

CITY OF PORTLAND, MAINE

PLANNING BOARD



Maggie Stanley, Chair
Brandon Mazer, Vice Chair
Justin Barker
Marpheen Chann
Sean Murphy
David Silk
Austin Smith

AGENDA PORTLAND PLANNING BOARD MEETING

The Planning Board will hold a remote meeting on **Tuesday, July 26, 2022, 4:30 p.m.** This meeting will take place remotely using Zoom pursuant to the Remote Meeting Policy adopted by the Planning Board and as authorized under 1 M.R.S. 403-B because of the existence of an emergency or urgent issue that requires the committee to meet by remote methods. Allow your computer to install the free Zoom app to get the best meeting experience.

If you are not able to attend live, a recording will be available following the meeting. For public comment, you will need to use the "raise your hand" feature. To raise your hand via the telephone, please hit *9. You will be unmuted by the host when it is time for public comment.

For more information on submitting written public comment and attending the remote meeting, please refer to the document, A Guide to Public Comment, Remote Mtg. and Public Participation, which can be found at <https://www.portlandmaine.gov/485/Development-Review>. Public comments will be taken for each item on the agenda during the estimated allotted time.

Written Public Comment

Written comments received by email by 12:00 p.m. **the day before** the scheduled meeting date will be included in the agenda backup materials ("agenda packet").

Written comments received **by the aforementioned deadline** will be published in the agenda packet no later than 12:00 p.m. the day of the meeting. Written comments must be submitted to planningboard@portlandmaine.gov, or hp@portlandmaine.gov. If you have any questions or feedback regarding this process, please email citymanager@portlandmaine.gov

Please note that the placement of each item on the agenda is subject to change. Please check the Agenda & Minutes Center prior to the meeting for the item start time.

ZOOM MEETING INSTRUCTIONS

You are invited to a Zoom webinar.

When: Jul 26, 2022 04:30 PM Eastern Time (US and Canada)

Topic: Planning Board Workshop and Public Hearing 7/26/2022

Please click the link below to join the webinar:

<https://portlandmaine-gov.zoom.us/j/88445840325>

Or One tap mobile :

US: +19292056099,,88445840325# or +13017158592,,88445840325#

Or Telephone:

Dial(for higher quality, dial a number based on your current location):

US: +1 929 205 6099 or +1 301 715 8592 or +1 312 626 6799 or +1 646 931 3860 or +1 669 900 6833 or +1 253 215 8782 or +1 346 248 7799 or +1 669 444 9171

Webinar ID: 884 4584 0325

International numbers available: <https://portlandmaine-gov.zoom.us/j/kdF7MGKSJu>

WORKSHOP - 4:30 PM

- i. Major Site Plan and Conditional Use; 780 Stevens Avenue; The University of New England, Applicant. (estimated time 4:30 – 6:00 p.m.) The Planning Board will hold a remote workshop to consider a Major Site Plan and Conditional Use application for the development of a four-story, 111,813 square foot Center for Health Sciences building at the University of New England's Portland campus, located at 780 Stevens Avenue. The subject property is seven acres in size and is zoned R-5 Residential.

PUBLIC HEARING - 6:00 PM

- 1. ROLL CALL AND DECLARATION OF QUORUM**
- 2. COMMUNICATION AND REPORTS**
- 3. REPORT OF ATTENDANCE AT THE MEETING HELD ON JULY 12, 2022**

Afternoon Workshop

73 Powsland Street: Barker, Chann, Murphy, Silk, Smith, and Stanley present; Mazer absent.

Evening Hearing

26 East Oxford Street: All Present.

1498 Westbrook Street: All Present.

- 4. REPORTS OF DECISIONS AT THE MEETING HELD ON JULY 12, 2022**

- i. Major Site Plan; 26 E. Oxford Street; 26 Oxford, LLC., Applicant. Mazer moved and Barker seconded a motion to waive Technical Manual Section 1.14.3, which requires a drive aisle width of 24 feet, in order to allow a drive aisle width of 15 feet, 9 inches. Vote 7-0. Mazer moved and Barker seconded a motion to waive Technical Manual Section 1.7.2.7, which requires a minimum distance of 35 feet from the site driveway to the nearest intersection, in order to allow the existing driveway, located 16 feet 9 inches from the nearest intersection, to remain. Vote 7-0. Mazer moved and Barker seconded a motion to waive Technical Manual Section 1.8.2, which requires sidewalks and driveways in designated areas to be constructed with brick, in order to allow the sidewalk to be constructed with concrete. Vote 6-1, Mazer opposed. Mazer moved and Barker seconded a motion to approve the site plan. Vote 7-0.
- ii. Conditional Use; 1498 Westbrook Street; Stroudwater Christian Church, Applicant. Mazer moved and Murphy seconded a motion to find the Conditional Use consistent with the standards of Land Use Code Section 6.5.2. Vote 7-0.

- 5. NEW BUSINESS**

- i. Conditional Use; 505 Fore Street; Bread and Friends LLC, Applicant. (estimated time 6:00 – 7:00 p.m.) The Planning Board will hold a remote public hearing to consider a conditional use application to facilitate the siting of a bakery and cafe with a 240 square foot wholesale (low-impact industrial) component at 505 Fore Street. The subject property is 18,435 square feet in size, is zoned B-3 Downtown Business, and is in the Old Port Historic District.
- ii. Site Plan Amendment; 126 North Street; Upright Properties, LLC., Applicant. (estimated time 7:00 p.m.) The Planning Board will hold a remote public hearing to consider an application for alterations to the 126-128R North Street project, originally approved by the Planning Board on September 8, 2020 under application PL-000791-2019. The proposed amendment would combine the 126 and 128R buildings into a single, connected structure and increase the number of ADA accessible units from seven to twelve, along with changes to site access via consolidation of two driveways into one. The subject property is 9,787 square feet in size and is zoned R-6.

Memorandum

Planning and Urban Development Department



To: Maggie Stanley, Chair and Members of the Planning Board
From: Austen Torres Davis, Planner
Date: July 22, 2022
Re: Major Site Plan & Conditional Use Application – 780 Stevens Avenue
Project #: PL-002017-2022
Meeting Date: July 26, 2022

I. INTRODUCTION

The University of New England (UNE) has submitted a Major Site Plan and Conditional Use application to facilitate the construction of the Center for Health Sciences at their Portland campus. The application includes the construction of an approximately 111,813 square foot, four-story building at 780 Stevens Avenue, within the Deering Center neighborhood and the R-5 Residential zone. The new building would house the Harold and Bibby Alfond Center for Health Sciences, allowing UNE to consolidate professionally-based medical training and expand their post-secondary offerings within the city limits.

The application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code Site Plan Standards, Section 14.6, and General Conditional Use Standards, Section 6.5.2.



Figure 1. 780 Stevens Avenue in Campus Context

In anticipation of this Planning Board Workshop, the Planning and Urban Development Department mailed 72 notices to residences within 500 feet of the subject property. A legal advertisement ran in the July 15, 2022 and July 16, 2022 editions of the *Portland Press Herald*.

Applicant: Alan Thibeault, University of New England
Applicant Representative: Tom Saucier, Site Design Associates

II. PROJECT ACTIONS

Applicant's Proposal	Applicable Standards
Major Site Plan	Land Use Code Sec. 14.6 Site Plan Review Standards
General Conditional Use	Land Use Code Sec. 6.5.2
Supplemental Use-Specific Conditional Use (Institutional uses excluding preschools)	Land Use Code Sec. 6.5.6 (F.8)
Waiver Requests	Citation
Technical Manual 1.17 Applicant is requesting EV charging stations to be provided for 15.5% of parking spaces.	New structured and surface parking lots of five or more spaces shall include energized electrical outlets or installed chargers capable of providing Level 2 EV charging or higher to 20% of parking spaces (rounded down to the nearest whole number). Remaining spaces must be served by sufficient conduit, wiring, and electrical service to allow for future installation of electric vehicle supply equipment.
Technical Manual 12.3.5 Applicant is requesting the ability to use light fixtures of between 4000K and 5000K CCT.	All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamps specified to be maximum of 3000K CCT.
Land Use Code 14.6.2 C.3 (a. and b.) Applicant is requesting reduced parking lot landscaping and islands.	a. Developments shall include at least two trees per five parking spaces planted in landscaped islands. b. Landscaped islands shall be distributed so that uninterrupted pavement does not exceed forty spaces.

III. PROJECT DATA

SUBJECT	780 Stevens Avenue
Total area of the site	467,095 square feet (10.72 acres)
Total Disturbed Area	309,920 square feet (7 acres)
Existing Zoning	R-5 Residential
Existing Use	Unstriped Parking Area and Storage
Proposed Use	Center for Health Services; Post-Secondary School
Impervious Surface Area --Existing --Proposed --Net Change	214,589 square feet 171,482 square feet -43,107 square feet
Building Footprint --Existing --Proposed --Net Change	0 square feet 975 square feet +975 square feet
Building Floor Area --Existing --Proposed --Net Change	0 square feet 111,813 square feet +111,813 square feet

Parking Spaces	193
Bicycle parking Spaces	40

IV. BACKGROUND AND EXISTING CONDITIONS

Site Conditions

The subject property at 780 Stevens Avenue consists of two lots totaling approximately 467,095 square feet in size (10.72 acres), occupied by multiple university buildings and surface parking. The surrounding area is characterized by educational and institutional uses related to the University of New England's Portland Campus. Historic buildings are clustered toward the south of the site, on the locally designated Westbrook College campus site. This area functions as a traditional university quad. In contrast, the area to be developed (highlighted in Figure 2) is not currently programmed for academic or instructional functions. Instead, this area is programmed for facilities services and is characterized by surface parking, storage, and minimal landscaping.



Figure 2. 780 Stevens Avenue, Area Included in Development

The UNE campus is located along Stevens Avenue, a priority corridor identified in the city's comprehensive plan, *Portland's Plan 2030*. Residential neighborhoods sit across Stevens Avenue to the east, while Evergreen Cemetery is located to the West and South of the site. Evergreen Cemetery is a locally designated historic cemetery. To the north is Morrill's Corner intersection and numerous commercial establishments in an area predominantly zoned B-2 Community Business. The site is accessible to public transit along Stevens Avenue via GP Metro routes 9A and 9B. Additionally, GP Metro Route 2 and the Lakes Region Bus can be accessed nearby along Forest Avenue. No bicycle lanes exist along Stevens Avenue.

Recent applications related to the University of New England's Portland campus include an application for a new maintenance building at 180 Bishop Street (PL-001626-2021) that was approved by the Planning Authority on October 28, 2021. Additionally, UNE sought Institutional Overlay Zone (IOZ) designation and developed a draft Institutional Development Plan (IDP) which went before the Planning Board for a workshop on March 22, 2022. This application has been paused by the applicant.

V. PROPOSED DEVELOPMENT

The applicant proposes to develop a four-story building totaling approximately 111,813 square feet. This new building would house the Harold and Bibby Alford Center for Health Sciences. Construction of this facility would allow UNE to increase their presence in the city, bringing the *College of Osteopathic Medicine* and the *Institute for Interprofessional Education and Practice* to the city of Portland.

193 parking spaces, including six ADA designated spaces, would be provided at the western side of the new building located at 780 Stevens Avenue. Parking would be accessed via a 42.5 foot curb cut off of Stevens Avenue, leading to a 24 foot wide driveway.

Associated site improvements proposed in connection with the new building include a realigned pedestrian walkway forming a central quad, reconfigured and landscaped parking, as well as the demolition and removal of a former residential structure currently used for storage.

