TO THE RIGID RACEWAY PORTION OF THE WIRING SYSTEM SHALL CARRY A GREEN BONDING JUMPER WITHIN THE FLEX. THE JUMPER SHALL BE FASTENED TO BOTH THE FIXTURE AND THE RACEWAY SYSTEM WITH A STEEL CITY "G" CLIP OR APPROVED EQUIVALENT. PHASE AND GROUND CONDUCTORS RUN IN FLEX SHALL BE #12 AWG MINIMUM. MAXIMUM FLEX LENGTH SHALL BE 6'-0".
- G. MOUNT ALL FIXTURES PLUMB AND SQUARE WITH ROWS ALIGNED.
- H. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF FIXTURES.
- I. CONTRACTOR SHALL COORDINATE FIXTURE TYPE AND TRIM WITH CEILING CONSTRUCTION AND ADJUST ACCORDINGLY WITHOUT ADDITIONAL EXPENSE.
- J. ALL LIGHTING FIXTURES SHALL BE THERMALLY PROTECTED PER THE NEC.
- K. FIXTURES IN CONTACT WITH INSULATION SHALL BE IC RATED.

9. LIGHTING CONTROLS:

- A. FURNISH AND INSTALL WHERE SHOWN AN ELECTRONIC TIME CONTROLLER AS MANUFACTURED BY TORK (NSI), PARAGON, INTERMATIC, OR APPROVED EQUAL. CONTACTS SHALL BE SPST OR AS INDICATED, RATED 120/277V AT 20A BALLAST LOAD, AND MINIMUM 30,000 SWITCHING CYCLES. PROVIDE WITH THE NUMBER OF CHANNELS INDICATED (MINIMUM 2 CHANNELS) OR AS REQUIRED TO MEET THE INTENT OF THE DRAWINGS. EACH CHANNEL SHALL BE INDIVIDUALLY PROGRAMMABLE WITH 128 ON-OFF OPERATIONS PER WEEK PLUS FOUR SEASONAL SCHEDULES TO MODIFY THE BASIC PROGRAM AND A HOLIDAY SCHEDULE THAT OVERRIDES THE WEEKLY OPERATION. THE CONTROLLER SHALL BE PROVIDED WITH A PHOTOELECTRIC SENSOR, ASTRONOMIC DIAL, AND A BATTERY BACKED-UP, NON-VOLITILE MEMORY FOR SCHEDULES AND TIME CLOCK.
- B. LIGHTING CONTACTORS SHALL SWITCH LOADS AT THE VOLTAGE AND AMPERE RATING INDICATED AND SHALL HAVE THE NUMBER OF POLES INDICATED ON THE DRAWINGS OR AS REQUIRED. THE CONTACTOR AND CONTACTS SHALL BE CONTINUOUSLY RATED FOR THE LOAD SERVED, INCLUDING TUNGSTEN FILAMENT, INDUCTIVE, AND HIGH-INRUSH BALLAST LOADS.
- C. ALL LIGHTING CONTACTORS SHALL BE ELECTRICALLY HELD AND BE INSTALLED IN A NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.

10. IDENTIFICATION AND LABELING:

- A. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT SUPPLIED FOR THE PROJECT, INCLUDING BUT NOT LIMITED TO, WIRING TROUGHS, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, SWITCHGEARS, MOTOR CONTROL CENTERS (MCC), BUSWAYS, GENERATORS, AUTOMATIC TRANSFER SWITCHES (ATS), UNINTERRUPTIBLE POWER SUPPLY (UPS), POWER DISTRIBUTION UNITS (PDU), FLOOR/REMOTE DISTRIBUTION CABINETS (FDC/RDC), STATIC TRANSFER SWITCHES (STS), ETC. NAMEPLATE SHALL INDICATE THE DEVICE NAME, SYSTEM VOLTAGE (VOLTAGE/PHASE/WIRE), AND UPSTREAM DEVICE AND CIRCUIT. PROVIDE NAMEPLATES FOR CIRCUIT BREAKERS IN SWITCHGEARS, SWITCHBOARDS AND DISTRIBUTION PANELS.
- B. NAMEPLATE COLORS SHALL BE AS FOLLOWS:
 - 120/208V EQUIPMENT BLUE SURFACE WITH WHITE CORE
- C. NAMEPLATES UP TO 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/16" THICK. NAMEPLATES LARGER THAN 8 SQUARE INCHES SHALL NOT BE LESS THAN 1/8" THICK.
- D. LETTERING HEIGHT SHALL BE 1/2" MINIMUM.
- E. NAMEPLATES SHALL BE ATTACHED WITH SELF-DRILLING/SELF-TAPPING SCREWS, EXCEPT RIVETS SHALL BE USED WHERE END OF SCREW IS NOT PROTECTED. QUANTITY AS FOLLOWS:
 - UP TO 5 SQUARE INCHES: 2 SCREWS.
 - 5 TO 12 SQUARE INCHES: 4 SCREWS.
 - ABOVE 12 SQUARE INCHES: 6 SCREWS.
- F. RECEPTACLE DEVICE COVERPLATES AND FURNITURE SYSTEM RECEPTACLES SHALL RECEIVE A LAMINATED LABEL IDENTIFYING THE PANELBOARD AND CIRCUIT NUMBER FROM ITS SOURCE. USE MACHINE PRINTED, PRESSURE SENSITIVE, ABRASION-RESISTANT LABEL TAPE ON FACE OF COVERPLATE. BLACK PRINT TEXT ON CLEAR TAPE ON LIGHT COLORED OR STAINLESS STEEL PLATES AND WHITE PRINT ON CLEAR TAPE ON DARK COLORED PLATES.

11. DISCONNECTS:

- A. DISCONNECT SWITCHES SHALL BE HEAVY-DUTY TYPE IN NEMA 1 ENCLOSURES, UNLESS OTHERWISE NOTED, FUSED OR NON-FUSED AS INDICATED. SWITCHES SHALL HAVE REJECTION-TYPE FUSE CLIPS. SWITCHES SHALL BE BY EATON, SQUARE-D, GENERAL ELECTRIC, OR APPROVED EQUAL. FUSES SHALL BE CLASS RK5, DUAL-ELEMENT, TIME-DELAY WITH INDICATION. A SET OF 3 SPARE FUSES OF EACH SIZE AND TYPE SHALL BE FURNISHED TO THE OWNER.

12. PANELBOARDS:

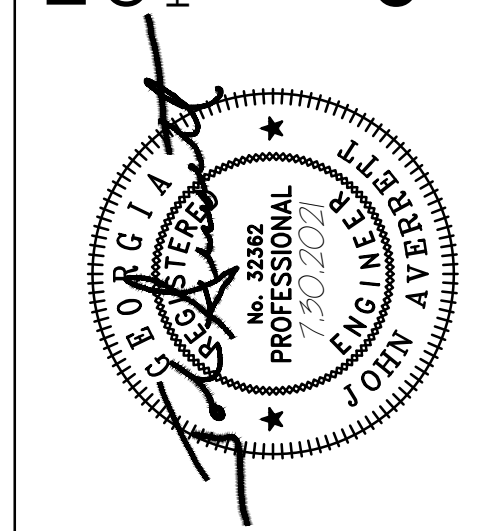
- A. PANELBOARDS SHALL BE PROVIDED AS MANUFACTURED BY EATON, SQUARE-D, GENERAL ELECTRIC, OR APPROVED EQUAL. ALL NEW EQUIPMENT FOR THE PROJECT SHALL BE BY THE SAME MANUFACTURER.
- B. ALL BUSSING, INCLUDING NEUTRAL AND GROUND, SHALL BE COPPER.
- C. ALL BREAKERS SHALL BE AUTOMATIC THERMAL-MAGNETIC TYPE MOLDED CASE BOLT-ON TYPE, CALIBRATED FOR 40 DEGREE C, OR AMBIENT COMPENSATION, UNLESS OTHERWISE NOTED.
- D. PANELS SHALL BE FULLY RATED (AIC), NO SERIES AIC RATINGS ARE ALLOWED.
- E. PANELS SHALL HAVE FULL SIZE EQUIPMENT GROUNDING BARS AND NEUTRAL BARS, EXCEPT WHERE INDICATED TO BE 200%.
- F. ALL PANELBOARD AND BREAKER LUGS SHALL BE SIZED AND RATED PER THE



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COUNTY COMMENTS	8/02/2021
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DRAWN BY	JMP
CHECKED BY	JEA

NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA



ELECTRICAL SPECIFICATIONS
GEO.02
sheet of

- G. CONDUCTOR SIZE AND MATERIAL.
- H. LIGHTING AND APPLIANCE PANELS (100A-600A) SHALL HAVE FRONT ACCESSIBLE HINGED DOOR-IN-DOOR COVERS WITH DEAD FRONT, SHALL BE 20" WIDE MINIMUM WITH MINIMUM 4" WIDE WIRING GUTTERS.
- I. DISTRIBUTION PANELS (600A-1200A) SHALL HAVE FRONT ACCESSIBLE DEAD FRONT COVERS.
- J. PROVIDE HANDLE LOCK-ON DEVICES FOR ALL CIRCUIT BREAKERS CONNECTED TO EMERGENCY, EXIT, NIGHT LIGHTING, FIRE ALARM, TELEPHONE BOARDS, AND SECURITY SYSTEMS.
- K. BREAKERS USED FOR SWITCHING SHALL BE SWITCHING DUTY (SWD) RATED.
- L. BREAKERS USED FOR HEATING, AIR-CONDITIONING AND/OR REFRIGERATION SHALL BE HACR RATED.
- M. GROUND-FAULT CIRCUIT-INTERRUPTER (GFCI) PROTECTION FOR PERSONNEL SHALL BE PROVIDED IN ALL LOCATIONS PER NEC 210.8. WHERE A DEVICE LOCATION IS NOT ACCESSIBLE, THE GFCI PROTECTION SHALL BE PROVIDED WITH THE BREAKER SERVING THE DEVICE.

13. ELECTRICAL COORDINATION WITH OTHER TRADES:

- A. THE ELECTRICAL CONTRACTOR SHALL CONNECT AND/OR PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT SUPPLIED BY OTHERS APPLICABLE TO THE PROJECT, INCLUDING BUT NOT LIMITED TO, MECHANICAL, PLUMBING, FIRE PROTECTION AND SUPPRESSION, OWNER FURNISHED, KITCHEN, LABORATORY, ETC. UNLESS OTHERWISE NOTED.
- B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONNECTIONS PRIOR TO ROUGH-IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS. THE ELECTRICAL DRAWINGS INDICATE REQUIREMENTS OF MECHANICAL/PLUMBING/FIRE PROTECTION/KITCHEN EQUIPMENT BASED ON RESPECTIVE DRAWINGS AND SPECIFICATIONS. ACTUAL EQUIPMENT SUPPLIED MAY DIFFER. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADE DISCIPLINES TO INSURE ANY CHANGES WILL BE INSTALLED CORRECTLY AT THE EXPENSE OF THE DISCIPLINE RESPONSIBLE MAKING THE CHANGES AND/OR SUBSTITUTIONS THAT VARY FROM THE CONSTRUCTION DOCUMENTS.
- C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANUAL MOTOR STARTER SWITCHES, DISCONNECT SWITCHES, RECEPTACLES, ETC. TO MECHANICAL AND PLUMBING EQUIPMENT. ALL STARTERS, OTHER THAN MANUAL STARTER SWITCHES, SHALL BE PROVIDED BY OTHERS, BUT INSTALLED BY THE ELECTRICAL CONTRACTOR.
- D. ALL DISCONNECT SWITCHES AND FUSE SIZES SHALL BE COORDINATED WITH SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLING. ANY EQUIPMENT INSTALLED INCORRECTLY BECAUSE OF LACK OF COORDINATION WILL BE REMOVED AND INSTALLED CORRECTLY AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
- E. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT RUNS AND LIGHT FIXTURE LOCATIONS ABOVE THE CEILING WITH OTHER TRADES PRIOR TO INSTALLATION.
- F. ALL DUCT SMOKE DETECTORS SHALL BE PROVIDED AND CONNECTED BY THE ELECTRICAL CONTRACTOR, BUT INSTALLED BY THE MECHANICAL CONTRACTOR.
- G. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY OUTLETS FOR HEAT TAPE CONNECTIONS FOR MECHANICAL SYSTEMS. PROVIDE CLASS B (30mA) GFCI PROTECTION ON THE BREAKER SUPPLYING THE HEAT TAPE.
- H. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 120V POWER AT EACH HVAC UNIT HAVING A CONTROLS POWER SUPPLY. CIRCUIT(S) SHALL BE DEDICATED 20A SERVING A MAXIMUM OF 10 HVAC UNITS PER CIRCUIT. COORDINATE ALL LOCATIONS WITH THE MECHANICAL CONTRACTOR.

SECTION 26 56 68 - EXTERIOR ATHLETIC LIGHTING

LIGHTING SYSTEM WITH LED LIGHT SOURCE

PART 1 - GENERAL

1.1 SUMMARY

- A. WORK COVERED BY THIS SECTION OF THE SPECIFICATIONS SHALL CONFORM TO THE CONTRACT DOCUMENTS, ENGINEERING PLANS AS WELL AS STATE AND LOCAL CODES.
- B. THE PURPOSE OF THESE SPECIFICATIONS IS TO DEFINE THE LIGHTING SYSTEM PERFORMANCE AND DESIGN STANDARDS FOR CITY OF ONEONTA USING AN LED LIGHTING SOURCE. THE MANUFACTURER / CONTRACTOR SHALL SUPPLY LIGHTING EQUIPMENT TO MEET OR EXCEED THE STANDARDS SET FORTH IN THESE SPECIFICATIONS.
- C. THE SPORTS LIGHTING WILL BE FOR THE FOLLOWING VENUES:
 1. SOCCER
- D. THE PRIMARY GOALS OF THIS SPORTS LIGHTING PROJECT ARE:

1. GUARANTEED LIGHT LEVELS: SELECTION OF APPROPRIATE LIGHT LEVELS IMPACT THE SAFETY OF THE PLAYERS AND THE ENJOYMENT OF SPECTATORS. THEREFORE LIGHT LEVELS ARE GUARANTEED TO NOT DROP BELOW SPECIFIED TARGET VALUES FOR A PERIOD OF 25 YEARS.
2. ENVIRONMENTAL LIGHT CONTROL: IT IS THE PRIMARY GOAL OF THIS PROJECT TO MINIMIZE SPILL LIGHT TO ADJOINING PROPERTIES AND GLARE TO THE PLAYERS, SPECTATORS AND NEIGHBORS.
3. COST OF OWNERSHIP: IN ORDER TO REDUCE THE OPERATING BUDGET, THE PREFERRED LIGHTING SYSTEM SHALL BE ENERGY EFFICIENT AND COST EFFECTIVE TO OPERATE. ALL MAINTENANCE COSTS SHALL BE ELIMINATED FOR THE DURATION OF THE WARRANTY.
4. CONTROL AND MONITORING: TO ALLOW FOR OPTIMIZED USE OF LABOR RESOURCES AND AVOID UNNEEDED OPERATION OF THE FACILITY, CUSTOMER REQUIRES A REMOTE ON/OFF CONTROL SYSTEM FOR THE LIGHTING SYSTEM. FIELDS SHOULD BE PROACTIVELY MONITORED TO DETECT LUMINAIRE OUTAGES OVER A 25-YEAR LIFE CYCLE. ALL COMMUNICATION AND MONITORING COSTS FOR 25-YEAR PERIOD SHALL BE INCLUDED IN THE BID.

1.2 LIGHTING PERFORMANCE

A. ILLUMINATION LEVELS AND DESIGN FACTORS: PLAYING SURFACES SHALL BE LIT TO AN AVERAGE TARGET ILLUMINATION LEVEL AND UNIFORMITY AS SPECIFIED IN THE CHART BELOW. LIGHTING CALCULATIONS SHALL BE DEVELOPED AND FIELD MEASUREMENTS TAKEN ON THE GRID SPACING WITH THE MINIMUM NUMBER OF GRID POINTS SPECIFIED BELOW. APPROPRIATE LIGHT LOSS FACTORS SHALL BE APPLIED AND SUBMITTED FOR THE BASIS OF DESIGN. AVERAGE ILLUMINATION LEVEL SHALL BE MEASURED IN ACCORDANCE WITH THE IESNA LM-5-04 (IESNA GUIDE FOR PHOTOMETRIC MEASUREMENTS OF AREA AND SPORTS LIGHTING INSTALLATIONS). ILLUMINATION LEVELS SHALL NOT TO DROP BELOW DESIRED TARGET VALUES IN ACCORDANCE TO IES RP-6-15, PAGE 2, MAINTAINED AVERAGE ILLUMINANCE AND SHALL BE GUARANTEED FOR THE FULL WARRANTY PERIOD.

AREA OF LIGHTING	AVERAGE TARGET ILLUMINATION LEVELS	MAXIMUM TO MINIMUM UNIFORMITY RATIO	GRID POINTS	GRID SPACING
SOCCER	50 FOOT-CANDLES	2.5:1	70	30' x 30'

- B. COLOR: THE LIGHTING SYSTEM SHALL HAVE A MINIMUM COLOR TEMPERATURE OF 5700K AND A CRI OF 75+.
- C. MOUNTING HEIGHTS: TO ENSURE PROPER AIMING ANGLES FOR REDUCED GLARE AND TO PROVIDE BETTER PLAYABILITY, MINIMUM MOUNTING HEIGHTS SHALL BE AS DESCRIBED BELOW. HIGHER MOUNTING HEIGHTS MAY BE REQUIRED BASED ON PHOTOMETRIC REPORT AND ABILITY TO ENSURE THE TOP OF THE FIELD ANGLE IS A MINIMUM OF 10 DEGREES BELOW HORIZONTAL.

# OF POLES	POLE DESIGNATION	POLE HEIGHT
4	S1, S2, S5, S6	80'
2	S3, S4	90'

1.3 ENVIRONMENTAL LIGHT CONTROL

- A. LIGHT CONTROL LUMINAIRES: ALL LUMINAIRES SHALL UTILIZE SPILL LIGHT AND GLARE CONTROL DEVICES INCLUDING, BUT NOT LIMITED TO, INTERNAL SHIELDS, LOUVERS AND EXTERNAL SHIELDS. NO SYMMETRICAL BEAM PATTERNS ARE ACCEPTED.
- C. SPILL SCANS: SPILL SCANS MUST BE SUBMITTED INDICATING THE AMOUNT OF HORIZONTAL AND VERTICAL FOOT-CANDLES ALONG THE SPECIFIED LINES. LIGHT LEVELS SHALL BE TAKEN AT 30-FOOT INTERVALS ALONG THE BOUNDARY LINE. READINGS SHALL BE TAKEN WITH THE METER ORIENTATION AT BOTH HORIZONTAL AND AIMED TOWARDS THE MOST INTENSE BANK OF LIGHTS. ILLUMINATION LEVEL SHALL BE MEASURED IN ACCORDANCE WITH THE IESNA LM-5-04 AFTER 1 HOUR WARM UP.
- D. THE FIRST PAGE OF A PHOTOMETRIC REPORT FOR ALL LUMINAIRE TYPES PROPOSED SHOWING HORIZONTAL AND VERTICAL AXIAL CANDLE POWER SHALL BE PROVIDED TO DEMONSTRATE THE CAPABILITY OF ACHIEVING THE SPECIFIED PERFORMANCE. REPORTS SHALL BE CERTIFIED BY A QUALIFIED TESTING LABORATORY WITH A MINIMUM OF FIVE YEARS EXPERIENCE OR BY A MANUFACTURER'S LABORATORY WITH A CURRENT ACCREDITATION UNDER THE NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR ENERGY EFFICIENT LIGHTING PRODUCTS. A SUMMARY OF THE HORIZONTAL AND VERTICAL AIMING ANGLES FOR EACH LUMINAIRE SHALL BE INCLUDED WITH THE PHOTOMETRIC REPORT.

1.4 COST OF OWNERSHIP

A. MANUFACTURER SHALL SUBMIT A 25 YEAR COST OF OWNERSHIP SUMMARY THAT INCLUDES ENERGY CONSUMPTION, ANTICIPATED MAINTENANCE COSTS, AND CONTROL COSTS. ALL COSTS ASSOCIATED WITH FAULTY LUMINAIRE REPLACEMENT - EQUIPMENT RENTALS, REMOVAL AND INSTALLATION LABOR, AND SHIPPING - ARE TO BE INCLUDED IN THE MAINTENANCE COSTS.

PART 2 - PRODUCT

2.2 SPORTS LIGHTING SYSTEM CONSTRUCTION

- A. MANUFACTURING REQUIREMENTS: ALL COMPONENTS SHALL BE DESIGNED AND MANUFACTURED AS A SYSTEM. ALL LUMINAIRES, WIRE HARNESSSES, DRIVERS AND OTHER ENCLOSURES SHALL BE FACTORY ASSEMBLED, AIMED, WIRED AND TESTED.
- B. DURABILITY: ALL EXPOSED COMPONENTS SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIAL AND/OR COATED TO HELP PREVENT CORROSION. ALL EXPOSED CARBON STEEL SHALL BE HOT DIP GALVANIZED PER ASTM A123. ALL EXPOSED ALUMINUM SHALL BE POWDER COATED WITH HIGH PERFORMANCE POLYESTER OR ANODIZED. ALL EXTERIOR REFLECTIVE INSERTS SHALL BE ANODIZED, COATED, AND PROTECTED FROM DIRECT ENVIRONMENTAL EXPOSURE TO PREVENT REFLECTIVE DEGRADATION OR CORROSION. ALL EXPOSED HARDWARE AND FASTENERS SHALL BE STAINLESS STEEL, PASSIVATED AND COATED WITH ALUMINUM-BASED THERMOSETTING EPOXY RESIN FOR PROTECTION AGAINST CORROSION AND STRESS CORROSION CRACKING. STRUCTURAL FASTENERS MAY BE CARBON STEEL AND GALVANIZED MEETING ASTM A153 AND ISO/EN 1461 (FOR HOT DIPPED GALVANIZING), OR ASTM B695 (FOR MECHANICAL GALVANIZING). ALL WIRING SHALL BE ENCLOSED WITHIN THE CROSS-ARMS, POLE, OR ELECTRICAL COMPONENTS ENCLOSURE.

C. SYSTEM DESCRIPTION: LIGHTING SYSTEM SHALL CONSIST OF THE FOLLOWING:

1. GALVANIZED STEEL POLES AND CROSS-ARM ASSEMBLY. ALTERNATE: CONCRETE POLE WITH A MINIMUM OF 8,000 PSI AND INSTALLED WITH CONCRETE BACKFILL WILL BE AN ACCEPTABLE ALTERNATIVE PROVIDED BUILDING CODE, WIND SPEED AND FOUNDATION DESIGNS PER SPECIFICATIONS ARE ADHERED TO.
 2. NON-APPROVED POLE TECHNOLOGY:
 - a. SQUARE STATIC CAST CONCRETE POLES WILL NOT BE ACCEPTED.
 - b. DIRECT BURY STEEL POLES WHICH UTILIZE THE EXTENDED PORTION OF THE STEEL SHAFT FOR THEIR FOUNDATION WILL NOT BE ACCEPTED DUE TO POTENTIAL FOR INTERNAL AND EXTERNAL CORROSIVE REACTION TO THE SOILS AND LONG TERM PERFORMANCE CONCERNS.
 3. LIGHTING SYSTEMS SHALL USE CONCRETE FOUNDATIONS. SEE SECTION 2.4 FOR DETAILS.
 - a. FOR A FOUNDATION USING A PRE-STRESSED CONCRETE BASE EMBEDDED IN CONCRETE BACKFILL THE CONCRETE SHALL BE AIR-ENTRAINED AND HAVE A MINIMUM COMPRESSIVE DESIGN STRENGTH AT 28 DAYS OF 3,000 PSI. 3,000 PSI CONCRETE SPECIFIED FOR EARLY POLE ERECTION. ACTUAL REQUIRED MINIMUM ALLOWABLE CONCRETE STRENGTH IS 1,000 PSI. ALL PIERS AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM UNDISTURBED SOIL.
 - b. FOR ANCHOR BOLT FOUNDATIONS OR FOUNDATIONS USING A PRE-STRESSED CONCRETE BASE IN A SUSPENDED PIER OR RE-INFORCED PIER DESIGN POLE ERECTION MAY OCCUR AFTER 7 DAYS. OR AFTER A CONCRETE SAMPLE FROM THE SAME BATCH ACHIEVES A CERTAIN STRENGTH.
4. MANUFACTURER WILL SUPPLY ALL DRIVERS AND SUPPORTING ELECTRICAL EQUIPMENT
 - a. REMOTE DRIVERS AND SUPPORTING ELECTRICAL EQUIPMENT SHALL BE MOUNTED APPROXIMATELY 10 FEET ABOVE GRADE IN ALUMINUM ENCLOSURES. THE ENCLOSURES SHALL BE TOUCH-SAFE AND INCLUDE DRIVERS AND FUSING WITH INDICATOR LIGHTS ON FUSES TO NOTIFY WHEN A FUSE IS TO BE REPLACED FOR EACH LUMINAIRE. DISCONNECT PER CIRCUIT FOR EACH POLE STRUCTURE WILL BE LOCATED IN THE ENCLOSURE. INTEGRAL DRIVERS ARE NOT ALLOWED.
 - b. MANUFACTURER SHALL PROVIDE SURGE PROTECTION AT THE POLE EQUAL TO OR GREATER THAN 40 KA FOR EACH LINE TO GROUND (COMMON MODE) AS RECOMMENDED BY IEEE C62.41.2_2002.
5. WIRE HARNESS COMPLETE WITH AN ABRASION PROTECTION SLEEVE, STRAIN RELIEF AND PLUG-IN CONNECTIONS FOR FAST, TROUBLE-FREE INSTALLATION.
6. ALL LUMINAIRES, VISORS, AND CROSS-ARM ASSEMBLIES SHALL WITHSTAND 150 MI/H WINDS AND MAINTAIN LUMINAIRE AIMING ALIGNMENT.
7. CONTROL CABINET TO PROVIDE REMOTE ON-OFF CONTROL, MONITORING, AND ENTERTAINMENT FEATURES OF THE LIGHTING SYSTEM. SEE SECTION 2.3 FOR FURTHER DETAILS.
8. MANUFACTURER SHALL PROVIDE LIGHTNING GROUNDING AS DEFINED BY NFPA 780 AND BE UL LISTED PER UL 96 AND UL 96A.
 - a. INTEGRATED GROUNDING VIA CONCRETE ENCASED ELECTRODE GROUNDING SYSTEM.
 - b. IF GROUNDING IS NOT INTEGRATED INTO THE STRUCTURE, THE MANUFACTURER SHALL SUPPLY GROUNDING ELECTRODES, COPPER DOWN CONDUCTORS, AND EXOTHERMIC WELD KITS. ELECTRODES AND CONDUCTORS SHALL BE SIZED AS REQUIRED BY NFPA 780. THE GROUNDING ELECTRODE SHALL BE MINIMUM SIZE OF 5/8 INCH DIAMETER AND 8 FEET LONG, WITH A MINIMUM OF 10 FEET EMBEDMENT. GROUNDING ELECTRODE SHALL BE CONNECTED TO THE STRUCTURE BY A GROUNDING ELECTRODE CONDUCTOR WITH A MINIMUM SIZE OF 2 AWG FOR POLES WITH 75 FEET MOUNTING HEIGHT OR LESS, AND 2/0 AWG FOR POLES WITH MORE THAN 75 FEET MOUNTING HEIGHT.

D. SAFETY: ALL SYSTEM COMPONENTS SHALL BE UL LISTED FOR THE APPROPRIATE APPLICATION.

2.2 ELECTRICAL

- A. ELECTRIC POWER REQUIREMENTS FOR THE SPORTS LIGHTING EQUIPMENT:
 1. ELECTRIC POWER: 240 VOLT, 1 PHASE
 2. MAXIMUM TOTAL VOLTAGE DROP: VOLTAGE DROP TO THE DISCONNECT SWITCH LOCATED ON THE POLES SHALL NOT EXCEED THREE (3) PERCENT OF THE RATED VOLTAGE.
- B. ENERGY CONSUMPTION: THE KW CONSUMPTION FOR THE FIELD LIGHTING SYSTEM SHALL BE 51.48KW.

2.3 CONTROL

A. INSTANT ON/OFF CAPABILITIES: SYSTEM SHALL PROVIDE FOR INSTANT ON/OFF OF LUMINAIRES.

- B. LIGHTING CONTACTOR CABINET(S) CONSTRUCTED OF NEMA TYPE 4 ALUMINUM, DESIGNED FOR EASY INSTALLATION WITH CONTACTORS, LABELED TO MATCH FIELD DIAGRAMS AND ELECTRICAL DESIGN. MANUAL OFF-ON-AUTO SELECTOR SWITCHES SHALL BE PROVIDED.
- C. DIMMING: SYSTEM SHALL PROVIDE FOR 3-STAGE DIMMING (HIGH-MEDIUM-LOW). DIMMING WILL BE SET VIA SCHEDULING OPTIONS (WEBSITE, APP, PHONE, FAX, EMAIL)
- D. REMOTE LIGHTING CONTROL SYSTEM: SYSTEM SHALL ALLOW OWNER AND USERS WITH A SECURITY CODE TO SCHEDULE ON/OFF SYSTEM OPERATION VIA A WEB SITE, PHONE, FAX OR EMAIL UP TO TEN YEARS IN ADVANCE. MANUFACTURER SHALL PROVIDE AND MAINTAIN A TWO-WAY TCP/IP COMMUNICATION LINK. TRAINED STAFF SHALL BE AVAILABLE 24/7 TO PROVIDE SCHEDULING SUPPORT AND ASSIST WITH REPORTING NEEDS.

THE OWNER MAY ASSIGN VARIOUS SECURITY LEVELS TO SCHEDULERS BY FUNCTION AND/OR FIELDS. THIS FUNCTION MUST BE FLEXIBLE TO ALLOW A RANGE OF PRIVILEGES SUCH AS FULL SCHEDULING CAPABILITIES FOR ALL FIELDS TO ONLY HAVING PERMISSION TO EXECUTE "EARLY OFF" COMMANDS BY PHONE. SCHEDULING TOOL SHALL BE CAPABLE OF SETTING CURFEW LIMITS.

CONTROLLER SHALL ACCEPT AND STORE 7-DAY SCHEDULES, BE PROTECTED AGAINST MEMORY LOSS DURING POWER OUTAGES, AND SHALL REBOOT ONCE POWER IS REGAINED AND EXECUTE ANY COMMANDS THAT WOULD HAVE OCCURRED DURING OUTAGE.

E. REMOTE MONITORING SYSTEM: SYSTEM SHALL MONITOR LIGHTING PERFORMANCE AND NOTIFY MANUFACTURER IF INDIVIDUAL LUMINAIRE OUTAGE IS DETECTED SO THAT APPROPRIATE MAINTENANCE CAN BE SCHEDULED. THE CONTROLLER SHALL DETERMINE SWITCH POSITION (MANUAL OR AUTO) AND CONTACTOR STATUS (OPEN OR CLOSED).

F. MANAGEMENT TOOLS: MANUFACTURER SHALL PROVIDE A WEB-BASED DATABASE AND DASHBOARD TOOL OF ACTUAL FIELD USAGE AND PROVIDE REPORTS BY FACILITY AND USER GROUP. DASHBOARD SHALL ALSO SHOW CURRENT STATUS OF LUMINAIRE OUTAGES, CONTROL OPERATION AND SERVICE. MOBILE APPLICATION WILL BE PROVIDED SUITABLE FOR IOS, ANDROID AND BLACKBERRY DEVICES.

HOURS OF USAGE: MANUFACTURER SHALL PROVIDE A MEANS OF TRACKING ACTUAL HOURS OF USAGE FOR THE FIELD LIGHTING SYSTEM THAT IS READILY ACCESSIBLE TO THE OWNER.

1. CUMULATIVE HOURS: SHALL BE TRACKED TO SHOW THE TOTAL HOURS USED BY THE FACILITY
 2. REPORT HOURS SAVED BY USING EARLY OFF AND PUSH BUTTONS BY USERS.
- G. COMMUNICATION COSTS: MANUFACTURER SHALL INCLUDE COMMUNICATION COSTS FOR OPERATING THE CONTROL AND MONITORING SYSTEM FOR A PERIOD OF 25 YEARS.

H. COMMUNICATION WITH LUMINAIRE DRIVERS: CONTROL SYSTEM SHALL INTERFACE WITH DRIVERS IN ELECTRICAL COMPONENTS ENCLOSURES BY MEANS OF POWERLINE COMMUNICATION.

2.4 STRUCTURAL PARAMETERS

- A. WIND LOADS: WIND LOADS SHALL BE BASED ON THE 2015 INTERNATIONAL BUILDING CODE. WIND LOADS TO BE CALCULATED USING ASCE 7-10, AN ULTIMATE DESIGN WIND SPEED OF 115MPH AND EXPOSURE CATEGORY C.
- B. POLE STRUCTURAL DESIGN: THE STRESS ANALYSIS AND SAFETY FACTOR OF THE POLES SHALL CONFORM TO 2013 AASHTO STANDARD SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS (LTS-6).
- C. FOUNDATION DESIGN: THE FOUNDATION DESIGN SHALL BE BASED ON SOILS THAT MEET OR EXCEED THOSE OF A CLASS 5 MATERIAL AS DEFINED BY 2015 IBC TABLE 1806.2.
- D. FOUNDATION DRAWINGS: PROJECT SPECIFIC FOUNDATION DRAWINGS STAMPED BY A REGISTERED ENGINEER IN THE STATE WHERE THE PROJECT IS LOCATED ARE REQUIRED. THE FOUNDATION DRAWINGS MUST LIST THE MOMENT, SHEAR (HORIZONTAL) FORCE, AND AXIAL (VERTICAL) FORCE AT GROUND LEVEL FOR EACH POLE. THESE DRAWINGS MUST BE SUBMITTED AT TIME OF BID TO ALLOW FOR ACCURATE PRICING.

