400 Harvey Road, Manchester, NH 03103 | T (603) 627-5500 | F (603) 627-5501
allenmajor.com

ALLEN & MAJOR ASSOCIATES, INC.

May 8, 2023

Mark Collopy
Chair, Rochester Planning Board
City Hall Annex, 33 Wakefield Street
Rochester, NH 03867

A&M Project #: 2912-01A
Re: Sig Sauer Phased Master Plan Phase 1 narrative

Dear Mr. Collopy:

Allen & Major Associates, Inc., on behalf of our client, Sig Sauer, has prepared this narrative to describe the proposed Phase 1 construction activities at the Sig Sauer facility on Amarosa Drive. The scope of the Phase 1 work is also depicted on the "Phased Master Plan" site plan set, dated January 20, 2023 and revised as of May 8, 2023.

The Phase 1 activities, in general, consist of a building addition at the rear of the site and associated utility work to support the addition. The addition is labeled as Building 127, which is an internal numbering convention for the owner and not intended to be an address. Building 127 is a single story 27,700± square foot addition with common walls to existing Buildings 125 and 126. The location is shown on Sheet C-102 of the Phased Master Plan.

The limits of Phase 1 are delineated on the Phased Master Plan with a red boundary line. A necessary part of the Phase 1 work is a sewer connection to Milton Road. The connection would occur along the frontage of 124 Milton Road at an existing sewer manhole in the street. The proposed Phase 1 sewer work is Shown on the "Utilities Plan", Sheet C-104.

The existing water connection to Milton Road would be maintained; however, the DPW has requested that an above ground master meter and back-flow preventer be installed where the 12" water line enters the site. The master meter and back-flow preventer are shown on Sheet C-104D.

There is a 24" RCP drain line that currently runs beneath the building and discharges at the rear of the site. This drain line receives runoff from Amarosa Drive and a portion of Milton Road. The 24" drain line will be re-routed as part of the Phase 1 improvements. The drainage will be intercepted prior to going under the building at drain manhole 3 (DMH3) shown on Sheet C-103B. The drainage is routed through a chamber system to provide water quality treatment prior to discharge. A Phase 1 drainage report has been prepared and the stormwater model demonstrates no adverse impact to the existing drainage system in the proposed condition. The chamber system is a temporary measure until the Route 125 roadway improvements are completed, at which point the stormwater from Route 125 will be directed to a new stormwater management facility off-line of the Sig Sauer complex.

The Phased Master Plan is designed to comply with the City's Chapter 218. *Stormwater Management and Erosion Control requirements*. However, the full stormwater improvements require certain land transfers and offsite roadwork to be completed to accommodate the drainage work. Phase 1 is intended as an interim step, which provides stormwater improvements, but does not fully meet the requirements of Chapter 218. As such, a waiver is requested from 218-10.D. *Stormwater Management Design Standards for Redevelopment* which would allow the Phase 1 site improvements to proceed.

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The Phase 1 improvements occur on three separate parcels. The majority of the work is within 7 Amarosa Drive, which is the Sig Sauer facility. The new sewer connection will bisect 124 Milton Road and 16 Amaroso Drive in order to connect to the municipal sewer. Both lots are currently owned by Sig Sauer and a proposed sewer easement for the benefit of 7 Amarosa is attached to this letter. There is no land transfer required to accommodate the Phase 1 improvements.

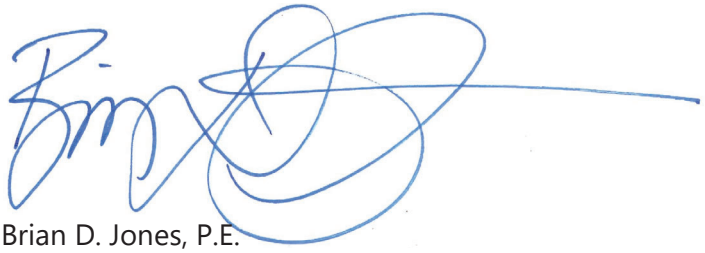
There is no parking expansion proposed as part of Phase 1. There are currently 587 parking spaces on-site. In order to construct the Phase 1 building addition (Building 127), 76 parking spaces will be eliminated resulting in a new total of 511 spaces. This exceeds the number of spaces required under zoning, which is 304.

There is wetland buffer disturbance proposed as part of the Phase 1 work. This is primarily within existing disturbed (paved) areas; however, the new drainage outfall also occurs within the wetland buffer. A Conditional Use Permit has been submitted requesting approval to work within the buffer. The Phase 1 work is not expanding the pavement or impervious area within the wetland buffer.

We thank you in advance for your consideration and look forward to presenting this project to the Rochester Planning Board.

Very Truly Yours,

ALLEN & MAJOR ASSOCIATES, INC.



Brian D. Jones, P.E.
Senior Project Manager

Attachments:

1. Sig Sauer Non-Residential Site Plan application
2. Sig Sauer Conditional Use application
3. Sig Sauer Waiver Request
4. Sig Sauer draft sewer easement plan
5. Sig Sauer Phased Master Plan, revised as of April 27, 2023 (submitted under separate cover)

NONRESIDENTIAL SITE PLAN APPLICATION

City of Rochester, New Hampshire

Date: 01/20/2023 Is a conditional use needed? Yes:____ No: X Unclear:____
(If so, we encourage you to submit an application as soon as possible.)

Property information

Tax map #: 205 & 210; Lot #('s): 205: 1, 2, & 6 210: 32 & 33; Zoning district: Industrial - Map 205: Lots 1, 2, & 6, Map 210: Lot 33 Highway Commercial - Map 210: Lot 32

Property address/location: 7, 18, 16 Amarosa Drive & 0, 124 Milton Road

Name of project (if applicable): Sig Sauer

Size of site: 44.79 (Combined) acres; overlay zoning district(s)? N/A

Property owner

Name (include name of individual): Map 205, Lot 1 & Map 210, Lot 33: City of Rochester
Map 205, Lot 2 & Map 210, Lot 32: Sig Sauer Real Estate, Inc.
Map 205, Lot 6: NH Business Finance Authority

Mailing address: City of Rochester: 31 Wakefield Street, Rochester, NH 03867
Sig Sauer Real Estate, Inc.: 72 Pease Blvd., Newington, NH 03801
NH Business Finance Authority: 135 North State Street, Concord, NH 03301

Telephone #: Sig Sauer, attn: Rob Terrazzano - (603) 994-0023 Email: robert.terrazzano@sigsauer.com

Applicant/developer (if different from property owner)

Name (include name of individual): _____

Mailing address: _____

Telephone #: _____ Email: _____

Engineer/designer

Name (include name of individual): Allen & Major Associates, Inc. (Attn: Brian Jones, PE)

Mailing address: 400 Harvey Road, Manchester, NH 03103

Telephone #: 603-627-5500 Fax #: 603-627-5501

Email address: bjones@allenmajor.com Professional license #: 13809

Proposed activity (check all that apply)

New building(s): ✓ Site development (other structures, parking, utilities, etc.): ✓

Addition(s) onto existing building(s): ✓ Demolition: _____ Change of use: _____

Describe proposed activity/use: The project proposes to add multiple building additions, update utility connections, enhance stormwater design & treatment, and tie into the municipal sewer system for the existing Sig Sauer Facility. The project will also introduce a round-a-bout in Milton Road (Route 125).

Describe existing conditions/use (vacant land?): The existing 7 & 16 Amarosa Drive properties are used for the existing Sig Sauer Facility. The existing 8 Amarosa Drive and 0 Milton Road properties are vacant to date. The 124 Milton Road property is currently occupied by two buildings along the roadway and contains undeveloped land in the centralized and rear portions of the parcel.

Utility information

City water? yes ✓ no ___; How far is City water from the site? 50+/- feet

City sewer? yes ✓ no ___; How far is City sewer from the site? 25+/- feet

If City water, what are the estimated total daily needs? 11,700 gallons per day

If City water, is it proposed for anything other than domestic purposes? yes ✓ (Fire) no ___

If City sewer, do you plan to discharge anything other than domestic waste? yes ___ no ✓

Where will stormwater be discharged? On-site storm water management facilities with outlet to wetland area

Building information

Type of building(s): Concrete block masonry with corrugated metal facade/finish.

Building height: 1-2 stories, <55 ft (Varies) Finished floor elevation: Varies, average is 247.9

Other information

parking spaces: existing: 587+/- total proposed: 812 ; Are there pertinent covenants? N/A

Number of cubic yards of earth being removed from the site TBD

Number of existing employees: 300+/- ; number of proposed employees total: 475+/-

Check any that are proposed: variance N/A ; special exception ✓ ; conditional use N/A

Wetlands: Is any fill proposed? N/A ; area to be filled: N/A ; buffer impact? ✓

Proposed *post-development* disposition of site (should total 100%)

	Square footage	% overall site
Building footprint(s) – give for each building	271,800 +/- sf (existing building with additions)	13.8%
Parking and vehicle circulation	434,700 +/- sf	22.1%
Planted/landscaped areas (excluding drainage)	155,750 +/- sf	7.9%
Natural/undisturbed areas (excluding wetlands)	319,600 +/- sf	16.2%
Wetlands	786,900 +/- sf	40.0%
Other – drainage structures, outside storage, etc.	1,050 +/- sf	0.005%

Comments

Please feel free to add any comments, additional information, or requests for waivers here:

_____

_____

Submission of application

This application must be signed by the property owner, applicant/developer (if different from property owner), *and/or* the agent.

I(we) hereby submit this Site Plan application to the City of Rochester Planning Board pursuant to the City of Rochester Site Plan Regulations and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant/developer (if different from property owner)/as agent, I attest that I am duly authorized to act in this capacity.

Signature of property owner: Jeff Chierepko VP US Facilities Mgt, Sig Sauer Digitally signed by Jeff Chierepko VP US Facilities Mgt, Sig Sauer Date: 2023.01.18 13:07:40 -05'00'

Date: 1/18/23

Signature of applicant/developer: _____

Date: _____

Signature of agent: _____

Date: _____

Authorization to enter subject property

I hereby authorize members of the Rochester Planning Board, Zoning Board of Adjustment, Conservation Commission, Planning Department, and other pertinent City departments, boards and agencies to enter my property for the purpose of evaluating this application including performing any appropriate inspections during the application phase, review phase, post-approval phase, construction phase, and occupancy phase. This authorization applies specifically to those particular individuals legitimately involved in evaluating, reviewing, or inspecting this specific application/project. It is understood that these individuals must use all reasonable care, courtesy, and diligence when entering the property.

Signature of property owner: _____

Date: _____

Site Plan Checklist (residential and nonresidential)

**To be filled out by applicant/agent (with notes to be inserted by staff)*
See regulations for other specific requirements
City of Rochester Planning & Development Department

Project Name: Sig Sauer Map: 205 Lot: 210 1, 2, & 6 32 & 33 Date: 01-20-23

Applicant/agent: Robert Terrazzano Signature: _____

(Staff review by: _____ Date: _____)

General items

	Yes	No	N/A	Waiver Requested	Comments
4 sets completed application	☑	☐	☐	☐	_____
Total application fee	☑	☐	☐	☐	_____
4 copies of narrative (drainage report)	☑	☐	☐	☐	_____
3 sets of full-size plans	☑	☐	☐	☐	_____
2 sets of 11 X 17 reductions	☑	☐	☐	☐	_____
Completed abutters list	☑	☐	☐	☐	_____
Copy of existing covenants, easements, deed restrictions	☐	☐	☐	☐	_____
Plan Information Basic information including: • Title sheet • Name of Project • Date • North arrow • Scale • Legend • Revision block • Vicinity sketch -not less than 1" = 1,000'	☑	☐	☐	☐	_____
Name and address of developer/applicant	☑	☐	☐	☐	_____
Name, stamp, and NH license # of land survey, engineer, and/or architect	☑	☐	☐	☐	_____
City tax map & lot #'s	☑	☐	☐	☐	_____
Notation on plans: "For more information about this site plan contact…."	☑	☐	☐	☐	_____

General items Continued

	Yes	No	N/A	Waiver Requested	Comments
Approval block (for signature by staff attesting to Planning Board approval)	☑	☐	☐	☐	_____
References to neighboring plans and subdivisions	☐	☐	☑	☐	_____
Surveyed property lines including: • existing and proposed bearings • existing and proposed distances • pins, stakes, bounds • monuments • benchmarks	☐	☑	☐	☐	_____
Include error of closure statement	☐	☑	☐	☐	_____
Information on abutting properties: • owner name • owner address • tax map and lot # • square footage of lots • approximate building footprints • use	☑	☐	☐	☐	_____

Zoning

Zoning designations of subject tract and in vicinity of tract	☑	☐	☐	☐	_____
Zoning requirements for district: • frontage • lot dimensions/density • all setbacks • lot coverage	☑	☐	☐	☐	_____
Zoning overlay districts	☐	☐	☑	☐	_____

Existing Topographic Features:

Contour lines a (not to exceed two-foot Intervals, except on steep slopes) and spot elevations	☐	☑	☐	☐	_____
Soil types and boundaries	☑	☐	☐	☐	_____
Soil test pit locations, profiles, and Depth to water table and ledge	☐	☑	☐	☐	_____
Percolation test locations and results	☐	☑	☐	☐	_____

Existing Topographic Features Continued:

	Yes	No	N/A	Waiver Requested	Comments
Water features (ponds, streams)	☑	☐	☐	☐	_____
Wetlands including name of certified Wetlands scientist who delineated	☑	☐	☐	☐	_____
Statement whether located in flood area, And if so, 100 year flood elevation	☑	☐	☐	☐	_____
Delineation of trees and open areas	☑	☐	☐	☐	_____
Overview of types of trees and vegetation	☑	☐	☐	☐	_____
Stone walls and archaeological features	☑	☐	☐	☐	_____
Locations of trails and paths	☐	☐	☑	☐	_____
Other natural/cultural resources (productive farmland, habitats, scenic views, historic structures, etc)	☐	☐	☑	☐	_____

Building Information

Existing buildings/structures including square footage and use	☑	☐	☐	☐	_____
Proposed building/structures including • square footage • first floor elevation • use • # bedrooms per unit if residential	☑	☐	☐	☐	_____
Elevation drawing of proposed buildings and structures as follows: • Showing all four sides • Drawn to scale with dimensions • Showing exterior materials • Showing exterior colors	☐	☑	☐	☐	_____

Circulation and Parking Plans

Existing and proposed driveways and access points including: • Width of opening • Turning radii • Cross section of driveway	☑	☐	☐	☐	_____
Curbing & edge treatment	☑	☐	☐	☐	_____
Traffic control devices, if appropriate:	☐	☐	☑	☐	_____

Circulation and Parking Plans Continued:

	Yes	No	N/A	Waiver Requested	Comments
Number of parking spaces • required by ordinance • proposed	☑	☐	☐	☐	_____
Parking layout and dimensions of spaces	☑	☐	☐	☐	_____
Handicap spaces	☑	☐	☐	☐	_____
Loading area	☑	☐	☐	☐	_____
Pedestrian circulation plan (including existing sidewalks in vicinity, if any)	☑	☐	☐	☐	_____
Bicycle rack, if appropriate	☐	☐	☑	☐	_____
Buffers, landscaping & screening	☑	☐	☐	☐	_____
Snow storage areas/plan	☑	☐	☐	☐	_____

Utilities

Show all pertinent existing and proposed profiles, elevations, materials, sizes, and details

Water lines/well (with protective radius)	☑	☐	☐	☐	_____
Sewer lines/septic and leaching areas	☑	☐	☐	☐	_____
Pump stations	☑	☐	☐	☐	_____
Stormwater management system: pipes, culverts,, catch basins detention/ retention basins, swales, rip rap, etc.	☑	☐	☐	☐	_____
Fire hydrant location(s) and details	☑	☐	☐	☐	_____
Electric, telephone, cable TV (underground or overhead)	☑	☐	☐	☐	_____
Gas lines	☑	☐	☐	☐	_____
Fire alarm connections	☑	☐	☐	☐	_____
Treatment of solid waste (dumpsters?)	☑	☐	☐	☐	_____
Handing of oil, grease, chemicals hazardous materials/waste	☑	☐	☐	☐	_____

Landscaping Plan

	Yes	No	N/A	Waiver Requested	Comments
Demarcation of limits of construction, clear delineation of vegetation to be saved, and strategy for protecting vegetation	☑	☐	☐	☐	_____
Proposed ground cover, shrubbery, and trees including: • botanical and common names • locations and spacing • total number of each species • size at installation	☑	☐	☐	☐	_____
Planting plan (size of holes, depth of planting, soil amendments, etc.)	☑	☐	☐	☐	_____
Irrigation: system? soaker hose? Manual? underground, etc.	☑	☐	☐	☐	_____
Protection of landscaping from vehicles (Curb stops, berm, railroad ties, etc)	☑	☐	☐	☐	_____
Specification all finished ground surfaces and edges (greenspace, mulch, asphalt, concrete, etc.)	☑	☐	☐	☐	_____
Fencing/screening	☑	☐	☐	☐	_____

Signage

Location and type of signs: • Attached to building • Freestanding • Directional, if appropriate	☑	☐	☐	☐	_____
Dimensions of signs: • Height • Area • Setback	☐	☑	☐	☐	_____
Elevation drawings with colors & materials	☐	☑	☐	☐	_____
Type of Illumination, if proposed	☐	☑	☐	☐	_____

Outdoor Lighting

	Yes	No	N/A	Waiver Requested	Comments
Locations	☑	☐	☐	☐	_____
Height of fixtures	☑	☐	☐	☐	_____
Wattage	☑	☐	☐	☐	_____
Type of light (high pressure sodium, etc)	☑	☐	☐	☐	_____
Design/cut sheets of fixtures	☐	☑	☐	☐	_____
Illumination study, if appropriate	☑	☐	☐	☐	_____

Other Elements

Traffic study, if appropriate	☐	☑	☐	☐	_____
Drainage study with calculations, storm Water impact analysis, and mitigation plan	☑	☐	☐	☐	_____
Grading plan (including finish grades)	☑	☐	☐	☐	_____
Earth being removed from site(in cubic yards)	☐	☑	☐	☐	_____
Erosion and sedimentation plan	☑	☐	☐	☐	_____
Proposed covenants, easements, And deed restrictions, if any	☐	☑	☐	☐	_____
Fiscal impact study, if requested	☐	☑	☐	☐	_____

Additional Comments:

Application for Conditional Use

Conditional Uses and Buffer Reductions
Section 42.19 - Conservation Overlay District
City of Rochester, NH

Date: 02-23-23

Property information

Tax map #: 205; Lot #('s): Lot 6; Zoning district: Industrial

Property address/location: 7 Amarosa Drive

Name of project (if applicable): Sig Sauer

Property owner

Name (include name of individual): Map 205, Lot 6: NH Business Finance Authority & Map 210 Lot 32 Sig Sauer Real Estate, Inc.

Mailing address: Map 205, Lot 6: 135 North State Street, Concord, NH 03301 & Map 210 Lot 32: 72 Pease Blvd., Newington, NH 03801

Telephone #: Sig Sauer, attn: Rob Terrazzano - (603) 994-0023 Fax _____

Applicant/developer (if different from property owner)

Name (include name of individual): _____

Mailing address: _____

Telephone #: _____ Fax #: _____

Engineer/designer

Name (include name of individual): Allen & Major Associates, Inc. (attn: Brian D. Jones, PE)

Mailing address: 400 Harvey Road, Manchester, NH 03103

Telephone #: 603-627-5500 Fax #: 603-627-5501

Email address: bjones@allenmajor.com Professional license #: 13809

Proposed Project

Please describe the proposed project: The project proposes to add building additions, update utility connections, enhance stormwater management and treatment, and tie into the municipal sewer system.

Please describe the existing conditions: The 7 Amarosa Drive property (Map 205 Lot 6) is the existing Sig Sauer facility. It is developed with multiple interconnected buildings parking lots. There is a large wetland system between facility and the rear property line.

(continued *Conditional Use* application Tax Map: 205 Lot: 6)

Please fill in **one of the next two sections – for either Conditional Uses or Buffer Reductions**

Conditional Uses

For Conditional Uses only, justify the proposal in terms of each of the criteria below (in accordance with subsection 42.19 (i) (1) (A)). All four criteria must be satisfied.

(i) The proposed construction is essential to the productive use of land not in the COD.

The work proposed within the Conservation Overlay District (COD) is limited to grading and installation of stormwater managment facilities.

The Sig Sauer facility, which already employs hundreds of local people, is expanding its operations and therefore must expand the

building. The proposed work does not result in impervious area being closer to the wetlands than already exists.

(ii) Design and construction methods will be such as to minimize impact upon the wetlands and will include restoration of the site consistent with the permitted use.

The building addition occurs within previously developed (paved) area. There is no proposed expansion or impervious area within the CO District.

Work in the CO District is limited to the construction of a new drainage outfall for the stormwater from Amarosa Drive. The stormwater is

routed through a stormwater Best Management Practice (BMP) to provide water quality treatment prior to discharge.

(iii) There is no feasible alternative route on land controlled by the applicant that does not cross the CO District nor has less detrimental impact on the wetlands. Nothing in this Section shall limit the applicant from exploring alternatives with abutting property owners.

There is no feasible alternative for the storm water outfall due to the existing grades and existing drainage elevations.

The drainage outfall must occur within the CO District due to existing grades and drainage elevations.

(iv) Economic advantage is not the sole reason for the proposed location of work.

Economic advantage is not the reason for the proposed location of work. The work within the CO District is entirely based on existing

grades and existing drainage elevations.

(Buffer Reductions on next page)

Buffer Reductions

For Buffer Reductions only, justify the proposal in terms of each of the criteria below (in accordance with subsection 42.19 (i) (2) (B)). All four criteria must be satisfied.

(i) The structure for which the exception is sought cannot feasibly, after consideration of all reasonable alternatives, be constructed on a portion or portions of the lot, which lie outside the CO district, ***or*** the application of the CO district eliminates greater than 50% of the buildable area located on the parcel ***or*** in the judgment of the Planning Board, the proposed site layout would result in a significantly higher quality design.

Not applicable. The proposed building addition is outside of the CO District and within a previously paved area.

(ii) The proposed structure and use must be consistent with the purpose and intent of Section 42.19 and provisions must be made to ensure that drainage from the structure will not adversely impact any wetlands.

Not applicable. The proposed building addition is outside of the CO District and within a previously paved area.

(iii) There shall be no impervious areas for parking within the reduced buffer for which the Conditional Use Approval is sought.

There is no impervious area proposed within the buffer zone. Existing pavement is to remain.

(iv) The maximum building coverage is limited to 50% of the outer half of the buffer zone, as shown in the diagram below.

Not applicable. The proposed building addition is outside of the CO District and within a previously paved area.

(v) Best management practices must be demonstrated to the satisfaction of the Planning Board.

The proposed site improvements include stormwater BMPs to provide water quality treatment prior to discharge.

Submission of application

This application must be signed by the property owner, applicant/developer (if different from property owner), *and/or* the agent.

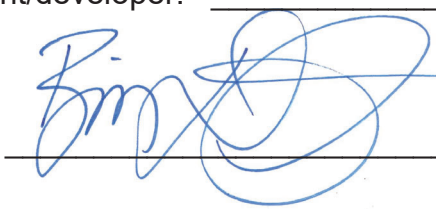
I(we) hereby submit this Conditional Use application to the City of Rochester Conservation Commission and Planning Board pursuant to the City of Rochester Zoning Ordinance and attest that to the best of my knowledge all of the information on this application form and in the accompanying application materials and documentation is true and accurate. As applicant/developer (if different from property owner)/as agent, I attest that I am duly authorized to act in this capacity.

Signature of property owner: Jeff Chierepko VP US Facilities Mgt, Sig Sauer Digitally signed by Jeff Chierepko VP US Facilities Mgt, Sig Sauer Date: 2023.02.23 16:16:51 -05'00'

Date: 3/23/23

Signature of applicant/developer: _____

Date: _____

Signature of agent: 

Date: 3/23/23

Authorization to enter subject property

I hereby authorize members of the Rochester Conservation Commission and Planning Board, and other pertinent City departments, boards and agencies to enter my property for the purpose of evaluating this application including performing any appropriate inspections. This authorization applies specifically to those particular individuals legitimately involved in evaluating, reviewing, or inspecting this specific application/project. It is understood that these individuals must use all reasonable care, courtesy, and diligence when entering the property. (It is not necessary to sign this provision if a Planning Board application has been submitted.)

Signature of property owner: _____

Date: _____

ALLEN & MAJOR ASSOCIATES, INC.

May 4, 2023

Mark Collopy
Chair, Rochester Planning Board
31 Wakefield Street
Rochester, NH 03867

RE: Sig Sauer Phased Master Plan
7,18,16 Amarosa Dr, & 0, 124 Milton Rd
Map 205, Lots 1, 2, & 6
Map 210, Lots 32 & 33
Application for Waiver from Regulation

Dear Mr. Collopy:

On behalf of our client, Sig Sauer, Allen & Major Associates (A&M) submits this *Application for Waiver from Regulation* as part of the *Nonresidential Site Plan Application* for the Sig Sauer facility. While the Phased Master Plan shows improvements across the site, the waiver request is limited to Phase 1 of the site redevelopment. Phase 1 includes a building addition, utility work, and stormwater improvements.

The Phased Master Plan is designed to comply with the City's Chapter 218. *Stormwater Management and Erosion Control requirements*. However, the full stormwater improvements require certain land transfers and offsite roadwork to be completed to accommodate the drainage work. Phase 1 is intended as an interim step, which provides stormwater improvements, but does not fully meet the requirements of Chapter 218.

The applicant requests that the Planning Board grant a waiver to 218-10.D. *Stormwater Management Design Standards for Redevelopment*, which would allow the Phase 1 site improvements to proceed. The applicant is committed to full compliance with the requirements as part of the Master Plan. Attached is a copy of the *Application for Waiver from Regulation* for your consideration. We look forward to discussing this with you at the May 15th Planning Board meeting.

Very truly yours,

ALLEN & MAJOR ASSOCIATES, INC.

Brian D. Jones, P.E.
Senior Project Manager

Attachment: Application for Waiver from Regulation

Application for Waiver from Regulation

City of Rochester, New Hampshire

Project name Sig Sauer Phased Master Site Plan

Case # Case# 205/210-1,2,6&32,33-I/HC-23 (SP-23-3)

Subdivision:_____ Lot line revision:_____ Site Plan:__X__ Minor Site Plan:_____

Section and subsection of the Site Plan Regulations from which the waiver is requested (including identifying number, title, and description of provision):

_____

_____

OR - Article, section, and subsection of the Site Plan Regulations from which the waiver is requested (including identifying number, title, and description of provision):

218-10.D. Stormwater Management Design Standards for Redevelopment

_____

_____

Reason/justification(s) for waiver request Full compliance requires certain land transfers and off site work which cannot be completed as part of Phase 1.

_____

_____

_____

Name of applicant or agent filling out this form Brian D. Jones, P.E.

Applicant? _____ Agent? __X__ Today's date May 4, 2023

---------- *Office use below* ----------

Waiver approved: _____ Waiver denied:_____

Comments: _____

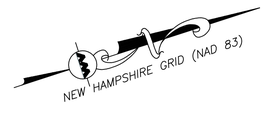
Signature: _____ Date: _____

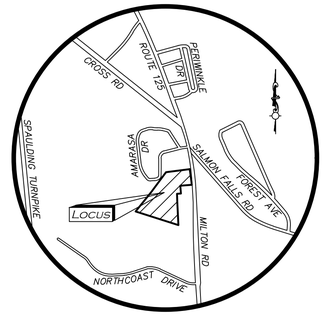
Locus References

- CITY OF ROCHESTER TAX MAP 210, LOT 32
- S.C.R.D. BOOK 4690, PAGE 488
- PLAN ENTITLED, "BOUNDARY SURVEY LAND OF STORAGE BARN OF ROCHESTER, LLC 124 MILTON ROAD ROCHESTER, NH TAX MAP 210, LOT 32", SCALE 1"=50', DATED SEPTEMBER 6, 2019, PREPARED BY BERRY SURVEYING & ENGINEERING, AND ON FILE AT THE S.C.R.D. AS PLAN NO. 11963

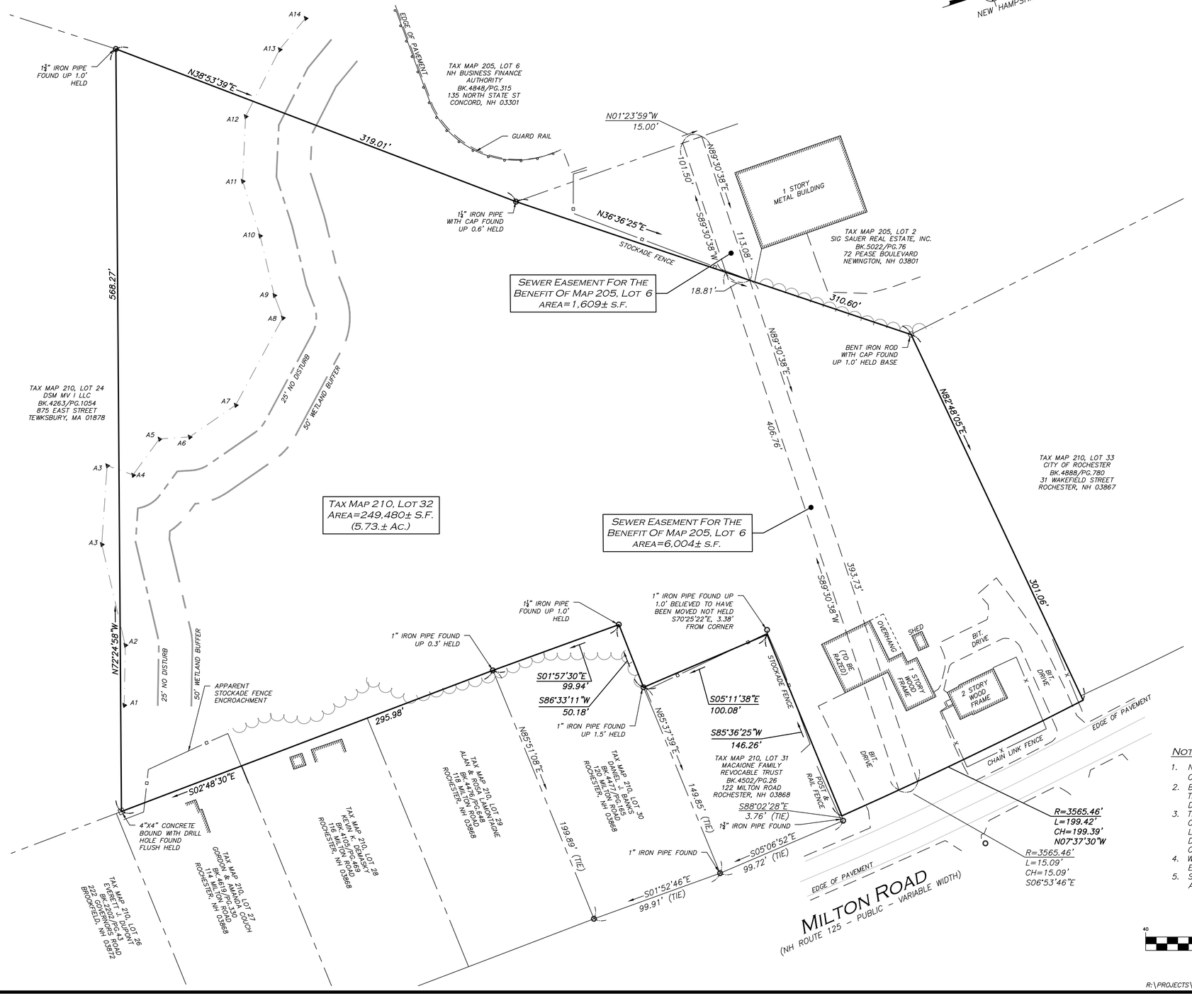
Plan References

- PLAN ENTITLED, "LOT CONSOLIDATION PLAN ROCHESTER, N.H. FOR CABLETRON SYSTEMS, INC.", SCALE 1"=100', DATED OCT. 1994, PREPARED BY NORWAY PLAINS ASSOCIATES, INC., AND ON FILE AT THE S.C.R.D. AS PLAN NO. 46-32
- PLAN ENTITLED, "SUBDIVISION OF LAND ROCHESTER, N.H. FOR THOMAS R. AUBERT * WILLIAM ANCTIL", SCALE 1"=100', DATED APRIL 17, 1987, PREPARED BY NORWAY PLAINS ASSOCIATES, INC., AND ON FILE AT THE S.C.R.D. AS PLAN NO. 31A-83
- PLAN ENTITLED, "SUBDIVISION OF LAND ROCHESTER, N.H. FOR SALMON RIVERS REALTY CORP.", SCALE 1"=100', DATED JUNE 28, 1985, PREPARED BY JOHN W. DURGIN ASSOCIATES, INC., AND ON FILE AT THE S.C.R.D. AS PLAN NO. 27-95.





LOCUS MAP
(NOT TO SCALE)



LEGEND

STONE BOUND (SB)	⊡
IRON PIPE (IP)	o
IRON ROD (IR)	○
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	x
STOCKADE FENCE	▫
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

NOTES

1. NORTH ARROW IS BASED ON NEW HAMPSHIRE GRID COORDINATE SYSTEM (NAD 83).
2. BOOK/PAGE AND PLAN REFERENCES ARE TAKEN FROM THE STRAFFORD COUNTY REGISTRY OF DEEDS IN DOVER, NH.
3. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE UNWRITTEN RIGHTS, DETERMINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
4. WETLAND FLAGS SHOWN HEREON WERE SET BY GOVE ENVIRONMENTAL IN DECEMBER, 2022.
5. SEWER EASEMENTS SHOWN HEREON ARE PROPOSED AND DO NOT CURRENTLY EXIST.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

R:\PROJECTS\2912-01A\SURVEY\DRAWINGS\CURRENT\S-2912-01A-SEWER EASE.DWG

"I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO THIS TITLE AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN. THIS PLAN IS THE RESULT OF AN ACTUAL FIELD SURVEY MADE ON THE GROUND ON OR BETWEEN DECEMBER 27, 2022 AND DECEMBER 30, 2022 AND HAS A MAXIMUM ERROR OF CLOSURE OF ONE PART IN TEN THOUSAND ON ALL PROPERTY LINES WITHIN AND BORDERING THE SUBJECT PROPERTY."

ISSUED FOR REVIEW
MAY 4, 2023

JAMES P. SMITH NH LLS #908 — DATE

REV	DATE	DESCRIPTION

APPLICANT\OWNER:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
TAX MAP 210, LOT 32
124 MILTON ROAD
ROCHESTER, NH

PROJECT NO.	2912-01A	DATE:	5/04/23
SCALE:	1" = 40'	DWG. NAME:	SEE BELOW
DRAFTED BY:	AJR	CHECKED BY:	JPS

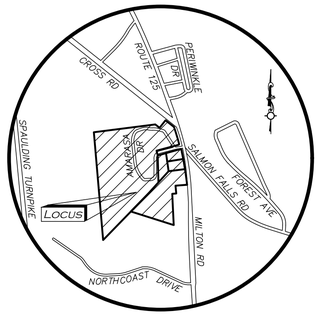
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MANCHESTER, NH 03103
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DRAWING TITLE: EASEMENT PLAN OF LAND

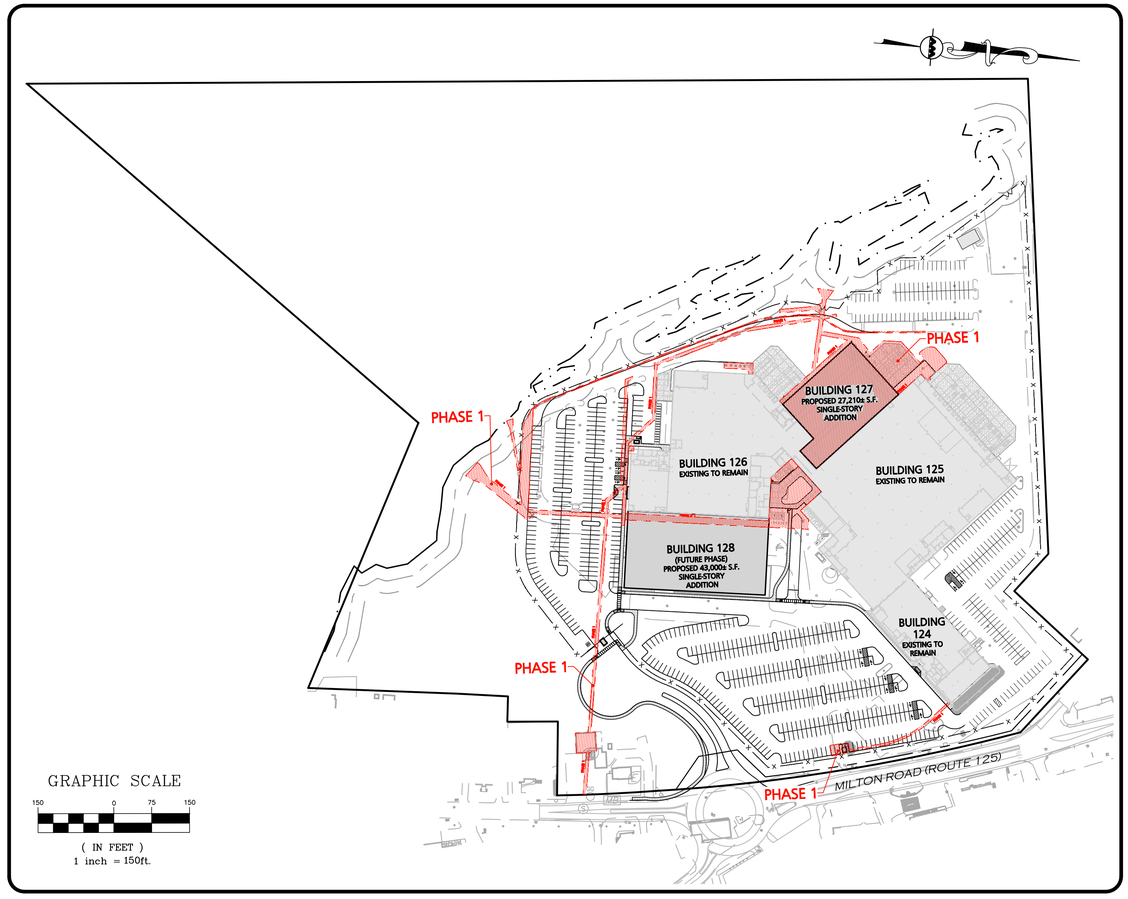
SHEET No. 1

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LOCUS MAP
NOT TO SCALE

PHASED MASTER SITE PLAN FOR
SIG SAUER
TAX MAP 205, LOTS 1, 2, & 6
TAX MAP 210, LOTS 32 & 33
ROCHESTER, NH 03868



LIST OF DRAWINGS						
DRAWING TITLE	SHEET NO.	ISSUED	REV 1	REV 2	REV3	REV4
OVERALL COMPILED EXISTING CONDITIONS	V-101	01-20-23	02-13-23	03-06-23	04-10-23	-
COMPILED EXISTING CONDITIONS	V-101A	01-20-23	02-13-23	03-06-23	04-10-23	-
COMPILED EXISTING CONDITIONS	V-101B	01-20-23	02-13-23	03-06-23	04-10-23	-
COMPILED EXISTING CONDITIONS	V-101C	01-20-23	02-13-23	03-06-23	04-10-23	-
COMPILED EXISTING CONDITIONS	V-101D	01-20-23	02-13-23	03-06-23	04-10-23	-
SITE SPECIFIC SOIL MAPPING	C-100	-	-	03-06-23	04-10-23	-
OVERALL EROSION CONTROL PLAN	C-101	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
EROSION CONTROL PLAN	C-101A	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
EROSION CONTROL PLAN	C-101B	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
EROSION CONTROL PLAN	C-101C	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
EROSION CONTROL PLAN	C-101D	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
OVERALL LAYOUT & MATERIALS PLAN	C-102	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
LAYOUT & MATERIALS PLAN	C-102A	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
LAYOUT & MATERIALS PLAN	C-102B	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
LAYOUT & MATERIALS PLAN	C-102C	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
LAYOUT & MATERIALS PLAN	C-102D	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
OVERALL GRADING & DRAINAGE PLAN	C-103	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
GRADING & DRAINAGE PLAN	C-103A	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
GRADING & DRAINAGE PLAN	C-103B	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
GRADING & DRAINAGE PLAN	C-103C	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
GRADING & DRAINAGE PLAN	C-103D	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
OVERALL UTILITIES PLAN	C-104	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
UTILITIES PLAN	C-104A	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
UTILITIES PLAN	C-104B	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
UTILITIES PLAN	C-104C	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
UTILITIES PLAN	C-104D	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
OVERALL SITE LIGHTING PLAN	C-105	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
SITE LIGHTING PLAN	C-105A	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
SITE LIGHTING PLAN	C-105B	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
SITE LIGHTING PLAN	C-105C	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
SITE LIGHTING PLAN	C-105D	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
TRUCK TURNING PLAN	C-106A	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
TRUCK TURNING PLAN	C-106B	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
SEWER PLAN & PROFILE	C-201	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
SEWER PLAN & PROFILE	C-202	-	02-13-23	03-06-23	04-10-23	04-27-23
DETAILS	C-501	01-20-23	02-13-23	03-06-23	04-10-23	-
DETAILS	C-502	01-20-23	02-13-23	03-06-23	04-10-23	-
DETAILS	C-503	01-20-23	02-13-23	03-06-23	04-10-23	-
DETAILS	C-504	01-20-23	02-13-23	03-06-23	04-10-23	-
DETAILS	C-505	01-20-23	02-13-23	03-06-23	04-10-23	-
DETAILS	C-506	01-20-23	02-13-23	03-06-23	04-10-23	-
DETAILS	C-507	01-20-23	02-13-23	03-06-23	04-10-23	04-27-23
DETAILS	C-508	-	-	-	04-10-23	-
DETAILS	C-509	-	-	-	04-10-23	-
DETAILS	C-510	-	-	-	04-10-23	-
OVERALL LANDSCAPE PLAN	L-101	-	02-13-23	03-06-23	04-10-23	-
LANDSCAPE PLAN	L-101A	-	02-13-23	03-06-23	04-10-23	-
LANDSCAPE PLAN	L-101B	-	02-13-23	03-06-23	04-10-23	-
LANDSCAPE PLAN	L-101C	-	02-13-23	03-06-23	04-10-23	-
LANDSCAPE PLAN	L-101D	-	02-13-23	03-06-23	04-10-23	-
LANDSCAPE NOTES	L-102	-	02-13-23	03-06-23	04-10-23	-
LANDSCAPE DETAILS	L-501	-	02-13-23	03-06-23	04-10-23	-

APPLICANT:
SIG SAUER REAL ESTATE, INC.
72 PEASE BLVD.
NEWINGTON, NH 03801
(603) 610-3000

ARCHITECT:
PORT ONE ARCHITECTS
959 ISLINGTON STREET
PORTSMOUTH, NH 03801
(603) 436-8891

CIVIL ENGINEER / LANDSCAPE ARCHITECT
ALLEN & MAJOR ASSOCIATES, INC.
400 HARVEY ROAD
MANCHESTER, NH 03103
(603) 627-5500

APPROVED - CITY PLANNING STAFF

CHAIRMAN: DATE: DATE OF APPROVAL:

STATE OF NEW HAMPSHIRE - BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER - 04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

FOR MORE INFORMATION ABOUT THIS PLAN SET, CONTACT:
BRIAN D. JONES AT ALLEN & MAJOR ASSC., INC. 603-627-5500

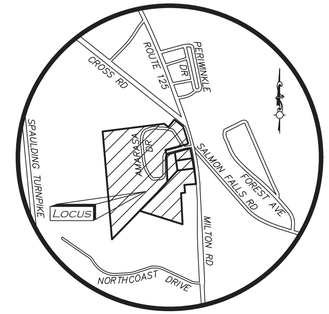
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ISSUED FOR SITE PLAN REVIEW: JANUARY 20, 2023
REVISION 1 PER TRG 1 COMMENTS: FEBRUARY 13, 2023
REVISION 2 PER TRG 2 COMMENTS: MARCH 6, 2023
REVISION 3 PER TRG 3 COMMENTS: APRIL 10, 2023
REVISION 4 PER PEER REVIEW COMMENTS: APRIL 27, 2023

R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_COVER.DWG





LOCUS MAP
(NOT TO SCALE)

LEGEND

STONE BOUND (SB)	⊡
IRON PIPE (IP)	o
IRON ROD (IR)	○
SEWER MANHOLE (SMH)	Ⓢ
UTILITY POLE	
UTILITY POLE W/LIGHT	
FIRE HYDRANT	
GAS GATE	GG
BOLLARD	⊕
GAS METER	G
ELECTRIC METER	E
MAILBOX	MB
SIGN	
TREE	
BUSH / SHRUB	
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	x
STOCKADE FENCE	
GAS LINE	G
OVERHEAD WIRES	OHW
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

NOTES

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE COMPILED EXISTING CONDITIONS INFORMATION. SEE SHEETS V-101A THROUGH V-101D FOR 1"=30' SCALE ENLARGEMENTS. THIS IS NOT A PROPERTY LINE SURVEY.
2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
3. OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC: "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OF COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
4. VERTICAL DATUM IS NAVD88. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

DIG SAFE

BEFORE YOU DIG
CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04.10.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	AJR	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
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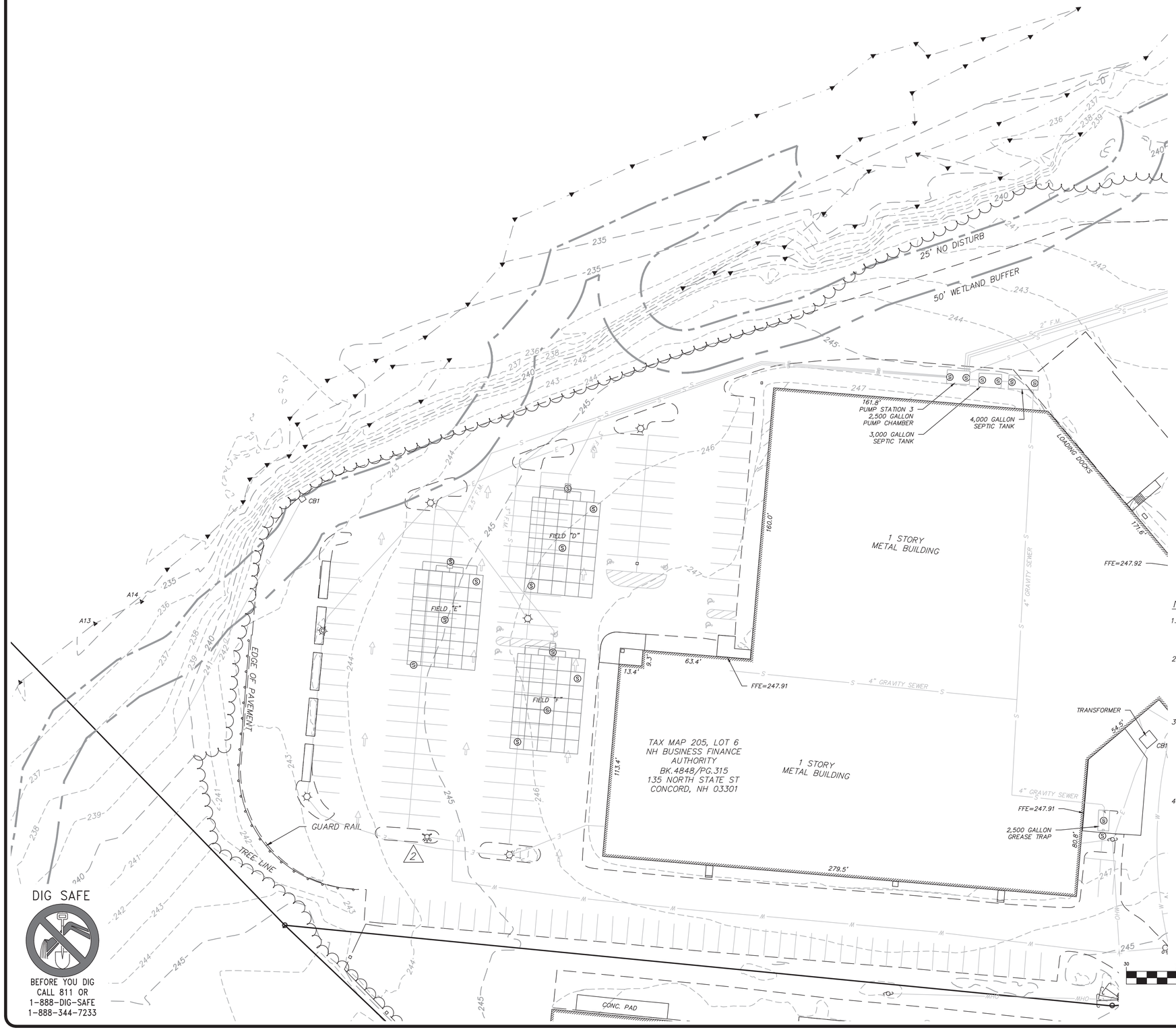
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DRAWING TITLE:
OVERALL
COMPILED EXISTING
CONDITIONS PLAN

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SHEET No.
V-101

R:\PROJECTS\2912-01A\SURVEY\DRAWINGS\CURRENT\S-2912-01A-EC-COMBINED DRAWINGS.DWG



NEW HAMPSHIRE GRID (NAD 83)

LEGEND

STONE BOUND (SB)	
IRON PIPE (IP)	
IRON ROD (IR)	
SEWER MANHOLE (SMH)	
UTILITY POLE	
UTILITY POLE W/LIGHT	
FIRE HYDRANT	
GAS GATE	
BOLLARD	
GAS METER	G
ELECTRIC METER	E
MAILBOX	MB
SIGN	
TREE	
BUSH / SHRUB	
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	x
STOCKADE FENCE	
GAS LINE	G
OVERHEAD WIRES	OHW
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

NOTES

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE COMPILED EXISTING CONDITIONS INFORMATION. SEE SHEET V–101 FOR OVERALL SITE. THIS IS NOT A PROPERTY LINE SURVEY.
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4. VERTICAL DATUM IS NAVD88. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.

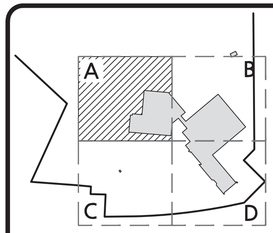
BENCHMARK SUMMARY

TBM #	DESCRIPTION	ELEV.
1	MAG NAILS SET IN UTILITY POLE 3/81	246.85
2	X–MARK ON HYDRANT FLANGE BOLT	246.93

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED
PROFESSIONAL ENGINEER

04-10-23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	AJR	CHECKED BY:	BDJ

PREPARED BY:

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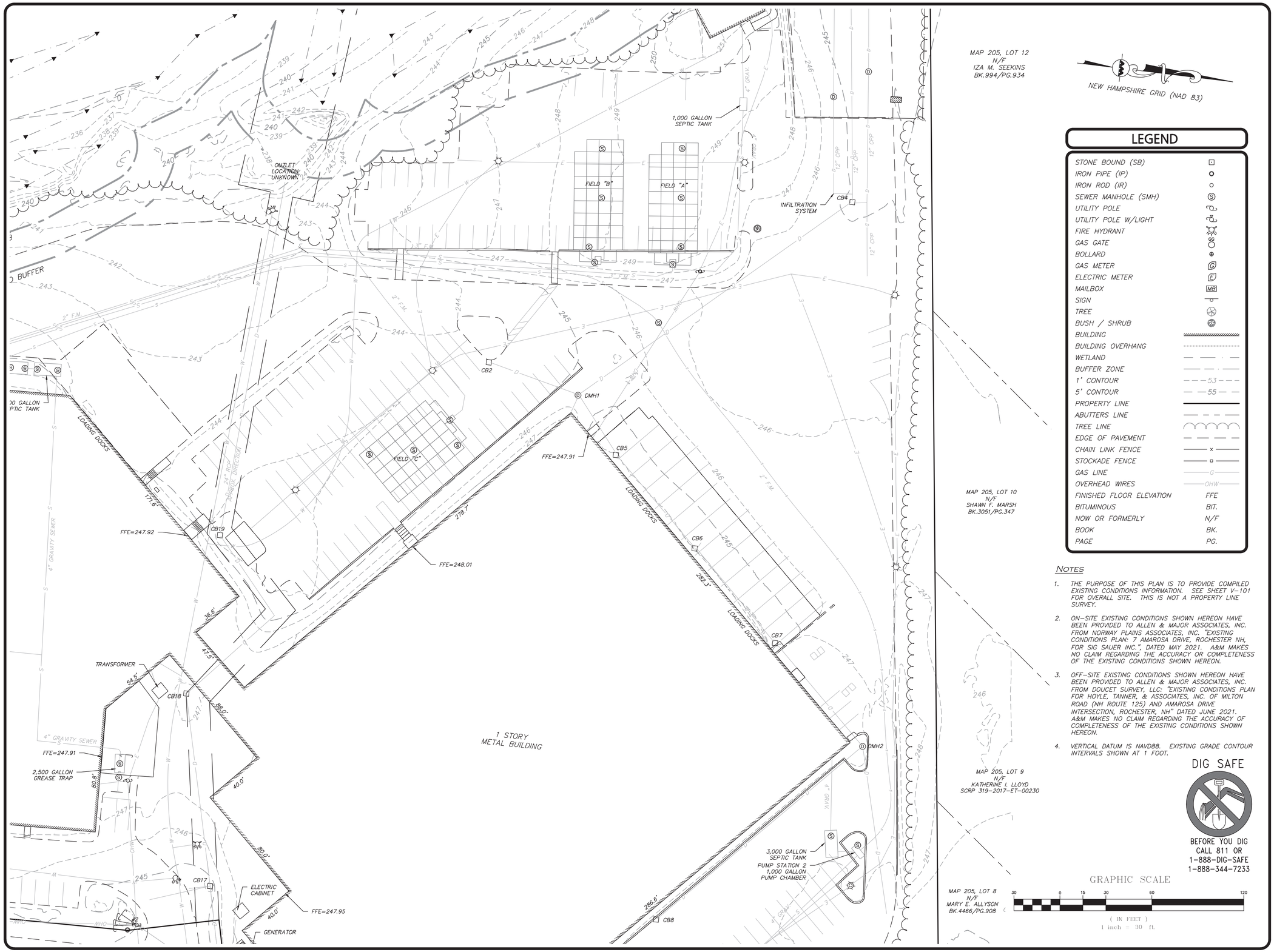
COMPILED EXISTING CONDITIONS PLAN

SHEET No.