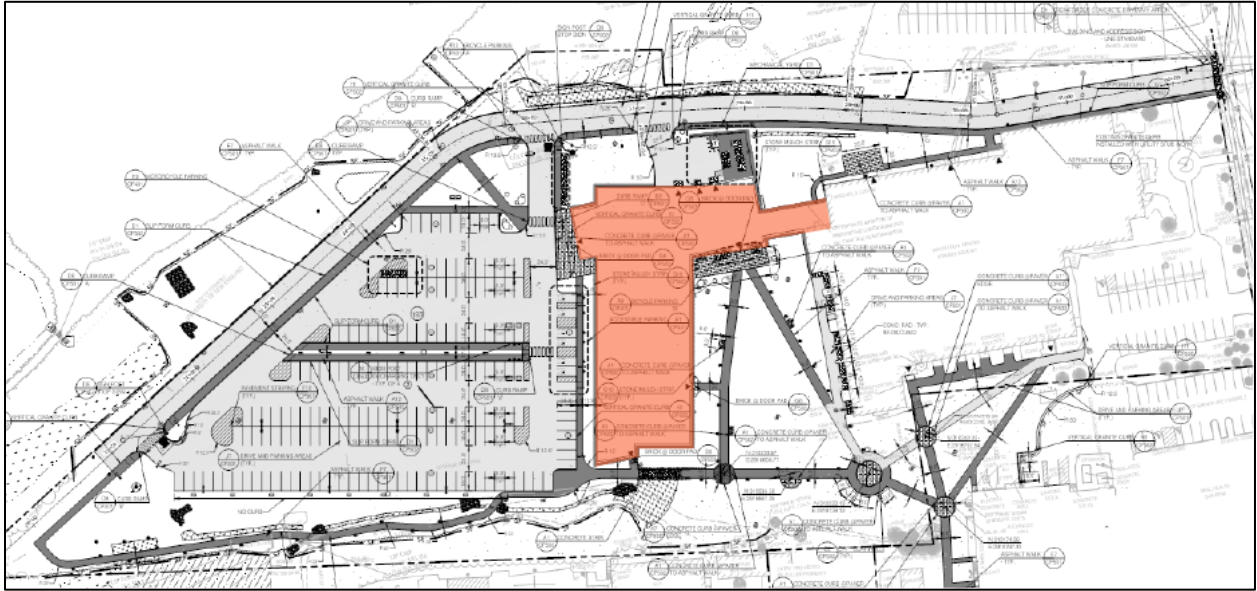


Figure 3. Site Plan highlighting the new Center for Health Services

VI. RIGHT, TITLE AND INTEREST AND FINANCIAL/TECHNICAL CAPACITY

The owner of the property is the University of New England, a Maine-based non-profit corporation. The applicant has submitted a Statement of Financial Capacity letter, as demonstration of their financial capacity (Attachment G). The university has raised \$30 million for this project, and has secured \$50 million in debt financing. A Statement of Technical Capacity has been provided by the applicant which lists numerous projects completed by the university in recent years, along with the engineering, architectural, and construction firms working on this project.

VII. ZONING ANALYSIS

A. DIMENSIONAL AND USE REQUIREMENTS

780 Stevens Avenue (parcels 145 B018 and 145 B002), is located in the R-5 Residential zone. The R-5 dimensional standards are described in Table 7-A of the Land Use Code. Post-secondary schools are listed as conditional uses in the R-5 zone as described in Table 6-A of the Land Use Code.

As per Article 19, Table 19-A, the minimum off-street parking requirement is calculated as one space for every 100 square feet used for instruction purposes. Applicants should provide calculations of instruction space in order to determine the baseline zoning requirement for a minimum number of parking spaces. Off-street parking requirements can be waived for sites within $\frac{1}{4}$ mile of fixed route transit service. Therefore, the applicant is not required to provide any parking on site if they choose to revise the submitted TDM plan to take advantage of this exception.

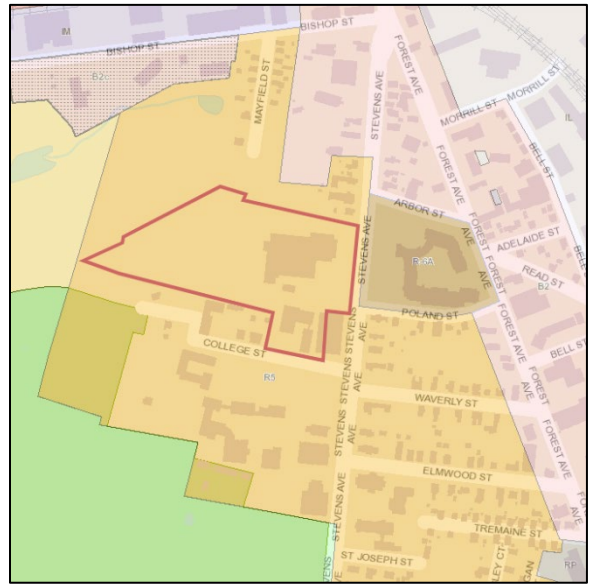


Figure 4. Area of Development in R-5 Zone Context

The following table shows the dimensional requirements of the R-5 zone which are met by this proposal:

<i>Standard</i>	<i>R-5 Zoning Requirement</i>	<i>780 Stevens Ave</i>
Minimum Lot Area	2 acres	70 acres
Minimum Street Frontage	50 feet	579.46 feet
Minimum Front Setback	20 feet	404 feet
Minimum Rear Setback	20 feet	> 30 feet
Minimum Side Setback	30 feet 14 feet (for buildings 2.5 stories or more)	84 feet
Maximum Lot Coverage	40%	15%
Minimum Lot Width	60 feet	448 feet
Maximum Structure Height	35 feet (55 feet if meeting conditional-use standard 6.5.6 F.8)	54 feet

Minimum Landscaped Open Area	N/A	N/A
Minimum Off-Street Parking	(1 space/100 SF used for instruction purposes)	193 spaces
Minimum Off-Street Bicycle Storage	(2 spaces/10 vehicle parking spaces for the first 100 vehicle spaces)	40 Spaces

VIII. CONDITIONAL USE REVIEW**A. GENERAL CONDITIONAL USE STANDARDS – SECTION 6.5.2**

1. **The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone.**

The proposed building will be located on the UNE campus and will have hours of operation consistent with other university buildings. As such, the applicant does not anticipate traffic to be substantially greater than what is already generated by the university. The applicant has provided a detailed Transportation Demand Management (TDM) Plan and a Traffic Impact Study that are under review by transportation engineers.

Much of the area proposed to be developed is currently used as unstriped surface parking and storage; redevelopment will increase the amount of parking on site by 92 spaces, from 101 to 193 spaces. A parking lot that is proposed to be reconfigured as part of this proposal already exists, but would be improved with landscaping and striping of parking spaces. The current number of one-way trips generated by the site is 1,870, while the new building and site improvements are expected to yield an increase of 624 daily trips. Existing peak hour trips have been estimated at 155, while the proposed development will yield a total of 240. As this increase of 85 peak hour trips is less than the MaineDOT Traffic Movement Permit (TMP) threshold of 100, no TMP is required. However, any future development on campus would likely require a TMP.

2. **The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter.**

The Department of Public Works has provided a wastewater capacity authorization (Attachment N) noting that the downstream sewers from the project have the capacity to convey wastewater flows. Additionally, the applicant has provided lighting cut-sheets but will need to provide a photometrics plan showing no detrimental impacts to surroundings from proposed lighting. The institutional and academic use of the site is not anticipated to create harmful or unsanitary conditions related to noise, glare, dust, emissions, odor, or litter.

3. **The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.**

The proposed conditional use fits within the footprint of the UNE campus and is proposed to be built behind the existing Innovation Hall. Deliveries and trash removal, as well as access to the proposed parking lot, would take place from a connecting road at the north of the site. This connecting road leads from Stevens Avenue in a westward downward sloping direction. Loading and solid waste storage is proposed at the northern section of the structure, facing away from the campus pedestrian spaces, accessed from a curb cut off the connecting road. The loading and waste area is separated and buffered with plantings from the parking lot.

4. **The proposed use will meet any additional zone or use-specific standards identified in Tables 6-A to 6-F and Subsections 6.5.6 and 6.5.7.**

The proposed expansion of the existing post-secondary school use, which is conditional in the R-5 zone, is required to meet the supplemental use-specific conditional use standards of Section 6.5.6 F.8. of the Land Use Code. The R-5 zone requires structures to be built with a maximum height of 35 feet, whereas

section 6.5.6 F.8 allows for post-secondary school structures to be built to a height of 55 feet if the following criteria are met:

- a. Minimum lot size: 10 acres which may include adjacent land owned by the institution on both sides of a public street.

Staff Response: *The total area of the site is 10.72 acres, therefore the standard has been met.*

- b. Minimum setback between buildings on-site: 20 feet.

Staff Response: *The proposed building would be connected to the existing Innovation Hall building via an enclosed walkway. The next closest building, Alexander Hall, is about 307 feet away from the combined Center for Health Services and Innovation Hall. As setbacks between buildings are greater than 20 feet this standard has been met.*

- c. Minimum setback from external property boundary: 30 feet, except that parking garages over 35 feet in height must be located 50 feet from external property boundaries when adjacent to an adjoining residential use.

Staff Response: *The proposed building's closest point to the external property boundary is approximately 270 feet, therefore the standard has been met.*

- d. The area between the structure and adjoining residential uses must be adequately screened with appropriate landscaping or other features to buffer the building and effects thereof (i.e. noise, light, etc.) from abutting properties.

Staff Response: *Landscaping including plantings and shrubs are proposed to buffer the proposed building and associated site improvements from the adjacent residential properties fronting College Street, therefore the standard has been met.*

IX. DEVELOPMENT REVIEW

A. SITE PLAN REQUIREMENTS

The applicant has submitted a recording plat for review by the Chief Surveyor and Corporation Counsel. Comments from Corporation Counsel are forthcoming for this item. As is customary, the final plat will need to be revised to reflect any waivers and conditions of approval that relate to the site plan. Any waivers granted must be recorded at the Registry of Deeds within two years of a Planning Board decision.

B. SITE PLAN REVIEW STANDARDS (Section 14.6)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and other applicable regulations. Staff comments are listed below.

a) Transportation Standards

1. Impact on Surrounding Street Systems

The proposed project is located on Stevens Avenue, which is a major arterial, and the applicant is proposing to provide 193 vehicular parking spaces (an increase of 92 spaces) and 40 bicycle parking spaces (an increase of 40 spaces) for a building with a floor area of 111,813 square feet. The current number of one-way trips generated by the site is 1,870, while the new building and site improvements

are expected to yield an increase of 624 daily trips, totaling 2,494 trips. Existing peak hour trips have been estimated at 155, while the proposed development will yield a total of 240, an increase of 85 peak hour trips.

The site is accessible to public transit along Stevens Avenue via GP Metro routes 9A and 9B. Additionally, GP Metro Route 2 and the Lakes Region Bus can be accessed nearby along Forest Avenue. No bicycle lanes exist along Stevens Avenue.

The applicant has provided a detailed Transportation Demand Management Plan and a Traffic Impact Study that are under review by transportation engineers.

Comments from Traffic Engineering Reviewer Tom Errico are Within the Attached Preliminary Site Plan Review Comments (Attachment 1).

2. Access and Circulation

The applicant proposes a driveway access road on the property leading from a curb cut from Stevens Avenue at the east to the proposed building and parking lot toward the west. The driveway would be accessed from a 42.5 foot curb cut off of Stevens Avenue, leading to an approximately 24 foot wide driveway. This meets the preferred two-way ingress and egress width of Technical Manual Standard 1.7.2.3.

Pedestrian circulation throughout the site is provided by a series of intersecting walkways connecting campus buildings to parking areas. Though a walkway is proposed along the driveway access road, no added pedestrian connections from Stevens Avenue have been proposed to connect to the interior walkways.

Planning staff have suggested added pedestrian connection to Stevens Avenue between the Innovation Hall and Oral Health buildings to avoid pedestrian movements through the existing parking lot.