PART 3 - EXECUTION

3.1 SOIL QUALITY CONTROL

- A. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNER IF SOIL CONDITIONS EXIST OTHER THAN THOSE ON WHICH THE FOUNDATION DESIGN IS BASED, OR IF THE SOIL CANNOT BE READILY EXCAVATED. CONTRACTOR MAY ISSUE A CHANGE ORDER REQUEST / ESTIMATE FOR THE OWNER'S APPROVAL / PAYMENT FOR ADDITIONAL COSTS ASSOCIATED WITH:
 1. PROVIDING ENGINEERED FOUNDATION EMBEDMENT DESIGN BY A REGISTERED ENGINEER IN THE STATE OF ALABAMA FOR SOILS OTHER THAN SPECIFIED SOIL CONDITIONS;
 2. ADDITIONAL MATERIALS REQUIRED TO ACHIEVE ALTERNATE FOUNDATION;
 3. EXCAVATION AND REMOVAL OF MATERIALS OTHER THAN NORMAL SOILS, SUCH AS ROCK, CALICHE, ETC.

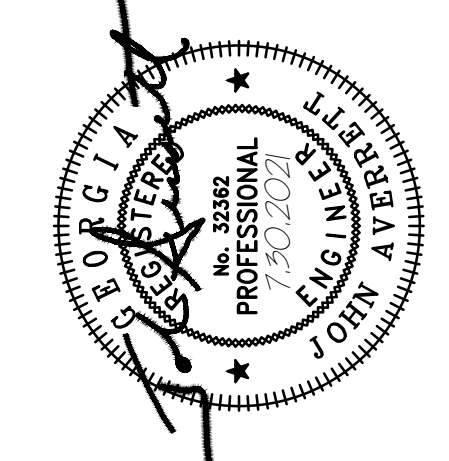
3.2 DELIVERY TIMING

A. DELIVERY TIMING EQUIPMENT ON-SITE: THE EQUIPMENT MUST BE ON-SITE WITHIN 30 DAYS FROM RECEIPT OF APPROVED SUBMITTALS AND RECEIPT OF COMPLETE ORDER INFORMATION.

3.3 FIELD QUALITY CONTROL

- A. ILLUMINATION MEASUREMENTS: UPON SUBSTANTIAL COMPLETION OF THE PROJECT AND IN THE PRESENCE OF THE CONTRACTOR, PROJECT ENGINEER, OWNER'S REPRESENTATIVE, AND MANUFACTURER'S REPRESENTATIVE, ILLUMINATION MEASUREMENTS SHALL BE TAKEN AND VERIFIED. THE ILLUMINATION MEASUREMENTS SHALL BE CONDUCTED IN ACCORDANCE WITH IESNA LM-5-04.
- B. FIELD LIGHT LEVEL ACCOUNTABILITY
 1. LIGHT LEVELS ARE GUARANTEED NOT TO FALL BELOW THE TARGET MAINTAINED LIGHT LEVELS FOR THE ENTIRE WARRANTY PERIOD OF 25 YEARS. THESE LEVELS WILL BE SPECIFICALLY STATED AS "GUARANTEED" ON THE ILLUMINATION SUMMARY PROVIDED BY THE MANUFACTURER.

NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA



ELECTRICAL
SPECIFICATIONS

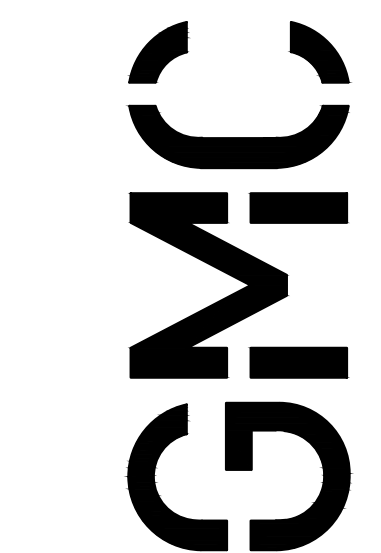
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2. THE MANUFACTURER SHALL BE RESPONSIBLE FOR CONDUCTING INITIAL LIGHT LEVEL TESTING AND AN ADDITIONAL INSPECTION OF THE SYSTEM, IN THE PRESENCE OF THE OWNER, ONE YEAR FROM THE DATE OF COMMISSIONING OF THE LIGHTING.

3. THE MANUFACTURER WILL BE HELD RESPONSIBLE FOR ANY AND ALL CHANGES NEEDED TO BRING THESE FIELDS BACK TO COMPLIANCE FOR LIGHT LEVELS AND UNIFORMITIES. CONTRACTOR/MANUFACTURER WILL BE HELD RESPONSIBLE FOR ANY DAMAGE TO THE FIELDS DURING THESE REPAIRS.

C. CORRECTING NON-CONFORMANCE: IF, IN THE OPINION OF THE OWNER OR HIS APPOINTED REPRESENTATIVE, THE ACTUAL PERFORMANCE LEVELS INCLUDING FOOT-CANDLES AND UNIFORMITY RATIOS ARE NOT IN CONFORMANCE WITH THE REQUIREMENTS OF THE PERFORMANCE SPECIFICATIONS AND SUBMITTED INFORMATION, THE MANUFACTURER SHALL BE REQUIRED TO MAKE ADJUSTMENTS TO MEET SPECIFICATIONS AND SATISFY OWNER.

3.4 WARRANTY AND GUARANTEE

A. 25-YEAR WARRANTY: EACH LIGHTING MANUFACTURER MUST SUPPLY A SIGNED WARRANTY COVERING THE ENTIRE SYSTEM FOR 25 YEARS FROM THE DATE OF SHIPMENT. **NO THIRD-PARTY WARRANTY ALLOWED.** WARRANTY SHALL GUARANTEE SPECIFIED LIGHT LEVELS. MANUFACTURER SHALL MAINTAIN SPECIFICALLY-FUNDED FINANCIAL RESERVES TO ASSURE FULFILLMENT OF THE WARRANTY FOR THE FULL TERM. WARRANTY DOES NOT COVER WEATHER CONDITIONS EVENTS SUCH AS LIGHTNING OR HAIL DAMAGE, IMPROPER INSTALLATION, VANDALISM OR ABUSE, UNAUTHORIZED REPAIRS OR ALTERATIONS, OR PRODUCT MADE BY OTHER MANUFACTURERS.

B. MAINTENANCE: MANUFACTURER SHALL MONITOR THE PERFORMANCE OF THE LIGHTING SYSTEM, INCLUDING ON/OFF STATUS, HOURS OF USAGE AND LUMINAIRE OUTAGE FOR 25 YEARS FROM THE DATE OF EQUIPMENT SHIPMENT. PARTS AND LABOR SHALL BE COVERED SUCH THAT INDIVIDUAL LUMINAIRE OUTAGES WILL BE REPAIRED WHEN THE USAGE OF ANY FIELD IS MATERIALLY IMPACTED. MANUFACTURER IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF FAILED LUMINAIRES, INCLUDING ALL PARTS, LABOR, SHIPPING, AND EQUIPMENT RENTAL ASSOCIATED WITH MAINTENANCE. OWNER AGREES TO CHECK FUSES IN THE EVENT OF A LUMINAIRE OUTAGE.

PART 4 - DESIGN APPROVAL

4.0 PRE-BID SUBMITTAL REQUIREMENTS (NON-MUSCO)

A. DESIGN APPROVAL: THE OWNER / ENGINEER WILL REVIEW PRE-BID SUBMITTALS PER SECTION 4.0.B FROM ALL THE MANUFACTURERS TO ENSURE COMPLIANCE TO THE SPECIFICATION 10 DAYS PRIOR TO BID. IF THE DESIGN MEETS THE DESIGN REQUIREMENTS OF THE SPECIFICATIONS, A LETTER AND/OR ADDENDUM WILL BE ISSUED TO THE MANUFACTURER INDICATING APPROVAL FOR THE SPECIFIC DESIGN SUBMITTED.

B. APPROVED PRODUCT: MUSCO'S LIGHT-STRUCTURE SYSTEM TM WITH TLC FOR LED IS THE APPROVED PRODUCT. ALL SUBSTITUTIONS MUST PROVIDE A COMPLETE SUBMITTAL PACKAGE FOR APPROVAL AS OUTLINED IN SUBMITTAL INFORMATION AT THE END OF THIS SECTION AT LEAST 10 DAYS PRIOR TO BID. SPECIAL MANUFACTURING TO MEET THE STANDARDS OF THIS SPECIFICATION MAY BE REQUIRED. AN ADDENDUM WILL BE ISSUED PRIOR TO BID LISTING ANY OTHER APPROVED LIGHTING MANUFACTURERS AND DESIGNS.

C. ALL LISTED MANUFACTURERS NOT PRE-APPROVED SHALL SUBMIT THE INFORMATION AT THE END OF THIS SECTION AT LEAST 10 DAYS PRIOR TO BID. AN ADDENDUM WILL BE ISSUED PRIOR TO BID; LISTING APPROVED LIGHTING MANUFACTURERS AND THE DESIGN METHOD TO BE USED.

D. BIDDERS ARE REQUIRED TO BID ONLY PRODUCTS THAT HAVE BEEN APPROVED BY THIS SPECIFICATION OR ADDENDUM BY THE OWNER OR OWNER'S REPRESENTATIVE. BIDS RECEIVED THAT DO NOT UTILIZE AN APPROVED SYSTEM/DESIGN, WILL BE REJECTED.

REQUIRED SUBMITTAL INFORMATION FOR ALL MANUFACTURERS (NOT PRE-APPROVED) 10 DAYS PRIOR TO BID

ALL ITEMS LISTED BELOW ARE MANDATORY, SHALL COMPLY WITH THE SPECIFICATION AND BE SUBMITTED ACCORDING TO PRE-BID SUBMITTAL REQUIREMENTS. COMPLETE THE YES/NO COLUMN TO INDICATE COMPLIANCE (Y) OR NONCOMPLIANCE (N) FOR EACH ITEM. **SUBMIT CHECKLIST BELOW WITH SUBMITTAL.**

YES/NO	TAB	ITEM	DESCRIPTION
	A	LETTER/ CHECKLIST	LISTING OF ALL INFORMATION BEING SUBMITTED MUST BE INCLUDED ON THE TABLE OF CONTENTS. LIST THE NAME OF THE MANUFACTURER'S LOCAL REPRESENTATIVE AND HIS/HER PHONE NUMBER. SIGNED SUBMITTAL CHECKLIST TO BE INCLUDED.
	B	EQUIPMENT LAYOUT	DRAWING(S) SHOWING FIELD LAYOUTS WITH POLE LOCATIONS
			LIGHTING DESIGN DRAWING(S) SHOWING:
			A. FIELD NAME, DATE, FILE NUMBER, PREPARED BY
			B. OUTLINE OF FIELD(S) BEING LIGHTED, AS WELL AS POLE LOCATIONS REFERENCED TO THE CENTER OF THE FIELD (X & Y), ILLUMINANCE LEVELS AT GRID SPACING SPECIFIED
			C. POLE HEIGHT, NUMBER OF FIXTURES PER POLE, HORIZONTAL AND VERTICAL AIMING ANGLES, AS WELL AS LUMINAIRE INFORMATION INCLUDING WATTAGE, LUMENS AND OPTICS
			D. HEIGHT OF LIGHT TEST METER ABOVE FIELD SURFACE.
			E. SUMMARY TABLE SHOWING THE NUMBER AND SPACING OF GRID POINTS; AVERAGE, MINIMUM AND MAXIMUM ILLUMINANCE LEVELS IN FOOT CANDLES (FC); UNIFORMITY INCLUDING MAXIMUM TO MINIMUM RATIO, COEFFICIENT OF VARIANCE (CV), COEFFICIENT OF UTILIZATION (CU) UNIFORMITY GRADIENT; NUMBER OF LUMINAIRES, TOTAL KILOWATTS, AVERAGE TILT FACTOR; LIGHT LOSS FACTOR.
	D	PHOTOMETRIC REPORT	PROVIDE FIRST PAGE OF PHOTOMETRIC REPORT FOR ALL LUMINAIRE TYPES BEING PROPOSED SHOWING CANDELA TABULATIONS AS DEFINED BY IESNA PUBLICATION LM-35-02. PHOTOMETRIC DATA SHALL BE CERTIFIED BY LABORATORY WITH CURRENT NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM OR AN INDEPENDENT TESTING FACILITY WITH OVER 5 YEARS EXPERIENCE.
	E	PERFORMANCE GUARANTEE	PROVIDE PERFORMANCE GUARANTEE INCLUDING A WRITTEN COMMITMENT TO UNDERTAKE ALL CORRECTIONS REQUIRED TO MEET THE PERFORMANCE REQUIREMENTS NOTED IN THESE SPECIFICATIONS AT NO EXPENSE TO THE OWNER. LIGHT LEVELS MUST BE GUARANTEED TO NOT FALL BELOW TARGET LEVELS FOR WARRANTY PERIOD.
	F	STRUCTURAL CALCULATIONS	POLE STRUCTURAL CALCULATIONS AND FOUNDATION DESIGN SHOWING FOUNDATION SHAPE, DEPTH, BACKFILL REQUIREMENTS, REBAR AND ANCHOR BOLTS (IF REQUIRED). POLE BASE REACTION FORCES SHALL BE SHOWN ON THE FOUNDATION DRAWING ALONG WITH SOIL BEARING PRESSURES. DESIGN MUST BE STAMPED BY A STRUCTURAL ENGINEER IN THE STATE OF GEORGIA
	G	CONTROL & MONITORING SYSTEM	MANUFACTURER OF THE CONTROL AND MONITORING SYSTEM SHALL PROVIDE WRITTEN DEFINITION AND SCHEMATICS FOR AUTOMATED CONTROL SYSTEM. THEY WILL ALSO PROVIDE TEN (10) REFERENCES OF CUSTOMERS CURRENTLY USING PROPOSED SYSTEM IN THE STATE OF GEORGIA.
	H	ELECTRICAL DISTRIBUTION PLANS	MANUFACTURER BIDDING AN ALTERNATE PRODUCT MUST INCLUDE A REVISED ELECTRICAL DISTRIBUTION PLAN INCLUDING CHANGES TO SERVICE ENTRANCE, PANELS AND WIRE SIZING, SIGNED BY A LICENSED ELECTRICAL ENGINEER IN THE STATE OF GEORGIA.
	I	WARRANTY	PROVIDE WRITTEN WARRANTY INFORMATION INCLUDING ALL TERMS AND CONDITIONS. PROVIDE TEN (10) REFERENCES OF CUSTOMERS CURRENTLY UNDER SPECIFIED WARRANTY IN THE STATE OF GEORGIA.
	J	PROJECT REFERENCES	MANUFACTURER TO PROVIDE A LIST OF TEN (10) PROJECTS WHERE THE TECHNOLOGY AND SPECIFIC FIXTURE PROPOSED FOR THIS PROJECT HAS BEEN INSTALLED IN THE STATE OF GEORGIA. REFERENCE LIST WILL INCLUDE PROJECT NAME, PROJECT CITY, INSTALLATION DATE, AND IF REQUESTED, CONTACT NAME AND CONTACT PHONE NUMBER.
	K	PRODUCT INFORMATION	COMPLETE BILL OF MATERIAL AND CURRENT BROCHURES/CUT SHEETS FOR ALL PRODUCT BEING PROVIDED.
	L	DELIVERY	MANUFACTURER SHALL SUPPLY AN EXPECTED DELIVERY TIMEFRAME FROM RECEIPT OF APPROVED SUBMITTALS AND COMPLETE ORDER INFORMATION.
	M	NON-COMPLIANCE	MANUFACTURER SHALL LIST ALL ITEMS THAT DO NOT COMPLY WITH THE SPECIFICATIONS. IF IN FULL COMPLIANCE, TAB MAY BE OMITTED.
	N	COST OF OWNERSHIP	DOCUMENT COST OF OWNERSHIP AS DEFINED IN THE SPECIFICATION. IDENTIFY ENERGY COSTS FOR OPERATING THE LUMINAIRES, MAINTENANCE COST FOR THE SYSTEM MUST BE INCLUDED. ALL COSTS SHOULD BE BASED ON 25 YEARS

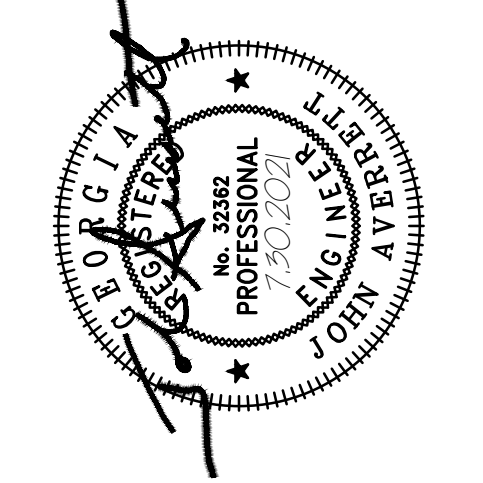


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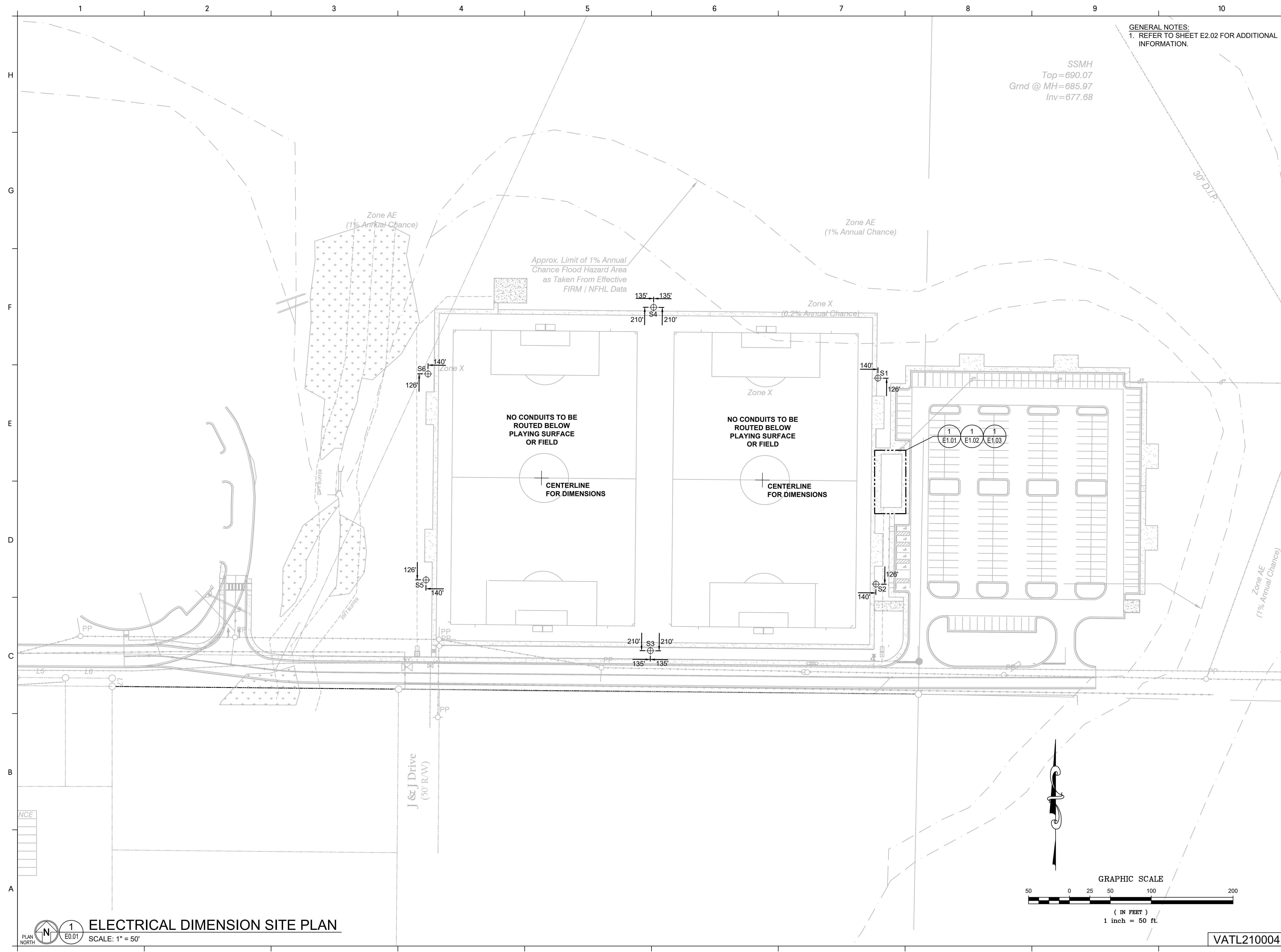
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ELECTRICAL SPECIFICATIONS

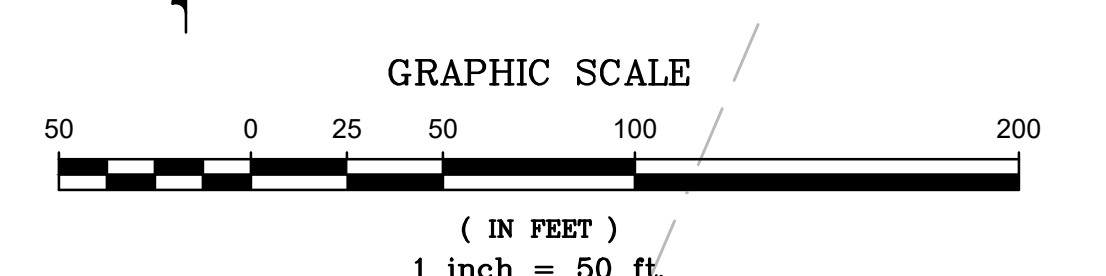
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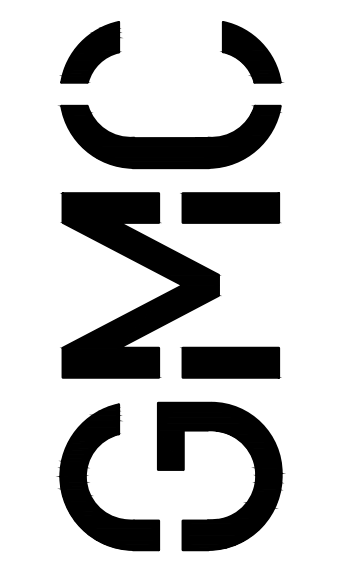
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GENERAL NOTES:
 1. REFER TO SHEET E2.02 FOR ADDITIONAL INFORMATION.

PLAN NORTH 1
ELECTRICAL DIMENSION SITE PLAN
 SCALE: 1" = 50'



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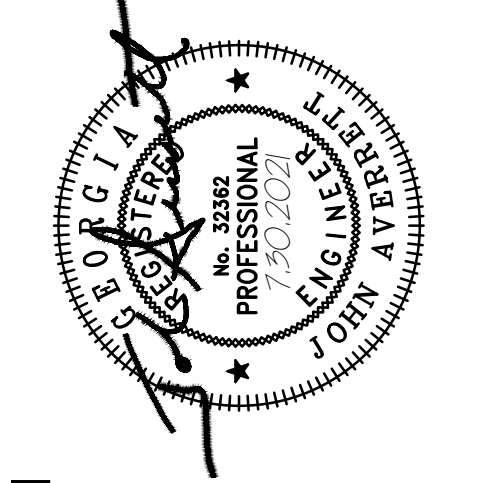


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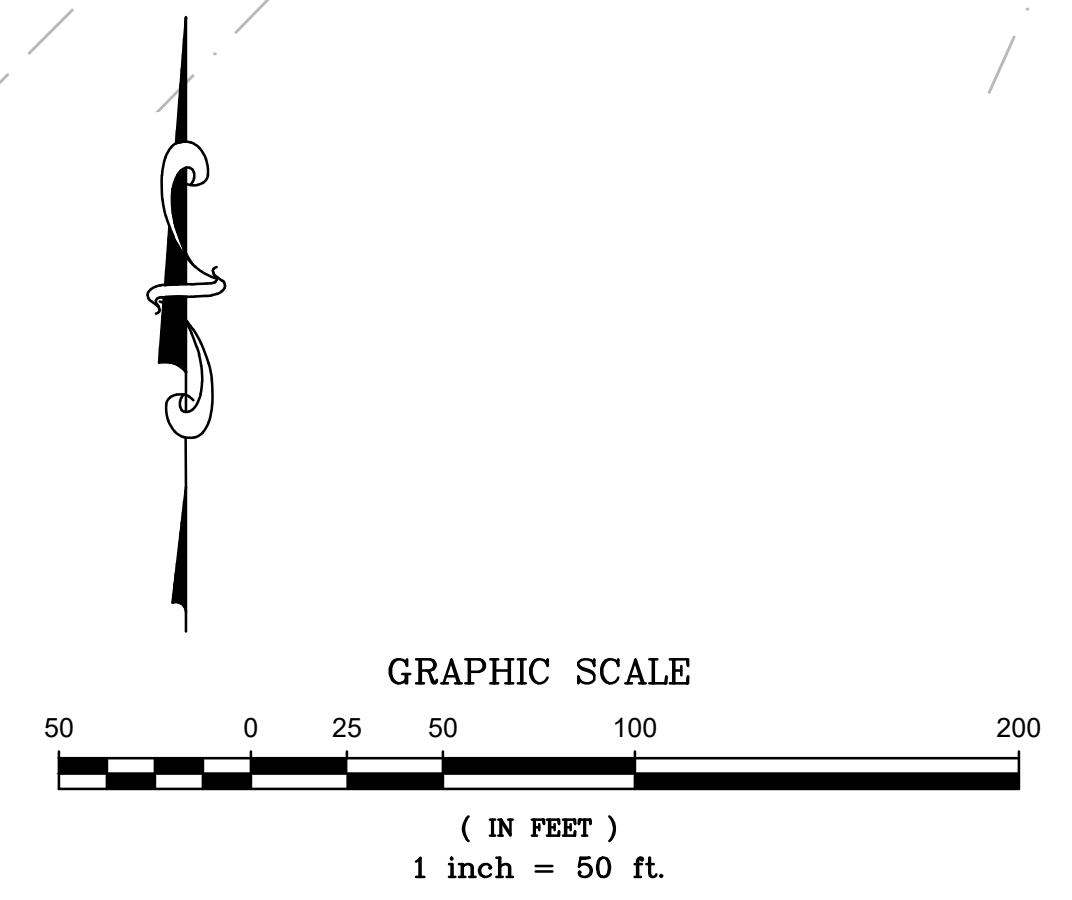
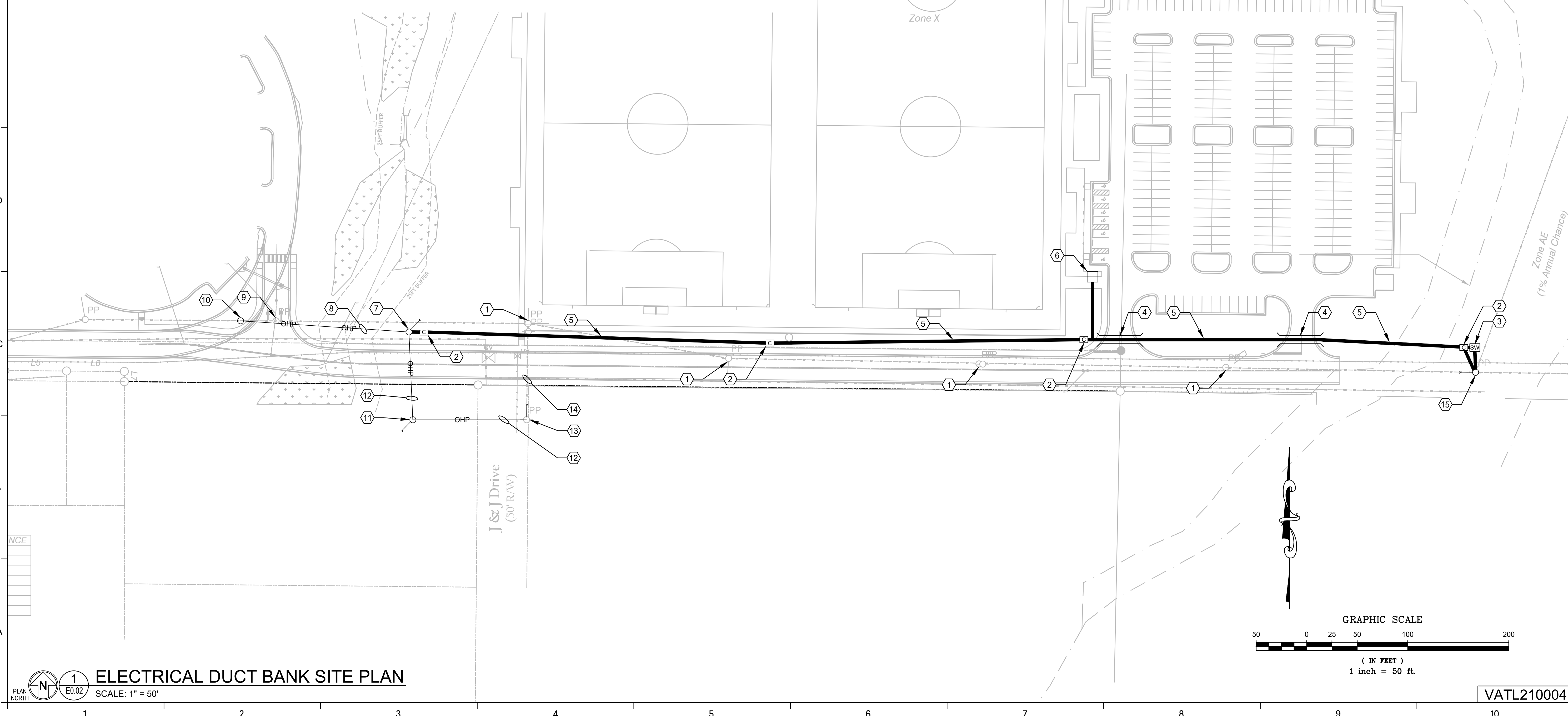
ELECTRICAL SITE PLAN

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- KEYED NOTES (#):**
- EXISTING POLE, FEEDER, & COMMUNICATIONS TO BE REMOVED BY UTILITY CO.
 - NEW COMMUNICATIONS VAULT BY ELECTRICAL CONTRACTOR.
 - NEW SWITCHGEAR BY DALTON UTILITIES. SWITCHGEAR VAULT BY DUCT BANK CONTRACTOR SEE DETAIL 3/E2.03.
 - CONCRETE ENCASED DUCT BANK. SEE DETAIL 5/E2.03.
 - UNDERGROUND PRIMARY & COMMUNICATIONS TRENCH BY ELECTRICAL CONTRACTOR. PRIMARY CIRCUIT TO BE LAY-IN CABLE MINIMUM 48" DEEP BY DALTON UTILITIES - COORDINATE INSTALLATION REQUIREMENTS WITH DALTON UTILITIES. INSTALL (6) 2" EMPTY CONDUITS WITH PULL STRING FOR COMMUNICATIONS CABLING. COMMUNICATIONS CONDUIT TO BE STUBBED UP IN EACH COMMUNICATIONS VAULT - COORDINATE REQUIREMENTS WITH EACH COMMUNICATIONS PROVIDER. SEE DETAIL 6/E2.03.
 - PROPOSED UTILITY TRANSFORMER LOCATION BY DALTON UTILITIES. CONCRETE PAD BY ELECTRICAL CONTRACTOR. PRIMARY CIRCUIT TO BE FED FROM SWITCH AT RISER POLE. COORDINATE CONNECTION REQUIREMENTS WITH DALTON UTILITIES.
 - NEW RISER POLE WITH STAND-OFFS BY DALTON UTILITIES FOR EACH PRIMARY CIRCUIT FOR TRANSITION TO DUCT BANK SYSTEM. POLE TO BE GUYED BY UTILITY.
 - TWO EXISTING VERTICAL CONSTRUCTION CIRCUITS ROUTED TO HORIZONTAL POSITION BY DALTON UTILITIES.
 - EXISTING DALTON UTILITIES DISTRIBUTION POLE TO BE RELOCATED. VERTICAL CONFIGURATION OF EXISTING PRIMARY (2 CIRCUITS) TO BE CHANGED TO HORIZONTAL STAND-OFF CONSTRUCTION BY DALTON UTILITIES.
 - RELOCATED DALTON UTILITIES DISTRIBUTION POLE BY DALTON UTILITIES.
 - NEW DISTRIBUTION POLE BY DALTON UTILITIES.
 - RELOCATED PRIMARY CIRCUIT & COMMUNICATIONS BY DALTON UTILITIES.
 - EXISTING DISTRIBUTION POLE TO BE RE-GUYED BY DALTON UTILITIES.
 - EXISTING PRIMARY CIRCUIT & COMMUNICATIONS TO BE RE-ROUTED AS SHOWN.
 - EXISTING PRIMARY POLE TO BECOME RISER POLE FOR DUCT BANK CONNECTION. RISER POLE TO BE RE-GUYED BY DALTON UTILITIES

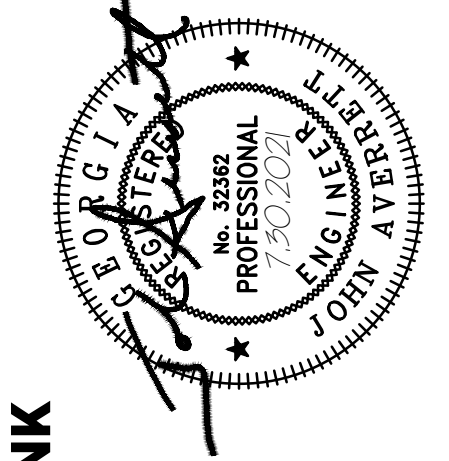
- GENERAL NOTES:**
- SEE DETAILS FOR DUCT BANK CONFIGURATION.
 - DUCT BANK TO BE MINIMUM 48" BELOW FINISH GRADE.
 - CONCRETE ENCASED DUCT BANK FOR PRIMARY CIRCUIT & COMMUNICATIONS REQUIRED IN AREAS SUBJECT TO VEHICLE TRAFFIC.
 - CONTRACTOR RESPONSIBLE FOR INSTALLING CONDUIT & POLE BASES FOR STREET LIGHTING. COORDINATE RACEWAY REQUIREMENTS & POLEBASE REQUIREMENTS FOR STREET LIGHTING WITH DALTON UTILITIES.
 - CONTRACTOR RESPONSIBLE FOR INSTALLING CONDUIT & POLE BASES FOR PARKING LOT LIGHTING. COORDINATE RACEWAY REQUIREMENTS & POLEBASE REQUIREMENTS FOR PARKING LOT LIGHTING WITH DALTON UTILITIES & LANDSCAPE ARCHITECT.