V-101A

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R: \PROJECTS\2912-01A\SURVEY\DRAWINGS\CURRENT\S-2912-01A-EC-COMBINED DRAWINGS.DWG



LEGEND

STONE BOUND (SB)	
IRON PIPE (IP)	
IRON ROD (IR)	
SEWER MANHOLE (SMH)	
UTILITY POLE	
UTILITY POLE W/LIGHT	
FIRE HYDRANT	
GAS GATE	
BOLLARD	
GAS METER	G
ELECTRIC METER	E
MAILBOX	MB
SIGN	
TREE	
BUSH / SHRUB	
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	x
STOCKADE FENCE	
GAS LINE	G
OVERHEAD WIRES	OHW
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
PAGE	PG.

NOTES

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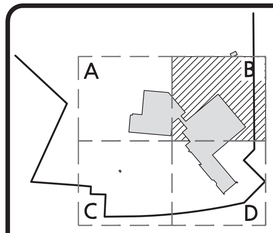
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04-10-23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	AJR	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
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MANCHESTER, NH 03103
TEL: (603) 627-5500
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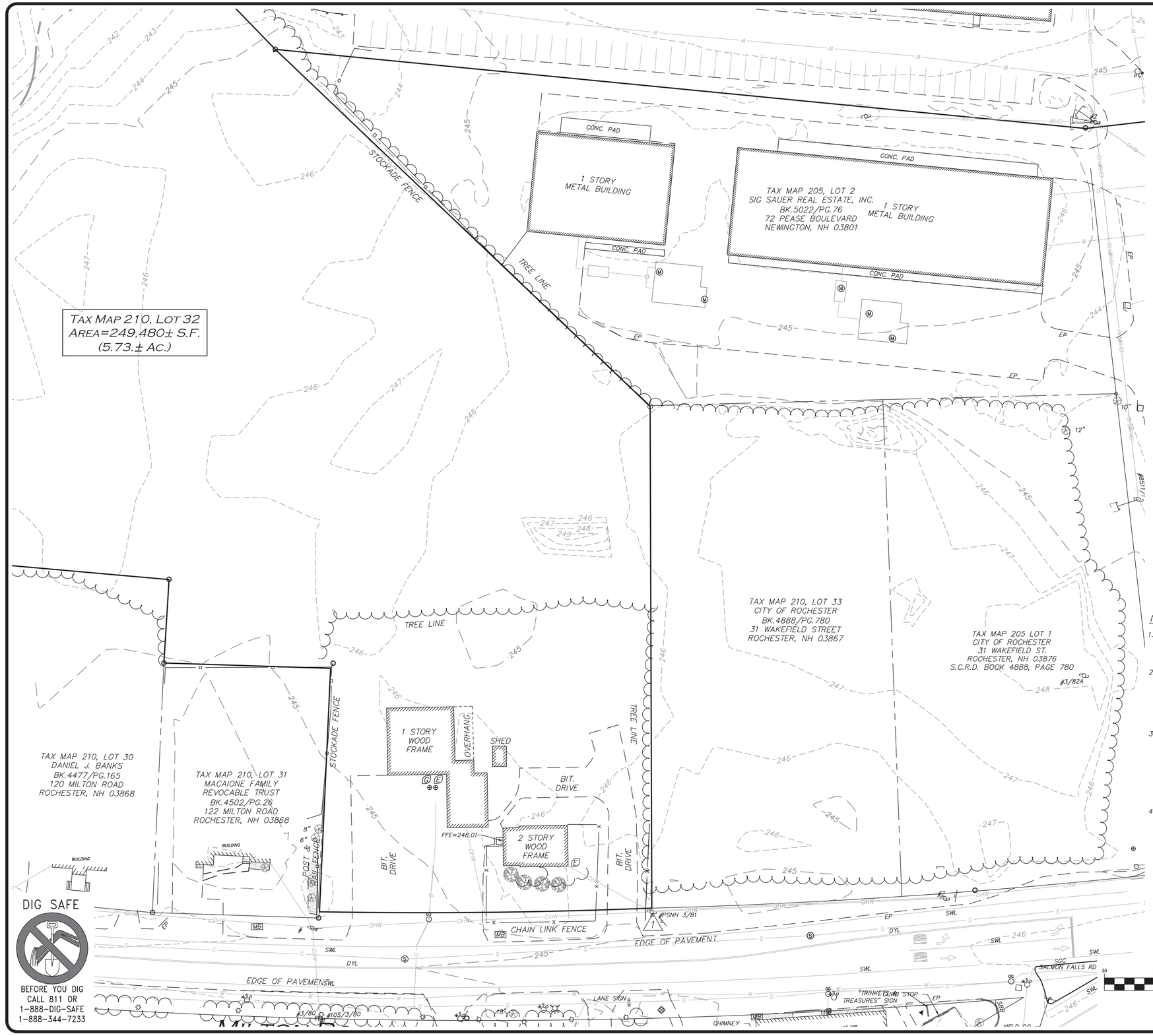
COMPILED EXISTING CONDITIONS PLAN

SHEET No.

V-101B

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LEGEND

STONE BOUND (SB)	
IRON PIPE (IP)	
IRON ROD (IR)	
SEWER MANHOLE (SMH)	
UTILITY POLE	
UTILITY POLE W/LIGHT	
FIRE HYDRANT	
GAS GATE	
BOLLARD	
GAS METER	
ELECTRIC METER	
MAILBOX	MB
SIGN	
TREE	
BUSH / SHRUB	
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	x
STOCKADE FENCE	
GAS LINE	G
OVERHEAD WIRES	OHW
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BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
BOOK	BK.
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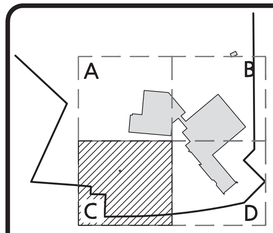
BENCHMARK SUMMARY

TBM #	DESCRIPTION	ELEV.
1	MAG NAILS SET IN UTILITY POLE 3/81	246.85
2	X-MARK ON HYDRANT FLANGE BOLT	246.93

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04.10.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

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PREPARED BY:

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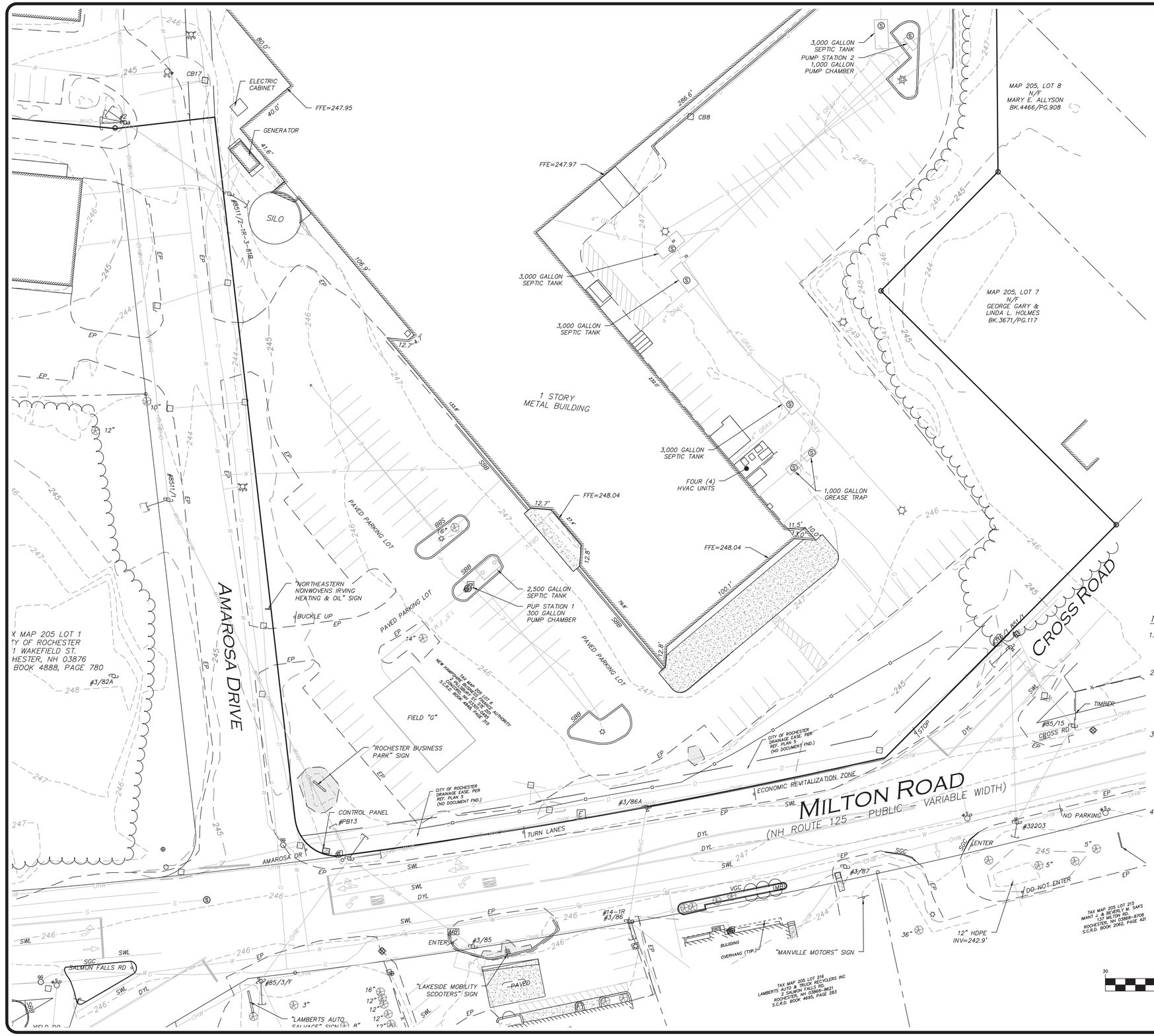
COMPILED EXISTING CONDITIONS PLAN

SHEET No.

V-101C

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LEGEND

STONE BOUND (SB)	⊡
IRON PIPE (IP)	○
IRON ROD (IR)	○
SEWER MANHOLE (SMH)	Ⓢ
UTILITY POLE	
UTILITY POLE W/LIGHT	
FIRE HYDRANT	
GAS GATE	
BOLLARD	
GAS METER	G
ELECTRIC METER	E
MAILBOX	MB
SIGN	
TREE	
BUSH / SHRUB	
BUILDING	
BUILDING OVERHANG	
WETLAND	
BUFFER ZONE	
1' CONTOUR	53
5' CONTOUR	55
PROPERTY LINE	
ABUTTERS LINE	
TREE LINE	
EDGE OF PAVEMENT	
CHAIN LINK FENCE	x
STOCKADE FENCE	
GAS LINE	G
OVERHEAD WIRES	OHW
FINISHED FLOOR ELEVATION	FFE
BITUMINOUS	BIT.
NOW OR FORMERLY	N/F
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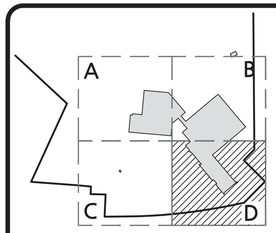
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER
04.10.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
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DESIGNED BY:	AJR	CHECKED BY:	BDJ

PREPARED BY:
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DRAWING TITLE:
COMPILED EXISTING CONDITIONS PLAN

SHEET No.
V-101D

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SOIL NOTES:

1. THIS MAP PRODUCT IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT, INTENDED FOR INFILTRATION REQUIREMENTS BY THE NH DES ALTERATION OF TERRAIN BUREAU. IT WAS PRODUCED BY A PROFESSIONAL SOIL SCIENTIST, AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THERE IS A REPORT THAT ACCOMPANIES THIS MAP.
2. THE SITE SPECIFIC SOIL SURVEY (SSSS) WAS PRODUCED FEBRUARY 14, 2023, AND WAS PREPARED BY CORTNEY STEVENSON AND REVIEWED BY JP GOVE, CSS # 004, GOVE ENVIRONMENTAL SERVICES, INC.
3. SOILS WERE IDENTIFIED WITH THE NEW HAMPSHIRE STATE–WIDE NUMERICAL SOILS LEGEND, USDA NRCS, DURHAM, NH. ISSUE # 10, JANUARY 2011. THE NUMERIC LEGEND WAS AMENDED TO IDENTIFY THE CORRECT SOIL COMPONENTS OF THE COMPLEX.
4. HYDROLOGIC SOIL GROUP FROM KSAT VALUES FOR NEW HAMPSHIRE SOILS, SOCIETY OF SOIL SCIENTISTS OF NEW ENGLAND, SPECIAL PUBLICATION NO. 5, SEPTEMBER, 2009.
5. HIGH INENSITY SOIL MAP SYMBOLS, BASED UPON SSSNNE SPECIAL PUBLICATION 1, DECEMBER 2017, WERE ADDED TO THE SOIL LEGEND.

SITE SPECIFIC SOIL SURVEY PERFORMED BY:

STATE OF NEW HAMPSHIRE – JAMES P. GOVE 1/23/23 – NO. 004 – CERTIFIED SOIL SCIENTIST

GOVE ENVIRONMENTAL SERVICES
8 CONTINENTAL DRIVE, BLDG 2, UNIT H
EXETER, NH 03833

WETLAND NOTES:

1. "A" SERIES WETLAND FLAGS SHOWN HEREON, LOCATED ON 124 MILTON ROAD PROPERTY, WERE SET BY GOVE ENVIRONMENTAL IN DECEMBER, 2022.
2. WETLAND FLAGS LOCATED ON 7 AMAROSA PROPERTY WERE SET BY BH KEITH ASSOCIATES, INC. ON MARCH 31, 2021.
3. REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS MANUAL: NORTH CENTRAL AND NORTHEAST REGION, (VERSION 2.0) JANUARY 2012, U.S. ARMY CORPS OF ENGINEERS.
4. FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, A GUIDE FOR IDENTIFYING AND DELINEATING HYDRIC SOILS, VERSION 8.2. UNITED STATES DEPARTMENT OF AGRICULTURE(2018).
5. NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2019 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
6. NATIONAL WETLAND PLANT LIST, VERSIONS 3.5 (2020).

SLOPE PHASE

SLOPE RANGE	
0–3%	A
3–8%	B
8–15%	C
15–25%	D
25–50	E
50%+	F

SITE SPECIFIC SOIL MAP UNIT LEGEND

SYMBOL*	MAP UNIT	HISS SYMBOL	HSG
26	WINDSOR, LOAMY SAND	111	A
313	DEERFIELD, LOAMY FINE SAND	311	B
915	DEERFIELD VARIANT (SWPD)	411	C
496	NATCHAUG, MUCK	681	D
300A/dbaab	UDIPSAMMENTS, NEARLY LEVEL	361	B
400e/dbaab	UDORTHENTS, SANDY	361	B
699	URBAN LAND	761	B

* REFER TO ACCOMPANYING REPORT FOR SUPPLEMENTAL SYMBOL EXPLANATION.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_SOIL MAPPING.DWG

STATE OF NEW HAMPSHIRE – BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER

04.10.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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SITE SPECIFIC SOIL
MAPPING PLAN

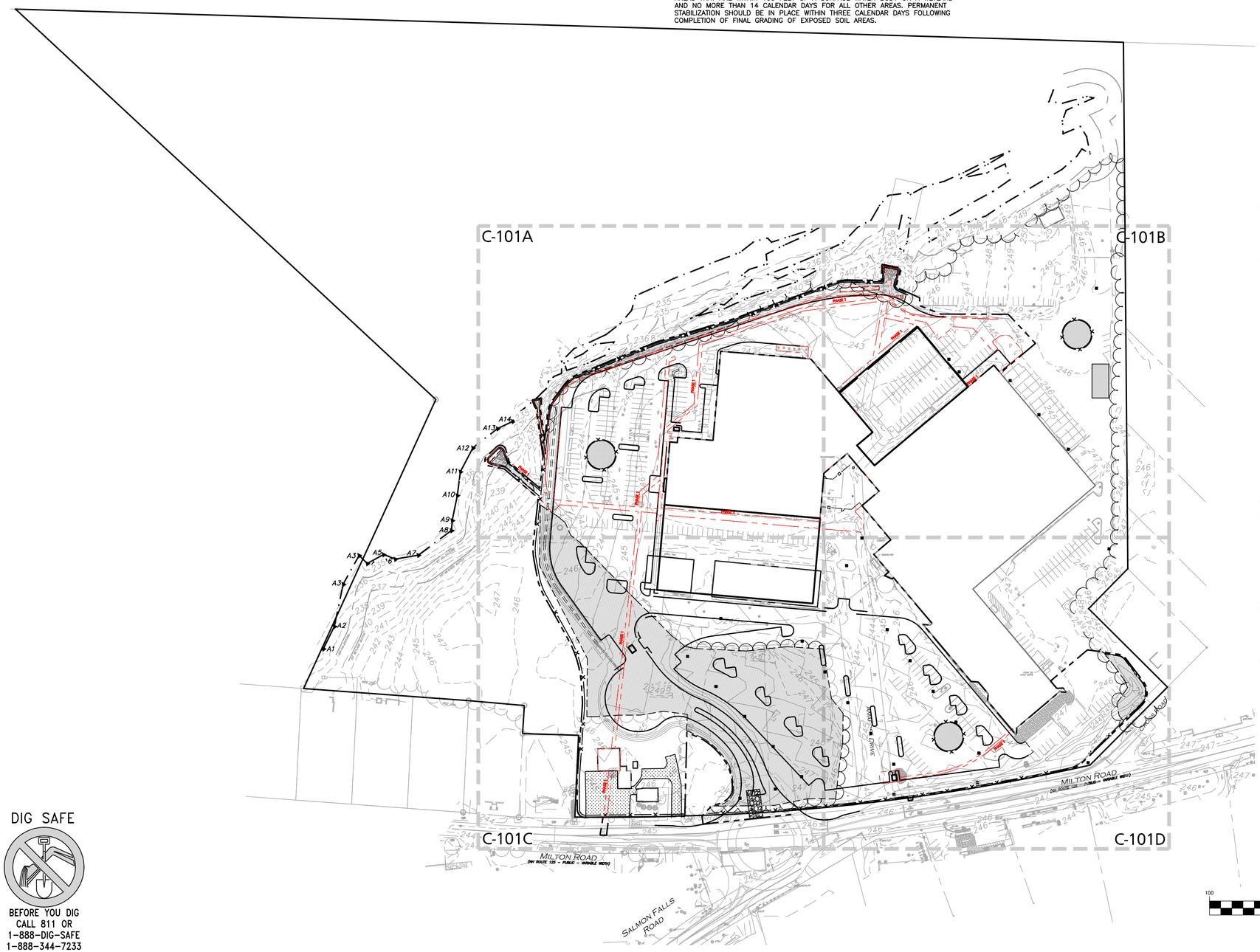
SHEET No.

C-100

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GENERAL SEQUENCE OF CONSTRUCTION:

1. CONTACT THE CITY ENGINEERING DEPARTMENT AT LEAST TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCES. SITE ACCESS SHALL BE ACHIEVED ONLY FROM THE DESIGNATED CONSTRUCTION ENTRANCE.
3. PREPARE TEMPORARY PARKING AND STORAGE AREA. UPON IMPLEMENTATION AND INSTALLATION OF THE FOLLOWING AREAS: TRAILER, PARKING, LAY DOWN, WHEEL WASH, CONCRETE WASHOUT, MASONS AREA, FUEL AND MATERIAL STORAGE CONTAINERS, SOLID WASTE CONTAINERS, ETC., DENOTE THEM ON THE SITE MAPS IMMEDIATELY AND NOTE ANY CHANGES IN THE LOCATIONS AS THEY OCCUR THROUGHOUT THE CONSTRUCTION PROCESS.
4. INSTALL THE TUBULAR BARRIERS AND SILT SACKS AS SHOWN HEREON. SEE ALSO SHEETS C-101A THROUGH C-101D.
5. CLEAR AND GRUB THE SITE.
6. CONSTRUCT TEMPORARY SEDIMENTATION AND SEDIMENT TRAP BASINS AS NECESSARY.
7. BEGIN GRADING THE SITE.
8. CONSTRUCT STORMWATER MEASURES. SITE SHALL BE STABILIZED PRIOR TO STORMWATER MEASURES RECEIVING RUNOFF.
9. START CONSTRUCTION OF BUILDING PAD AND STRUCTURES. TEMPORARILY SEED DENUDED AREAS. ALL CUT AND FILL SLOPES SHALL BE SEEDED / LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE, EXCEPT WHERE RIP RAP IS APPLIED.
10. INSTALL BUILDING, UTILITIES, STORM SEWERS, CURBS AND GUTTERS.
11. INSTALL INLET PROTECTION DEVICES AROUND ALL STORM DRAIN STRUCTURES.
12. INSTALL RIP RAP AROUND OUTLET STRUCTURES.
13. FINALIZE GRADING, AND PREPARE SITE FOR PAVING. NOTE, ALL PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
14. PAVE SITE. COMPLETE FINISH GRADING AND INSTALL PERMANENT SEEDING AND PLANTING.
15. ONCE SITE IS STABILIZED, REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES.
16. ALL EROSION CONTROL MEASURES SHALL BE INSPECTED WEEKLY AND AFTER ALL RAINFALL EVENTS GREATER THAN 0.25", AND SHALL BE MAINTAINED, REPAIRED OR REPLACED AS REQUIRED OR AT THE DIRECTION OF THE OWNER'S ENGINEER, OR THE TOWN ENGINEER.
17. SEDIMENT ACCUMULATION UP-GRADIENT OF THE TUBULAR BARRIERS GREATER THAN 6" IN DEPTH SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
18. IF IT APPEARS THAT SEDIMENT IS EXITING THE SITE, SILT SACKS SHALL BE INSTALLED IN ALL CATCH BASINS ADJACENT TO THE SITE. SEDIMENT ACCUMULATION ON ALL ADJACENT CATCH BASIN INLETS SHALL BE REMOVED AND THE SILT SACK REPLACED IF TORN OR DAMAGED.
19. THE CONTRACTOR SHALL COMPLY WITH THE GENERAL AND EROSION NOTES AS SHOWN ON THE SITE DEVELOPMENT PLANS.
20. IN AREAS WHERE FINAL GRADING HAS NOT OCCURRED, TEMPORARY STABILIZATION MEASURES SHOULD BE IN PLACE WITHIN FIVE CALENDAR DAYS FOR EXPOSED SOIL AREAS THAT ARE WITHIN 100 FEET OF A SURFACE WATER BODY OR A WETLAND AND NO MORE THAN 14 CALENDAR DAYS FOR ALL OTHER AREAS. PERMANENT STABILIZATION SHOULD BE IN PLACE WITHIN THREE CALENDAR DAYS FOLLOWING COMPLETION OF FINAL GRADING OF EXPOSED SOIL AREAS.



LEGEND

- TUBULAR BARRIER
- CATCH BASIN FILTER
- STABILIZED ENTRANCE
- STOCKPILE/STAGING AREA
- LIMIT OF DISTURBANCE
- LIMIT OF 'CLEAR AND GRUB'
- BUILDING TO BE REMOVED
- PAVEMENT TO BE REMOVED

GENERAL NOTES:

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE OVERALL EROSION CONTROL INFORMATION FOR THE PROPOSED BUILDING ADDITIONS AND ASSOCIATED SITE IMPROVEMENTS. SEE SHEETS C-101A THROUGH C-101D FOR 1"=30' SCALE ENLARGEMENTS.
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3. ALL WORK MUST CONFORM TO THE CITY OF ROCHESTER, DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND ANY WORK WITHIN THE CITY RIGHT-OF-WAY REQUIRES AN EXCAVATION PERMIT.
4. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
5. ALL ELEVATIONS REFER TO NAVD '88.
6. NO MATERIAL CONTAINING ANY LIVING OR VIABLE PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3800.1) SHALL BE TRANSPORTED TO OR FROM CONSTRUCTION SITE WITHOUT NOTIFICATION AND APPROVAL FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55.
7. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED IN ACCORDANCE WITH ENV-A1000.
8. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.
9. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE CITY.
10. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM WITH RAINFALL AMOUNT GREATER THAN 0.25 INCHES. THE INSPECTIONS SHALL VERIFY THAT THE STRUCTURAL BMPs SHOWN AND DESCRIBED ON THE PLANS ARE IN GOOD CONDITION AND ARE MINIMIZING EROSION. A MAINTENANCE AND INSPECTION REPORT SHALL BE MADE WITH EACH INSPECTION. COMPLETED INSPECTION FORMS SHALL BE KEPT ON SITE FOR THE DURATION OF THE PROJECT AND BE MADE AVAILABLE FOR REVIEW BY THE CITY UPON REQUEST.
11. THE CONTRACTOR SHALL VERIFY EROSION CONTROL MEASURES, WHICH ARE PLACED IN OR NEAR CITY RIGHTS-OF-WAY, ARE PROPERLY MAINTAINED JUST PRIOR TO AND/OR DURING LARGE STORM EVENTS IN ORDER TO PREVENT POTENTIAL STREET FLOODING DURING THE CONSTRUCTION DURATION.
12. A NOTICE OF INTENT (NOI) SHALL BE PREPARED AND SUBMITTED TO THE EPA UNDER THE NPDES CGP. A SWPPP SHALL BE PREPARED AND MAINTAINED ON SITE. THE NOI AND SWPPP SHALL ALSO BE SUBMITTED TO DPW.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_EROSION CONTROL.DWG

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:
OVERALL EROSION CONTROL PLAN

SHEET No.
C-101

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LEGEND

TUBULAR BARRIER	
CATCH BASIN FILTER	
STABILIZED ENTRANCE	
STOCKPILE/STAGING AREA	
LIMIT OF DISTURBANCE	
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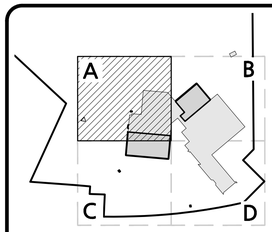
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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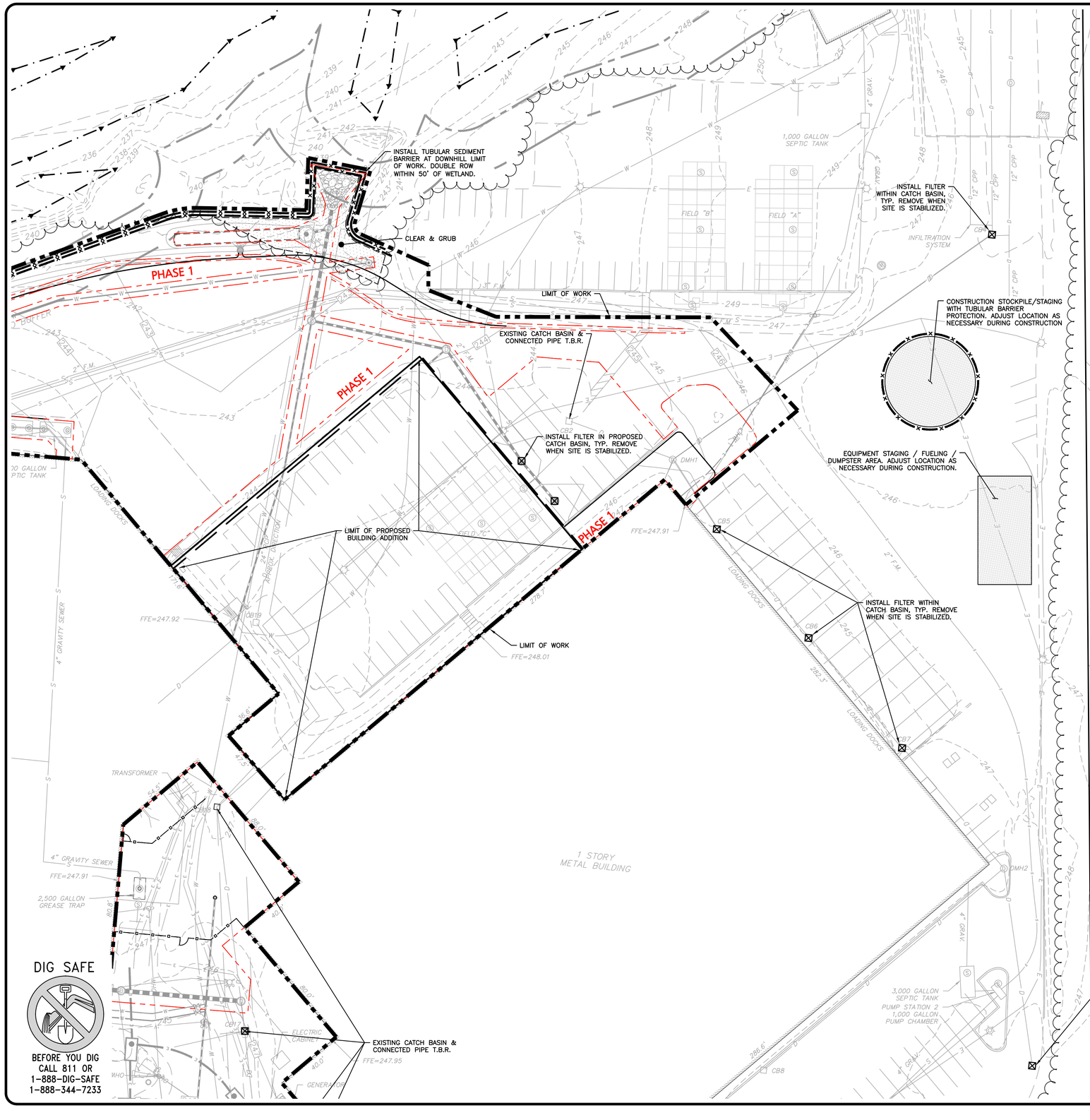
DRAWING TITLE:

EROSION CONTROL PLAN

SHEET No.

C-101A

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LEGEND

- TUBULAR BARRIER
- CATCH BASIN FILTER
- STABILIZED ENTRANCE
- STOCKPILE/STAGING AREA
- LIMIT OF DISTURBANCE
- LIMIT OF 'CLEAR AND GRUB'
- BUILDING TO BE REMOVED
- PAVEMENT TO BE REMOVED

NOTES

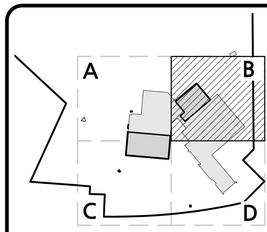
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.



SHEET KEY PLAN

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

04.27.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
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DRAWING TITLE:

EROSION CONTROL PLAN

SHEET No.

C-101B

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LEGEND

- TUBULAR BARRIER
- CATCH BASIN FILTER
- STABILIZED ENTRANCE
- STOCKPILE/STAGING AREA
- LIMIT OF DISTURBANCE
- LIMIT OF 'CLEAR AND GRUB'
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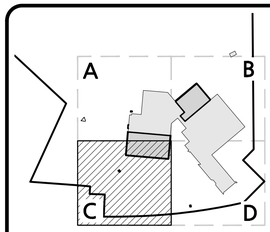
GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

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SHEET KEY PLAN

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

04.27.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
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ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
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DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

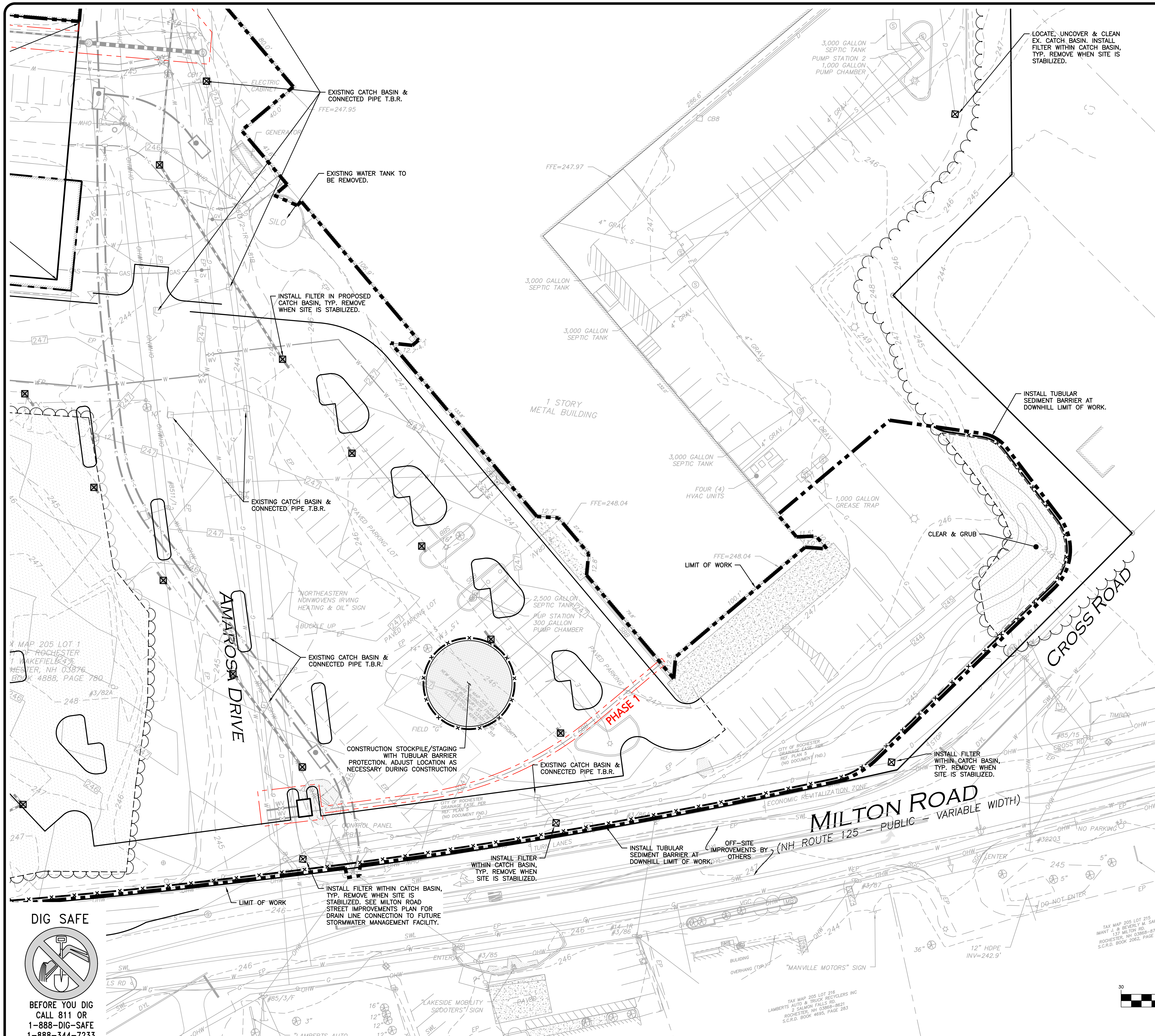
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DRAWING TITLE: EROSION CONTROL PLAN

SHEET No. C-101C

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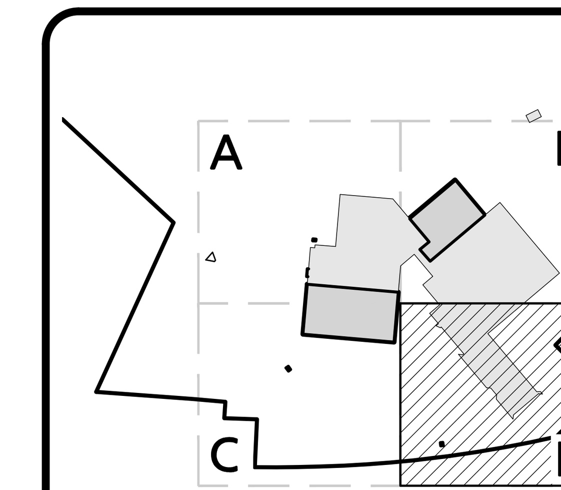
R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_EROSION CONTROL.DWG

LEGEND

TUBULAR BARRIER	—×—×—
CATCH BASIN FILTER	⊠
STABILIZED ENTRANCE	
STOCKPILE/STAGING AREA	
LIMIT OF DISTURBANCE	
LIMIT OF 'CLEAR AND GRUB'	
BUILDING TO BE REMOVED	
PAVEMENT TO BE REMOVED	

NOTES

1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
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4. ALL ELEVATIONS REFER TO NAVD '88.
5. NO MATERIAL CONTAINING ANY LIVING OR VIABLE PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3800.1) SHALL BE TRANSPORTED TO OR FROM CONSTRUCTION SITE WITHOUT NOTIFICATION AND APPROVAL FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55.
6. A WATERING TRUCK SHALL BE USED TO PERIODICALLY SPRINKLE CONSTRUCTION AREAS IN ORDER TO KEEP THE LEVEL OF DUST TO A MINIMUM DURING THE DRY MONTHS AND AS REQUIRED IN ACCORDANCE WITH ENV-A1000.
7. IF, DURING CONSTRUCTION, IT BECOMES APPARENT THAT ADDITIONAL EROSION CONTROL MEASURES ARE REQUIRED TO STOP ANY EROSION ON THE CONSTRUCTION SITE, THE PROPERTY OWNER SHALL BE REQUIRED TO INSTALL THE NECESSARY EROSION PROTECTION AT NO EXPENSE TO THE CITY.
8. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM WITH RAINFALL AMOUNT GREATER THAN 0.25 INCHES. THE INSPECTIONS SHALL VERIFY THAT THE STRUCTURAL BMPS SHOWN AND DESCRIBED ON THE PLANS ARE IN GOOD CONDITION AND ARE MINIMIZING EROSION. A MAINTENANCE AND INSPECTION REPORT SHALL BE MADE WITH EACH INSPECTION. COMPLETED INSPECTION FORMS SHALL BE KEPT ON SITE FOR THE DURATION OF THE PROJECT AND BE MADE AVAILABLE FOR REVIEW BY THE CITY UPON REQUEST.
9. A NOTICE OF INTENT (NOI) SHALL BE PREPARED AND SUBMITTED TO THE EPA UNDER THE NPDES CGP. A SWPPP SHALL BE PREPARED AND MAINTAINED ON SITE.
10. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER

04-27-23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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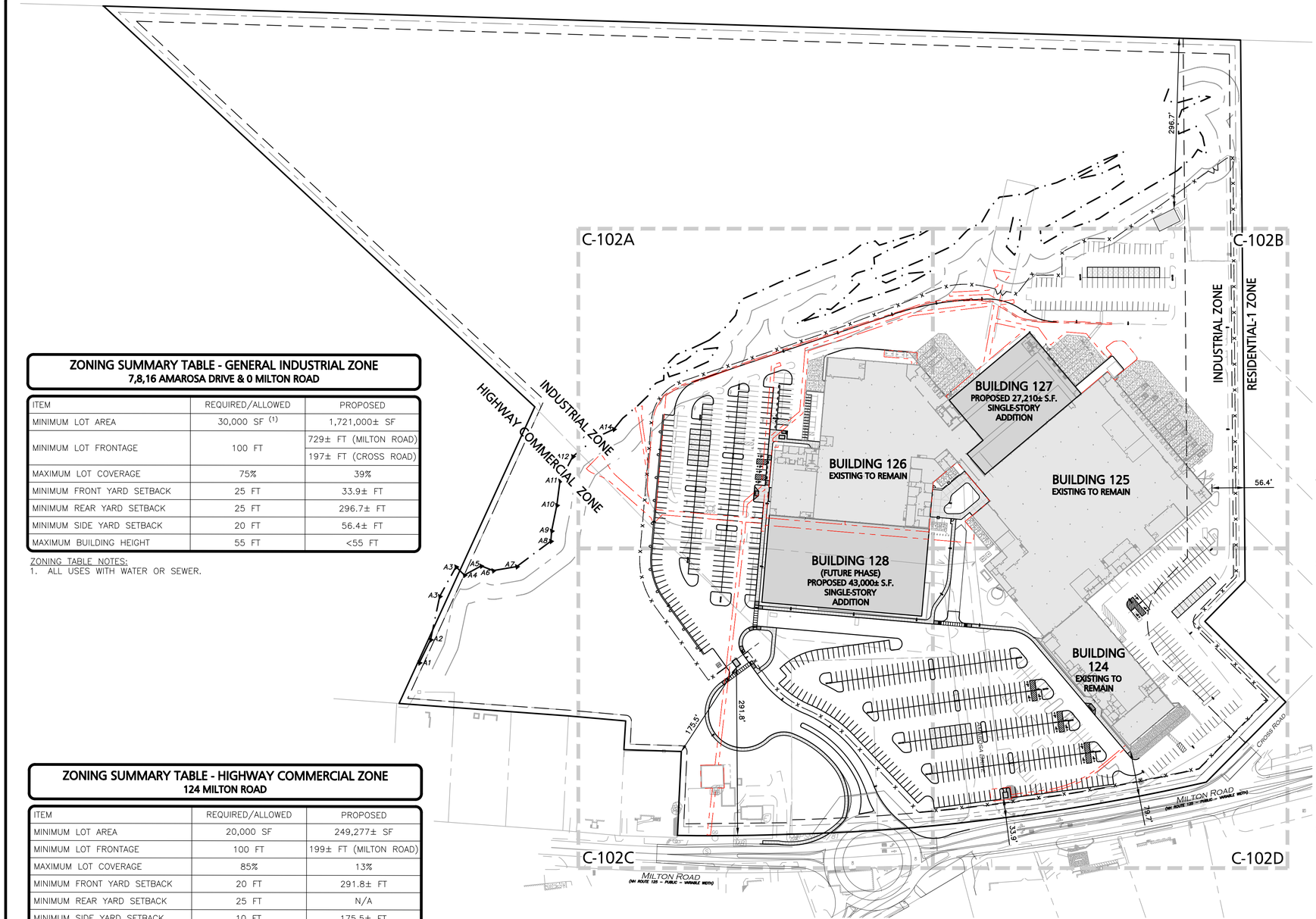
DRAWING TITLE:

EROSION CONTROL PLAN

SHEET No.

C-101D

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LEGEND

- PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- BUILDING SETBACK LINE
- LANDSCAPE BUFFER LINE
- BUILDING ARCHITECTURE
- PARKING COUNT (10)
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- HEAVY DUTY CONCRETE
- VINYL SCREEN FENCE
- CHAIN LINK FENCE
- SAW-CUT LINE
- PHASE 1 LINE
- SNOW STORAGE

ZONING SUMMARY TABLE - GENERAL INDUSTRIAL ZONE
7,8,16 AMAROSA DRIVE & 0 MILTON ROAD

ITEM	REQUIRED/ALLOWED	PROPOSED
MINIMUM LOT AREA	30,000 SF (1)	1,721,000± SF
MINIMUM LOT FRONTAGE	100 FT	729± FT (MILTON ROAD)
		197± FT (CROSS ROAD)
MAXIMUM LOT COVERAGE	75%	39%
MINIMUM FRONT YARD SETBACK	25 FT	33.9± FT
MINIMUM REAR YARD SETBACK	25 FT	296.7± FT
MINIMUM SIDE YARD SETBACK	20 FT	56.4± FT
MAXIMUM BUILDING HEIGHT	55 FT	<55 FT

ZONING TABLE NOTES:
1. ALL USES WITH WATER OR SEWER.

ZONING SUMMARY TABLE - HIGHWAY COMMERCIAL ZONE
124 MILTON ROAD

ITEM	REQUIRED/ALLOWED	PROPOSED
MINIMUM LOT AREA	20,000 SF	249,277± SF
MINIMUM LOT FRONTAGE	100 FT	199± FT (MILTON ROAD)
MAXIMUM LOT COVERAGE	85%	13%
MINIMUM FRONT YARD SETBACK	20 FT	291.8± FT
MINIMUM REAR YARD SETBACK	25 FT	N/A
MINIMUM SIDE YARD SETBACK	10 FT	175.5± FT
MAXIMUM NUMBER OF STORIES	3	1

ZONING TABLE NOTES:
1. A SPECIAL EXCEPTION IS REQUIRED FOR THE "INDUSTRY, HEAVY" USE WITHIN THE HIGHWAY COMMERCIAL DISTRICT.

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1-888-344-7233

PARKING SUMMARY TABLE

CITY OF ROCHESTER, NH – SITE PLAN REVIEW REGULATIONS: SECTION 10 – PARKING & CIRCULATION	MINIMUM REQUIRED	EXISTING PARKING	PROPOSED PARKING
INDUSTRIAL USE (INDUSTRY, HEAVY): 271,800± SF (TOTAL GFA), 25,000± SF (OFFICE GFA)	347	587	772
1 SPACE PER 1,000 SF GFA → 1 SPACE X (271,800 SF/1,000 SF) = 271.8			
3 SPACES PER 1,000 SF GFA DEDICATED TO OFFICE USE → 3 SPACES X (25,000 SF/1,000 SF) = 75.0			

PARKING TABLE NOTES:
1. PARKING STALLS ARE TO BE 9' X 18'.

ADA SPACES REQUIRED:
(500–1,000) TOTAL PARKING SPACES PROVIDED – 2% OF THE TOTAL PARKING PROVIDED SHALL BE ADA ACCESSIBLE; 1/6 OF THE ADA ACCESSIBLE SPACES PROVIDED SHALL BE VAN ACCESSIBLE.

REQUIRED: 16 SPACES, 3 BEING VAN ACCESSIBLE.
PROVIDED: 16 VAN ACCESSIBLE SPACES.

NOTES

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GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LAYOUT & MATERIALS.DWG

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE –
04.27.23
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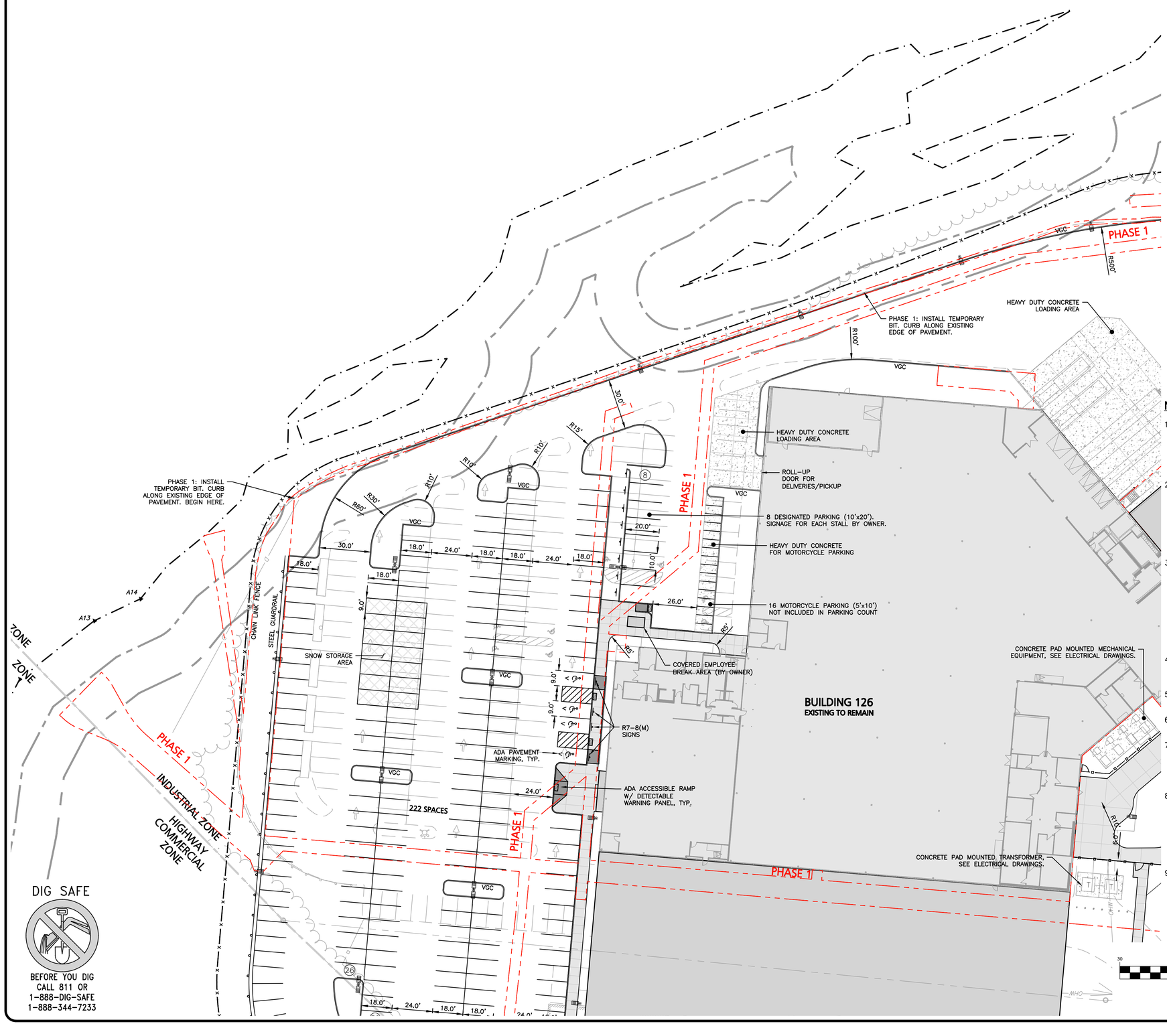
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DRAWING TITLE:
OVERALL LAYOUT
& MATERIALS PLAN

SHEET No.
C-102

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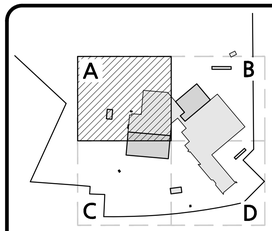
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

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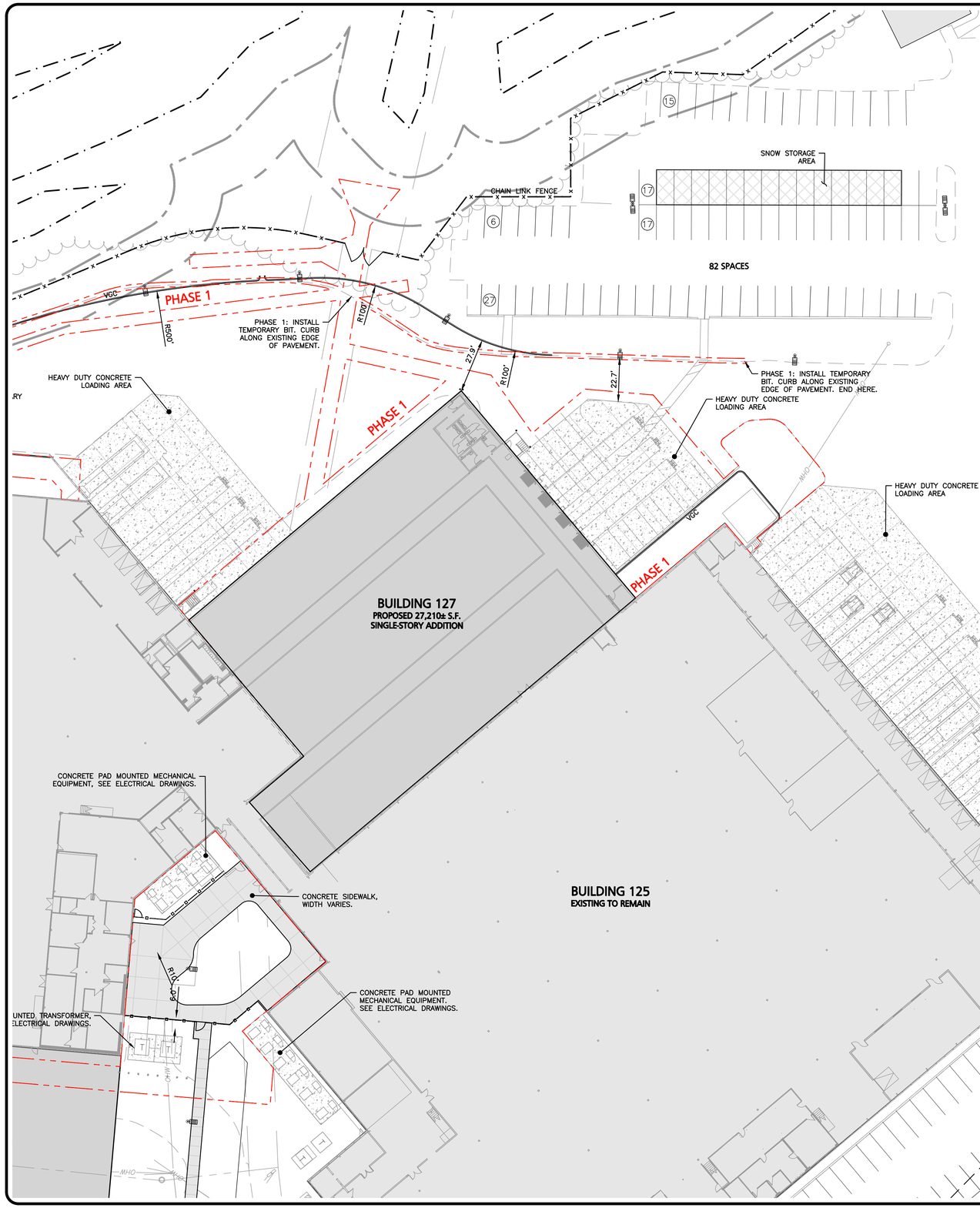
LAYOUT & MATERIALS PLAN

SHEET No.