3. Public Transit Access

All institutional developments of at least 20,000 square feet square feet gross floor area shall provide a transit shelter adjacent to or within public right-of-way along its frontage when the development is proposed along an existing public transit route on a principal or minor arterial roadway or if the nearest existing transit shelter on the route is more than $\frac{1}{4}$ mile from the site.

As the proposed project entails the construction of a building of 111,813 square feet, the applicant must provide a transit shelter along Stevens Avenue, accessing GP Metro routes 9A and 9B.

4. Parking: Vehicle and Bicycle

The applicant is proposing to provide 193 vehicular parking spaces and 40 bicycle parking spaces for a building of 111,813 square feet. As parking minimums for schools in the R-5 zone, including post-secondary schools, are correlated to the amount of square footage of instructional space, the applicant should provide greater detail on the amount of instructional space within the proposed building.

b) Environmental Quality Standards**1. Preservation of Significant Natural Features**

Aside from the existing building and surface parking to be removed, the area of the lot proposed to be developed currently consists of denatured land devoid of significant natural features.

2. Landscaping and Landscape Preservation

The existing conditions of the development site are mostly devoid of landscape features and planting, instead consisting of impervious surface, parking, and storage. The applicant has provided a detailed landscape and planting plan showing trees and perennials to be installed throughout the site. Walkways lined with trees would connect the new building and quad to the existing and proposed parking lots, as well as to the historic core of UNE's Portland campus to the south. Between the walkways lawns are proposed, while the edges of the site are buffered from adjacent residences with shrubs and other plantings.

As the site currently consists mostly of surface parking, the proposed landscaping would improve the site by removing impervious cover and replacement with quads, walkways, and plantings.

3. Water Quality, Storm Water Management and Erosion Control

The Applicant has provided a detailed Stormwater Management Report (Attachment J), as well as an Erosion and Sedimentation Control Report to meet the Basic Standards. The site is relatively flat where it meets Stevens Avenue, but has a significant downward slope toward the western portion of the lot, with an elevation loss of about 20 feet. Grading is proposed throughout the site that would direct runoff away from buildings and pathways and toward multiple catch basins.

The project is located within the Capisic Brook urban impaired stream watershed, and will result in a net reduction of 43,107 square feet of impervious surface over the existing condition. As the site will result in about four acres of redeveloped impervious surface, the application would be reviewed under MaineDEP Site Location of Development (SLOD) standards. The applicant is therefore required to file a SLODA application that will be evaluated to determine the extent of stormwater treatment required.

Comments from Stormwater Reviewer Lauren Swett are within the Attached Preliminary Site Plan Review Comments (Attachment 1).

Public Infrastructure and Community Safety Standards

1. Consistency with City Master Plans

This development is consistent with the goals and policies outlined in *Portland's Plan 2030*. The consolidation of professionally-based medical training and the expansion of post-secondary offerings aligns with the City's vision statements and goals related to the economy and environment.

UNE's TDM describes a commitment to sustainable transportation such as cycling by identifying city proposals, such as the Riverton Neighborhood Byway, with hopes to eventually connect the campus to the city's cycling network. The provision of bike parking aligns with the city's environmental goals.



Figure 6. Vision Statement from Portland's Plan 2030

Economically the proposal aligns with the city's goals by bringing professional medical education to the city of Portland. This will attract human capital through new residents, and will expand the tax and employment base.

Relevant vision statements and goals are provided below:

Goals:

- Environment: Adopt sustainable land use and transportation policies that support connectivity, walkable neighborhoods, and multi-modal transportation.
- Economy: Create economic prosperity by growing Portland's tax and employment base.
- Economy: Support sustainable growth in our educational, medical, and cultural institutions.
- Economy: Invest in, attract, and retain human capital to support a growing economy.

2. Public Safety and Fire Prevention (CPTED and Fire)

The Crime Prevention through Environmental Design (CPTED) standards in the site plan ordinance and Technical Manual address the principles of natural surveillance, access control and territorial reinforcement so that the design of developments enhance the security of public and private spaces and reduce the potential for crime. The site's landscaping its configuration as a series of quads and walkways reinforce ownership by visually tying the campus buildings together. The proposed building and landscaping also improve natural surveillance of the site by creating active visible space in an area of UNE's campus that is currently hidden behind buildings and away from pedestrian activity.

The lighting as proposed is sufficient to promote visibility and security. The applicants have filed a Technical Manual waiver related to lighting, citing campus safety best practices related to lighting color temperature.

3. **Availability and Adequate Capacity of Public Utilities**

The Applicant has received a Wastewater Capacity Authorization from the Department of Public Works, as well as an ability to serve letter from the Portland Water District in order to meet basic standards.

An ability to serve letter from Central Maine Power is forthcoming.

c) **Site Design Standards**

1. **Massing, Ventilation and Wind Impact**

The new building proposed is not anticipated to impact any adjacent structures as it relates to bulk or diminution of available light and air to abutting properties. The building does not differ substantially from adjacent and nearby university structures regarding massing so negative impacts are not anticipated. The proposed building is proposed to rise to a height of approximately 54 feet, which is greater than the 35 foot height required in the R-5 zone. However, a maximum height of 55 feet is conditionally permitted for post-secondary schools in the R-5 zone. Clarification on how the average grade was calculated is being sought to determine whether the development meets site design and conditional use standards.

Comments from Zoning Administrator Ann Machado:

The average grade on the elevations is given as 122' .5". Please provide information on how the average grade was calculated.

2. **Shadows**

The new building is proposed to be situated near the center of the lot, away from property lines and nearby residences. As such, shadows are expected to fall within the property for the majority of the year and are not anticipated to encroach on adjacent residential properties. No City-owned parkland is proximate to the site and thus there is no potential for shadow impacts to them.

3. **Snow and Ice Loading**

The applicant is proposing on-site snow storage toward the rear, western portion of the property. Ample area for snow and ice storage exists on site and a removal plan is not needed.

4. **View Corridors**

Not applicable.

5. **Historic Resources**

The site is not within an established historic district, though one of the parcels that would be developed is within 100 feet of the locally designated Westbrook College Historic District.

A meeting was held with Historic Preservation Staff and the determination was made that this project does not require review from the Historic Preservation Board, nor a staff level Advisory Review.

6. **Exterior Lighting**

Applicants have submitted lighting cut-sheets but will need to provide a photometrics plan to show compliance with lighting standards.

7. **Noise and Vibration**

All heating, ventilation and air conditioning equipment (HVAC), air handling units (AHU), emergency generators, and similar equipment will be required to meet state and federal emissions requirements. Equipment is planned to be located toward the interior of the site and away from neighboring residential properties.

8. **Signage and Wayfinding**

Signage and wayfinding is proposed to be consistent with existing UNE campus signage.

Urban Design staff recommend the use of materials, fencing, and campus entrances consistent with the historic quad of Westbrook College to clearly denote pedestrian walkways and campus-ownership.

9. **Zoning Related Design Standards**

A meeting was held with Urban Design staff to determine design-review applicability. In the R-5 zone a formal design review is required for Planned Residential Unit Developments (PRUDs) as well as Multiplexes and Small Residential Lot Developments. As this proposal does not fit within the above development categories, this site is not subject to a design review, therefore this standard is not applicable.

IX. PUBLIC COMMENT

In anticipation of this Planning Board Workshop, the Planning and Urban Development Department mailed 72 notices to residences within 500 feet of the subject property. A legal advertisement ran in the July 15, 2022 and July 16, 2022 editions of the *Portland Press Herald*.

At the time of writing this memo, the Planning Department has received no public comments.

X. NEXT STEPS

At this time, staff are requesting the Board's feedback on the aforementioned topics related to:

- Waivers
- Conditional Use Building Setback Standard
- Pedestrian Circulation
- Vehicular Site Access

XI. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Preliminary Site Plan Review Comments from Staff

APPLICANT'S SUBMITTAL

- A. Cover Letter
- B. Major Site Plan Checklist
- C. Right, Title, and Interest
- D. Zoning Assessment
- E. Waiver Requests
- F. Financial Capacity
- G. Technical Capability
- H. Conformity with Land Use Ordinance
- I. Stormwater Management Report
- J. Wastewater Capacity

- K. Exterior Lighting
- L. PWD Ability to Serve
- M. Traffic Impact Study
- N. Transportation Demand Management Plan
- O. Compiled Mechanical Unit Information

PLANS

- Plan 1 - Cover Letter, Legend, and Abbreviations
- Plan 2 - Existing Conditions & Boundary Survey
- Plan 3 - Site Demolition Plan
- Plan 4 - Overall Site Plan
- Plan 5 - Site Notes & Legends
- Plan 6 - Site Layout & Materials Plan
- Plan 7 - Site Layout Details
- Plan 8 - Erosion & Sediment Control Plan
- Plan 9 - Erosion & Sediment Control Details & Notes
- Plan 10 - Site Grading & Drainage Plan
- Plan 11 - Site Grading & Drainage Schedule
- Plan 12 - Connector Road Plan & Profiles
- Plan 13 - Utilities Plan & Details
- Plan 14 - Planting Plan & Details
- Plan 15 - Site Photometric Plan
- Plan 16 - Facility Plans
- Plan 17 - Elevations

Planning and Urban Development Department



Subject: Site Plan Review Comments – 780 Stevens Ave.

Written by: Austen Torres Davis, Planner

Date Written: July 8, 2022

Dear Tom Saucier,

The proposed UNE Center for Health Services and associated site improvements located at 780 Stevens Avenue (PL-002017-2022) was reviewed against Chapter 14 of the City of Portland Land Use Code, as well as the City of Portland Technical Manual. Please find below, comments from Planning & Urban Development Department staff and site plan peer-reviewers.

General Comments from Planning Staff

- For the benefit of the Planning Authority's review, as well as the Planning Board and members of the public that may wish to review plans, staff are requesting an illustrative site plan that uses color to denote areas of new construction and landscaping. The current overall site plan is sufficient for review, though an additional supplemental plan, less heavily annotated and using color, would be greatly beneficial as an overview.
- The driveway at the northern edge of the lot should be separated from the parking lot of the adjacent church, and will need a technical manual waiver as it is within 20 feet of the adjacent driveway.
- Staff recommend that a pedestrian walkway be extended from Stevens Avenue to the newly created quad to discourage students, staff, and faculty from walking through the parking lot between the Innovation Center and Oral Health Building.
- Increased UNE presence in Portland will certainly lead to students, staff, and faculty locating to the surrounding neighborhoods. The TDM shows the conceptual Riverton Neighborhood Byway along the UNE Shuttle Road. This road is currently not open to the public but staff suggest allowing cyclists or pedestrians to use the road as an alternative connection to neighborhoods to the north of campus.
- Though grading may make this difficult to achieve, construction of an ADA-accessible ramp from the parking lot to the proposed quad and university walkways should be explored.