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Inv=677.68



ELECTRICAL DUCT BANK SITE PLAN
SCALE: 1" = 50'

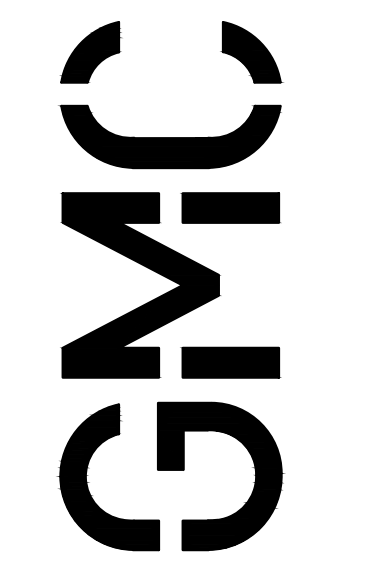
ELECTRICAL DUCT BANK SITE PLAN
NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA



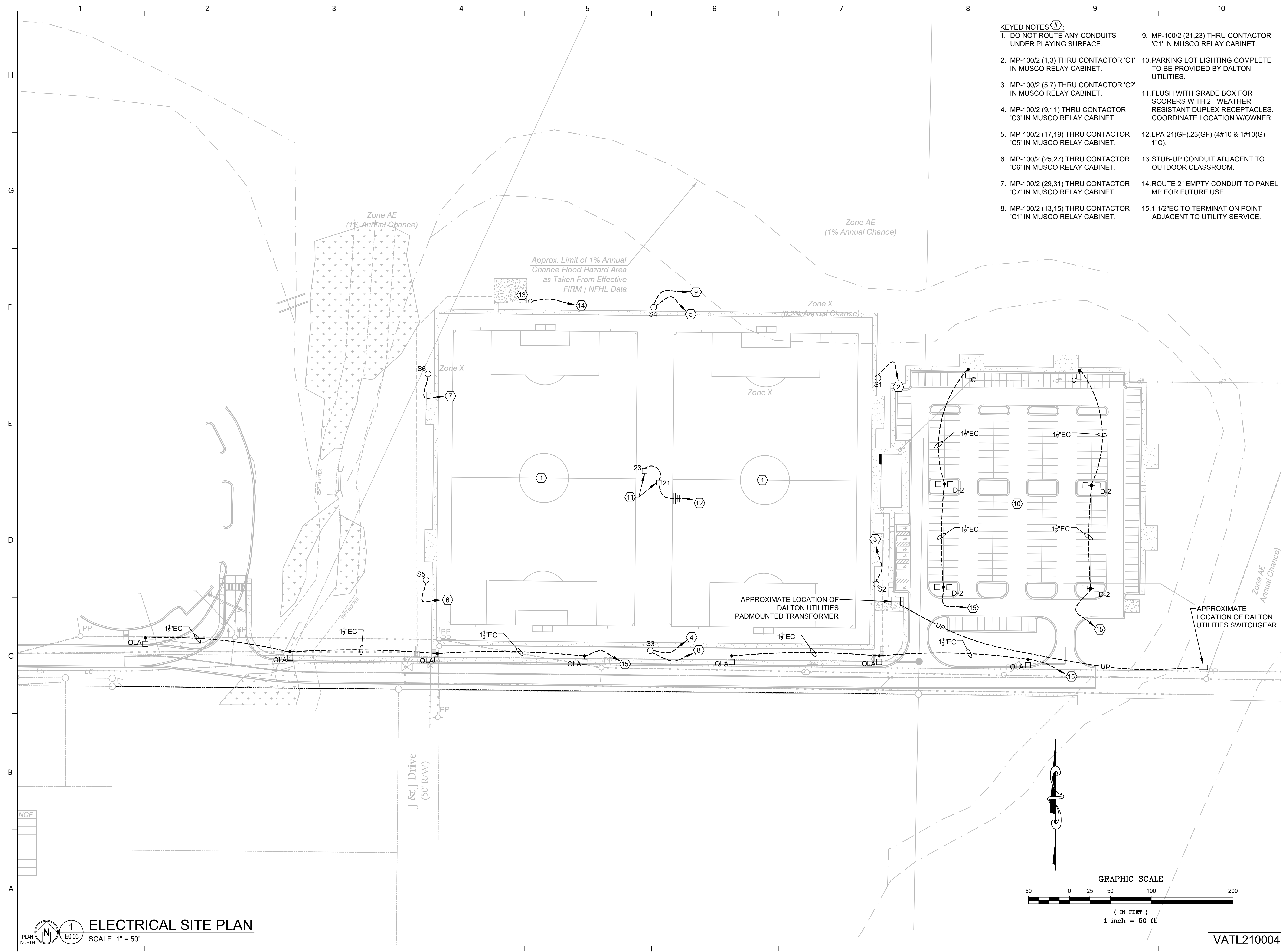
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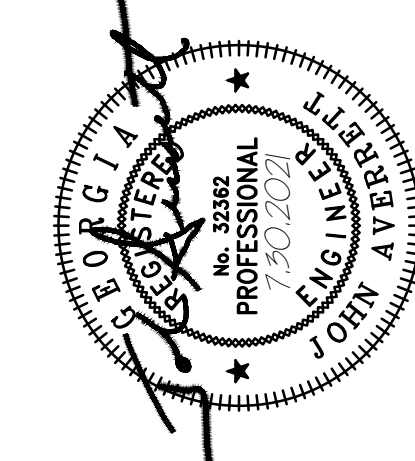
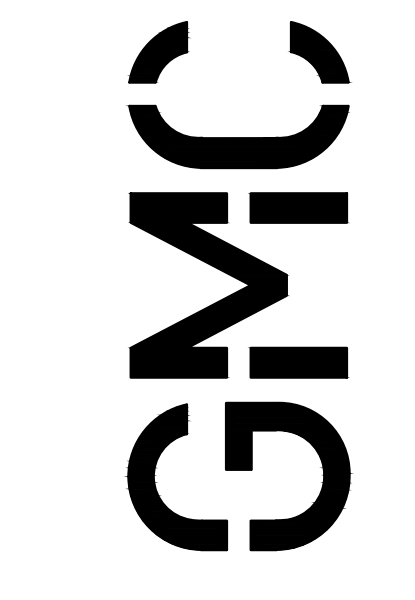


- KEYED NOTES (#):**
- DO NOT ROUTE ANY CONDUITS UNDER PLAYING SURFACE.
 - MP-100/2 (1,3) THRU CONTACTOR 'C1' IN MUSCO RELAY CABINET.
 - MP-100/2 (5,7) THRU CONTACTOR 'C2' IN MUSCO RELAY CABINET.
 - MP-100/2 (9,11) THRU CONTACTOR 'C3' IN MUSCO RELAY CABINET.
 - MP-100/2 (17,19) THRU CONTACTOR 'C5' IN MUSCO RELAY CABINET.
 - MP-100/2 (25,27) THRU CONTACTOR 'C6' IN MUSCO RELAY CABINET.
 - MP-100/2 (29,31) THRU CONTACTOR 'C7' IN MUSCO RELAY CABINET.
 - MP-100/2 (13,15) THRU CONTACTOR 'C1' IN MUSCO RELAY CABINET.
 - MP-100/2 (21,23) THRU CONTACTOR 'C1' IN MUSCO RELAY CABINET.
 - PARKING LOT LIGHTING COMPLETE TO BE PROVIDED BY DALTON UTILITIES.
 - FLUSH WITH GRADE BOX FOR SCORERS WITH 2 - WEATHER RESISTANT DUPLEX RECEPTACLES. COORDINATE LOCATION W/OWNER.
 - LPA-21(GF).23(GF) (4#10 & 1#10(G)-1\"C).
 - STUB-UP CONDUIT ADJACENT TO OUTDOOR CLASSROOM.
 - ROUTE 2\" EMPTY CONDUIT TO PANEL MP FOR FUTURE USE.
 - 1 1/2\" EC TO TERMINATION POINT ADJACENT TO UTILITY SERVICE.

ELECTRICAL SITE PLAN
NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
 HALF BOWEN DRIVE, DALTON, GA

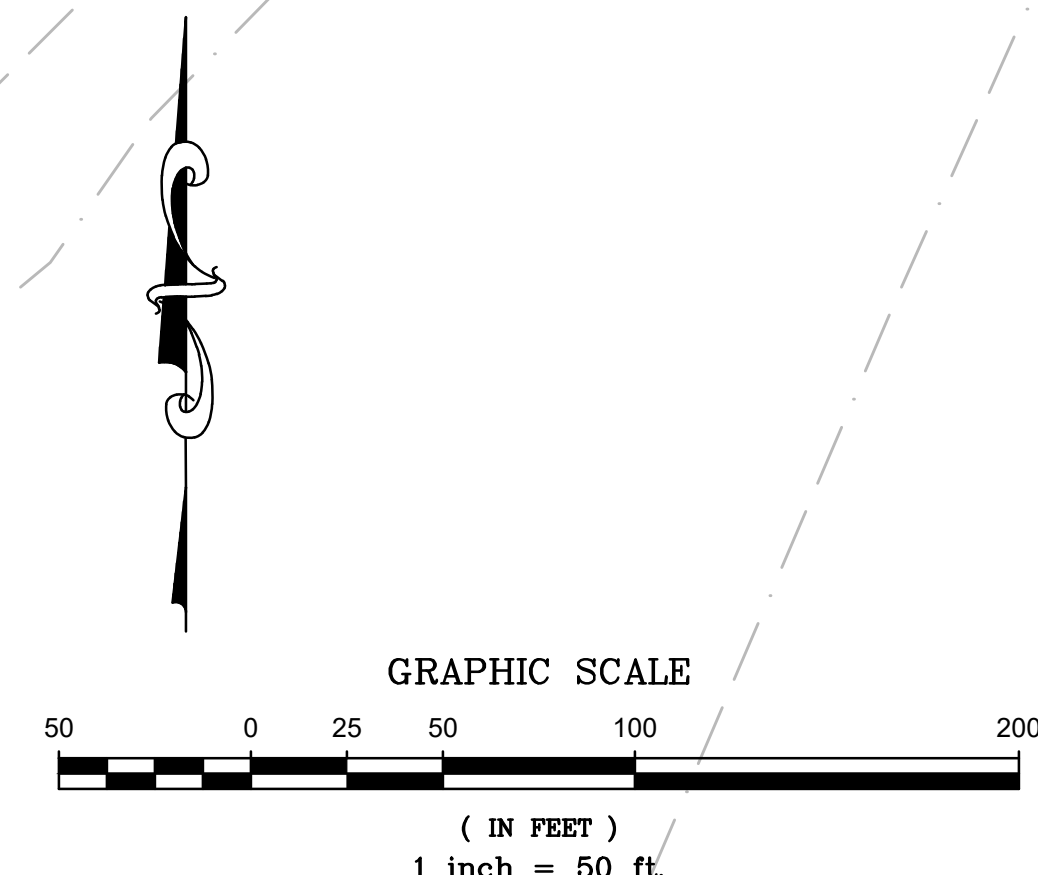
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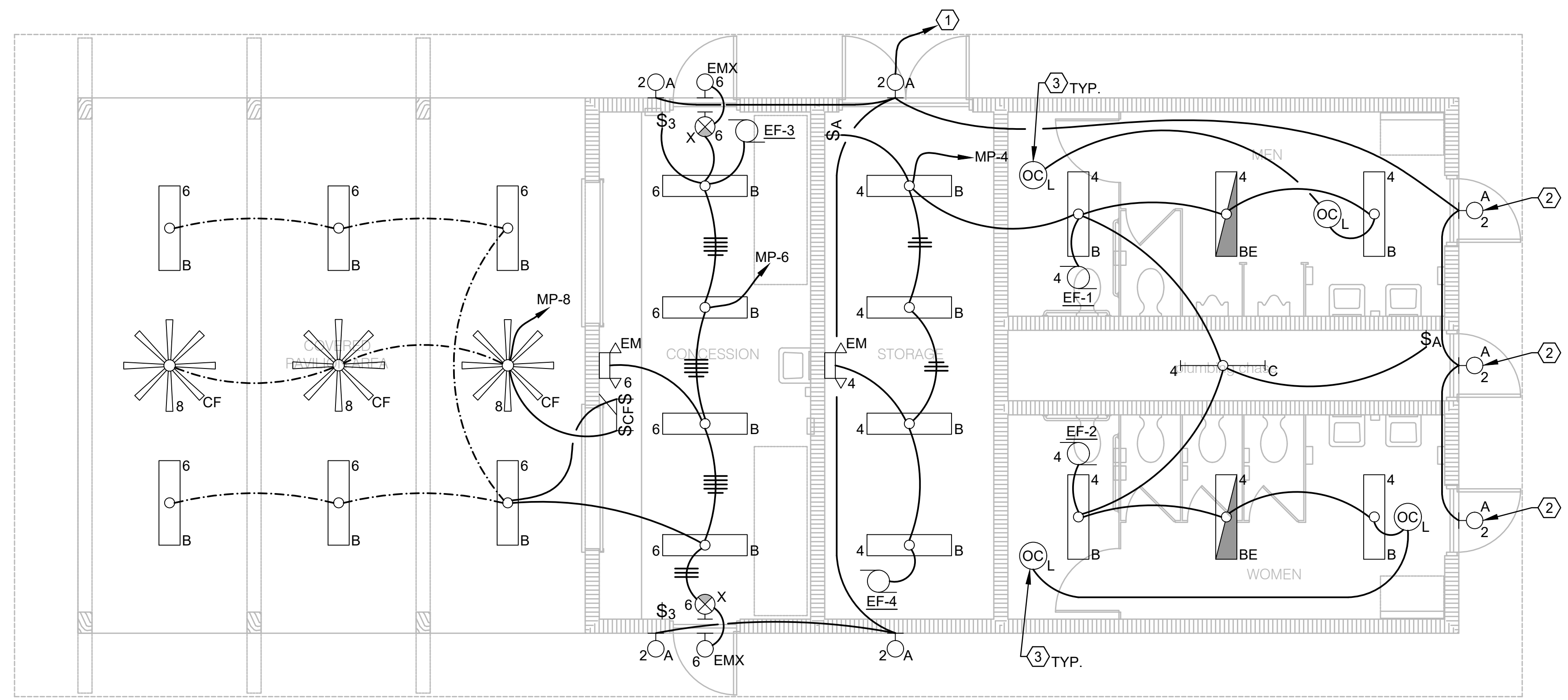
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ELECTRICAL SITE PLAN
 SCALE: 1" = 50'
 PLAN NORTH

- KEYED NOTES** #/
1. MP-2 THRU PHOTO-CELL.
 2. MOUNT ON CENTERLINE OF DOOR WITH BOTTOM OF FIXTURE 9" ABOVE TOP OF FRAME.
 3. INTERLOCK LINE VOLTAGE OCCUPANCY SENSORS SO THAT UNITS FUNCTION AS ONE TO CONTROL 'ON-OFF' OPERATION OF LIGHTING.



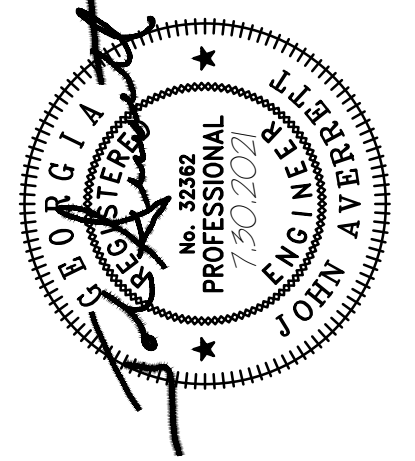
LIGHTING PLAN
 SCALE: 1/4"=1'-0"

VATL210004

**NORTHEAST COMMUNITY
 COMPLEX SOCCER FIELDS**
 HALE BOWEN DRIVE, DALTON, GA

ISSUE	DATE
PERMIT SET	6/21/2021
COUNTY COMMENTS	8/02/2021
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DRAWN BY:	JMP
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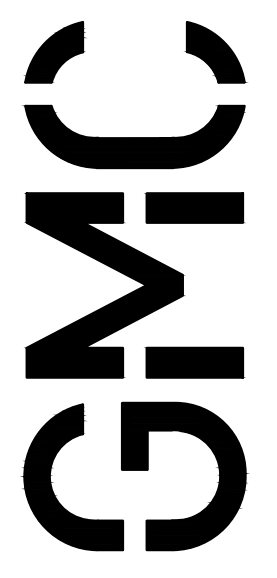
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LIGHTING PLAN

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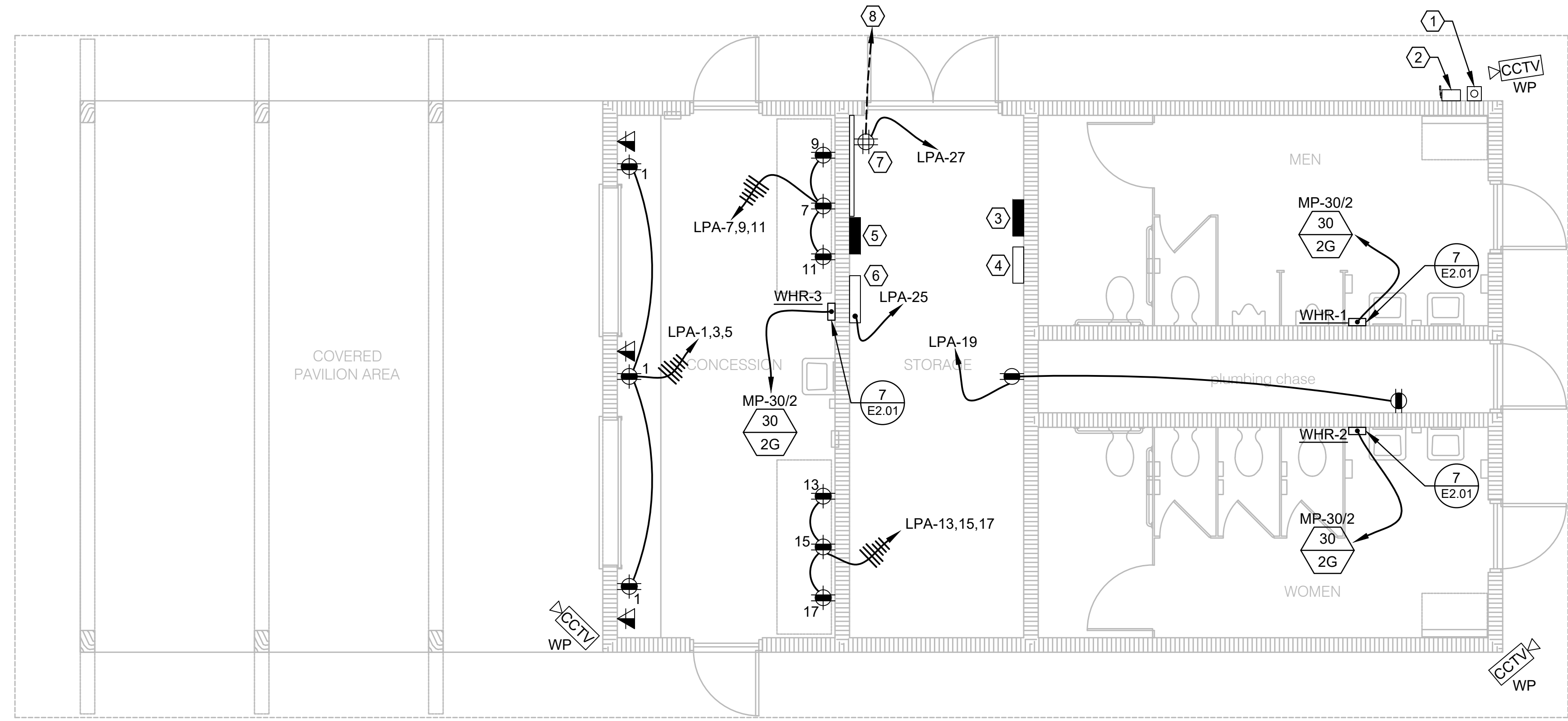
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- KEYED NOTES (#):**
- UTILITY COMPANY METER FURNISHED BY UTILITY CO INSTALLED BY ELECTRICAL CONTRACTOR.
 - SERVICE ENTRANCE DISCONNECT SWITCH - SEE RISER DIAGRAM.
 - PANEL 'MP'.
 - MUSCO RELAY CABINET.
 - PANEL 'LPA'.
 - LIGHTNING PROTECTION SYSTEM VERIFY LOCATION WITH OWNER.
 - TELCOM BACKBOARD SIZE AS SHOWN x 8" HIGH x 3/4" FIRE RETARDANT PLYWOOD, PAINTED W/2 COATS FIRE RETARDANT PAINT BOTH SIDES AND ALL EDGES.
 - ROUTE 3" EMPTY CONDUIT FROM BACKBOARD TO UTILITY TERMINATION POLE - COORDINATE W/LOCAL UTILITY PROVIDER.

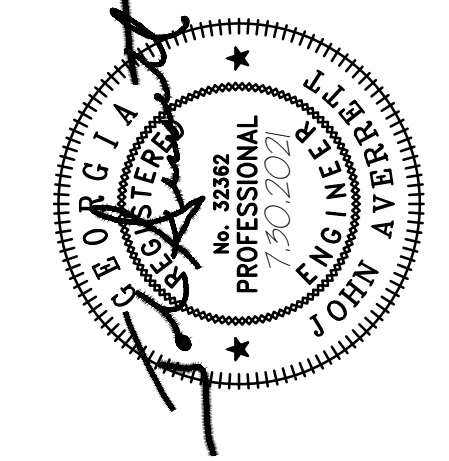


PLAN NORTH 1 E1.02
ELECTRICAL PLAN
 SCALE: 1/4"=1'-0"

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**NORTHEAST COMMUNITY
 COMPLEX SOCCER FIELDS**
 HALE BOWEN DRIVE, DALTON, GA

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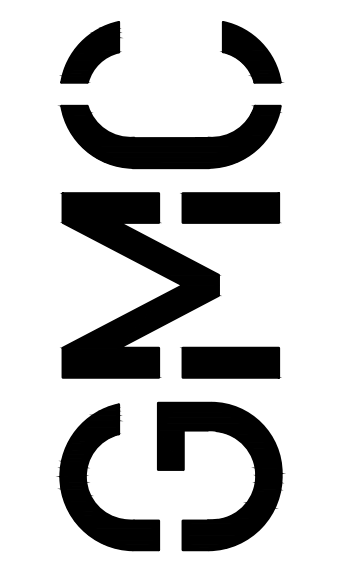


ELECTRICAL PLAN

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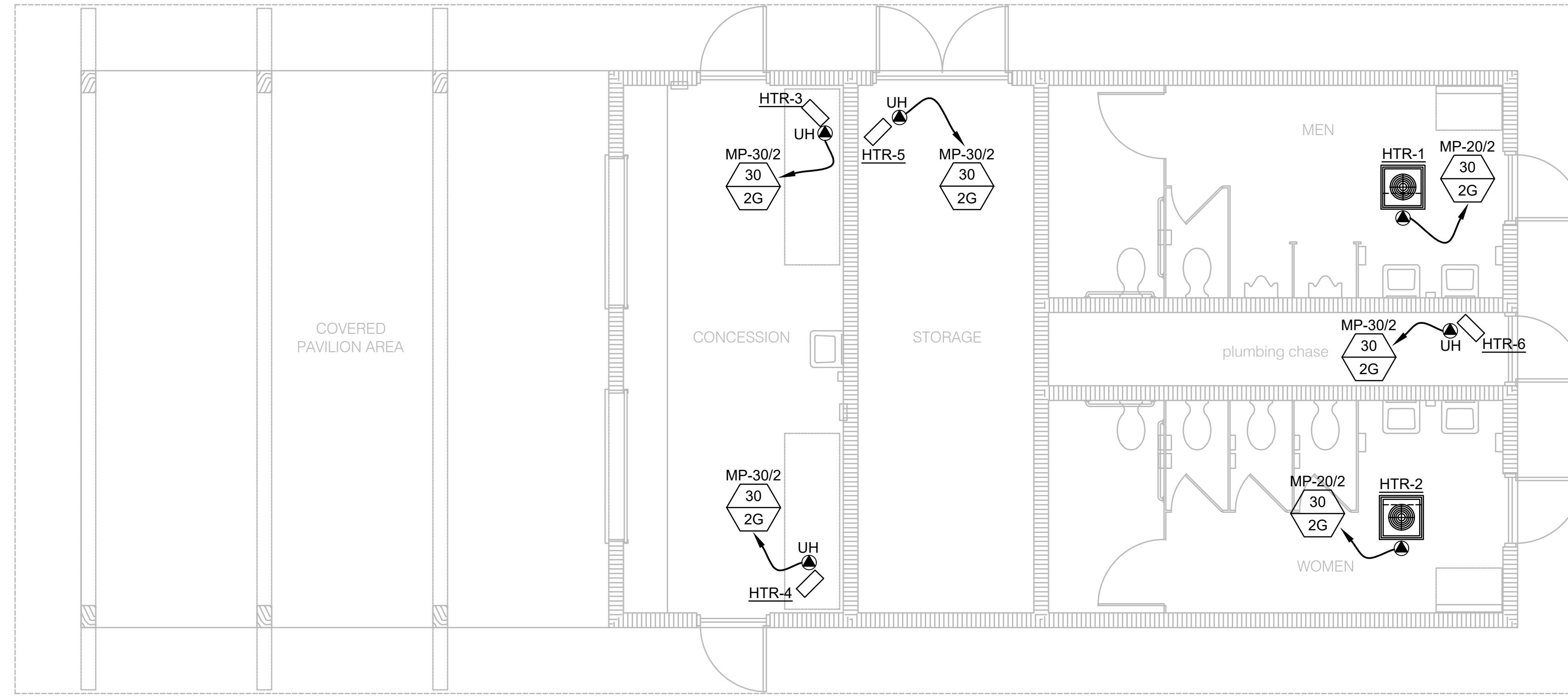
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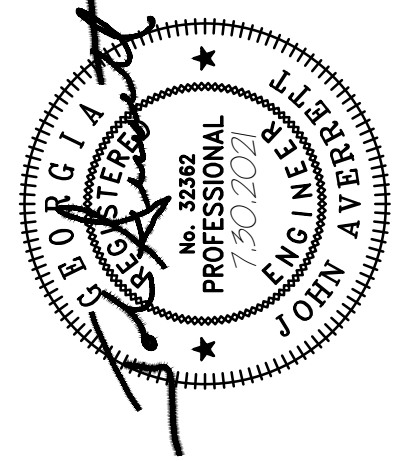


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NORTHEAST COMMUNITY
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 HALE BOWEN DRIVE, DALTON, GA