C-102A

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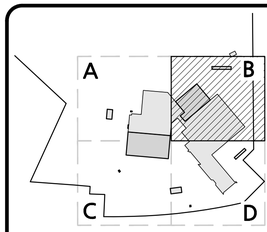
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

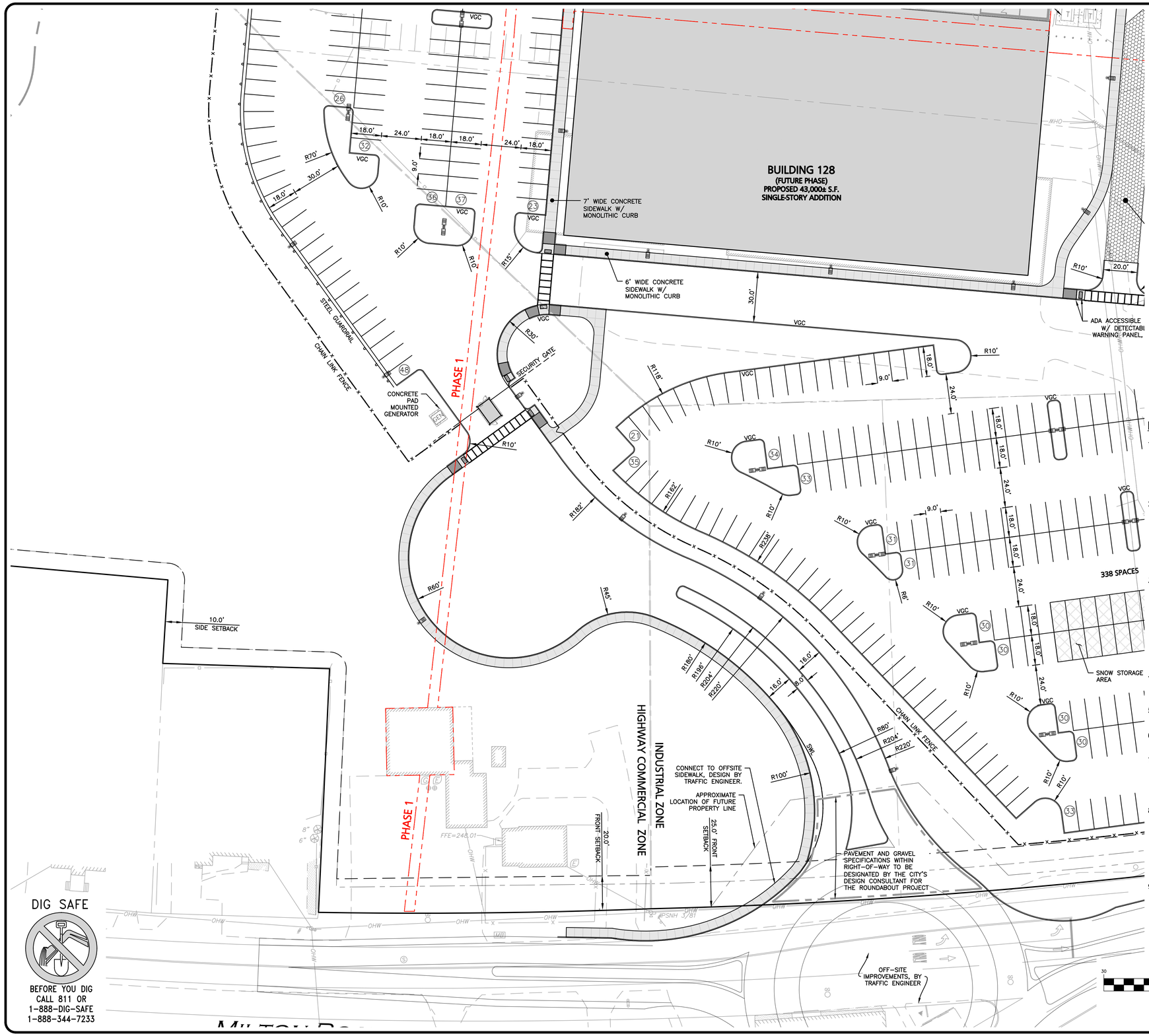
LAYOUT & MATERIALS PLAN

SHEET No.

C-102B

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R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LAYOUT & MATERIALS.DWG



LEGEND

- PROPERTY LINE
- SIGN
- BOLLARD
- BUILDING
- BUILDING SETBACK LINE
- LANDSCAPE BUFFER LINE
- BUILDING ARCHITECTURE
- PARKING COUNT
- SIDEWALK
- CURB
- PARKING STRIPING
- ROADWAY STRIPING
- STEEL GUARDRAIL
- HEAVY DUTY CONCRETE
- VINYL SCREEN FENCE
- CHAIN LINK FENCE
- SAW-CUT LINE
- PHASE 1 LINE
- SNOW STORAGE

NOTES

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE OVERALL SITE LAYOUT AND MATERIALS INFORMATION FOR THE PROPOSED BUILDING ADDITIONS AND ASSOCIATED SITE IMPROVEMENTS. SEE SHEETS C-102A THROUGH C-102D FOR 1"=30' SCALE ENLARGEMENTS.
2. ON-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. "EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER NH, FOR SIG SAUER INC.", DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
3. OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC: "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OF COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
4. THE PROPOSED SITE IMPROVEMENTS REQUIRE A LAND TRANSFER, LOT MERGER, AND STREET DISCONTINUANCE.
5. ALL CURB RADII SHALL BE 3' UNLESS OTHERWISE NOTED.
6. PARKING DIMENSIONS ARE TAKEN FROM THE FACE OF CURB UNLESS OTHERWISE NOTED.
7. ALL WORK MUST CONFORM TO THE CITY OF ROCHESTER, DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND ANY WORK WITHIN THE CITY RIGHT-OF-WAY REQUIRES AN EXCAVATION PERMIT.
8. PER CITY OF ROCHESTER ZONING SECTION 275-7.2 B.(2) NO INDUSTRIAL BUILDING OR OPERATION SHALL BE SITUATED CLOSER THAN 100 FEET TO THE BOUNDARY LINE OF ANY ADJACENT RESIDENTIAL PROPERTY. THE PLANNING BOARD MAY REDUCE THIS SETBACK TO 50 FEET BY CONDITIONAL USE OR WHERE THE USE IS ACCESSORY TO A PRIMARY COMMERCIAL USE.
9. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE

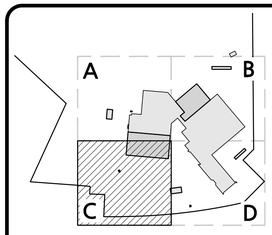
30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

DIG SAFE

BEFORE YOU DIG CALL 811 OR 1-888-DIG-SAFE 1-888-344-7233

R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LAYOUT & MATERIALS.DWG



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501

WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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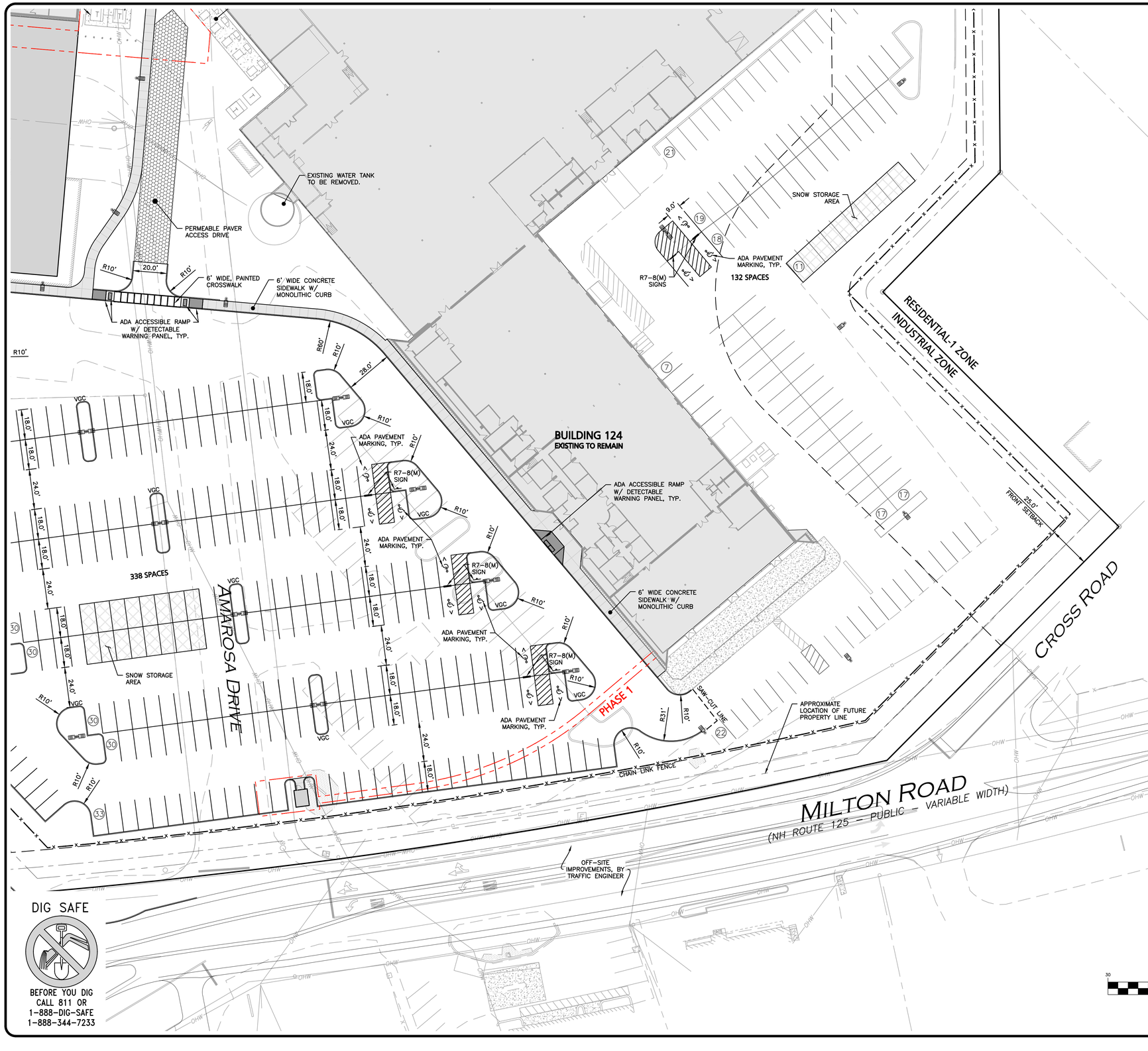
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LAYOUT & MATERIALS PLAN

SHEET No.

C-102C

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DIG SAFE

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1-888-DIG-SAFE
1-888-344-7233

LEGEND

- PROPERTY LINE
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- BUILDING ARCHITECTURE
- PARKING COUNT (10)
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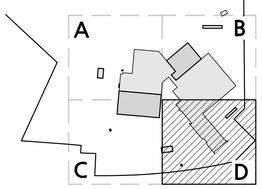
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
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DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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DRAWING TITLE:
LAYOUT & MATERIALS PLAN

SHEET No.
C-102D

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TEST PIT #1 (TP1)
EXISTING GROUND ELEVATION: 247.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-18"	LOAMY SAND	–	–	DRY
C_1	18-60"	MEDIUM SAND	10YR 6/4	SINGLE GRAIN, LOOSE	DRY
C_2	60-125"	FINE SAND	10YR 6/8	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 114" (ELEVATION=237.5)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #2 (TP2)
EXISTING GROUND ELEVATION: 248.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-6"	LOAMY SAND	10YR 3/3	MASSIVE, FRIABLE	DRY
B_W	6-15"	LOAMY SAND	10YR 5/8	MASSIVE, FRIABLE	DRY
C_1	15-84"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	84-130"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 118" (ELEVATION=238.2)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #3 (TP3)
EXISTING GROUND ELEVATION: 244.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-10"	LOAMY SAND	–	–	DRY
C_1	10-60"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	60-124"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 76" (ELEVATION=237.7)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #4 (TP4)
EXISTING GROUND ELEVATION: 245.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-6"	LOAMY SAND	10YR 3/2	MASSIVE, FRIABLE	DRY
B_W	6-10"	LOAMY SAND	10YR 4/4	MASSIVE, FRIABLE	DRY
C_1	10-60"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	60-120"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 78" (ELEVATION=238.5)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #5 (TP5)
EXISTING GROUND ELEVATION: 244.9
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (TOPSOIL)	0-8"	LOAMY SAND	10YR 3/2	MASSIVE, FRIABLE	DRY
C_1	8-84"	MEDIUM SAND	10YR 5/8	SINGLE GRAIN, LOOSE	DRY
C_2	84-108"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 80" (ELEVATION=238.3)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #6 (TP6)
EXISTING GROUND ELEVATION: 246.1
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (TOPSOIL)	0-8"	LOAMY SAND	10YR 3/2	MASSIVE, FRIABLE	DRY
C_1	8-60"	MEDIUM SAND	10YR 5/8	SINGLE GRAIN, LOOSE	DRY
C_2	60-120"	FINE SAND	10YR 6/3	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 86" (ELEVATION=238.9)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #7 (TP7)
EXISTING GROUND ELEVATION: 246.7
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-8"	LOAMY SAND	10YR 3/3	MASSIVE, FRIABLE	DRY
B_W	8-15"	LOAMY SAND	10YR 5/8	MASSIVE, FRIABLE	DRY
C_1	15-50"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	50-132"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 120" (ELEVATION=236.7)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #8 (TP8)
EXISTING GROUND ELEVATION: 243.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
A	0-6"	LOAMY SAND	10YR 3/3	MASSIVE, FRIABLE	DRY
B_W	6-10"	LOAMY SAND	10YR 4/4	MASSIVE, FRIABLE	DRY
C_1	10-50"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	50-120"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 90" (ELEVATION=235.5)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #9 (TP9)
EXISTING GROUND ELEVATION: 243.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-15"	–	–	–	DRY
C_1	15-60"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	60-120"	FINE SAND	10YR 7/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 96" (ELEVATION=235.0)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #10 (TP10)
EXISTING GROUND ELEVATION: 241.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-18"	–	–	–	DRY
C_1	18-100"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	100-110"	FINE SAND	10YR 6/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 67" (ELEVATION=235.4)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #11 (TP11)
EXISTING GROUND ELEVATION: 245.6
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

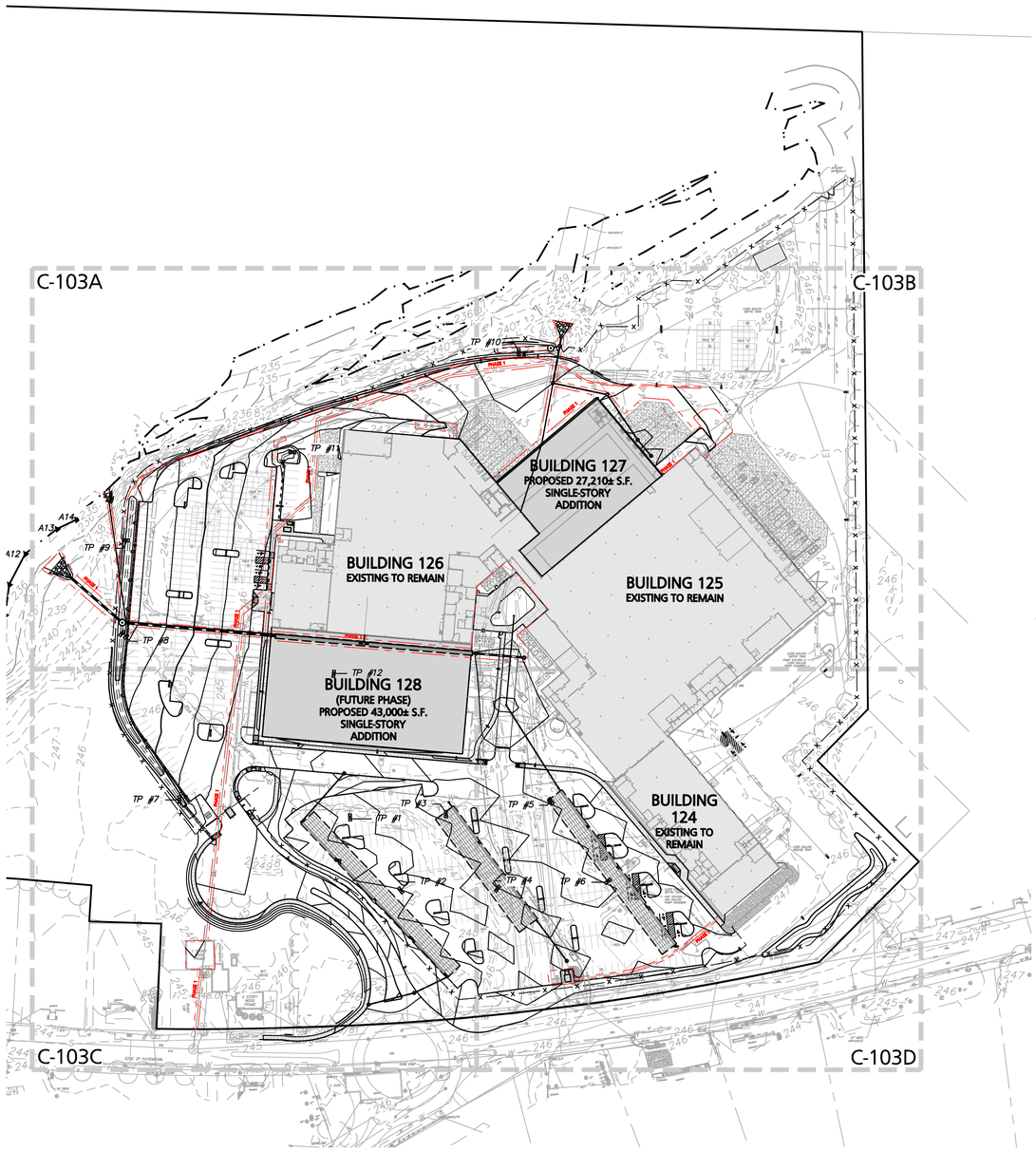
HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-24"	–	–	–	DRY
C_1	24-80"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	80-130"	FINE SAND	10YR 6/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 120" (ELEVATION=235.6)
WEEP: NONE
BEDROCK/REFUSAL: NONE

TEST PIT #12 (TP12)
EXISTING GROUND ELEVATION: 246.0
PERFORMED BY: BRIAN D. JONES, PE
DATE: 02-14-2023

HORIZON	DEPTH	TEXTURE	COLOR	STRUCTURE	NOTES
HTM (GRAVEL)	0-18"	–	–	–	DRY
C_1	18-84"	MEDIUM SAND	10YR 6/6	SINGLE GRAIN, LOOSE	DRY
C_2	84-124"	FINE SAND	10YR 6/2	MASSIVE FRIABLE	DRY TO MOIST

ESHWT: 112" (ELEVATION=236.7)
WEEP: NONE
BEDROCK/REFUSAL: NONE



LEGEND

- DRAIN MANHOLE
- OUTLET CONTROL (BEEHIVE)
- CATCH BASIN
- CATCH BASIN (30" NYLOPLAST)
- AREA DRAIN
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- HEADWALL
- 5' CONTOUR
- 1' CONTOUR (465.00)
- SPOT GRADE (466)
- INFILTRATION SYSTEM
- INFILTRATION CHAMBER
- ISOLATION ROW
- FLOW DIRECTION
- PHASE 1 LINE

NOTES

1. EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER NH, FOR SIG SAUER INC., DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
2. VERTICAL DATUM IS NAVD88. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
3. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
4. PIPE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE STRUCTURE.
5. ROOF DRAIN LOCATIONS TO BE BASED ON FINAL BUILDING PLANS. CONNECTION POINTS SHALL BE AS SHOWN HEREON.
6. SPOT GRADES ALONG CURBING, SHOWN ON THE FOLLOWING SHEETS (C-103A THROUGH C-103D), REPRESENT BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
8. ALL STORM DRAIN MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT AND SHALL HAVE TRAFFIC BEARING RING & COVERS, H-20 MINIMUM.
9. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
10. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ENSURE A SMOOTH FIT AND CONTINUOUS GRADE.
11. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS.
12. ALL DRAINAGE SHALL CONFORM TO LOCAL REQUIREMENTS.
13. THE OWNER SHALL BE RESPONSIBLE TO MAINTAIN COMPLIANCE WITH Env-Wq 401, BEST MANAGEMENT PRACTICES FOR GROUNDWATER PROTECTION WITH RESPECT TO ALL REGULATED SUBSTANCES FOUND ON SITE.
14. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE

100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

STATE OF NEW HAMPSHIRE - BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

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7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

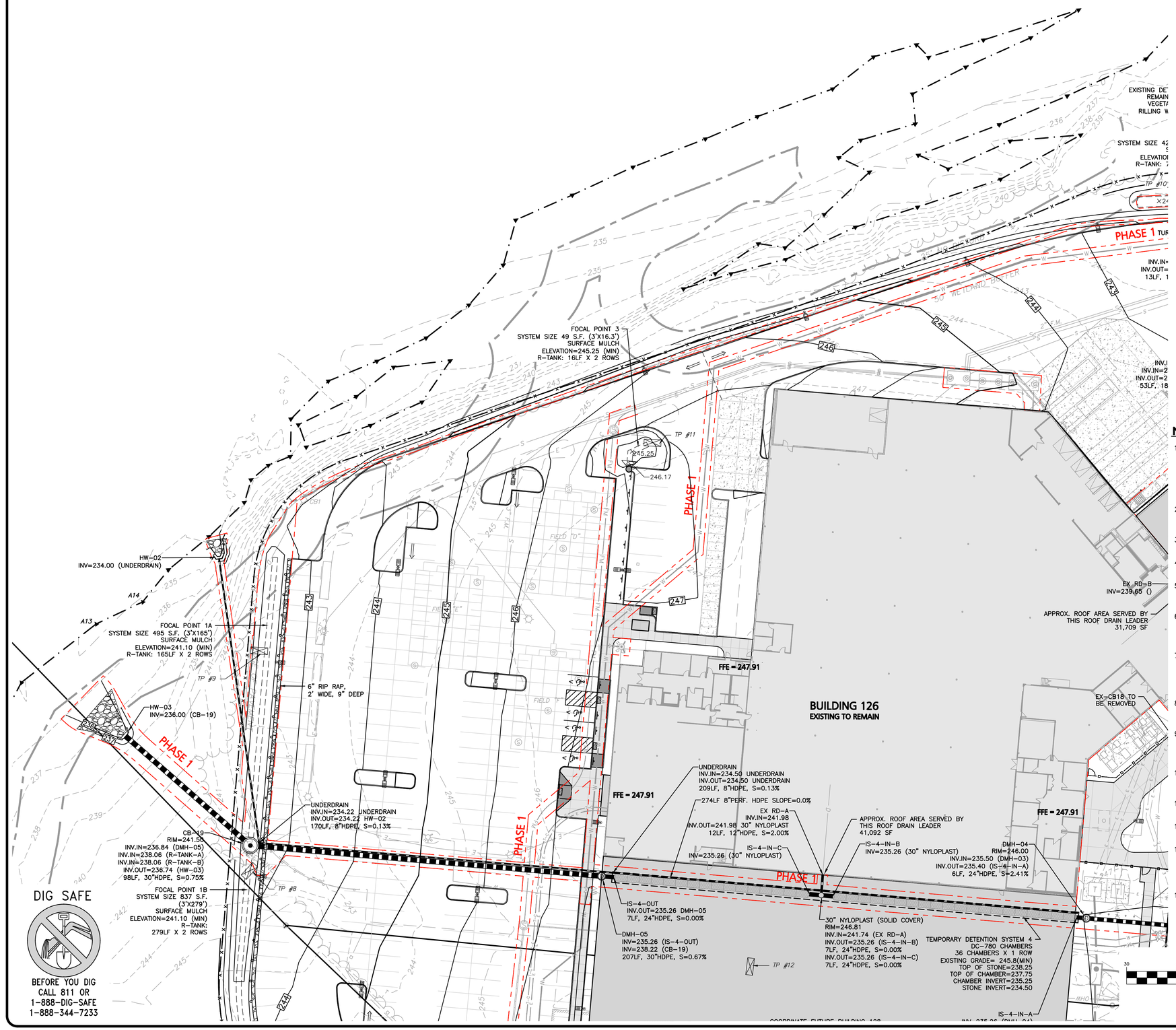
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DRAWING TITLE:
OVERALL GRADING & DRAINAGE PLAN

SHEET No.
C-103

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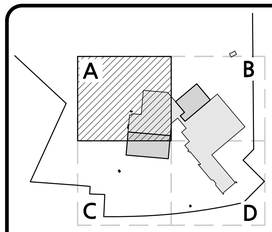


LEGEND

- DRAIN MANHOLE
- OUTLET CONTROL (BEEHIVE)
- CATCH BASIN
- CATCH BASIN (30" NYLOPLAST)
- AREA DRAIN
- FLARED END SECTION
- DRAIN LINE
- RIPRAP OUTFALL
- HEADWALL
- 5' CONTOUR
- 1' CONTOUR (465.00)
- SPOT GRADE (466)
- INFILTRATION SYSTEM
- INFILTRATION CHAMBER
- ISOLATION ROW
- FLOW DIRECTION
- PHASE 1 LINE

NOTES

1. EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER NH, FOR SIG SAUER INC., DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
2. VERTICAL DATUM IS NAVD88. EXISTING GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT. PROPOSED GRADE CONTOUR INTERVALS SHOWN AT 1 FOOT.
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4. PIPE DIMENSIONS ARE MEASURED FROM THE CENTER OF THE STRUCTURE.
5. ROOF DRAIN LOCATIONS TO BE BASED ON FINAL BUILDING PLANS. CONNECTION POINTS SHALL BE AS SHOWN HEREON.
6. SPOT GRADES ALONG CURBING, SHOWN ON THE FOLLOWING SHEETS (C-103A THROUGH C-103D), REPRESENT BOTTOM OF CURB ELEVATIONS, UNLESS OTHERWISE NOTED.
7. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
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SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
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400 HARVEY ROAD
MANCHESTER, NH 03103
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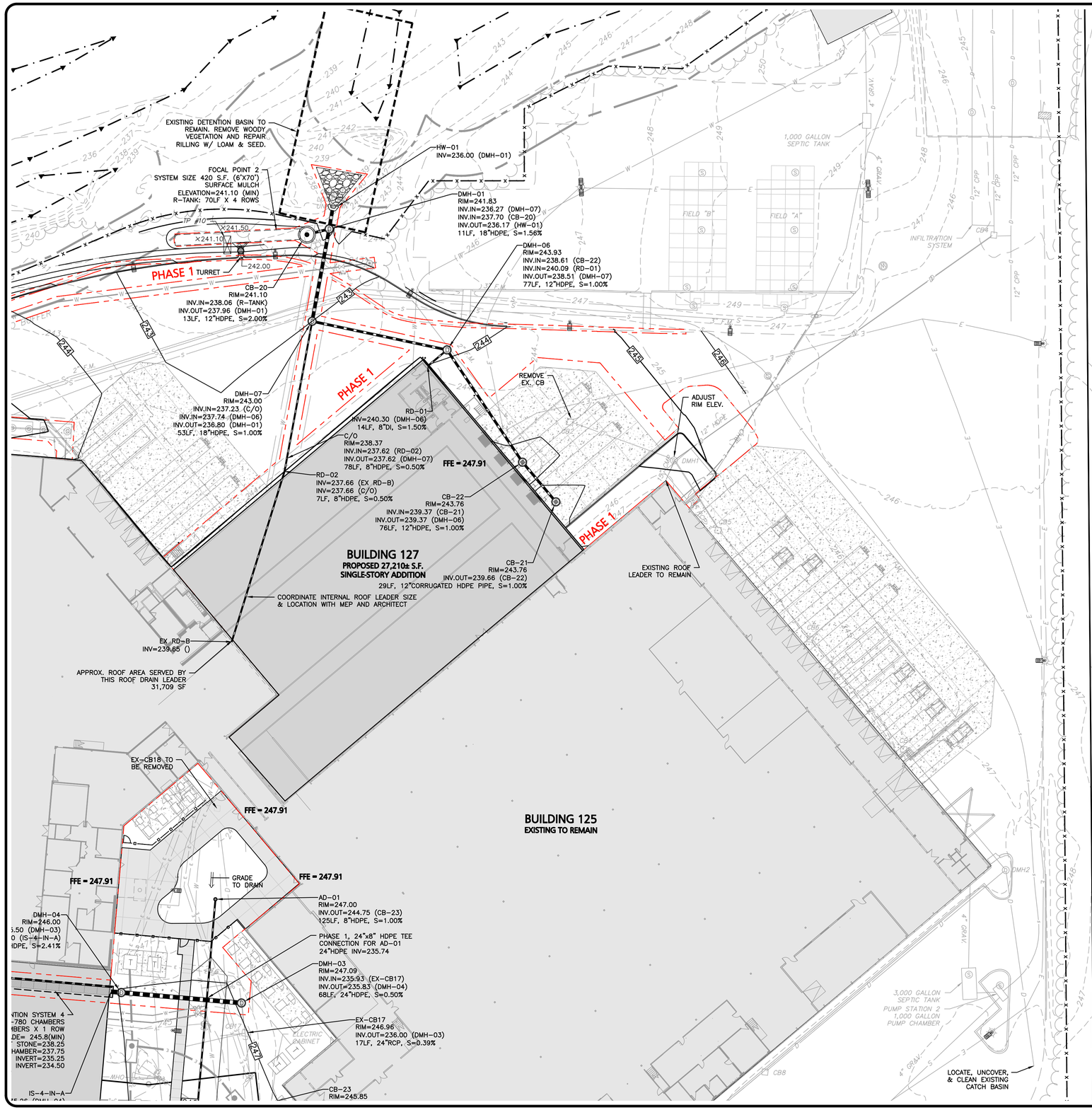
GRADING &
DRAINAGE PLAN

SHEET No.

C-103A

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LEGEND

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- CATCH BASIN (30" NYLOPLAST)
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- FLOW DIRECTION
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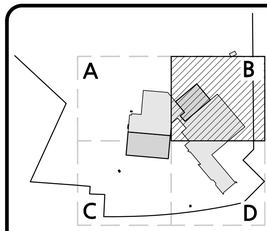
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER

07.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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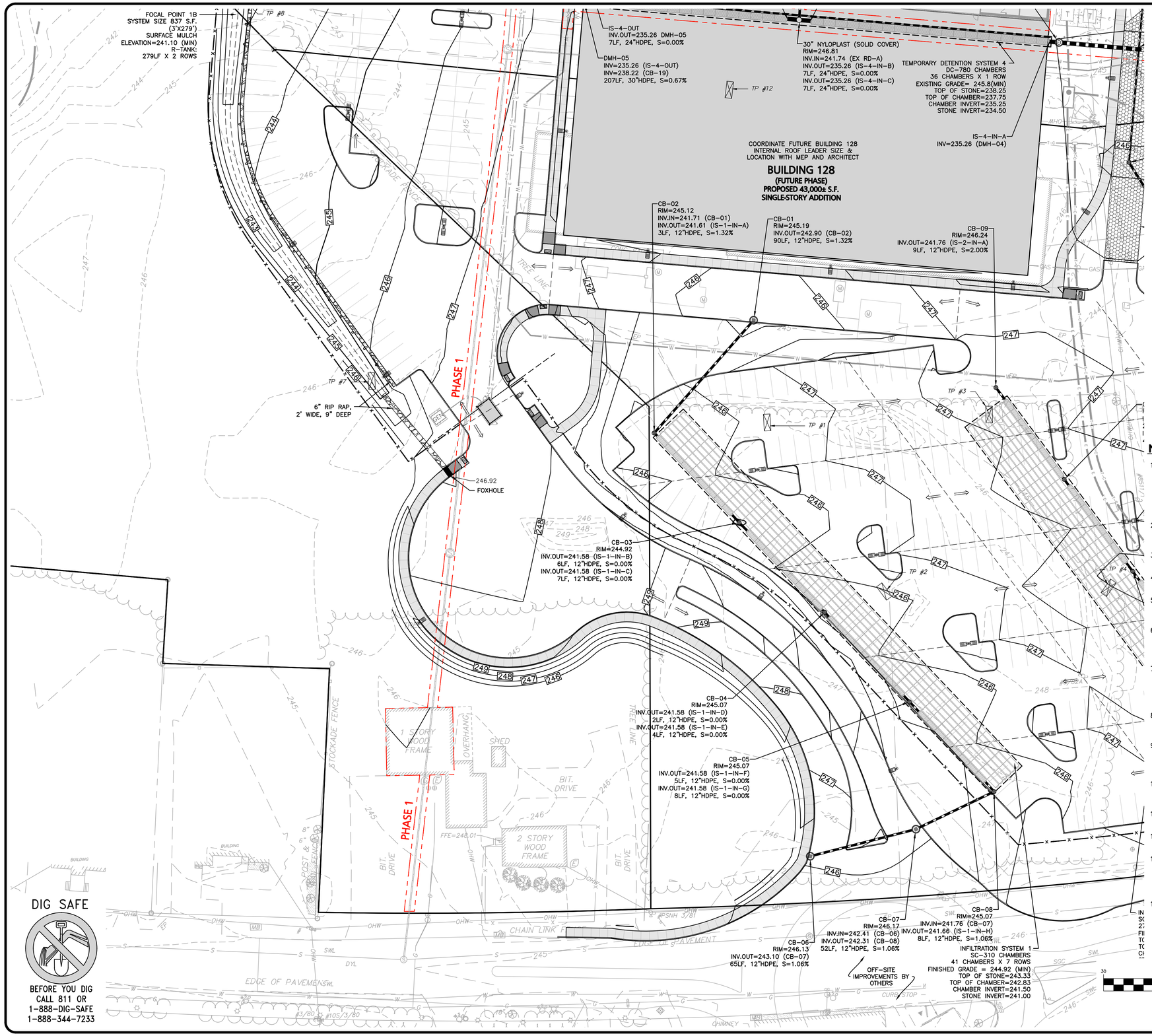
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DRAWING TITLE:
GRADING & DRAINAGE PLAN

SHEET No.
C-103B

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LEGEND

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- OUTLET CONTROL (BEEHIVE)
- CATCH BASIN
- CATCH BASIN (30" NYLOPLAST)
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- DRAIN LINE
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- HEADWALL
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GRAPHIC SCALE

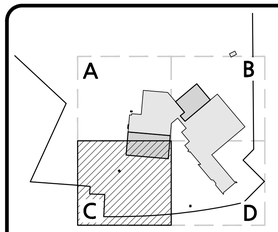
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(IN FEET)
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SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
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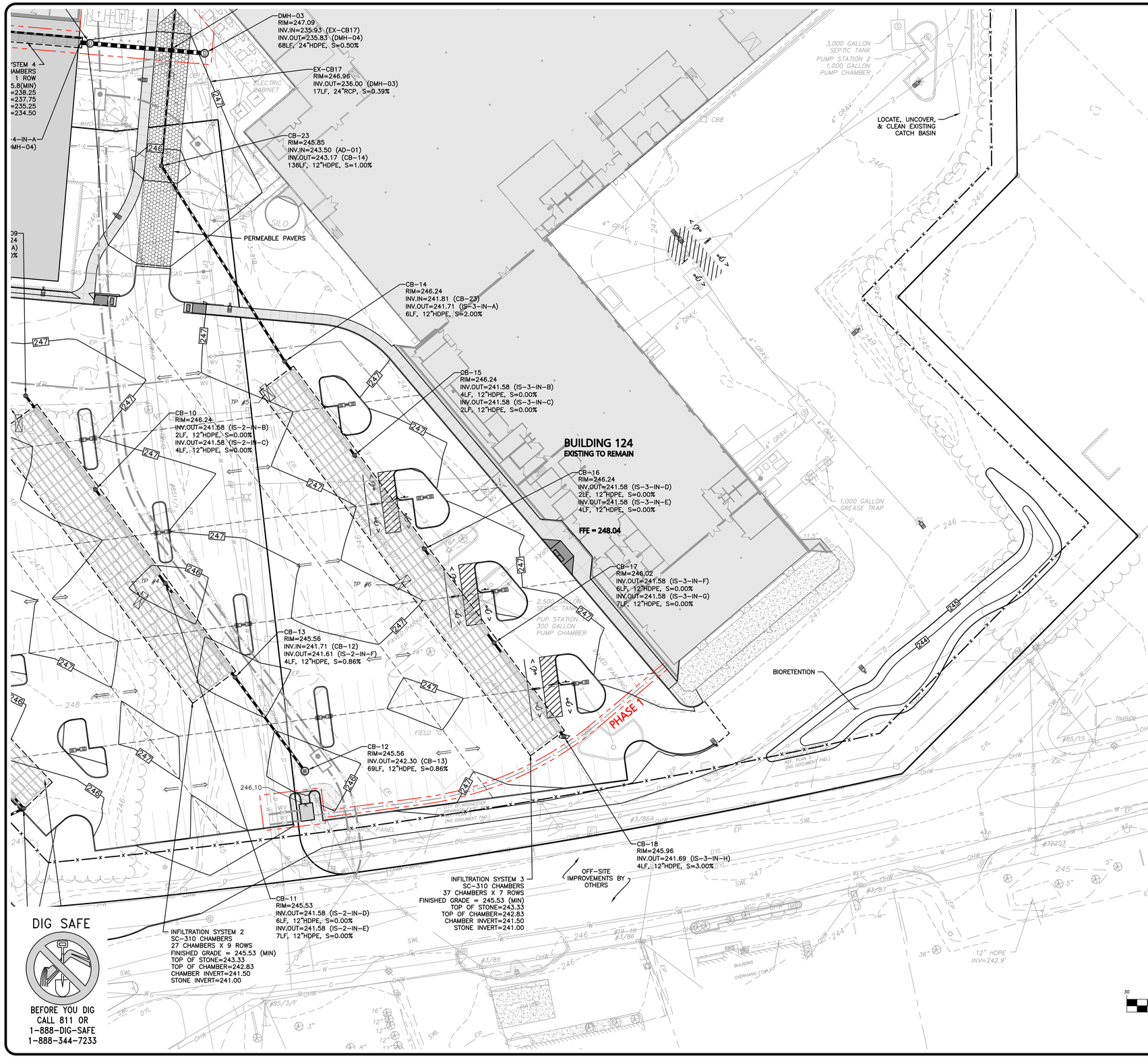
DRAWING TITLE:

GRADING &
DRAINAGE PLAN

SHEET No.

C-103C

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LEGEND

- DRAIN MANHOLE
- OUTLET CONTROL (BEEHIVE)
- CATCH BASIN
- CATCH BASIN (30" NYLOPLAST)
- AREA DRAIN
- FLARED END SECTION
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A B C D

SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
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DRAWING TITLE:
GRADING &
DRAINAGE PLAN

SHEET No.
C-103D

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LEGEND

- SEWER MANHOLE
- SEWER CLEANOUT
- SEWER VENT
- SEWER LINE
- SEWER FORCEMAIN — FM
- CONCRETE PIPE ENCASEMENT
- WATER LINE — W
- WATER VALVE — WV
- HYDRANT
- WATER LINE REDUCER
- GAS LINE — GAS
- GAS VALVE — GV
- SEPTIC/HOLDING TANK
- GREASE TRAP
- OVER HEAD WIRE — OHW
- UTILILTY POLE
- ELECTRIC MANHOLE
- HAND HOLE — HH
- ELECTRICAL CONDUIT — E
- LIGHTING CONDUIT — L
- IRRIGATION SLEEVE
- TELE/CABLE CONDUIT — T/C
- PHASE 1 LINE

NOTES

1. THE PURPOSE OF THIS PLAN IS TO PROVIDE OVERALL UTILITIES INFORMATION FOR THE PROPOSED BUILDING ADDITIONS AND ASSOCIATED SITE IMPROVEMENTS. SEE SHEETS C–104A THROUGH C–104D FOR 1"=30' SCALE ENLARGEMENTS.
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GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

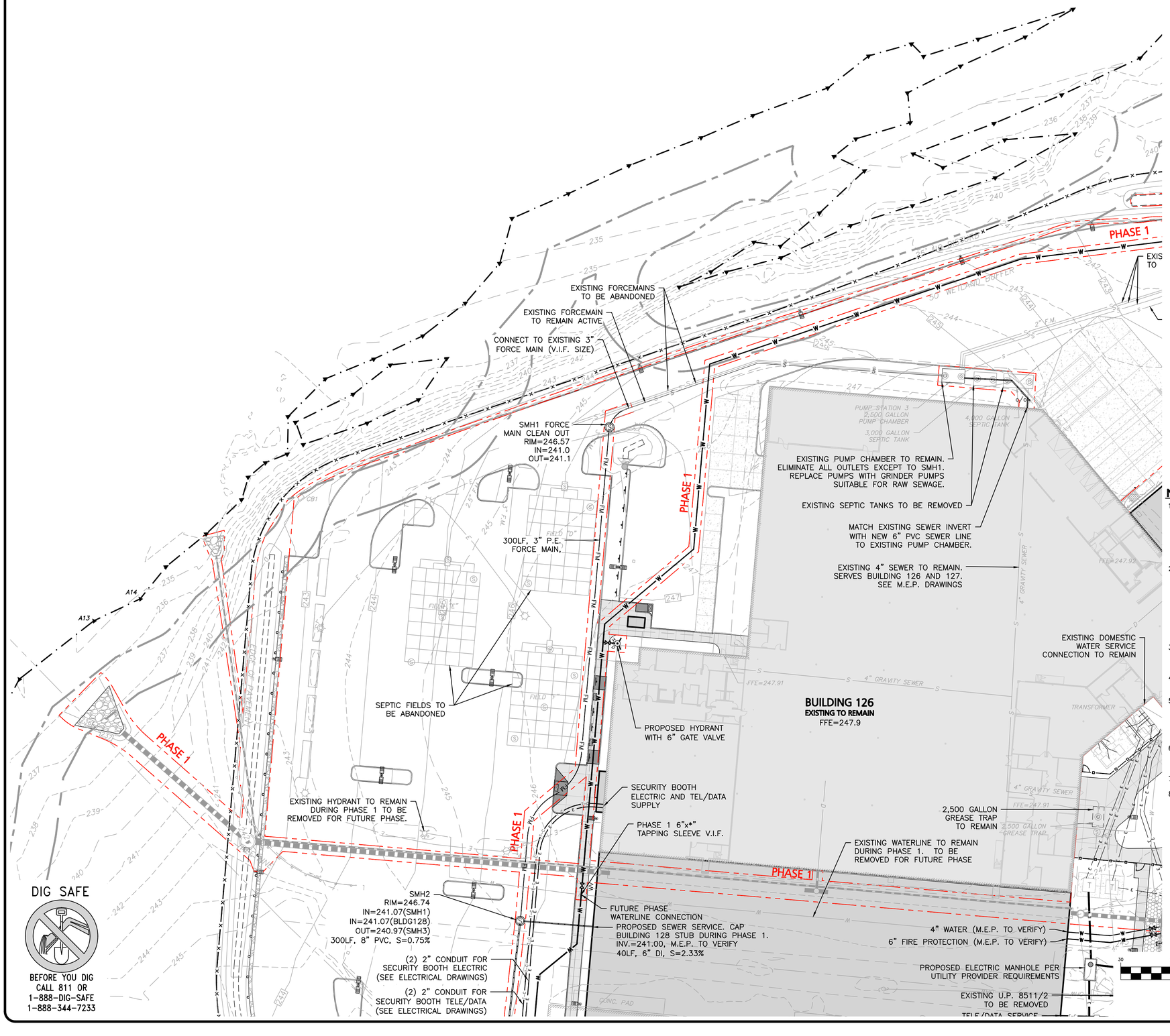
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DRAWING TITLE:
OVERALL UTILITIES PLAN

SHEET No.
C-104

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LEGEND

- SEWER MANHOLE
- SEWER CLEANOUT
- SEWER VENT
- SEWER LINE
- SEWER FORCEMAIN — FM
- CONCRETE PIPE ENCASEMENT
- WATER LINE — W
- WATER VALVE — WV
- HYDRANT
- WATER LINE REDUCER
- GAS LINE — GAS
- GAS VALVE — GV
- SEPTIC/HOLDING TANK
- GREASE TRAP
- OVER HEAD WIRE — OHW
- UTILILTY POLE
- ELECTRIC MANHOLE
- HAND HOLE — HH
- ELECTRICAL CONDUIT — E
- LIGHTING CONDUIT — L
- IRRIGATION SLEEVE
- TELE/CABLE CONDUIT — T/C
- PHASE 1 LINE

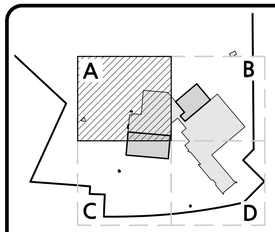
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SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
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DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

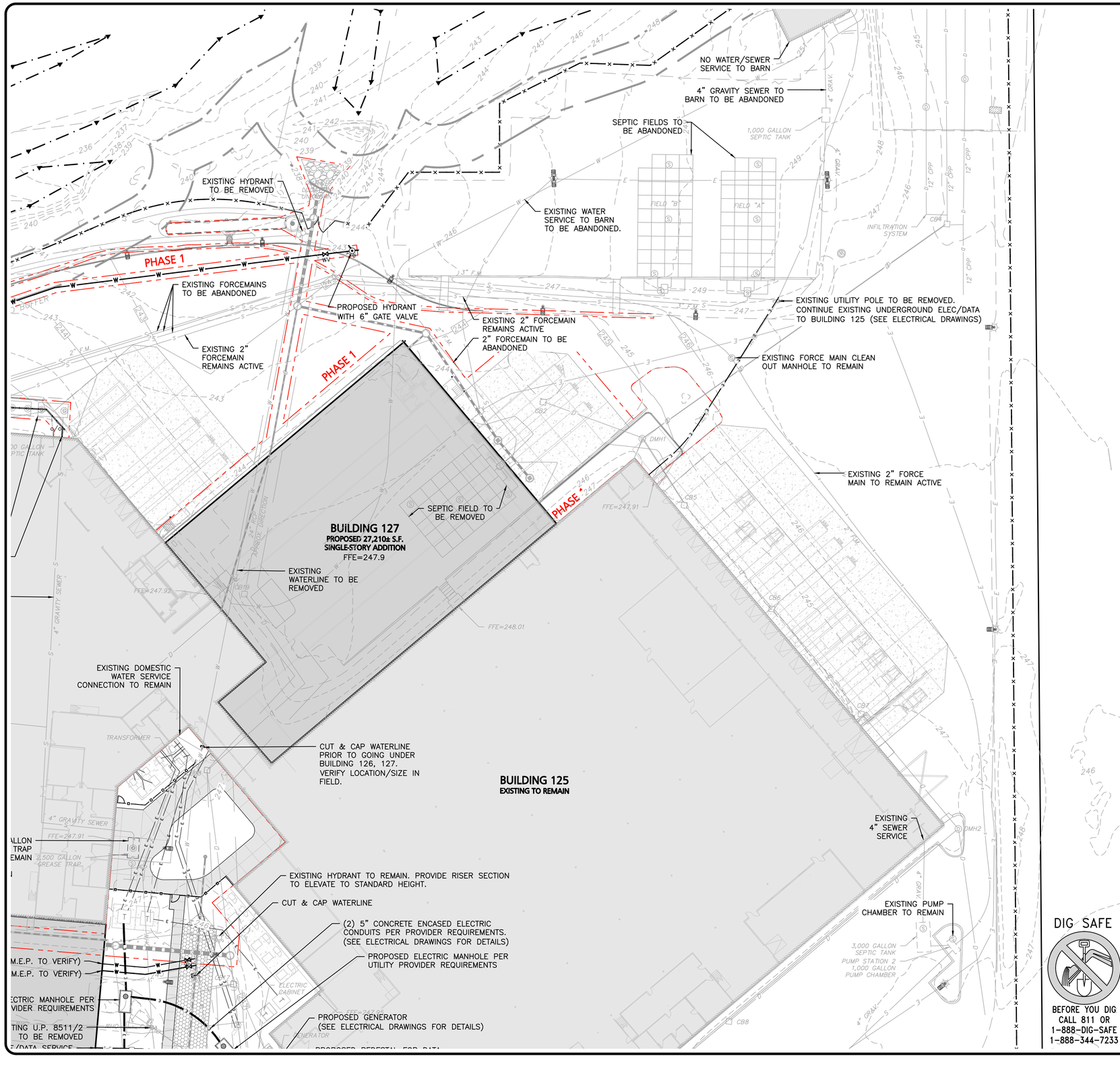
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DRAWING TITLE: UTILITIES PLAN

SHEET No. C-104A

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LEGEND

SEWER MANHOLE	
SEWER CLEANOUT	
SEWER VENT	
SEWER LINE	
SEWER FORCEMAIN	FM
CONCRETE PIPE ENCASEMENT	
WATER LINE	W
WATER VALVE	WV
HYDRANT	
WATER LINE REDUCER	
GAS LINE	GAS
GAS VALVE	GV
SEPTIC/HOLDING TANK	
GREASE TRAP	
OVER HEAD WIRE	OHW
UTILILTY POLE	
ELECTRIC MANHOLE	
HAND HOLE	
ELECTRICAL CONDUIT	E E
LIGHTING CONDUIT	L L
IRRIGATION SLEEVE	
TELE/CABLE CONDUIT	T/C T/C
PHASE 1 LINE	

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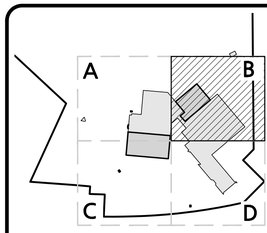
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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APPLICANT:

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ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
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0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
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DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

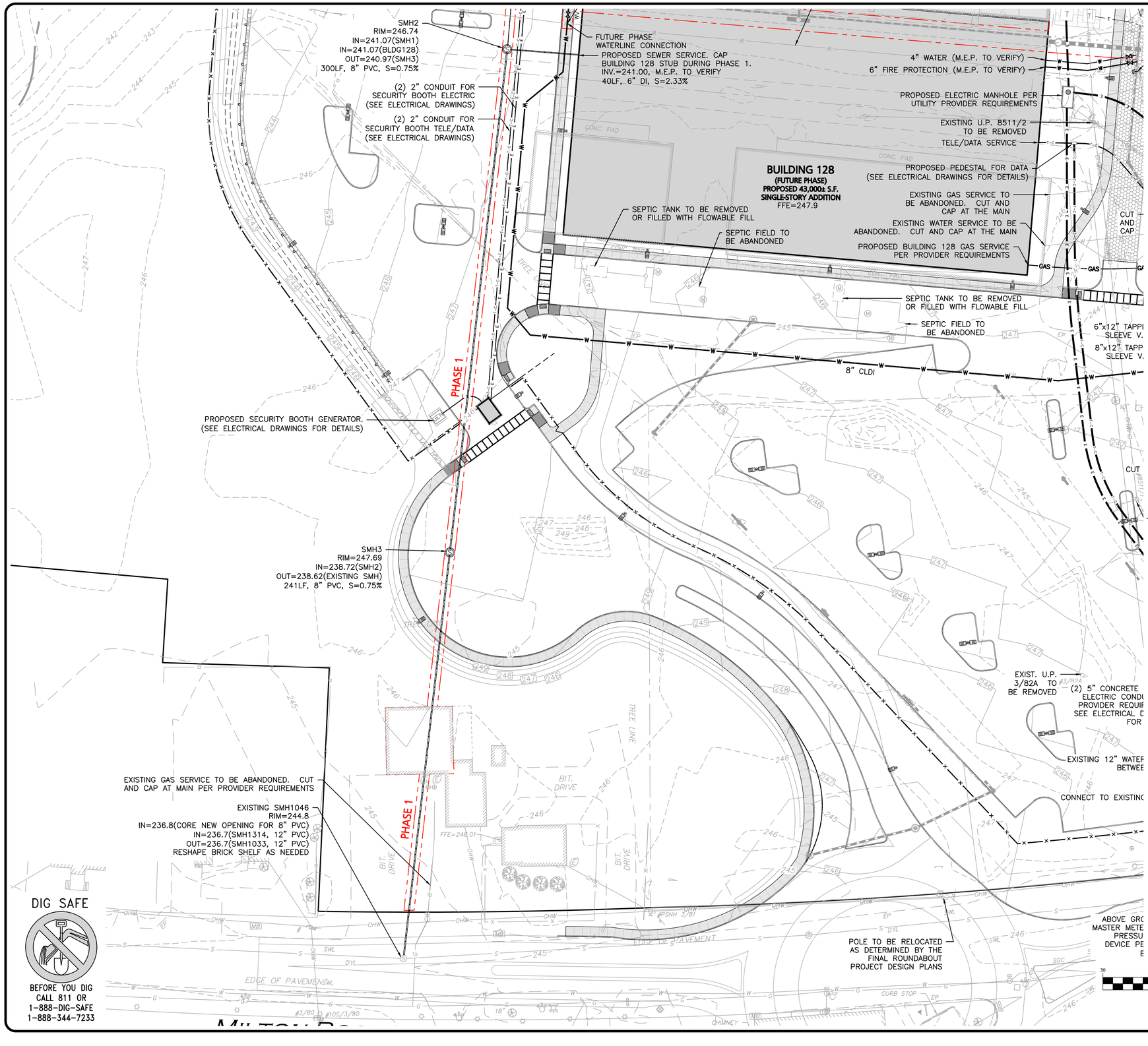
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DRAWING TITLE:	SHEET No.
UTILITIES PLAN	C-104B