Comments from Traffic and Circulation Reviewers:

- When comparing the existing traffic count data to the ITE estimate, I am concerned the trip generation calculation for the project is underestimated. According to the traffic counts at the three driveway locations, UNE Drive, College Street and Finley Center Drive, the site currently generates 246 AM peak hour trips and 219 PM peak hour trips. The ITE estimate for the existing campus is 179 AM peak hour trips during both the AM and PM peak hours. In addition, not all of the UNE trips currently generated by the campus was captured at the noted driveway locations as vehicles generated by UNE park on local streets, in the Bishop Street lot, behind the Armory and in other off-street lots. In general, I am concerned the trip generation estimate using ITE data does not accurately reflect local conditions. According to ITE, Land Use Code 550 University/College had on average 24,000 students for the sites sampled during the AM peak hour and 19,000 students on average for the sites sampled during the PM peak hour. Clearly, the sites sampled were large institutions that do not have similar characteristics to the UNE campus. Accordingly, I do not accept the methodology used to estimate traffic for the project. The applicant should consider other methods for estimating trip generation.
- The applicant conducted a capacity analysis at nearby intersections both with and without the project. It should be noted that revisions to the trip generation estimate may alter the following comments.
 - o The SimTraffic reports in the appendix should be clearly labeled as to the scenario for which they apply. Some seem to be for a rezoning scenario. The applicant should also forward the Synchro network files for review.
 - o Morrill's Corner: The study evaluated conditions at the Stevens Avenue/Bishop Street and Allen Avenue/McDonalds intersections. Conditions at the Forest Avenue/Warren Avenue intersection does influence conditions at Allen Avenue and to some degree at Stevens Avenue. Accordingly, the analysis does not accurately estimate delay within Morrill's Corner. Long delays and vehicle queuing are common. MaineDOT and the City are currently in the process of redesigning Morrill's Corner with the objective of improving conditions for all users. I need to coordinate with MaineDOT and the City on the need for additional analysis and next steps for this review.
 - o Stevens/Walton Street: The analysis indicates the intersection will operate at acceptable levels of service.
 - o Warren Avenue/Bishop Street: The analysis indicates the intersection will operate at acceptable levels of service.
 - o Stevens Avenue/College Street: The analysis indicates the intersection will operate at acceptable levels of service.
 - o Stevens Avenue/Finley Center Drive: The analysis indicates the intersection will operate at acceptable levels of service.
 - o Stevens Avenue/UNE Driveway/Poland Street: The analysis indicates the intersection will operate at acceptable levels of service.
- A safety analysis was performed at High Crash Locations in the vicinity of the project. My comments for each location are noted as follows.

- Stevens Avenue between Arbor Street and .03 miles south of Forest Avenue: This location did have some pedestrian and bicycle crashes that concern me. I'm coordinating with City staff on suggested improvement strategies.
 - Forest Avenue between Bishop Street and Allen Avenue: I concur that access management improvements would help to reduce crashes. The concept improvement plan being proposed by MaineDOT and the City should help to mitigate driveway movement crashes.
 - Forest Avenue/Bishop Street: The MaineDOT/City project is proposing to restrict movements in and out of Bishop Street and thus I would expect improvements to safety conditions.
 - Forest Avenue/Allen Avenue/McDonald's: The MaineDOT/City project is proposing to restrict movements in and out of McDonald's and thus I would expect improvements to safety conditions.
- The proposed driveway location on Stevens Avenue does not meet driveway separation standards with the abutting Stevens Avenue Congregational Church driveway. Given the increase in traffic volume intensity it is recommended that the applicant coordinate with the abutter and create a shared driveway that serves both UNE and Church traffic or close the church driveway closest to UNE.
 - The applicant should note if the Church driveway on the connector road is to remain. This may not be relevant given the request to change the driveway on Stevens Avenue.
 - The parking area on the northwest side of the Oral Health Building is being modified. Three parallel parking spaces are being created but is unclear if the loading dock will remain active and thus block these spaces.
 - A crosswalk shall be painted on the connector road at Stevens Avenue. Additionally, a stop bar and stop sign shall be provided.
 - The applicant should note if delivery trucks will be accessing the proposed building and if so, provide vehicle turning templates for maneuvering.
 - The applicant should conduct a parking study documenting current demand and expected demand with the proposed project. This shall include a supply/demand analysis. (The TDM Plan includes information that will inform the parking study). The study should attempt to document the number of vehicles associated with UNE that parking on local streets.

Comments from Zoning Reviewers:

- In the provided zoning analysis, the maximum height allowable height is given as 55'. In Table 7-A it is 35' in the R-5 zone. The proposed height is given as 54.8' which exceeds 35'. Please provide information on how this proposal fits within what is permissible.
- The average grade on the elevations is given as 122' .5". Please provide information on how the average grade was calculated.

Comments from Stormwater Management Reviewers:

- The project is required to comply with MaineDEP Chapter 500 and City of Portland Section 5 Stormwater management regulations.
 - o I believe based on the size and scale of this project it would be reviewed as a Site Location of Development permit. Applicability for SLOD comes into play when there is 3 acres or more of “structure”, which per the state statute for SLOD includes “buildings, parking lots, roads, paved areas, wharves, or areas to be stripped or graded and not to be revegetated.” This project will result in almost 4 acres of redeveloped impervious area, and based on past experience with Maine DEP, the standard applies to redeveloped/reconstructed structure area. SLOD requires an evaluation of existing and proposed surfaces to determine the extent of treatment required, and the minimum percentage of treatment is 50%, which is the level of treatment currently proposed to meet the City of Portland redevelopment standard.
 - o Basic Standards – The project plans include standard details and notes to address erosion control measures and a plan showing locations of erosion control materials has been provided in accordance with the Basic Standards. The Applicant should review the plan to ensure that adequate sediment barrier will be utilized around all proposed work, including at culverts located near the edge of the site. In addition, there are resource areas shown around the site. Double rows of sediment barrier should be utilized when protecting resource areas.
 - o General/Redevelopment Standards – 50% of the redeveloped area is being treated utilizing grassed underdrained soil filters.
 - o Flooding Standards – The project will be reducing or maintaining flow at each of the evaluated study points.
 - o Urban Impaired Stream – The project is located within the Capisic UIS watershed, and will be reducing impervious surface.
- The project will be required to provide a stormwater maintenance agreement – it is referenced, but I did not see a copy.

Standards in Need of Waiver:

Technical Manual Section 1.7.1: Driveway Design

- o *A driveway shall be located on the lot in a manner to provide a minimum distance of twenty (20) feet spacing between it and adjacent driveways. This spacing shall be measured between the edge of driveways at the property line.*

Comments from Historic Preservation and Urban Design Staff

As the parcels on which development is proposed are within 100 feet of the Westbrook College Historic District, a meeting was held with Historic Preservation and Urban Design Staff. The site does not trigger either a Historic Preservation Advisory Review, or a Design Review. Suggestions in this section are therefore not mandatory, but are encouraged.

Historic Preservation:

- The preservation of the Facilities Buildings is recommended. This may be an opportunity to enhance this structure as a visual landmark viewed from both College Street and Stevens Ave. The UNE Portland campus has many contributions of building typologies in form and time period and the Facilities Building connects to this diversity.
- The preservation of the Facilities Building also creates an opportunity to improve the network of pedestrian paths and gathering spaces as a linkage between the collection of buildings at the northern portion of the campus

Urban Design:

- The connectivity from the public way and within the campus to the proposed Center for Health Sciences can be enhanced. The existing building entrance and stair tower at the east of Innovation Hall is a visual destination but creates unique challenges with the existing parking lot, service areas and indirect pedestrian pathways that should be considered into the current proposal.
- Additional pathway connections from Stevens Ave. are recommended, especially from the existing bus shelter to access Innovation Hall and the proposed Center of Health Sciences.
- Consider the addition of this visual elements, similar to the existing brick pillars and campus gateways prevalent along Stevens Avenue and at the historic Westbrook College quad. This would enhance and demarcate the boundaries and entrances to the UNE campus and provide clear pedestrian connections to the campus from Stevens Ave.

Site Design Associates
Consulting Engineering and Land Planning

April 29, 2022

Mr. James Rather
Development Review Services Manager
Planning Division
389 Congress St., Fourth Floor
Portland, ME 04101

RE: University of New England - Portland Campus
Major Site Plan Application for:
Harold and Bibby Alford Center for Health Sciences
Parcel ID 145 B018001
780 Stevens Avenue

Dear James:

On behalf of University of New England (UNE), Site Design Associates (SDA) is pleased to submit a major Site Plan Application for the referenced project. We understand the site plan application fee for a project of this size is \$4,000 and will be invoiced.

The project is located on the UNE campus in the R5 zone, where institutional post-secondary use is permitted as a conditional use. The project was reviewed with staff at two pre-application meetings on November 10, 2021, and January 24, 2022. Based on feedback from staff, the concept remains as discussed at those meetings.

This submission contains the following information:

- Major Site Plan Checklist
- Letter of Agent Authorization
- Evidence of Right, Title, and Interest
- Zoning Assessment
- Letter of Financial Capacity
- Evidence of Technical Capability
- Site Plan Standards Assessment
- Waiver Requests
- Sewall Traffic Impact Study
- Transportation Demand Management Plan
- Stormwater Management Plan
- Ability to Serve from Portland Water District and city Public Works
- HVAC Equipment Information
- Construction Management Plan

- The following project drawings:
 - C-001 Site Notes & Legends
 - CD101 Site Demolition Plan
 - CE001 Site Erosion & Sediment Control Notes
 - CE101 Erosion & Sediment Control Plan
 - CE501 Erosion & Sediment Control Details
 - CG101 Site Grading & Drainage Plan
 - CG102 Grading & Drainage Schedule
 - CG201 Connector Road Plan & Profile Sta 02+50 To 26+50 (1 Of 2)
 - CG202 Connector Road Plan & Profile Sta 26+50 To 33+00 (2 Of 2)
 - CG501 Grading & Drainage Details
 - CG502 Grading & Drainage Details
 - CP101 Layout & Materials Plan
 - CP401 Site Layout & Materials Enlargements
 - CP501 Site Layout Details
 - CP502 Site Layout Details
 - CP503 Site Layout Details
 - CP504 Site Layout Details
 - CU101 Utilities Plan
 - CU501 Utility Details
 - CU502 Utility Details
 - CU503 Utility Details
 - LP101 Planting Plan
 - LP502 Planting Detail and Plant Schedule
 - GI-001 Cover Sheet, Legend & Abbreviations
 - A-101 Ground Level - Facility Plan
 - A-102 Quad Level - Facility Plan
 - A-103 Third Level - Facility Plan
 - A-104 Fourth Level - Facility Plan
 - A-201 Exterior Elevations - North
 - A-202 Exterior Elevations - East
 - A-203 Exterior Elevations - South
 - A-204 Exterior Elevations - West
 - ES101 Site Photometric Plan
 - Sheet 1 Existing Conditions and Boundary Survey

UNE is moving its prestigious College of Osteopathic Medicine (COM), Maine's only medical school, to its Portland Campus, into a brand new, state-of-the-art facility, the Harold and Bibby Alford Center for Health Sciences. (HBACHS) The HBACHS will also house the Institute for Interprofessional Education and Practice (IPEP), building on UNE's longstanding leadership in Interprofessional Education (IPE) to create the next generation of programming—especially where IPE intersects with aging and rural populations. These changes will increase UNE's already category-leading focus on cross-disciplinary medical-

team collaboration and the use of cutting-edge technology, such as telehealth and digital medicine. UNE is poised to become not only the premiere educator of medical professionals in Northern New England, but also to serve as a national model for holistic, team-based health care education and practice.

Across Maine, New England, and the nation, there is an acute shortage of health care professionals, particularly in underserved remote, rural areas. This project allows UNE to increase its medical school class size and educate more urgently needed doctors. These changes will allow UNE to graduate professionals with best-in-class skills: improving patient outcomes through team-based care; fostering expertise with new and emerging technologies; and expanding UNE's focus on cross-cultural competencies. The resulting synergies will deepen UNE's clinical partnerships with health care providers across the state and region, and the presence of COM on the Portland Campus will increase enrollment demand for UNE's diverse slate of health professions offerings.

Details of the HBACHS are as follows:

- **Unique footprint with 12 health professions programs on one campus**, creating a dedicated health sciences hub, unique in the region and rare in U.S. higher education
- **111,-square-foot, state-of-the-art building for COM and the IIPEP**, customized for medical education according to the latest in pedagogical design, including active learning spaces and integrated technology
- **Enhanced facilities across campus and expanded programming for interprofessional studies:**
 - **Digital Health Teaching Center** with critical technology for reaching remote patients
 - **Expanded SIM lab** for team-based teaching simulations
 - **Improved anatomy lab** with dedicated space for non-COM students and partners from the health care community
 - **Flexible classrooms** to foster interaction and serve multiple learning modalities

The proposed development comprises approximately seven acres of the Portland campus of UNE on the northwesterly corner of the block defined by Stevens Avenue and Innovation Hall to the East, UNE's Main Campus and Evergreen Cemetery to the south, undeveloped woodlands to the west, and a field and wooded areas to the north. A portion of the site is currently utilized as parking for UNE and the remainder of the site is gravel parking and maintenance areas for the Maine Army National Guard. The site is primarily gravel and impervious surfaces. There are minor wetlands adjacent to the site, but no wetland impacts will occur as a result of this project.