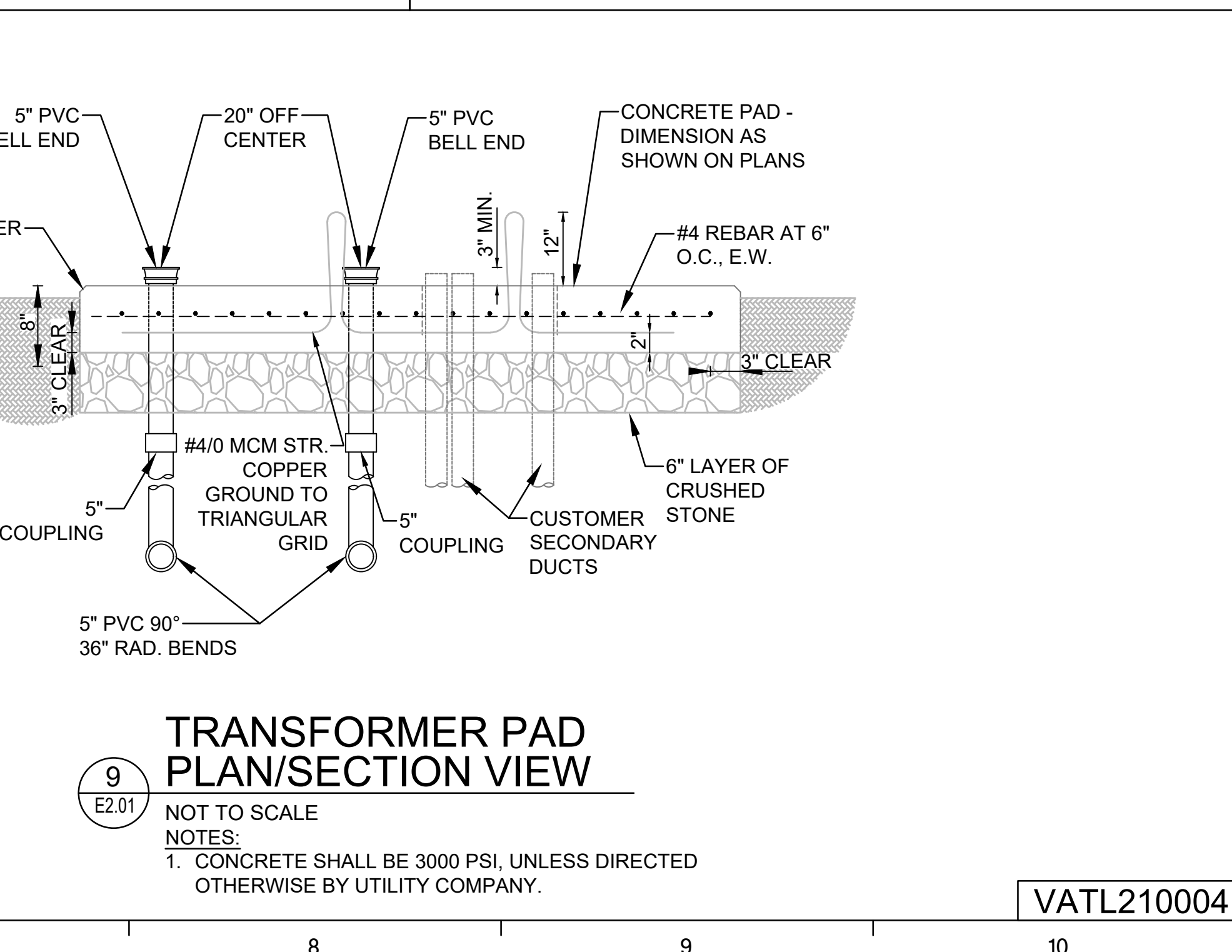
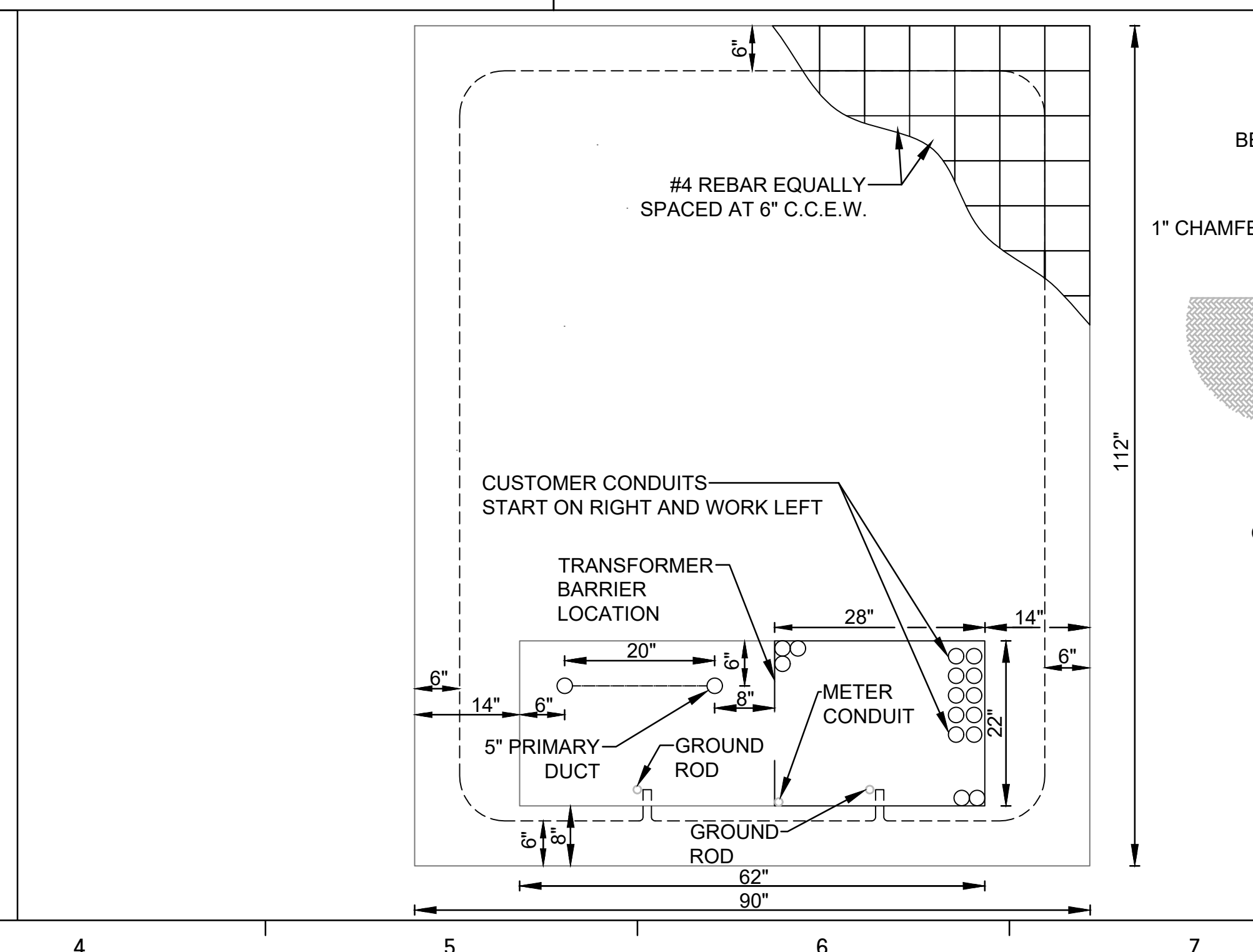
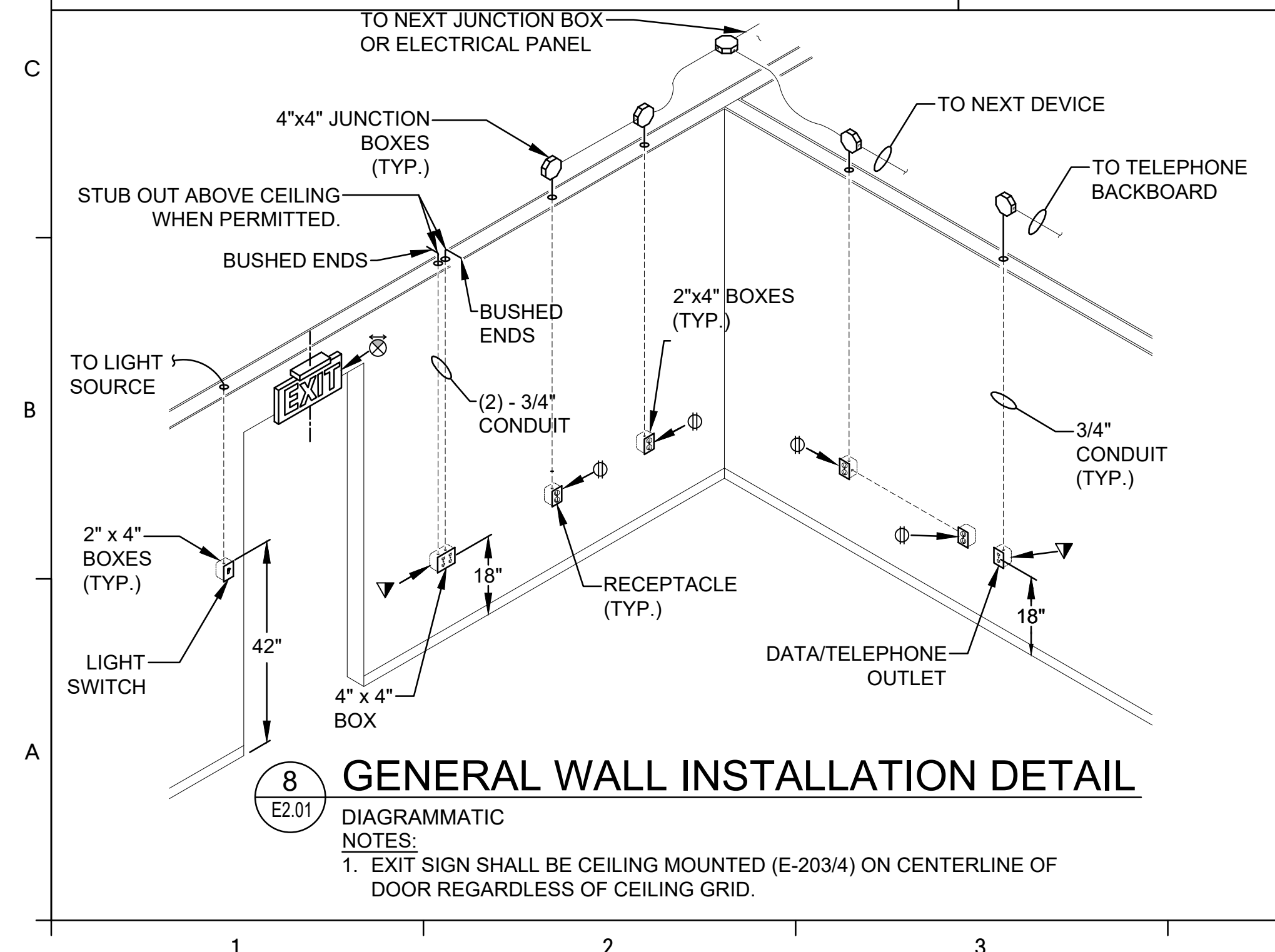
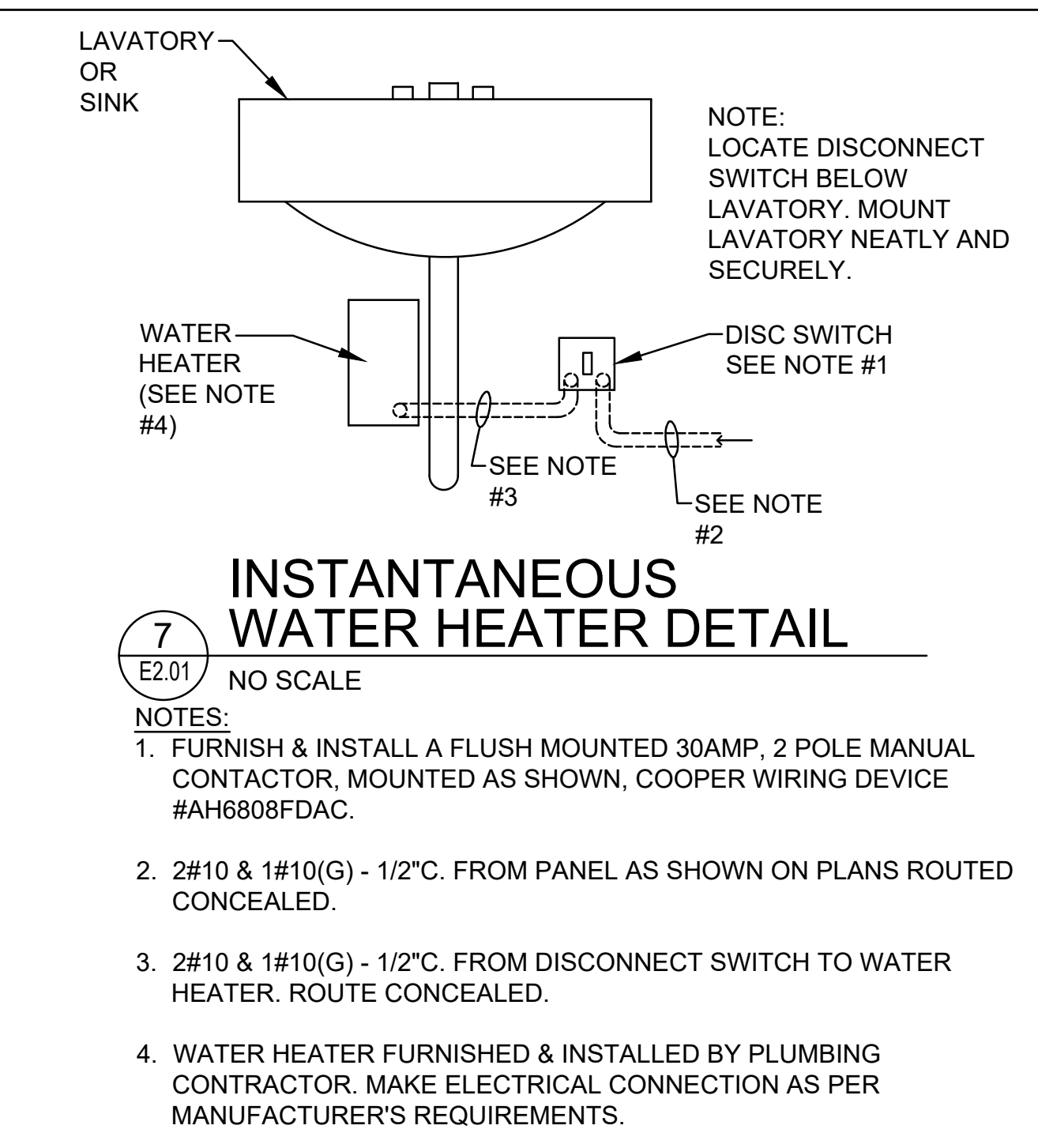
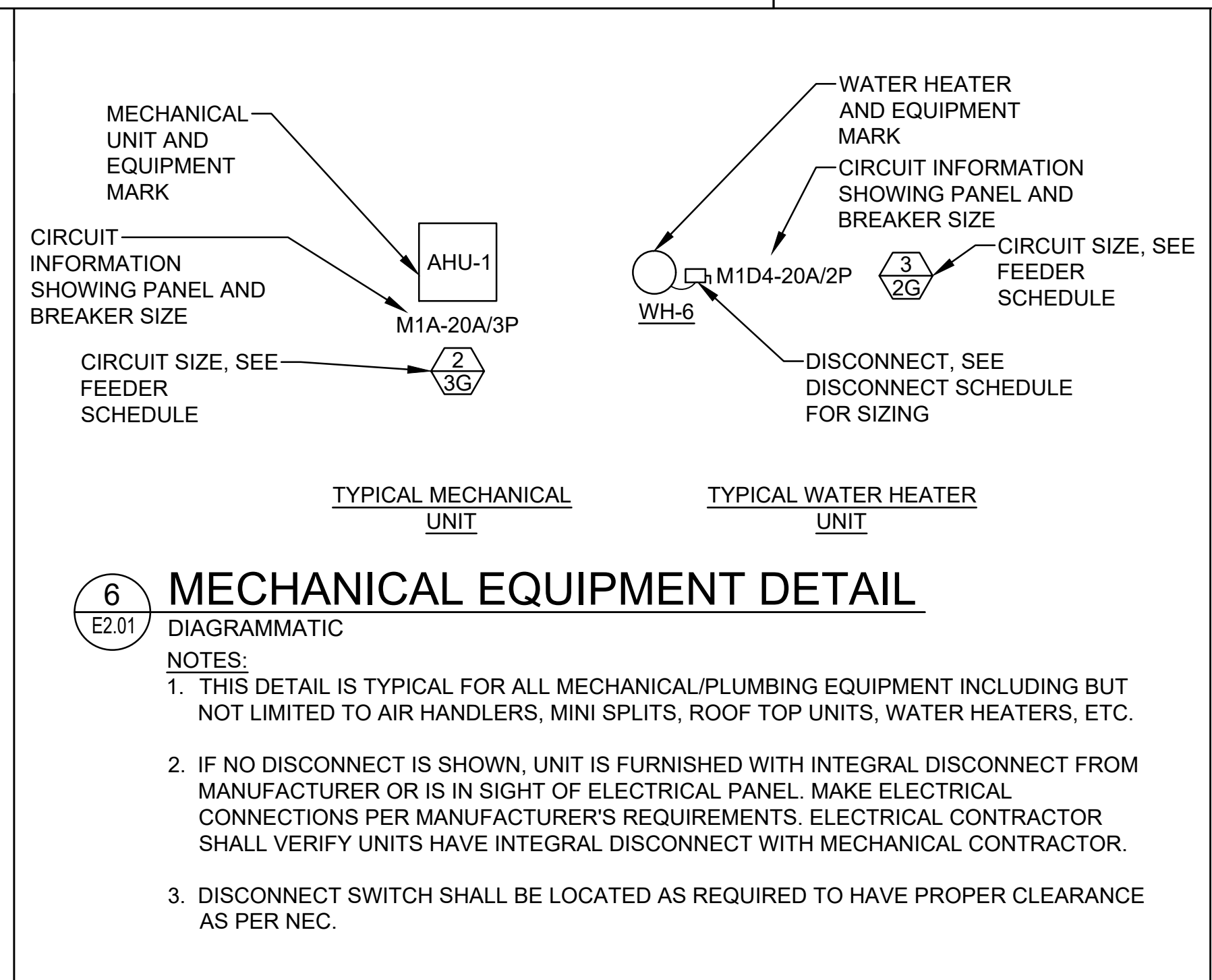
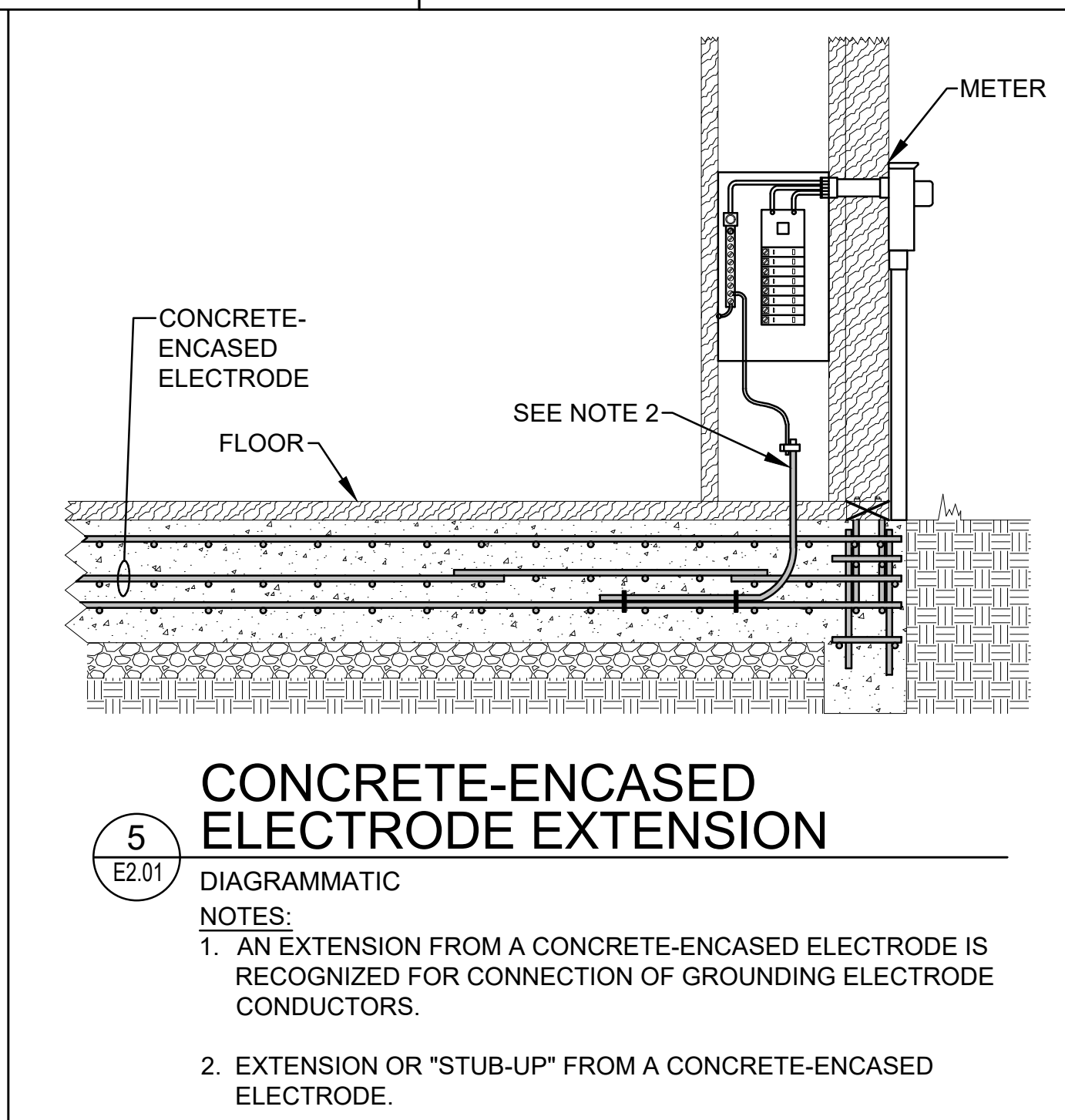
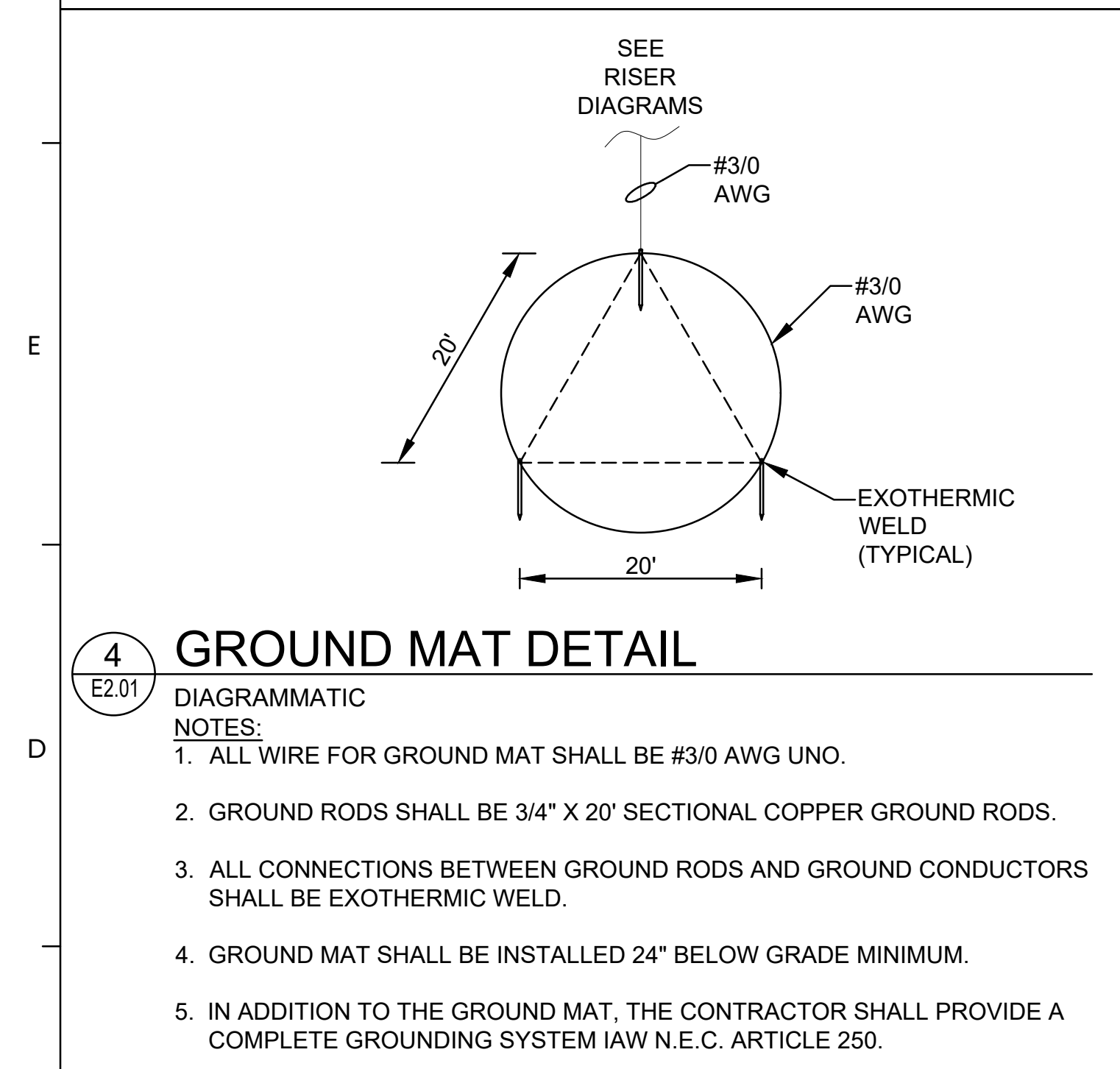
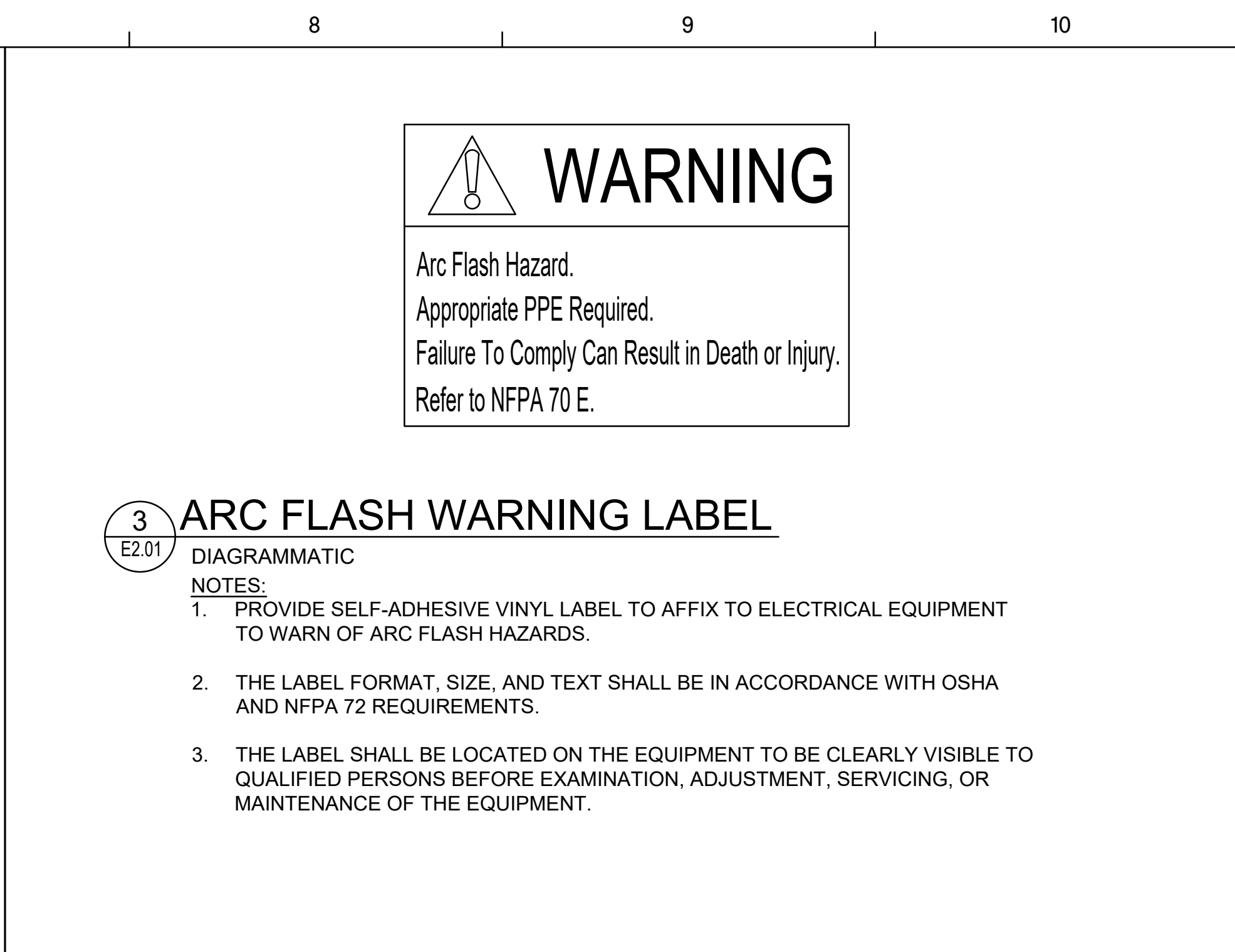
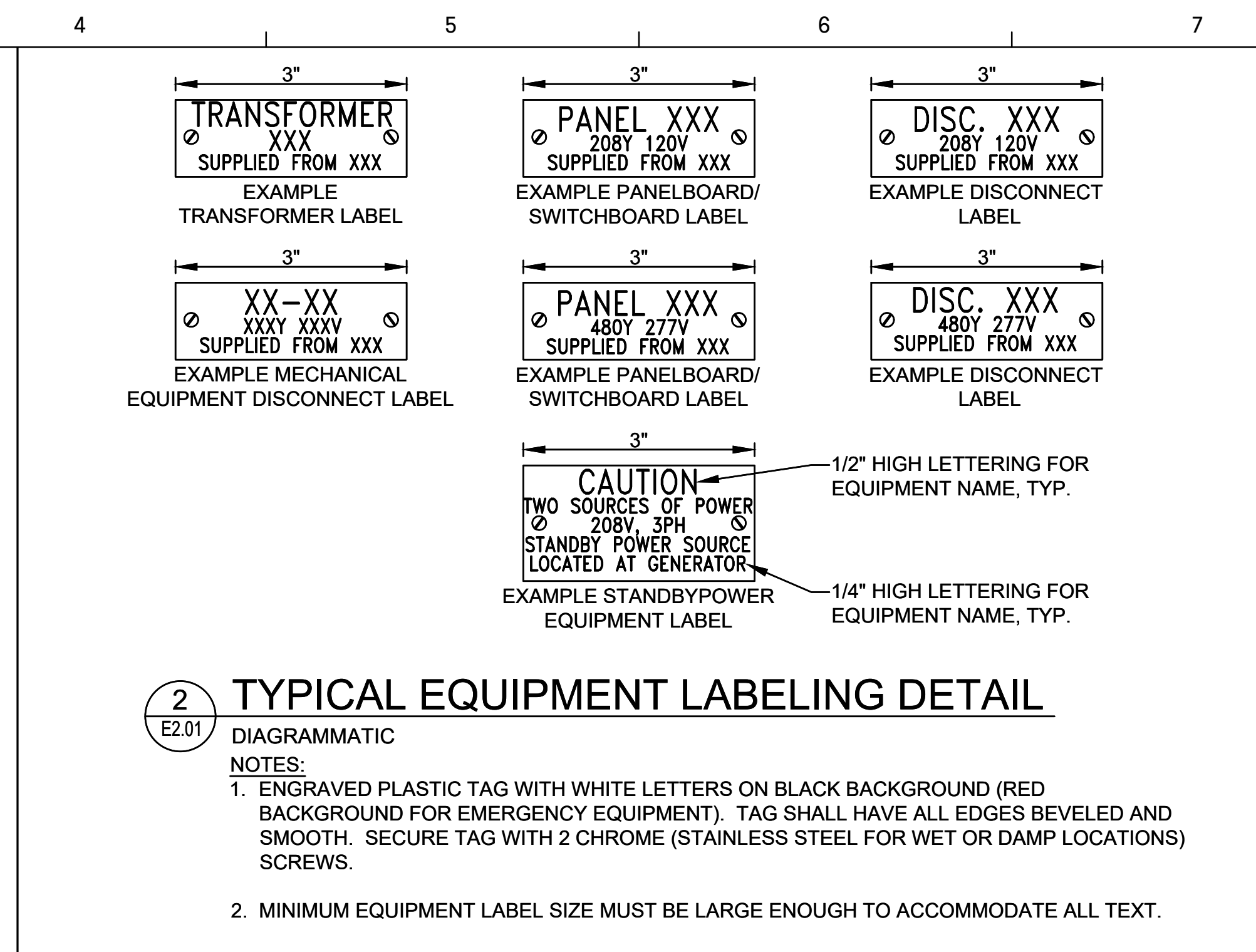
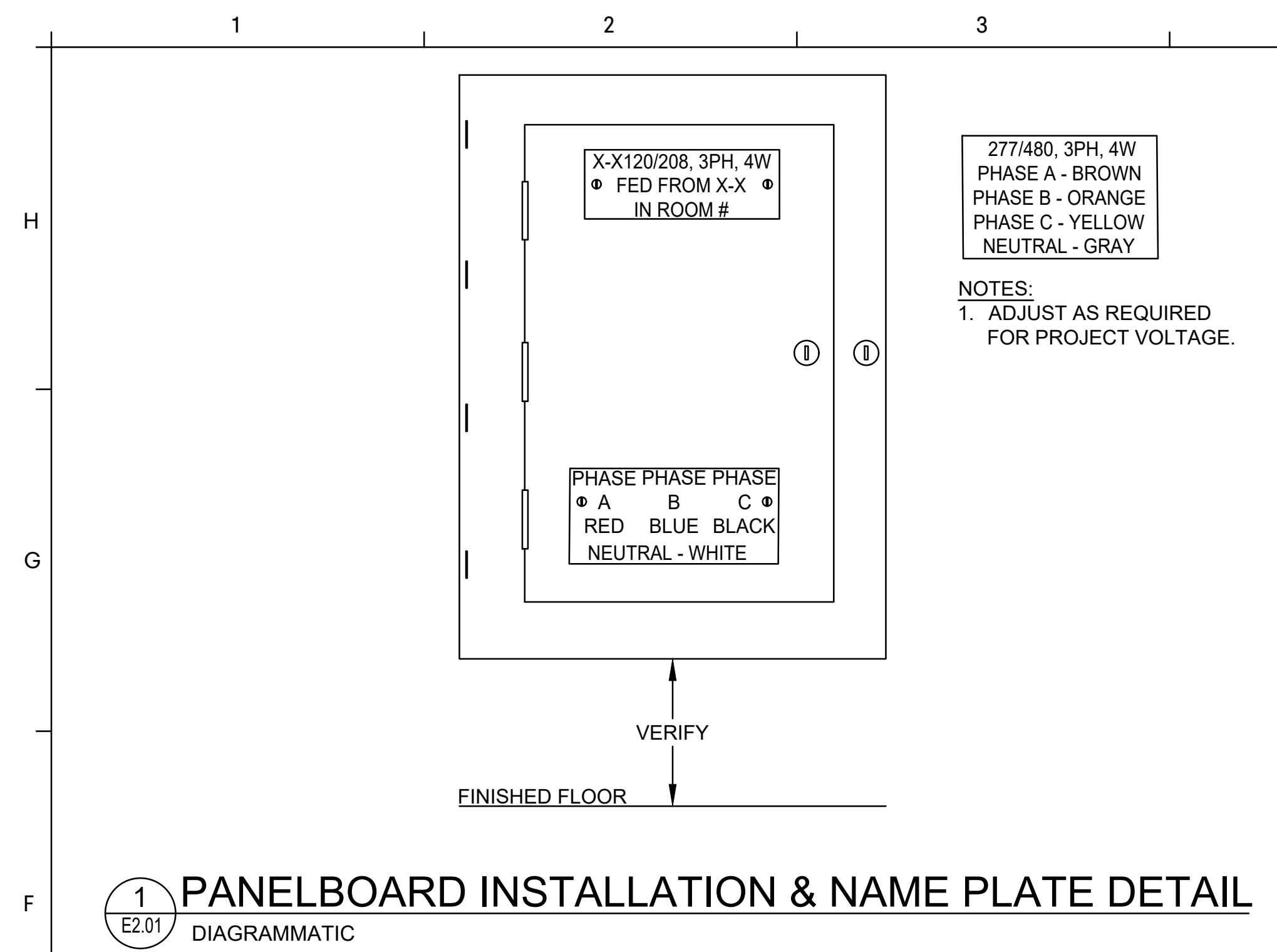
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MECHANICAL
 POWER PLAN

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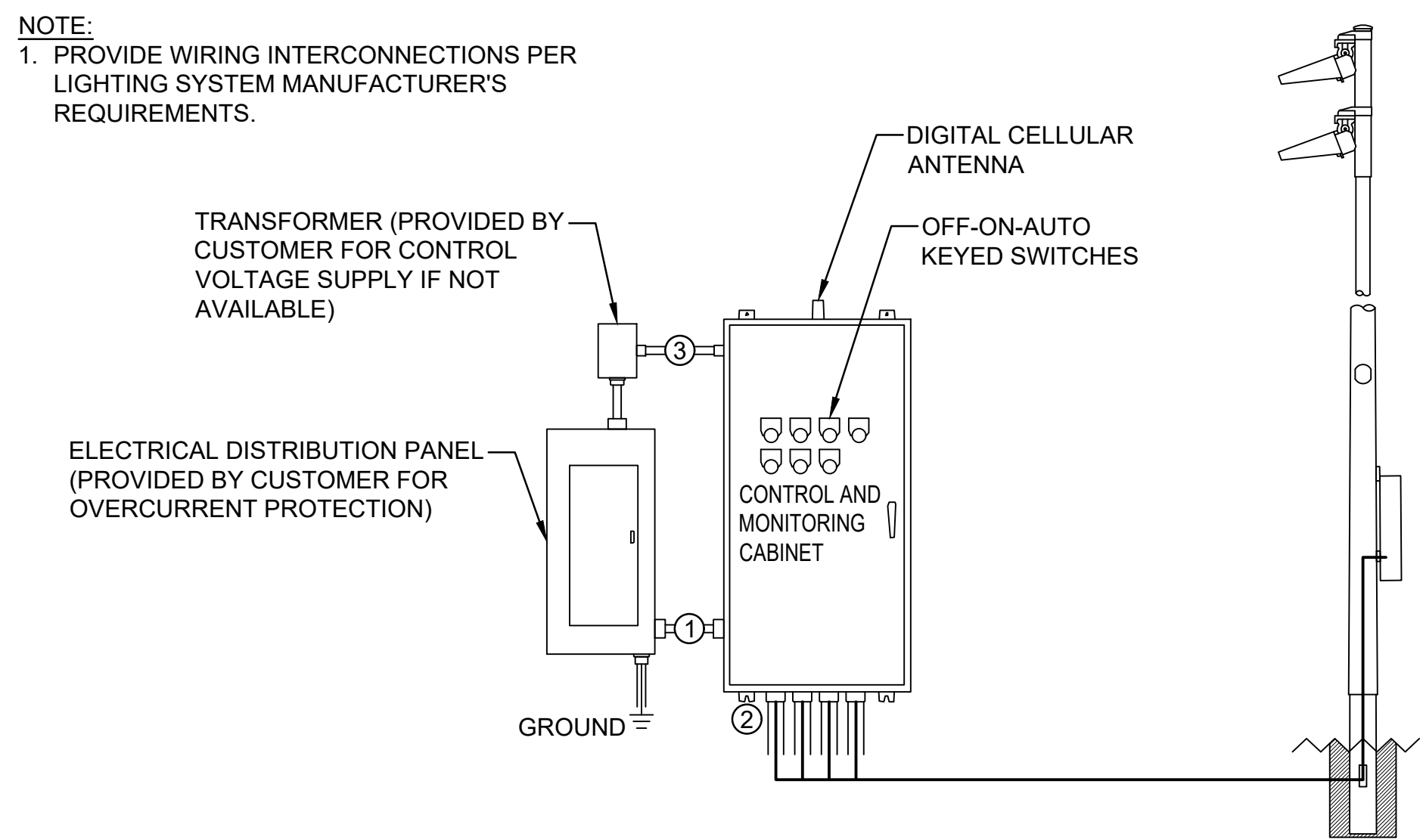
NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