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LEGEND

- SEWER MANHOLE
- SEWER CLEANOUT
- SEWER VENT
- SEWER LINE
- SEWER FORCEMAIN — FM
- CONCRETE PIPE ENCASEMENT
- WATER LINE — W
- WATER VALVE — WV
- HYDRANT
- WATER LINE REDUCER
- GAS LINE — GAS
- GAS VALVE — GV
- SEPTIC/HOLDING TANK
- GREASE TRAP
- OVER HEAD WIRE — OHW
- UTILILTY POLE
- ELECTRIC MANHOLE
- HAND HOLE — HH
- ELECTRICAL CONDUIT — E
- LIGHTING CONDUIT — L
- IRRIGATION SLEEVE
- TELE/CABLE CONDUIT — T/C
- PHASE 1 LINE

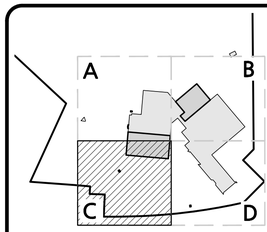
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SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
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04.27.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

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0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
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PREPARED BY:

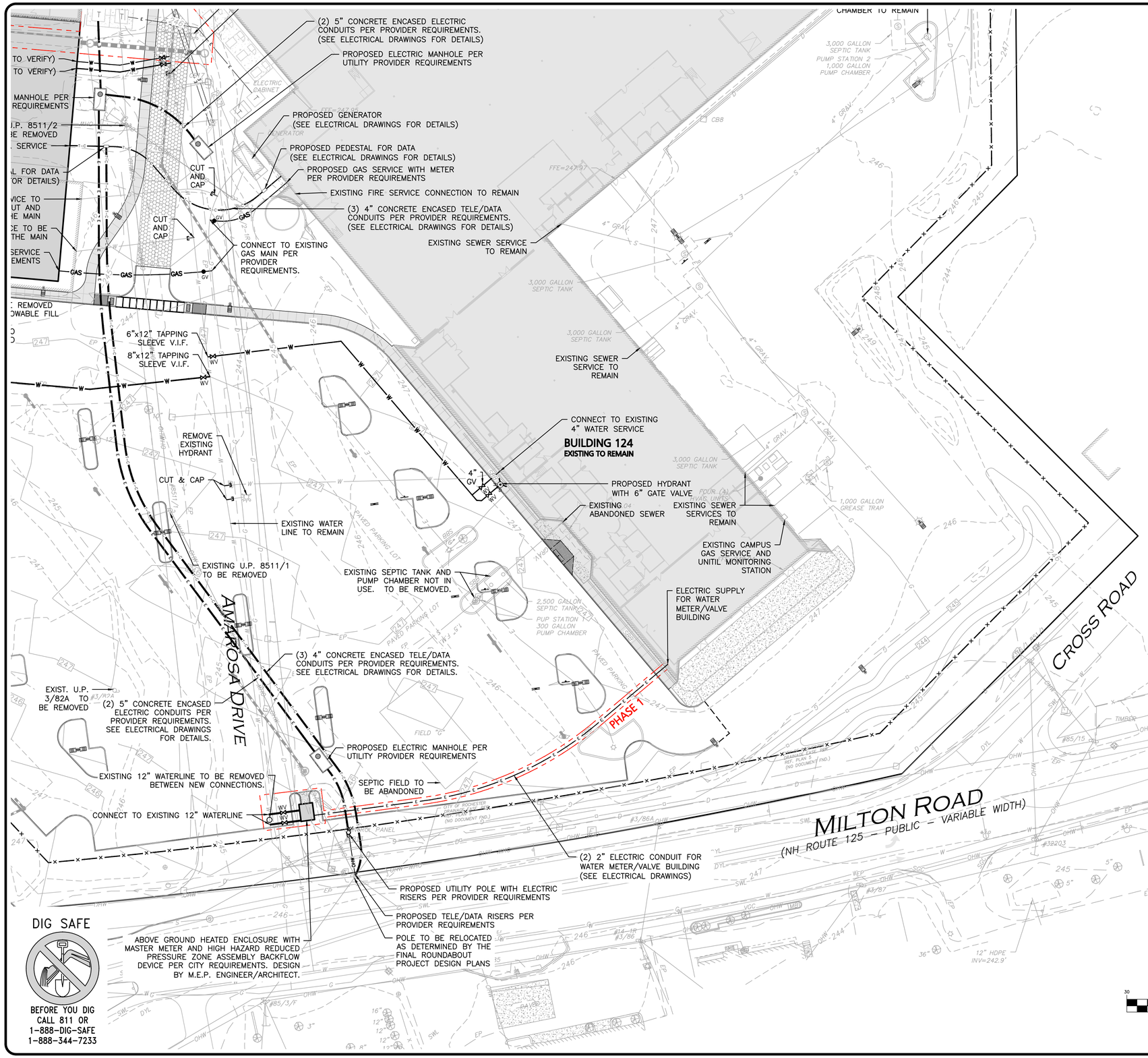
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UTILITIES PLAN

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C-104C

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LEGEND

SEWER MANHOLE	
SEWER CLEANOUT	
SEWER VENT	V
SEWER LINE	
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CONCRETE PIPE ENCASEMENT	
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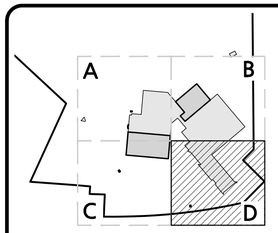
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30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

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04.27.23

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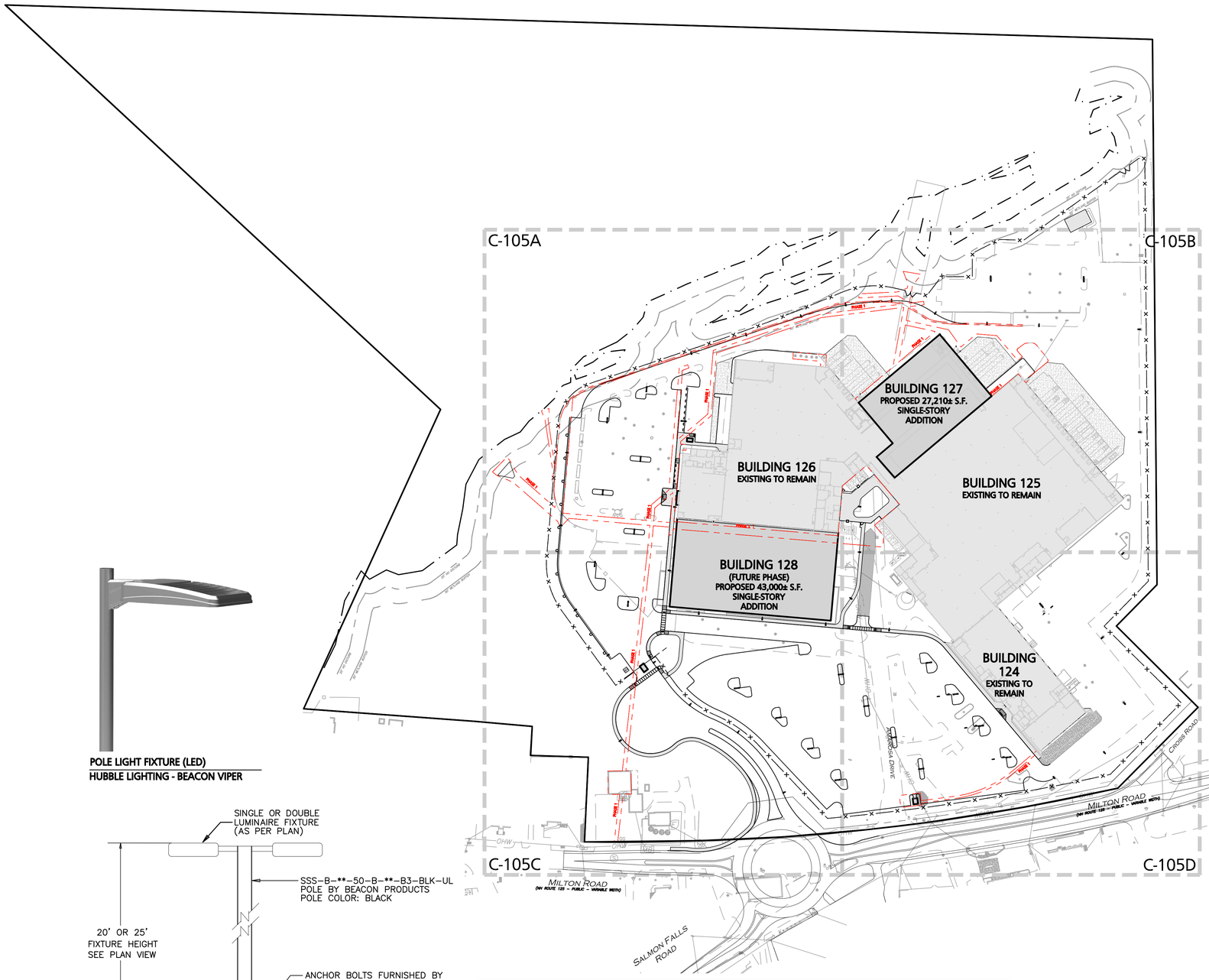
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DRAWING TITLE: UTILITIES PLAN

SHEET No. C-104D

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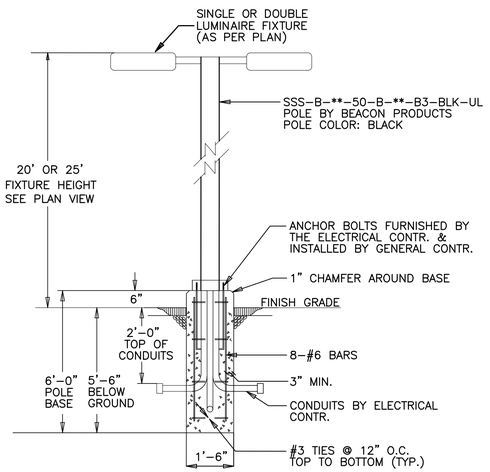
LEGEND

SINGLE POLE LIGHT	
DOUBLE POLE LIGHT	
LIGHTING LEVELS (Fc)	0.0 0.1 0.2 0.4 0.6
PHASE 1 LINE	

NOTES

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   SWANEY LIGHTING ASSOCIATES
   CONTACT: CHRIS PECHALK
   PHONE:207–883–7100
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6. CONTROLS FOR ALL EXTERIOR LIGHTING BY BUILDING CONTRACTOR.
7. WIRING OF BUILDING MOUNTED FIXTURES BY BUILDING CONTRACTOR.
8. ALL POLES AND FIXTURE HEADS SHALL BE BLACK COLOR.
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POLE LIGHT FIXTURE (LED)
HUBBLE LIGHTING - BEACON VIPER



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1–888–DIG–SAFE
1–888–344–7233

LUMINAIRE SCHEDULE						
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION
	2S4	9	242	10733	0.90	VP–ST–1–36L–120–3K7–4W–UNV–A–BLT–WIRSC
	2S4F	13	242	11983	0.90	VP–ST–1–36L–120–3K7–4F–UNV–A–BLT–WIRSC
	S3	8	120	12247	0.90	VP–ST–1–36L–120–3K7–3–UNV–A–BLT–WIRSC
	S4	16	120	10733	0.90	VP–ST–1–36L–120–3K7–4W–UNV–A–BLT–WIRSC
	S4F	6	120	11983	0.90	VP–ST–1–36L–120–3K7–4F–UNV–A–BLT–WIRSC
	S5	1	120	12235	0.90	VP–ST–1–36L–120–3K7–5QM–UNV–A–BLT–WIRSC
	S6	2	120	10078	0.90	VP–ST–1–36L–120–3K7–3–UNV–A–BLT–BC–WIRSC
	S7	1	120	10860	0.90	VP–ST–1–36L–120–3K7–4F–UNV–A–BLT–BC–WIRSC

CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.

GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
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DRAWING TITLE:
OVERALL LIGHTING PLAN

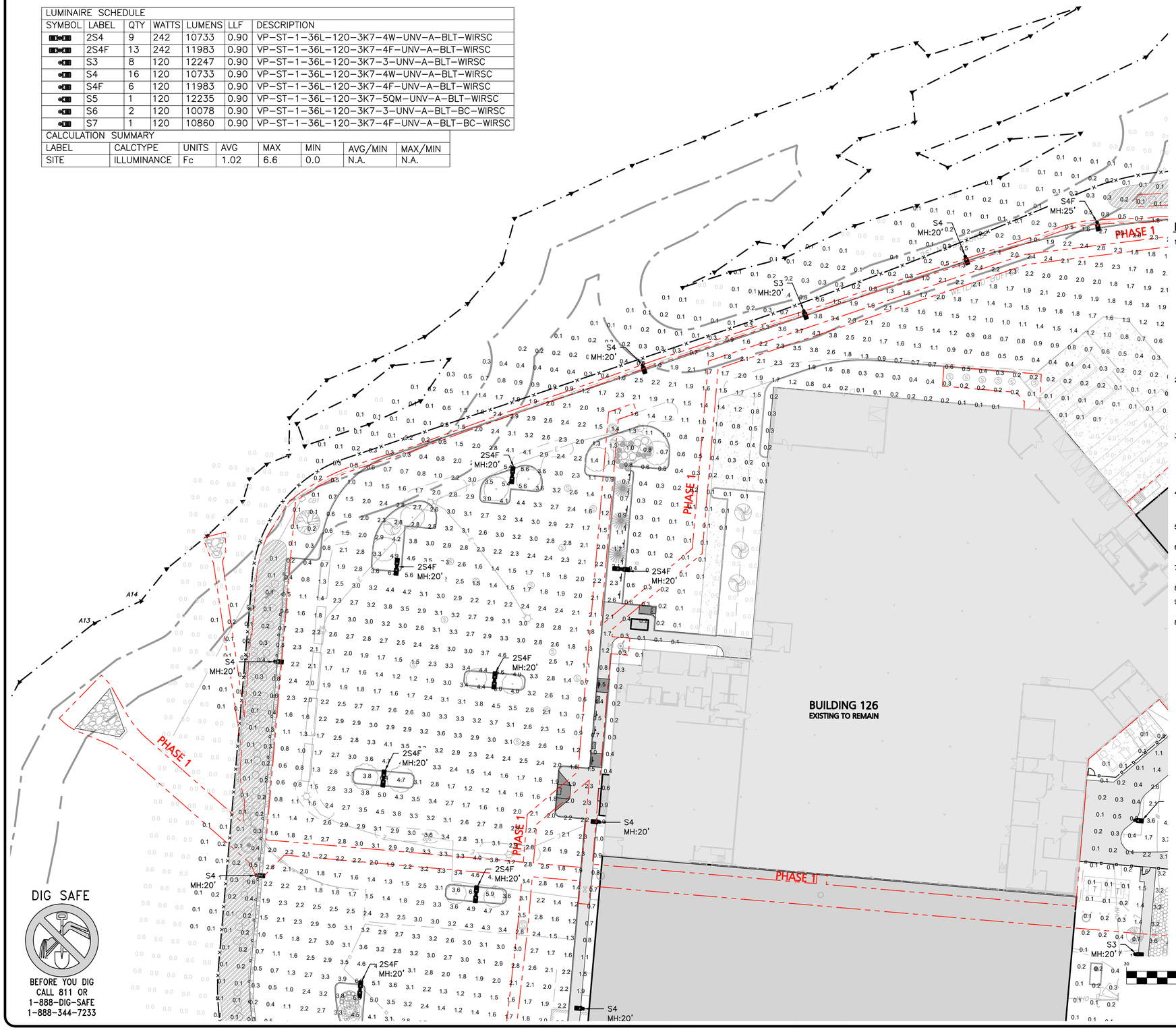
SHEET No.
C-105

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R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LIGHTING.DWG

LUMINAIRE SCHEDULE						
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION
	2S4	9	242	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC
	2S4F	13	242	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC
	S3	8	120	12247	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-WIRSC
	S4	16	120	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC
	S4F	6	120	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC
	S5	1	120	12235	0.90	VP-ST-1-36L-120-3K7-5QM-UNV-A-BLT-WIRSC
	S6	2	120	10078	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-BC-WIRSC
	S7	1	120	10860	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-BC-WIRSC

CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.



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1-888-344-7233

LEGEND

SINGLE POLE LIGHT

DOUBLE POLE LIGHT

LIGHTING LEVELS (Fc) 0.0 0.1 0.2 0.4 0.6

PHASE 1 LINE

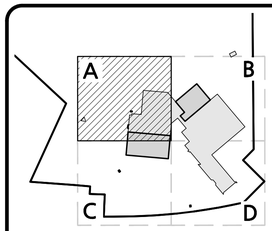
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

SITE LIGHTING PLAN

SHEET No.

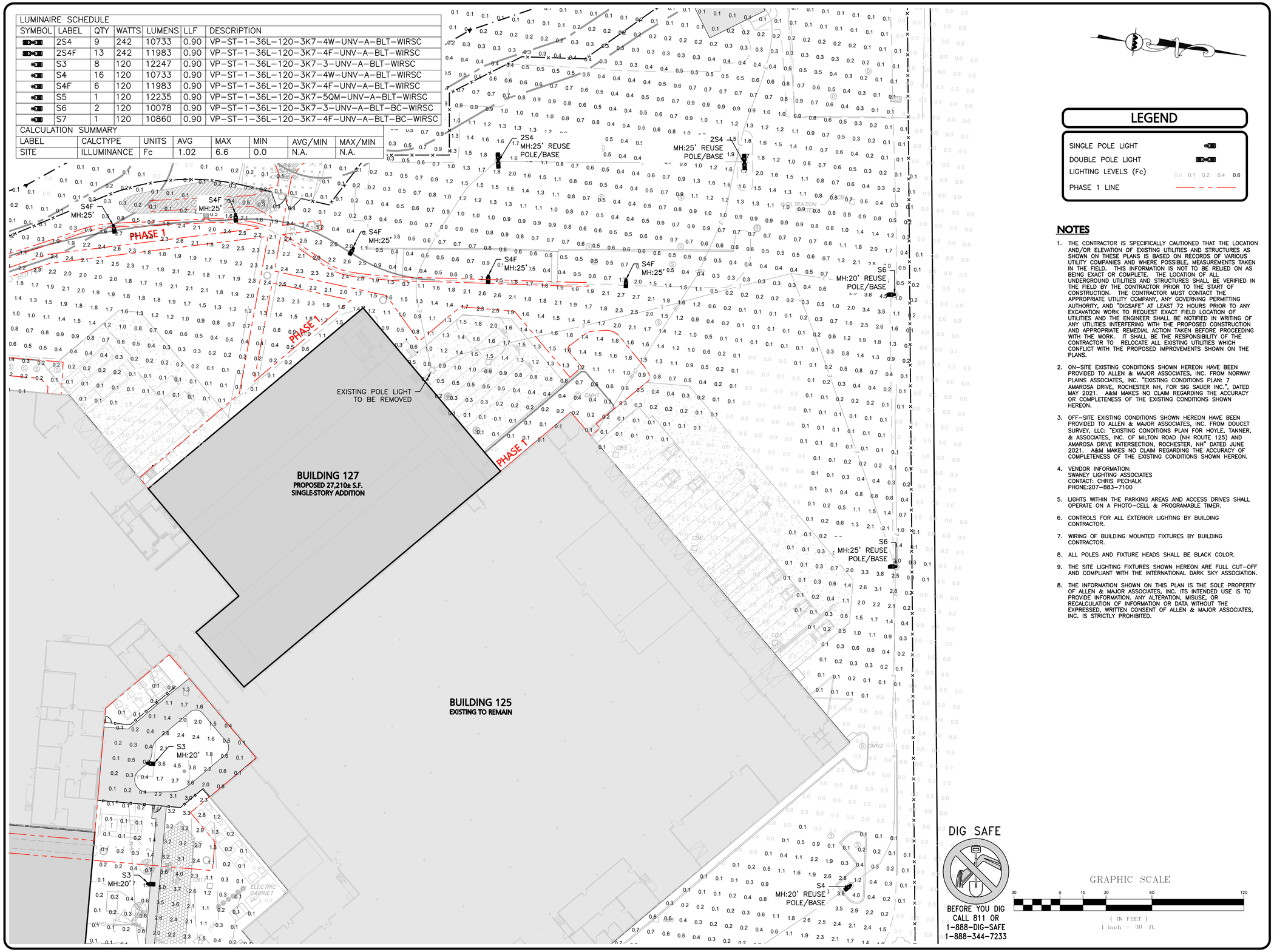
C-105A

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R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LIGHTING.DWG

LUMINAIRE SCHEDULE						
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION
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CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.



LEGEND

- SINGLE POLE LIGHT
- DOUBLE POLE LIGHT
- LIGHTING LEVELS (Fc) 0.0 0.1 0.2 0.4 0.6
- PHASE 1 LINE

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DIG SAFE

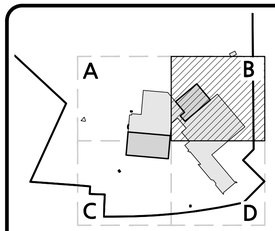
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GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LIGHTING.DWG



SHEET KEY PLAN

STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
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PREPARED BY:

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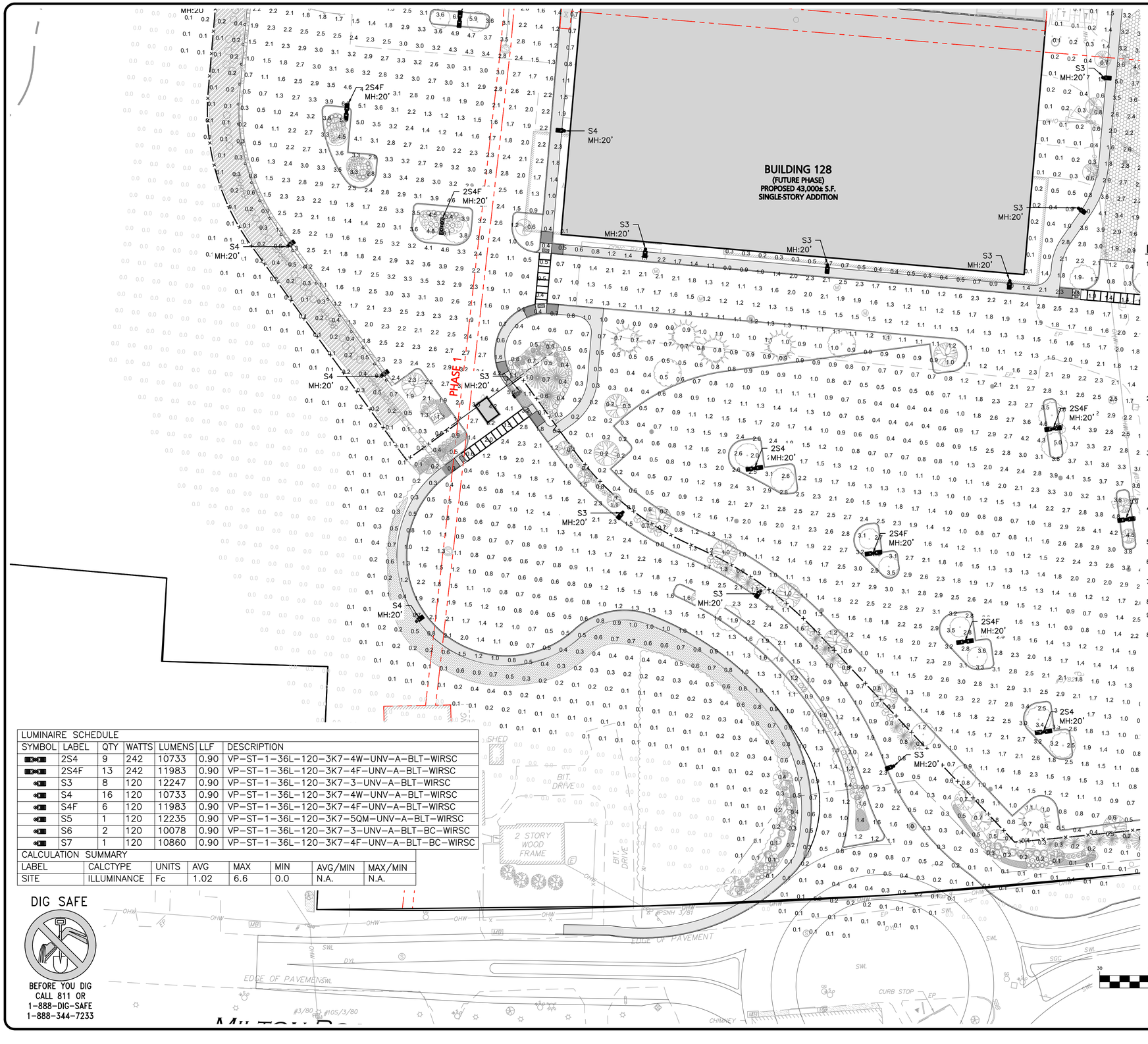
DRAWING TITLE:

SITE LIGHTING PLAN

SHEET No.

C-105B

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LEGEND

- SINGLE POLE LIGHT
- DOUBLE POLE LIGHT
- LIGHTING LEVELS (Fc) 0.0 0.1 0.2 0.4 0.6
- PHASE 1 LINE

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   SWANEY LIGHTING ASSOCIATES
   CONTACT: CHRIS PECHALK
   PHONE:207-883-7100
5. LIGHTS WITHIN THE PARKING AREAS AND ACCESS DRIVES SHALL OPERATE ON A PHOTO-CELL & PROGRAMABLE TIMER.
6. CONTROLS FOR ALL EXTERIOR LIGHTING BY BUILDING CONTRACTOR.
7. WIRING OF BUILDING MOUNTED FIXTURES BY BUILDING CONTRACTOR.
8. ALL POLES AND FIXTURE HEADS SHALL BE BLACK COLOR.
9. THE SITE LIGHTING FIXTURES SHOWN HEREON ARE FULL CUT-OFF AND COMPLIANT WITH THE INTERNATIONAL DARK SKY ASSOCIATION.
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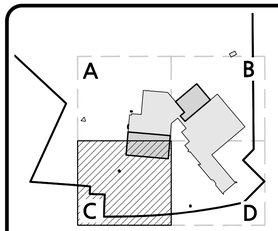
LUMINAIRE SCHEDULE						
SYMBOL	LABEL	QTY	WATTS	LUMENS	LLF	DESCRIPTION
	2S4	9	242	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC
	2S4F	13	242	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC
	S3	8	120	12247	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-WIRSC
	S4	16	120	10733	0.90	VP-ST-1-36L-120-3K7-4W-UNV-A-BLT-WIRSC
	S4F	6	120	11983	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-WIRSC
	S5	1	120	12235	0.90	VP-ST-1-36L-120-3K7-5QM-UNV-A-BLT-WIRSC
	S6	2	120	10078	0.90	VP-ST-1-36L-120-3K7-3-UNV-A-BLT-BC-WIRSC
	S7	1	120	10860	0.90	VP-ST-1-36L-120-3K7-4F-UNV-A-BLT-BC-WIRSC

CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.

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1-888-DIG-SAFE
1-888-344-7233

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:
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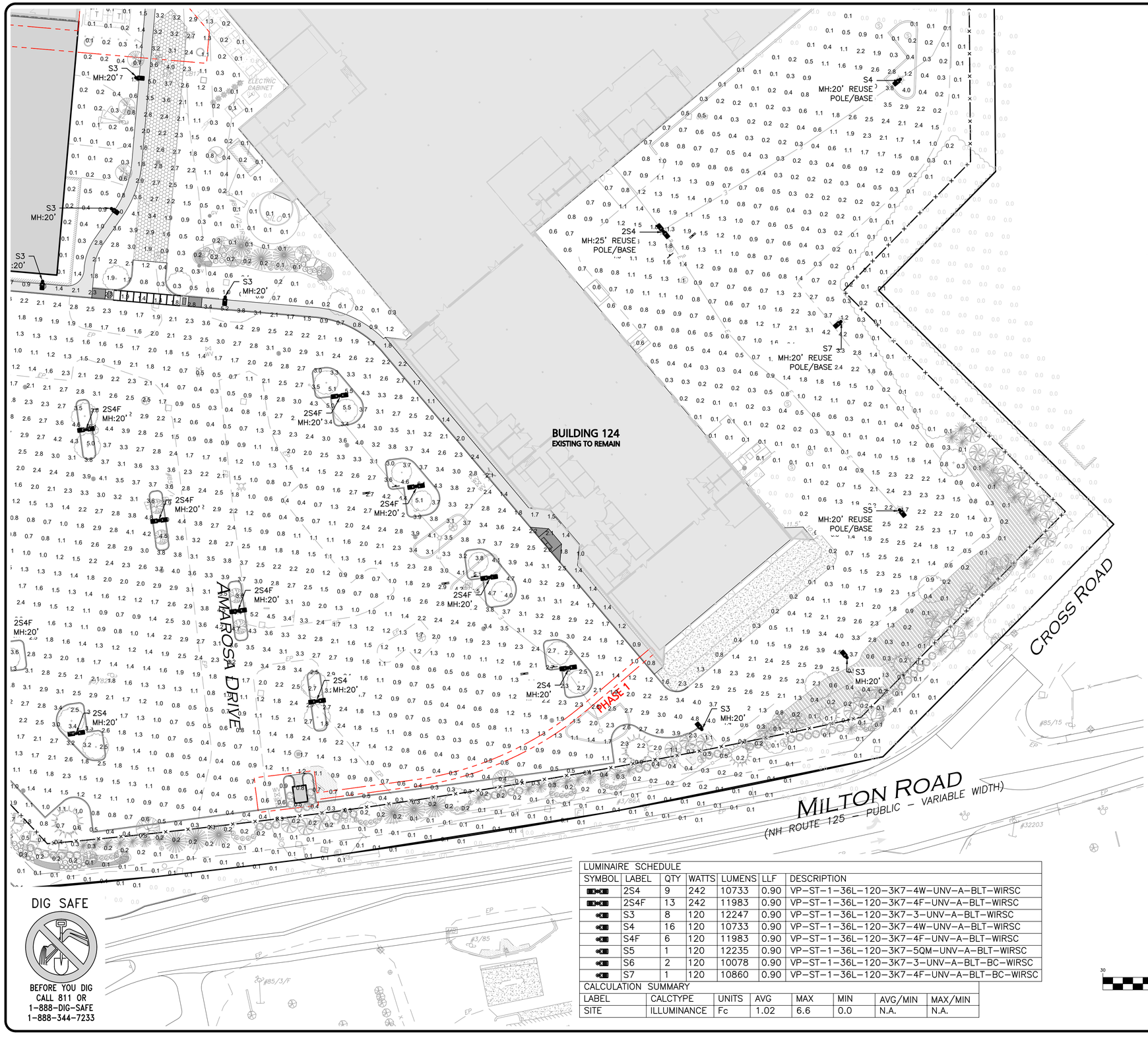
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DRAWING TITLE: SITE LIGHTING PLAN

SHEET No. C-105C

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LEGEND

- SINGLE POLE LIGHT
- DOUBLE POLE LIGHT
- LIGHTING LEVELS (Fc) 0.0 0.1 0.2 0.4 0.6
- PHASE 1 LINE

NOTES

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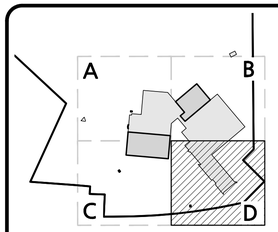
LUMINAIRE SCHEDULE						
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	2S4F	13	242	11983	0.90	VP–ST–1–36L–120–3K7–4F–UNV–A–BLT–WIRSC
	S3	8	120	12247	0.90	VP–ST–1–36L–120–3K7–3–UNV–A–BLT–WIRSC
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	S4F	6	120	11983	0.90	VP–ST–1–36L–120–3K7–4F–UNV–A–BLT–WIRSC
	S5	1	120	12235	0.90	VP–ST–1–36L–120–3K7–5QM–UNV–A–BLT–WIRSC
	S6	2	120	10078	0.90	VP–ST–1–36L–120–3K7–3–UNV–A–BLT–BC–WIRSC
	S7	1	120	10860	0.90	VP–ST–1–36L–120–3K7–4F–UNV–A–BLT–BC–WIRSC

CALCULATION SUMMARY							
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVG/MIN	MAX/MIN
SITE	ILLUMINANCE	Fc	1.02	6.6	0.0	N.A.	N.A.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SHEET KEY PLAN

BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
TEL: (603) 627-5500
FAX: (603) 627-5501
WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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DRAWING TITLE:

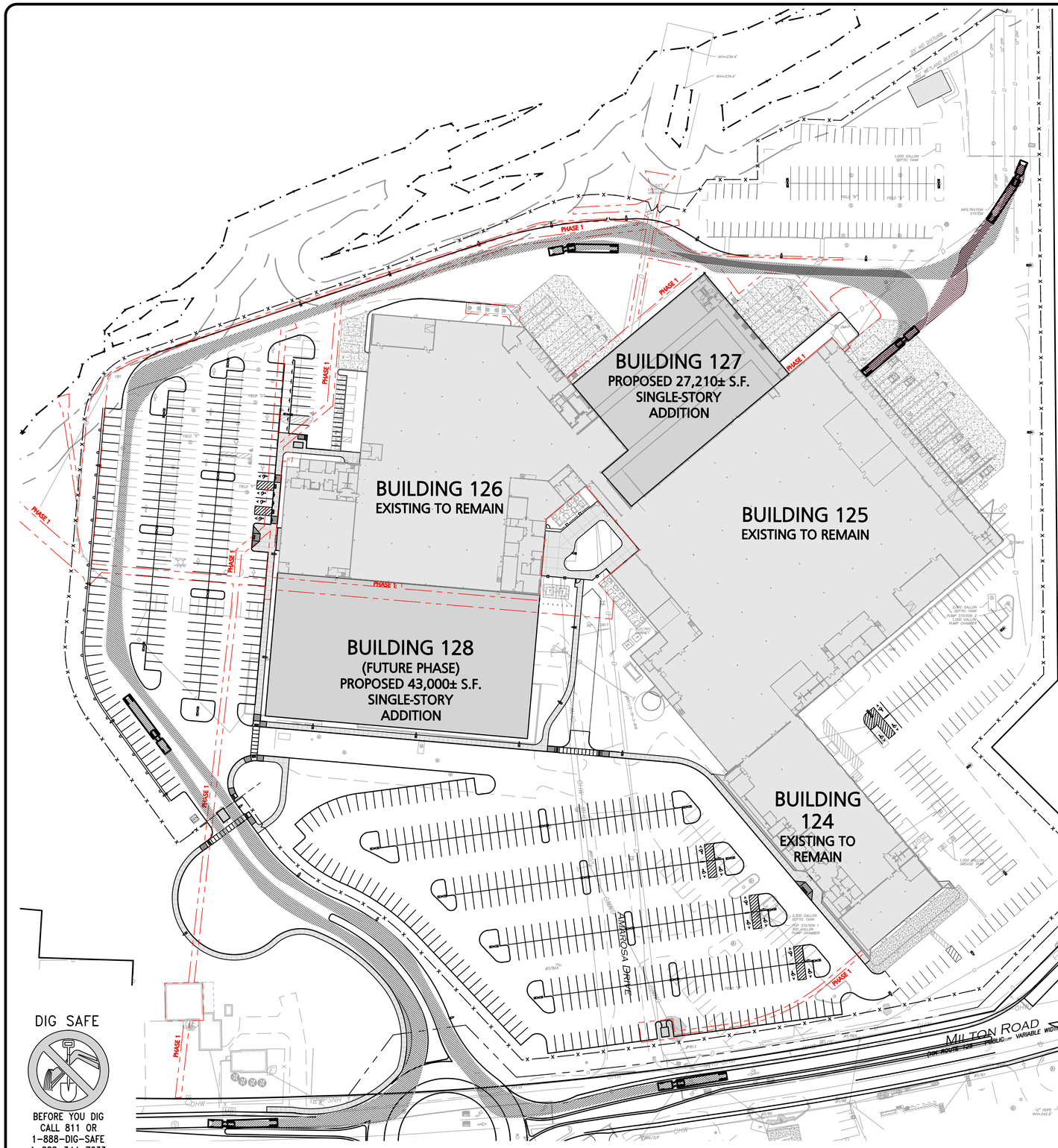
SITE LIGHTING PLAN

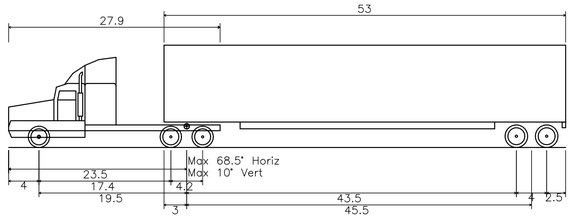
SHEET No.

C-105D

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R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_LIGHTING.DWG





WB–67 – Interstate Semi–Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock–to–lock time	6.00s
Max Steering Angle (Virtual)	28.40°

NOTES

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GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

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1–888–344–7233

R: \PROJECTS\2912–01\CIVIL\DRAWINGS\CURRENT\C–2912–01_TRUCK TURN PLAN.DWG

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER
04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

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1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 60'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

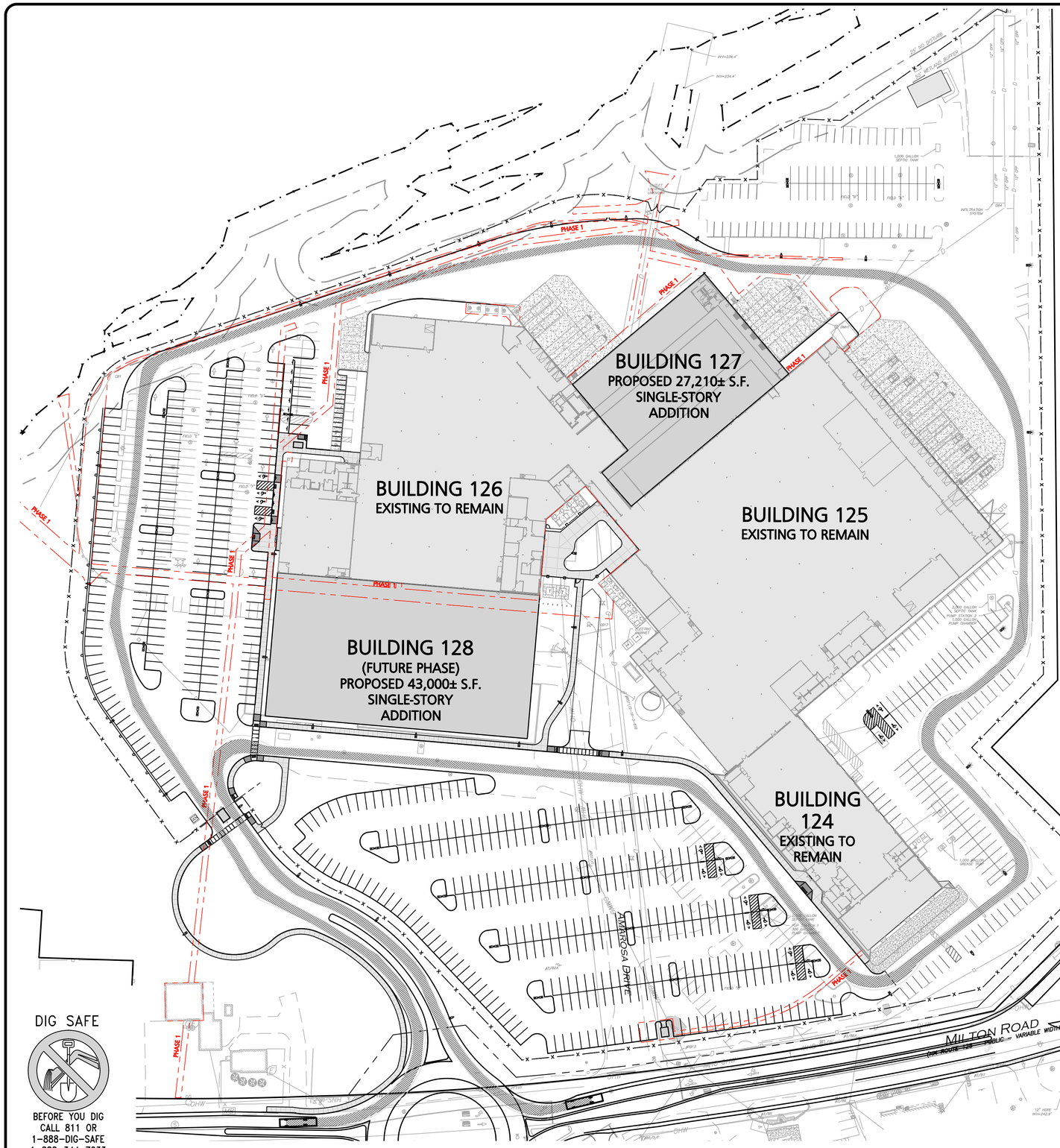
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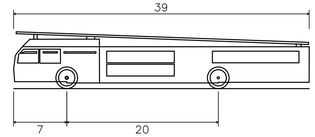
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DRAWING TITLE:
TRUCK TURN PLAN
WB-67

SHEET No.
C-106A

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Aerial Fire Truck	
Overall Length	39.000ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Wheel Angle	45.00°

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NOTES

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GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)
1 inch = 60 ft.

STATE OF NEW HAMPSHIRE
BRIAN D JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

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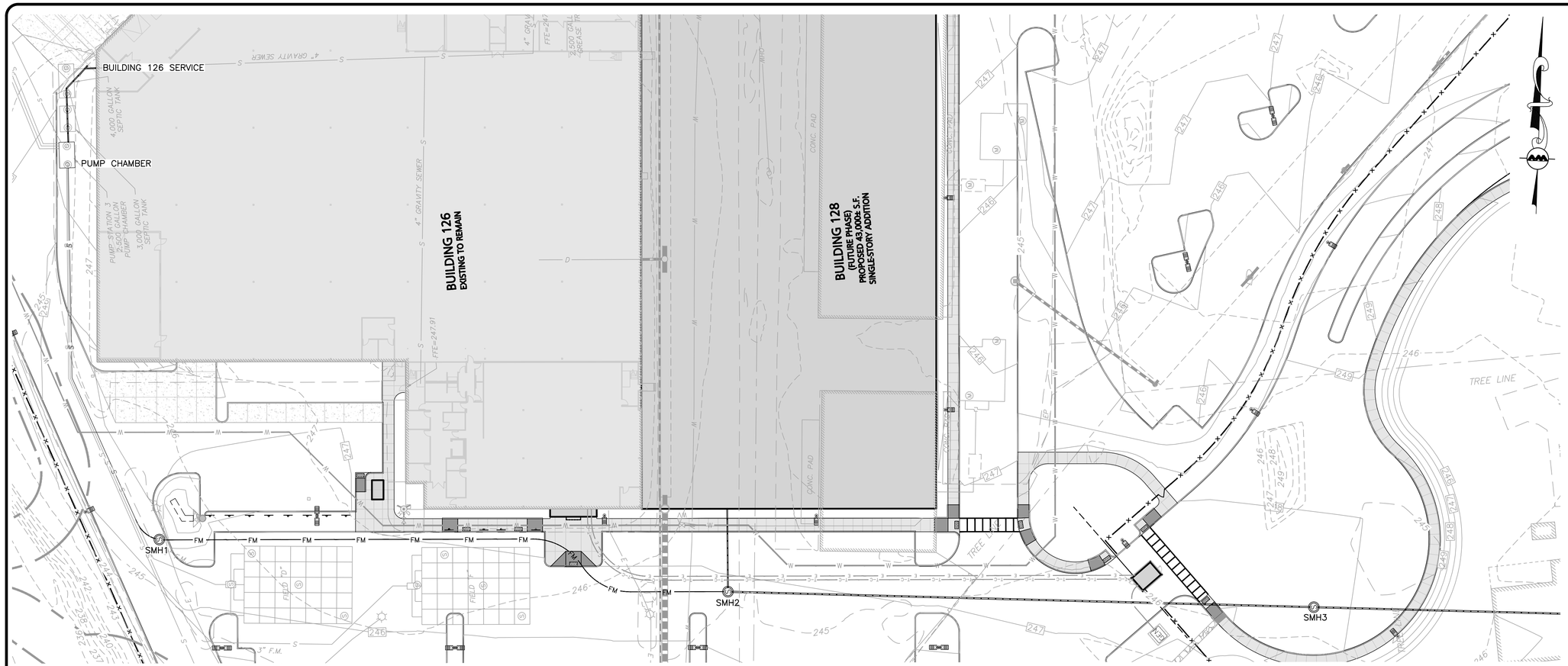
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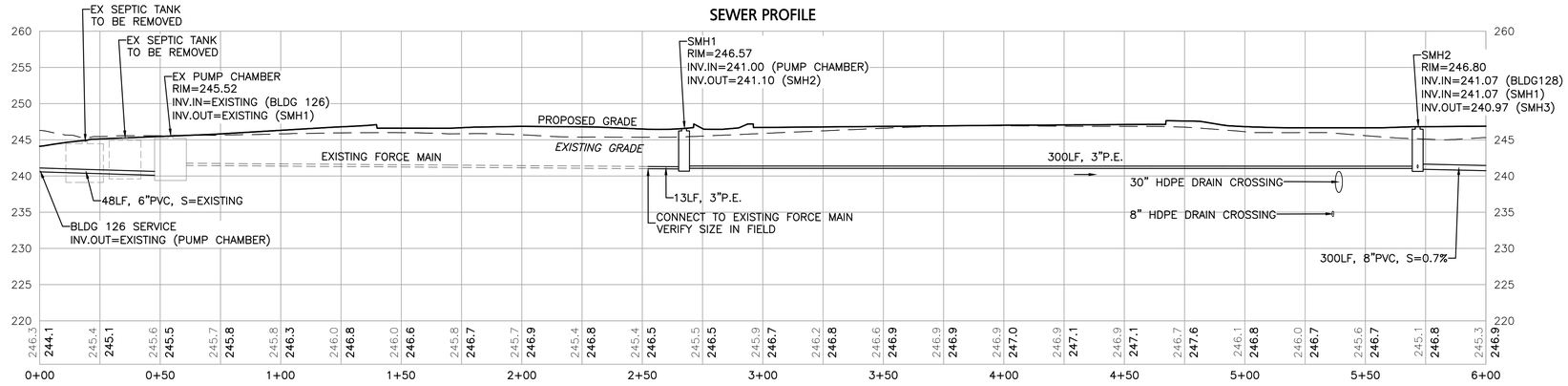
TRUCK TURN PLAN
FIRE TRUCK

SHEET No.
C-106B

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30 0 15 30 60 120

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1 inch = 30 ft.

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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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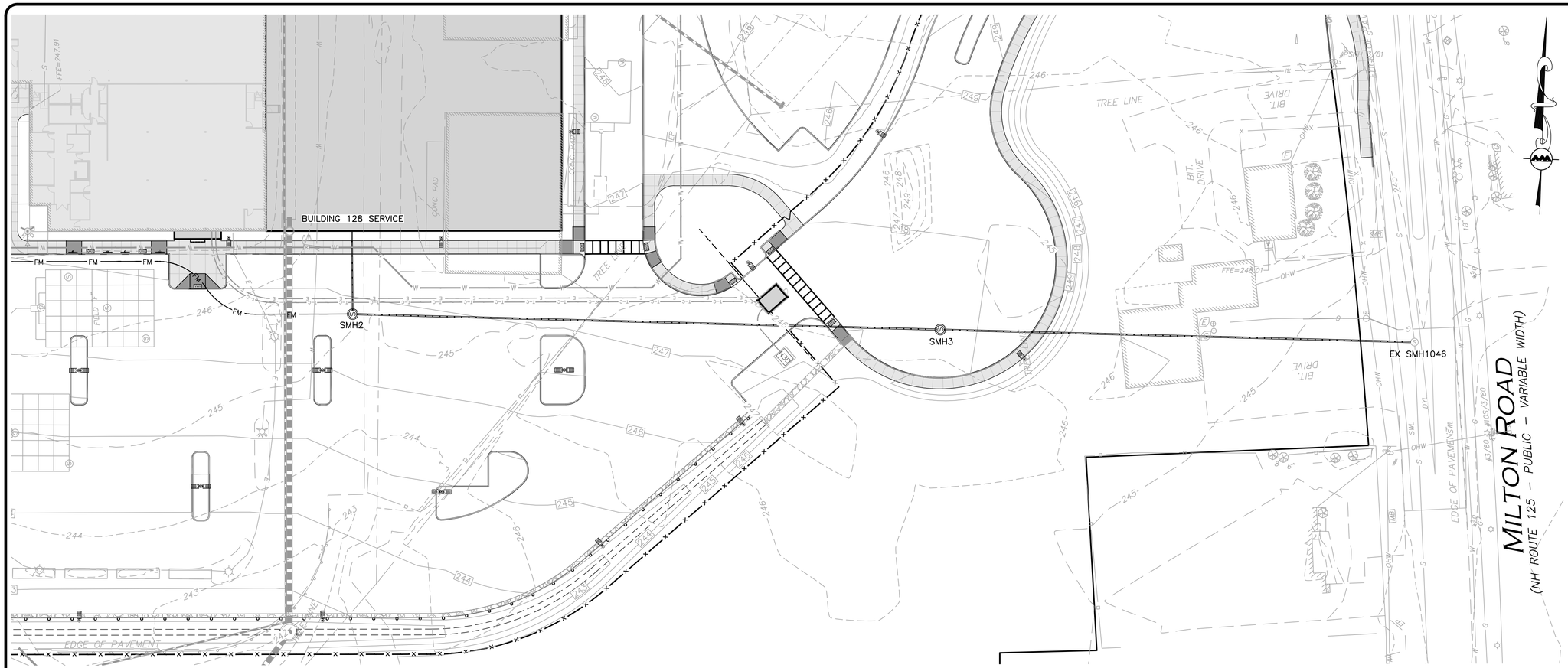
DRAWING TITLE:

SEWER PLAN & PROFILE

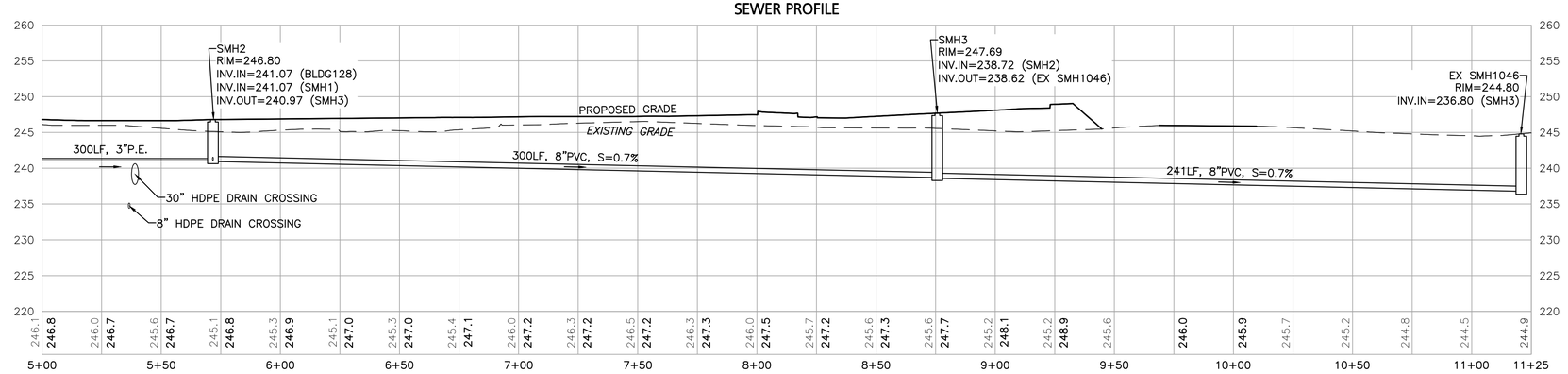
SHEET No.

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SEWER PROFILE



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CALL 811 OR
1-888-DIG-SAFE
1-888-344-7233

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_UTILITIES.DWG

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER - STATE OF NEW HAMPSHIRE

04.27.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
400 HARVEY ROAD
MANCHESTER, NH 03103
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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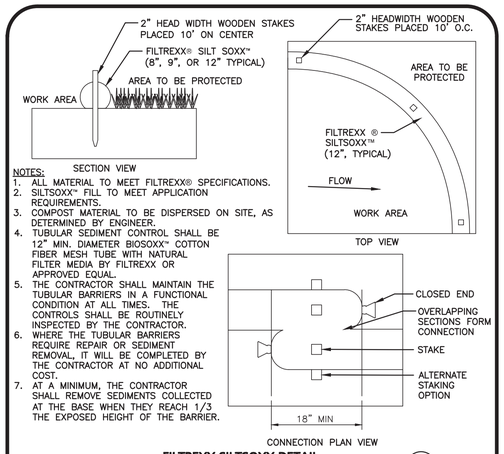
DRAWING TITLE:

SEWER PLAN & PROFILE

SHEET No.