The new home of HBACHS will be a four story, 111,813 square foot building located behind Innovation Hall on a sloped site. The ground, third and fourth floors are all

approximately 27,842 square feet. The quad level second floor (approximately 28,396 sf) is larger as this is where the building connects to Innovation Hall.

The proposed building height is 54.8 ft. The compact L-shaped building embeds the long side of the L into the existing steeply sloped site. The portion of the new building that faces Innovation Hall will be three stories tall, creating a new campus quad which will enhance visual connections to the existing campus. The facades that face the field and Bishop Street will be four stories tall as the grade falls away from the quad.

The HBACHS connects to the existing Innovation Hall with a one-story connector, where 200 square feet will be renovated for casual seating and grab and go food service. Entrances will be located on two levels, with the main entrance on the lower level, and a second level entrance from the landscaped quad area.

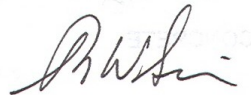
Spaces within the new building include classrooms, a 220-person lecture hall, lab spaces for hands-on learning, a suite of medical exam simulation rooms, conference rooms, faculty offices and generous amounts of open space to allow for casual interactions between students and faculty that are integral to collaborative learning.

Access to the site will be over an existing access drive from Stevens Avenue which will be reconstructed with a 24 ft wide travel way and adjacent sidewalk. Utilities are available in Stevens Avenue and the utilities have indicated their ability to serve the project.

We look forward to working with staff and the planning board toward approval of this project. Please contact me with any questions or comments concerning this conditional use application.

Sincerely,

Site Design Associates

A handwritten signature in black ink, appearing to read 'Tom Saucier', with a stylized flourish at the end.

Tom Saucier, P.E.
President

cc: Alan Thibeault, UNE, Vice president for Campus Operations

CITY OF PORTLAND

Planning & Urban Development Department

MAJOR SITE PLAN GENERAL DOCUMENT AND DRAWINGS CHECKLIST

Please submit each document as a separate PDF file.

Please confirm by electronically checking the boxes in the left-hand column.

**** PLEASE FILL OUT AND UPLOAD THE ZONING ASSESSMENT TABLE
AND WAIVER TABLE SEPARATELY AS NOTED BELOW ****

At the time of application submission, please contact the Department of Public Works regarding E-911
addressing for your project.

GENERAL APPLICATION DOCUMENTS

☒	NA	Project Description Cover letter with detailed project description
☒	NA	Completed Checklist (this document)
☒	NA	Evidence of Right, Title, and Interest Deeds, leases, or purchase and sales agreements
☒	NA	Evidence of State or Federal Approvals Permits or letters of non-jurisdiction, if applicable
☒	NA	Zoning Assessment (see <u>Zoning Assessment Table</u>) Summary of compliance with use and dimensional standards of the land use code
☒	NA	Site Plan Standards Assessment (see Section 14.6 of the land use code) Summary of project compliance with site plan standards of the land use code
☒	NA	Summary of Existing and/or Proposed Easements or Covenants, applicable. Evidence of existing easements and any proposed easements, covenants, public or private rights-of-way
☒	NA	Waiver Requests (see <u>Waiver Table</u>) Written request for waiver describing request and compliance with applicable waiver standards
☒	NA	Financial Capability Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
☒	NA	Technical Capability Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

MAJOR SITE PLAN STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include
supplemental documentation, as applicable.
Please submit each document as a separate PDF file.

TRANSPORTATION

Yes	NA	Impact on Surrounding Street Systems (14-14.6.1(A)) Describe incremental volume of traffic impacts and mitigation measures. If needed
Yes	NA	Access and Circulation (14-14.6.1(B)) Identify and describe the following: - Site access and internal circulation, including ADA access - Drive-up features, if applicable - Loading and servicing needs, routes, and geometry, providing turning templates for delivery vehicles, if applicable - Sidewalks and condition along street frontages and internal walkways - Engineered details for ADA ramps and public sidewalks, meeting sidewalk material policy and construction requirements (Technical Manual, Section 1)
Yes	NA	Public Transit (14-14.6.1(C)), if applicable Identify and describe the following: Existing available transit service and proposed transit improvements, including design details, such as easement, pad base, and shelter
Yes	NA	Off-Street Parking (14-14.6.1(D)), if applicable Identify and describe the following: - Proposed vehicular and bicycle parking supply (including ADA-compliant parking) in relation to applicable parking requirements in Article 19 of the land use code - Curb cut separation and parking layout (Technical Manual, Section 1) - Construction details for bicycle racks - Management plan for snow storage and removal
Yes	NA	Transportation Demand Management (TDM) (14-14.6.1(E)), if applicable Provide TDM plan drafted in accordance with Technical Manual Section 1 requirements

ENVIRONMENTAL		
Yes	NA	Preservation of Significant Natural Features (14-14.6.2(A)), if applicable Identify and describe the following: • High and moderate value waterfowl and wading habitat • Aquifers (for Casco Bay Islands) • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental compliance consultants and determinations from applicable state and federal agencies
Yes	NA	Landscape Preservation (14-14.6.2(B)) Identify and describe the following: • Measures to preserve trees, including within required zoning setbacks (Technical Manual, Section 4) • Measures to protect existing vegetation during construction
Yes	NA	Site Landscaping and Buffers (14-14.6.2(C)) Identify and describe the following: • Overall landscaping approach and consistency with standards • The use of screening and buffering of service areas and between non-residential and residential uses • Existing Heritage or Feature Trees on site and measures to preserve • Compliance with street tree requirements
Yes	NA	Water Quality, Stormwater Management, and Erosion Control (14-14.6.2(D)) Identify and describe the following: • Erosion and sedimentation control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater law, as applicable • Subsurface sanitary sewage disposal and groundwater protection measures

PUBLIC INFRASTRUCTURE AND COMMUNITY SAFETY		
Yes	NA	Consistency with City Master Plans (14-14.6.3(A)) Describe proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes	NA	Public Safety and Fire Prevention (14-14.6.3(B)) Identify and describe the following: - Compliance with Crime Prevention through Environmental Design (CPTED) requirements (Technical Manual, Section 3) - Emergency vehicle access - Consistency with public safety standards (Technical Manual, Section 3)
Yes	NA	Availability and Adequacy of Public Utilities (14-14.6.3(C)) (Technical Manual, Sections 2 & 9) Identify and describe the following: - Electrical services, including providing underground services - Existing and proposed connections for public utilities and required public utility upgrades - Sewer line connections
SITE DESIGN		
Yes	NA	Massing, Ventilations and Wind Impact (14-14.6.4(A)) Identify and describe the following: - Wind and ventilation impacts on adjoining structures and/or adjacent public spaces, including wind study, if applicable - Bulk, location, or height impacts on adjoining structures
Yes	NA	Shadows (14-14.6.4(B)), if applicable Provide shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes	NA	Snow and Ice Loading (14-14.6.4(C)) Describe building design measures to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes	NA	View Corridors (14-14.6.4(D)), if applicable Describe any protection of designated view corridors (Portland Design Manual, Appendix. 1)
Yes	NA	Historic Resources (14-14.6.4(E)), if applicable Identify and describe the following: - The site's status as a designated landmark, within a historic district or historic landscape district, or within 100 feet of any designated landmark, historic district, or historic landscape district - Compliance with standards for preservation and documentation of archaeological resources

Yes	NA	Exterior Lighting (14-14.6.4(F)) Describe how the proposed site lighting will adhere to photometrics requirements as it relates to light trespass and full cutoff fixture design, pursuant to Technical Manual Section 12
Yes	NA	Noise and Vibration (14-14.6.4(G)) Provide data on noise levels for HVAC and other mechanical equipment, such as design specifications, to demonstrate consistency with state and federal noise emissions requirements as well as City code
Yes	NA	Signage and Wayfinding (14-14.6.4(H)), if applicable - Provide signage plan showing the location, dimensions, height and setback of all existing and proposed signs - Provide drawings of all commercial and directional signage on site
Yes	NA	Zone-Related Design Standards (14-14.6.4(I)) Address any applicable design review standards by zone, including compliance with Design Manual

MAJOR SITE PLAN DRAWINGS CHECKLIST

Please upload the following **DRAWINGS** with the listed details into e-Plan as separate pdfs.

All drawings must be submitted in a 24 x 36 sheet size.

✓ **BOUNDARY SURVEY** (stamped by a Maine Licensed Surveyor and drawn as per Technical Manual Sec. 13)

✓ **SITE PLAN(s)** (stamped by a Maine Licensed Professional Engineer) Including:

All sheets – Include a title block with project title and the following information:

- Project street address
- Name and address of property owner & applicant
- Licensed design professional, incl firm that produced plans
- North arrow
- Date of preparation and revision history block
- Tax parcel (chart, block, and lot) number

✓ **Existing Conditions Plan** with the following:

- Existing structures, with distance from primary building façade(s) to the property line
- Approximate location of structures on abutting properties
- All streets and intersections adjacent to the site
- Existing driveways, pedestrian ways, and bicycle infrastructure, including dimensions and materials
- Existing public transit infrastructure
- Existing vehicle & bicycle parking areas
- Existing utilities on site and within adjacent rights-of-way
- Existing grades (two-foot contours preferred)
- Location of water courses, wetlands, and vegetation, or other significant natural features
- Existing soil conditions and location of test pits and borings
- Zoning boundary lines, including overlays
- Location of all existing easements and rights-of-way

✓ **Proposed Site Plan** with the following:

- Proposed structures, including distance from primary building façade(s) to property lines
- Ground floor area, and finished floor elevations for all buildings
- Any proposed geometric modifications to streets and intersections adjacent to site
- Location, dimensions and materials of all proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas, including turning templates
- Proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications
- Location of all snow storage areas
- Exterior lighting (please see Technical Manual Sec. 12 for photometrics requirements)
- Location of fire hydrants

	• Location of solid waste management receptacles • Location of all proposed HVAC and mechanical equipment, including proposed screening, where applicable • Location of proposed easements and rights-of-way, including dimensions • Please utilize color-coding and/or hatches and shading to delineate changes between the pre and post development condition as needed
✓	UTILITY PLAN including:
	• Proposed electrical infrastructure • Location, sizing and directional flows of all proposed sewer and stormwater infrastructure • Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site • Electric utility infrastructure
✓	GRADING AND DRAINAGE PLAN including:
	• Proposed grades • Proposed stormwater management measures meeting Technical Manual (Section 5) standards • Any proposed alteration of a watercourse or wetlands • Any groundwater protection measures • Proposed buffers and preservation measures for wetlands or significant natural features
✓	LANDSCAPE PLAN including:
	• Existing vegetation to be preserved and preservation measures • Proposed landscaping, screening, and street trees, including caliper widths for trees • Planting schedule, including street trees
✓	ARCHITECTURAL PLANS AND RENDERINGS including:
	• Exterior building elevations, color renderings, illustrations of all sides • Axonometric and street-level views for structures greater than three stories in height • Provide context drawings, if applicable (Design Manual, page 1) • Floor plans
✓	CONSTRUCTION MANAGEMENT PLAN including:
	• Specifics on traffic control, sidewalk sheds, and pedestrian rerouting • Include a drawing and written narrative
✓	OTHER
	• Details and cross-sections, as necessary

QUITCLAIM DEED

THE STATE OF MAINE DEPARTMENT OF DEFENSE, VETERANS AND EMERGENCY MANAGEMENT successor in interest to the **STATE OF MAINE**, acting by and through the Acting Adjutant General pursuant to 37-B M.R.S.A. § 264, (the "Grantor"), FOR CONSIDERATION PAID, grants to the **UNIVERSITY OF NEW ENGLAND**, a Maine non-profit corporation, whose mailing address is 716 Stevens Avenue Portland, ME 04103 (the "Grantee"), certain real property, together with any improvements thereon, located at 760-780 Stevens Avenue, in the City of Portland, County of Cumberland and State of Maine, more particularly describes as follows:

A certain lot or parcel of land with the buildings thereon situated on the westerly side of Stevens Avenue in the City of Portland in said County of Cumberland and State of Maine, being the same premises conveyed by Elizur B. Forbes to Portland and Forest Avenue Rail Road Company by deed dated March 22, 1864, and recorded in Cumberland County Registry of Deeds in Book 326, Page 212, in which deed said premises were bounded as follows:

"A certain parcel of land fronting on the principal street at Stevens's Plains in Westbrook aforesaid, bounded as follows; beginning on said street at the southeast corner of land formerly of Jeremiah Beedle, now of Woodbury Polleys; thence running North sixty-four and a half degrees West five hundred seven and a half feet; thence North twenty-five and a half degrees East, thirty three feet; thence North sixty-three degrees West one hundred twenty-five feet; thence South seventy-five degrees forty-five minutes West seven hundred twenty feet; thence South sixty-four degrees east nine hundred ten and a half feet; thence North twenty and a quarter degrees east one hundred forty and a half feet; thence South sixty-six and a half degrees east, three hundred twenty four feet to the street or Stevens's Plains road before mentioned; thence North (by the line of the Street) nineteen degrees and three quarters east, two hundred ninety feet to the place of beginning - estimated to contain about nine and one quarter acres."