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ELECTRICAL DETAILS

E2.01
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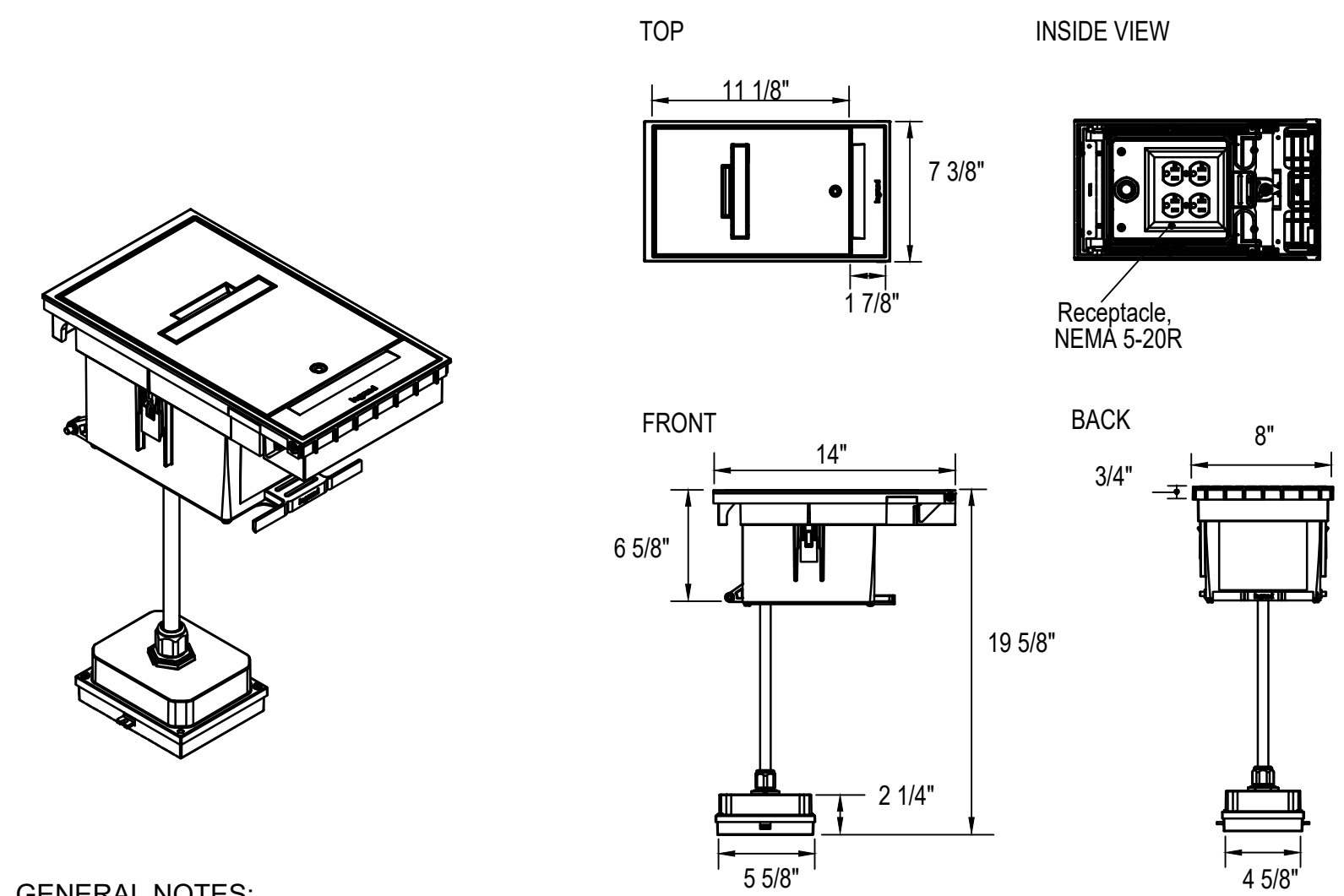
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SOCCER FIELD LIGHTING SYSTEM EQUIPMENT

1
E2.02
DIAGRAMMATIC

- KEYED NOTES:**
1. LINE POWER TO CONTACTORS, AND EQUIPMENT GROUNDING CONDUCTOR.
 2. LOAD POWER TO LIGHTING CIRCUITS, AND EQUIPMENT GROUNDING CONDUCTOR.
 3. CONTROL PANEL (DEDICATED, 20A)

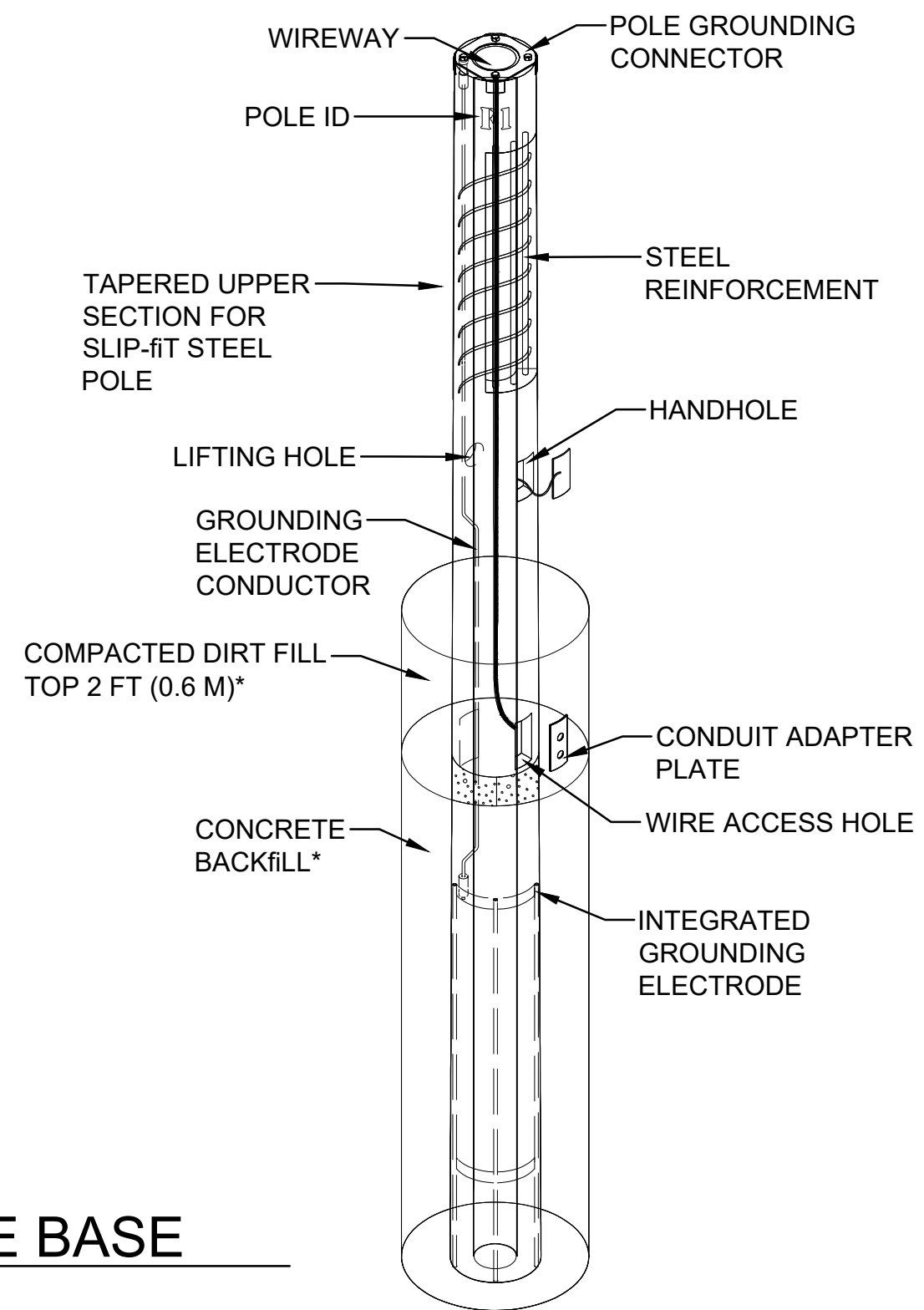


GENERAL NOTES:

1. EXTERIOR BOX COVER ASSEMBLY 5-20R – EXTERIOR BOX COVER ASSEMBLY PREWIRED WITH (2) 20A WEATHER RESISTANT DUPLEX RECEPTACLES. BOTH DUPLEX RECEPTACLES ARE WIRED TOGETHER ON A SINGLE CIRCUIT.
2. GROUND FAULT BREAKER REQUIRED AHEAD OF IN GRADE RECEPTACLE BOX.
3. INSTALL AS PER MANUFACTURER'S REQUIREMENTS.

8
E2.02
DIAGRAMMATIC

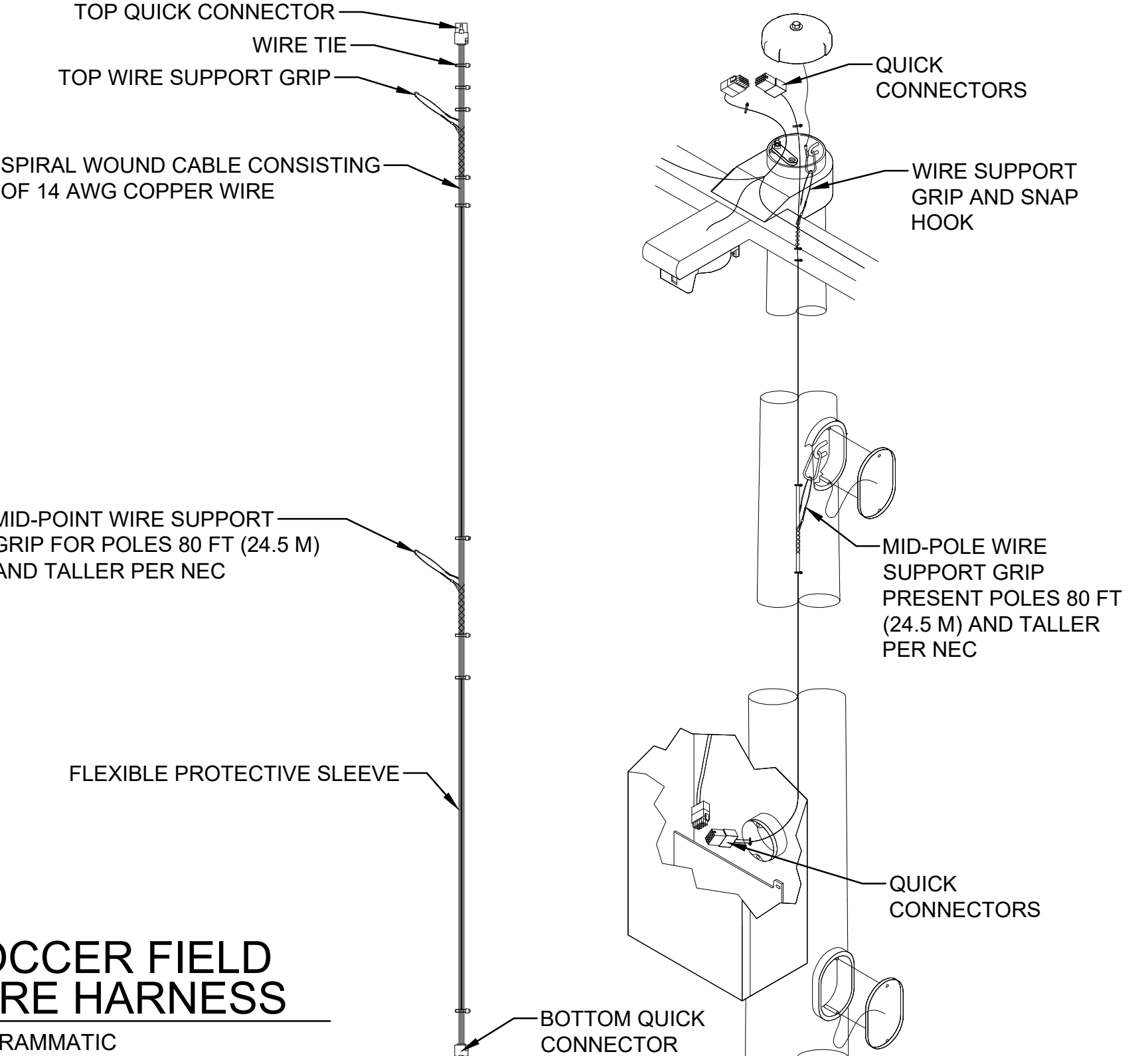
IN GRADE RECEPTACLE BOX DETAIL - XB814C520BN



2
E2.02
DIAGRAMMATIC

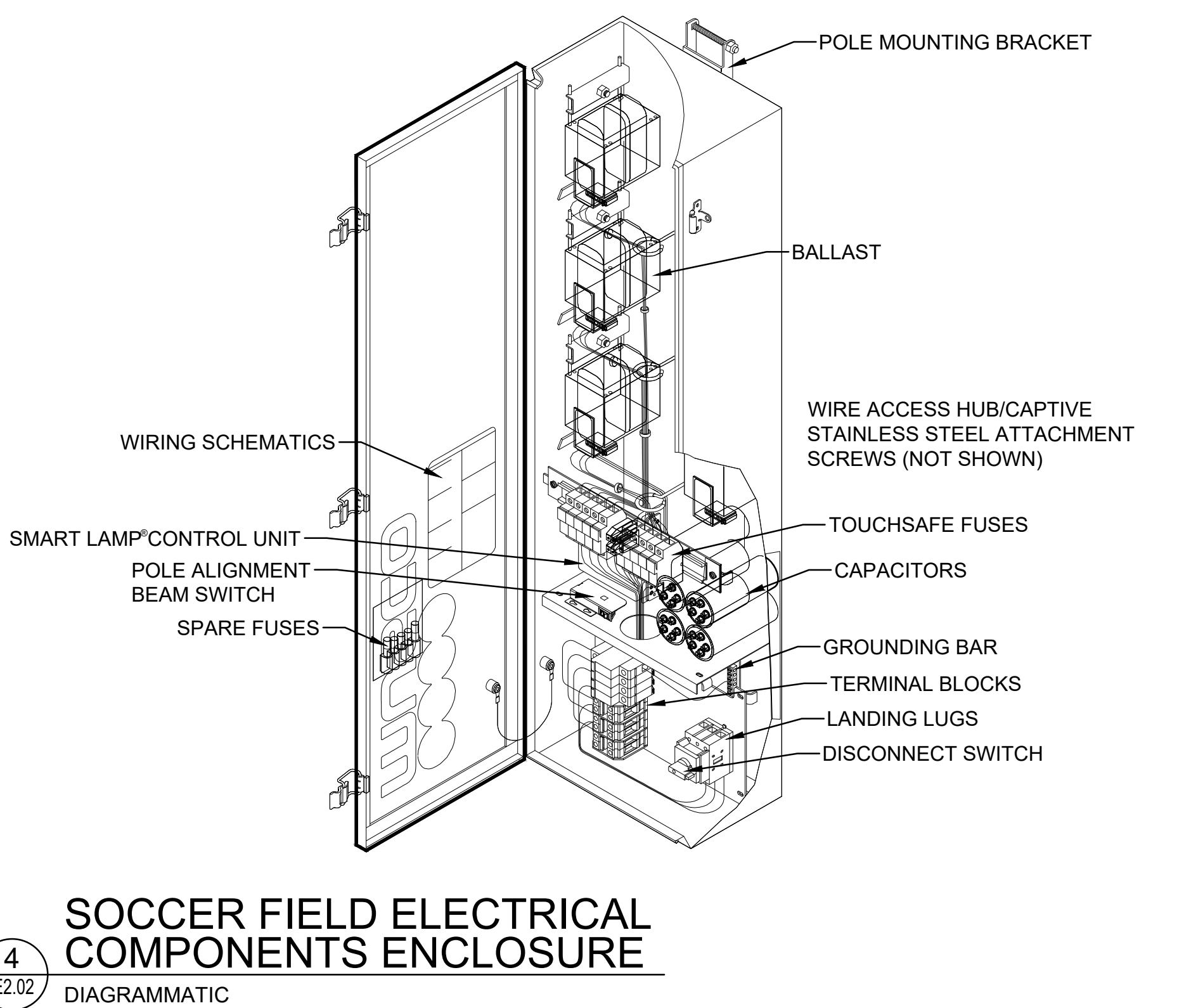
SOCCER FIELD PRECAST CONCRETE BASE

*STANDARD PIER FOUNDATION SHOWN. FOUNDATION AND/OR BACKFILL MAY VARY PER ALTERNATE FOUNDATION DESIGN.



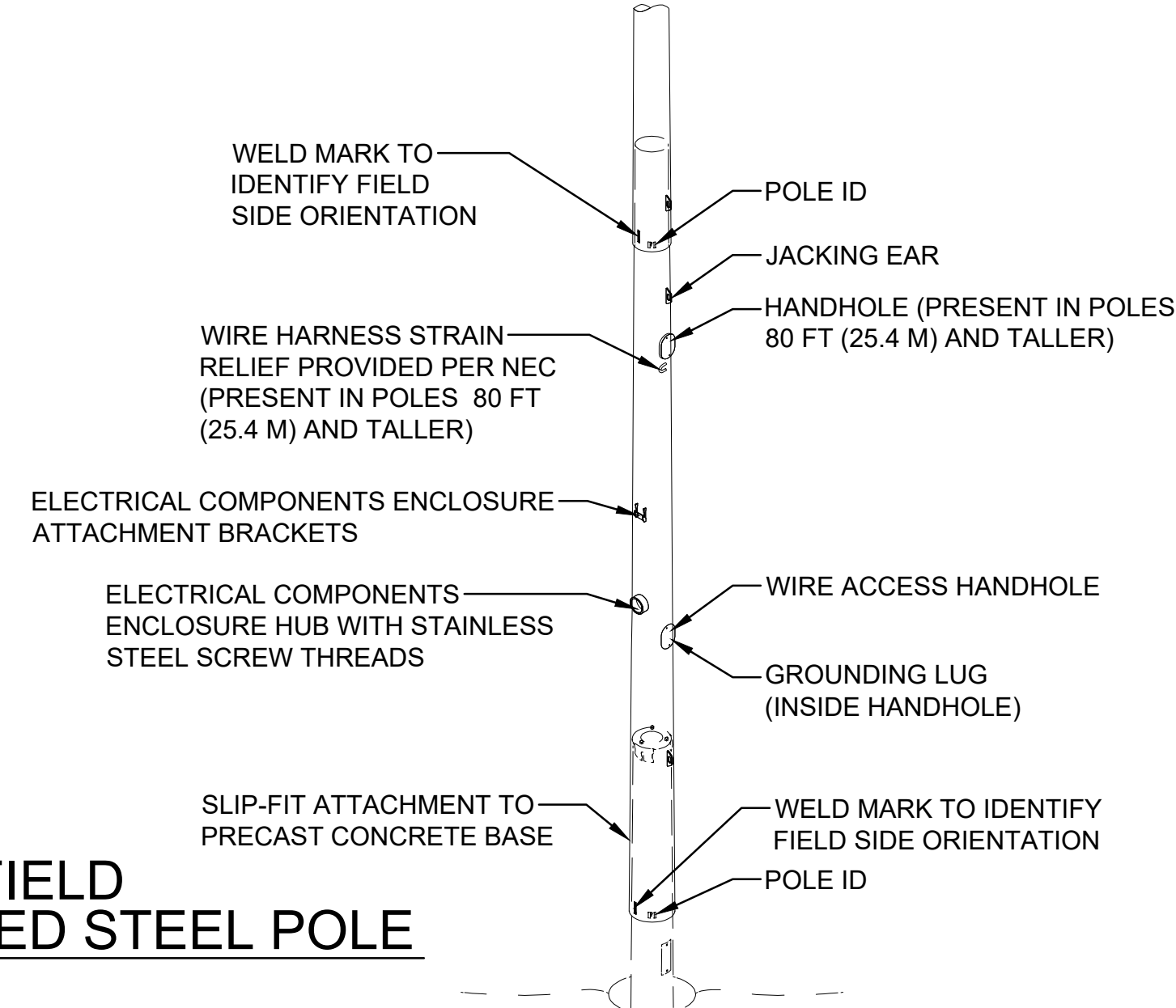
3
E2.02
DIAGRAMMATIC

SOCCER FIELD WIRE HARNESS



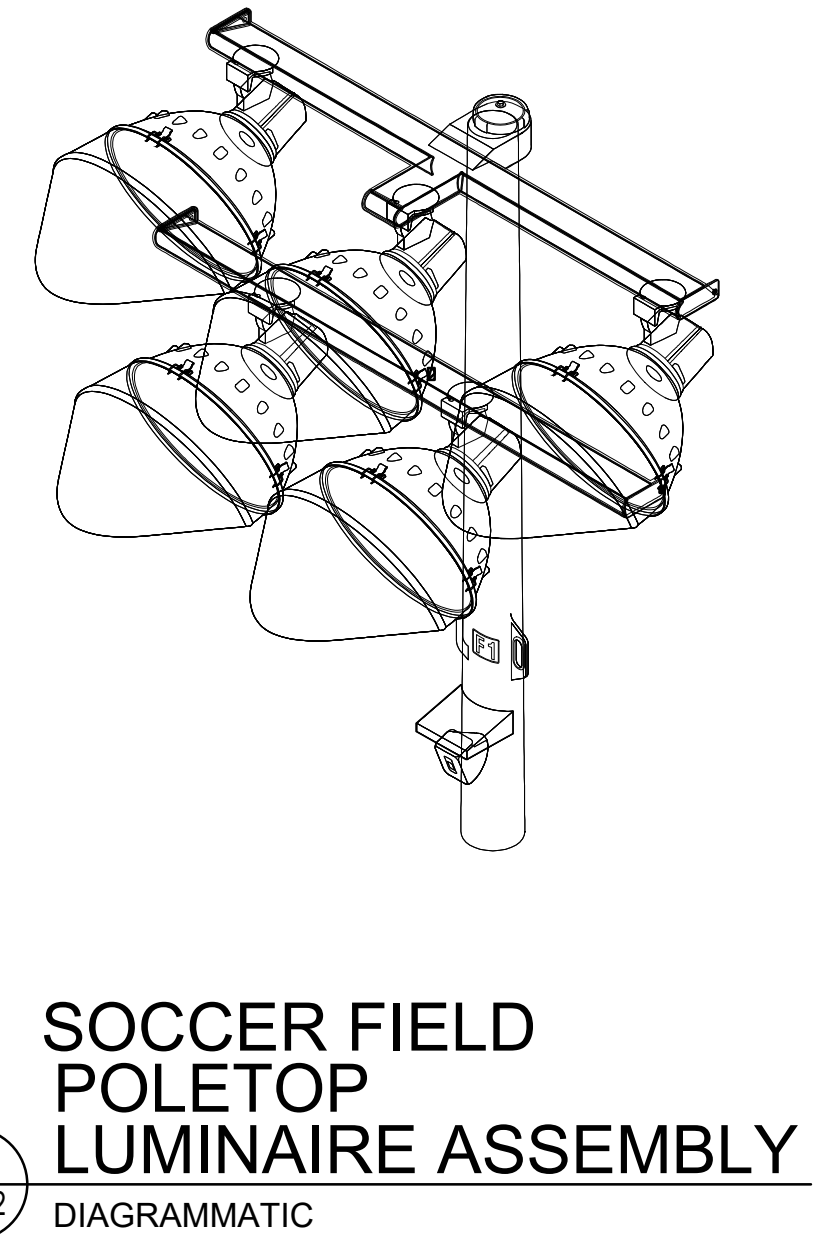
4
E2.02
DIAGRAMMATIC

SOCCER FIELD ELECTRICAL COMPONENTS ENCLOSURE



5
E2.02
DIAGRAMMATIC

SOCCER FIELD GALVANIZED STEEL POLE



6
E2.02
DIAGRAMMATIC

OVERVIEW
THE FACTORY-AIMED POLETOP LUMINAIRE ASSEMBLY IS THE UPPER SECTION OF THE POLE AND SLIP-FITS TOGETHER WITH THE GALVANIZED STEEL POLE.

FEATURES

- LUMINAIRE MOUNTS AND CONNECTS IN A SINGLE STEP
- SLIP-FIT CONNECTION ALLOWS ASSEMBLY WITH COME-ALONGS
- D-SHAPED CROSSARM REDUCES WIND LOADING
- EACH LUMINAIRE IS FACTORY-BUILT, TESTED, AND SHIPS AS A UNIT
- LUMINAIRES ARE FACTORY-AIMED TO TWO-TENTHS DEGREE OF ACCURACY
- ALL LUMINAIRES ARE FACTORY-WIRED TO A QUICK-CONNECT HARNESS FOR EASY INSTALLATION
- LABELS IDENTIFY POLE AND LUMINAIRE LOCATION
- NO EXPOSED WIRING OR CONDUIT
- FACTORY-SET POLE ALIGNMENT BEAM ALLOWS EASY FIELD ALIGNMENT

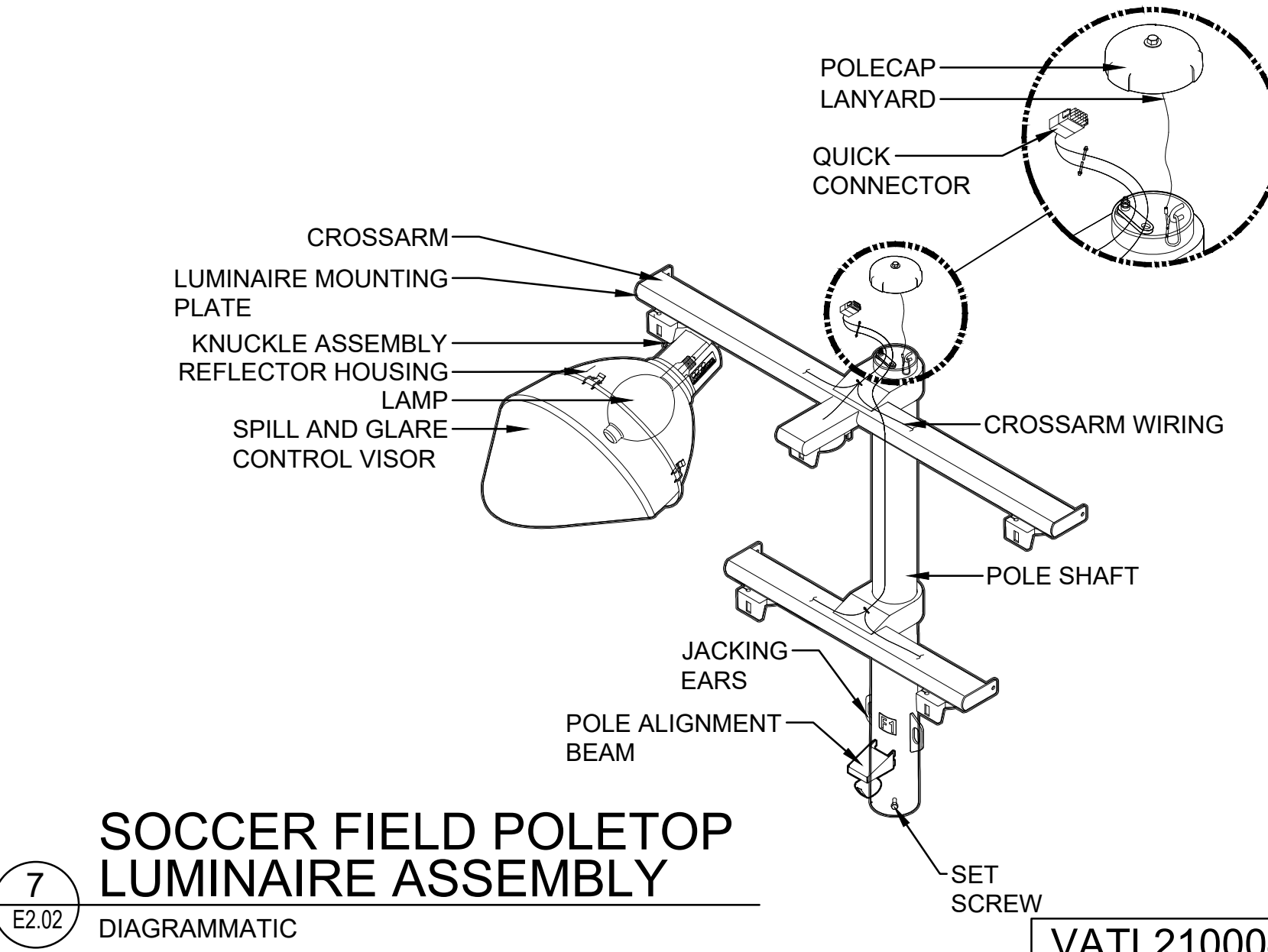
TECHNICAL SPECIFICATIONS

CONSTRUCTION

- CROSSARMS HOT-DIP GALVANIZED AFTER FABRICATION TO ASTM-A123 STANDARDS
- ALL ALUMINUM COMPONENTS POWDER-COATED OR ANODIZED TO MIL-A-8625F
- LUMINAIRE AND KNUCKLE POWDER-COATED DIE-CAST ALUMINUM
- ALL STAINLESS STEEL FASTENERS PASSIVATED AND COATED
- CROSSARMS CONSTRUCTED OF 1/2 INCH WALL THICKNESS STEEL TUBING
- POLECAP ATTACHED WITH STAINLESS STEEL LANYARD AND SECURING BOLT

QUALITY ASSURANCE TESTS

- REFLECTOR PHOTOMETRIC TEST
- LAMP LUMEN OUTPUT
- GALVANIZING THICKNESS
- HIGH POTENTIAL DIELECTRIC WITHSTAND
- ELECTRICAL CONTINUITY



7
E2.02
DIAGRAMMATIC

SOCCER FIELD POLETOP LUMINAIRE ASSEMBLY

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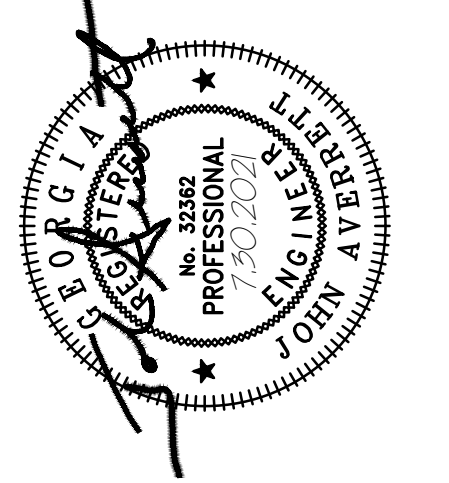


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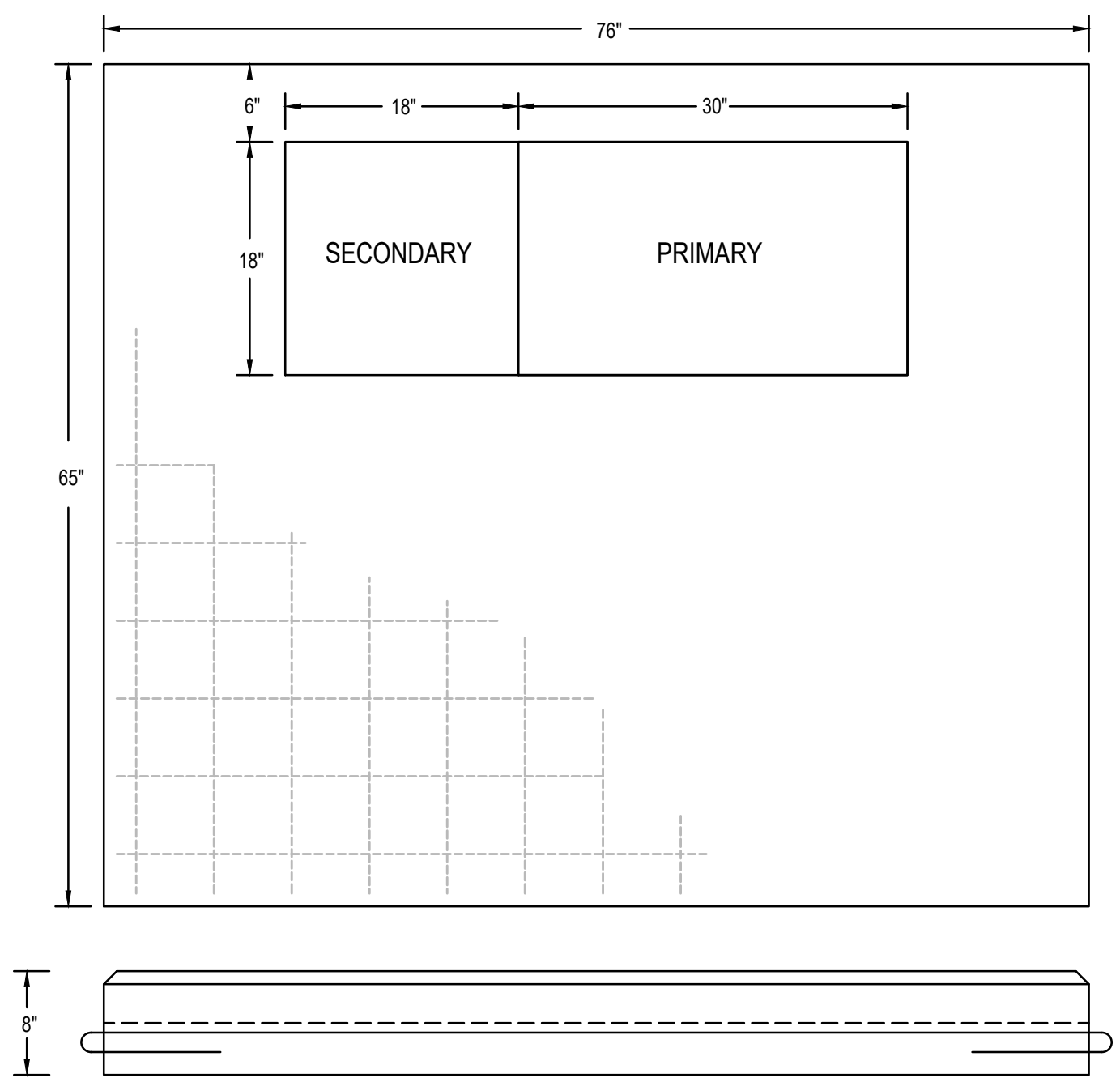
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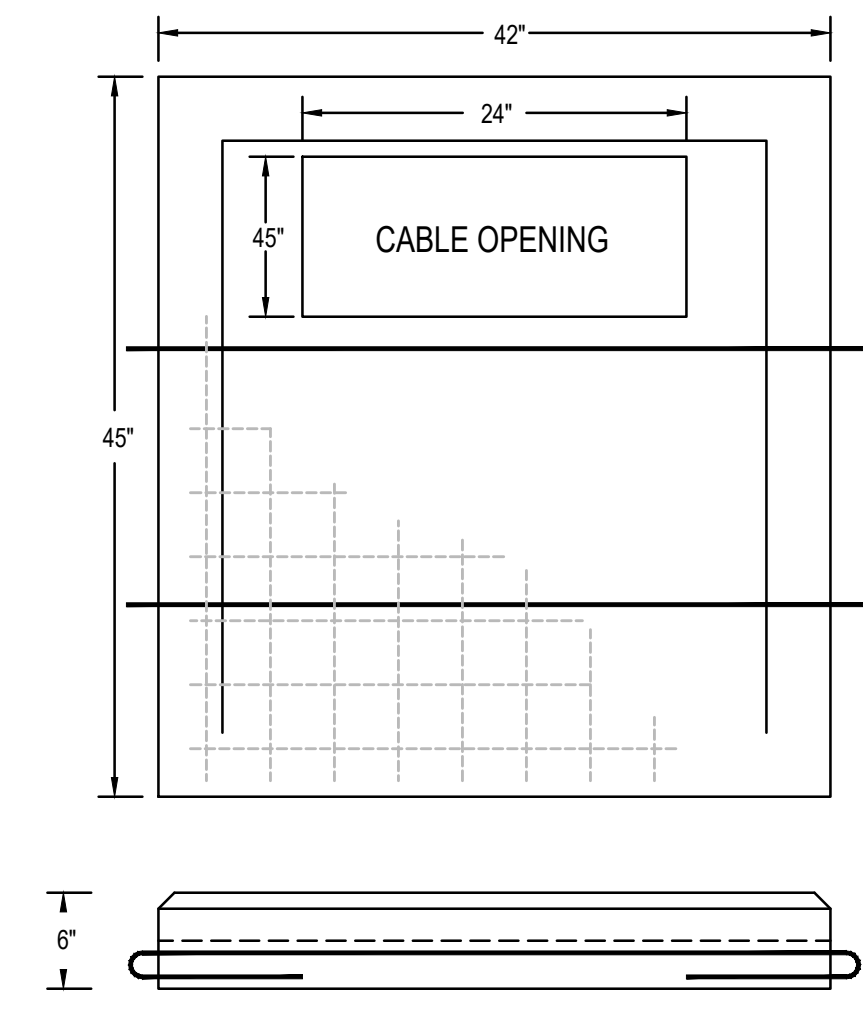
ELECTRICAL DETAILS