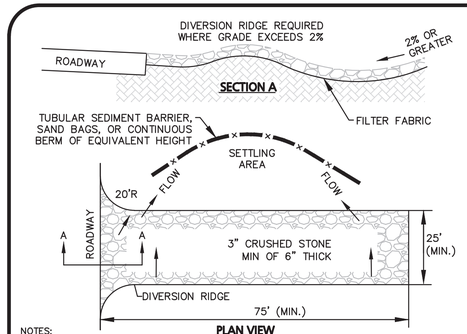
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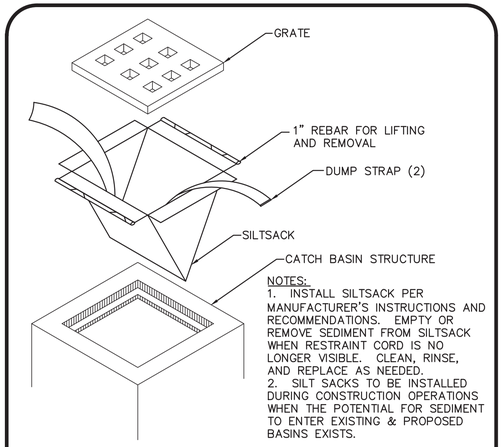
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. SILTSOXX™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.
4. TUBULAR SEDIMENT CONTROL SHALL BE 12" MIN. DIAMETER BIOSOXX™ COTTON FIBER MESH TUBE WITH NATURAL FILTER MEDIA BY FILTREXX OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL MAINTAIN THE TUBULAR BARRIERS IN A FUNCTIONAL CONDITION AT ALL TIMES. THE CONTROLS SHALL BE ROUTINELY INSPECTED BY THE CONTRACTOR.
6. WHERE THE TUBULAR BARRIERS REQUIRE REPAIR OR SEDIMENT REMOVAL, IT WILL BE COMPLETED BY THE CONTRACTOR AT NO ADDITIONAL COST.
7. AT A MINIMUM, THE CONTRACTOR SHALL REMOVE SEDIMENTS COLLECTED AT THE BASE WHEN THEY REACH 1/3 THE EXPOSED HEIGHT OF THE BARRIER.

FILTREXX SILTSOXX DETAIL — NOT TO SCALE — 1



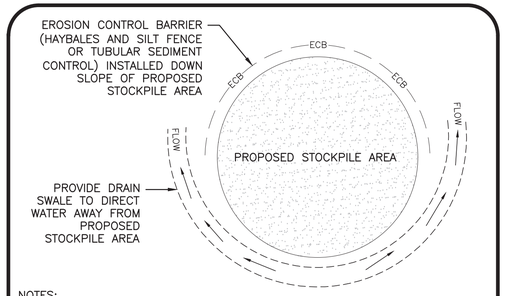
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTERING THE PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE — NOT TO SCALE — 2



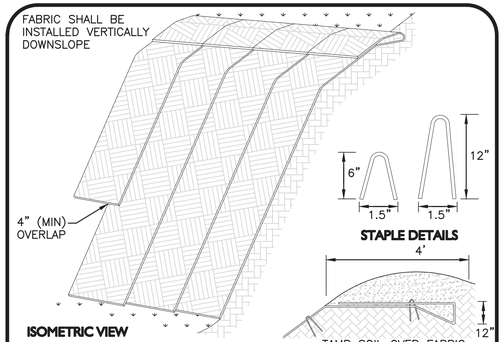
NOTES:
1. INSTALL SILTSACK PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. EMPTY OR REMOVE SEDIMENT FROM SILTSACK WHEN RESTRAINT CORD IS NO LONGER VISIBLE. CLEAN, RINSE, AND REPLACE AS NEEDED.
2. SILT SACKS TO BE INSTALLED DURING CONSTRUCTION OPERATIONS WHEN THE POTENTIAL FOR SEDIMENT TO ENTER EXISTING & PROPOSED BASINS EXISTS.

CATCH BASIN INLET PROTECTION — NOT TO SCALE — 3



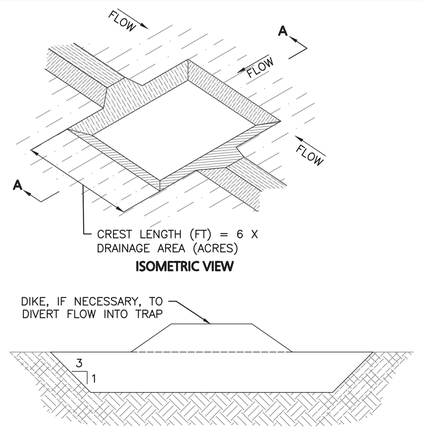
NOTES:
1. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR LESS THAN 90 DAYS SHALL BE COVERED WITH HAY AND MULCH (AT 100LBS/1,000 SF), OR WITH AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.
2. SOIL AND FILL STOCKPILES EXPECTED TO REMAIN IN PLACE FOR 90 DAYS OR MORE SHALL BE SEEDED WITH WINTER RYE (FOR FALL SEEDING AT 3LB/1,000 SF) OR OATS (FOR SUMMER SEEDING AT 2LB/1,000 SF) AND THEN COVERED WITH HAY MULCH (AT 100LB/1,000 SF) OR AN ANCHORED TARP WITHIN 7 DAYS OR PRIOR TO ANY RAINFALL.

STOCKPILE PROTECTION — NOT TO SCALE — 4



NOTE:
1. FABRIC SHALL BE NORTH AMERICAN GREEN SC150BN OR AN APPROVED ORGANIC MATERIAL EQUAL.
2. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS AND GRASS.
3. APPLY PERMANENT SEEDING BEFORE PLACING FABRIC.
4. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
5. THERE SHALL BE NO PLASTIC, OR MULTI-FILAMENT OR MONOFILAMENT POLYPROPYLENE NETTING OR MESH WITH AN OPENING SIZE OF GREATER THAN 1/8 INCHES MATERIAL UTILIZED.

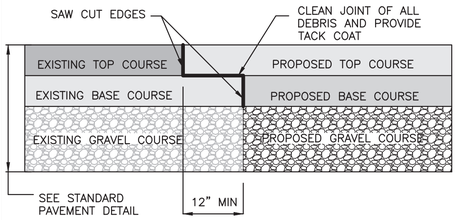
EROSION CONTROL FABRIC — NOT TO SCALE — 5



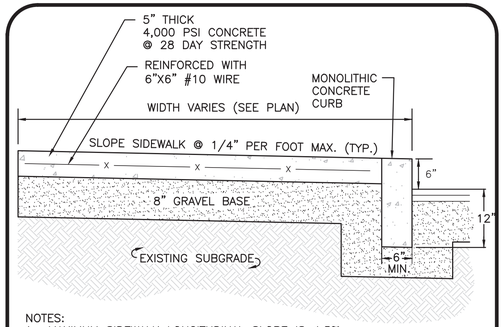
NOTES:
1. THE TRAP SHALL BE INSTALLED AS CLOSE TO THE DISTURBED AREA OR SOURCE OF SEDIMENT AS POSSIBLE.
2. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE TRAP SHALL BE LESS THAN 5 ACRES.
3. THE MINIMUM VOLUME OF THE TRAP SHALL BE 3,600 CUBIC FEET OF STORAGE FOR EACH ACRE OF DRAINAGE AREA.
4. THE SIDE SLOPES OF THE TRAP SHALL BE 3:1 OR FLATTER, AND SHALL BE STABILIZED IMMEDIATELY AFTER THEIR CONSTRUCTION.
5. THE OUTLET OF THE TRAP SHALL BE A MINIMUM OF ONE FOOT BELOW THE CREST OF THE TRAP AND SHALL DISCHARGE TO A STABILIZED AREA.
6. THE TRAP SHALL BE CLEANED WHEN 50% OF THE ORIGINAL VOLUME IS FILLED.
7. THE MATERIALS REMOVED FROM THE TRAP SHALL BE PROPERLY DISPOSED OF AN STABILIZED.

TEMPORARY EARTH OUTLET SEDIMENT TRAP — NOT TO SCALE — 6

NOTE:
TACK COAT – PROVIDE EMULSIFIED ASPHALT WHICH CONFORMS TO THE REQUIREMENTS OF THE STATE SPECIFICATIONS, DILUTED WITH ONE PART WATER TO ONE ONE PART ASPHALT FOLLOWING AASHTO M140/ASTM D997, OR AASHTO M208/ASTM D2397, SS-1H, CSS-1, OR CSS-1H.

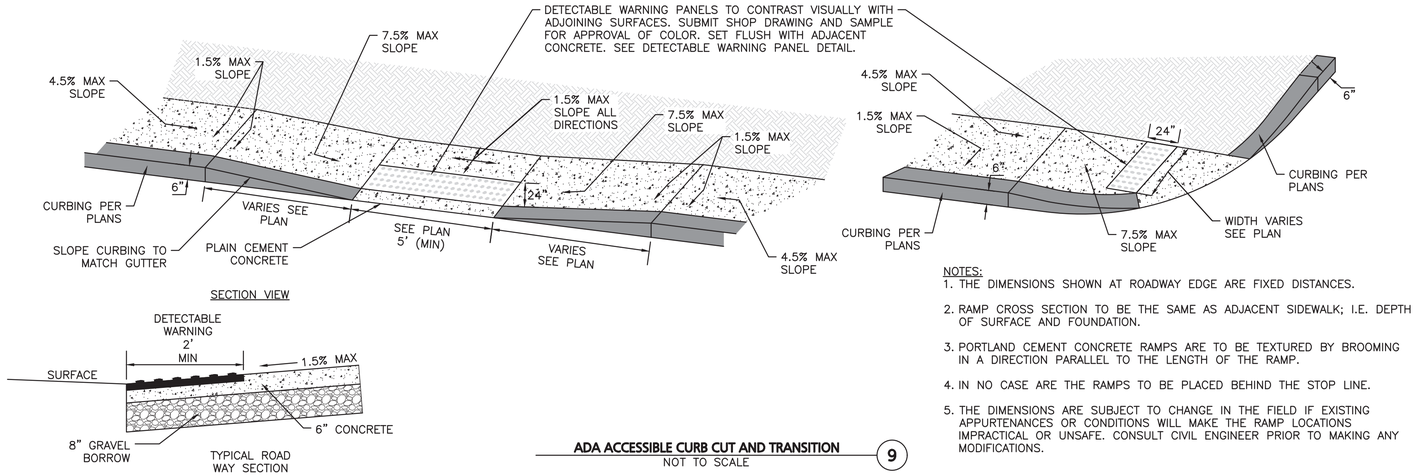


PAVEMENT KEY CUT DETAIL — NOT TO SCALE — 7



NOTES:
1. MAXIMUM SIDEWALK LONGITUDINAL SLOPE IS 4.5%.
2. MAXIMUM SIDEWALK CROSS SLOPE IS 1.5%
3. SIDEWALK TO HAVE TOOLED JOINTS IN A 5' X 5' (TYP) GRID WITH EXPANSION JOINTS 15' ON CENTER AND PREMOLDED FILLER.
4. TOOLED JOINT 6" FROM FACE OF CURB.
5. SEE PLAN FOR ELEVATIONS AT CURB.
6. LIFT WWF TO CENTER OF SLAB WITH HOOKS AFTER CONCRETE PLACEMENT.
7. DOWEL SIDEWALK INTO FOUNDATION AT DOORS.

CONCRETE SIDEWALK W/ MONOLITHIC CURB — NOT TO SCALE — 8



NOTES:
1. THE DIMENSIONS SHOWN AT ROADWAY EDGE ARE FIXED DISTANCES.
2. RAMP CROSS SECTION TO BE THE SAME AS ADJACENT SIDEWALK; I.E. DEPTH OF SURFACE AND FOUNDATION.
3. PORTLAND CEMENT CONCRETE RAMPS ARE TO BE TEXTURED BY BROOMING IN A DIRECTION PARALLEL TO THE LENGTH OF THE RAMP.
4. IN NO CASE ARE THE RAMPS TO BE PLACED BEHIND THE STOP LINE.
5. THE DIMENSIONS ARE SUBJECT TO CHANGE IN THE FIELD IF EXISTING APPURTENANCES OR CONDITIONS WILL MAKE THE RAMP LOCATIONS IMPRACTICAL OR UNSAFE. CONSULT CIVIL ENGINEER PRIOR TO MAKING ANY MODIFICATIONS.

ADA ACCESSIBLE CURB CUT AND TRANSITION — NOT TO SCALE — 9

R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_DETAILS.DWG

STATE OF NEW HAMPSHIRE — BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER

04-10-23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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PROJECT NO.	2912-01A	DATE:	01-20-23
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DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

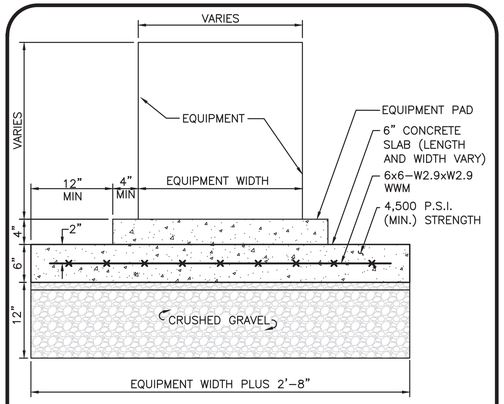
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www.allenmajor.com
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MANCHESTER, NH 03103
TEL: (603) 627-5500
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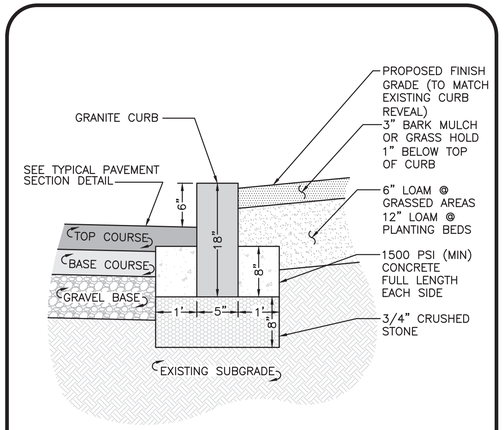
SHEET No. C-501

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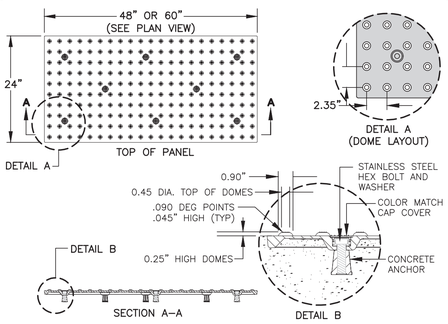


NOTE:
REFERENCE MECHANICAL ENGINEER'S PLANS FOR ANY PIPE, CONDUIT AND GROUND WIRE LOCATIONS

TYPICAL UTILITY PAD (1)
NOT TO SCALE



VERTICAL GRANITE CURB (2)
NOT TO SCALE



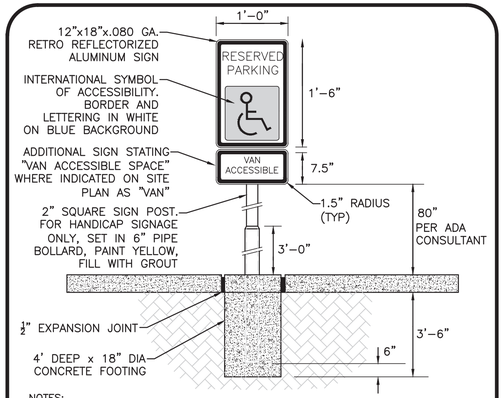
NOTES:
1. VENDOR INFORMATION: "ADATILE" WET SET ADA REPLACEABLE TACTILE (OR APPROVED EQUAL) AS MANUFACTURED BY ADATILE, PHONE: 1–800–372–0519, WWW.ADATILE.COM, EMAIL: INFO@ADATILE.COM
2. COLOR SHALL BE BLACK.
3. INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES.

WET SET ADA REPLACEABLE TACTILE PANEL (3)
NOT TO SCALE

MUTCD NUMBER	SIGN	SIZE (MIN)	MOUNTING HEIGHT	DESCRIPTION	RETRO–FLECTIVE
R1–1	STOP	30"x30"	7' – 0"	WHITE ON RED	YES
R7–8(M) (MODIFIED)	HANDICAPPED PARKING VAN ACCESSIBLE	12"x24"	7' – 0"	RED ON WHITE	YES
R7–8	HANDICAPPED PARKING	12"x18"	7' – 0"	GREEN & BLUE ON WHITE	YES

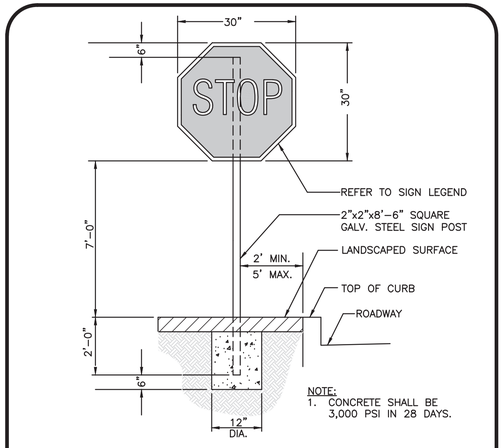
NOTES:
1. TRAFFIC AND SAFETY SIGNAGE SHALL COMPLY WITH MUTCD STANDARDS.
2. WHERE APPLICABLE THE SIGN SUPPORT SHALL COMPLY WITH THE BREAKAWAY REQUIREMENTS OF THE LATEST EDITION OF AASHTO'S "SPECIFICATION FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRIES, AND TRAFFIC SIGNALS".

SIGN TABLE (4)
NOT TO SCALE



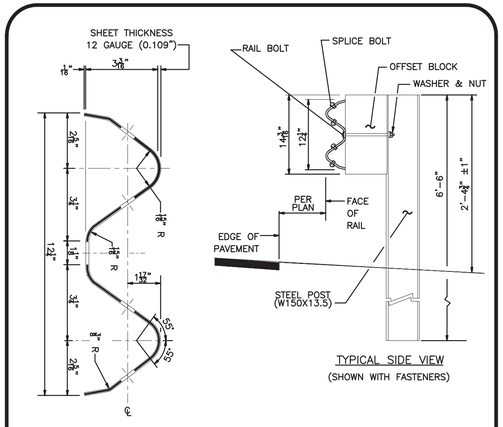
NOTES:
1. SPECIFIC CODE SHALL BE REFERENCED FOR LOCAL AND STATE REQUIREMENTS.
2. PROVIDE (1) SIGN PER HANDICAP SPACE. SEE SITE PLAN FOR EXACT LOCATION.
3. EXPANSION JOINT MATERIAL NOT REQUIRED WITH FLEXIBLE PAVEMENT.

ACCESSIBLE PARKING SIGN POST (5)
NOT TO SCALE



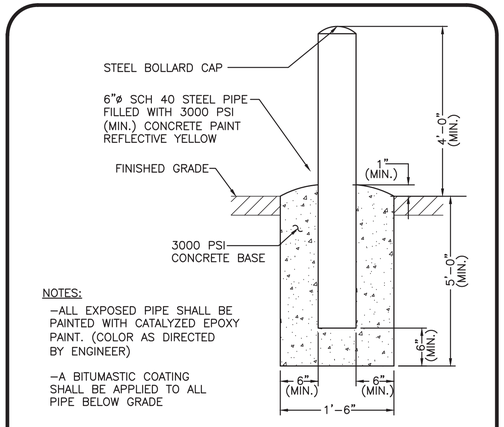
NOTE:
1. CONCRETE SHALL BE 3,000 PSI IN 28 DAYS.

STOP SIGN POST (6)
NOT TO SCALE



SECTION THRU RAIL ELEMENT

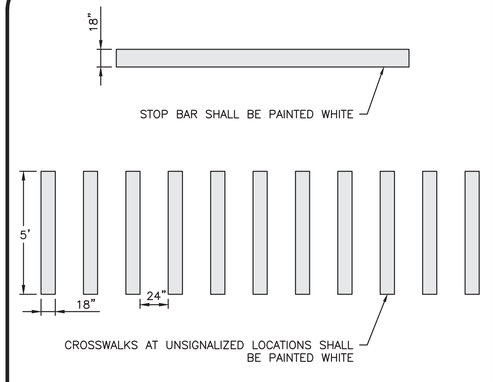
STEEL GUARDRAIL (7)
NOT TO SCALE



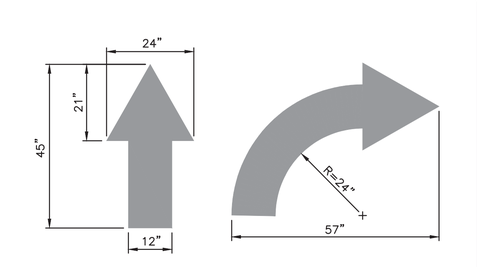
NOTES:
–ALL EXPOSED PIPE SHALL BE PAINTED WITH CATALYZED EPOXY PAINT. (COLOR AS DIRECTED BY ENGINEER)

–A BITUMASTIC COATING SHALL BE APPLIED TO ALL PIPE BELOW GRADE

FIXED PIPE BOLLARD (8)
NOT TO SCALE

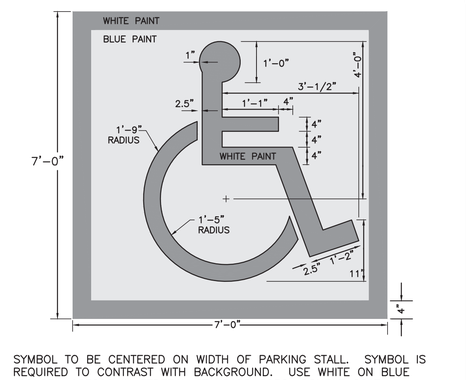


PAVEMENT MARKINGS DETAIL (9)
NOT TO SCALE



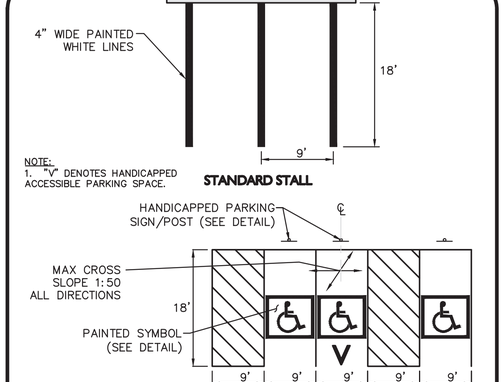
NOTES:
1. TRAFFIC ARROWS SHALL BE PAINTED WHITE.

TRAFFIC FLOW ARROWS (10)
NOT TO SCALE



SYMBOL TO BE CENTERED ON WIDTH OF PARKING STALL. SYMBOL IS REQUIRED TO CONTRAST WITH BACKGROUND. USE WHITE ON BLUE (COLOR #105090 IN FEDERAL STANDARD 5952) DOUBLE COAT.

ACCESSIBLE PARKING STALL PAVEMENT MARKING (11)
NOT TO SCALE



NOTE:
1. "V" DENOTES HANDICAPPED ACCESSIBLE PARKING SPACE.

STANDARD STALL

STANDARD AND VAN ACCESSIBLE HANDICAPPED PARKING SPACE

HANDICAP & STANDARD PARKING STRIPING (12)
NOT TO SCALE

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BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

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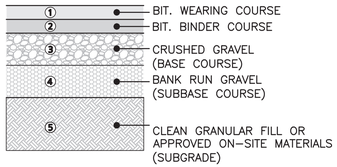
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STANDARD DUTY FLEXIBLE PAVEMENT DESIGN SECTION

LAYER NUMBER	LAYER DESCRIPTION	LAYER THICKNESS (INCHES)
1	BITUMINOUS WEARING COURSE (¾" AGGREGATE – NHDOT PRE–APPROVED MIX DESIGN)	1.5"
2	BITUMINOUS BINDER COURSE (¾" AGGREGATE – NHDOT PRE–APPROVED MIX DESIGN)	1.5"
3	CRUSHED GRAVEL (BASE COURSE) (NHDOT ITEM 304.3)	6.0"
4	GRAVEL BORROW (SUBBASE COURSE) (NHDOT ITEM 304.2)	12"
5	CLEAN GRANULAR FILL MATERIAL OR APPROVED ON–SITE MATERIALS (SUBGRADE)	AS NECESSARY

NHDOT GRADATION SPECIFICATION

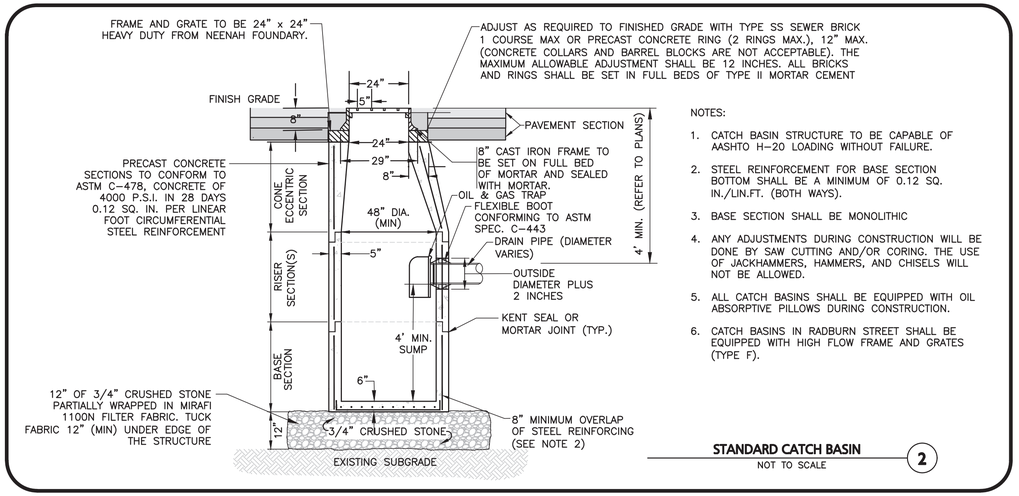
SIEVE SIZE	PERCENT PASSING BY WEIGHT		
	CLEAN GRANULAR FILL	BASE COURSE	SELECT GRANULAR FILL
8"	100	100	100
3"	70–100	100	70–100
½"	40–100	40–80	40–90
No. 4	25–100	30–70	25–80
No. 10	15–95	20–60	15–70
No. 40	10–70	10–30	5–40
No. 200	0–15	3–10	0–12



NOTES:
IF A GEOTECHNICAL REPORT IS PREPARED THE RECOMMENDATIONS WITHIN THAT REPORT SHALL SUPERCEDE RECOMMENDATIONS HEREIN. THE CONTRACTOR SHALL HAVE AND REVIEW A COPY OF THE GEOTECHNICAL REPORT AND COMPLY WITH THE RECOMMENDATIONS THEREIN.

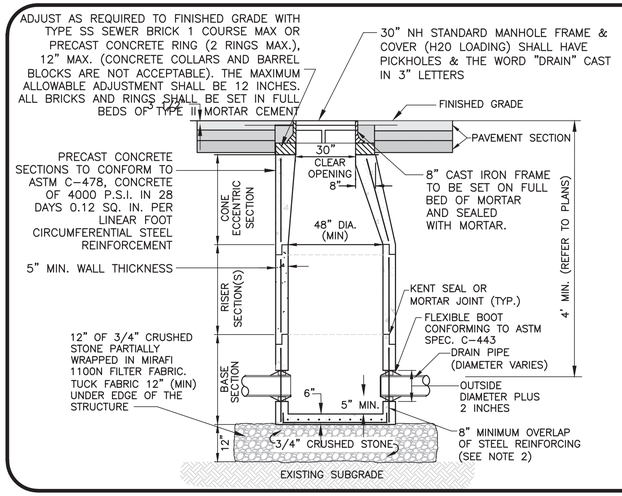
1. TOPSOIL SHALL BE REMOVED BENEATH ALL PAVEMENT AREAS TO EXPOSE THE NATURALLY–OCCURRING SOILS OR ACCEPTABLE ON–SITE FILL MATERIALS.
2. THE SUBGRADE SHOULD BE PROOFROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER USING AT LEAST 4 PASSES OF A 10–TON VIBRATORY ROLLER. AREAS OF THE SUBGRADE THAT "WEAVE" OR "ROLL" EXCESSIVELY SHOULD BE OVEREXCAVATED AND REPLACED WITH DRIER CLEAN GRANULAR FILL MATERIAL.
3. THE PAVEMENT SUBGRADE CONSISTING OF THE SPECIFIED CLEAN GRANULAR FILL SHALL BE PLACED IN 12" MAXIMUM LIFTS AND COMPACTED TO A DRY DENSITY OF AT LEAST 95 PERCENT OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM DESIGNATION D–1557.
4. PAVEMENT AND GRAVEL SPECIFICATIONS WITHIN THE CITY RIGHT–OF–WAY ARE TO BE DESIGNATED BY THE CITY'S DESIGN CONSULTANT FOR THE ROUNDABOUT PROJECT.

PAVEMENT SECTIONS — NOT TO SCALE — 1



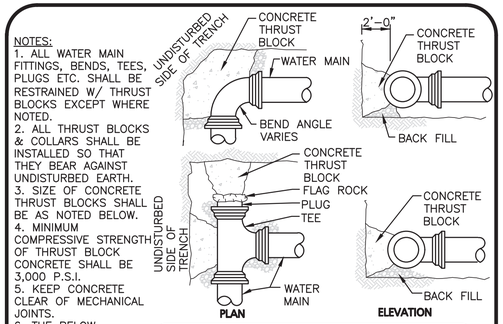
NOTES:
1. CATCH BASIN STRUCTURE TO BE CAPABLE OF AASHTO H–20 LOADING WITHOUT FAILURE.
2. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN.FT. (BOTH WAYS).
3. BASE SECTION SHALL BE MONOLITHIC
4. ANY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW CUTTING AND/OR CORING. THE USE OF JACKHAMMERS, HAMMERS, AND CHISELS WILL NOT BE ALLOWED.
5. ALL CATCH BASINS SHALL BE EQUIPPED WITH OIL ABSORPTIVE PILLOWS DURING CONSTRUCTION.
6. CATCH BASINS IN RADBURN STREET SHALL BE EQUIPPED WITH HIGH FLOW FRAME AND GRATES (TYPE F).

STANDARD CATCH BASIN — NOT TO SCALE — 2



NOTES:
1. MANHOLE TO BE CAPABLE OF AASHTO H–20 LOADING WITHOUT FAILURE.
2. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 0.12 SQ. IN./LIN. FT. (BOTH WAYS).
3. BASE SECTION SHALL BE MONOLITHIC
4. ANY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW CUTTING AND/OR CORING. THE USE OF JACKHAMMERS, HAMMERS, AND CHISELS WILL NOT BE ALLOWED.

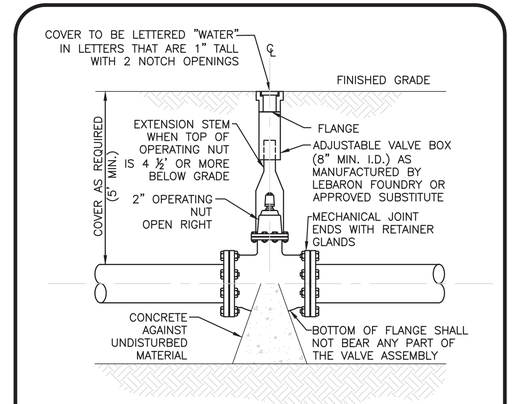
DRAIN MANHOLE — NOT TO SCALE — 3



MINIMUM THRUST BLOCK BEARING AREAS

PIPE ø	90° BEND (SQ. FT.)	45° BEND (SQ. FT.)	22.5° BEND (SQ. FT.)	TEES, PLUGS, CAPS & HYD. (SQ.FT.)
6"	5	3	3	4
8"	9	6	3	9
10"	13	7	4	12
12"	20	10	5	16

THRUST BLOCK DETAILS — NOT TO SCALE — 4



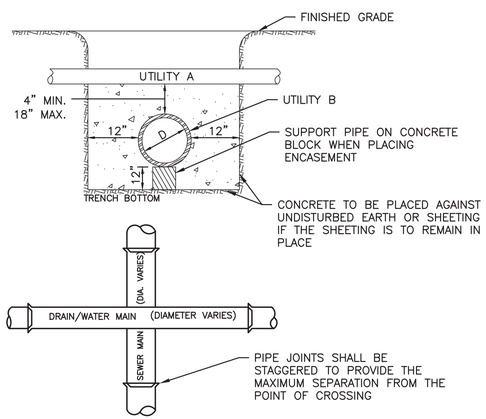
NOTES:
1.) CONTRACTOR MAY USE ANCHOR TEES AT HIS OPTION.
2.) HYDRANTS AND VALVES SHALL BE RIGHT TURN OPEN (OPEN RIGHT).

GATE VALVE — NOT TO SCALE — 5

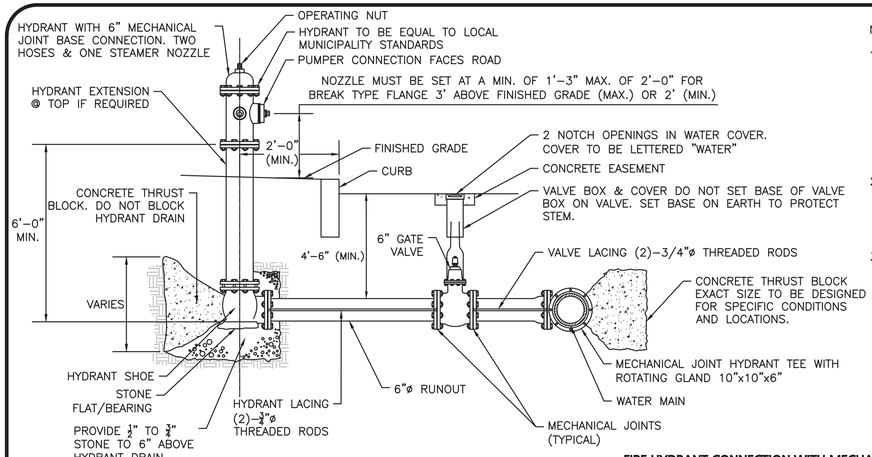
NOTES:

WHENEVER CONDITIONS PREVENT A LATERAL SEPARATION OF 10 FEET BETWEEN A SEWER MAIN AND A WATER/DRAIN MAIN:

1. THE WATER/DRAIN MAIN SHALL BE LAID IN A SEPARATE TRENCH AND THE DIFFERENCE IN ELEVATION BETWEEN THE WATER/DRAIN MAIN AND THE SEWER MAIN SHALL BE AT LEAST 18 INCHES.
2. THE PIPE CROSSING SHALL OCCUR AS CLOSE TO 90° AS PRACTICABLE.
3. THE PIPE JOINTS SHALL BE STAGGERED TO PROVIDE THE MAXIMUM SEPARATION FROM THE POINT OF CROSSING, 6' OF SEPARATION MINIMUM.
4. THE CROSSING SHALL BE ENCASED IN CONCRETE FOR THE ENTIRE WIDTH OF THE TRENCH AND FOR A DISTANCE OF 10 LINEAR FEET CENTERED ON THE CROSSING.
5. UTILITIES A AND B CAN BE EITHER NEW OR EXISTING.
6. WHEN ONE UTILITY IS A SANITARY SEWER. IT IS PREFERABLE TO BE POSITIONED AS SHOWN FOR UTILITY B.
7. ENCASEMENT EXTENDS 10'–0" ON EACH SIDE OF THE CENTERLINE OF UTILITY A.
8. PIPE MUST BE BRACED VERTICALLY AND HORIZONTALLY TO PREVENT FLOATATION DURING PLACEMENT OF CONCRETE.



SEWER, WATER/DRAIN CROSSING DETAIL — NOT TO SCALE — 6



NOTES:
1. ALL HYDRANTS, VALVES AND LOCAL CONNECTIONS SHALL COMPLY WITH THE SPECIFICATIONS OF THE LOCAL MUNICIPALITY.
2. PIPING TO BE RESTRAINED WITH RODDING OR RETAINING GLANDS.
3. GATE VALVE INSTALLATION IS TYPICAL FOR ALL GATES SHOWN ON THE DRAWINGS.

FIRE HYDRANT CONNECTION WITH MECHANICAL JOINT — NOT TO SCALE — 7

R:\PROJECTS\2912–01\CIVIL\DRAWINGS\CURRENT\C–2912–01_DETAILS.DWG

STATE OF NEW HAMPSHIRE — BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER
04.10.23
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

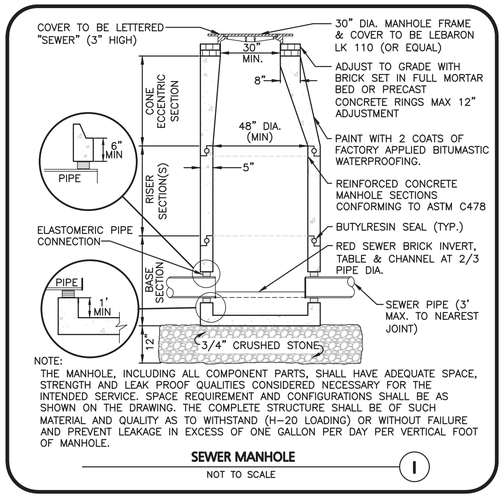
PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
civil engineering ◆ land surveying environmental consulting ◆ landscape architecture
www.allenmajor.com
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MANCHESTER, NH 03103
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WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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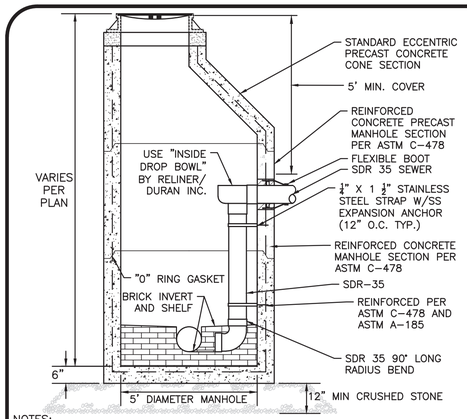
DRAWING TITLE: DETAILS

SHEET No. C-503

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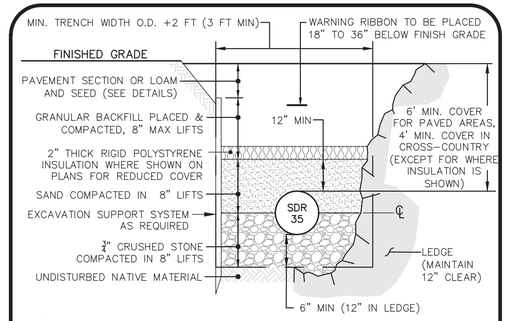


SEWER MANHOLE
NOT TO SCALE — 1



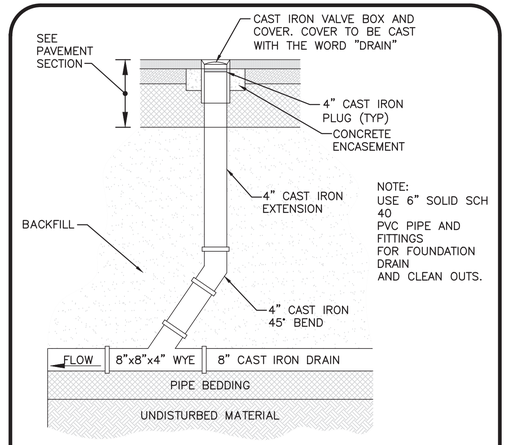
NOTES:
1. MANHOLE STRUCTURE TO BE CAPABLE OF SUPPORTING AASHTO H-20
2. SEE ALSO SEWER MANHOLE STANDARD DETAIL.

DROP SEWER MANHOLE
NOT TO SCALE — 2

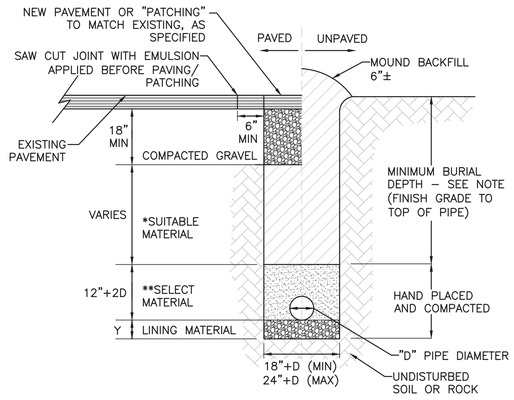


NOTES:
1. WHERE BACKFILL IS DESIGNATED AS COMPACTED, THIS MEANS 90 TO 95% STANDARD PROCTOR. AASHTO T-99. ALL FILL PLACED BELOW PIPES AND STRUCTURES MUST MEET THIS REQUIREMENT.
2. FOR ALL TRENCHES WITH A GRADE GREATER THAN 4% AND/OR WHERE GROUNDWATER IS APPARENT, INSTALL CLAY DAMS AROUND THE PIPE AT 100' INTERVALS.
3. CRUSHED STONE SHALL BE CLEAN, HARD, FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING, AND 0 TO 5% PASSING A ¼" SQUARE OPENING.

SEWER TRENCH DETAIL
NOT TO SCALE — 3



CLEAN OUT
NOT TO SCALE — 4

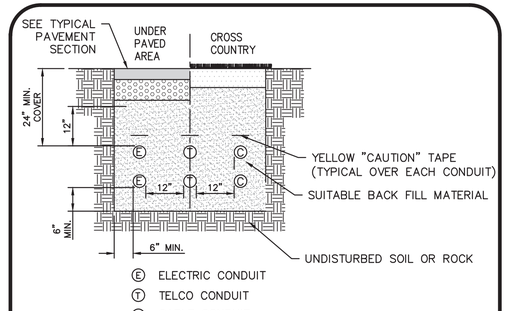


CONDITION & PIPE	**SELECT MATERIAL	LINING MATERIAL	Y-DIMENSION
DUCTILE IRON "ORDINARY SOIL"	TYPE I, II, OR III	SAND OR TYPE III	3"
RCP "ORDINARY SOIL"	TYPE II OR III	SAND OR TYPE III	3"
ALL PIPE OVER BEDROCK OR LEDGE	TYPE II OR III	SAND OR TYPE III	8"
DUCTILE IRON IN CLAY OR MUCK	TYPE II OR III	SAND	4"
RCP IN CLAY	TYPE II OR III	SAND	8"
ALL PLASTICS	TYPE III	SAND OR TYPE III	6"

* SUITABLE MATERIAL SHALL CONTAIN NO STONE GREATER THAN 4" IN DIAMETER, NO FROZEN LUMPS, AND ONLY MINOR AMOUNTS OF CLAY OR ORGANIC MATERIAL. ALL MATERIAL TO BE PLACED IN MAX 6" LIFTS AND COMPACTED BEFORE PLACING NEXT LIFT.
**TYPE I MATERIAL SHALL BE EITHER GRAVEL OR EXCAVATED MATERIAL CONTAINING NO STONES GREATER THAN 1.5" DIAMETER, NO FROZEN LUMPS, CLAY OR ORGANIC MATERIAL.
**TYPE II MATERIAL SHALL BE CLEAN, HARD, CRUSHED OR NATURAL STONE WITH A GRADATION BY WEIGHT OF 100% PASSING A 1.5" SQUARE OPENING, NOT MORE THAN 25% PASSING A ¾" OPENING, AND NOT MORE THAN 5% PASSING A ¼" SQUARE OPENING.
**TYPE III MATERIAL SHALL BE CLEAN, HARD, CRUSHED STONE FREE FROM COATINGS AND THOROUGHLY WASHED WITH A GRADATION BY WEIGHT OF 100% PASSING A 1" SQUARE OPENING, AND 0 TO 5% PASSING A ¼" SQUARE OPENING.

NOTES:
1. MINIMUM BURIAL DEPTH (FINISH GRADE TO TOP OF PIPE)
   GRAVITY PIPE – SEE PLAN OR PROFILE
   PRESSURE PIPE UNDER PAVING – 4'
   PRESSURE PIPE BENEATH UNPAVED – 3'
2. WHERE BACKFILL IS DESIGNATED AS COMPACTED, THIS MEANS 90 TO 95% STANDARD PROCTOR. AASHTO T-99. ALL FILL PLACED BELOW PIPES AND STRUCTURES MUST MEET THIS REQUIREMENT.
3. FOR ALL TRENCHES WITH A GRADE GREATER THAN 4% AND/OR WHERE GROUNDWATER IS APPARENT, INSTALL CLAY DAMS AROUND THE PIPE AT 100' INTERVALS.
4. BACKFILL AS PER DCED-R100 AND REFERENCED AS STANDARD DRAWING.

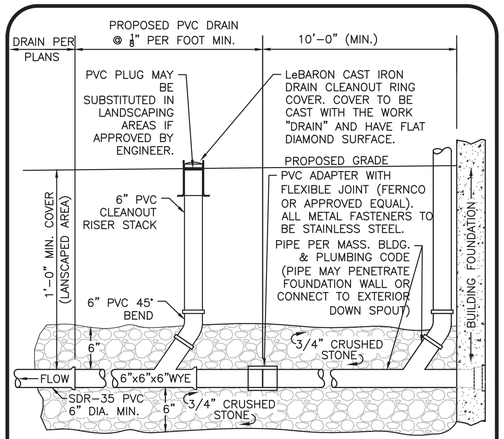
TRENCH DETAIL
NOT TO SCALE — 5



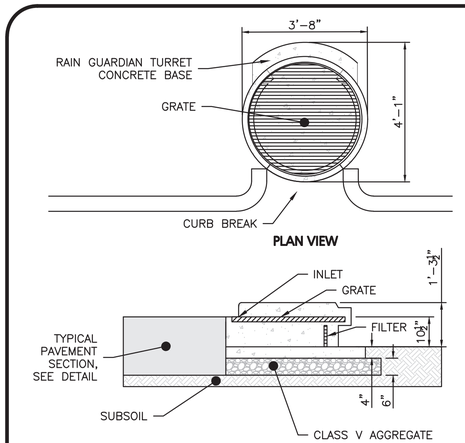
Ⓔ ELECTRIC CONDUIT
Ⓣ TELCO CONDUIT
Ⓒ CABLE CONDUIT

NOTES:
1. SCHEDULE 80 PVC CONDUIT REQUIRED UNDER ROAD AND DRIVEWAY SURFACES.
2. ALL UTILITY INSTALLATION REQUIREMENTS, SEPARATIONS, AND CONDUIT SIZES TO BE VERIFIED WITH EACH UTILITY COMPANY PRIOR TO INSTALLATION OF ANY UNDERGROUND UTILITY CONDUIT.
3. SEE SITE ELECTRICAL PLAN FOR SPECIFIC DETAILS

BURIED CONDUIT DETAIL
NOT TO SCALE — 6

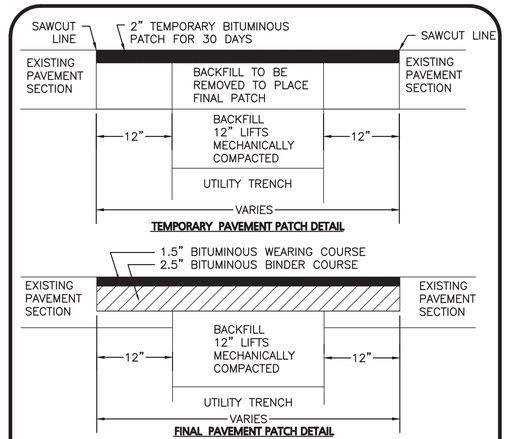


ROOF DRAIN
NOT TO SCALE — 7



NOTES:
1. STEEL REINFORCED, COLD JOINT SECURED MONOLITHIC CONCRETE STRUCTURE (1,030 LBS).
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS. CONCRETE AIR ENTRAINED (4% TO 8% BY VOLUME).
3. MANUFACTURED AND DESIGNED TO ASTM C858.
4. THREE-POINT PICK USING RECESSED LIFTING POCKETS WITH A STANDARD HOOK.
5. SOIL UNDER BASE TO BE COMPACTED TO 95% STANDARD PROCTOR.
6. TWO-PIECE LIGHT DUTY GALVANIZED GRATE (34.5 LBS/PIECE) FOR 541 LB CONCENTRATED LOAD OR 309 LB/SQ FT UNIFORM LOAD.
7. TWO-PIECE HEAVY DUTY GALVANIZED GRATE (77.5 LBS/PIECE) FOR 2,456 LB CONCENTRATED LOAD OR 1,404 LB/SQ FT UNIFORM LOAD.
8. USE EXPANSION JOINT MATERIAL BETWEEN TURRET AND BIORETENTION INLET.

RAIN GUARDIAN - TURRET TYPICAL DETAIL
NOT TO SCALE — 8



TEMPORARY PAVEMENT PATCH DETAIL

FINAL PAVEMENT PATCH DETAIL

PAVEMENT TRENCH PATCH
NOT TO SCALE — 9

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_DETAILS.DWG

BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE

04.10.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

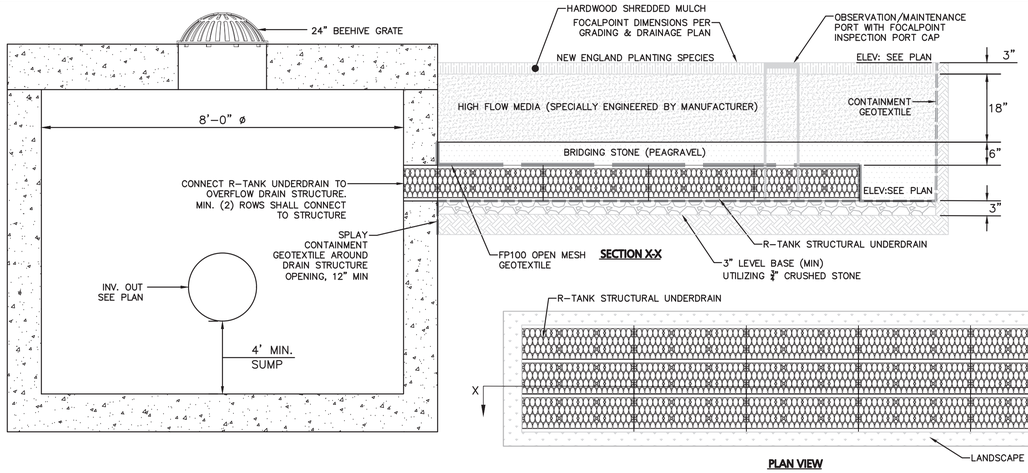
PREPARED BY:
ALLEN & MAJOR ASSOCIATES, INC.
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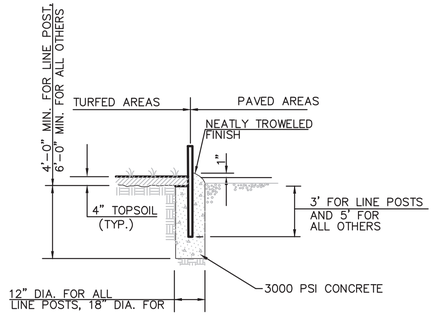
NOTES:
1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
2. DETAILS ARE PROTOTYPICAL IN NATURE. SEE GRADING & DRAINAGE PLAN FOR DIMENSIONS AND ELEVATIONS.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL.
4. R-TANK IS TO BE THE LIGHT DUTY MODULE.
5. HIGH FLOW MEDIA IS TO BE PROVIDED BY THE PRODUCT MANUFACTURER.

FOCALPOINT HP PERFORMANCE SPECIFICATION:
HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.