Meaning and intending to convey the same premises delineated on the Plan of Property in Portland, Maine made for the Adjutant General, Augusta, Maine prepared by H.I. & E.C. Jordan dated August 22, 1958.

For Grantor's source of title see: Warranty Deed from Portland Rail Road Company to the State of Maine dated October 14, 1940 and recorded at the York County Registry of Deeds in Book 1619, Page 299.

MAINE REAL ESTATE TAX PAID

By his signature hereon, the Acting Adjutant General certifies that the premises being conveyed in compliance with 37-B MRSA § 264, Section 6, Subsection 5 constitutes the Portland Armory, that he has designated an officer to inspect the premises, that he has determined the property to be unfit for military use, and has condemned the premises and furthermore that the premises are not being sold for less than appraised value as determined by a person licensed as a real estate appraiser under Title 32, chapter 123 and that the State of Maine Department of Defense, Veterans and Emergency Management is the successor in interest to the State Military Defense Commission of the State of Maine.

IN WITNESS WHEREOF, the State of Maine has caused this instrument to be executed in its name by Brigadier General Gerard F. Bolduc in his capacity as the Acting Adjutant General of the Maine National Guard, pursuant to 37-B M.R.S.A. § 264, this 11 day of June, 2015.

JA.
Witness

STATE OF MAINE

By: Gerard F. Bolduc

Gerard F. Bolduc
Brigadier General, The Acting Adjutant General

State of Maine
County of Kennebec, ss

June 11, 2015

The personally appeared the above-named Brigadier General Gerard F. Bolduc, The Acting Adjutant General of the Maine National Guard, and acknowledged the foregoing instrument to be his free act and deed and, pursuant to authorization of the Maine Legislature as found in 37-B M.R.S.A. § 264, the free act and deed of the State of Maine.

Before me,

Stacy M. Bradbury

Notary Public/Attorney-at-Law

Commission Expires:

Print Name: Stacy M. Bradbury

Under authority of
37-B MRSA 390-C.
Attorney at Law

Received
Recorded Register of Deeds
Jun 17, 2015 08:54:11A
Cumberland County
Nancy A. Lane



ZONING ANALYSIS Relevant Zone(s) R5

All Projects:

	Required	Proposed
Lot Size	2 acres	70 acres +/-
Area Per Dwelling Unit	NA	
Minimum Street Frontage	50 ft	579.46 ft*
Front Yard Setback	30 ft	404 ft +/-
Front Yard Maximum		
Rear Setback	30 ft	> 30 ft
Yard Right		
Yard Left		
Side Setback	30 ft	84 ft +/-
Step Back		
Maximum Lot Coverage**	40%	15%+/-
Minimum Lot Coverage		
Maximum Height	55 ft	54.8 ft +/-
Open Space		
Maximum Impervious Area		
Pavement Setback		
Floor Area Ratio		
Off Street Parking Spaces		
Loading Bays		
Other 1		
Other 2		
Other 3		

* Along Stevens Ave north of College Street

** In R5 zone

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

Waiver Requests

Standard to be waived:

Technical Manual Section 1.17, Electric Vehicle Infrastructure

Electrical outlets or installed chargers capable of providing Level 2 EV charging or higher for 20% of parking spaces

Waiver sought and justification:

Allow EV charging stations to be provided for 15.5% of parking spaces given that UNE is providing a substantial number of EV chargers capable of handling current and future demand and sufficient capacity is available for future demand.

Standard to be waived:

Land Use Code 14.6.2.C.3. Parking and Vehicle Display Lot Landscaping

- a. Developments shall include at least two trees (or one tree and three shrubs) per five parking spaces planted in landscaped islands to screen, shade, and break up parking. Trees and shrubs in parking lots may be in informal groups, straight rows, or concentrated in clusters as described in the landscaping and landscape preservation standards of the Technical Manual.
- b. Landscaped islands shall be distributed so that uninterrupted pavement does not exceed forty parking spaces.

Waiver sought and justification: Reduced parking lot landscape and islands.

1. Enhanced maintenance and snow removal.
2. Interior site landscaping significantly exceeds ordinance requirements.
3. Development will result in an increase of 43,000 sf of vegetation on the site, with the removal of impervious area.
4. Additional islands and landscaping would result in an expanded footprint of the parking lot, increasing stormwater runoff and impacts to adjacent wetlands.
5. Stormwater treatment facilities are designed to filter and cool runoff from storm events.
6. Significant screening and buffering exists around the site perimeter.

Standard to be waived:

Technical Manual Section 12.3.5, General Standards – Luminaire Types

All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamps specified to be maximum of 3000K CCT.

Waiver sought and justification:

The 3000 CCT that is currently the Portland standard, will provide a very warm color with a large amount of yellow light emitted from the light fixtures. This CCT is generally used in homes, guest rooms of hotels, hotel lobbies dining areas, etc. where you want to create a warm and calming atmosphere. This CCT will also not provide accurate viewing of any of the primary colors. For example; a red car being lit with 3000 CCT will appear gray, and a blue shirt being viewed under 3000 CCT will appear black. Color distinction is very difficult.

Outdoor lighting, specifically in locations such as college campus parking lots where both vehicular-pedestrian traffic and security are of the utmost concern, is traditionally designed with a color temperature of 4000K-5000K. The higher CCT produces an increased amount of lighting in the blue wavelength range as opposed to the yellow light emitted from a 3000K light source. This leads to an increase in the alertness and visual acuity of the area's occupants, enhancing both the safety and security of the space. IESNA's RP-20 *Lighting for Parking Facilities* agree with the recommendation of using higher CCT, cooler lighting sources for alertness, safer vehicular traffic, and security in parking environments. A waiver from the city standard is requested, and was granted by staff for a recent UNE project.



Office of Finance and Administration

Biddeford Campus
11 Hills Beach Road
Biddeford, ME 04005
U.S.A.
(207) 283-0171

Portland Campus
716 Stevens Avenue
Portland, ME 04103
U.S.A.
(207) 797-7261

www.une.edu

April 25, 2022

City of Portland
Planning Board
389 Congress St.
Portland, ME 04101

Dear Planning Board Members,

Please accept this letter as assurance that the University of New England (UNE) has the financial capacity to construct, equip, and operate the proposed Harold and Bibby Alfond Center for Health Sciences.

From 2017 to 2021, UNE has experienced a total positive change in net assets from operations of over \$175 million. These surpluses have improved upon the University's liquidity position and overall financial capacity. Total net assets during the same period increased from \$285 million to over \$445 million. This demonstrates UNE's continued commitment to sound management practices and financial sustainability.

To date, UNE has raised over \$30 million to construct and equip the proposed Harold and Bibby Alfond Center for Health Sciences. These fundraising efforts are continuing. Additionally, UNE holds A-level credit ratings from Moody's Investor Services and Fitch Ratings which has provided access to capital markets for project financing. The University issued the UNE Series 2021AB Revenue Bonds in December of 2021 which included \$50 million dedicated to the design and construction of the Harold and Bibby Alfond Center for Health Sciences. Long range financial planning analysis and cash flow projections provide further confirmation that the University can readily afford the construction and future direct and indirect operating costs associated with the proposed project.

Taking into consideration the \$30 million raised, \$50 of debt financing secured, and financial strength of the University, management is confident it has sufficient resources to complete the project.

Respectfully submitted,

Nicole L. Labbé-Trufant
Senior Vice President for Finance and Administration
University of New England

Technical Ability

UNE has completed numerous projects on the campus in recent years, including:

- College of Pharmacy
- Innovation Hall
- Oral Health Center

UNE has retained a qualified team to permit, design, and construct the project, including:

Civil Engineer, Permitting & Survey

Site Design Associates
23 Whitney Way
Topsham, Maine 04086

Architect:

SMRT, Inc.
75 Washington Avenue
Suite 3A
Portland, Maine 04101

Construction Manager

Ledgewood
27 Main St
South Portland, ME 04106

Applicable Site Plan Standards

University of New England (UNE) has recently announced plans to consolidate its College of Osteopathic Medicine onto its Portland campus to improve its Interprofessional Education (IPE) model to provide an even better prepared and more robust workforce in the future. The new home of The Harold and Bibby Alford Center for Health Sciences (HBACHS) will be a new four story, 111, 813 square foot building located behind Innovation Hall on a sloped site. The portion of the new building that faces Innovation Hall will be three stories tall, creating a new campus quad which will provide visual connections to the existing campus, and have a connector providing for direct access to Innovation Hall and its state-of-the-art simulator. The facades that face the rear of the campus and Bishop Street will be four stories tall as the grade falls away from the campus center.

Sustainability and environmental stewardship are highly valued by UNE. The HBACHS building will be designed to incorporate best practices around sustainability and occupant wellness, as well as making significant efforts to reduce the University's carbon footprint.

Section 14.6 of the Land Use Ordinance outlines the standards for Site Plan Approval. The following discussion documents compliance with the applicable standards.

14.6.1.A. Impact on Surrounding Street Systems. – See attached Traffic Impact Study by Sewall.

14.6.1.B. Access and Circulation. As presented at the pre-application meetings, the site will continue to be accessed via an existing access drive which will be reconstructed with a 24 ft wide travel way and adjacent sidewalk from an existing curb cut in Stevens Avenue. Details and cross sections for this work are included in the drawings.

A new parking lot will be constructed creating 193 spaces (including 6 accessible) to the immediate west of the new building in the general location of the existing parking area. The parking lot will include motorcycle parking and 30 EV charging stations.

The HBACHS building will include a formal service yard on the north side, adjacent to the existing internal access drive. This area will be bounded on two sides with a retaining wall with rail, and one side by the building, effectively screening this area from public view. The service yard will provide for two dumpsters with screening fence and gate enclosure, a future generator, and loading and receiving for building services.

The public access to the building will be on the lower level. The ground floor has the entry from the parking lot/shuttle stop and houses the Standardized Patient Suite, the Osteopathic Manipulative Medicine (OMM) Clinic along with meeting rooms, student lockers and the mechanical/electrical and building support spaces.

There are existing sidewalks along UNE's Stevens Avenue frontage. The city will be reconstructing portion of the sidewalks this spring.

14.6.1.C. Public Transit Access – The campus is presently serviced by the Greater Portland Metro Route 9 connecting to the City of Portland. The two existing bus stops and shelters along Stevens Avenue will remain.