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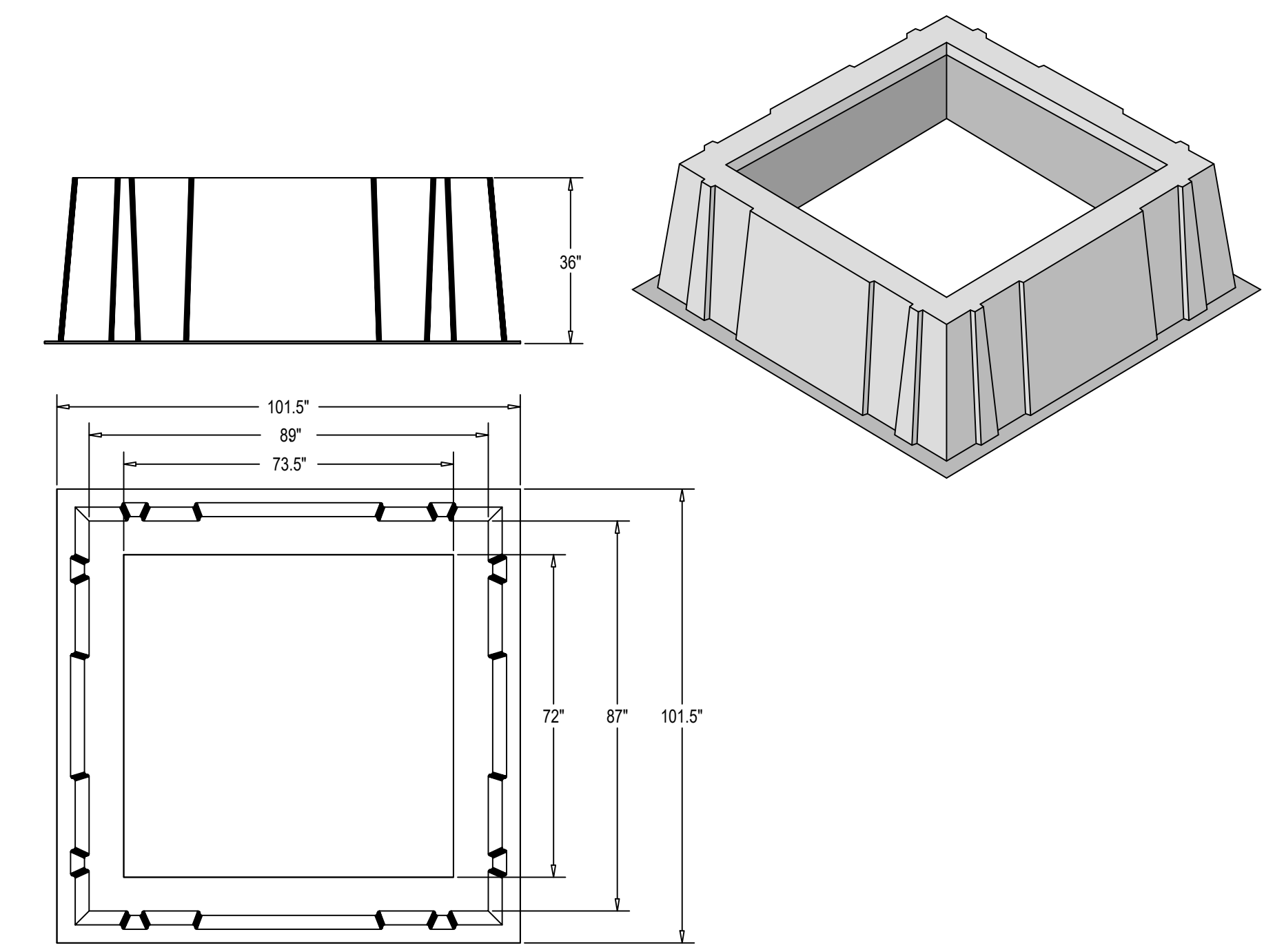
GENERAL NOTE:
1. COORDINATE TRANSFORMER PAD SIZE AND REQUIREMENTS WITH UTILITY COMPANY.

1 76" X 65" TRANSFORMER PAD DETAIL
DIAGRAMMATIC



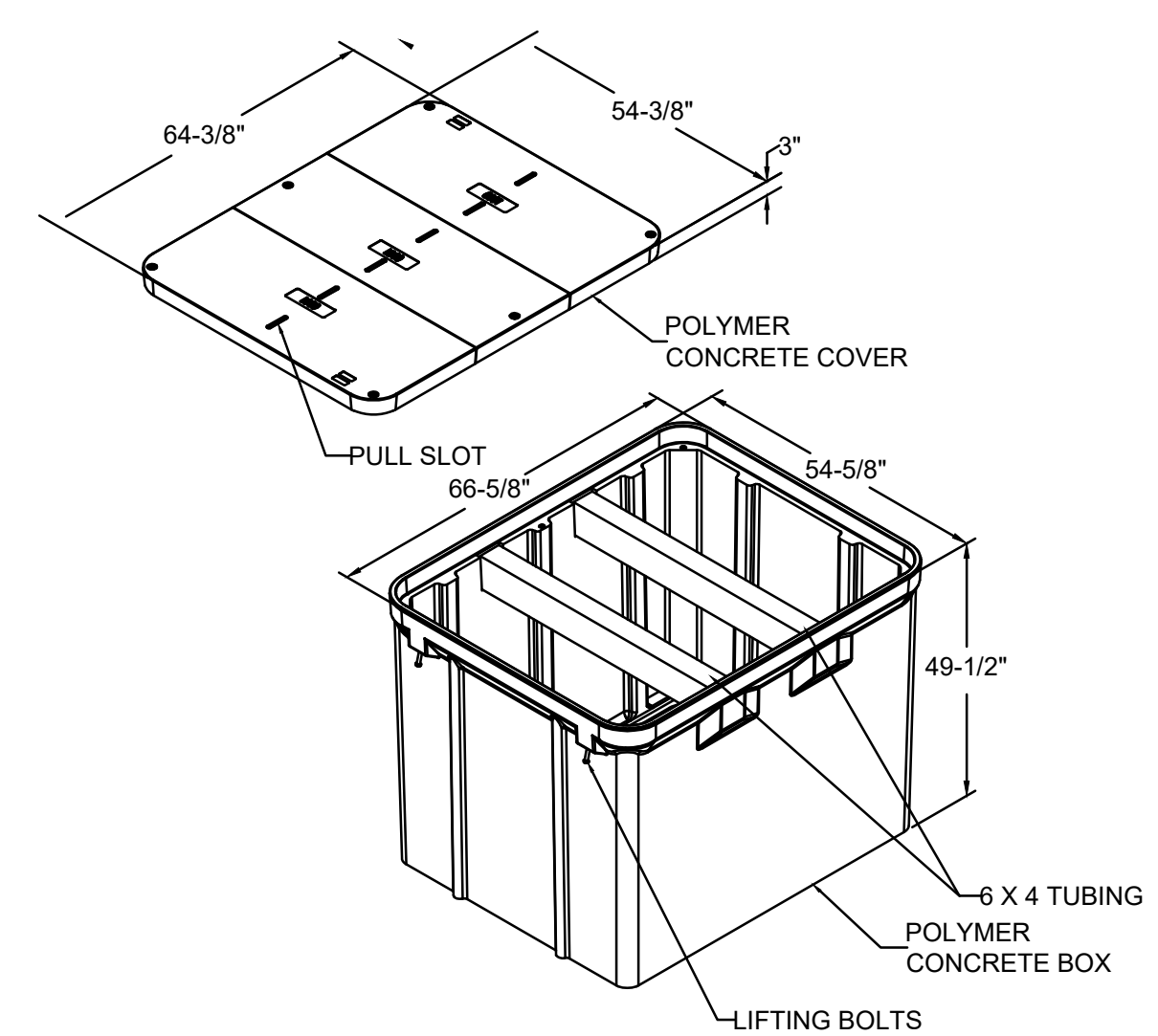
GENERAL NOTE:
1. COORDINATE TRANSFORMER PAD SIZE AND REQUIREMENTS WITH UTILITY COMPANY.

2 42" X 45" TRANSFORMER PAD DETAIL
DIAGRAMMATIC



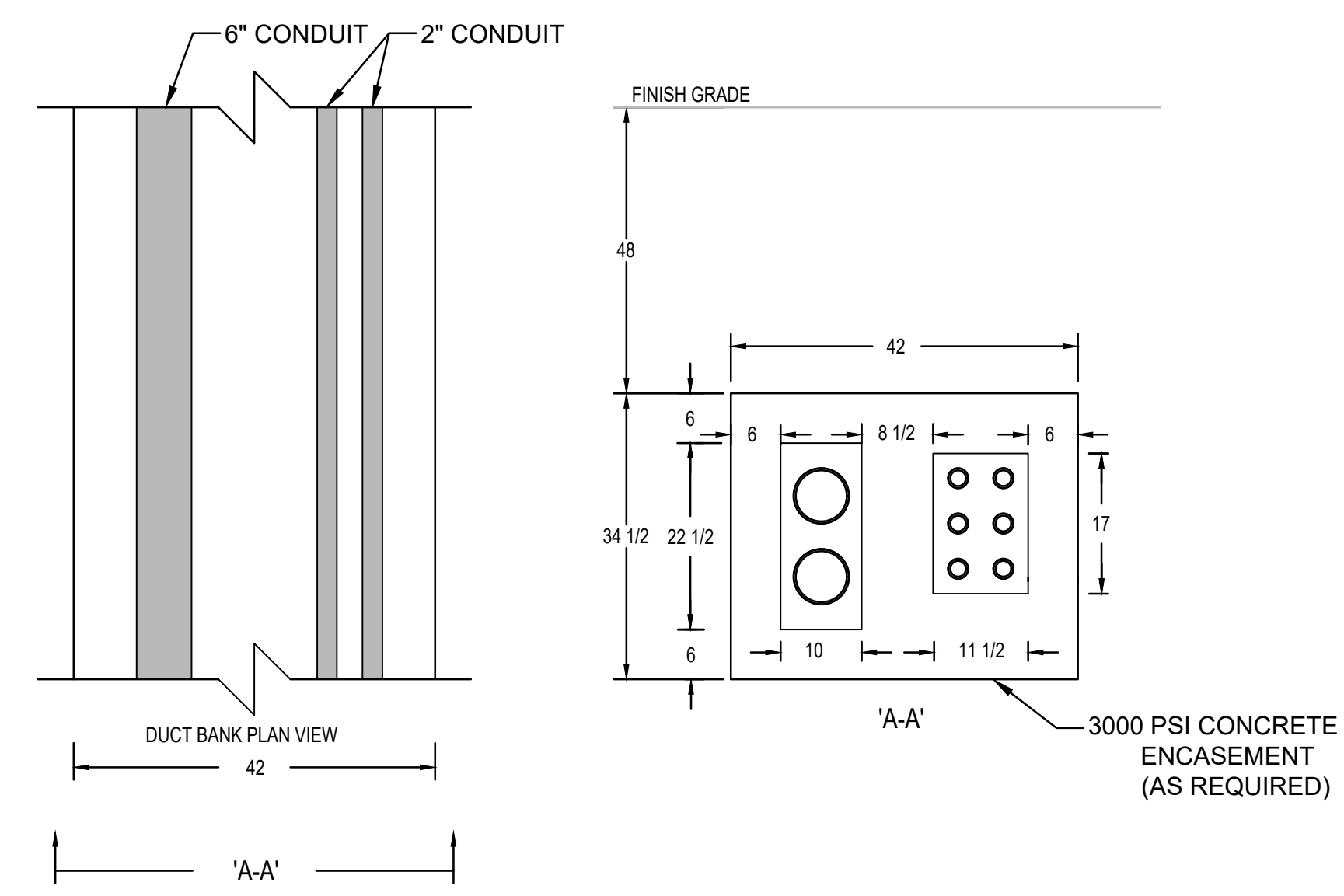
GENERAL NOTE:
1. SWITCHGEAR VAULT BY ELECTRICAL CONTRACTOR. SWITCH BY DALTON UTILITIES.
2. COORDINATE MOUNTING REQUIREMENTS/ CONDUIT STUB-UP REQUIREMENTS WITH DALTON UTILITIES.

3 SWITCHGEAR VAULT DETAIL
DIAGRAMMATIC



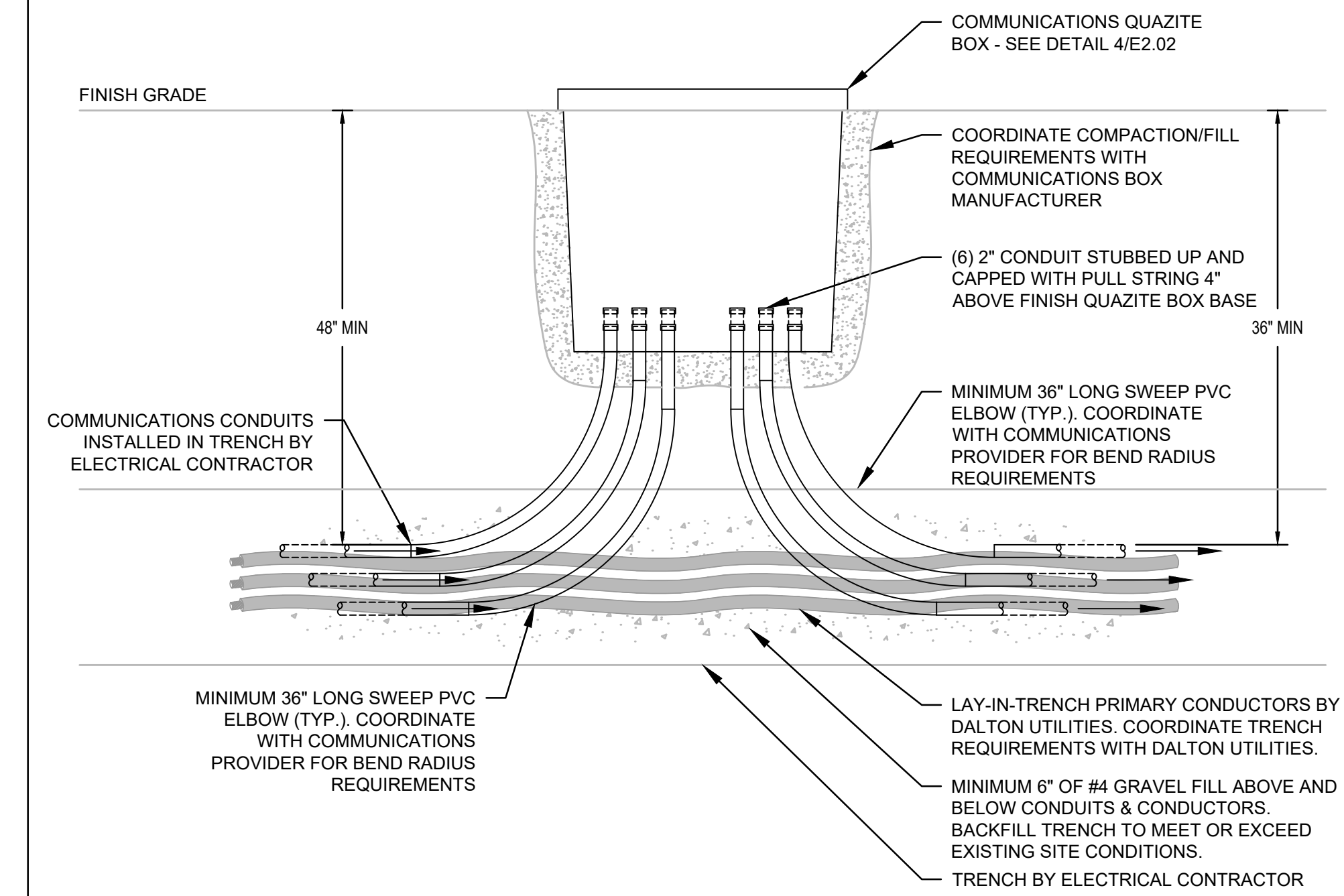
GENERAL NOTE:
1. EACH COMMUNICATIONS COMPANY TO CONFIRM THAT 1/3 OF VOLUMETRIC SPACE IS ADEQUATE FOR ALL COMMUNICATIONS EQUIPMENT CONDITIONS.

4 48" X 60" QUAZITE BOX DETAIL - FOR COMMUNICATIONS
DIAGRAMMATIC



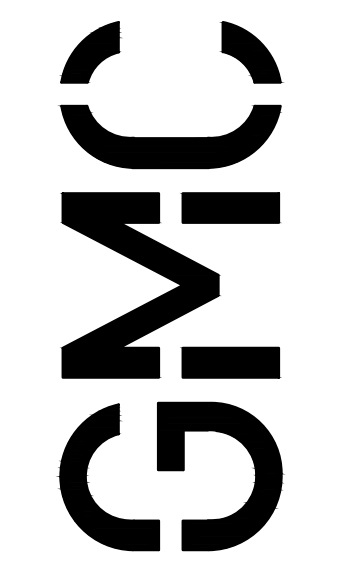
GENERAL NOTE:
1. UTILITY PRIMARY CONDUIT SYSTEM IS 2 PARALLEL RUNS OF 6" SCH 40 PVC.
2. COMMUNICATIONS CONDUIT SYSTEM IS 2 PARALLEL RUNS OF 2" HDPE CONDUIT FOR EACH UTILITY COMPANY.
3. MINIMUM 3" CLEAR BETWEEN ALL CONDUITS.
4. DUCT BANK MINIMUM 48" BELOW FINISH GRADE.
5. MINIMUM 12" SPACING BETWEEN UTILITY PRIMARY AND COMMUNICATIONS CONDUITS.

5 DUCTBANK DETAIL
DIAGRAMMATIC



MINIMUM 36" LONG SWEEP PVC ELBOW (TYP.), COORDINATE WITH COMMUNICATIONS PROVIDER FOR BEND RADIUS REQUIREMENTS
LAY-IN-TRENCH PRIMARY CONDUCTORS BY DALTON UTILITIES. COORDINATE TRENCH REQUIREMENTS WITH DALTON UTILITIES.
MINIMUM 6" OF #4 GRAVEL FILL ABOVE AND BELOW CONDUITS & CONDUCTORS. BACKFILL TRENCH TO MEET OR EXCEED EXISTING SITE CONDITIONS.
TRENCH BY ELECTRICAL CONTRACTOR

6 PRIMARY & COMMUNICATIONS TRENCH SECTION DETAIL
DIAGRAMMATIC

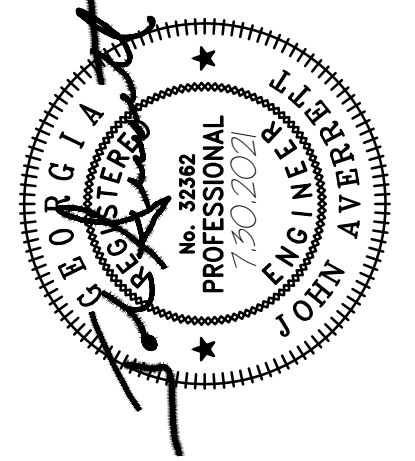


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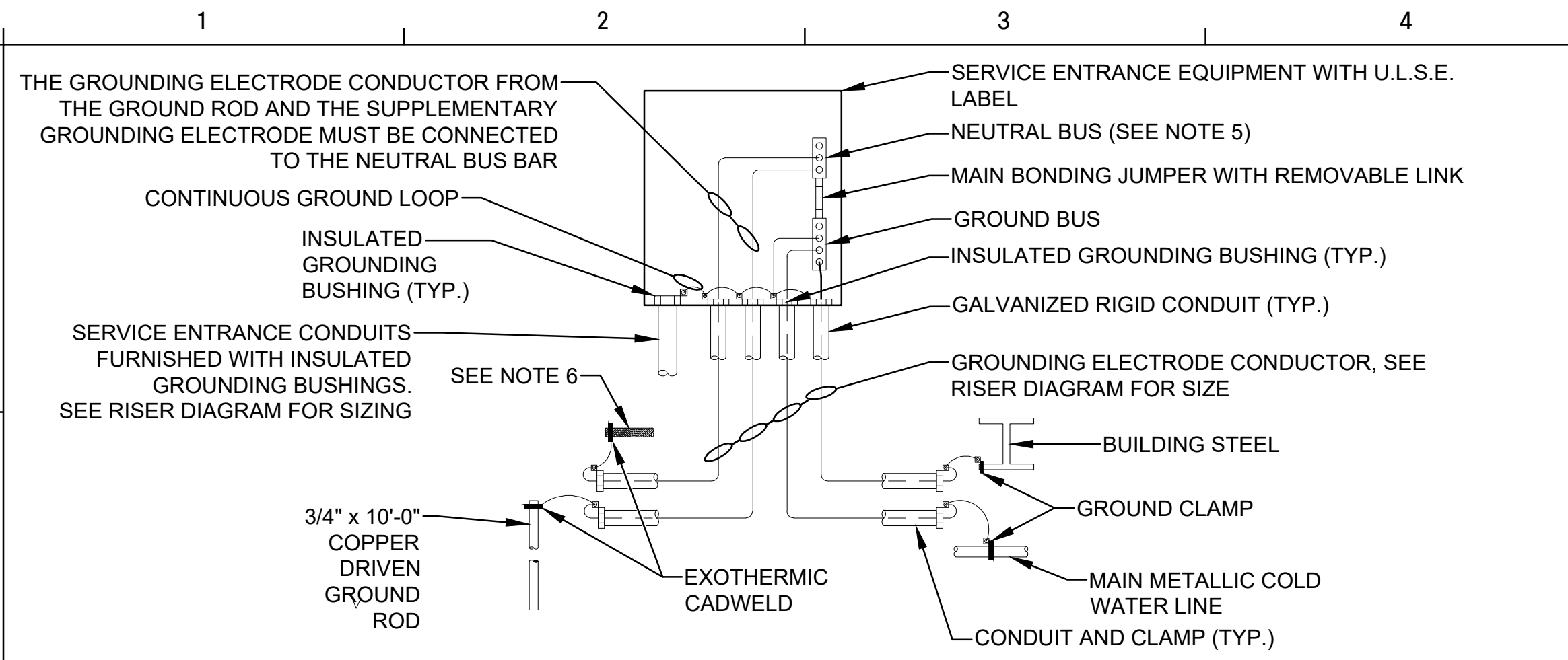
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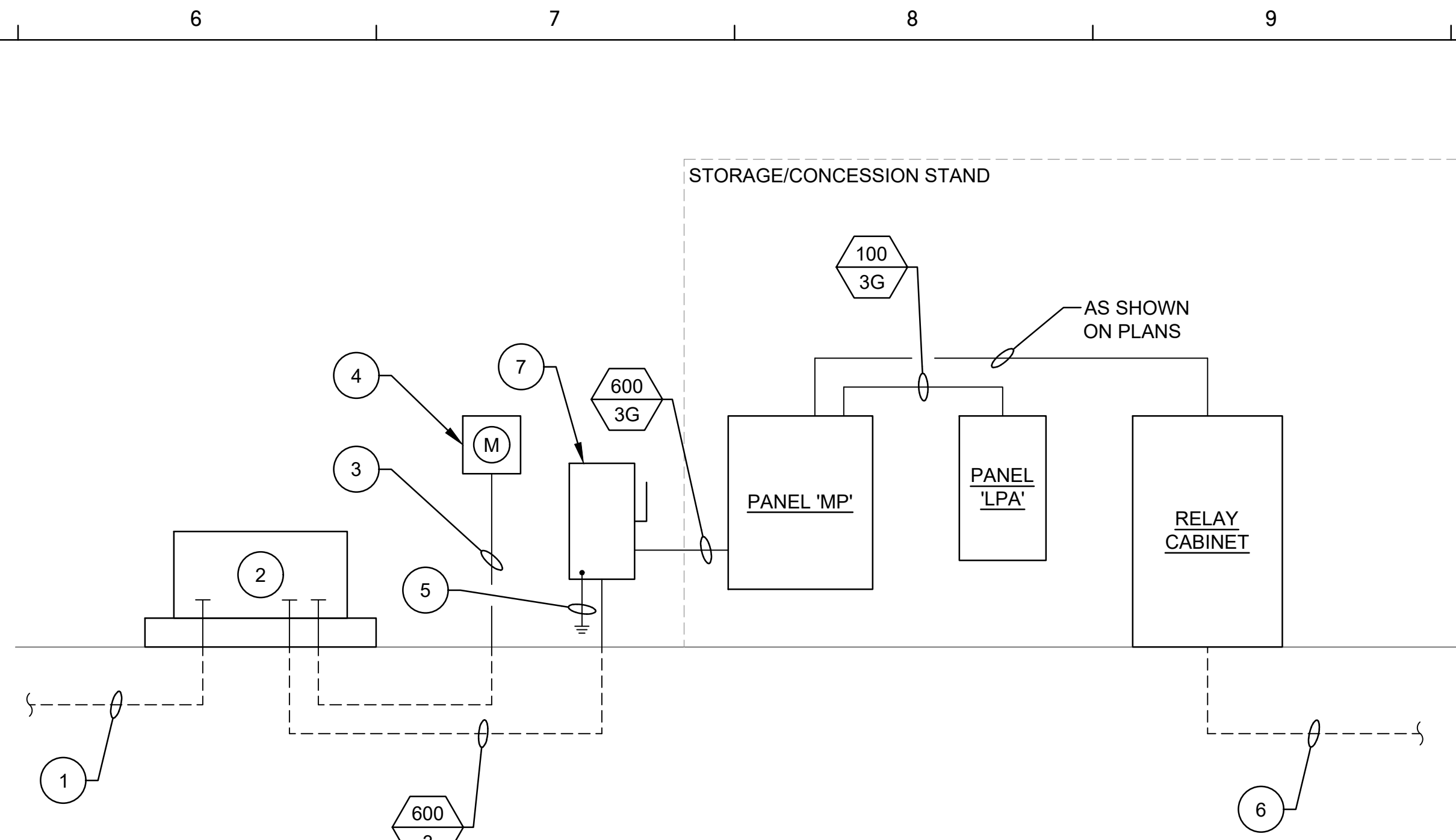
ELECTRICAL DETAILS

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1 SERVICE ENTRANCE GROUNDING DETAIL

- DIAGRAMMATIC**
- NOTES:**
- GROUNDING ELECTRODE CONDUCTORS SHALL BE ENCLOSED FULL LENGTH BY GALVANIZED RIGID CONDUIT AS INDICATED.
 - GROUNDING ELECTRODE CONDUCTORS SHALL BE BARE COPPER, SOFT-DRIVEN.
 - ALL BUSHING CLAMPS, JUMPERS, DEVICES, ETC. INSTALLED IN DIRECT CONTACT WITH EARTH SHALL BE APPROVED FOR THE PURPOSE.
 - GROUNDING ELECTRODE CONDUCTORS SIZED 6 AWG OR SMALLER SHALL HAVE A CONTINUOUS GREEN OUTER FINISH PER N.E.C.
 - GROUNDING ELECTRODE CONDUCTOR FROM GROUND ROD AND REBAR MUST BE CONNECTED TO THE NEUTRAL BUS BAR AHEAD OF THE BONDING JUMPER.
 - 20' GROUNDING ELECTRODE ENCASED IN CONCRETE IN THE DEEPEST FOOTING AND BENT INSIDE THE BUILDING. GROUNDING ELECTRODE CONDUCTOR MUST BE CONNECTED TO THE OTHER STRUCTURAL REBAR (BY OTHERS) ENCASED IN CONCRETE. REBAR MAY BE USED AS THE GROUNDING ELECTRODE CONDUCTOR. REBAR SHALL BE PAINTED GREEN WHERE EXPOSED OUTSIDE OF THE CONCRETE. THIS IS NOT REQUIRED IN EXISTING BUILDING RENOVATION PROJECTS WHERE A NEW SERVICE IS BEING PROVIDED.
 - IF NONE OF THE OPTIONS ARE AVAILABLE, THE ELECTRICAL CONTRACTOR SHALL USE A COUNTER POISE SYSTEM AS PER THE N.E.C.
 - CONNECTION MUST BE MADE TO THE METAL COLD WATER PIPE WITHIN 5' OF THE POINT OF ENTRANCE INTO THE BUILDING.
 - METAL GAS PIPE SHALL NOT BE USED AS A GROUNDING ELECTRODE CONDUCTOR PER N.E.C. HOWEVER, IF A METAL GAS PIPE IS PROVIDED BY OTHER, IT MUST BE BONDED TO THE GROUNDING ELECTRODE SYSTEM.



2 POWER RISER DIAGRAM

- DIAGRAMMATIC**
- RISER DIAGRAM LEGEND (#)**
- ROUTE 2-5" CONDUITS TO UTILITY COMPANY SWITCH. TERMINATE AS DIRECTED BY UTILITY COMPANY.
 - NEW PADMOUNTED TRANSFORMER PROVIDED BY UTILITY CO. CONCRETE PAD BY ELECTRICAL CONTRACTOR AS PER UTILITY CO. REQUIREMENTS.
 - 1-1/4" FOR METERING.
 - METER FURNISHED BY UTILITY COMPANY AND INSTALLED BY ELECTRICAL CONTRACTOR.
 - GROUNDS PER NEC AND DETAILS.
 - TO SPORTS LIGHTING POLES.
 - 600A, 2P, FUSED, NEMA 3R SE LABEL DISCONNECT SWITCH, FUSED @ 600A DETD.

FEEDER SCHEDULE							
SYMBOL	COPPER	SYMBOL	COPPER	SYMBOL	COPPER	SYMBOL	COPPER
60 3G	3#6 & 1#10(G) - 1"C	150 4G	4#1/0 & 1#6(G) - 2"C	250 3G	3#250MCM & 1#4(G) - 2 1/2"C	400 4G	4#600MCM & 1#3(G) - 4"C
60 4G	4#6 & 1#10(G) - 1"C	175 3G	3#2/0 & 1#6(G) - 2"C	250 4G	4#250MCM & 1#4(G) - 3"C	500 4G	2 PARALLEL RUNS OF 4#250MCM & 1#2(G) - 3"C
100 3G	3#3 & 1#8(G) - 1-1/4"C	175 4G	4#2/0 & 1#6(G) - 2"C	300 3G	3#350MCM & 1#4(G) - 3"C	600 3	2 PARALLEL RUNS OF 3#350MCM - 3"C
100 4G	4#3 & 1#8(G) - 1-1/4"C	200 3G	3#3/0 & 1#6(G) - 2"C	300 4G	4#350MCM & 1#4(G) - 3"C	600 3G	2 PARALLEL RUNS OF 3#350MCM & 1#1(G) - 3"C
125 3G	3#1 & 1#6(G) - 1-1/4"C	200 4G	4#3/0 & 1#6(G) - 2"C	350 3G	3#500MCM & 1#3(G) - 3"C	800 4G	2 PARALLEL RUNS OF 4#600MCM & 1#1/0(G) - 4"C
125 4G	4#1 & 1#6(G) - 1-1/2"C	225 3G	3#4/0 & 1#4(G) - 2"C	350 4G	4#500MCM & 1#3(G) - 3 1/2"C		
150 3G	3#1/0 & 1#6(G) - 1 1/2"C	225 4G	3#4/0 & 1#4(G) - 2 1/2"C	400 3G	3#600MCM & 1#3(G) - 3 1/2"C		

NOTES:

- SCHEDULE IS TYPICAL AND MAY CONTAIN ITEMS NOT REQUIRED FOR THIS PROJECT.

GROUNDING ELECTRODE CONDUCTOR TABLE	
SIZE OF LARGEST UNGROUNDED SERVICE-ENTRANCE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/kcmil)	SIZE OF GROUNDING ELECTRODE CONDUCTOR (AWG/kcmil)
COPPER	COPPER
2 OR SMALLER	8
1 OR 1/0	6
2/0 OR 3/0	4
OVER 3/0 THROUGH 350	2
OVER 350 THROUGH 600	1/0
OVER 600 THROUGH 1100	2/0
OVER 1100	3/0

NOTES:

- WHERE MULTIPLE SETS OF SERVICE-ENTRANCE CONDUCTORS ARE USED AS PERMITTED IN 230.40, EXCEPTION NO. 2, THE EQUIVALENT SIZE OF THE LARGEST SERVICE-ENTRANCE CONDUCTOR SHALL BE DETERMINED BY THE LARGEST SUM OF THE AREAS OF THE CORRESPONDING CONDUCTORS OF EACH SET.
- WHERE THERE ARE NO SERVICE-ENTRANCE CONDUCTORS, THE GROUNDING ELECTRODE CONDUCTOR SIZE SHALL BE DETERMINED BY THE EQUIVALENT SIZE OF THE LARGEST SERVICE-ENTRANCE CONDUCTOR REQUIRED FOR THE LOAD TO BE SERVED. THIS TABLE ALSO APPLIES TO THE DERIVED CONDUCTORS OF SEPARATELY DERIVED AC SYSTEMS.