HIGH PERFORMANCE STRUCTURAL UNDERDRAIN:
MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

NEW ENGLAND PLANTING SPECIES:
- SWITCHGRASS / PANCIUM VIRGATUM
- LITTLE BLUESTEM GRASS / SCHIZACHYRIUM
- BLACK EYED SUSAN / RUDBECKIA HIRTA
- CONE FLOWER / ECHINACEA

TYPICAL FOCALPOINT DETAIL — NOT TO SCALE — 1

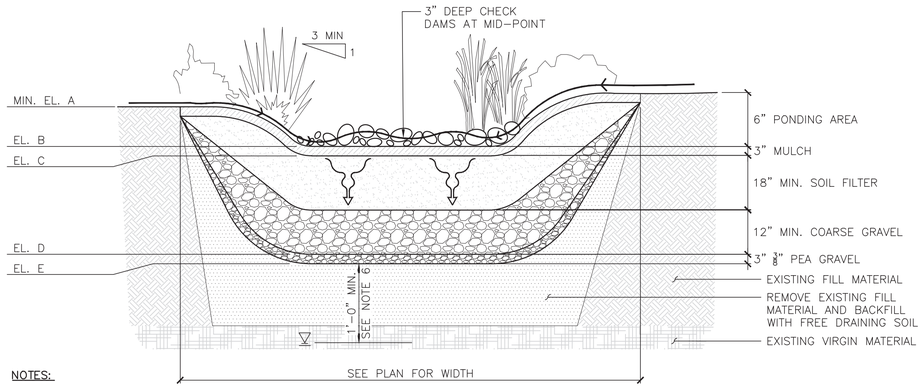


POST SETTING DETAIL — NOT TO SCALE — 2

BIORETENTION ELEVATION TABLE	
ELEV. ID	BIORETENTION #1
A	244.00
B	243.50
C	243.25
D	241.75
E	241.50

BIORETENTION FILTER MEDIA

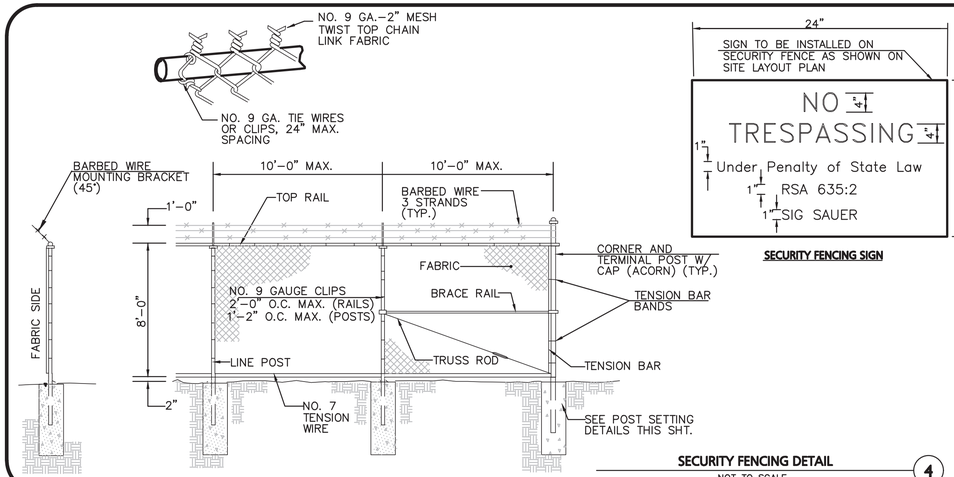
COMPONENT MATERIAL	PERCENT OF MIXTURE BY VOLUME	GRADATION OF MATERIAL	
		SIEVE NO.	PERCENT BY WEIGHT PASSING STANDARD SIEVE
FILTER MEDIA OPTION A			
ASTM C-22 CONCRETE SAND	50 TO 55		
LOAMY SAND TOPSOIL, WITH FINES AS INDICATED	20 TO 30	200	15 TO 25
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
FILTER MEDIA OPTION B			
MODERATELY FINE SHREDDED BARK OR WOOD FIBER MULCH, WITH FINES AS INDICATED	20 TO 30	200	<5
LOAMY COARSE SAND	70 TO 80	10	85 TO 100
		20	70 TO 100
		60	15 TO 40
		200	8 TO 15



NOTES:

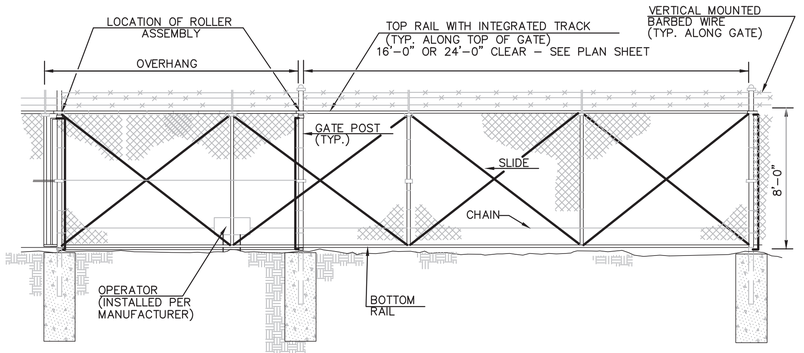
1. SEE LANDSCAPE PLAN FOR PLANT TYPES.
2. GRADING, AND PLANTING OF BIORETENTION SHALL BE COMPLETED IN EARLY PHASES OF CONSTRUCTION. PLANTS AND SEED ON SLOPES AND BOTTOM OF BASIN MUST BE ESTABLISHED PRIOR TO CONNECTING STORM DRAINAGE SYSTEM OUTLETS TO BIORETENTION AREA. PLANTS AND SEED MIX SHALL HAVE A MINIMUM OF 6 MONTHS GROWING, BE ESTABLISHED AND APPROVED BY LANDSCAPE ARCHITECT PRIOR TO CONNECTING STORM DRAINAGE SYSTEM OUTLETS TO BIORETENTION AREA.
3. EROSION CONTROL MEASURES AS SHOWN ON THE EROSION CONTROL PLAN, SHALL BE IN PLACE PRIOR TO ANY REGRADING ACTIVITY.
4. EXCAVATION, FILLING AND PLANTING SHALL OCCUR IN THE DRY. WATER LEVELS MUST BE LOWERED IN THE BIORETENTION AREA BY RELYING ON DRY SEASON AND OR DRY SPELLS; OR MAY BE ACCOMPLISHED THROUGH THE USE OF DEWATERING METHODS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ANY DEWATERING METHODS FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
5. WATER FROM ANY DEWATERING OPERATION SHALL BE TREATED TO REDUCE TOTAL SUSPENDED SOLIDS AND BE IN COMPLIANCE WITH STATE AND FEDERAL STANDARDS.
6. A MINIMUM OF 1 FOOT SEPARATION BETWEEN THE BOTTOM OF THE PRACTICE AND SEASONAL HIGH WATER TABLE SHALL BE PROVIDED, VERIFY IN FIELD. IF SEPARATION CAN NOT BE ACHIEVED, SET UNDERDRAIN AT BOTTOM OF COARSE GRAVEL LAYER, OMIT PEA GRAVEL LAYER, AND PROVIDE IMPERMEABLE LINER AT BOTTOM OF PRACTICE,.

BIORETENTION SYSTEM DETAIL — NOT TO SCALE — 3



SECURITY FENCING DETAIL — NOT TO SCALE — 4

SECURITY FENCING SIGN



SLIDE GATE DETAIL — NOT TO SCALE — 5

R:\PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_DETAILS.DWG

STATE OF NEW HAMPSHIRE — BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER

04.10.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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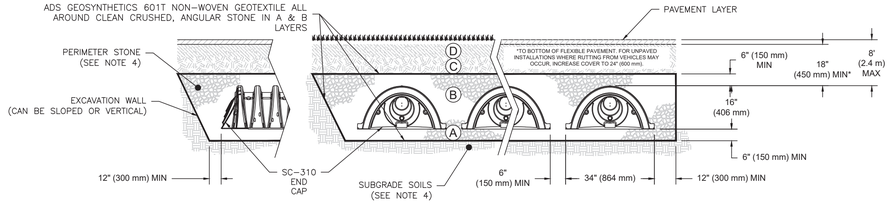
SHEET No. C-505

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ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

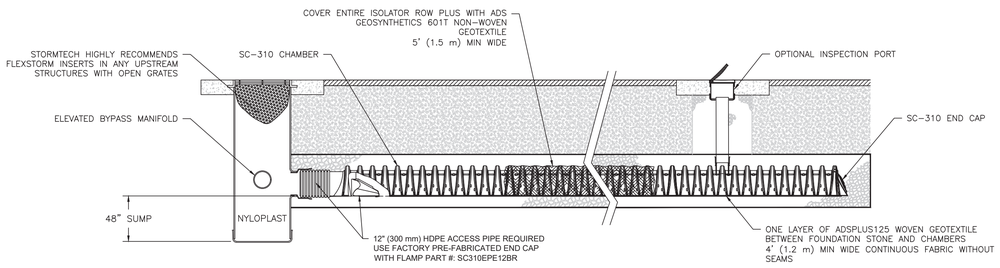
	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

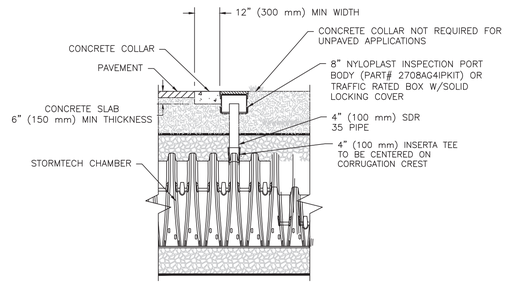


NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. COORDINATE WITH THE PROJECT GEOTECHNICAL ENGINEER FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2922 SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

SC-310 - CROSS SECTION DETAIL
NOT TO SCALE

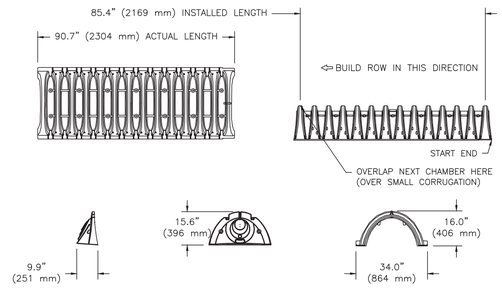


SC-310 - ISOLATOR ROW PLUS DETAIL
NOT TO SCALE



NOTE:
INSPECTION PORTS MAY BE CONNECTED THROUGH ANY CHAMBER CORRUGATION CREST.

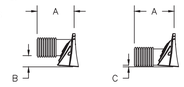
4" PVC INSPECTION PORT
NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	34.0" X 16.0" X 85.4"	(864 mm X 406 mm X 2169 mm)
CHAMBER STORAGE	14.7 CUBIC FEET	(0.42 m³)
MINIMUM INSTALLED STORAGE*	31.0 CUBIC FEET	(0.88 m³)
WEIGHT	35.0 lbs.	(16.8 kg)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC310EPE06T / SC310EPE06TPC	6" (150 mm)	9.6" (244 mm)	5.8" (147 mm)	---
SC310EPE06B / SC310EPE06BPC			---	0.5" (13 mm)
SC310EPE08T / SC310EPE08TPC	8" (200 mm)	11.9" (302 mm)	3.5" (89 mm)	---
SC310EPE08B / SC310EPE08BPC			---	0.6" (15 mm)
SC310EPE10T / SC310EPE10TPC	10" (250 mm)	12.7" (323 mm)	1.4" (36 mm)	---
SC310EPE10B / SC310EPE10BPC			---	0.7" (18 mm)
SC310EPE12B	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)
SC310EPE12BR	12" (300 mm)	13.5" (343 mm)	---	0.9" (23 mm)

ALL STUBS, EXCEPT FOR THE SC310EPE12B ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC310EPE12B THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

TECHNICAL SPECIFICATIONS
NOT TO SCALE

SC-310 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-310.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

ADS™
Advanced Drainage Systems, Inc.

STORMTECH SC-310 CHAMBER SYSTEM (I)
NOT TO SCALE

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_DETAILS.DWG

BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER STATE OF NEW HAMPSHIRE
04.10.23
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
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APPLICANT:
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7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
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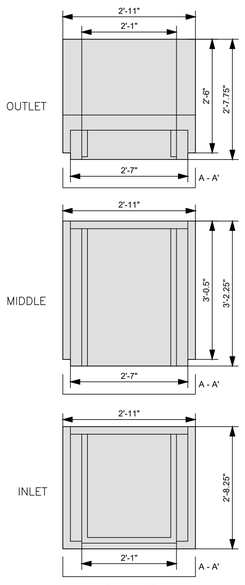
PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:
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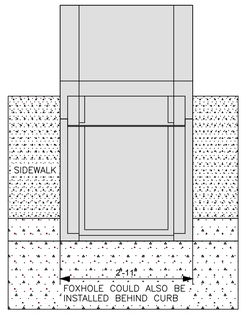
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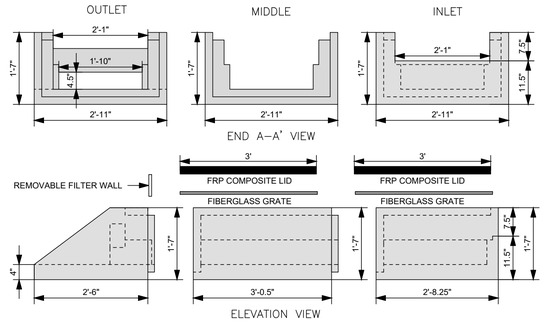
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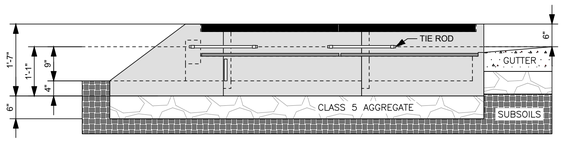


PLAN VIEW



INSTALLED PLAN VIEW – INLET ONLY





INSTALLED ELEVATION VIEW – INLET/OUTLET ONLY

SPECIFICATIONS:

1. STEEL REINFORCED, COLD JOINT SECURED MONOLITHIC CONCRETE STRUCTURES (INLET 875 LBS, MIDDLE 965 LBS, AND OUTLET 730 LBS). CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 PSI AT 28 DAYS. CONCRETE AIR ENTRAINED (5% TO 8.5% BY VOLUME). MANUFACTURED AND DESIGNED TO ASTM C858.
2. 2–POINT PICK USING RECESSED LIFTING POCKETS WITH A STANDARD HOOK.
3. FIBERGLASS GRATE (11 LBS/PIECE).
4. FRP COMPOSITE LID (38 LBS/PIECE) WITH CONCENTRATED LOAD CAPACITY OF 11,200 LBS.

INSTALLATION NOTES:

1. INSTALL A CLASS 5 BASE (COMPACTED TO 95% STANDARD PROCTOR). IT IS CRITICAL THAT THE CLASS 5 BASE IS EVEN TO ENSURE THE FOXHOLE PIECES ALIGN VERTICALLY SUCH THAT THE TOP LIDS LAY FLUSH WITH THE TOP OF THE FOXHOLE PIECES AND ADJACENT BOULEVARD, SIDEWALK, OR PATH. THE DISTANCE FROM THE BACK OF THE CURB MAY VARY BASED ON SITE CONDITIONS. EXCAVATE 1' 7" BELOW THE GUTTERLINE ELEVATION (I.E. THE BIORETENTION OVERFLOW ELEVATION) TO ACCOMMODATE THE 9" PONDING DEPTH, 6" CLASS 5 AGGREGATE, AND 4" RAIN GUARDIAN FOXHOLE BASE (INCLUDED). THEREFORE, THE TOP OF THE CLASS 5 COMPACTED BASE IS PRECISELY 1' 1" BELOW THE GUTTERLINE ELEVATION. THE TOP OF THE RAIN GUARDIAN FOXHOLE INLET POINT WILL BE 7–1/2" ABOVE THE TOP OF THE CONCRETE BASE AND 1–1/2" BELOW THE GUTTERLINE ELEVATION TO ACCOMMODATE A SLOPED INLET FROM THE GUTTER TO THE RAIN GUARDIAN FOXHOLE.

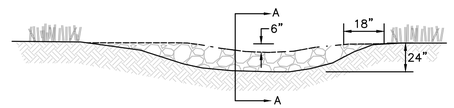
2. SET RAIN GUARDIAN FOXHOLE INLET FIRST, FOLLOWED BY MIDDLE SECTION(S), AND FINALLY THE OUTLET ON THE PREPARED CLASS 5 BASE. POSITION RAIN GUARDIAN FOXHOLE OUTLET PIECE SO PRIMARY OUTLET ALIGNS WITH TOE OF BASIN SIDE SLOPE TO AVOID SOIL INTERFERENCE WITH REMOVABLE FILTER WALL.

3. SECURE MODULAR FOXHOLE PIECES AT EACH JOINT USING PROVIDED GALVANIZED TIE RODS.

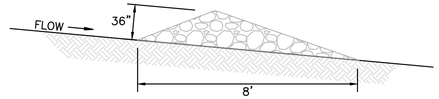
4. INSTALL EXPANSION/CONTRACTION JOINT MATERIAL OR A SHEET OF POLY TO SERVE AS A BOND BREAK BETWEEN RAIN GUARDIAN FOXHOLE AND CONCRETE INLET BEFORE POURING INLET.

5. REMOVABLE FILTER WALL SHOULD BE INSTALLED WITH FILTER FABRIC FACING THE RAIN GUARDIAN FOXHOLE INLET.

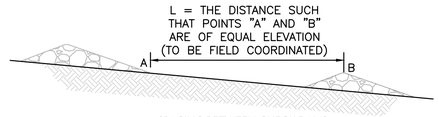
RAIN GUARDIAN - FOXHOLE TYPICAL DETAIL — 1
NOT TO SCALE



VIEW LOOKING UPSTREAM



SECTION A

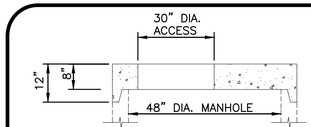


SPACING BETWEEN CHECK DAMS

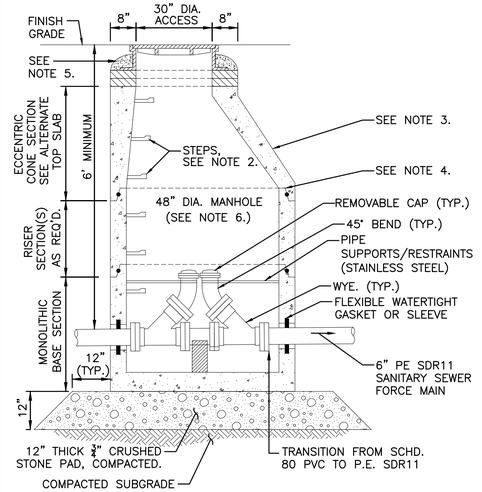
NOTES:

1. THE MAXIMUM CONTRIBUTING DRAINAGE AREA TO THE DAM SHALL BE LESS THAN ONE ACRE.
2. THE MAXIMUM HEIGHT OF THE DAM SHALL BE 2 FEET.
3. THE CENTER OF THE DAM SHALL BE AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES.
4. THE MAXIMUM SPACING BETWEEN THE DAMS SHALL BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE OVERFLOW ELEVATION OF THE DOWNSTREAM DAM.
5. THE DAMS SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
6. CHECK DAMS SHALL BE CONSTRUCTED OF A WELL–GRADED ANGULAR 2–INCH TO 3–INCH STONE.

TEMPORARY CHECK DAM — 2
NOT TO SCALE



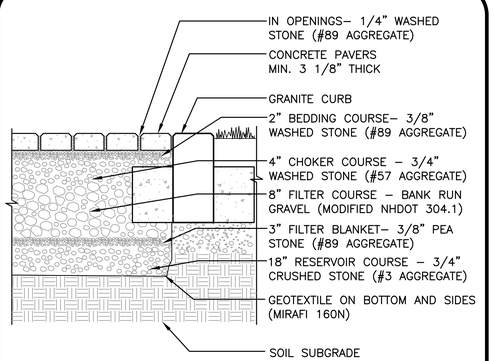
ALTERNATE TOP SLAB
(STEEL REINFORCED FOR HS–20 LOADING)



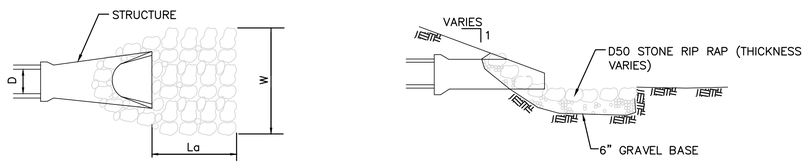
NOTES:

1. STRUCTURE SHALL BE DESIGNED FOR HS–20 LOADING.
2. COPOLYMER MANHOLE STEPS SHALL BE INSTALLED AT 12" O.C. FOR THE FULL DEPTH OF THE STRUCTURE.
3. THE EXTERIOR SURFACES SHALL BE GIVEN TWO COATS OF BITUMINOUS WATER–PROOFING MATERIAL.
4. JOINT SEALANT BETWEEN PRECAST SECTIONS SHALL BE PREFORMED BUTYL RUBBER.
5. STANDARD SEWER MANHOLE FRAME AND COVER SHALL BE SET IN FULL MORTAR BED. ADJUST TO GRADE WITH SEWER BRICK AND MORTAR. (2 BRICK COURSES TYPICALLY, 5 BRICK COURSES MAXIMUM).
6. MANHOLE DIAMETER SHALL BE VERIFIED BY CONTRACTOR AND MANUFACTURER BASED ON PIPE DIAMETER AND FITTING DIMENSIONS.
7. MANHOLE FRAME AND COVER SHALL BE WATERTIGHT AND BOLT–IN–PLACE AND HAVE THE WORD "SEWER".
8. FITTINGS AND PIPING WITHIN THE STRUCTURE SHALL BE SCHEDULE 80 PVC.

SEWER FORCE MAIN CLEAN OUT MANHOLE — 3
NOT TO SCALE



PERMEABLE PAVER DETAIL — 4
NOT TO SCALE



RIP–RAP SIZING CHART

STRUCTURE	D	La	W	D50	THICKNESS
HW–01	18"	21'	26'	8"	18"
HW–02	8"	10'	12'	3"	7"
HW–03	30"	23'	31'	6"	14"

RIP–RAP OUTFALL APRON — 6
NOT TO SCALE

NOT USED — 7
NOT TO SCALE

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\C-2912-01_DETAILS.DWG

BRIAN D JONES No. 13809 LICENSED PROFESSIONAL ENGINEER – STATE OF NEW HAMPSHIRE –
04.27.23
PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
4	04-27-23	REVISED PER PEER REVIEW COMMENTS
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:
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DRAWING TITLE:
DETAILS

SHEET No.
C-507

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1. GENERAL:
PROVIDE EXPLOSION–PROOF SUBMERSIBLE SEWAGE PUMPS SUITABLE FOR CONTINUOUS DUTY OPERATION UNDERWATER WITHOUT LOSS OF WATERTIGHT INTEGRITY TO A DEPTH OF 65 FEET. PUMP SYSTEM DESIGN SHALL INCLUDE A GUIDE RAIL SYSTEM BE SUCH THAT THE PUMP WILL BE AUTOMATICALLY CONNECTED TO THE DISCHARGE PIPING WHEN LOWERED INTO PLACE ON THE DISCHARGE CONNECTION. THE PUMP SHALL BE EASILY REMOVABLE FOR INSPECTION OR SERVICE, REQUIRING NO BOLTS, NUTS, OR OTHER FASTENERS TO BE DISCONNECTED, OR THE NEED FOR PERSONNEL TO ENTER THE WET WELL. THE MOTOR AND PUMP SHALL BE DESIGNED, MANUFACTURED, AND ASSEMBLED BY THE SAME MANUFACTURER.

2. MANUFACTURER: EBARA INTERNATIONAL CORPORATION (OR APPROVED EQUAL).

3. PUMP CHARACTERISTICS: PUMPS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

NUMBER OF UNITS	2	RPM	1740
DESIGN FLOW (GPM)	80	MAXIMUM HP	2.0
DESIGN TDH (FT)	17	VOLTAGE/HZ	240/60HZ
		PHASE	T.B.D.

4. PUMP CONSTRUCTION:
ALL MAJOR PARTS OF THE PUMPING UNIT(S) INCLUDING CASING, IMPELLER, SUCTION COVER, WEAR RINGS, MOTOR FRAME AND DISCHARGE ELBOW SHALL BE MANUFACTURED FROM GRAY CAST IRON, ASTM A–48 CLASS 30. CASTINGS SHALL HAVE SMOOTH SURFACES DEVOID OF BLOW HOLES OR OTHER CASTING IRREGULARITIES. CASING DESIGN SHALL BE CENTERLINE DISCHARGE WITH A LARGE RADIUS ON THE CUT WATER TO PREVENT CLOGGING. UNITS SHALL BE FURNISHED WITH A DISCHARGE ELBOW AND A 125 LB. FLAT FACE ANSI FLANGE. ALL EXPOSED BOLTS AND NUTS SHALL BE 304 STAINLESS STEEL. ALL MATING SURFACES OF MAJOR COMPONENTS SHALL BE MACHINED AND FITTED WITH NBR O–RINGS WHERE WATERTIGHT SEALING IS REQUIRED. MACHINING AND FITTING SHALL BE SUCH THAT SEALING IS ACCOMPLISHED BY AUTOMATIC COMPRESSION OF O–RINGS IN TWO PLANES AND O–RING CONTACT IS MADE ON FOUR SURFACES WITHOUT THE REQUIREMENT OF SPECIFIC TORQUE LIMITS. INTERNAL AND EXTERNAL SURFACES ARE PREPARED TO SPPC–VISI–SP–3–63 THEN COATED WITH A ZINC–CHROMATE PRIMER. THE EXTERNAL SURFACES ARE THEN COATED WITH A TNEMEC SERIES 46–465 COAL TAR PAINT.

A. IMPELLERS:
THE IMPELLER SHALL BE A MIXED FLOW MULTI–VANE OPEN DESIGN. IT SHALL BE DYNAMICALLY BALANCED AND SHALL BE DESIGNED FOR SOLIDS HANDLING WITH A LONG THRULET WITHOUT ACUTE TURNS. THE INLET EDGE OF THE IMPELLER VANES SHALL BE ANGLED TOWARD THE IMPELLER PERIPHERY SO AS TO FACILITATE THE RELEASE OF OBJECTS THAT MIGHT OTHERWISE CLOG THE PUMP. THE DESIGN SHALL ALSO INCLUDE BACK PUMP OUT VANES TO REDUCE THE PRESSURE AND ENTRY OF FOREIGN MATERIALS INTO THE MECHANICAL SEAL AREA. IN ADDITION, A LIP SEAL SHALL BE LOCATED BEHIND THE IMPELLER HUB TO FURTHER REDUCE THE ENTRY OF FOREIGN MATERIALS INTO THE SEAL AREA. IMPELLERS SHALL BE DIRECT CONNECTED TO THE MOTOR SHAFT WITH A SLIP FIT, KEY DRIVEN AND SECURED WITH AN IMPELLER BOLT. THE DESIGN SHALL INCLUDE A REPLACEABLE CAST IRON SUCTION COVER. THE SUCTION COVER SHALL BE DESIGNED SUCH THAT IT MAY BE ADJUSTED TO MAINTAIN WORKING CLEARANCES AND HYDRAULIC EFFICIENCIES.

B. MECHANICAL SEALS:
UNITS SHALL BE DESIGNED TO INCLUDE A DOUBLE MECHANICAL SEAL IN A TANDEM ARRANGEMENT. EACH SEAL SHALL BE POSITIVELY DRIVEN AND ACT INDEPENDENTLY WITH IT'S OWN SPRING SYSTEM. THE UPPER SEAL OPERATES IN AN OIL BATH, WHILE THE LOWER SEAL IS LUBRICATED BY THE OIL FROM BETWEEN THE SHAFT AND THE SEAL FACES. THE LOWER SEAL IS ALSO IN CONTACT WITH THE PUMPAGE. THE OIL FILLED SEAL CHAMBER SHALL BE DESIGNED TO PREVENT OVER–FILLING AND INCLUDE AN ANTI–VORTEXING VANE TO INSURE PROPER LUBRICATION OF BOTH SEAL FACES. LOWER FACE MATERIALS SHALL BE SILICON CARBIDE, UPPER FACES CARBON VS. CERAMIC, NBR ELASTOMERS, AND 304SS HARDWARE. SEAL SYSTEM SHALL NOT RELY ON PUMPING MEDIUM FOR LUBRICATION.

5. MOTOR CONSTRUCTION:
THE PUMP MOTOR SHALL BE AN AIR FILLED EXPLOSION–PROOF INDUCTION TYPE WITH A SQUIRREL CAGE ROTOR, SHELL TYPE DESIGN, BUILT TO NEMA MG–1, DESIGN B SPECIFICATIONS. STATOR WINDINGS SHALL BE COPPER, INSULATED WITH MOISTURE RESISTANT CLASS H INSULATION, RATED FOR 356 F (180 C). THE STATOR SHALL BE DIPPED AND BAKED THREE TIMES IN CLASS H VARNISH AND HEAT SHRUNK FITTED INTO THE STATOR HOUSING. ROTOR BARS AND SHORT CIRCUIT RINGS SHALL BE MANUFACTURED OF CAST ALUMINUM. MOTOR SHAFT SHALL BE ONE PIECE AISI403 SS MATERIAL, ROTATING ON TWO PERMANENTLY LUBRICATED BALL BEARINGS DESIGNED FOR A MINIMUM B–10 LIFE OF 60,000 HOURS. MOTOR SERVICE FACTOR SHALL BE 1.15 AND CAPABLE OF UP TO 20 STARTS PER HOUR. THE MOTOR SHALL BE DESIGNED FOR CONTINUOUS DUTY PUMPING AT A MAXIMUM SUMP TEMPERATURE OF 104 F. VOLTAGE AND FREQUENCY TOLERANCES SHALL BE A MAXIMUM 10 / 5% RESPECTIVELY. MOTOR OVER TEMPERATURE PROTECTION SHALL BE PROVIDED BY THREE MINIATURE THERMAL PROTECTORS (ONE PER PHASE) EMBEDDED IN THE WINDINGS. MECHANICAL SEAL FAILURE PROTECTION SHALL BE PROVIDED BY A MECHANICAL FLOAT SWITCH LOCATED IN A CHAMBER ABOVE THE SEAL. THIS SWITCH SHALL BE COMPRISED OF A MAGNETIC FLOAT THAT ACTUATES A DRY REED SWITCH ENCAPSULATED WITHIN THE STEM. SHOULD THE MECHANICAL SEAL FAIL, LIQUID SHALL BE DIRECTED INTO THE FLOAT CHAMBER, IN WHICH THE RISING LIQUID ACTIVATES THE SWITCH OPENING THE NORMALLY CLOSED CIRCUIT. FOR UNITS 2–10 HP THE FLOAT BODY AND FLOAT SHALL BE A POLYPROPYLENE MATERIAL WITH A 316SS STOPPER. UNITS 15 HP AND GREATER, THE FLOAT SWITCH COMPONENTS SHALL BE 304SS. THE MOTOR SHALL BE NON OVERLOADING OVER THE ENTIRE SPECIFIED RANGE OF OPERATION AND BE ABLE TO OPERATE AT FULL LOAD INTERMITTENTLY WHILE UNSUBMERGED WITHOUT DAMAGE TO THE UNIT.

POWER CABLE JACKET SHALL BE MANUFACTURED OF AN OIL RESISTANT CHLOROPRENE RUBBER MATERIAL, DESIGNED FOR SUBMERGED APPLICATIONS. CABLE SHALL BE WATERTIGHT TO A DEPTH OF A LEAST 65'. THE CABLE ENTRY SYSTEM SHALL COMPRISE OF PRIMARY, SECONDARY AND TERTIARY SEALING METHODS. THE PRIMARY SEAL SHALL BE ACHIEVED BY A CYLINDRICAL ELASTOMERIC GROMMET COMPRESSED BETWEEN THE MOTOR COVER AND A 304SS WASHER. SECONDARY SEALING IS ACCOMPLISHED WITH A COMPRESSED O–RING MADE OF NBR MATERIAL. COMPRESSION AND SUBSEQUENT SEALING SHALL PRECLUDE SPECIFIC TORQUE REQUIREMENTS. THE SYSTEM SHALL ALSO INCLUDE TERTIARY SEALING TO PREVENT LEAKAGE INTO THE MOTOR HOUSING DUE TO CAPILLARY ACTION THROUGH THE INSULATION IF THE CABLE IS DAMAGED OR CUT. THE CABLE WIRES SHALL BE CUT, STRIPPED, RE–CONNECTED WITH A COPPER BUTT END CONNECTOR AND EMBEDDED IN EPOXY WITHIN THE CABLE GLAND. THIS PROVIDES A DEAD END FOR LEAKAGE THROUGH THE CABLE INSULATION INTO THE MOTOR JUNCTION AREA. THE CABLE ENTRY SYSTEM SHALL BE THE SAME FOR BOTH THE POWER AND CONTROL CABLES.

6. GUIDE RAIL SYSTEM:
DESIGN SHALL INCLUDE TWO (2) 304SS SCHEDULE 40 GUIDE RAILS SIZED TO MOUNT DIRECTLY TO THE QUICK DISCHARGE CONNECTOR, QDC, AT THE FLOOR OF THE WETWELL AND TO A GUIDE RAIL BRACKET AT THE TOP OF THE WETWELL BELOW THE HATCH OPENING. INTERMEDIATE GUIDE BRACKETS ARE RECOMMENDED FOR RAIL LENGTHS OVER 15 FEET.

THE QDC SHALL BE MANUFACTURED OF GRAY CAST IRON, ASTM A48 CLASS 30. IT SHALL BE DESIGNED TO ADEQUATELY SUPPORT THE GUIDE RAILS, DISCHARGE PIPING, AND PUMPING UNIT UNDER BOTH STATIC AND DYNAMIC LOADING CONDITIONS WITH SUPPORT LEGS THAT ARE SUITABLE FOR ANCHORING IT TO THE WETWELL FLOOR. THE FACE OF THE INLET QDC FLANGE SHALL BE PERPENDICULAR TO THE FLOOR OF THE WETWELL. THE DISCHARGE FLANGE OF THE QDC SHALL CONFORM TO ANSI B16.1 CLASS 125.

THE PUMP DESIGN SHALL INCLUDE AN INTEGRAL SELF–ALIGNING SLIDING BRACKET. SEALING OF THE PUMPING UNIT TO THE QDC SHALL BE ACCOMPLISHED BY THE SINGLE LINEAR DOWNWARD MOTION OF THE PUMP. THE ENTIRE WEIGHT OF THE PUMP UNIT SHALL BE GUIDED TO AND WEDGED TIGHTLY AGAINST THE INLET FLANGE OF THE QDC, MAKING METAL TO METAL CONTACT WITH THE PUMP DISCHARGE FORMING A SEAL WITHOUT THE USE OF BOLTS, GASKETS OR O–RINGS.

A STAINLESS STEEL LIFTING CHAIN OF ADEQUATE LENGTH FOR REMOVING AND INSTALLING THE PUMP UNIT IS RECOMMENDED. THE CHAIN SHALL HAVE A ROUND LINK WITH A 2–1/4" INSIDE DIAMETER EVERY TWO FEET. THIS LINK WILL ALLOW FOR SLIDING A PINCH BAR THROUGH THE LINK TO PICK THE CHAIN, MORE THAN ONCE IF NECESSARY, AT MULTIPLE INTERVALS DURING PUMP REMOVAL AND INSTALLATION.

7. PER ENV–WQ 705.07(a) SUBMERSIBLE PUMPS FOR SEWAGE PUMPING STATIONS SHALL CONFORM TO THE NEC REQUIREMENTS ADOPTED BY REFERENCE IN THE STATE BUILDING CODE PURSUANT TO RSA 155–A1, IV, FOR INSTALLATION IN AREAS CLASSIFIED BY THE NEC AS CLASS I, DIVISION 1.

8. PER ENV–WQ 705.07(b) ELECTRICAL SYSTEMS AND COMPONENTS, INCLUDING MOTORS, LIGHTS, CABLE, CONDUITS, SWITCH BOXES, AND CONTROL CIRCUITS SHALL BE PROTECTED FROM FLOODING IN ACCORDANCE WITH ENV–WQ 705.01. THE ENTIRE PUMPING STATION IS LOCATED OUTSIDE OF THE FEMA 100–YEAR FLOODPLAIN AS DEPICTED ON THE CURRENT FLOOD INSURANCE RATE MAP.

9. PER ENV–WQ 705.07(c)(1) ELECTRICAL SYSTEMS AND COMPONENTS INCLUDING MOTORS, LIGHTS, CABLE, CONDUITS, SWITCH BOXES AND CONTROL CIRCUITS IN ENCLOSED OR PARTIALLY ENCLOSED SPACES WHERE FLAMMABLE MIXTURES OCCASIONALLY MAY BE PRESENT, INCLUDING RAW SEWAGE WET WELLS, SHALL BE CERTIFIED BY THEIR MANUFACTURER AS COMPLYING WITH THE NEC REQUIREMENTS ADOPTED BY REFERENCE IN THE STATE BUILDING CODE PURSUANT TO RSA 155–A:1, IV, FOR CLASS I, DIVISION 1 LOCATIONS.

10. PER ENV–WQ 705.07(d), ALL ELECTRICAL EQUIPMENT AND WORK SHALL COMPLY WITH THE REQUIREMENTS OF NEC AS ADOPTED BY REFERENCE IN THE STATE BUILDING CODE PURSUANT TO RSA 155–A:1, IV, AND NFPA AS ADOPTED BY REFERENCE IN THE STATE FIRE CODE IN SAF–C 6000 IN EFFECT AT THE TIME OF INSTALLATION.

SEWER PUMP SPECIFICATION (1)
NOT TO SCALE

1. FLOWRATE CALCULATION: DAILY DESIGN FLOW IS 11,700 GPD (PROVIDED BY SIG SAUER)

INFLOW AND INFILTRATION (I/I) CALCULATION: PER ENV–WQ 704.03(f)(2), THE I/I IS 300 GAL./INCH DIA. PER MILE PER DAY: ((510'/5280')(3")*300=29 GPD

PEAK FLOW RATE IS CALCULATED USING A 5x PEAKING FACTOR
(11,700 GPD/24 HOURS/60 MINUTES)*5x PEAKING FACTOR + (29 I/I GPD/24/60)=41 GPM

THE PUMP DESIGN FLOW RATE SHALL BE 80 GPM (2 SAFETY FACTOR)

2. THE PUMPING STATION IS AN EXISTING RECTANGULAR PRE–CAST PUMP CHAMBER APPROXIMATELY 5' x 10' INSIDE DIMENSIONS. TOTAL INSIDE HEIGHT IS APPROXIMATELY 5'.

3. THE PUMPING STATION SHALL BE SUPPLIED WITH A PUMP CONTROL PANEL WITH THE FOLLOWING MINIMUM COMPONENTS:

a) VISIBLE AND AUDIBLE ALARM BEACON WITH CELLULAR AUTO DIALER FOR ALARM EVENTS. PER ENV–WQ 705.09(e), THE ALARM SYSTEM SHALL HAVE AN INDEPENDENT BATTERY WITH CONTINUOUS CHARGE, OR MAIN LINE POWER WITH A BATTERY BACK–UP SYSTEM, WHICH SHALL BE CONNECTED AUTOMATICALLY SHOULD THE MAIN POWER FAIL. THIS REQUIREMENT IS IN ADDITION TO THE EMERGENCY GENERATOR WHICH SERVICES THE PUMPING STATION.

b) THE CONTROL PANEL SHALL BE MOUNTED ADJACENT TO THE PUMPING STATION AND SHALL BE WITHIN AN ENCLOSURE DESIGNED FOR USE AS A WIRING BOX AND JUNCTION BOX. THE ENCLOSURE SHALL PROVIDE PROTECTION AGAINST RAIN, SLEET, AND SNOW. THE ENCLOSURE SHALL MEET NEMA TYPE 4 MINIMUM REQUIREMENTS.

c) THE CONTROL PANEL TO BE CONFIGURED TO ALTERNATE PUMPS.

d) THE VISIBLE AND AUDIBLE ALARM SHALL BE ACTIVATED UPON ANY INITIATION OF THE LAG PUMP OR HIGH/LOW LEVEL SWITCHES.

e) THE CONTROL PANEL SHALL BE EQUIPPED WITH RUN TIME METERS FOR EACH OF THE PUMPS.

f) THE CONTROL PANEL SHALL BE EQUIPPED WITH WITH A CELLULAR ALARM DIALER WHICH HAS 24 HOUR ALARM COVERAGE. THE DIALER SHALL BE "SENSAPHONE SENTINEL" (OR APPROVED EQUAL) AND EQUIPPED TO LOG THE RUN TIME FOR EACH PUMP. THE CONTRACTOR SHALL FIELD VERIFY THE DISCHARGE RATE TO ALLOW A DETERMINATION OF THE TOTAL FLOW FROM THE PUMPING STATION OVER A 24–HOUR PERIOD.

4. PER ENV–WQ 705.09(c), THE HIGH WATER AND LOW WATER ALARM TRIGGERS SHALL BE SEPARATE DEVICES, INDEPENDENT OF THE PUMP CONTROLS AND SET AT ELEVATIONS ABOVE AND BELOW THE LAG PUMP ON AND OFF ELEVATIONS, RESPECTIVELY.

5. PUMP DESIGN:

a) ELEVATION HEAD = 3.5 FEET
MINOR LOSSES = 1.0 FEET
FRICTION HEAD = 12.0 FEET
TOTAL HEAD = 16.5 FEET

6. PUMP MODEL: EBARA MODEL 100DLFU61.5 (2 HP)

b) PUMP DESIGN FLOW RATE: 80 GPM

c) PUMPS SHALL ALTERNATE EACH CYCLE.

d) CYCLE FREQUENCY = 12 CYCLES PER DAY (EVERY 120 MINUTES)

e) CYCLE VOLUME = 975 GALLONS

f) CYCLE DEPTH = 2.6'

g) CYCLE RUN TIME = 12 MINUTES AT 80 GPM

7. ALL PIPING WITHIN THE PUMPING STATION AND VALVE BOX SHALL BE SCHEDULE 80 PVC. THE FORCE MAIN PIPING SHALL BE 3" P.E. SDR11.

8. THE COMPLETED PUMPING STATION SHALL BE FIELD TESTED IN THE PRESENCE OF THE ENGINEER AND ACTUAL PUMP RATES VERIFIED. ANY MODIFICATION REQUIRED SHALL BE MADE AT THE CONTRACTOR'S EXPENSE.

9. GATE VALVES SHALL BE 3–INCH, DUCTILE IRON BODY, NON–RISING STEM WITH HANDWHEEL, DOUBLE DISC, PARALLEL SEAT RATED AT 200 PSI WORKING PRESSURE, WITH ANSI B 16.5 (CLASS 150) FLANGED ENDS.

10. CHECK VALVES SHALL BE 3–INCH, DUCTILE IRON BODY, SWING TYPE WITH LEVER AND WEIGHT, RUBBER FACED BRONZE DISC RING, RATED AT 200 PSI WORKING PRESSURE, WITH ANSI B 16.5 FLANGED ENDS.

11. PER ENV–WQ 705.10, UPON COMPLETION OF THE CONSTRUCTION OF THE SEWER PUMPING STATION, THE CONTRACTOR SHALL PROVIDE THE OWNER AN OPERATION AND MAINTENANCE MANUAL THAT PROVIDES INFORMATION AND GUIDANCE FOR DAY–TO–DAY OPERATION. THE OWNER (OR OWNER'S ENGINEER) WILL PROVIDE THE NH DES WITH A COPY OF THE O&M MANUAL WITHIN 60 DAYS FOLLOWING SUBSTANTIAL COMPLETION OF CONSTRUCTION OF THE PUMP STATION.

SEWER PUMPING STATION AND CONTROL PANEL SPECIFICATION (2)
NOT TO SCALE

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DRAWING TITLE: DETAILS
SHEET No. C-508

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SECTION 33 36 00 - SANITARY SEWER SYSTEMS

PART 1 GENERAL

1.01 PRODUCTS

A. GENERAL: MATERIALS SHALL BE AS SPECIFIED HEREIN, EXCEPT THAT CONSIDERATION SHALL BE GIVEN TO OTHER PRODUCTS THAT MEET OR EXCEED THOSE SPECIFIED IF REQUESTED TEN (10) DAYS PRIOR TO DATE OF BID OPENING, IN ACCORDANCE WITH THE GENERAL CONDITIONS.

1.02 DESCRIPTION:

A. THE WORK UNDER THIS SECTION SHALL INCLUDE THE FURNISHING OF ALL MATERIAL, LABOR, EQUIPMENT AND SUPPLIES AND THE PERFORMANCE OF ALL OPERATIONS TO PROVIDE A COMPLETE WORKING SYSTEM AS REQUIRED BY THE DRAWINGS AND DETAILS AND AS SPECIFIED HEREIN, IN GENERAL, TO INCLUDE THE FOLLOWING ITEMS:

1. SANITARY SEWER SYSTEM FROM 5 FEET OUTSIDE THE BUILDING TO POINT OF TERMINATION AS SHOWN ON THE DRAWINGS.
2. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE LOCAL DEPARTMENT OF PUBLIC WORKS AND NHDES.

1.03 RELATED WORK:

A. SECTION 31 23 00 – EARTHWORK.

B. SECTION 15401 – PLUMBING.

1.04 RELATED DOCUMENTS:

A. ALL WORK SHALL CONFORM TO THE APPLICABLE REGULATIONS AND STANDARDS OF THE MUNICIPALITY.

B. ALL WORK FOR ITEMS NOT OTHERWISE COVERED BY 1.03.A ABOVE SHALL CONFORM TO THE NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS AND BRIDGE CONSTRUCTION (LATEST EDITION).

C. ALL WORK SHALL CONFORM TO THE PERMITS ISSUED BY THE STATE OF NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES.

1.05 PROJECT CONDITIONS:

A. KNOWN UNDERGROUND AND SURFACE UTILITY LINES ARE INDICATED ON THE DRAWINGS. INFORMATION ON THE DRAWINGS RELATING TO EXISTING UTILITY LINES AND SERVICES IS FROM THE BEST SOURCE PRESENTLY AVAILABLE. ALL SUCH INFORMATION IS FURNISHED ONLY FOR INFORMATION AND IS NOT GUARANTEED. COORDINATE WITH UTILITY COMPANIES, DIG SAFE AND THEIR CONTRACTORS, AND EXCAVATE TEST PITS AS REQUIRED TO DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES.

B. TEST BORINGS HAVE BEEN PERFORMED BY OWNER'S SEPARATE CONTRACTOR. LOCATIONS OF TEST BORINGS ARE SHOWN ON THE DRAWINGS. NEITHER THE OWNER NOR THE ENGINEERS MAKE WARRANTY, EITHER EXPRESSED OR IMPLIED, OF ACCURACY OF BORING DATA AS A REPRESENTATION OF TYPICAL CONDITIONS. THE CONTRACTOR SHALL MAKE HIS/HER OWN INVESTIGATION OF SUBSURFACE CONDITIONS AND SATISFY HER/HIMSELF AS TO CONDITION THEREOF AND SHALL BASE HIS/HER BID IN SOLE RELIANCE THEREON. SUCH INVESTIGATION MAY INCLUDE, BUT IS NOT NECESSARILY LIMITED TO: ADDITIONAL TEST PITS, BORINGS. NO ALLOWANCE WILL BE MADE FOR THE CONTRACTOR'S FAILURE TO PERFORM INVESTIGATION NECESSARY TO FULLY IDENTIFY AND SATISFY HIM/HERSELF AS TO SUBSURFACE CONDITIONS WHICH COULD AFFECT THE WORK.

C. PROTECT EXCAVATIONS BY SHORING, BRACING, SHEETING, UNDERPINNING, OR OTHER METHODS, AS REQUIRED TO PREVENT CAVE–INS OR LOOSE DIRT FROM ENTERING EXCAVATIONS. BARRICADE OPEN EXCAVATIONS AND POST WARNING LIGHTS AT WORK ADJACENT TO PUBLIC STREETS AND WALKS.

D. UNDERPIN ADJACENT STRUCTURE(S), INCLUDING UTILITY SERVICE LINES, WHICH MAY BE DAMAGED BY EXCAVATION OPERATIONS.

E. PROMPTLY REPAIR DAMAGE TO ADJACENT FACILITIES CAUSED BY SITE SEWER AND DRAINAGE OPERATIONS.

F. PROMPTLY NOTIFY THE OWNER OF UNEXPECTED SUB–SURFACE CONDITION

1.06 QUALITY ASSURANCE:

A. STANDARDS: COMPLY WITH STANDARDS SPECIFIED IN THIS SECTION. PROVIDE SHOP DRAWINGS TO THE OWNER OR OWNER'S REPRESENTATIVE.

B. QUALIFICATIONS OF INSTALLERS: USE ADEQUATE NUMBERS OF SKILLED WORKERS WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE NECESSARY CRAFTS AND WHO ARE COMPLETELY FAMILIAR WITH THE SPECIFIED REQUIREMENTS AND METHODS FOR PROPER PERFORMANCE OF THE WORK OF THIS SECTION.

C. OBTAIN OWNER OR OWNER'S REPRESENTATIVE'S ACCEPTANCE OF INSTALLED AND TESTED SITE DRAINAGE SYSTEM PRIOR TO BACKFILLING.

1.07 SUBMITTALS:

A. PRODUCT DATA:

1. COMPLETE MATERIALS LIST OF ALL ITEMS PROPOSED TO BE FURNISHED AND INSTALLED UNDER THIS SECTION.
2. MANUFACTURER'S SPECIFICATIONS AND OTHER DATA REQUIRED TO DEMONSTRATE COMPLIANCE WITH THE SPECIFIED REQUIREMENTS.
3. MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.

B. TESTING AND INSPECTION REPORTS.

C. PROVIDE SITE SEWER AND DRAINAGE RECORD DRAWINGS:

1. LEGIBLY MARK DRAWINGS TO RECORD ACTUAL CONSTRUCTION.
2. INDICATE HORIZONTAL AND VERTICAL LOCATIONS REFERENCED TO PERMANENT SURFACE IMPROVEMENTS.
3. IDENTIFY FIELD CHANGES OF DIMENSIONS AND DETAILS AND CHANGES MADE BY CHANGE ORDER.

1.08 COOPERATION AND COORDINATION WITH OTHER TRADES:

A. THE WORK SHALL BE SO PERFORMED THAT THE PROGRESS OF THE ENTIRE PROJECT CONSTRUCTION, INCLUDING ALL OTHER TRADES, SHALL NOT BE DELAYED AND NOT INTERFERED WITH. MATERIALS AND APPARATUS SHALL BE INSTALLED AS FAST AS CONDITIONS WILL PERMIT AND MUST BE INSTALLED PROMPTLY WHEN AND AS DIRECTED.

B. ALL WORK SHALL BE COORDINATED WITH OTHERS TRADES. THE WORK IN THIS SECTION SHALL AT NO TIME INTERRUPT THE NORMAL OPERATIONS OF EXISTING BUILDINGS.

PART 2 PRODUCTS

2.01 POLYVINYL CHLORIDE PIPE (PVC):

A. PVC PIPE SHALL BE MADE FROM VIRGIN PLASTIC AND SHALL CONFORM TO ASTM D1784. SOLID PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D3034 SDR 35. PERFORATED PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM D2729 SDR 35.

B. STANDARD NOMINAL LENGTHS OF PIPE SHALL BE A MINIMUM OF 10 FEET.

C. THE PIPE FITTINGS SHALL BE AS UNIFORM AS COMMERCIALLY PRACTICAL IN COLOR, OPACITY, DENSITY AND OTHER PHYSICAL PROPERTIES.

D. PIPE SHALL BE TESTED IN ACCORDANCE WITH SECTION 10 OF ASTM D2412 STANDARD METHOD OF "TEST FOR EXTERNAL LOADING PROPERTIES OF PLASTIC PIPE BY PARALLEL–PLATE LOADING". THE MINIMUM VALUE OF PIPE STIFFNESS AT 5% DEFLECTION COMPUTED FROM DATA OBTAINED FROM THE ABOVE TESTING PROCEDURE SHALL BE IN ACCORDANCE WITH ASTM D2412.

E. EACH PIPE AND ALL COUPLINGS AND FITTINGS SHALL BE CLEARLY MARKED ON THE OUTSIDE SURFACE WITH THE NAME OF THE MANUFACTURER, ASTM DESIGNATION WITH TYPE AND GRADE, AND NOMINAL DIAMETER.

2.02 DUCTILE IRON (D.I.) SEWER PIPE:

A. ANSI/AWWA C151/ A21.51 CLASS 52 WITH CEMENT LINING CONFORMING TO ANSI A21.4. PRESSURE CLASS SHALL BE ANSI PRESSURE CLASS 350. PROTECTIVE COATING ON EXTERIOR SHALL BE APPROVED BITUMASTIC OR COAL TAR ENAMEL CONFORMING TO ANSI A21.4 AND A21.10

B. FITTINGS FOR DUCTILE IRON PIPE SHALL BE DUCTILE IRON SHORT BODY FITTINGS CONFORMING TO ANSI A21.1 WITH CEMENT LINING CONFORMING TO ANSI A21.4. THICKNESS CLASS SHALL BE ANSI PRESSURE CLASS 350.

C. LENGTH AND JOINTS – DUCTILE IRON PIPE LENGTHS SHALL GENERALLY BE AS LONG AS POSSIBLE BUT SHALL HAVE A BELL–AND–SPIGOT OR SHALL HAVE FURNISHED WITH IT A SEPARATE JOINTING SLEEVE OR COUPLING WITH RUBBER RINGS COMPRESSED INTO PLACE TO MAKE A WATERTIGHT CLOSURE. JOINTS SHALL BE SEALED WITH A RUBBER RING GASKET AND SHALL BE OF A COMPOSITION AND TEXTURE WHICH WILL ENDURE PERMANENTLY UNDER THE CONDITIONS LIKELY TO BE IMPOSED BY THIS USE, AND SHALL CONFORM TO ASTM SPECIFICATIONS C–361 AMENDED TO DATE. JOINTS SHALL BE "PUSH–ON" TYPE COMPLYING WITH ANSI A21.1.

2.03 HIGH DENSITY POLYETHYLENE (HDPE)

A. FORCE MAINS AND LOW PRESSURE SEWERS SHALL BE TREATED AS GRAVITY SEWERS FOR PURPOSES OF FOUNDATION BEDDING AND BACKFILL REQUIREMENTS.

B. HDPE PIPE USED FOR FORCE MAINS AND LOW PRESSURE SEWERS SHALL CONFORM TO ASTM D3035–03A.

2.04 CAST IRON SOIL PIPE:

A. CAST IRON SOIL PIPE SHALL BE ASTM A 74, EXTRA HEAVY TYPE, INSIDE NOMINAL DIAMETER AS SPECIFIED ON CONSTRUCTION DRAWINGS, BELL AND SPIGOT END. JOINTS SHALL BE IN CONFORMANCE WITH AWWA C111, RUBBER GASKET JOINT DEVICES.

2.05 PIPE JOINTS AND FITTINGS:

A. DUCTILE IRON FITTINGS SHALL BE MECHANICAL JOINTS. ALL FITTINGS SHALL BE RESTRAINED OR RODDED.

B. DUCTILE IRON FITTINGS SHALL CONFORM TO ANSI 21.10 AND 21.11 (AWWA C110 AND AWWA C111).

C. HDPE AND PVC FITTINGS SHALL BE WATERTIGHT. STRUCTURAL INTEGRITY AND JOINT CONFIGURATION SHALL BE IDENTICAL TO THAT OF PIPE.

2.06 SEWER MANHOLES:

A. PRECAST CONCRETE MANHOLE, CATCH BASIN, LEACHING CATCH BASIN BASE, AND LEACHING PIT SECTIONS, RISER SECTIONS AND CONE SECTIONS SHALL BE CONSTRUCTED OF A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS, AIR ENTRAINED CONCRETE WITH HOOP REINFORCING AND LIFTING HOLES. SECTIONS SHALL BE FURNISHED WITH "O" RING RUBBER GASKETS. LIFTING HOLES IN ALL SECTIONS SHALL BE FILLED WITH NONSHRINK MORTAR AFTER SECTIONS ARE IN PLACE.