14.6.1.D. Parking – As noted previously, 193 vehicle parking spaces will be located in a lot westerly of the building. This will include six accessible spaces, motorcycle parking, and EV charging stations. Twenty (20) dual bicycle racks are included at the main entrance and in the upper quad area, and are detailed on the drawings.

COM building parking lot design provides (2) dual-port, Level 2 (208V, 40A-60A) and (13) dedicated duplex receptacles for connection of Level 1 (120V, 12A) EV car charges. Duplex receptacles will be mounted to lighting fixtures throughout the parking lot to allow for distributed charging. Between Level 1 and Level 2 charging stations, a total of (30) parking spaces have EV charging capabilities.

Additionally, each landscaped parking island/row have both a power and communications conduit and handhole location centered with the green space to allow for wiring to future EV stations at all parking spaces. Power distribution equipment and wiring is not planned for these future spaces at initial construction.

Snow storage will be off the southerly end of the parking lot and along the perimeter, and will be removed from the site if necessary.

14.6.1.E. Transportation Demand Management – See TDM attached. UNE's Portland campus Transportation Plan has been developed with its main goal being to reduce vehicle trips and, thus, reduce the demand for on-site parking. UNE hopes to achieve this goal by increasing Transportation Demand Management (TDM) actions through the promotion and encouragement of alternative modes of transportation.

14.6.2.A. Preservation of Significant Natural Features – The project is generally located in a currently developed area. There will be no freshwater wetlands impacted by the project.

14.6.2.B. Landscape Preservation – No significant trees will be removed to construct the project. The project when complete will result in significant reestablishment of vegetated areas which are currently compacted gravel and impervious surfaces. The impervious area on the site will be reduced by over 40,000 sf. There will be clearing along the western edge of the site to allow for installation of stormwater features. Refer to sheet CD101 in the plan set.

Any individual trees or groupings of trees to remain will be protected in place with fencing as outlined in the specifications. Refer to sheet CE101.

An erosion and sedimentation control plan has been developed which will minimize both sedimentation and runoff.

Limited work is proposed within setback areas and primarily consists of reconstruction of an existing driveway. Individual trees are called out to be protected in areas where parcel abuts adjacent landowners.

14.6.2.C. Site Landscaping and Buffers – The project site is located on a rear portion of the property, and is not proximate to any public street frontage. Loading and service areas will not be readily visible from public streets or sidewalks. The project involves the redevelopment of a developed parcel on a college campus. The existing vegetation along the perimeters of the site, including along the existing street frontage on Steven Avenue is to remain.

The site has 580 linear feet of frontage along Stevens Avenue which would require approximately 20 shade trees or 120 plantings as describe in this ordinance. There are 66 shade trees (including some existing) and 134 perennials proposed for the interior of the site.

The HBACHS building will include a formal service yard on the north side, adjacent to the existing internal access drive. This area will be bounded on two sides with a retaining wall with rail, and on one side by the building, effectively screening this area from public view. The service yard will provide for two dumpsters with screening fence and gate enclosures, a future generator, and loading and receiving for building services.

Buffering is proposed between the proposed development and the adjacent Fuller properties. Seven 8'-10' White Fir are proposed to be planted at 15' on center in gaps between existing trees.

Limited landscape planting within the parking lot has been proposed for this internal campus parking lot in consideration of maintenance and snow removal operations. Proposed quantities do not meet ordinance requirements and a waiver is requested. See the waiver section for the request.

Landscape islands within the parking lot have been proposed for this internal campus parking lot in consideration of maintenance and snow removal operations. Proposed quantities do not meet ordinance quantities and a waiver is requested. See the waiver section for the request.

14.6.2.D. Water Quality, Stormwater Management, and Erosion Control – See the Stormwater Management Plan.

14.6.3.A. Consistency with City Master Plans – We are unaware of any conflicts with city council approved master plans.

This project is in basic harmony with the City's Comprehensive Plan and the City's goals and policies expressed in that plan. UNE has been able to incorporate the City's Comprehensive Plan goals and policies while at the same time supporting the University's priorities for growth and for improving the quality of the education it provides to Portland's residents and the local region. The City's Comprehensive Plan for institutional growth has been put in place to "ensure that the growth of Portland's educational, medical and cultural institutions is integrated into Portland's urban fabric through the use of high-quality design, management of impacts, community partnerships, and innovative planning" (Comprehensive Plan, p.45). UNE has fully embraced this statement and has assimilated this vision into its development plans.

UNE has discussed its key institutional needs -- to upgrade and grow its programs on the Portland campus to support the continued requirements of the University to provide state of the art post-secondary and graduate studies in fields such as healthcare, dentistry and pharmacy to name a few. All of these programs have and will continue to support the growing need to deliver public services to the people of northern New England and in particular the City of Portland along with providing highly trained professionals to the local workforce. The City of Portland's 2030 Comprehensive Plan "promotes the orderly expansion of institutional uses, such as educational and hospital campuses, which are central to workforce development, employment, and the health of the local and regional economies" (City of Portland's Comprehensive Plan, p.45)

14.6.3.B. Public Safety and Fire Prevention – The plan has been reviewed by the fire department who commented that the access and fire hydrant placement are acceptable.

In regards to Crime Prevention Through Environmental Design (CPTED), UNE aims to create a safe environment for all in and around its campus. UNE's Campus Safety and Security Department monitors UNE's campuses through in-person patrols and CCTV cameras and provides response to any situations that may arise, 24 hours a day/7 days a week.

UNE has currently incorporated some or all of the following design strategies on its Portland campus that have been demonstrated to deter criminal activity. It is the intent to continue to integrate these strategies on future developments on the campus:

- Providing a clean and aesthetically pleasing campus environment that is designed with vandal-resistant materials
- Providing clear and properly-sized signs in safe locations to ensure safe wayfinding
- Ensuring that paths from transit stops, bike storage areas, and parking areas to main pedestrian entrances are well-lit, with clear sight lines
- Designing street-level elevations and landscaping areas to minimize potential hideouts
- Call boxes with blue lights for easy identification
- Installation of CCTV to monitor remote areas
- Insure adequate lighting levels on walkways, parking lots and roadways.

UNE's Campus Safety and Security Department provides a yearly Clery Report that reports the past year's offense/crime statistics on each of its campuses. Over the past 3 years there have been no events reported related to issues stemming from CPTED deficiencies on the Portland campus. The University feels that active CPTED during the planning of projects has contributed to this.

14.6.3.C. Public Utilities – Utilities are available in Stevens Avenue. Portland Water District, the city public works department, Unitil, and Central Maine Power have all been consulted, reviewed the proposed utility plan, and have indicated that there are no issues with providing

service to the site. The PWD ability to serve letter is attached along with the wastewater capacity authorization from the city.

14.6.4.A. Massing, Ventilation and Wind Impact – To reduce its mass and minimize its impact on other UNE buildings and the adjacent properties, the compact L-shaped building embeds the long side of the L into the existing steeply sloped site. Mechanical equipment is centrally located on the roof and the generator is located in the walled service yard that is also cut into the slope. Additionally, the building is separated from Innovation Hall by a one-story connector (approximately 60' long). We do not anticipate any adverse impact to adjacent properties or buildings in regard to wind or ventilation.

Proposed building height, bulk, and location meet the City Zoning Ordinance. All HVAC mechanical units are located on the roof. All exhaust is directed away from public spaces and any residential abutters.

14.6.4.B. Shadow – The proposed building is centrally located within UNE's existing campus; shadow studies indicate that shadows cast by the building remain on UNE property for the majority of the year and do not fall on publicly accessible open space.

14.6.4.C. Snow and Ice Loading – Not applicable. There are no abutting properties or public ways proximate to the building or site.

14.6.4.D. View Corridors – Not applicable. There are no public view corridors.

14.6.4.E. Historic Resources – Not applicable. Proposed work is not within 100 feet of a City of Portland identified Historic District. No work is proposed within 100 ft. of the Westbrook College Historic District.

No known archaeological resources have been identified within the limit work. If any such resource is discovered during construction, it will be documented and protected according to the City of Portland's Land Use Ordinance. The City of Portland's Historic Preservation Program and Maine Historic Preservation Commission will be notified if any discovery of such a resource is be uncovered.

14.6.4.F. Exterior Lighting – The photometric plan is attached.

Exterior Lighting and Controls:

All new fixtures will utilize LED technology with a color temperature of 4000K and will be full-cutoff type as defined by Illuminating Engineering Society of North America (IESNA), in order to minimize light pollution into the night sky.

While it is understood that the City of Portland requires the use of 3000K color temperature in all exterior fixtures, outdoor lighting, specifically in locations such as college campus parking lots where both vehicular-pedestrian traffic and security are of the utmost concern, is traditionally designed with a color temperature of 4000K-5000K. The higher CCT produces an increased amount of lighting in the blue wavelength range as opposed to the yellow light emitted from a 3000K light source; this leads to an increase in the alertness and visual acuity of the area's

occupants, enhancing both the safety and security of the space. IESNA's RP-20 *Lighting for Parking Facilities* agree with the recommendation of using higher CCT, cooler lighting sources for alertness, safer vehicular traffic, and security in parking environments. A waiver from the city standard is requested, and was granted by staff for a recent UNE project.

Lighting along the access drive will be provided via pole mounted area style fixtures. Fixtures will be mounted at 30'-0" AFG with Type II distribution pattern. Parking lot lights will be comprised of pole mounted area style fixtures mounted at 20'-0" AFG with Type III and Type IV distribution patterns are required to adequately illuminate the drives, intersections, and parking spaces.

In addition to roadway and parking lot lighting, pedestrian walkways along the project site will be provided with bollard light fixtures. Fixtures will be ground mounted at 3'-0" AFG with an asymmetric distribution to cast light on the walking path.

Lighting will be controlled via a building-wide lighting control system located with the building. Lighting control system will be utilized to provide astronomical clock on/off operation and to allow for schedule overrides to be programmed. In addition to astronomical on/off operation, lighting control system will be provided with exterior photocell to turn lighting on when ambient lighting levels drop below 10 f.c.

Average lighting levels for the parking lot are as follows:

EXTERIOR PHOTOMETRIC CALCULATIONS					
DESCRIPTION	AVERAGE (FC)	MAXIMUM (FC)	MINIMUM (FC)	MAX/MIN	MA
OVERALL	0.4	15.7	0.0	N/A	
ROADWAY	2.1	6.8	0.3	23:1	
PARKING LOT	2.6	5.0	0.4	13:1	
PATHWAYS	3.3	14.3	0.2	N/A	

14.6.4.G. Noise and Vibration – All HVAC units will meet the applicable local, state and federal emission requirements. See attached catalogue cuts for information. All HVAC equipment will be mounted on the roof of the proposed building. The future generator will be located in the interior of site, and away from abutting residential property.

14.6.4.H. Signage and Wayfinding – All proposed signage will be provided by the Owner and will be consistent with previously approved University of New England and City of Portland design standards and guidelines. See the architectural drawing elevations for the building signage.

14.6.4.I. Design Standards – Not applicable.

STORMWATER MANAGEMENT REPORT

UNE CENTER FOR HEALTH SCIENCES

Stevens Avenue, Portland, Maine

April 29, 2022

Introduction

Site Design Associates (SDA) was retained to assist the University of New England (UNE) (Applicant) in the design and permitting for the Harold and Bibby Alfond Center for Health Sciences building and associated redevelopment of a portion of the UNE campus on Stevens Avenue in Portland, Maine. The proposed project includes the redevelopment of approximately 7.2± acres of the existing UNE campus for the construction of the new building with a footprint of approximately 29,560± square feet and the associated access driveway, parking, landscaping, and stormwater amenities.

This Stormwater Management Report assesses both pre-development and post-development peak runoff rates and stormwater treatment practices for the redevelopment area in accordance with the City of Portland land use code.