DISCONNECT SWITCH SCHEDULE		
NUMBER	SIZE	POLE
S1	30	2
S2	30	3
S3	60	2
S4	60	3
S5	100	3
S6	200	3
S7	400	3
S8	600	3

NOTES:

- ALL DISCONNECT SWITCHES MUST BE LOCATED TO INSURE PROPER CLEARANCES AS PER N.E.C.. LOCATION SHALL ALSO BE COORDINATED WITH MECHANICAL CONTRACTOR TO VERIFY THAT NO CONFLICT OCCURS WITH ANY MECHANICAL EQUIPMENT.
- ALL DISCONNECT SWITCHES WILL BE LABELED BY ELECTRICAL CONTRACTOR AS PER REQUIREMENTS OF SPECIFICATIONS AND PLANS.
- ALL FUSED DISCONNECT SWITCHES TO BE FUSED AS PER EQUIPMENT MANUFACTURER'S REQUIREMENTS.
- THIS SCHEDULE IS STANDARD AND MAY INCLUDE ITEMS NOT REQUIRED FOR THIS PROJECT.

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COUNTY COMMENTS	8/02/2021
DESIGNED BY:	TGS
DRAWN BY:	JMP
CHECKED BY:	JEA

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

GMC #CATL210004

POWER RISER DIAGRAM, DETAILS, & SCHEDULES

E3.01
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PANELBOARD NOTES

- PANELBOARDS SHALL BE INSTALLED IN SUCH A MANNER TO MAINTAIN ALL CLEARANCES IN ACCORDANCE WITH THE NEC.
- ALL PANELBOARDS SHALL BE UL LISTED AND INSTALLED IN ACCORDANCE WITH THAT LISTING.
- PANELBOARDS SHALL BE FURNISHED COMPLETE WITH THE PROPERLY SIZED CAN, INTERNAL HARDWARE, COMPONENTS, SUPPORTING STRUCTURES, ETC., FOR A COMPLETE INSTALLATION.
- FURNISH EACH PANELBOARD WITH A GROUND BAR BONDED TO THE PANEL ENCLOSURE.
- EACH PANELBOARD SHALL HAVE A NAMEPLATE AS SHOWN IN DETAIL. ENGINEER WILL NOT ACCEPT JOB UNTIL THESE NAMEPLATES ARE PROVIDED.
- ALL FLUSH MOUNTED PANELBOARDS SHALL BE PROVIDED WITH AT LEAST SIX 3/4" SPARE CONDUITS TO ABOVE ACCESSIBLE CEILING.
- ALL PANELBOARDS SHALL BE CLEARLY MARKED TO COMPLY WITH NEC 110.16 & NEC110.24 REGARDING POTENTIAL HAZARDS OF ARC FLASH.
- PROVIDE TYPED CIRCUIT DIRECTORY THAT INDICATES WHAT EACH CIRCUIT IS SERVING. LIGHTING AND RECEPTACLE CIRCUITS WILL INCLUDE THE ROOM NUMBERS THAT CIRCUIT IS SERVING.
- PANELBOARDS SHALL BE FULLY RATED. (SERIES RATED PANELBOARDS WILL NOT BE ACCEPTED.)
- PROVIDE THE PROPERLY SIZED CONDUCTOR TERMINATION POINTS OR LUGS (MULTIPLE LUGS WHEN PARALLEL FEEDERS ARE USED) FOR THE NUMBER AND SIZE CIRCUITS INDICATED.
- THE TERMINATION POINT OF THE FEEDER SERVING EACH ASSEMBLY SHALL BE AT THE NEAREST POINT OF FEEDER ENTRY TO MINIMIZE CONDUCTOR FILL IN THE CAN. COORDINATE TOP/BOTTOM FED PANELBOARD PROVISIONS WITH EACH FEED INSTALLATION.
- ALL PANELBOARDS SHALL BE DOOR-IN-DOOR CONSTRUCTION.
- MANUFACTURER THAT WILL BE PROVIDING PANELBOARDS ON THIS PROJECT WILL NEED TO DO A BREAKER COORDINATION TO ENSURE DOWNSTREAM CIRCUIT BREAKERS TRIP BEFORE UPSTREAM BREAKERS. PROVIDE BREAKER COORDINATION STUDY IN THE SHOP DRAWINGS FOR ENGINEER REVIEW.

PANELBOARD MP SCHEDULE

LOCATION		STORAGE/CONCESSION		MAIN: 600 A MLO				
VOLTAGE		120/240		SYSTEM: 1Ø, 3 WIRE				
TRIM		SURFACE		INTERRUPTING RATING: 10K AIC				
CKT #	LOAD DESCRIPTION	BREAKER P	TRIP	PHASE (KW) A	PHASE (KW) B	BREAKER TRIP P	LOAD DESCRIPTION	CKT #
1	POLE S1	2	100	8.00	9.60	100	PANEL LPA	2
3				8.00	9.60			4
5	POLE S2	2	100	8.00	1.50	20	HTR-1	6
7				8.00	1.50			8
9	POLE S3(1)	2	100	7.10	1.65	20	HTR-2	10
11				7.10	1.65			12
13	POLE S3(2)	2	100	7.10	1.65	30	HTR-3	14
15				7.10	1.65			16
17	POLE S4(1)	2	100	7.10	1.65	30	HTR-4	18
19				7.10	1.65			20
21	POLE S4(2)	2	100	7.10	1.65	30	HTR-5	22
23				7.10	1.65			24
25	POLE S5	2	100	8.00	1.65	30	HTR-6	26
27				8.00	1.65			28
29	POLE S6	2	100	8.00	2.40	30	WHR-1	30
31				8.00	2.40			32
33					2.40	30	WHR-2	34
35					2.40			36
37					2.40	30	WHR-3	38
39					2.40			40
41								42

PANELBOARD LPA SCHEDULE

LOCATION		STORAGE/CONCESSION		MAIN: 100 A MLO				
VOLTAGE		120/240		SYSTEM: 1Ø, 3 WIRE				
TRIM		SURFACE		INTERRUPTING RATING: 10K AIC				
CKT #	LOAD DESCRIPTION	BREAKER P	TRIP	PHASE (kVA) A	PHASE (kVA) B	BREAKER TRIP P	LOAD DESCRIPTION	CKT #
1	RECEPTACLES	1	20	0.80	0.80	20	LIGHTING	2
3	RECEPTACLES	1	20	0.80	1.20	20	LIGHTING	4
5	RECEPTACLES	1	20	0.80	1.20	20	LIGHTING	6
7	RECEPTACLES	1	20	0.80	1.20	20	LIGHTING	8
9	RECEPTACLES	1	20	0.80		20	SPARE	10
11	RECEPTACLES	1	20	0.80		20	SPARE	12
13	RECEPTACLES	1	20	0.80		20	SPARE	14
15	RECEPTACLES	1	20	0.80		20	SPARE	16
17	RECEPTACLES	1	20	0.80			BUSSED SPACE	18
19	RECEPTACLES	1	20	0.60			BUSSED SPACE	20
21	GRADE BOX	1	20/GF	1.00			BUSSED SPACE	22
23	GRADE BOX	1	20/GF	1.00			BUSSED SPACE	24
25	LIGHTNING SYSTEM	1	20	1.00			BUSSED SPACE	26
27	TELCOM BACKBOARD	1	20	1.00			BUSSED SPACE	28
29	SPARE	1	20				BUSSED SPACE	30
31	SPARE	1	20				BUSSED SPACE	32
33	SPARE	1	20				BUSSED SPACE	34
35	SPARE	1	20				BUSSED SPACE	36
37	SPARE	1	20				BUSSED SPACE	38
39	SPARE	1	20				BUSSED SPACE	40
41	SPARE	1	20				BUSSED SPACE	42

CIRCUIT SUMMARY BY ZONE

POLE	CIRCUIT DESCRIPTION	# OF FIXTURES	# OF DRIVERS	*FULL LOAD AMPS	CONTACTOR SIZE (AMPS)	CONTACTOR ID	ZONE
S1	SOCCER 1	9	9	66.5	100	C1	1
S2	SOCCER 1	9	9	66.5	100	C2	1
S3	SOCCER 1	8	8	59.1	100	C3	1
S4	SOCCER 1	8	8	59.1	100	C4	1
S5	SOCCER 2	9	9	66.5	100	C5	2
S6	SOCCER 2	9	9	66.5	100	C6	2
S3	SOCCER 2	8		59.1	100	C7	2
S4	SOCCER 2	8		59.1	100	C8	2

*FULL LOAD AMPS BASED ON AMPS PER DRIVER.

FIELD/ZONE DESCRIPTION	ZONES
SOCCER 1	1
SOCCER 2	2

LUMINAIRE SCHEDULE

FITTURE MARK	NO	LAMPS		VOLTAGE	MAKE	MOUNTING TYPE	MODEL	DESCRIPTION
		WATTS	TYPE					
A	1	12.3	LED	UNV	BEGA	WALL	22-385-BK	LED WALL BRACKET. BLACK FINISH AND CAST GUARD.
B	1	24	LED	UNV	COOPER	SURFACE	4WPLD4035C	1"x4" SURFACE MOUNTED LED.
BE	1	24	LED	UNV	COOPER	SURFACE	4WPLD4035C-EM	1"x4" SURFACE MOUNTED LED WITH INTEGRAL EMERGENCY BATTERY.
C	-	-	-	-	-	-	GAN-SA4A-740-U-T4W	CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT AND POLE BASE. LIGHT FIXTURE AND WIRING TO BE FURNISHED AND INSTALLED BY DALTON UTILITY.
CF	1	35	N/A	UNV	MODERN FORMS	SURFACE	FRW192060BATTxFARxFSCKBA-ALL	60" WET LOCATION CEILING FAN.
D-2	-	-	-	-	-	-	GAN-SA4A-740-U-5WQ	CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT AND POLE BASE. LIGHT FIXTURE AND WIRING TO BE FURNISHED AND INSTALLED BY DALTON UTILITY.
EMX	1	10	W/U/NIT	UNV	PATHWAY	SURFACE	FBAC-BZ	EXTERIOR EMERGENCY FIXTURE W/BRONZE FINISH.
OLA	-	-	-	-	-	-	VERD-G-C02H-D-U-T3	CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT AND POLE BASE. LIGHT FIXTURE AND WIRING TO BE FURNISHED AND INSTALLED BY DALTON UTILITY.
X	1	10	W/U/NIT	UNV	PATHWAY	UNIVERSAL	PDLEX	LED EMERGENCY EXIT SIGN W/DOWNLIGHT AND WHITE FINISH, RED LETTERS.

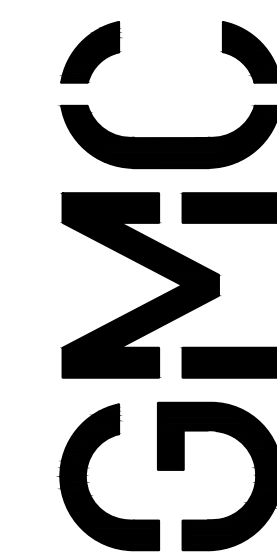
LUMINAIRE SCHEDULE NOTES:
 1. EQUIVALENT PRODUCTS WILL BE REVIEWED PROVIDED THE REQUIREMENTS FOR PRIOR APPROVAL OUTLINED IN THE SPECIFICATIONS ARE MET.
 2. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL FIXTURE MOUNTING PROVISIONS WITH THE ASSOCIATED CEILING TYPE(S) BEFORE ORDERING FIXTURES
 3. ALL EMERGENCY AND EXIT LIGHTS WILL BE CONNECTED TO UNSWITCHED HOT LEG SO THAT BATTERY OPERATES UPON POWER FAILURE.

PANEL SUMMARY

CABINET #	CONTROL MODULE LOCATION	CONTACTOR ID	CIRCUIT DESCRIPTION	*FULL LOAD AMPS	DISTRIBUTION PANEL ID (BY OTHERS)	CIRCUIT BREAKER POSITION (BY OTHERS)
1	1	C1	POLE S1	66.51	MP - 1,3	100/2
1	1	C2	POLE S2	66.51	MP - 5,7	100/2
1	1	C3	POLE S3 (1)	59.12	MP - 9,11	100/2
1	1	C4	POLE S4 (1)	59.12	MP - 17,19	100/2
1	1	C5	POLE S5	66.51	MP - 25,27	100/2
1	1	C6	POLE S6	66.51	MP - 29,31	100/2
1	1	C7	POLE S3 (2)	59.12	MP - 13,15	100/2
1	1	C8	POLE S4 (2)	59.12	MP - 21,23	100/2

ZONE SCHEDULE

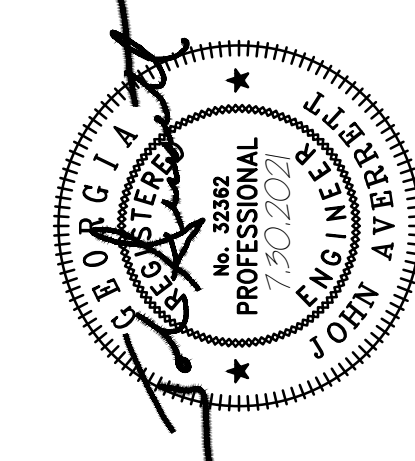
ZONE	SELECTOR SWITCH	ZONE DESCRIPTION	CIRCUIT DESCRIPTION	
			POLE ID	CONTACTOR ID
ZONE 1	1	SOCCER 1	S1	C1
			S2	C2
			S3	C3
			S4	C4
ZONE 2	2	SOCCER 2	S5	C5
			S6	C6
			S3	C7
			S4	C8



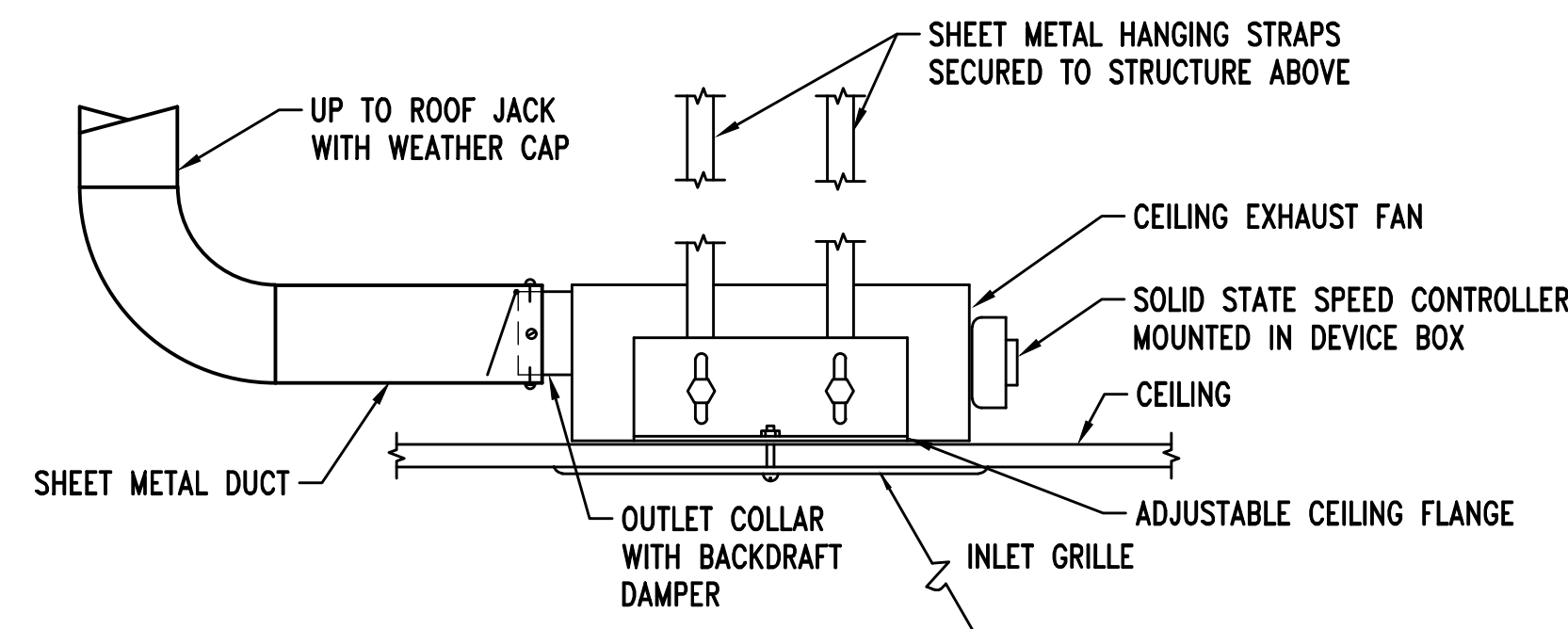
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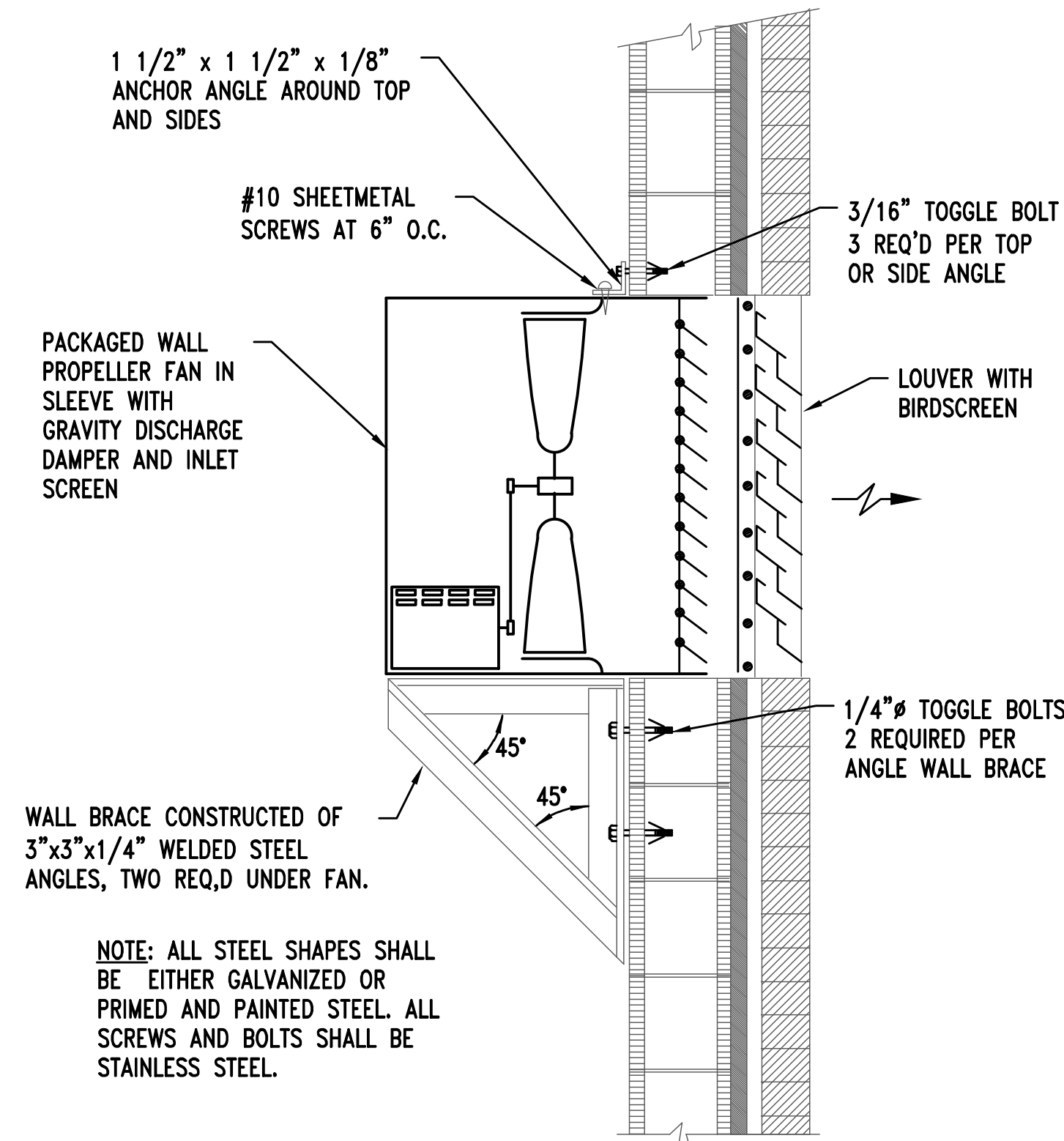
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 HALE BOWEN DRIVE, DALTON, GA
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SCHEDULES
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B CEILING EXHAUST FAN INSTALLATION DETAIL
MO.01 NOT TO SCALE



A WALL MOUNTED EXHAUST FAN DETAIL
MO.01 NOT TO SCALE

NOTE: ALL STEEL SHAPES SHALL BE EITHER GALVANIZED OR PRIMED AND PAINTED STEEL. ALL SCREWS AND BOLTS SHALL BE STAINLESS STEEL.

MECHANICAL GENERAL NOTES:

1. THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH THE GENERAL CONTRACTOR AND OTHER TRADES FOR REQUIRED OPENINGS IN WALLS, FOUNDATIONS FLOORS AND ROOFS.
2. THE MECHANICAL CONTRACTOR IS TO VERIFY MECHANICAL EQUIPMENT LOCATIONS AND BE RESPONSIBLE FOR ALL RELATED CLEARANCES IN THE FIELD. PROVIDE ADEQUATE MAINTENANCE CLEARANCE AROUND EACH PIECE OF EQUIPMENT PER THE MANUFACTURERS RECOMMENDATIONS. PROVIDE CLEARANCE IN FRONT OF ELECTRICAL PANELS AND OTHER ELECTRICAL EQUIPMENT PER THE NATIONAL ELECTRICAL CODE REQUIREMENTS. COORDINATE WITH THE ELECTRICAL AND GENERAL CONTRACTORS IN THE FIELD. CONTRACTOR SHALL VERIFY THAT EQUIPMENT FITS IN SPACE PRIOR TO ORDERING EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSOCIATED COSTS OF REPLACEMENT, MODIFICATION, REWORK, REDESIGN, AND/OR RESTOCKING FEES FOR ANY AND ALL EQUIPMENT THAT DOES NOT FIT IN THE SPACE.
3. PROVIDE WATER PROOF SEALING OF DUCT PENETRATIONS OF EXTERIOR WALLS AND ROOF.
4. EXHAUST AIR DUCTWORK TO BE SINGLE WALL. LOW PRESSURE RECTANGULAR, SMACNA STATIC PRESSURE CLASS 1' W.G. SEAL CLASS 'B'.
5. ALL DUCTWORK SHALL BE GALVANIZED METAL CONSTRUCTION. COORDINATE ROUTING WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID CONFLICTS.
6. WORK SHALL COMPLY WITH THE FOLLOWING AGENCIES:
 - 2015 INTERNATIONAL BUILDING CODE
 - 2015 INTERNATIONAL MECHANICAL CODE
 - 2015 INTERNATIONAL FUEL GAS CODE
 - NATIONAL FIRE PROTECTION AGENCY (NFPA)
7. ALL DUCT JOINTS AND SEAMS SHALL BE BRUSHED WITH A COAT OF DUCT SEALER EQUAL TO RCD-8.
8. VERIFY COLLAR SIZES ON AIR TERMINALS, EQUIPMENT INLETS AND OUTLETS, TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE ALL TRANSITIONS AT EQUIPMENT CONNECTIONS.
9. TRANSITION DUCT AS NECESSARY FROM SIZE INDICATED TO UNIT CONNECTION OPENING. TRANSITIONS SHALL BE PER SMACNA STANDARDS.
10. PROVIDE FLEXIBLE DUCT FINAL CONNECTIONS, AND VIBRATION ISOLATORS FOR INTERNALLY ISOLATED UNITS.

HVAC LEGEND

- POSITIVE PRESSURE DUCT OR DEVICE
- NEGATIVE PRESSURE DUCT OR DEVICE
- ROUND BRANCH DUCT WITH VOLUME DAMPER
- DROP IN DUCT
- RISE IN DUCT
- DIAMETER
- ROUND NECK DIFFUSER
- EQUIPMENT DESIGNATION

DETAIL, SECTION, AND TITLE DESIGNATION

- SECTION TITLE OR STANDARD DETAIL NUMBER SHEET ON WHICH SECTION OR DETAIL IS DRAWN
- SECTION OR DETAIL NUMBER SHEET ON WHICH SECTION OR DETAIL IS DRAWN
- SHEET(S) ON WHICH SECTION OR DETAIL IS REFERENCED
- SECTION OR ELEVATION NUMBER SHEET ON WHICH SECTION IS DRAWN
- DETAIL NUMBER SHEET ON WHICH DETAIL IS DRAWN

ABBREVIATIONS

- CFM CUBIC FEET PER MINUTE
- EA EACH
- EF EXHAUST FAN
- ESP EXTERNAL STATIC PRESSURE
- MBH 1000 BTU PER HOUR
- TSP TOTAL STATIC PRESSURE

VENTILATION CALCULATIONS:

CONCESSIONS SF = 240 SF.
NATURAL VENTILATION METHOD - OPENING TO THE OUTDOORS (TWO CONCESSION WINDOWS) ARE 60 SF AREA, OR 25% OF FLOOR AREA. THIS IS GREATER THAN THE 4% MINIMUM OPEN AREA PER 402.2. OCCUPANTS ARE ABLE TO OPEN AND CLOSE THE WINDOW. EF-3 IS CONTROLLED VIA A WALL MOUNT T-STAT TO SUPPLEMENT NATURAL VENTILATION WHEN INDOOR SPACE TEMPS RISE.

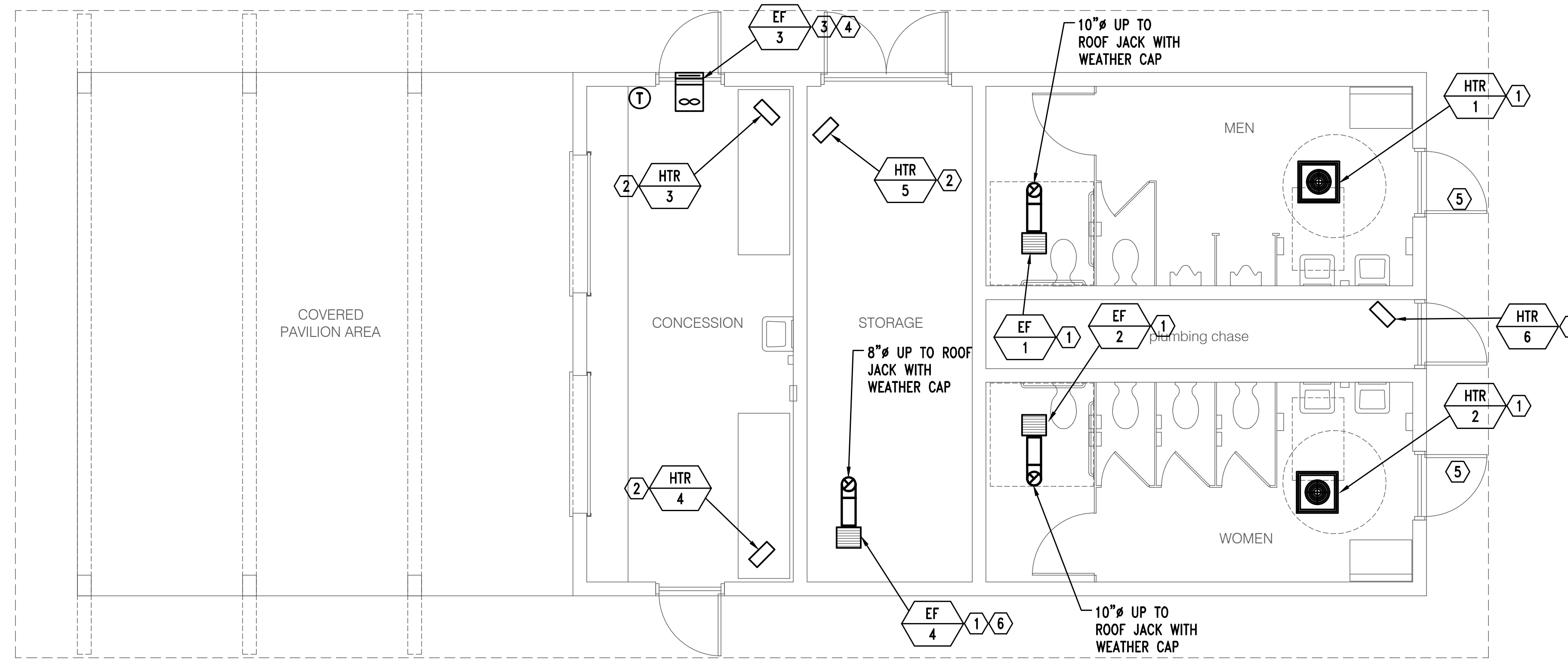
FAN SCHEDULE													
MARK	SERVICE	LOCATION	CFM	TOTAL STATIC PRESS. IN H2O	MAX. SPEED RPM	POWER				TYPE	DRIVE TYPE	MANUFACTURER / MODEL	NOTES
						H.P. (W)	VOLTS	PHASE	CYCLE				
EF-1	MENS RESTROOM	CEILING	300	0.25	1,350	(135)	115	1	60	CEILING MOUNTED CENTRIFUGAL	DIRECT	GREENHECK / SP-A390	1.3
EF-2	WOMEN RESTROOM	CEILING	300	0.25	1,350	(135)	115	1	60	CEILING MOUNTED CENTRIFUGAL	DIRECT	GREENHECK / SP-A390	1.3
EF-3	CONCESSION	WALL	380	0.25	1,050	1/20	115	1	60	WALL PROPELLER	DIRECT	GREENHECK SE1	2.4
EF-4	STORAGE	CEILING	240	0.25	1,000	(83)	115	1	60	CEILING MOUNTED CENTRIFUGAL	DIRECT	GREENHECK / SP-A250	1.3

NOTES:
 1. SWITCH WITH ROOM LIGHTS, COORDINATE WITH ELECTRICAL CONTRACTOR.
 2. ALUMINUM BLADE, WALL HOUSING FLUSH WITH EXTERIOR, GRAVITY OPERATED DAMPER, OSHA MOTOR GUARD, GALVANIZED DAMPER GUARD.
 3. PROVIDE FAN WITH FAN-MOUNTED SPEED CONTROLLER.
 4. INTERLOCK WITH WALL MOUNT THERMOSTAT.

ELECTRIC HEATER SCHEDULE								
MARK	SERVICE	TOTAL AIR CFM	CAPACITY KW	MOUNTING TYPE	POWER		MANUFACTURER / MODEL BASIS	NOTES
					VOLTS	PHASE		
HTR-1	MENS RESTROOM	200	3	CEILING MOUNTED	240	1	MARKEL - 3480	1
HTR-2	WOMEN RESTROOM	200	3	CEILING MOUNTED	240	1	MARKEL - 3480	1
HTR-3	CONCESSION	400	3.3	UNIT HEATER, WALL MOUNT	240	1	MARKEL - 5100	2
HTR-4	CONCESSION	400	3.3	UNIT HEATER, WALL MOUNT	240	1	MARKEL - 5100	2
HTR-5	STORAGE	400	3.3	UNIT HEATER, WALL MOUNT	240	1	MARKEL - 5100	2
HTR-6	PLUMBING CHASE	400	3.3	UNIT HEATER, WALL MOUNT	240	1	MARKEL - 5100	2

NOTES:
 1. FULL RECESSED MODEL, TAMPER PROOF BUILT IN THERMOSTAT, INITIALLY SET TO 50F, CONFIRM WITH OWNER DURING OWNER TRAINING.
 2. MOUNT SUCH THAT BOTTOM IS MINIMUM 7'-6" AFF. THERMOSTAT TO BE BUILT-IN, INITIALLY SET TO 50F, CONFIRM WITH OWNER DURING OWNER TRAINING

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KEYED NOTES

- ① EQUIPMENT MOUNTED IN CEILING, COORDINATE EXACT LOCATION WITH ROOF JOISTS. CEILING IS ATTACHED TO BOTTOM OF JOISTS.
- ② UNIT HEATER, ATTACH TO BLOCK WALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
- ③ ROLL UP DOORS ASSUMED TO BE OPEN WHEN FAN IS ON (FAN IS INTERLOCKED WITH THERMOSTAT).
- ④ MOUNT AS HIGH AS POSSIBLE ABOVE DOOR.
- ⑤ 26/24 DOOR TRANSFER GRILLE, LOW ON DOOR, HEAVY DUTY ALUMINUM, SIGHT PROOF, DRAINABLE, EQUAL TO PRICE ATGH.
- ⑥ DOUBLE DOORS ASSUMED TO BE OPEN WHEN FAN IS ON (FAN IS INTERLOCKED WITH LIGHT).