B. CLASS "A" CONCRETE: ASTM C94. ALL CONCRETE SHALL BE CLASS A UNLESS STATED OTHERWISE.

1. STRENGTH : 3000 PSI @ 28 DAYS
2. CEMENT CONTENT : TYPE II, 6.5 SACKS/CY (MIN)
3. W/C RATIO : 0.464 (MAX)
4. FINE AGGREGATE : ASTM C33
5. COARSE AGGREGATE : ASTM C33 SIZE #67

C. CLASS "B" CONCRETE:

1. STRENGTH : 3000 PSI @ 28 DAYS
2. CEMENT CONTENT : TYPE II, 6.0 SACKS/CY (MIN)
3. W/C RATIO : 0.488 (MAX)
4. FINE AGGREGATE : ASTM C33
5. COARSE AGGREGATE : ASTM C33 SIZE #67

D. REINFORCING STEEL: ASTM A615, A616, OR A185.

E. PRECAST CONCRETE: ASTM C478 EXCEPT AS SPECIFIED OTHERWISE.

F. TABLES AND INVERTS SHALL BE CONSTRUCTED OF BRICK, SHALL HAVE THE SAME SHAPE OF THE PIPE THAT ARE CONNECTED AND ANY CHANGE IN SIZE OR DIRECTION SHALL BE GRADUAL AND EVEN.

G. PRECAST STRUCTURES SHALL BE ABLE TO WITHSTAND H–20 LOADING.

H. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF AN OVERLAPPING TYPE, SEALED FOR WATER–TIGHTNESS USING A DOUBLE ROW OF AN ELASTOMERIC OR MASTIC–LIKE SEALANT.

I. PIPE TO MANHOLE JOINTS SHALL BE AS FOLLOWS:

1. ELASTOMERIC, RUBBER SLEEVE WITH WATERTIGHT JOINTS AT THE MANHOLE OPENING AND PIPE SURFACES;
2. CAST INTO THE WALL OR SECURED WITH STAINLESS STEEL CLAMPS;\
3. ELASTOMERIC SEALING RING CAST IN THE MANHOLE OPENING WITH SEAL FORMED ON THE SURFACE OF THE PIPE BY COMPRESSION OF THE RING.
4. PIPE TO MANHOLE JOINTS SHALL BE ONE OF THE FOLLOWING OR APPROVED EQUAL:
   a. KOR – N – SEAL
   b. LOCK JOINT
   c. PRESS WEDGE II

2.07 BRICK MASONRY:

A. CEMENT SHALL BE TYPE II PORTLAND CEMENT CONFORMING TO ASTM C 150–05, TYPE H.

B. HYDRATED LIME SHALL BE TYPE S CONFORMING TO THE ASTM C207–06 "STANDARD SPECIFICATIONS FOR HYDRATED LIME FOR MASONRY PURPOSES".

C. SAND SHALL BE CLEAN, HARD, DURABLE PARTICLES AND WITH NOT MORE THAN 5% IN VOLUME OF MICA, CLAY AND OTHER DELETERIOUS MATERIALS. THE SAND SHALL BE GRADED FROM FINE TO COURSE SO THAT WHEN TESTED DRY, IT WILL CONFORM TO THE LIMITS OF ASTM C33–03 "STANDARD SPECIFICATIONS FOR CONCRETE, FINE AGGREGATES".

D. MORTAR SHALL BE COMPOSED OF PORTLAND CEMENT AND SAND WITH OR WITHOUT HYDRATED LIME ADDITION;

1. PROPORTIONS IN MORTAR OF PARTS BY VOLUMES SHALL BE:
   a. 4.5 PARTS SAND AND 1.5 PARTS CEMENT; OR
   b. 4.5 PARTS SAND, ONE PART CEMENT AND 0.5 PART HYDRATED LIME

E. WATER SHALL BE FREE FROM OILS, ACIDS, ALKALIS OR ORGANIC MATTER, AND SHALL BE CLEAN AND FRESH.

F. BRICK SHALL BE SOUND, HARD AND UNIFORMLY BURNED, REGULAR AND UNIFORM IN SHAPE AND SIZE, OF COMPACT TEXTURE AND SATISFACTORY TO THE OWNER OR OWNER'S REPRESENTATIVE. BRICKS SHALL COMPLY WITH ASTM C32, GRADE SS. ONLY WHOLE BRICK SHALL BE USED UNLESS OTHERWISE PERMITTED.

2.08 MANHOLE STEPS: (NOT USED)

2.09 MANHOLE FRAMES AND COVERS:

A. CASTINGS SHALL BE OF GOOD QUALITY, STRONG, TOUGH EVENLY GRAINED, SMOOTH CAST IRON, FREE FROM SCALE, LUMPS, BLISTERS, SAND HOLES, AND DEFECTS OF ANY KIND. CASTINGS SHALL BE THOROUGHLY CLEANED AND ALL FINISHED SURFACES SHALL BE MACHINED TO A TRUE PLANED SURFACE AND SHALL SEAT AT ALL POINTS WITHOUT ROCKING.

B. CASTINGS SHALL NOT BE ACCEPTABLE IF THE ACTUAL WEIGHT IS LESS THAN 95% OF THE THEORETICAL WEIGHT OF THE CASTINGS SHOWN ON THE DRAWINGS. CONTRACTOR SHALL FURNISH INVOICES TO THE OWNER SHOWING TRUE WEIGHTS, CERTIFIED BY THE SUPPLIER.

C. CAST IRON SHALL CONFORM TO ASTM A48, CLASS 30 AND FRAMES, COVERS AND GRATES SHALL BE ABLE TO WITHSTAND H–20 LOADING.

D. PROVIDE A 30 INCH DIAMETER CLEAR OPENING. SEWER MANHOLE COVERS SHALL HAVE THE WORD "SEWER" IN 3" LETTERS CAST INTO THE TOP SURFACE.

2.10 FORCE MAINS

A. FORCE MAINS FOR CONSTANT SPEED PUMPS SHALL BE SIZED TO YIELD A CLEANSING VELOCITY OF 3 FEET PER SECOND OR GREATER AT DESIGN PUMP CAPACITY.

B. FORCE MAINS SHALL ENTER THE GRAVITY SEWER SYSTEM AT THE FLOW LINE OF THE RECEIVING MANHOLE.

C. TO PREVENT AIR LOCKING, FORCE MAINS SHALL BE PROVIDED WITH AN AUTOMATIC AIR RELIEF VALVE AT EACH HIGH POINT, INSTALLED WITHIN A MANHOLE STRUCTURE THAT MEETS THE DESIGN REQUIREMENTS OF ENV–WQ 704.12 THROUGH ENV–WQ 704.17.

D. FORCE MAINS SHALL BE PROVIDED WITH A DRAINAGE BLOW–OFF AT EACH LOW POINT THAT:

- HAS A PROPERLY VALVED CONNECTION FOR A VACUUM TRUCK OR OTHER SUITABLE CONTAINMENT DEVICE;
- IS INSTALLED WITHIN A MANHOLE STRUCTURE THAT MEETS THE DESIGN REQUIREMENTS OF ENV–WQ 704.12 THROUGH ENV–WQ 704.17, WITH SUFFICIENT SPACE FOR HANDLING THE DISPLACED WASTE WITHOUT DANGER OF POLLUTION OR HEALTH HAZARD.

E. FORCE MAINS SHALL BE DESIGNED IN ACCORDANCE WITH ENV–WQ 704.07, CONSTRUCTED WITH MATERIALS AS SPECIFIED IN ENV–WQ 704.08, AND TESTED AS SPECIFIED IN ENV–WQ 704.09.

F. THRUST BLOCKS MADE FROM INORGANIC, CORROSION–RESISTANT MATERIAL SHALL BE PLACED AT ALL BENDS, ELBOWS, TEES, AND JUNCTIONS.

G. FORCE MAINS SHALL BE DESIGNED TO WITHSTAND HYDROSTATIC PRESSURES OF AT LEAST 2.5 TIMES THE DESIGN TOTAL DYNAMIC HEAD;

PART 3 EXECUTION

3.01 GENERAL REQUIREMENTS:

A. OBTAIN DETAILED INFORMATION FROM THE MANUFACTURERS OF APPARATUS AS TO THE PROPER METHOD OF INSTALLING AND CONNECTING SAME.

B. CAREFULLY STORE MATERIALS AND EQUIPMENT WHICH ARE NOT IMMEDIATELY INSTALLED AFTER DELIVERY. CLOSE OPEN ENDS OF WORK WITH TEMPORARY COVERS OR PLUG DURING CONSTRUCTION TO PREVENT ENTRY OF OBSTRUCTING MATERIAL.

C. ANY DEFECTIVE PIPE, FITTING OR DRAIN APPARATUS THAT IS DISCOVERED AFTER IT HAS BEEN INSTALLED OR HAS BEEN INSTALLED IMPROPERLY, SHALL BE REMOVED AND REPLACED WITH NON–DEFECTIVE PARTS TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

D. TRENCHES SHALL BE KEPT FREE OF WATER AND AS DRY AS POSSIBLE DURING THE INSTALLATION OF THE BEDDING MATERIAL, PIPE AND JOINTING FOR AS LONG A PERIOD AS REQUIRED. PIPE SHALL NOT BE LAID IN WATER OR WHEN TRENCH CONDITIONS ARE UNSUITABLE FOR THE WORK.

E. PROVIDE ALL INSPECTION AGENTS AT LEAST 24 HOURS NOTICE PRIOR TO WORK BEGINNING. INSPECTOR SHALL BE ON–SITE DURING ANY/ALL EXCAVATION, INSTALLATION, BACKFILL, AND TESTING OF ALL SEWERAGE PIPES, MANHOLES, AND APPURTENANCES.

F. NO BACKFILLING SHALL TAKE PLACE, UNLESS OTHERWISE ORDERED BY THE OWNER OR OWNER'S REPRESENTATIVE, UNTIL THE INSPECTION HAS BEEN COMPLETED.

G. EXCAVATION, BACKFILL AND PIPE BEDDING MATERIAL SHALL BE IN ACCORDANCE WITH SECTION 31 23 00, EARTHWORK.

3.02 LAYING PIPE:

A. THIS WORK SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF DRAIN LINES IN ACCORDANCE WITH THESE SPECIFICATIONS, THE MUNICIPALITY AND OTHER AUTHORITIES HAVING JURISDICTION.

B. ALL PIPE SHALL BE SOUND AND CLEAN BEFORE INSTALLING. WHEN LAYING OF PIPE IS NOT IN PROGRESS, INCLUDING LUNCH TIME, THE OPEN ENDS OF THE PIPE SHALL BE CLOSED BY WATERTIGHT PLUGS OR OTHER APPROVED MEANS.

C. THE FULL LENGTH OF PIPE SHALL REST SOLIDLY ON THE UNDISTURBED TRENCH BOTTOM, WITH RECESSES EXCAVATED TO ACCOMMODATE BELLS, COUPLINGS AND JOINTS. BLOCKING WILL NOT BE PERMITTED.

D. PIPE SHALL BE LAID TRUE TO THE SPECIFIED LINES AND GRADES. THE BELL END SHALL BE TOWARD THE RISING GRADE AND EACH SECTION OF PIPE SHALL HAVE A FIRM BEARING THROUGHOUT ITS LENGTH. MATERIAL PLACED AROUND AND UNDER THE PIPE SHALL BE FREE OF STONES. ROCKS SHALL NOT BE ROLLED INTO TRENCHES AND ALLOWED TO DROP ONTO PIPES. PIPE SHALL BE BEDDED IN $\frac{3}{4}$" STONE TO SPRING LINE OF PIPE AND THEN BURIED IN CLEAN SAND FREE OF STONES. STONE AND SAND SHALL BE IN ACCORDANCE WITH ENV–WQ 704.11(a) AND (b).

E. WHEN PIPE CUTTING IS REQUIRED AND APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE, THE PIPE MATERIAL SHALL BE CUT BY USING A SAW OR MILLING PROCESS, APPROVED BY THE PIPE MANUFACTURER AND NOT BY ANY IMPACT DEVICE, SUCH AS A HAMMER AND CHISEL, TO BREAK THE PIPE. THE PIPE SHALL BE CUT, NOT BROKEN. THE CUT END OF THE PIPE SHALL BE SQUARE TO THE AXIS OF THE PIPE AND ANY ROUGH EDGES GROUND SMOOTH.

F. INSTALLATION OF HIGH DENSITY POLYETHYLENE PIPE SHALL BE IN ACCORDANCE WITH ASTM D2321 AND AS RECOMMENDED BY THE PIPE MANUFACTURER. BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 00, EARTHWORK. BACKFILL SHALL BE PLACED IN SIX INCH LIFTS AND COMPACTED TO 95% MINIMUM DENSITY AS PER AASHTO T99. CARE SHOULD BE TAKEN TO AVOID ANY USE OF FRACTURED STONE IN BACKFILL EXCEEDING TWO INCHES (2").

G. THE CONTRACTOR MAY USE A LASER BEAM TO ASSIST IN SETTING THE PIPE, PROVIDED HE CAN DEMONSTRATE SATISFACTORY SKILL IN ITS USE. THE USE OF STRING LEVELS, HAND LEVELS, CARPENTERS LEVELS OR OTHER RELATIVELY CRUDE DEVICES FOR TRANSFERRING GRADE OR SETTING PIPE WILL NOT BE PERMITTED.

H. WHEN LAYING REINFORCED CONCRETE PIPE, BEDDING SHALL CONSIST OF CAREFULLY PREPARING AND SHAPING A BED OF FINE GRANULAR MATERIAL TO FIT THE LOWER 15 PERCENT OF THE EXTERNAL HEIGHT OF THE PIPE WITH A MINIMUM OF 4 IN. UNDER THE BOTTOM OF THE PIPE. RECESS SHALL BE EXCAVATED FOR THE BELLS OF THE PIPE. AS SOON AS THE EXCAVATION IS COMPLETED AND THE SPECIFIED PIPE BEDDING PROVIDED, THE CONTRACTOR SHALL FIRMLY BED THE PIPE TO CONFORM ACCURATELY TO THE LINE AND GRADE INDICATED ON THE PLANS. NO BLOCKING WILL BE PERMITTED UNDER THE PIPE. AS SOON AS THE PIPE IS IN PLACE, FINE GRANULAR MATERIAL SHALL BE PLACED AND COMPACTED TO THE MID–DIAMETER OF THE PIPE. THE REMAINING BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 31 23 00, EARTHWORK. BACKFILL SHALL BE PLACED IN SIX INCH LIFTS AND COMPACTED TO 95% MINIMUM DENSITY AS PER AASHTO T99.

3.03 SEWER MANHOLES:

A. SEWER MANHOLES, DRAIN MANHOLES, CATCH BASINS AND INSPECTION MANHOLES SHALL BE BUILT TO THE LINES, GRADES, DIMENSIONS AND DESIGN SHOWN ON THE PLANS WITH THE NECESSARY FRAMES, COVERS AND GRATES.

B. MANHOLE AND CATCH BASIN BASES SHALL BE PLACED ON 6 INCHES OF COMPACTED BEDDING MATERIAL.

C. PRECAST SECTIONS SHALL BE SET SO AS TO BE VERTICAL AND IN TRUE ALIGNMENT WITH A 1/4 INCH MAXIMUM TOLERANCE TO BE ALLOWED. THE PRECAST SECTIONS SHALL BE INSTALLED IN A MANNER THAT WILL RESULT IN A WATERTIGHT JOINT.

D. WHERE HOLES MUST BE CUT IN THE PRECAST SECTIONS TO ACCOMMODATE PIPES, CUTTING SHALL BE DONE PRIOR TO SETTING THEM IN PLACE TO PREVENT ANY SUBSEQUENT JARRING WHICH MAY LOOSEN THE JOINTS.

3.04 BRICKWORK:

A. MORTAR SHALL BE MIXED ONLY IN SUCH QUANTITY AS MAY BE REQUIRED FOR IMMEDIATE USE AND USED BEFORE THE INITIAL SET HAS TAKEN PLACE. MORTAR SHALL NOT BE RETAINED FOR MORE THAN ONE HOUR AND SHALL BE CONSISTENTLY WORKED OVER WITH A SHOVEL OR HOE UNTIL USED.

B. BRICK MASONRY SHALL BE PROTECTED FROM TOO RAPID DRYING BY APPROVED MEANS AND SHALL BE PROTECTED FROM WEATHER AND FROST AS REQUIRED.

C. BRICKS SHALL BE CLEANED AND THOROUGHLY WETTED SHORTLY BEFORE THEY ARE PUT INTO THE WORK, AND EACH BRICK SHALL BE LAID IN A FULL BED OF MORTAR WITHOUT REQUIRING SUBSEQUENT GROUTING OR FILLING. JOINTS BETWEEN BRICKS SHALL NOT EXCEED 1/2 INCH AND SHALL BE POINTED.

3.05 FRAMES AND COVERS:

A. MANHOLE FRAMES – SHALL BE SET WITH THE TOPS CONFORMING ACCURATELY TO THE GRADE OF THE PAVEMENT OR FINISHED GROUND SURFACE OR AS INDICATED ON THE DRAWINGS. FRAMES SHALL BE SET CONCENTRIC WITH THE TOP OF THE MASONRY AND IN A FULL BED OF MORTAR SO THAT THE SPACE BETWEEN THE TOP OF THE MANHOLE MASONRY AND THE BOTTOM FLANGE OF THE FRAME SHALL BE COMPLETELY FILLED AND MADE WATERTIGHT. A THICK RING OF MORTAR EXTENDING TO THE OUTER EDGE OF THE MASONRY SHALL BE PLACED ALL AROUND AND ON THE TOP OF THE BOTTOM FLANGE. THE MORTAR SHALL BE SMOOTHLY FINISHED AND HAVE A SLIGHT SLOPE TO SHED WATER AWAY FROM THE FRAME.

B. MANHOLE COVERS SHALL BE LEFT IN PLACE IN THE FRAMES ON COMPLETION OF OTHER WORK AT THE MANHOLES.

C. A MAXIMUM OF 12" OF BRICK AND MORTAR SHALL BE ALLOWED FOR GRADE ADJUSTMENT.

D. COVERS AND GRATES SHALL BE SET IN THE FRAMES, SEATING BEING CLEANED BEFORE COVERS AND GRATES ARE SET.

3.06 SEWER SERVICE CONNECTIONS:

A. THE MINIMUM SIZE FOR THE BUILDING SEWER SERVICE CONNECTION SHALL BE 6".

B. THE MINIMUM SLOPE FOR THE BUILDING SEWER SERVICE SHALL BE 1/4" PER, FOOT, UNLESS OTHERWISE APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE.

C. BEFORE BACKFILLING, THE CONTRACTOR SHALL NOTIFY THE INSPECTOR SO THAT HE CAN MAKE THE NECESSARY MEASUREMENTS TO LOCATE THE OPENING LATER. IN ADDITION, AN APPROVED FERROUS ROD OR PIPE SHALL BE PLACED OVER THE PLUGGED OPENING AT THE PROPERTY LINE, EXTENDING TO WITHIN 2 INCHES OF THE FINAL GROUND SURFACE.

1. PROXIMITY TO WATER LINES:

a. THERE SHALL BE NO PHYSICAL CONNECTION BETWEEN A PUBLIC OR PRIVATE POTABLE WATER SUPPLY SYSTEM AND A SEWER OR SEWER APPURTENANCE WHICH WOULD PERMIT THE PASSAGE OF SEWAGE OR POLLUTED WATER INTO THE POTABLE SUPPLY. NO WATER PIPE SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SEWER OR SEWER MANHOLE.

1) NO SEWER SHALL BE LOCATED WITHIN THE WELL PROTECTIVE RADII ESTABLISHED IN ENV–WS 300 FOR ANY PUBLIC WATER SUPPLY WELLS OR WITHIN 100 FEET OF ANY PRIVATE WATER SUPPLY WELL.

2) SEWERS SHALL BE LOCATED AT LEAST 10 FEET HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN.

3) A DEVIATION FROM THE SEPARATION REQUIREMENTS OF (1) OR (2) ABOVE SHALL BE ALLOWED WHERE NECESSARY TO AVOID CONFLICT WITH SUBSURFACE STRUCTURES, UTILITY CHAMBERS, AND BUILDING FOUNDATIONS, PROVIDED THAT THE SEWER IS CONSTRUCTED IN ACCORDANCE WITH THE FORCE MAIN CONSTRUCTION REQUIREMENTS SPECIFIED IN ENV–WQ 704.08.

b. WHENEVER SEWERS MUST CROSS WATER MAINS, THE SEWER SHALL BE CONSTRUCTED AS FOLLOWS:

c. VERTICAL SEPARATION OF THE SEWER AND WATER MAIN SHALL BE NOT LESS THAN 18 INCHES, WITH WATER ABOVE SEWER; AND

d. SEWER PIPE JOINTS SHALL BE LOCATED AT LEAST 6 FEET HORIZONTALLY FROM THE WATER MAIN.

e. HOWEVER, SHOULD CONSTRUCTION OPERATIONS REVEAL OR EXPOSE A WATERLINE MAIN OR SERVICE RUNNING APPROXIMATELY PARALLEL AND LESS THAN 10 FEET HORIZONTALLY FROM THE PROPOSED SEWER INSTALLATION AND WHERE IT IS NOT PRACTICABLE TO RELOCATE THE SEWER, THE FOLLOWING METHODS OF PROTECTION MUST BE EMPLOYED:

1) IF THE ABOVE SEPARATION CANNOT BE ACHIEVED, THE SEWER SHALL BE DUCTILE IRON PIPE OF THE SAME SIZE SHALL BE UTILIZED. APPROPRIATE MANUFACTURED FITTINGS SHALL BE EMPLOYED TO ADAPT THE IRON PIPE TO THE CONTRACT SEWER PIPE.

2) WHENEVER THE WATERLINE CROSSES OVER THE NEW SEWER WITH LESS THAN 18 INCHES OF SEPARATION, THE SEWER PIPE FOR A DISTANCE OF 6 FEET ON EACH SIDE OF THE WATERLINE SHALL BE CLASS 52 DUCTILE IRON PIPE. APPROPRIATE MANUFACTURED FITTINGS SHALL BE EMPLOYED TO ADAPT THE IRON PIPE TO THE CONTRACT SEWER PIPE. AS AN ALTERNATIVE, THE WATERLINE MAY BE RAISED, IF FEASIBLE, TO ACHIEVE THE REQUIRED SEPARATION.

3) SHOULD THE WATERLINE IN EITHER SITUATION BE AT OR BELOW THE SEWER ELEVATION, THE WATERLINE OR THE SEWER MUST BE RELOCATED TO ACHIEVE 10 FT. SEPARATION OR THE WATERLINE RAISED.

3.07 GRAVITY SEWER PIPE TESTING:

A. ALL NEW GRAVITY SEWERS SHALL BE TESTED FOR WATER TIGHTNESS BY THE USE OF LOW–PRESSURE AIR TESTS.

B. LOW–PRESSURE AIR TESTING SHALL BE IN CONFORMANCE WITH:

1. ASTM F1417–92(2005) "STANDARD TEST METHOD FOR INSTALLATION ACCEPTANCE OF PLASTIC GRAVITY SEWER LINES USING LOW–PRESSURE AIR"; OR
2. UNI–BELL PVC PIPE ASSOCIATION UNI–B–6, "LOW–PRESSURE AIR TESTING OF INSTALLED SEWER PIPE" (1998).

C. ALL NEW GRAVITY SEWERS SHALL BE:

1. CLEANED AND VISUALLY INSPECTED USING A LAMP TEST AND BY INTRODUCING WATER TO DETERMINE THAT THERE IS NO STANDING WATER IN THE SEWER; AND
2. TRUE TO LINE AND GRADE FOLLOWING INSTALLATION AND PRIOR TO USE.

D. ALL PLASTIC SEWER PIPE SHALL BE VISUALLY INSPECTED AND DEFLECTION TESTED NOT LESS THAN 30 DAYS NOR MORE THAN 90 DAYS FOLLOWING INSTALLATION.

E. THE MAXIMUM ALLOWABLE DEFLECTION OF FLEXIBLE SEWER PIPE SHALL BE 5% OF AVERAGE INSIDE DIAMETER. A RIGID BALL OR MANDREL WITH A DIAMETER OF AT LEAST 95% OF THE AVERAGE INSIDE PIPE DIAMETER SHALL BE USED FOR TESTING PIPE DEFLECTION. THE DEFLECTION TEST SHALL BE CONDUCTED WITHOUT MECHANICAL PULLING DEVICES.

F. INSPECTION AND TESTING: – UPON COMPLETION OF THE INSTALLATION AND BACKFILLING PORTIONS OF THE SANITARY SEWER, THE PIPE SHALL BE INSPECTED BY THE VISUAL AND AIR TEST METHODS SUBSEQUENTLY DESCRIBED, OR AS REQUIRED BY THE TOWN DPW AND THE NHDES. THIS INSPECTION AND TESTING SHALL BE UNDERTAKEN AS THE WORK PROGRESSES. THE ENGINEER SHALL BE NOTIFIED IN ADVANCE OF SUCH INSPECTION AND TESTING AND THE CONTRACTOR SHALL PROVIDE ALL FACILITIES, MATERIALS, EQUIPMENT AND LABOR REQUIRED FOR SUCH TESTING. SUCH INSPECTION AND TESTING SHALL BE A PREREQUISITE FOR ACCEPTANCE OF ALL WORK.

1. VISUAL INSPECTION: – AN INSPECTION OF THE INTERIOR OF THE COMPLETED SANITARY SEWER PIPE BY DIRECT VISUAL INSPECTION SHALL BE MADE FOR ALL PIPE INSTALLED FROM MANHOLE TO MANHOLE AND FOR SERVICE LATERALS. ANY LIGHTS, EQUIPMENT OR LABOR NECESSARY FOR SUCH INSPECTION SHALL BE PROVIDED BY THE CONTRACTOR. CAMERA WORK TO BE PERFORMED BY NASSCO CERTIFIED CONTRACTOR.

ANY FOREIGN MATERIAL FOUND IN THE INTERIOR OF THE SEWER, ANY DIRT, DEBRIS OR OTHER OBJECTS SHALL BE REMOVED BY THE CONTRACTOR. VISIBLE DEFECTS SUCH AS BROKEN PIPE SECTIONS, IMPROPERLY INSTALLED GASKETS, PROJECTING CONNECTIONS, CRACKS, VISIBLE LEAKS OR OTHER DEFECTS SHALL BE NOTED, CORRECTED AND THE PIPE RE–INSPECTED.

2. AIR TESTING OF MAIN LINE GRAVITY SEWERS:

PROCEDURE:

a. PLUG PIPE OUTLETS WITH SUITABLE TEST PLUGS. BRACE EACH PLUG SECURELY.
b. PIPE AIR SUPPLY TO PIPELINE TO BE TESTED IN SUCH MANNER THAT AIR SUPPLY MAY BE SHUT OFF, PRESSURE OBSERVED, AND AIR PRESSURE RELEASED FROM PIPE WITHOUT WORKMEN ENTERING MANHOLE.
c. ADD AIR SLOWLY TO PORTION OF PIPE UNDER TEST UNTIL INTERNAL PRESSURE OF LINE IS RAISED TO APPROXIMATELY 4 PSIG, BUT LESS THAN 5 PSIG.
d. SHUT AIR SUPPLY OFF AND ALLOW AT LEAST 2 MINUTES FOR AIR PRESSURE TO STABILIZE.
e. WHEN PRESSURE HAS STABILIZED AND IS AT OR ABOVE STARTING TEST PRESSURE OF 3.5 PSI, START TEST.
f. DETERMINE TIME IN SECONDS WITH STOPWATCH FOR PRESSURE TO FALL 0.5 PSIG SO THAT PRESSURE AT END OF TIME IS AT OR ABOVE 3.0 PSIG.
g. COMPARE OBSERVED TIME WITH MINIMUM ALLOWABLE TIMES IN CHART BELOW FOR PASS/FAIL DETERMINATION.

AIR TESTING PASS/FAIL TESTING CRITERIA
SPECIFICATION TIME FOR LENGTH (L) SHOWN (MIN:SEC)

1 Pipe Diameter (in.)	2 Minimum Time (min:sec)	3 Length for Minimum Time (ft.)	4 Time for Longer Length (sec.)	100 ft	150 ft.	200 ft.	250 ft.	300 ft.	350 ft.	400 ft.
4	1:53	597	.190L	1:53	1:53	1:53	1:53	1:53	1:53	1:53
6	2:50	398	.427L	2:50	2:50	2:50	2:50	2:50	2:50	2:51
8	3:47	298	.760L	3:47	3:47	3:47	3:47	3:48	4:26	5:04
10	4:43	239	1.187L	4:43	4:43	4:43	4:57	5:56	6:55	7:54
12	5:40	199	1.709L	5:40	5:40	5:42	7:08	8:33	9:58	11:24
15	7:05	159	2.671L	7:05	7:05	8:54	11:08	13:21	15:35	17:48
18	8:30	133	3.846L	8:30	9:37	12:49	16:01	19:14	22:26	25:38
24	11:20	99	2.671L	11:24	17:57	22:48	28:30	34:11	39:53	45:35

3. SAFETY PRECAUTIONS:

LOW–PRESSURE AIR TEST MAY BE DANGEROUS TO PERSONNEL IF, THROUGH LACK OF UNDERSTANDING OR CARELESSNESS, LINE IS OVERPRESSURIZED OR PLUGS ARE INSTALLED IMPROPERLY. IT IS EXTREMELY IMPORTANT THAT VARIOUS PLUGS BE INSTALLED SO AS TO PREVENT THE SUDDEN EXPULSION OF POORLY INFLATED PLUGS. AS EXAMPLE OF HAZARD, FORCE OF 250–LB IS EXERTED ON 8–IN. PLUG BY INTERNAL PRESSURE OF 5 PSI. OBSERVE FOLLOWING SAFETY PRECAUTIONS:

a. NO PERSON SHALL BE ALLOWED IN MANHOLES DURING TEST OR WHEN PLUGGED PIPE IS UNDER PRESSURE.
b. GAUGES, AIR PIPING MANIFOLDS AND VALVES SHALL BE LOCATED AT TOP OF GROUND.
c. INSTALL AND BRACE PLUGS SECURELY.
d. DO NOT OVERPRESSURE LINES.

4. GROUNDWATER ELEVATION:

IF PIPELINE TO BE TESTED IS BELOW GROUNDWATER LEVEL, STARTING TEST PRESSURE SHALL BE INCREASED BY 0.433 PSI FOR EACH FOOT GROUNDWATER LEVEL IS ABOVE INVERT OF SEWER PIPE. IN NO CASE SHALL STARTING TEST PRESSURE EXCEED 9.0 PSIG.

FOR THE DETERMINATION OF GROUNDWATER LEVELS, OBSERVATION PIPES MAY BE PLACED IN THE TRENCH PRIOR TO BACKFILLING AS REQUIRED. THE LOWER END OF THE OBSERVATION PIPE SHALL BE EMBEDDED IN THE FOUNDATION STONE USED FOR SEWER BEDDING AT APPROXIMATELY THE SEWER INVERT ELEVATION AND THE UPPER END AT OR ABOVE FINISHED GRADE. PIPE SO INSTALLED FOR DEWATERING PURPOSES MAY BE USED FOR THIS PURPOSE. OBSERVATION PIPES SHALL BE INSTALLED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AT LOCATIONS ADJACENT TO MANHOLES WHERE ORDERED BY THE ENGINEER.

5. ACCEPTANCE OF INSTALLATION:

NO GRAVITY SEWER OR MANHOLE WILL BE ACCEPTED THAT DOES NOT COMPLY WITH MINIMUM REQUIREMENTS OF TESTS DESCRIBED IN HEREIN. SEWERS, WHICH FAIL TO MEET TESTS, SHALL BE REPAIRED UNTIL THE NECESSARY REQUIREMENTS OF THIS SPECIFICATION ARE COMPLIED WITH AS EVIDENCED BY SUBSEQUENT TESTS. GROUNDWATER LEAKAGE INTO MANHOLES SHALL BE SUFFICIENT REASON FOR REQUIRING THE CONTRACTOR TO UNCOVER OR EXPOSE ANY PORTION OF THE MANHOLE FOR A THOROUGH EXAMINATION BY THE ENGINEER, AFTER WHICH THE MANHOLE SHALL BE REPAIRED AND AGAIN TESTED BY THE CONTRACTOR. FINAL ACCEPTANCE OF THE ENTIRE LENGTH OF SEWER CONSTRUCTED UNDER THIS CONTRACT WILL NOT BE ISSUED UNTIL THE ACCEPTABLE CRITERIA FOR EACH SECTION TESTED HAS BEEN REDUCED TO RATES HEREINBEFORE SPECIFIED. FAILURE TO CONFORM TO THE FOREGOING REQUIREMENTS SHALL CAUSE THE WORK TO BE REJECTED. IF THERE IS A VISIBLE LEAK AT ANY JOINT OR AT ANY OTHER PART OF THE SEWER OR SEWER STRUCTURE, THE WORK SHALL BE REJECTED.

6. TEST EQUIPMENT:

NECESSARY EQUIPMENT TO PERFORM AIR TEST IN ACCORDANCE WITH SPECIFICATIONS SHALL BE PROVIDED BY CONTRACTOR. TEST GAUGE SHALL PREFERABLY HAVE INCREMENTAL DIVISION OF 0.10 PSI AND HAVE ACCURACY OF AT LEAST 0.04 PSI. IN NO CASE SHALL TEST GAUGE BE USED WHICH HAS INCREMENTAL DIVISIONS OF GREATER THAN 0.25 PSI. GAUGE SHALL BE OF SUFFICIENT SIZE IN ORDER TO DETERMINE THIS ACCURACY.

7. SUBMITTALS:

FURNISH 1 COPY OF GRAVITY SEWER AND MANHOLE TEST RESULTS TO OWNER AND GOVERNING AGENCY UPON COMPLETION OF GRAVITY SEWER SYSTEM BACKFILLING OPERATIONS.

3.08 SANITARY MANHOLE TESTING:

A. MANHOLES SHALL BE TESTED FOR LEAKAGE USING A VACUUM TEST.

B. THE MANHOLE VACUUM TEST SHALL CONFORM TO THE FOLLOWING:

C. THE INITIAL VACUUM GAUGE TEST PRESSURE SHALL BE 10 INCHES HG; AND

1. THE MINIMUM ACCEPTABLE TEST HOLD TIME FOR A 1–INCH HG PRESSURE DROP TO 9 INCHES HG SHALL BE:
   a. NOT LESS THAN 2 MINUTES FOR MANHOLES LESS THAN 10 FEET DEEP IN DEPTH;
   b. NOT LESS THAN 2.5 MINUTES FOR MANHOLES 10 TO 15 FEET DEEP; AND
   c. NOT LESS THAN 3 MINUTES FOR MANHOLES MORE THAN 15 FEET DEEP;
2. THE MANHOLE SHALL BE REPAIRED AND RETESTED IF THE TEST HOLD TIMES FAIL TO ACHIEVE THE ACCEPTANCE LIMITS SPECIFIED ABOVE.
3. FOLLOWING COMPLETION OF THE LEAKAGE TEST, THE FRAME AND COVER SHALL BE PLACED ON THE TOP OF THE MANHOLE OR SOME OTHER MEANS USED TO PREVENT ACCIDENTAL ENTRY BY UNAUTHORIZED PERSONS, CHILDREN, OR ANIMALS, UNTIL THE CONTRACTOR IS READY TO MAKE FINAL ADJUSTMENT TO GRADE
4. NO INVERTS SHALL BE INSTALLED UNTIL MANHOLE TESTING HAS BEEN SATISFACTORILY COMPLETED.

3.09 FORCE MAIN TESTING: PER Env–Wq 704.09, FORCE MAINS AND PRESSURE SEWERS SHALL BE TESTED IN ACCORDANCE WITH SECTION 5 OF THE AWWA C600, "INSTALLATION OF CAST IRON WATER MAINS AND THEIR APPURTENANCES" STANDARD IN EFFECT WHEN THE TEST IS CONDUCTED AT A PRESSURE EQUAL TO THE GREATER OF 150 PERCENT OF THE DESIGN OPERATING TOTAL DYNAMIC HEAD OR AT LEAST 100 PSI.

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STATE OF NEW HAMPSHIRE
BRIAN D. JONES
No. 13809
LICENSED PROFESSIONAL ENGINEER

04.10.23

PROFESSIONAL ENGINEER FOR
ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS SHOWN	DWG. NAME:	C2912-01A
DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

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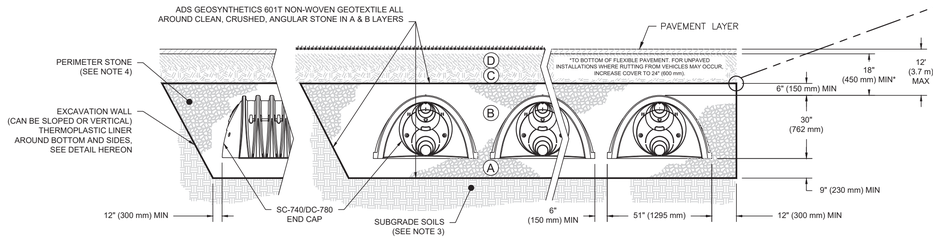
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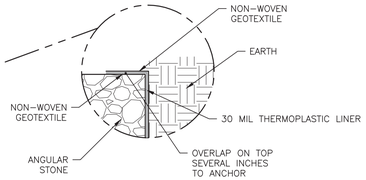
ACCEPTABLE FILL MATERIALS: STORMTECH DC-780 CHAMBER SYSTEMS

	MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 18" (450 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

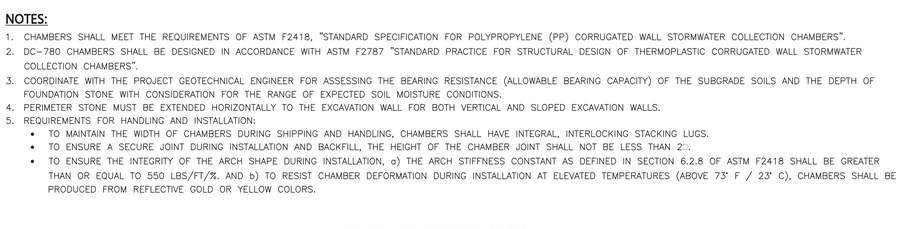
PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.



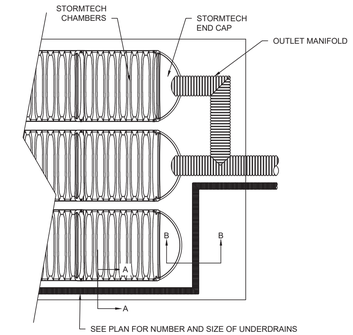
DC-780 - CROSS SECTION DETAIL
NOT TO SCALE

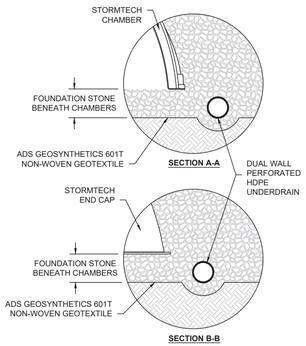


THERMOPLASTIC LINER DETAIL
NOT TO SCALE



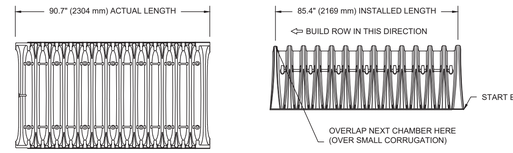
DC-780 - ISOLATOR ROW PLUS DETAIL
NOT TO SCALE





DC-780 UNDERDRAIN DETAIL
NOT TO SCALE

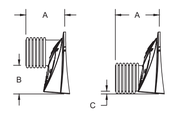
TEMPORARY STORMTECH DC-780 CHAMBER SYSTEM (1)
NOT TO SCALE



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 30.0" X 85.4"	(1295 mm X 762 mm X 2169 mm)
CHAMBER STORAGE	46.2 CUBIC FEET	(1.30 m³)
MINIMUM INSTALLED STORAGE*	78.4 CUBIC FEET	(2.20 m³)
WEIGHT	75.0 lbs.	(33.6 kg)

*ASSUMES 6" (152 mm) STONE ABOVE, 9" (229 mm) BELOW, AND 6" (152 mm) BETWEEN CHAMBERS



PRE-FAB STUB AT BOTTOM OF END CAP WITH FLAMP END WITH "BR"
PRE-FAB STUBS AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PRE-FAB STUBS AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
PRE-CORED END CAPS END WITH "PC"

PART #	STUB	A	B	C
SC740EPE06T / SC740EPE06TPC	6" (150 mm)	10.9" (277 mm)	18.5" (470 mm)	---
SC740EPE06B / SC740EPE06BPC			---	0.5" (13 mm)
SC740EPE08T / SC740EPE08TPC	8" (200 mm)	12.2" (310 mm)	16.5" (419 mm)	---
SC740EPE08B / SC740EPE08BPC			---	0.6" (15 mm)
SC740EPE10T / SC740EPE10TPC	10" (250 mm)	13.4" (340 mm)	14.5" (368 mm)	---
SC740EPE10B / SC740EPE10BPC			---	0.7" (18 mm)
SC740EPE12T / SC740EPE12TPC	12" (300 mm)	14.7" (373 mm)	12.5" (318 mm)	---
SC740EPE12B / SC740EPE12BPC			---	1.2" (30 mm)
SC740EPE15T / SC740EPE15TPC	15" (375 mm)	18.4" (467 mm)	9.0" (229 mm)	---
SC740EPE15B / SC740EPE15BPC			---	1.3" (33 mm)
SC740EPE18T/ SC740EPE18TPC	18" (450 mm)	19.7" (500 mm)	5.0" (127 mm)	---
SC740EPE18B / SC740EPE18BPC			---	1.6" (41 mm)
SC740EPE24B*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)
SC740EPE24BR*	24" (600 mm)	18.5" (470 mm)	---	0.1" (3 mm)

ALL STUBS, EXCEPT FOR THE SC740EPE24B/SC740EPE24BR ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

* FOR THE SC740EPE24B/SC740EPE24BR THE 24" (600 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 1.75" (44 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL

TECHNICAL SPECIFICATIONS
NOT TO SCALE

DC-780 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH DC-780.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 550 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

NOTES:
1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. DC-780 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. COORDINATE WITH THE PROJECT GEOTECHNICAL ENGINEER FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
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ADS™ Advanced Drainage Systems, Inc.

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STATE OF NEW HAMPSHIRE — BRIAN D. JONES No. 13809 LICENSED PROFESSIONAL ENGINEER
04.10.23

PROFESSIONAL ENGINEER FOR ALLEN & MAJOR ASSOCIATES, INC.

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7-8 AMAROSA DRIVE
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DESIGNED BY:	JRG	CHECKED BY:	BDJ

PREPARED BY:

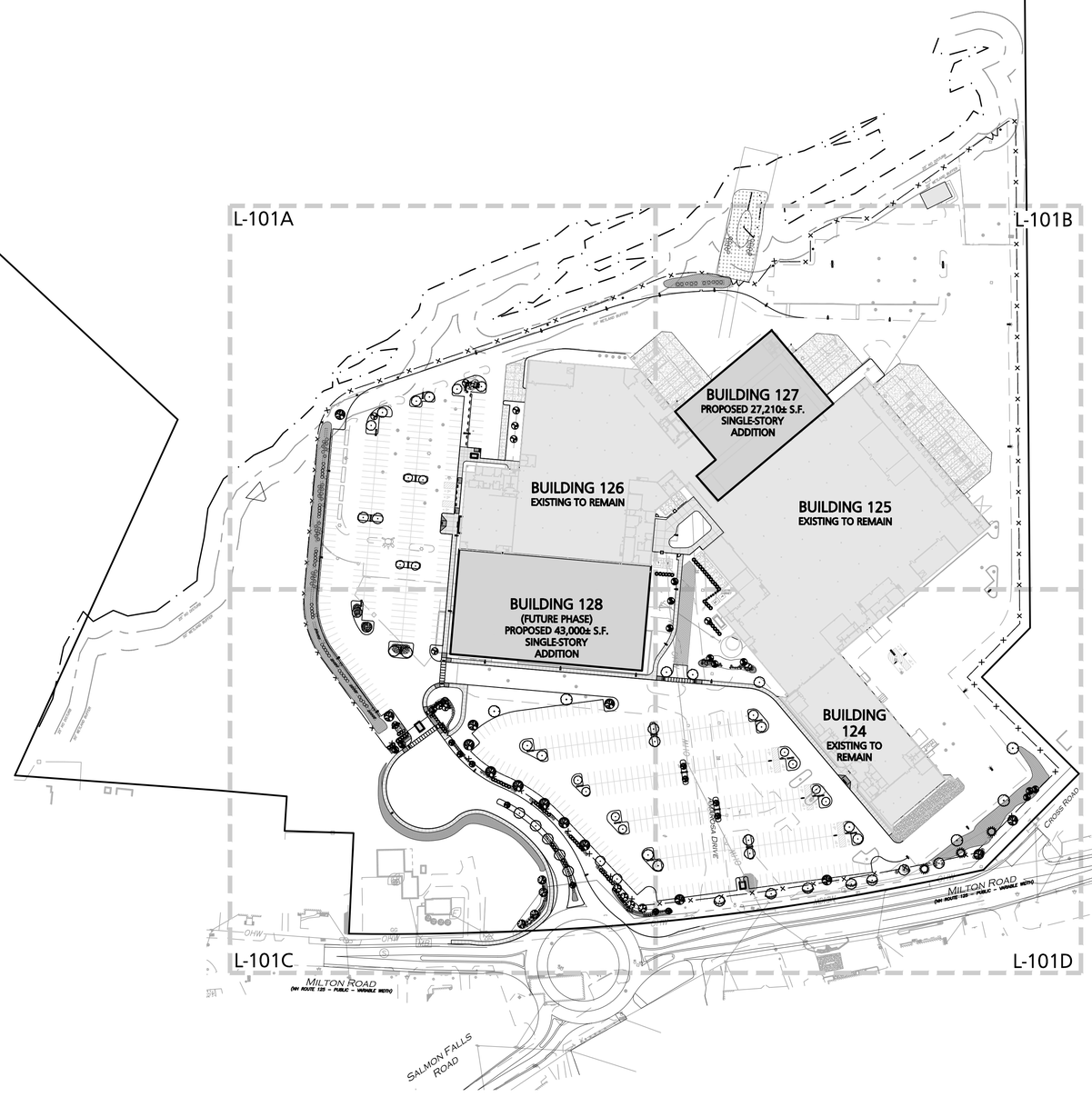
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LEGEND

- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING TREE
- SHRUBS
- MULCH BED
- PERENNIALS/GROUNDCOVER
- EROSION CONTROL SEED MIX
- CONSERVATION SEED MIX
- DETENTION BASIN SEED MIX

NOTES

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3. OFF-SITE EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM DOUCET SURVEY, LLC: "EXISTING CONDITIONS PLAN FOR HOYLE, TANNER, & ASSOCIATES, INC. OF MILTON ROAD (NH ROUTE 125) AND AMAROSA DRIVE INTERSECTION, ROCHESTER, NH" DATED JUNE 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OF COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
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PHONE:207-883-7100
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GRAPHIC SCALE

100 0 50 100 200 400

(IN FEET)
1 inch = 100 ft.

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LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
006
STATE OF NEW HAMPSHIRE

4-10-23

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 100'	DWG. NAME:	C2912-01A
DESIGNED BY:	BCD	CHECKED BY:	BDJ

PREPARED BY:

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FAX: (603) 627-5501

WOBURN, MA ◆ LAKEVILLE, MA ◆ MANCHESTER, NH

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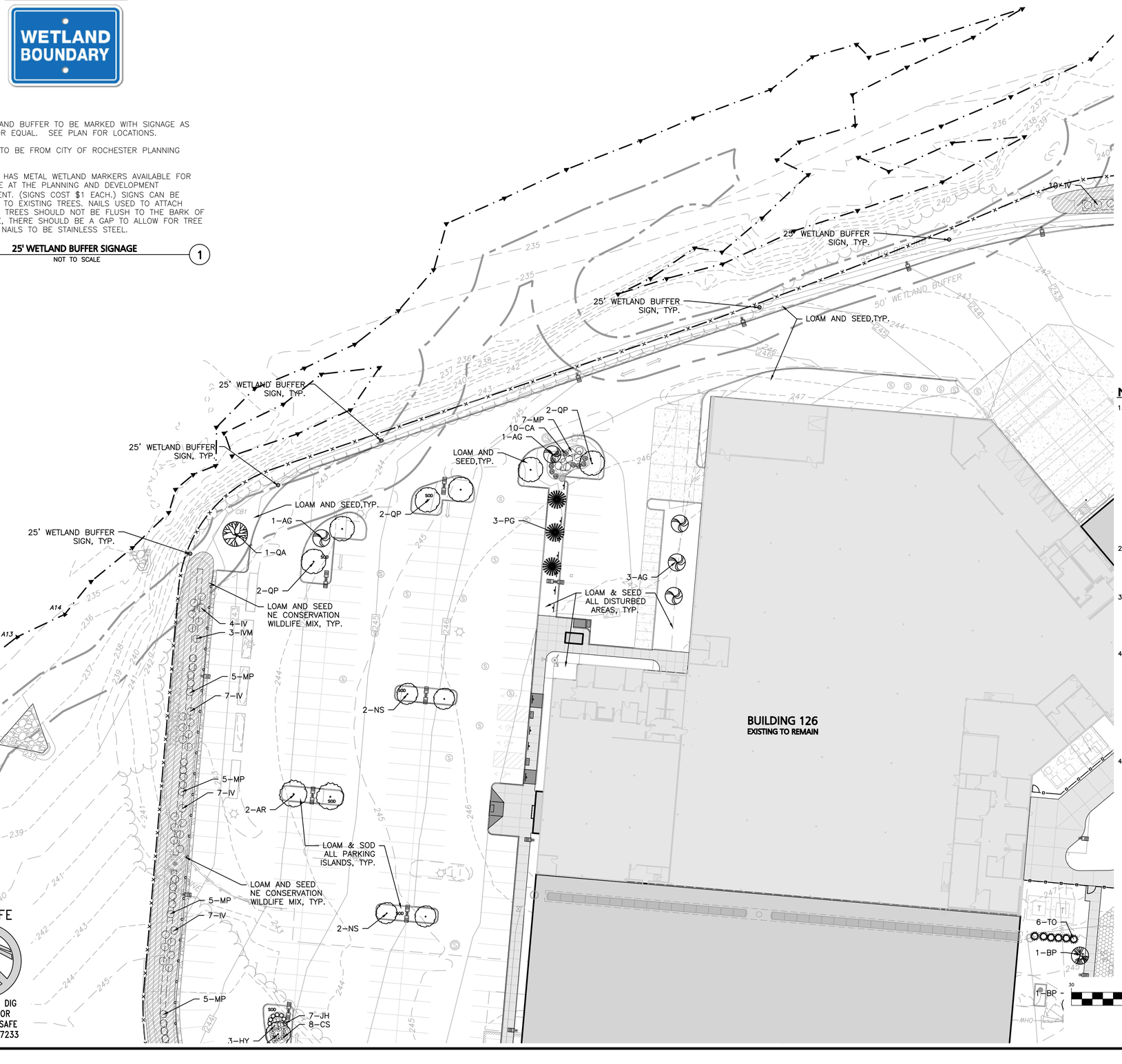
DRAWING TITLE:

OVERALL
LANDSCAPE PLAN

SHEET No.

L-101

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NOTES:

1. 25' WETLAND BUFFER TO BE MARKED WITH SIGNAGE AS SHOWN OR EQUAL. SEE PLAN FOR LOCATIONS.
2. SIGNAGE TO BE FROM CITY OF ROCHESTER PLANNING DEPT.
3. THE CITY HAS METAL WETLAND MARKERS AVAILABLE FOR PURCHASE AT THE PLANNING AND DEVELOPMENT DEPARTMENT. (SIGNS COST $1 EACH.) SIGNS CAN BE MOUNTED TO EXISTING TREES. NAILS USED TO ATTACH SIGNS TO TREES SHOULD NOT BE FLUSH TO THE BARK OF THE TREE, THERE SHOULD BE A GAP TO ALLOW FOR TREE GROWTH. NAILS TO BE STAINLESS STEEL.

25' WETLAND BUFFER SIGNAGE (1)
NOT TO SCALE

LEGEND

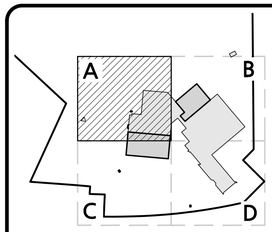
- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING TREE
- SHRUBS
- MULCH BED
- PERENNIALS/GROUNDCOVER
- EROSION CONTROL SEED MIX
- CONSERVATION SEED MIX
- DETENTION BASIN SEED MIX

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(IN FEET)
1 inch = 30 ft.

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SHEET KEY PLAN

LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
006
STATE OF NEW HAMPSHIRE
4-10-23

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

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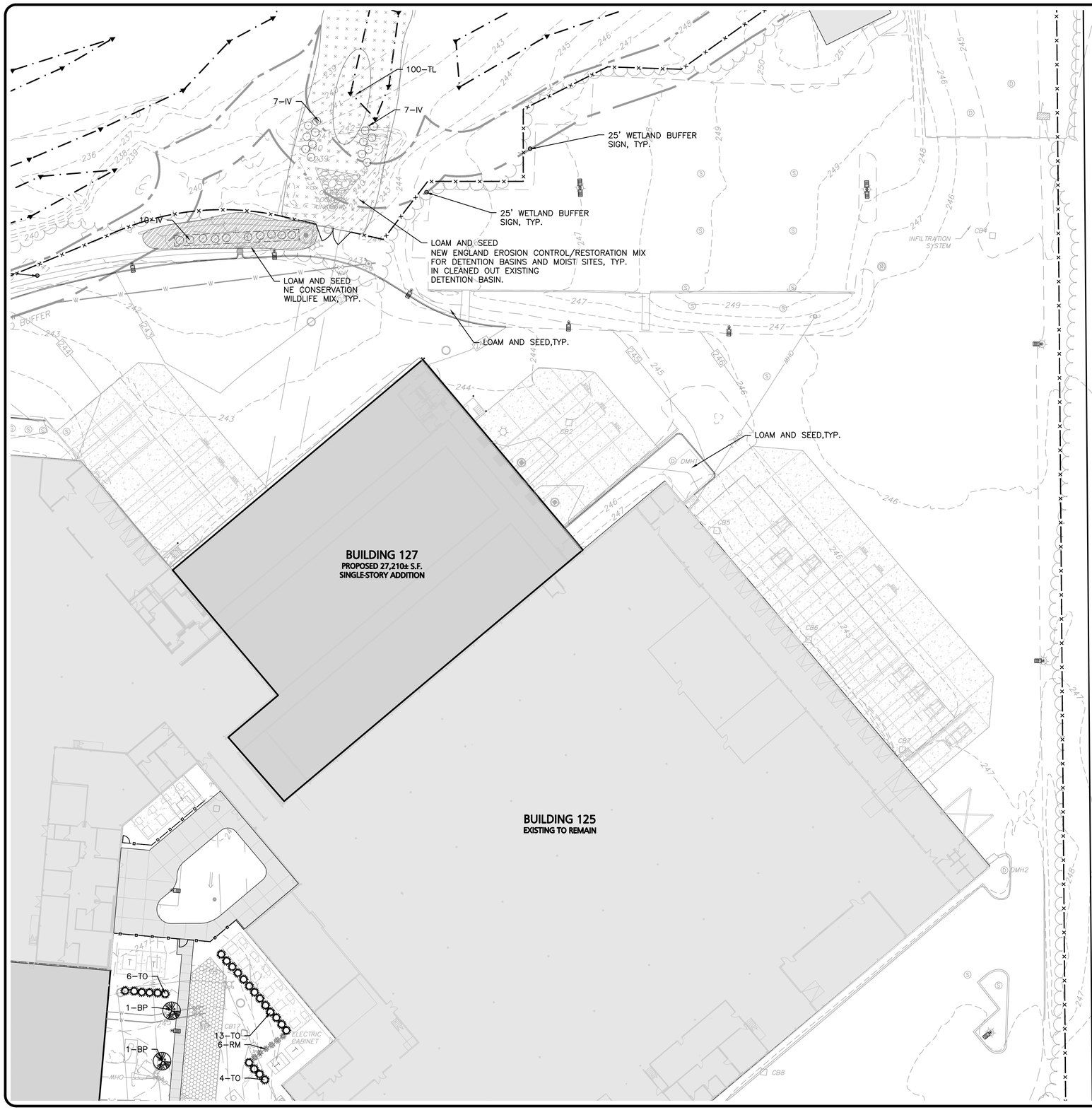
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DRAWING TITLE:
LANDSCAPE PLAN

SHEET No.
L-101A

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LEGEND

- DECIDUOUS TREE
- EVERGREEN TREE
- FLOWERING TREE
- SHRUBS
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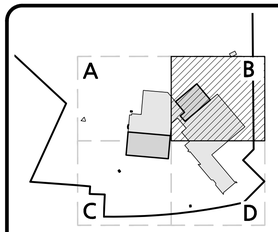
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GRAPHIC SCALE

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(IN FEET)
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SHEET KEY PLAN

LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
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PROJECT NO.	2912-01A	DATE:	01-20-23
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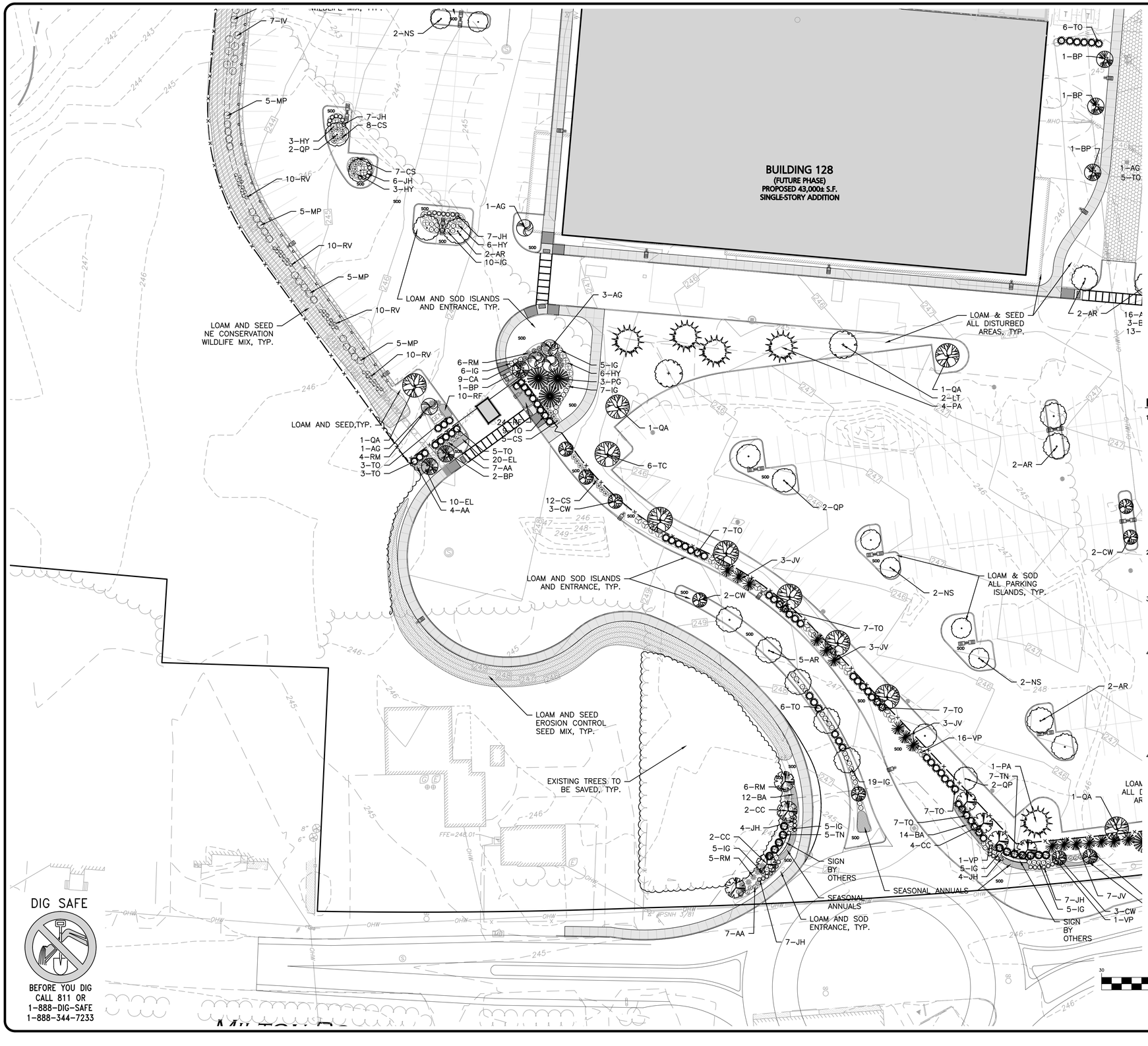
LANDSCAPE PLAN

SHEET No.

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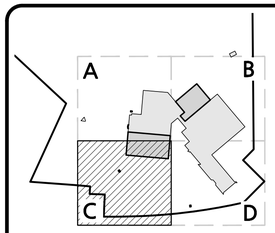


LEGEND

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BETHANY C. DERMODY
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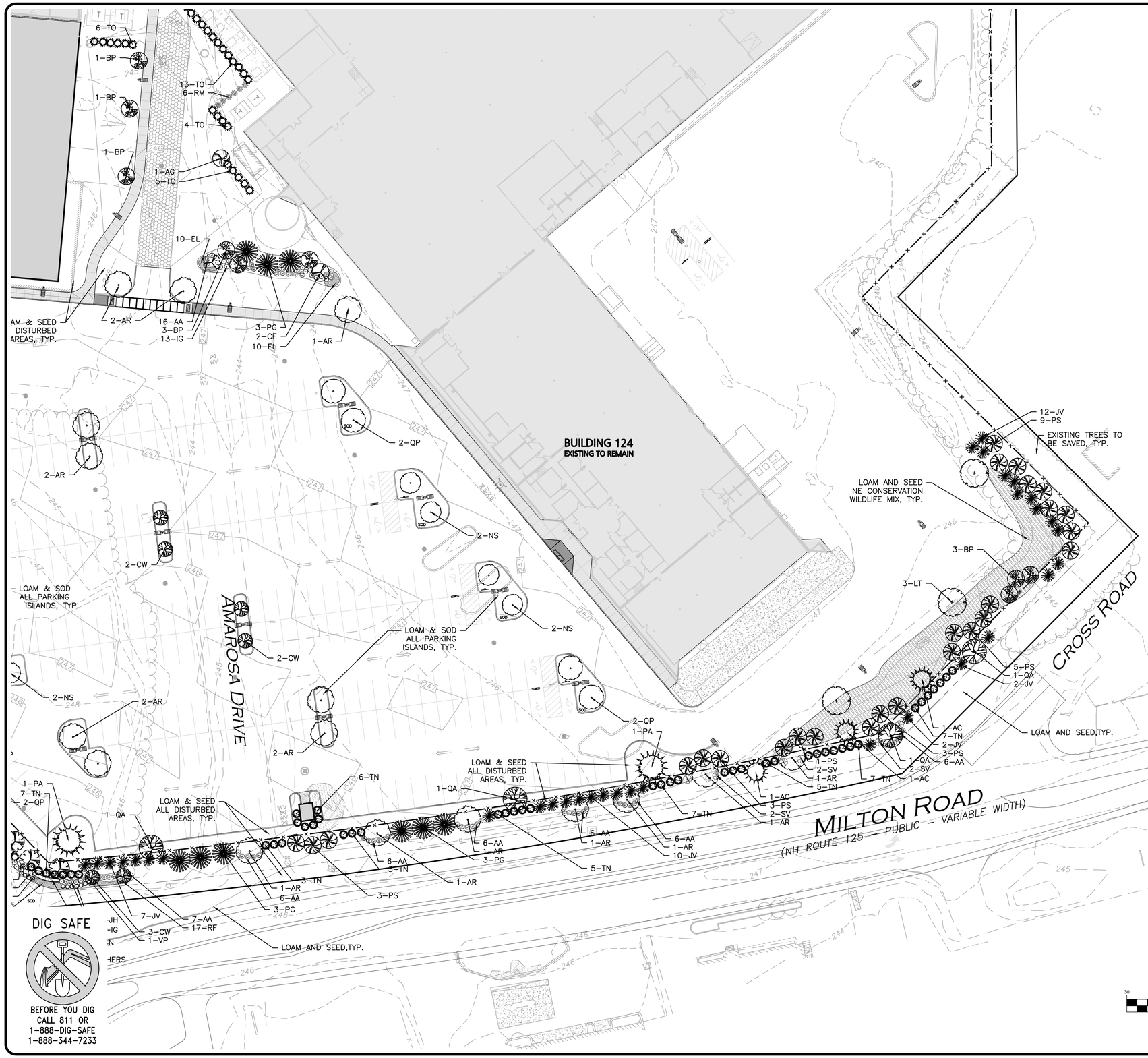
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DRAWING TITLE: LANDSCAPE PLAN

SHEET No. L-101C

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NOTES

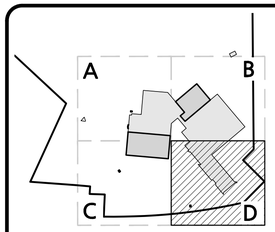
1. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES AND THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
2. EXISTING CONDITIONS SHOWN HEREON HAVE BEEN PROVIDED TO ALLEN & MAJOR ASSOCIATES, INC. FROM NORWAY PLAINS ASSOCIATES, INC. EXISTING CONDITIONS PLAN: 7 AMAROSA DRIVE, ROCHESTER NH, FOR SIG SAUER INC., DATED MAY 2021. A&M MAKES NO CLAIM REGARDING THE ACCURACY OR COMPLETENESS OF THE EXISTING CONDITIONS SHOWN HEREON.
3. NO MATERIAL CONTAINING ANY LIVING OR VIABLE PORTION OF PLANTS ON THE NEW HAMPSHIRE PROHIBITED INVASIVE SPECIES LIST (AGR3800 TABLE 3800.1) SHALL BE TRANSPORTED TO OR FROM CONSTRUCTION SITE WITHOUT NOTIFICATION AND APPROVAL FROM THE NEW HAMPSHIRE DEPARTMENT OF AGRICULTURE PER RSA 430:55.
PHONE:207–883–7100
4. ALL LANDSCAPED AREAS WITH SHRUBS, TREES, AND PERENNIALS TO HAVE 12" MINIMUM DEPTH OF TOPSOIL. THE 12" OF TOPSOIL AROUND TREES AND SHRUBS DOES NOT INCLUDE AMENDED PLANTING SOIL WITHIN TREE / SHRUB PIT FOR FULL DEPTH OF ROOTBALLS. SEE PLANTING DETAILS FOR PLANTING DEPTH AT SHRUBS AND TREES. ALL AREAS OF LOAM AND SEED TO HAVE 6" MINIMUM DEPTH OF TOPSOIL. TOPSOIL TO BE TESTED BY CONTRACTOR, AND APPROVED BY A&M PRIOR TO PURCHASE AND OR PLACEMENT. GENERAL CONTRACTOR, DEMOLITION CONTRACTOR, AND LANDSCAPE CONTRACTOR TO COORDINATE PROPER DEPTH OF EXISTING MATERIAL REMOVAL ACROSS SITE SO THAT 12 INIMUM AND 6" MINIMUM DEPTHS OF PROPOSED TOPSOIL NOTED ABOVE ARE MET AT NO ADDITIONAL COST TO OWNER. SEE TOPSOIL DETAIL.
4. THE INFORMATION SHOWN ON THIS PLAN IS THE SOLE PROPERTY OF ALLEN & MAJOR ASSOCIATES, INC. ITS INTENDED USE IS TO PROVIDE INFORMATION. ANY ALTERATION, MISUSE, OR RECALCULATION OF INFORMATION OR DATA WITHOUT THE EXPRESSED, WRITTEN CONSENT OF ALLEN & MAJOR ASSOCIATES, INC. IS STRICTLY PROHIBITED.

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\L-2912-01_LANDSCAPING.DWG



SHEET KEY PLAN

LICENSED LANDSCAPE ARCHITECT
BETHANY C. DERMODY
006
STATE OF NEW HAMPSHIRE
4-10-23

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:

SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:

PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	1" = 30'	DWG. NAME:	C2912-01A
DESIGNED BY:	BCD	CHECKED BY:	BDJ

PREPARED BY:

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DRAWING TITLE: LANDSCAPE PLAN

SHEET No. L-101D

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LOAM AND SODDING NOTES:

CONTRACTOR SHALL SOD AREAS NOTED ON THE PLANS.

SOD IS TO BE A BLEND OF FOUR TO FIVE CURRENT AND IMPROVED HYBRID BLUEGRASS AND FESCUE MIXES APPROPRIATE FOR BOTH SEMI-SHADED AND AREAS OF SUN.

HYBRIDS MAY INCLUDE: BLACKSTONE KENTUCKY BLUEGRASS, AWARD KENTUCKY BLUEGRASS, CHALLENGER KENTUCKY BLUEGRASS, BLACKBURG II KENTUCKY BLUEGRASS OR COMPARABLE AND EQUAL BLUEGRASS HYBRIDS.

1. SOD SHALL BE HIGH QUALITY, NURSERY GROWN ON CULTIVATED MINERAL AGRICULTURAL SOILS. SOD SHALL BE MOIST, AND MACHINE CUT AT A UNIFORM SOIL THICKNESS OF AT LEAST ¾" AT TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL INCLUDE TOP GROWTH AND THATCH. SOD SHALL BE FREE OF DISEASES, WEEDS, BARE SPOTS, OR INSECTS.

2. SODDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RE-SODDING OF BARE SPOTS. IF UNABLE TO SOD WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SODDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.

3. COMMERCIAL FERTILIZER SHALL BE APPLIED AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.

4. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RE-SODDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.

LOAM AND SEEDING NOTES:

CONTRACTOR SHALL SEED ALL DISTURBED AREAS NOT NOTED TO RECEIVE OTHER MATERIALS, AND AT AREAS SHOWN ON THE PLAN PER SPECIFICATIONS BELOW

SCIENTIFIC NAME	COMMON NAME	PROPORTION BY WEIGHT	PERCENT PURITY	PERCENT GERMINATION
FESTUCA RUBRA "RUBRA"	CREEPING RED FESCUE	37%	95%	90%
PAO PRAENTENSIS "BARON"	BARON KENTUCKY BLUEGRASS	30%	85%	90%
FESTUCA ARUNDINACEA	FINE FESCUE	15%	95%	90%
FESTUCA ARUNDINACEA	TALL FESCUE	18%	95%	80%

1. SEED TO BE SPREAD AT MINIMUM RATE OF 5 LBS. PER 1000 SQ. FT.
2. SEEDING TO BE COMPLETED "IN SEASON" BETWEEN APRIL 1 TO JUNE 15 OR AUGUST 15 TO OCTOBER 1, EXCEPT FOR RESEEDING OF BARE SPOTS. IF UNABLE TO SEED WITHIN THESE TIMEFRAMES, CONTRACTOR TO INSTALL EROSION CONTROL MATS ON ALL SLOPES 3:1 AND OVER, HYDROSEED ALL EXPOSED AREAS, ADD SOIL STABILIZER "FLUX TERRA HP-FGM SOIL STABILIZER" AS MANUFACTURED BY "PROFILE" TO HYDROSEED (AT RATE OF 3,000 LBS PER ACRE), AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR TO COMPLETE ALL ABOVE "OUT OF SEASON" REQUIREMENTS AND THEN ALSO BE RESPONSIBLE FOR RE-GRADING AND RE-SEEDING ALL DISTURBED, ERODED, OR BARE SPOTS WITHIN NEXT CLOSEST PLANTING SEASON IN FALL OR SPRING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR RESPONSIBLE FOR ALL MAINTENANCE UNTIL FINAL ACCEPTANCE OF LAWN AREAS INCLUDING: WATERING, ADDING FERTILIZERS AND LIME AND MOWING AT NO ADDITIONAL COST TO OWNER.
3. COMMERCIAL FERTILIZER SHALL BE APPLIED (EXCEPT IN WETLAND BUFFER AREAS) AT THE RATE OF 25 POUNDS PER 1000 SQ. FT. OR AS RECOMMENDED BY THE TESTING AGENCY. LIME TO BE SPREAD AT THE RATE OF 100 POUNDS PER 1000 SQ. FT OR AS RECOMMENDED BY THE TESTING AGENCY. COMMERCIAL FERTILIZER SHALL BE A COMPLETE SLOW RELEASE FERTILIZER CONTAINING AT LEAST 50% OF THE NITROGEN OF WHICH IS DERIVED FROM NATURAL ORGANIZE SOURCES OF UREAFORM. IT SHALL CONTAIN THE FOLLOWING PERCENTAGES BY WEIGHT: NITROGEN (N) 10%, PHOSPHORUS (P) 6%, POTASH (K) 4%. LIME SHALL BE AN APPROVED AGRICULTURAL LIMESTONE CONTAINING NOT LESS THAN 85% OF TOTAL CARBONATES. LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT 50% WILL PASS A 100 MESH SIEVE AND 90% WILL PASS THROUGH A 20 MESH SIEVE.
4. LAWN AREAS TO BE SEEDED BY SOWING EVENLY WITH AN APPROVED MECHANICAL SEEDER AT THE RATE OF TEN POUNDS PER 1000 SQUARE FEET.
5. CONTRACTOR RESPONSIBLE FOR WATERING, MOWING, AND RESEEDING OF LAWN BARE SPOTS UNTIL A UNIFORM, HEALTHY STAND OF GRASS IS ESTABLISHED AND ACCEPTED.
6. NO COMMERCIAL FERTILIZERS ARE TO BE ALLOWED IN WETLAND BUFFER AREAS.

LANDSCAPE NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY OF ROCHESTER, NH.
2. PLANTING PLAN IS DIAGRAMMATIC IN NATURE. FINAL PLACEMENT OF PLANTS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES, ANY PERMITTING AGENCIES, AND "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS IN ADVANCE OF ANY WORK THAT WILL REQUIRE EXCAVATION. CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE OF NAY CONFLICTS IN WRITING.
4. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA, ANY TREES NOTED AS "SEAL OR SELECTED SPECIMEN" SHALL BE TAGGED AND SEALED BY THE LANDSCAPE ARCHITECT.
5. ALL TREES SHALL BE BALLED AND BURLAPPED (B&B) UNLESS OTHERWISE NOTED OR APPROVED BY THE OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT.
6. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT LIST. QUANTITIES SHOWN ON PLANS SHALL GOVERN OVER PLANT LIST.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE APPROVED IN WRITING BY OWNER'S REPRESENTATIVE AND LANDSCAPE ARCHITECT
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE GUIDELINES ESTABLISHED BY THE STANDARDS FOR NURSERY STOCK PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF ACCEPTANCE.
10. ALL DISTURBED AREAS NOT OTHERWISE NOTED SHALL RECEIVE 6" OF SUITABLE LOAM & SEED LAWNS WITH 3:1 OR GREATER SLOPES SHALL BE PROTECTED WITH AN EROSION CONTROL BLANKET.
11. ANY FALL TRANSPLANTING HAZARD PLANTS SHALL BE DUG IN THE SPRING AND STORED FOR FALL PLANTING.
12. TREES SHALL HAVE A MINIMUM CALIPER AS INDICATED ON THE PLANTING SCHEDULE TAKEN ONE FOOT ABOVE THE ROOT CROWN.
13. ALL PLANT BEDS AND TREE SAUCERS TO RECEIVE 3" OF PINE BARK MULCH. GROUND COVER AREAS SHALL RECEIVE 1" OF PINE BARK MULCH
14. ALL DECIDUOUS TREES ADJACENT TO WALKWAYS AND ROADWAYS SHALL HAVE A BRANCHING PATTERN TO ALLOW FOR A MINIMUM OF 7' OF CLEARANCE BETWEEN THE GROUND AND THE LOWEST BRANCH.
15. ALL TREE STAKES SHALL BE STAINED DARK BROWN.
16. CONTRACTOR RESPONSIBLE FOR WATERING, AND RESEEDING OF BARE SPOTS UNTIL A UNIFORM STAND OF VEGETATION IS ESTABLISHED AND ACCEPTED.
17. ALL PARKING ISLANDS PLANTED WITH SHRUBS SHALL HAVE 18" OF TOP SOIL. FINISH GRADE SHALL BE EQUAL TO THE TOP OF CURB.
18. SOIL SAMPLES, TESTS, AND SHOP DRAWINGS SHALL BE PROVIDED TO THE LANDSCAPE ARCHITECT OR THE OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.
19. ALL PROPOSED LANDSCAPE AREAS (FROM THE FACE OF THE BUILDING TO THE ROAD, INCLUDING THE ENTRANCE AND PARKING LOT) INCLUDING MOWED LAWNS, TREES, SHRUB BEDS, AND PERENNIALS SHALL BE PROVIDED WITH WATER EFFICIENT UNDERGROUND IRRIGATION. DESIGN AND INSTALLATION OF IRRIGATION SYSTEM TO BE PERFORMED BY AN APPROVED IRRIGATION DESIGN BUILD CONTRACTOR OR BY AN APPROVED EQUAL, TO BE DETERMINED BY THE OWNERS REPRESENTATIVE AND LANDSCAPE ARCHITECT. IRRIGATION SYSTEM IS TO BE DESIGNED FOR EFFICIENT WATER USAGE INCLUDING: USE OF DRIP IRRIGATION FOR SHRUBS AND PERENNIALS, IRRIGATION SYSTEM WITH HEAD-TO-HEAD COVERAGE, A CENTRAL SHUT-OFF VALVE, AND A RAIN SENSOR TO SHUT OFF IRRIGATION DURING RAIN EVENTS.

SITE PLAN REGULATIONS: ZONE GENERAL INDUSTRIAL - LANDSCAPING

SECTION 5 – LANDSCAPING (GENERAL INDUSTRIAL ZONE IS EXEMPT BUT ENCOURAGED TO CONFORM)	NOTED	PROVIDE	NOTES
C.-4 TREES PREFERRED TO BE BROAD LEAFED SHADE TREES TO REACH 30' AT MATURITY	30' AT MATURITY	AS NOTED	
D-2,3. 15' FRONT LS BUFFER, 10' SIDE LS BUFFER	15' FRONT, 10' SIDE LANDSCAPE BUFFER	AS NOTED	
D-8b. ONE SHADE TREE EVERY 40' IN FRONT LS BUFFER.	1 TREE EVERY 40' IN FRONT LANDSCAPE BUFFER	AS NOTED	
D-8c. TWO SHADE TREES 40' APART WITHIN THE FRONT 50' OF EACH SIDE BUFFER	2 SHADE TREE SIDE BUFFER	AS NOTED	
D-5. LANDSCAPING PENINSULA IN PARKING LOT THE SAME WIDTH AS THE PARKING SPACES, PLANTED WITH 1 SHADE TREE MIN.	LS PENINSULA THE SAME WIDTH AS PARKING	AS NOTED	
F. SHADE TREES TO BE 3-3.5" CAL MIN. ORNAMENTAL TREES TO BE 2-2.5" CAL MIN. EVERGREEN TREES TO BE 6' HT. MIN. SHRUBS TO BE 2' TALL MIN OR 3 GAL CONTAINER.	SIZES TO BE FOLLOWED	AS NOTED	

SITE PLANTING SCHEDULE -TREES, SHRUBS & PERENNIALS

KEY	QUANTITY	BOTANICAL NAME	COMMON NAME	MIN. SIZE	SPACING	COMMENTS
DECIDUOUS AND FLOWERING TREES						
AR	25	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	3" CAL.	AS SHOWN	B&B
AG	11	AMELANCHIER CANADENSIS	SERVICEBERRY	6-7' HT.	AS SHOWN	B&B, MULTISTEM
BP	12	BETULA PAPYRIFERA	PAPER BIRCH	10-12' HT.	AS SHOWN	B&B, MULTISTEM
CF	2	CORNUS FLORIDA 'CHEROKEE BRAVE'	CHEROKEE BRAVE DOGWOOD	2-2.5" CAL.	AS SHOWN	B&B
CW	11	CRATEAGUS CRUSGALLI V. INERMIS	THORNLESS COCKSPUR HAWTHORN	2-2.5" CAL.	AS SHOWN	B&B
LT	5	LIRIODENDRON TULIPIFERA	TULIP TREE	3" CAL.	AS SHOWN	B&B
CC	8	CERCIS CANADENSIS	REDBUD	2-2.5" CAL.	AS SHOWN	B&B
QA	8	QUERCUS ALBA	WHITE OAK	3" CAL.	AS SHOWN	B&B
QP	16	QUERCUS PALUSTRIS	PIN OAK	3" CAL.	AS SHOWN	B&B
TC	6	TILIA AMERICANA 'AMERICAN SENTRY'	AMERICAN SENTRY BASSWOOD	3" CAL.	AS SHOWN	B&B
NS	12	NYSSA SYLVATICA 'GREEN GABLE'	GREEN GABLE TUPELO	2-2.5" CAL.	AS SHOWN	B&B
EVERGREEN TREES						
AC	3	ABIES CONCOLOR	WHITE FIR	8-10' HT.	AS SHOWN	B&B
PG	15	PICEA GLAUCA	WHITE SPRUCE	6-7' HT.	AS SHOWN	B&B
PA	6	PICEA RUBENS	RED SPRUCE	6-7' HT.	AS SHOWN	B&B
JV	42	JUNIPERUS VIRGINIANA	EASTERN RED CEDER	6-7' HT.	AS SHOWN	B&B
TO	89	THUJA OCCIDENTALIS 'SMARAGD'	EMERALD GREEN ARBORVITAE	6-7' HT.	AS SHOWN	B&B
TN	52	THUJA OCCIDENTALIS 'NIGRA'	DARK AMERICAN ARBORVITAE	6' HT.	AS SHOWN	B&B
PS	26	PINUS STROBUS	WHITE PINE	6-7' HT.	AS SHOWN	B&B
SHRUBS						
AA	79	ARONIA ARBUTIFOLIA 'BRILLIANTISIMA'	RED CHOKECHERRY	#5	AS SHOWN	POT
CA	19	CLETHRA ALNIFOLIA 'VANILLA SPICE'	VANILLA SPICE SUMMERSWEET	#5	AS SHOWN	POT
CS	34	CORNUS SERICEA 'ARCTIC FIRE'	ARCTIC FIRE RED OSIER DOGWOOD	#5	AS SHOWN	POT
HY	17	HYDRANGEA ARBORESCENS 'ANNABELLE'	ANNABELLE SMOOTH HYDRANGEA	#5	AS SHOWN	POT
IG	87	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY	#5	AS SHOWN	POT
IV	49	ILEX VERTICILLATA	WINTERBERRY	#3	AS SHOWN	POT
IVM	3	ILEX VERTICILLATA 'SOUTHERN GENTLEMAN'	WINTERBERRY MALE POLLINATOR	#5	AS SHOWN	POT
JH	42	JUNIPERUS HORIZONTALIS 'PLUMOSA'	ANDORRA CREEPING JUNIPER	#3	AS SHOWN	POT
MP	42	MORELLA PENSYLVANICA	BAYBERRY	#5	AS SHOWN	B&B
RM	27	RHODODENDRON MAXIMUM	GREAT LAUREL RHODODENDRON	#5	AS SHOWN	B&B
RV	40	ROSA VIRGINIANA	VIRGINIA ROSE	#3	AS SHOWN	B&B
SV	6	SYRINGA VULGARIS 'LUDWIG SPAETH'	LUDWIG SPAETH LILAC	#5	AS SHOWN	B&B
VP	18	VIBURNUM NUDUM 'WINTERTHUR'	WINTERTHUR VIBURNUM	#10	AS SHOWN	B&B
PERENNIALS/GRASSES						
BA	28	BAPTISIA AUSTRALIS	BLUE FALSE INDIGO	#1	30" O.C.	STAGGERED
RF	51	RUDBECKIA FULGIDA v. FULGIDA	BLACK EYED SUSAN	#1	24" O.C.	STAGGERED
EL	50	EUPATORIUM DUBIUM 'LITTLE JOE'	LITTLE JOE PYE WEED	#1	24" O.C.	STAGGERED
TL	100	* TYPHA LATIFOLIA	COMMON CATTAIL	2" PLUG	24" O.C.	STAGGERED

* NATIVE HERBACEOUS PLUGS AND NATIVE SEED MIXES TO BE FROM NE WETLAND PLANTS. SEE L-501 FOR SEED MIXES.
ANNUALS TO BE PROVEN WINNERS NORTH SHORE MIX OR EQUAL FOR SPRING/SUMMER

R: \PROJECTS\2912-01\CIVIL\DRAWINGS\CURRENT\L-2912-01_LANDSCAPING.DWG

LICENSED LANDSCAPE ARCHITECT · BETHANY C. DERMODY · 006 · STATE OF NEW HAMPSHIRE · 4-10-23

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

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SCALE:	AS NOTED	DWG. NAME:	C2912-01A
DESIGNED BY:	BCD	CHECKED BY:	BDJ

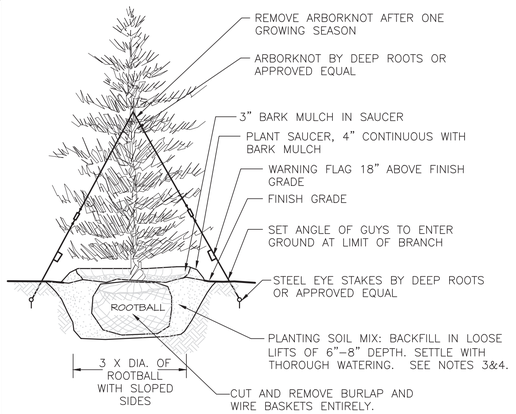
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DRAWING TITLE: LANDSCAPE NOTES

SHEET No. L-102

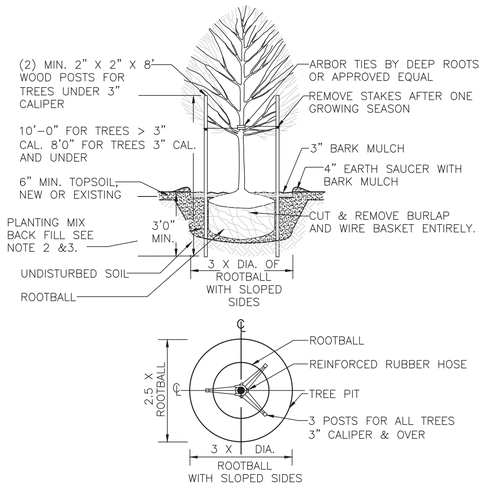
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NOTES

1. TREES SHALL BEAR SAME RELATIONSHIP TO FINISH GRADE AS IT BORE TO NURSERY OR FIELD GRADE. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL TOP OF ROOTBALL AREA.
2. INSTALL THREE GUYS PER TREE; EQUALLY SPACED AROUND BALL.
3. ATTACH GUYS AT 2/3 HEIGHT OF TREE.
4. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
5. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.

EVERGREEN TREE DETAIL — NOT TO SCALE — 1



NOTES:

1. ALL TREES SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. ROOT FLARE SHALL BE 2" ABOVE FINISH GRADE. REMOVE SOIL FROM TRUNK FLARE OF TREE TO DETERMINE ACTUAL ROOTBALL AREA.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.
4. SEE MATERIALS PLAN AND DETAILS PLANS FOR STREET TREE PLANTING IN WITH TREE GRATES DETAIL.

DECIDUOUS TREE PLANTING DETAIL — NOT TO SCALE — 3

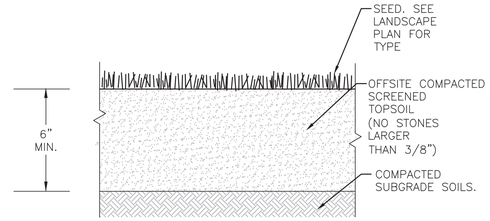
SEED MIXES:

NEW ENGLAND WETLAND PLANTS
820 WEST STREET, AMHERST, MA 01002
PHONE: 413–548–8000 FAX 413–549–4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM

NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES

BOTANICAL NAME	COMMON NAME	INDICATOR
ELYMUS RIPARIUS	RIVERBANK WILD RYE	FACW
FESTUCA RUBRA	RED FESCUE	FACU
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
PANICUM VIRGATUM	SWITCH GRASS	FAC
ANDROPOGON GERARDII	BIG BLUESTEM	FAC
VERBENA HASTATA	BLUE VERVAIN	FACW
AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU
BIDENS CERNUA	NODDING BUR MARIGOLD	OBL
EUPATORIUM FISTULOSUM	HOLLOW–STEM JOE PYE WEED	FACW
EUPATORIUM PERFOLIATUM	BONESET	FACW
ASTER NOVAE–ANGLIAE	NEW ENGLAND ASTER	FACW
SCIRPUS CYPERINUS	WOOL GRASS	FACW
JUNCUS EFFUSUS	SOFT RUSH	FACW+

THE NEW ENGLAND EROSION CONTROL/RESTORATION MIX FOR DETENTION BASINS AND MOIST SITES CONTAINS A SELECTION OF NATIVE GRASSES AND WILDFLOWERS DESIGNED TO COLONIZE GENERALLY MOIST, RECENTLY DISTURBED SITES WHERE QUICK GROWTH OF VEGETATION IS DESIRED TO STABILIZE THE SOIL SURFACE. IT IS AN APPROPRIATE SEED MIX FOR ECOLOGICALLY SENSITIVE RESTORATIONS THAT REQUIRE STABILIZATION AS WELL AS LONG–TERM ESTABLISHMENT OF NATIVE VEGETATION. THIS MIX IS PARTICULARLY APPROPRIATE FOR DETENTION BASINS THAT DO NOT HOLD STANDING WATER. MANY OF THE PLANTS IN THIS MIX CAN TOLERATE INFREQUENT INUNDATION, BUT NOT CONSTANT FLOODING. THE MIX MAY BE APPLIED BY HAND, BY MECHANICAL SPREADER, OR BY HYDROSEEDER.AFTER SOWING, LIGHTLY RAKE, ROLL OR CULTIPACK TO INSURE GOOD SEED–TO–SOIL CONTACT. BEST RESULTS ARE OBTAINED WITH A SPRING OR LATE SUMMER SEEDING. LATE FALL AND WNTER DORMANT SEEDING REQUIRES AN INCREASE IN THE APPLICATION RATE. A LIGHT MULCHING OF CLEAN, WEED–FREESTRAW IS RECOMMENDED
APPLY: 35 LBS/ACRE :1250 SQ FT/LB



TEXTURE CLASS	% OF TOTAL WEIGHT
SAND	45% – 65%
SILT	15% – 35%
CLAY	5% – 20%

SIEVE	% PASSING
3/8"	100
NO. 4	85–100
NO. 40	60–85
NO. 100	38–60
NO. 200	10–35
20 um	LESS THAN 5%

NOTES:

1. TOP OF LOAM (TOPSOIL) IS FINISH GRADE.
2. ALL TOPSOIL (BOTH ONSITE AND OFFSITE SOURCES) SHALL BE COMPOSED OF A NATURAL, FERTILE, FRIABLE SOIL TYPICAL OF CULTIVATED TOPSOILS OF THE LOCALITY. OFFSITE SOIL SHALL BE SUITABLE FOR THE GERMINATION OF SEEDS AND SUPPORT OF VEGETATIVE GROWTH, WITH ADDITIVES, IF REQUIRED, TO ACHIEVE PARTICLE DISTRIBUTION AND ORGANIC CONTENT BELOW. TOPSOIL SHALL BE TAKEN FROM A WELL–DRAINED, ARIABLE SITE, FREE OF SUBSOIL, LARGE STONES, EARTH CLODS, STICKS, STUMPS, CLAY LUMPS, ROOTS, OTHER OBJECTIONABLE, EXTRANEOUS MATTER OR DEBRIS NOR CONTAIN TOXIC SUBSTANCES.
3. THE CONTRACTOR SHALL PROVIDE THE OWNER / LANDSCAPE ARCHITECT WITH TOPSOIL TEST RESULTS (RECOMMEND UMASS AMHERST SOIL TESTING LAB) FOR APPROVAL PRIOR TO OBTAINING AND PLACING THE SOIL. IF ANY TOPSOIL IS PURCHASED OR PLACED PRIOR TO APPROVAL BY OWNER / LANDSCAPE ARCHITECT, IT IS AT CONTRACTORS RISK, AND IT CAN BE REMOVED AT NO ADDITIONAL COST TO THE OWNER. IF THE PLANTING SOIL (BOTH ONSITE AND OFFSITE SOURCES) DOES NOT FALL WITHIN THE REQUIRED SIEVE ANALYSIS, TEXTURAL CLASS, ORGANIC CONTENT, OR PH RANGE, IT SHALL BE ADJUSTED TO MEET THE SPECIFICATIONS THROUGH THE ADDITION OF SAND, COMPOST, LIMESTONE, OR ALUMINOUM SULFATE TO BRING IT WITHIN THE SPECIFIED LIMITS AT NO ADDITIONAL COST TO THE OWNER.
4. TOPSOIL SHALL HAVE A PH VALUE BETWEEN 5.5 AND 6.5. TOPSOIL SHALL CONTAIN BETWEEN 4% AND 8% ORGANIC MATTER OF TOTAL DRY WEIGHT AND SHALL CONFORM TO THE FOLLOWING GRADATION AND TEXTURE CLASS ABOVE.
5. NO TOPSOIL SHALL BE REMOVED FROM THE SITE. 6" DEPTH OF TOPSOIL TO BE SCREENED ON SITE AND SUPPLEMENTED WITH OFF SITE LOAM.

TOPSOIL FOR LAWN, TREES, SHRUBS, & PERENNIALS — NOT TO SCALE — 2

SEED MIXES:

NEW ENGLAND WETLAND PLANTS
820 WEST STREET, AMHERST, MA 01002
PHONE: 413–548–8000 FAX 413–549–4000
EMAIL: INFO@NEWP.COM WEB ADDRESS: WWW.NEWP.COM
NEW ENGLAND CONSERVATION/WILDLIFE MIX

BOTANICAL NAME	COMMON NAME	WETLAND INDICATOR
ELYMUS VIRGINICUS	VIRGINIA WILD RYE	FACW
SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	FACU
ANDROPOGON GERARDII	BIG BLUESTEM	FAC
FESTUCA RUBRA	RED FESCUE	FACU
SORGHASTRUM NUTANS	INDIAN GRASS	UPL
PANICUM VIRGATUM	SWITCH GRASS	FAC
CHAMAECRISTA FASCICULATA	PARTRIDGE PEA	FACU
DESMODIUM PANICULATUM	PANICLEDLEAF TICK TREFOIL	
VERBENA HASTATA	BLUE VERVAIN	FACW
ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	NI
RUDBECKIA HIRTA	BLACK EYED SUSAN	FACU
HELENIUM AUTUMNALE	COMMON SNEEZEWEED	FACW+
ASTER PILOSUS (SYMPHYOTRICHUM PILOSUM)	HEATH ASTER	UPL
SOLIDAGO JUNCEA	EARLY GOLDENROD	
AGROSTIS PERENNANS	UPLAND BENTGRASS	FACU

THE NEW ENGLAND CONSERVATION/WILDLIFE MIX PROVIDES A PERMANENT COVER OF GRASSES, WILDFLOWERS, AND LEGUMES FOR BOTH GOOD EROSION CONTROL AND WILDLIFE HABITAT VALUE. THE MIX IS DESIGNED TO BE A NO MAINTENANCE SEEDING, AND IS APPROPRIATE FOR CUT AND FILL SLOPES, DETENTION BASIN SIDE SLOPES, AND DISTURBED AREAS ADJACENT TO COMMERCIAL AND RESIDENTIAL PROJECTS.
APPLY: 25 LBS/ACRE :1750 SQ FT/LB
EROSION CONTROL BLANKET FOR SLOPES SEE LANDSCAPE NOTES

LANDSCAPE MANAGEMENT NOTES:

LANDSCAPE MANAGEMENT PLAN
IT SHOULD BE RECOGNIZED THAT THIS IS A GENERAL GUIDELINE TOWARDS ACHIEVING HIGH QUALITY AND WELL GROOMED LANDSCAPED AREAS. THE GROUNDS STAFF / LANDSCAPE CONTRACTOR MUST RECOGNIZE THE SHORTCOMINGS OF A GENERAL MAINTENANCE PROGRAM SUCH AS THIS, AND MODIFY AND/OR AUGMENT IT BASED ON WEEKLY, MONTHLY, AND YEARLY OBSERVATIONS. IN ORDER TO ASSURE THE HIGHEST QUALITY CONDITIONS, THE STAFF MUST ALSO RECOGNIZE AND APPRECIATE THE NEED TO BE AWARE OF THE CONSTANTLY CHANGING CONDITIONS OF THE LANDSCAPING AND BE ABLE TO RESPOND TO THEM ON A PROACTIVE BASIS.

FERTILIZER
MAINTENANCE PRACTICES SHOULD BE AIMED AT REDUCING ENVIRONMENTAL, MECHANICAL AND PEST STRESSES TO PROMOTE HEALTHY AND VIGOROUS GROWTH. WHEN NECESSARY, PEST OUTBREAKS SHOULD BE TREATED WITH THE MOST SENSITIVE CONTROL MEASURE AVAILABLE. SYNTHETIC CHEMICAL CONTROLS SHOULD BE USED ONLY AS A LAST RESORT TO ORGANIC AND BIOLOGICAL CONTROL METHODS. FERTILIZER, SYNTHETIC CHEMICAL CONTROLS AND PEST MANAGEMENT APPLICATIONS (WHEN NECESSARY) SHOULD BE PERFORMED ONLY BY LICENSED APPLICATORS IN ACCORDANCE WITH THE MANUFACTURER'S LABEL INSTRUCTIONS WHEN ENVIRONMENTAL CONDITIONS ARE CONDUCIVE TO CONTROLLED PRODUCT APPLICATION.

ONLY SLOW–RELEASE ORGANIC FERTILIZERS SHOULD BE USED IN THE LANDSCAPED AREAS TO LIMIT THE AMOUNT OF NUTRIENTS THAT COULD ENTER DOWNSTREAM RESOURCE AREAS. FERTILIZATION OF DEVELOPED AREAS ON SITE WILL BE PERFORMED WITHIN MANUFACTURERS LABELING INSTRUCTIONS AND SHALL NOT EXCEED AN NPK RATION OF 1:1:1 (I.E. TRIPLE 10 FERTILIZER MIX), CONSIDERED A LOW NITROGEN MIXTURE. ADDITIONALLY, THE FERTILIZER WILL INCLUDE A SLOW RELEASE ELEMENT.

SUGGESTED AERATION PROGRAM
IN–SEASON AERATION OF LAWN AREAS IS GOOD CULTURAL PRACTICE, AND IS RECOMMENDED WHENEVER FEASIBLE. IT SHOULD BE ACCOMPLISHED WITH A SOLID TINE AERATION METHOD TO REDUCE DISRUPTION TO THE USE OF THE AREA. THE DEPTH OF SOLID TINE AERATION IS SIMILAR TO CORE TYPE, BUT SHOULD BE PERFORMED WHEN THE SOIL IS SOMEWHAT DRIER FOR A GREATER OVERALL EFFECT.

DEPENDING ON THE INTENSITY OF USE, IT CAN BE EXPECTED THAT ALL LANDSCAPED LAWN AREAS WILL NEED AERATION TO REDUCE COMPACTION AT LEAST ONCE PER YEAR. THE FIRST OPERATION SHOULD OCCUR IN LATE MAY FOLLOWING THE SPRING SEASON. METHODS OF REDUCING COMPACTION WILL VARY BASED ON THE NATURE OF THE COMPACTION. COMPACTION ON NEWLY ESTABLISHED LANDSCAPED AREAS IS GENERALLY LIMITED TO THE TOP 2–3" AND CAN BE ALLEVIATED USING HOLLOW CORE OR THIN TINE AERATION METHODS.

THE SPRING AERATION SHOULD CONSIST OF TWO PASSES AT OPPOSITE DIRECTIONS WITH 1/4" HOLLOW CORE TINES PENETRATING 3–5" INTO THE SOIL PROFILE. AERATION SHOULD OCCUR WHEN THE SOIL IS MOIST BUT NOT SATURATED. THE CORES SHOULD BE SHATTERED IN PLACE AND DRAGGED OR SWEPT BACK INTO THE TURF TO CONTROL THATCH. IF DESIRED THE CORES MAY ALSO BE REMOVED AND THE AREA TOP–DRESSED WITH SAND OR SANDY LOAM. IF THE AREA DRAINS ON AVERAGE TOO SLOWLY, THE TOPDRESSING SHOULD CONTAIN A HIGHER PERCENTAGE OF SAND, IF IT IS DRAINING ON AVERAGE TOO QUICKLY, THE TOP DRESSING SHOULD CONTAIN A HIGHER PERCENTAGE OF SOIL AND ORGANIC MATTER.

LANDSCAPE MAINTENANCE PROGRAM PRACTICES:
LAWN
- MOW A MINIMUM OF ONCE A WEEK IN SPRING, TO A HEIGHT OF MIN. 3" HIGH. MOWING SHOULD BE FREQUENT ENOUGH SO THAT NO MORE THAN 1/3 OF GRASS BLADE IS REMOVED AT EACH MOWING. THE TOP GROWTH SUPPORTS THE ROOTS; THE SHORTER THE GRASS IS CUT, THE LESS THE ROOTS WILL GROW. SHORT CUTTING ALSO DRIES OUT THE SOIL AND ENCOURAGES WEEDS TO GERMINATE.
- MOW APPROXIMATELY ONCE EVERY TWO WEEKS FROM JULY 1ST TO AUGUST 15TH DEPENDING ON LAWN GROWTH.
- MOW ON A TEN–DAY CYCLE IN FALL, WHEN GROWTH IS STIMULATED BY COOLER NIGHTS AND INCREASED MOISTURE.
- DO NOT REMOVE GRASS CLIPPINGS AFTER MOWING.
- KEEP MOWER BLADES SHARP TO PREVENT RAGGED CUTS ON GRASS LEAVES, WHICH CAUSE A BROWNISH APPEARANCE AND INCREASE THE CHANCE FOR DISEASE TO ENTER A LEAF.

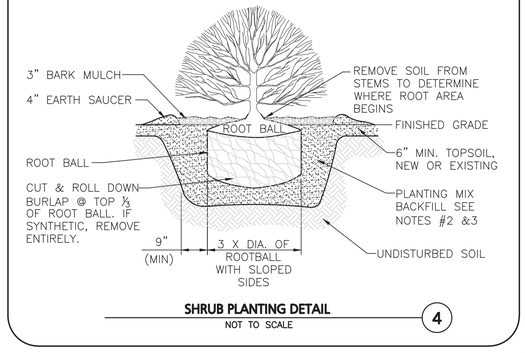
SHRUBS
- MULCH NOT MORE THAN 3" DEPTH WITH SHREDDED PINE OR FIR BARK.
- HAND PRUNE ANNUALLY, IMMEDIATELY AFTER BLOOMING, TO REMOVE 1/3 OF THE ABOVE–GROUND BIOMASS (OLDER STEMS). STEM REMOVALS TO OCCUR WITHIN 6□ OF THE GROUND TO OPEN UP SHRUB AND MAINTAIN TWO–YEAR WOOD (THE BLOOMING WOOD).
- FERTILIZE WITH ½ LB. SLOW–RELEASE FERTILIZER (SEE ABOVE SECTION ON FERTILIZER) EVERY SECOND YEAR.
- HAND PRUNE EVERGREEN SHRUBS ONLY AS NEEDED TO REMOVE DEAD AND DAMAGED WOOD AND TO MAINTAIN THE NATURALISTIC FORM OF THE SHRUB. NEVER MECHANICALLY SHEAR EVERGREEN SHRUBS.

TREES
- PROVIDE AFTERCARE FOR NEW TREE PLANTINGS FOR THE FIRST THREE YEARS.
- DO NOT FERTILIZE TREES, IT ARTIFICIALLY STIMULATES THEM (UNLESS TREE HEALTH WARRANTS).
- WATER ONCE A WEEK FOR THE FIRST YEAR; TWICE A MONTH THE SECOND, ONCE A MONTH THE THIRD YEAR.
- PRUNE TREES ON A FOUR–YEAR CYCLE.

ORNAMENTAL GRASSES
- APPLY LOW– NITROGEN 10–10–10 FERTILIZER AS GROWTH RESUMES IN THE SPRING. WATER IN THOROUGHLY.
- GRASSES DO NOT NEED TO BE CUT DOWN BEFORE WINTER. IN FACT, THEY ARE ATTRACTIVE WHEN LEFT STANDING AND THE FOLIAGE HELPS TO INSULATE THE CROWN OF THE PLANT. CUT BACK THE FOLIAGE TO ABOUT 4–6 INCHES IN THE SPRING BEFORE GROWTH RESUMES. WHEN FOLIAGE IS REMOVED, SPRING GROWTH WILL BEGIN EARLIER. OLD FOLIAGE LEFT ON THE PLANT CAN DELAY THE CROWN S WARMING AND SUBSEQUENT GROWTH BY AS MUCH AS 3 WEEKS.

NOTES:

1. ALL SHRUBS SHALL HAVE THE SAME RELATIONSHIP TO FINISH GRADE AFTER PLANTING AS THEY HAD AT THE ORIGINAL NURSERY SETTING. SET SHRUB 1"–2" ABOVE FINISH GRADE.
2. BACKFILL WITH PLANTING MIX. PLANT MIX TO BE: 50% NATIVE TOPSOIL, 20% COMPOST (LEAVES & ORGANIC MATERIAL, NO ASH) 20% PEAT MOSS, 10% SAND.
3. ADD MYCORRHIZA SOIL ADDITIVES AND SLOW RELEASE FERTILIZER WHEN PLANT HOLES ARE 50% FILLED AND WATER THOROUGHLY AT COMPLETION.
4. SHRUB BEDS TO HAVE 24" MIN. OF CONTINUOUS PLANTING SOIL.



SHRUB PLANTING DETAIL — NOT TO SCALE — 4

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LICENSED LANDSCAPE ARCHITECT · BETHANY C. DERMODY · 006 · STATE OF NEW HAMPSHIRE · 4-10.23

PROFESSIONAL LANDSCAPE ARCHITECT FOR ALLEN & MAJOR ASSOCIATES, INC.

REV	DATE	DESCRIPTION
3	04-10-23	REVISED PER TRG 3 COMMENTS
2	03-06-23	REVISED PER TRG 2 COMMENTS
1	02-13-23	REVISED PER TRG 1 COMMENTS

APPLICANT:
SIG SAUER
7-8 AMAROSA DRIVE
ROCHESTER, NH 03868

PROJECT:
PHASED MASTER PLAN
7,8,16 AMAROSA DRIVE
0,124 MILTON ROAD
ROCHESTER, NH 03868

PROJECT NO.	2912-01A	DATE:	01-20-23
SCALE:	AS NOTED	DWG. NAME:	C2912-01A
DESIGNED BY:	BCD	CHECKED BY:	BDJ

PREPARED BY:

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DRAWING TITLE: LANDSCAPE DETAILS

SHEET No. L-501

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