MECHANICAL FLOOR PLAN
1/4" = 1'-0"

SCALE: 1/4" = 1'-0"
0 2' 4' 8'

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CONSULTING ENGINEERS
PRATTVILLE, AL 334/358-2707

NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

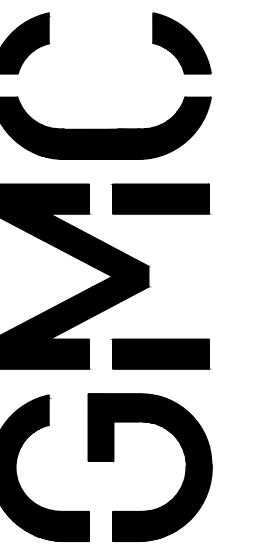
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MECHANICAL FLOOR
PLAN

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Construction Drawings



PLUMBING GENERAL NOTES:

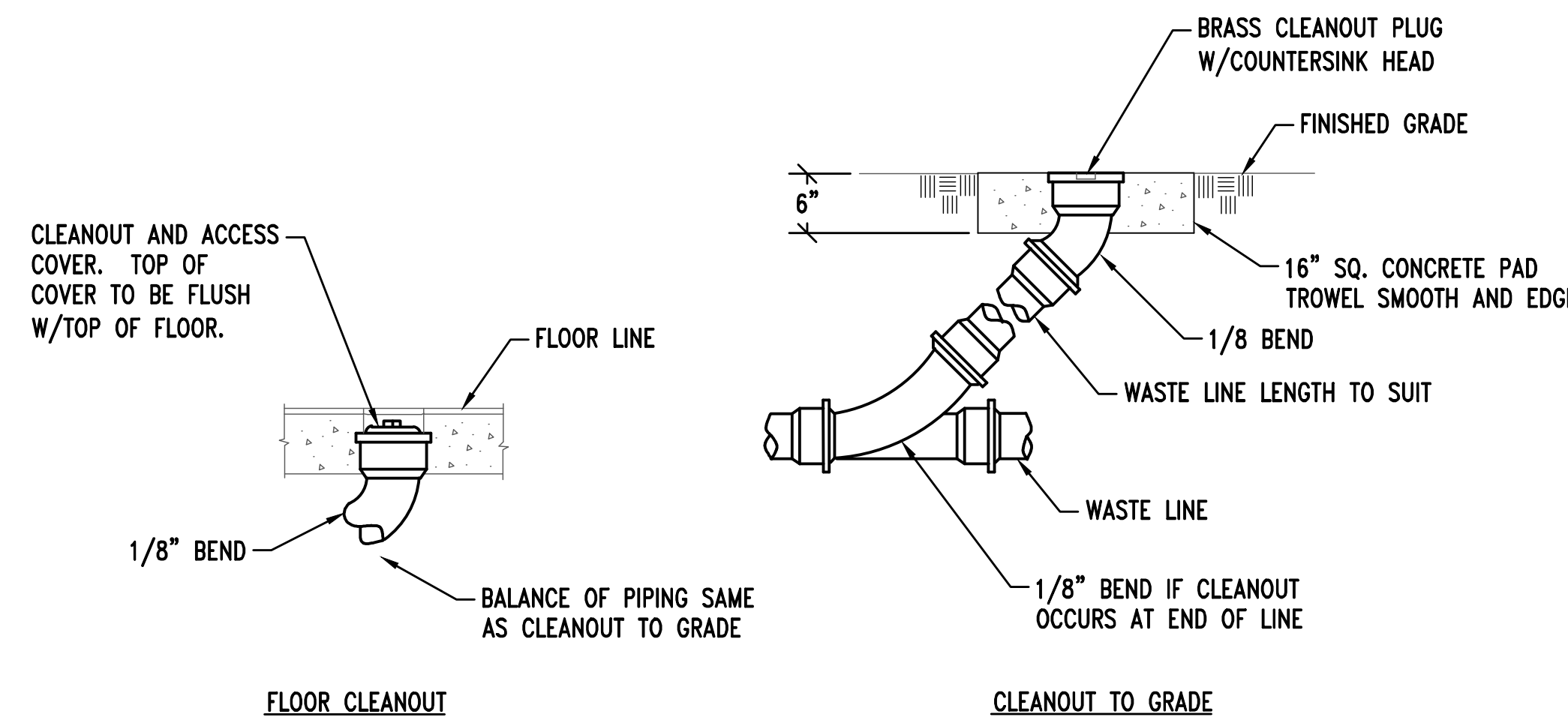
- SLOPES & INVERT ELEVATIONS SHALL BE ESTABLISHED BEFORE ANY PIPE IS INSTALLED IN ORDER TO MAINTAIN PROPER SLOPES. ANY DISCREPANCIES SHALL BE REPORTED TO THE GENERAL CONTRACTOR. ALL PIPING SHALL BE LOCATED & DETERMINED WHEN TO BE INSTALLED TO AVOID CONFLICT WITH OTHER TRADES.
- PIPING SHALL BE CONCEALED UNLESS OTHERWISE NOTED.
- KEEP ALL BURIED PIPING CLEAR OF FOOTINGS. COORD. W/STRUCTURAL.
- ALL WALL CLEANOUTS SHALL BE PROVIDED WITH WALL COVERS, MOUNT IN UNOBTRUSIVE LOCATION WHILE MAINTAINING ACCESSIBILITY. ALL FLOOR CLEANOUTS SHOWN SHALL BE SET FLUSH WITH FLOOR AREAS OR FINISHED GRADE.
- CONTRACTOR SHALL COORDINATE LOCATION OF PIPING AND DRAINS WITH ALL MECHANICAL & ELECTRICAL EQUIPMENT. NO PIPING SHALL BE INSTALLED ABOVE ELECTRICAL, COMMUNICATIONS, OR DATA EQUIPMENT OR PANELS. COMPLY WITH ARCHITECTURAL PLANS FOR EXACT LOCATION OF PLUMBING FIXTURES, COMPLIANCE TO ADA CLEARANCES, AND FINISHES.
- CONTRACTOR SHALL PROVIDE REQUIRED WATER, WASTE, & VENT PIPING, FITTINGS & INSULATION, & MAKE FINAL CONNECTIONS TO EQUIPMENT. THESE PLANS ARE SCHEMATIC & DIAGRAMMATIC ONLY. THEY DO NOT SHOW ALL REQUIRED BENDS, OFFSETS, VALVES, AND MISCELLANEOUS FITTINGS FOR A COMPLETE INSTALLATION. ALL PIPING EQUIPMENT, AND CONNECTIONS SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATIONS, LOCAL CODES AND ORDINANCES, AND MANUFACTURER'S INSTRUCTIONS.
- SANITARY SEWER PIPING SHALL BE INSTALLED TO PROVIDE A MINIMUM SLOPE OF 1.25%. WASTE PIPING 3" & SMALLER SHALL BE INSTALLED TO PROVIDE A MINIMUM SLOPE OF 2.5%.
- DO NOT SCALE DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS, FIXTURE LOCATIONS, ROOM NAMES, & NUMBERS. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT ELEVATIONS OF ALL PLUMBING FIXTURES.
- ALL HOSE BIBS, WALL HYDRANTS, & VALVES W/THREADED HOSE CONNECTIONS SHALL BE EQUIPPED W/VACUUM BREAKER.
- WHERE CONNECTING TO A UTILITY OR SERVICE, VERIFY LOCATION, SIZES, MATERIALS, FLUID BEING HANDLED, & INVERTS OF ALL EXISTING UTILITIES & CONFIRM THAT NEW PIPES BEING ROUTED TO EXISTING UTILITIES CAN BE INSTALLED CONFORMING TO CODE & AS SHOWN. NOTIFY ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO PURCHASING ANY MATERIALS OR PERFORMING ANY WORK OR EXTENSION OF CONNECTION, WITH THE EXCEPTION OF EXCAVATION OR OTHER WORK TO PROVIDE ACCESS TO THE CONCEALED UTILITY.
- PROVIDE INSULATION, PIPE IDENTIFICATION AND OTHER REQUIREMENTS AS LISTED IN SPECIFICATIONS.
- ALL PIPING ABOVE GRADE SHALL BE PROPERLY SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR BE SUPPORTED FROM CEILING TILES.
- WATER PIPING ROUTED ABOVE CEILINGS AND IN EXTERIOR WALLS SHALL BE ROUTED ON HEATED SIDE (UNDERSIDE) OF CEILING INSULATION AND HEATED SIDE (INSIDE) OF WALL INSULATION.
- TOPS OF ALL FLOOR DRAINS AND CLEANOUTS SHALL BE SET FLUSH WITH FINISHED FLOOR, UNLESS NOTED OTHERWISE.
- LOCATE ALL SECTIONAL OR MAIN CONTROL VALVES WITHIN 1'-0" FROM ACCESS PANELS, CEILING TILES, OR OTHER POINT OF ACCESS.
- CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL DRAWINGS AND THE ELECTRICAL CONTRACTOR, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN.
- ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A MINIMUM PERIOD OF ONE YEAR AFTER OWNER'S FINAL ACCEPTANCE.
- ALL VENTS THRU ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.
- ALL COLD WATER, HOT WATER AND DRAIN PIPING AT HANDICAPPED FIXTURES SHALL BE INSTALLED WITH HANDI-LAV GUARD MODELS 102 AND 105 INSULATION KITS OR EQUAL.

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	PIPE SIZE (INCHES)				SPECIFICATIONS*
		WASTE	VENT	CW	HW	
P-1	WATER CLOSET	4	2	3/4	-	ZURN Z 5551K, PRESSURE-ASSISTED, FLOOR MOUNTED FLUSH TANK, ELONGATED BOWL, 1.6 GPF, BEMIS 1955 SS CC WHITE OPEN FRONT SEAT WITH STA TITE FASTENING SYSTEM, WHITE BOLT CAPS, WAX RING. EQUALS BY KOHLER OR SLOAN.
P-1A	WATER CLOSET, ACCESSIBLE	4	2	3/4	-	ZURN Z5560, ADA, FLOOR MOUNTED FLUSH TANK, ELONGATED BOWL, 1.4 GPF, WHITE, BEMIS 1955 SS CC OPEN FRONT SEAT WITH STAINLESS STEEL HARDWARE AND STA TITE FASTENING SYSTEM, WHITE BOLT CAPS, WAX RING.
P-2	URINAL	2	1-1/2	3/4	-	ZURN Z5755, WALL HUNG (ON CHAIR CARRIER), WASH-OUT, 1.0 GPF. MOUNT ONE IN EACH MALE TOILET ROOM WHERE SHOWN WITH THE LIP AT 16-3/4" ABOVE THE FLOOR (ADA) AND OTHER(S) IF ANY, WITH THE LIP AT 24" ABOVE THE FLOOR. ZURN Z8003AV MANUAL FLUSH VALVE OR EQUAL BY SLOAN REGAL.
P-3A	LAVATORY, WALL HUNG, ACCESSIBLE	1-1/2	1-1/2	1/2	1/2	ZURN Z5834, WALL HUNG (ON CHAIR CARRIER), 19" X 17", FAUCET HOLES ON 4" CENTERS. ZURN Z81104 XL CP DUAL HANDLE FAUCET WITH WRIST BLADE HANDLES AND GRID STRAINER, POLISHED CHROME FINISH, 0.5 GPM, CAST BRASS P-TRAP WITH CLEANOUT, ANGLE SUPPLIES WITH STOPS. PROVIDE ASSE 1070 WATER TEMPERATURE LIMITING DEVICE. BRADLEY S59 4000BY OR EQUAL BY WATTS.
P-4	SINGLE COMPARTMENT SINK, WALL HUNG, ACCESSIBLE	2	1-1/2	1/2	1/2	ELKAY EHS-18-SDX, ADA, STAINLESS STEEL 18"x14-1/2"x11", 18 GA, WALL HUNG SINK WITH SIDE SPALSHED, LEVER DRAIN, P-TRAP OVERFLOW, AND BACKSPASH MOUNTED GOOSENECK FAUCET WITH DUAL HANDLES, CAST BRASS P-TRAP WITH CLEANOUT, ANGLE SUPPLIES WITH STOPS. PROVIDE WITH 1.0 GPM AERATOR. PROVIDE WITH ASSE 1070 WATER TEMPERATURE LIMITING DEVICE.
HB	HOSE BIBB	-	-	3/4	-	JR SMITH 5670-H WITH VACUUM BREAKER, BENT NOSE ROUGH BRASS FINISHED BODY WITH FLANGE, "T" KEY HANDLE, 3/4" HOSE CONNECTION, SUITABLE ONLY FOR INSTALLATION INSIDE THE BUILDING WHERE NOT SUBJECT TO FREEZING.
FD-R	FLOOR DRAIN - RESTROOMS	3	1-1/2	-	-	JR SMITH 2010-B, SQUARE ADJUSTABLE NICKEL BRONZE STRAINER, 3" AND SMALLER DRAINS TO HAVE A 6"x6" GRATE, 4" DRAINS TO HAVE AN 8 X8" GRATE, CAST IRON BODY. NO TRAP PRIMER. PROVIDE WITH TRAP GUARD OR EQUAL.

*NOTE: PROVIDE ALL OPTIONS AS INDICATED WHETHER THE MODEL NUMBER INCLUDES THE OPTIONS OR NOT.

POINT-OF-USE ELECTRIC WATER HEATER SCHEDULE									
MARK	SERVICE	WATER		ELECTRICAL				NOTES	
		SUPPLY TEMP (°F)	DESIGN FLOW RATE (GPM)	KW	VOLTS	PHASE	HZ		
WHR	1	MULTIPLE LAVS	105	0.8	4.8	240	1	60	1
WHR	2	MULTIPLE LAVS	105	0.8	4.8	240	1	60	1
WHR	3	SINGLE SINK	105	1	4.8	240	1	60	1

1 - BASIS OF DESIGN = EEMAX SP4208



A CLEANOUT DETAILS NOT TO SCALE

ABBREVIATIONS

- GCO CLEANOUT, GRADE
- F.D. FLOOR DRAIN
- HB HOSE BIBB
- U.G. UNDERGROUND
- VTR VENT THROUGH THE ROOF
- WHR WATER HEATER

PLUMBING LEGEND

- WASTE PIPING
- - - VENT PIPING
- DOMESTIC COLD WATER PIPING
- DOMESTIC HOT WATER PIPING
- ⊗ VALVE
- ⊗ VALVE IN VALVE BOX
- PIPE PENETRATION
- CLEANOUT
- ⊕ FLOOR DRAIN

HHB Engineers, P.C.
CONSULTING ENGINEERS
PRATTVILLE, AL 334/358-2707

NORTHEAST COMMUNITY COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA

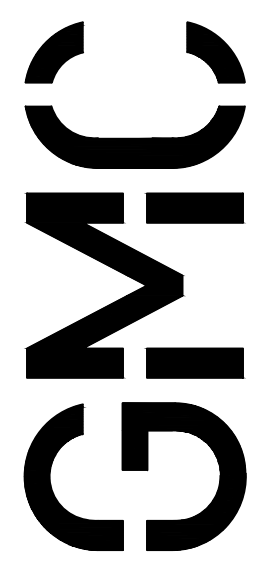


PLUMBING NOTES, ABBREVIATIONS, LEGEND, SCHEDULES

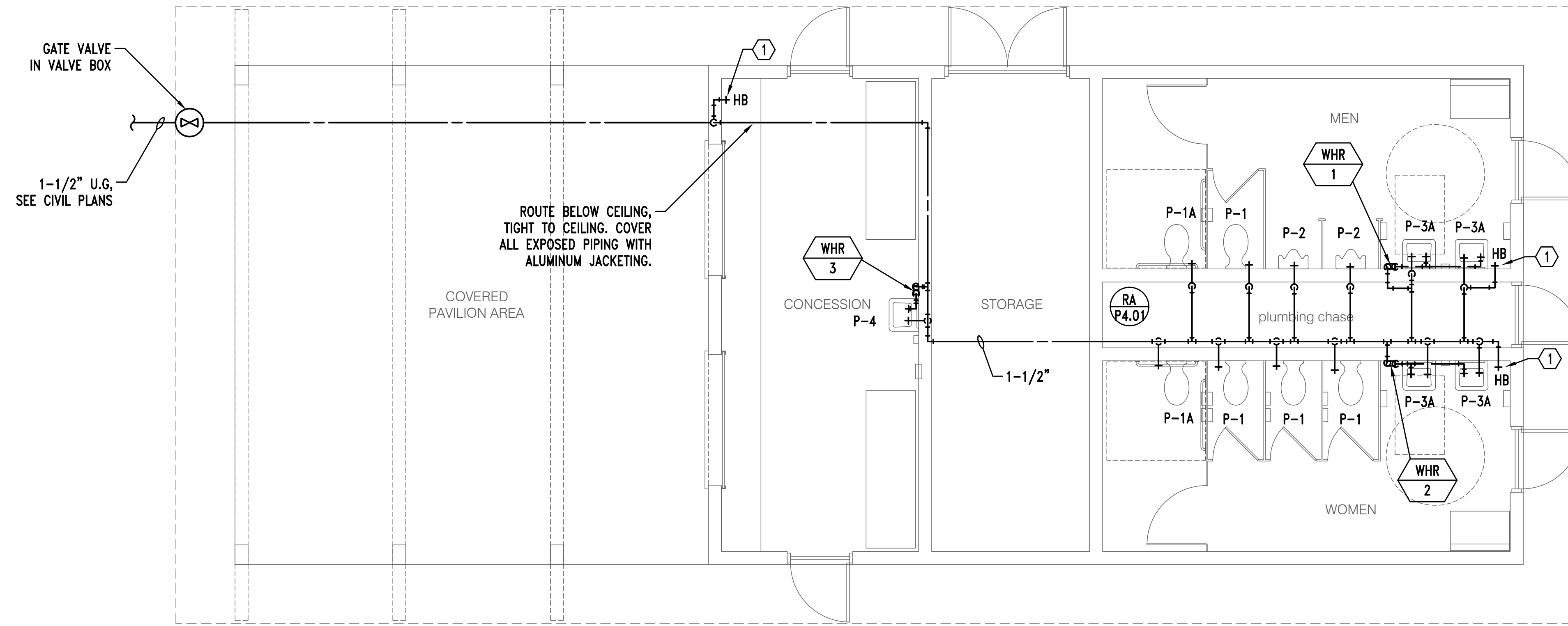
P0.01 sheet 3 of 5

ISSUE	DATE
PERMIT SET	6/21/2021
COUNTY COMMENTS	8/02/2021

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T 770.952.2481
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GMC #CATL210004
Construction Drawings

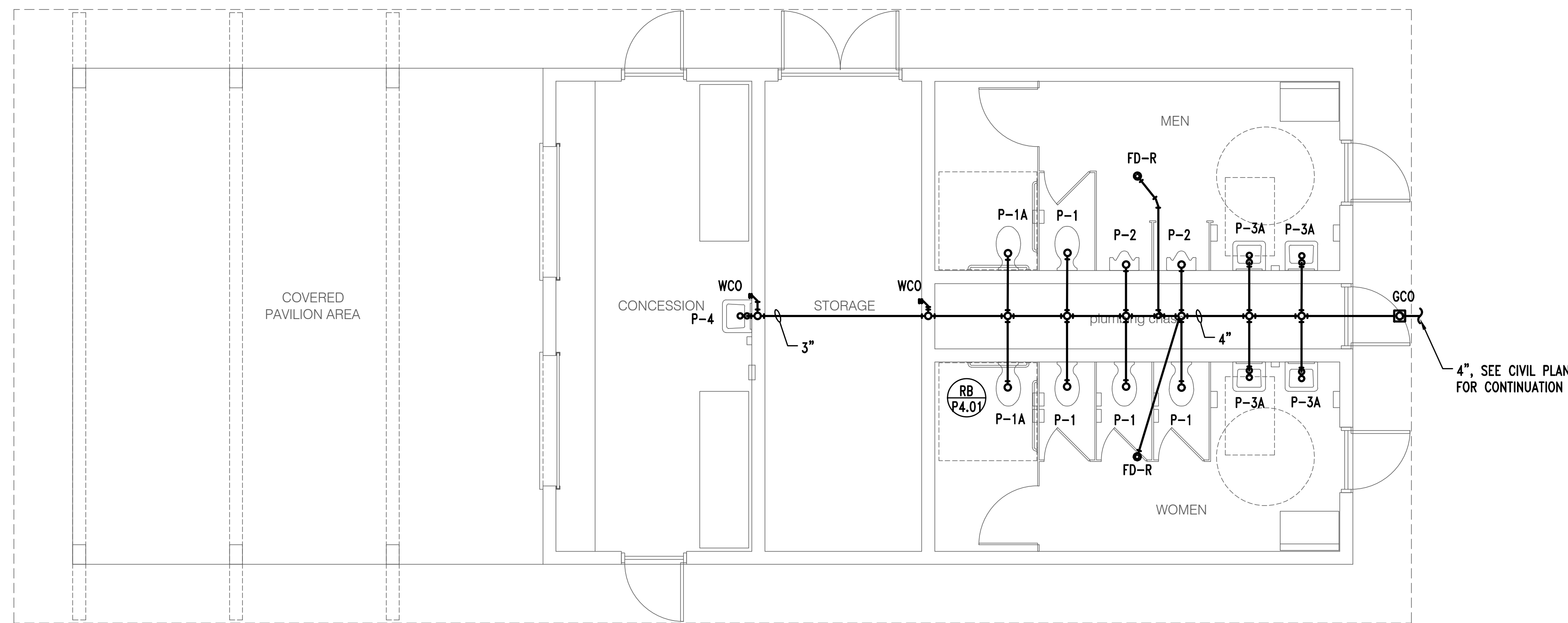


1 P2.01 1/4" = 1'-0"

PLUMBING FLOOR PLAN - PRESSURE

KEYED NOTES:

HB TO ALSO BE USED FOR DRAINING OF SYSTEM/WINTERIZING.



2 P2.01 1/4" = 1'-0"

PLUMBING FLOOR PLAN - NON-PRESSURE

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

0 2' 4' 8'

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CONSULTING ENGINEERS
PRATTVILLE, AL 334/358-2707

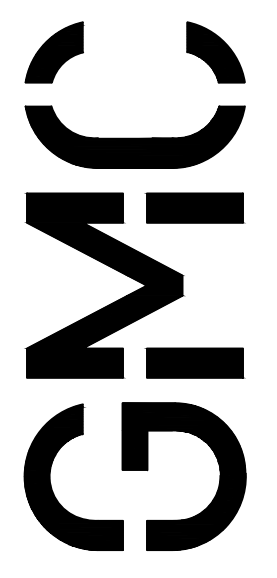
PLUMBING FLOOR PLAN

NORTHEAST COMMUNITY
COMPLEX SOCCER FIELDS
HALE BOWEN DRIVE, DALTON, GA



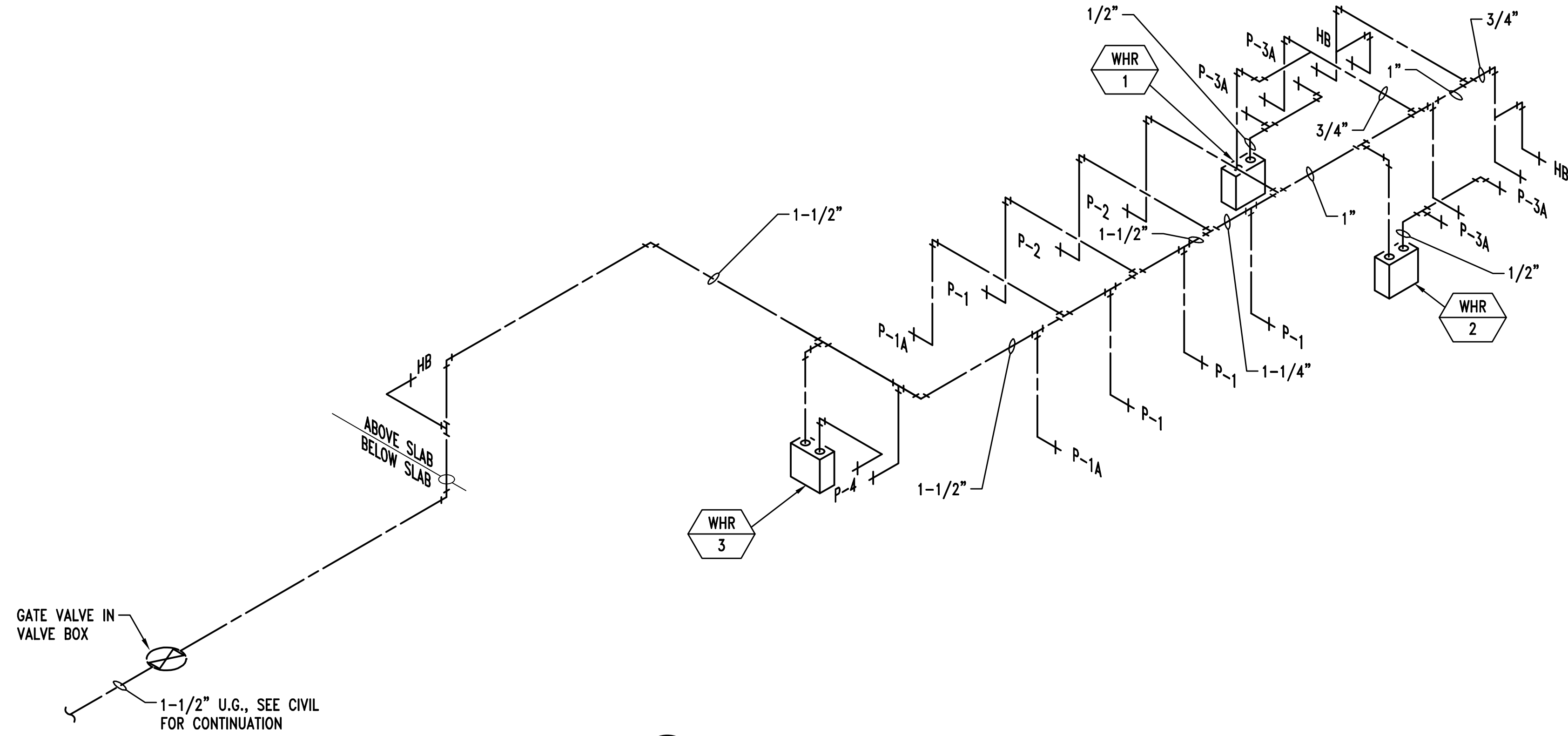
GMC #CATL210004
Construction Drawings

ISSUE	DATE
PERMIT SET	6/23/2021
COUNTY COMMENTS	8/02/2021

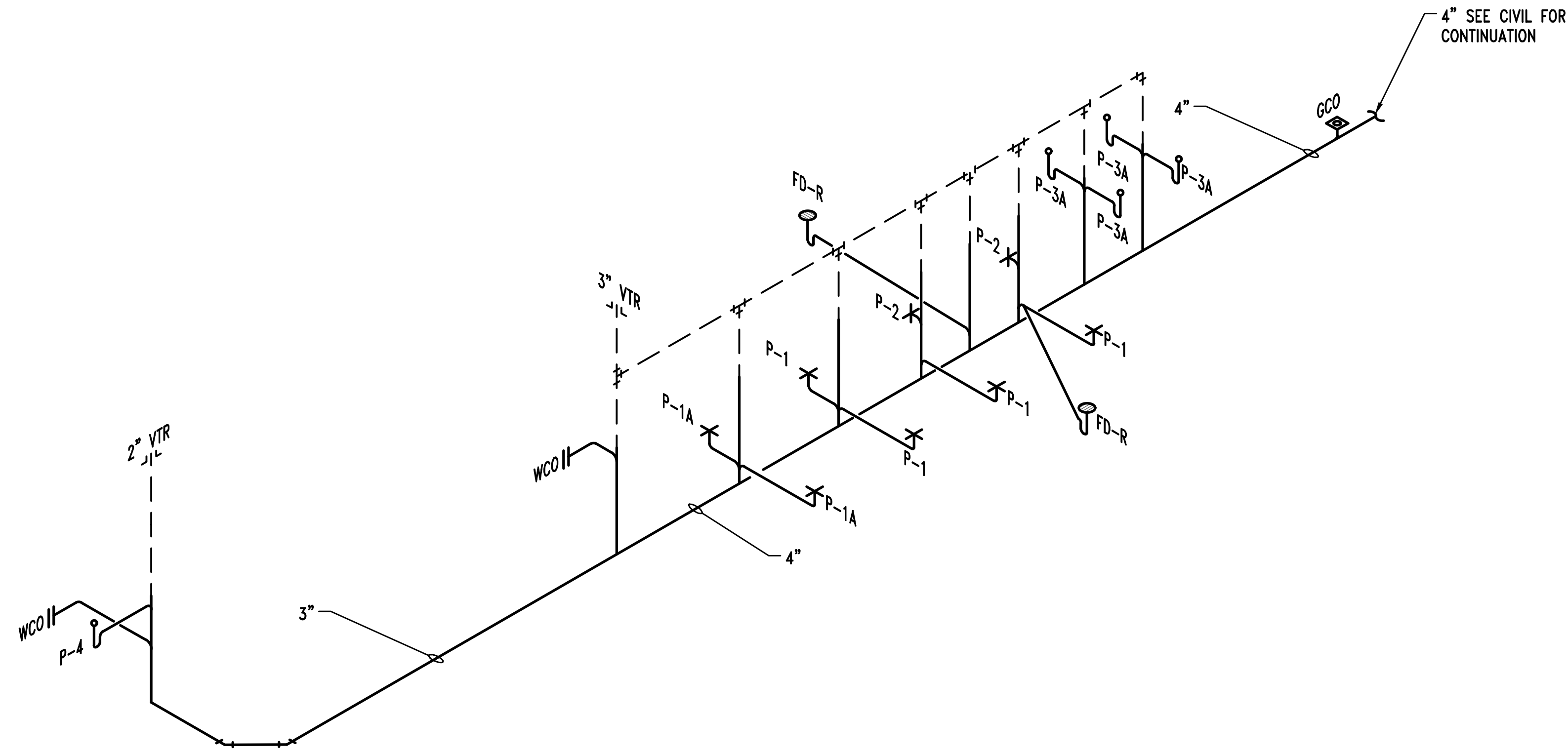


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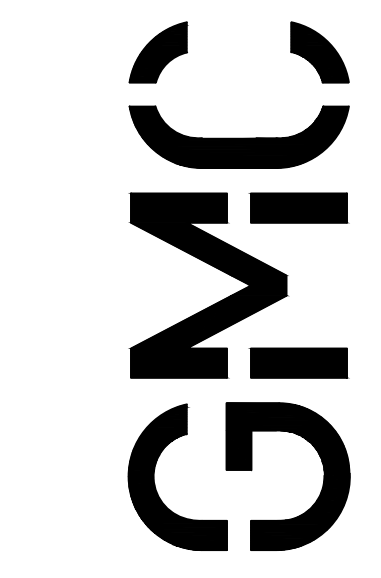
P2.01
sheet 4 of 5



RA PLUMBING RISER - PRESSURE
 P2.01|P4.01 NOT TO SCALE



RB PLUMBING RISER - NON-PRESSURE
 P2.01|P4.01 NOT TO SCALE



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ISSUE	DATE
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NORTHEAST COMMUNITY
 COMPLEX SOCCER FIELDS
 HALE BOWEN DRIVE, DALTON, GA



PLUMBING RISER
 DIAGRAMS

P4.01
 sheet 5 of 5

GMC #CATL210004
 Construction Drawings



CITY COUNCIL AGENDA REQUEST

Meeting Type: Mayor & Council Meeting

Meeting Date: 11/1/21

Agenda Item: Change Order for Tennis Courts at Lakeshore Park

Department: DPRD

Requested By: Greg Walker

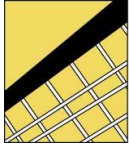
Reviewed/Approved by City Attorney?

Cost: \$37,300

Funding Source if Not in Budget CIP

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

Change Order #1 with Signature Tennis Courts for Resurfacing Tennis Courts 11-20 at Lakeshore Park



SIGNATURE TENNIS COURTS

Mike Imbornone, CTCB, Owner
PHONE: 404-642-5002
FAX: 770-516-0916
MIKE@SIGNATURETENNIS.COM



October 12, 2021

TO: CITY OF DALTON / LAKESHORE PARK
28 CEDAR STREET DALTON, GA 30720

ATTN: GREG WALKER EMAIL: GWALKER@DALTONGA.GOV
CC: MICHELE BATES EMAIL: MBATES@DALTONGA.GOV

PHONE: 706-463-5837

RESURFACE COURTS 11 - 20

1. CLEAN COURTS AS NECESSARY
2. FILL ALL STRUCTURAL CRACKS WITH E330 CRACK FILLER AND INSTALL MULTI LAYERED RITE WAY CRACK REPAIR SYSTEM OVER ALL STRUCTURAL CRACKS (1/16" OR LARGER)
THE RITE WAY PRODUCT WILL NOT BUBBLE, HAS NO HOLLOW SOUND AND INCORPORATES A MICRO SEALANT MOISTURE BARRIER OVER THE CRACKS.
3. FILL ALL LOW LYING AREAS AND PAVING JOINTS WITH ACRYLIC PATCH BINDER
NOTE: THESE AREAS WILL IMPROVE BUT WILL NOT BE PERFECT
4. APPLY 3 COATS OF ACRYTECH FULL ACRYLIC PLAYING SURFACE
NOTE: IF ACRYTECH IS OUT OF STOCK, WE WILL USE A BRAND THAT IS EQUAL IN QUALITY
(COLORS WILL BE ROYAL BLUE AND LIGHT GREEN UNLESS SPECIFIED OTHERWISE)
5. STRIPE 10 REGULATION TENNIS COURTS WITH ONE COAT OF PRIMER AND TWO COATS OF TEXTURIZED WHITE LINE PAINT
6. SAND AND PAINT NET POSTS, RE-HANG NETS AND CLEAN WORK SITE THOROUGHLY

RESURFACE WITH RITE WAY CRACK REPAIR SYSTEM: \$37,300

NOTE: A 5 YEAR WARRANTY IS INCLUDED ON ALL EXISTING STRUCTURAL CRACKS COVERED WITH RITE WAY. IF ANY AREAS FAIL, THE CRACKS WILL BE RE-DONE AND AREA WILL BE RE-COLOR COATED. THIS WARRANTY DOES NOT INCLUDE ANY NEW CRACKS THAT MAY DEVELOP IN THE FUTURE.

NOTE: SIGNATURE TENNIS DOES NOT FEEL THAT IT IS AN OPTION TO RESURFACE THE COURTS WITHOUT INSTALLING THE RITE WAY SYSTEM OR A COMPETITIVE PRODUCT, AS THE CRACKS WILL MOST ASSUREDLY RETURN DURING THE FIRST WINTER.

NOTE: OWNER MUST PROVIDE WATER AND ELECTRICITY WITHIN CLOSE PROXIMITY OF COURTS

NOTE: THIS QUOTE IS GOOD FOR 30 DAYS. AFTER 30 DAYS THE PROJECT WILL NEED TO BE REPRICED DUE TO MATERIAL PRICING BEING UNSTABLE.

ACCEPTANCE SIGNATURE

DATE



CITY COUNCIL AGENDA REQUEST

Meeting Type:	Mayor & Council Meeting
Meeting Date:	November 1, 2021
Agenda Item:	Creation of Defined Contribution Committee
Department:	Human Resources
Requested By:	Greg Batts
Reviewed/Approved by City Attorney?	No - not necessary
Cost:	-0-
Funding Source if Not in Budget	N/A

Please Provide A Summary of Your Request, Including Background Information to Explain the Request:

As part of the safe harbor requirements for our new defined contribution plan, we must appoint a committee that oversees the plan (investment performance, adherence to rules of the plan, etc.). Recommend the following positions be named as standing committee members:

- City Administrator - City of Dalton
- HR Director - City of Dalton
- Finance Director - City of Dalton
- CEO - Dalton Utilities
- CAO - Dalton Utilities