Methodology

The stormwater runoff analysis has been undertaken utilizing the HydroCAD Stormwater Modeling System software (Version 10.0) developed by the Applied Microcomputer Systems of Chocorua, New Hampshire. The program is based upon the TR-20 computer program and the TR-55 tabular method, both of which are based upon techniques developed by the USDA Soil Conservation Service. The analysis was undertaken for the 2, 10, and 25-year frequencies (3.1, 4.6, and 5.8 inches, respectively). Twenty-four hour storms with a Type III distribution were the basis for the analysis.

All storm drainage piping and stormwater treatment BMPs have been sized for the 25-year, 24-hour storm utilizing the HydroCAD program. Copies of the pre and post development HydroCAD output are included in the Appendix A and Appendix B of this report, respectively.

Pre-Development Conditions

The site of the proposed project is located on a 7.2-acre portion of the UNE campus on Stevens Avenue in Portland, Maine, which was the site of the former Maine National Guard Armory. The area is primarily developed with an access drive, parking lots, existing buildings, and landscaped areas. As taken from the website of the “*Natural Resources Conservation Service, United States Department of Agriculture, Web Soil Survey*,” the predominant soil types in the redevelopment area are Windsor loamy sand (Wm) (HSG A) and Scantic silt loam (Sn) (HSG D). The USDA soil map is included in Appendix D of this report. The soil boundaries are shown on drawings D1.0 Pre-development Drainage Plan and D2.0 Post-development Drainage Plan in Appendix F of this report.

The easterly side of the site generally drains to the east toward Stevens Avenue. The drainage system in Stevens Avenue drains in two directions from a high point near the center of the frontage of the property. Therefore, there are two analysis points in Stevens Avenue (AP1 and AP5); one on either side of the high point. The northerly side of the site drains offsite at two locations identified as AP2 and AP3. The westerly side of the site drains through multiple small wetlands and culverts to a large wetland within the UNE campus identified as AP4.

A portion of the existing Innovation Hall roof, shown as subcatchment 0.0 on the drainage plans, drains to existing dry wells. Stormwater from SC 0.0 does not leave the site.

Stormwater peak runoff flow rates from the site for the 2, 10, and 25-year storm events were analyzed at each of the analysis points (AP1 – AP5) and are summarized in Table 1 in the Stormwater Quantity section of this report. Pre-development HydroCAD calculations are included in Appendix A. Sheet D1.0 – Pre Development Drainage Plan is included in Appendix F.

Post-Development Conditions

The proposed project includes the redevelopment of approximately 7.2± acres of the existing campus for the construction of the new building with a footprint of approximately 29,560± square feet and the associated access driveway, parking, landscaping, and stormwater amenities. The redevelopment will result in a 43,107 square foot net reduction in impervious area from the existing condition.

Stormwater will generally be collected in multiple catch basin and storm drain systems throughout the site. Runoff from the majority of the access driveway and parking lot will be directed to two grassed underdrained soil filters to provide stormwater treatment and detention prior to outletting.

Post-development stormwater peak runoff flow rates for the 2, 10, and 25-year storm events at each of the analysis points are summarized in Table 1 in the Stormwater Quantity section of this report

Stormwater Quantity

The overall stormwater runoff volume from the redevelopment site is significantly reduced due to the reduction of 43,107 square feet of impervious area. Additional stormwater detention is provided within the two grassed underdrained soil filters that will treat stormwater runoff from the majority of the proposed access driveway and parking lot.

Stormwater runoff peak flow rates for the 2, 10, and 25-year storm events were analyzed at each analysis point for both the pre and post development conditions to verify that the peak flow rates are maintained or reduced in the post development condition. Table 1 below summarizes the peak flow rates at each analysis point.

Table 1 Pre and Post Development Peak Runoff Rates (cfs)			
Storm Frequency	2-Year	10-Year	25-Year
AP1			
Pre-Development	2.5	5.0	7.1
Post-Development	2.0	4.1	6.0
AP2			
Pre-Development	1.9	2.9	3.7
Post-Development	0.0	0.0	0.0
AP3			
Pre-Development	1.9	3.4	4.7
Post-Development	0.0	0.3	0.5
AP4			
Pre-Development	16.6	18.1	21.5
Post-Development	6.5	13.5	19.2
AP5			
Pre-Development	2.8	5.5	7.9
Post-Development	2.8	5.5	7.9

As shown in the Table 1, the peak runoff rates at each analysis point under the post-development conditions will remain at or below the peak pre-development runoff rates for the 2, 10, and 25-year storm events. Based on this analysis, we do not anticipate any adverse impact on downgradient drainage systems due to the proposed development.

Stormwater runoff from subcatchment 0.0 is directed to drywells and does not leave the site.

Redevelopment and Stormwater Quality

This project consists of the redevelopment of 7.2 acres of the existing developed UNE campus on Stevens Avenue. Therefore, the City of Portland Redevelopment Standard is applicable to this project.

The existing impervious area within the redevelopment window is 214,589 square feet. The proposed impervious area within the redevelopment window is 171,482 square feet, which results in a reduction of 43,107 square feet of impervious area in the redeveloped condition. See Sheets I1.0 – Pre Development Impervious Area Plan and I2.0 – Post Development Impervious Area Plan in Appendix F for the redevelopment impervious area calculations.

Pollutant loading calculations have been performed for the pre and post development conditions within the redevelopment window in accordance with Maine DEP Chapter 500 methodology for redevelopment projects. The total impervious area will be significantly reduced, therefore, the Ranked Impact Change (RIC) from the pre to post development condition is -0.38, which would typically mean that stormwater treatment is not required because the RIC is less than 0.0. However, since more than 5,000 square feet of non-roof impervious area will be reconstructed, the

City of Portland requires that stormwater treatment is provided for a minimum of 50% of the total redeveloped impervious area. See Sheets R1.0 – Pre Development Pollutant Loading Plan and R2.0 – Post Development Pollutant Loading Plan in Appendix F for the redevelopment pollutant loading calculations.

Two grassed underdrained soil filters will be constructed to provide stormwater treatment at the site. The BMPs have been designed in accordance with the City of Portland and Maine DEP Chapter 500 rules. The soil filters will collect stormwater runoff from the new access driveway and parking lot, which are the areas of the site that will have the highest pollutant loading. The soil filters are sized to treat 1-inch over the contributing impervious area and 0.4 inches over the contributing landscaped area in accordance with the City of Portland and Maine DEP BMP regulations. The contributing areas to the stormwater filters are shown on Sheet D3.0 – Stormwater Treatment Plan in Appendix F.

The proposed stormwater management plan will collect and treat stormwater runoff from 85,909 square feet of impervious area, which results in treatment of 50.1% of the redeveloped impervious area. Stormwater treatment calculations are summarized below in Table 2.

Table 2 Water Quality Calculations										
Subcatchment Area	Impervious Area (SF)	Landscaped Area (SF)	Developed Area (SF)	Filter Area Required ¹ (SF)	Filter Area Provided (SF)	Water Quality Volume Required ² (CF)	Water Quality Volume Provided (CF)	Sediment Forebay Volume required ³ (CF)	Sediment Forebay Volume Provided (CF)	BMP
TREATED AREAS										
4.3	37,812	11,495	49,307	2,322	3,092	3,850	5,951	48	61	Soil Filter (SF1)
4.6	0	10,062	10,062							
4.4	24,710	1,319	26,029	2,739	2,831	4,543	5,131	61	61	Soil Filter (SF2)
4.5	21,831	1,361	23,192							
4.11	1,556	14,005	15,561							
TOTAL TREATED	85,909	38,242	124,151							
TOTAL REDEVELOPED IMPERVIOUS AREA ⁴	171,482									
PERCENT REDEVELOPED IMPERVIOUS AREA TREATED	50.1%									
Notes: 1. Filter area required is calculated at 5% of contributing impervious area and 2% of contributing landscaped area. 2. Water quality volume required is calculated as 1" over the contributing impervious area plus 0.4" over the contributing landscaped area. 3. Sediment Volume Required is calculated as Sanded Area (acres) x 500lbs/acre x 90 lbs/CF x 10 storms/year. 4. See Sheet I2.0 for Total Redeveloped Impervious Area.										

Urban Impaired Stream Standard

The project is located within the Capisic Brook Urban Impaired Stream (UIS) watershed, as identified by the Maine DEP. Since the project results in a net reduction of 43,107 square feet of impervious area from the existing condition, the UIS Standard is not applicable to this project. However, the proposed design achieves significant UIS mitigation credits due to the reduction of impervious area and treatment of redeveloped impervious and landscaped areas. Since there may be future redevelopment and/or expansions on the UNE campus, it is important to track these mitigation credits and bank them for use on future development within the UIS watershed.

Table 3 below summarizes the UIS mitigation credits achieved for this project based on treatment and elimination of source areas per Maine DEP Chapter 501 standards.

Table 3 Urban Impaired Stream Mitigation Credits Achieved					
Mitigation Activity	Development Type	Area (SF)	Area (AC)	Credit Per Acre	Credit Earned
Retrofit with General Standards at Required Size*	Medium Use Parking Lot	62,415	1.43	1.2	1.72
	Roof or Other Impervious Areas	13,494	0.31	0.6	0.19
	Landscaped Areas	38,243	0.88	0.3	0.26
Eliminate Impervious Source Area, Replace with Landscaped Area	Medium Use Parking Lot	36,215	0.83	0.7	0.58
	Roof or Other Impervious Areas	6,892	0.16	0.2	0.03
Cumulative UIS Mitigation Credit Achieved and Banked for Future Development					2.78

*Areas treated in grassed underdrained soil filters SF1 and SF2.

As indicated in Table 3 above, the project has achieved 2.78 UIS mitigation credits that will be banked for potential future development projects onsite.

Erosion Control

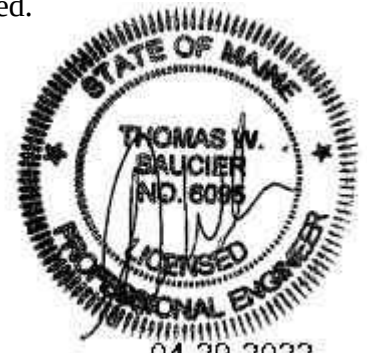
BMPs such as a stabilized construction entrance, silt fence and/or filter berms of erosion control mix, riprap pipe inlet and outlet protection, turf reinforcement matting, mulch, and permanent seeding will be used to prevent erosion and downstream migration of sediment during construction. The locations of temporary and permanent erosion control measures and erosion and sedimentation control notes and details are shown on the design drawing set.

Inspection & Maintenance

The University of New England will be responsible for maintaining the stormwater facilities for the project. An Inspection and Maintenance Plan is included as Appendix D. The plan includes a draft of a Stormwater Drainage System Maintenance Agreement, to be finalized and recorded as a condition of approval.

Conclusions

The stormwater management for this project includes a variety of BMPs to control both the quantity and quality of stormwater runoff. The HydroCAD calculations show that the peak runoff rates at the analysis points under post-development conditions are estimated to be equal to or less than the peak pre-development runoff rates for the 2, 10, and 25-year storm events. This meets the stormwater quantity requirements of the City of Portland ordinance. Stormwater treatment BMPs have been designed to treat stormwater runoff from more than 50% of the redeveloped impervious area in compliance with the City of Portland ordinance. Based on the information provided, no adverse impacts to downstream receiving bodies are anticipated.



SUPPORTING DATA AND CALCULATIONS

The following material presents calculations and copies of source material used during the analysis for this study.

Appendix A: Pre-Development HydroCAD Calculations

Appendix B: Post-Development HydroCAD Calculations

Appendix C: Stormwater BMP Spillway Calculations

Appendix D: Inspection & Maintenance Plan & City of Portland Maintenance Agreement

Appendix E: USDA NRCS Soil Map

Appendix F: Drainage Plans

I1.0 – Pre Development Impervious Area Plan

I2.0 – Post Development Impervious Area Plan

R1.0 – Pre Development Pollutant Loading Plan

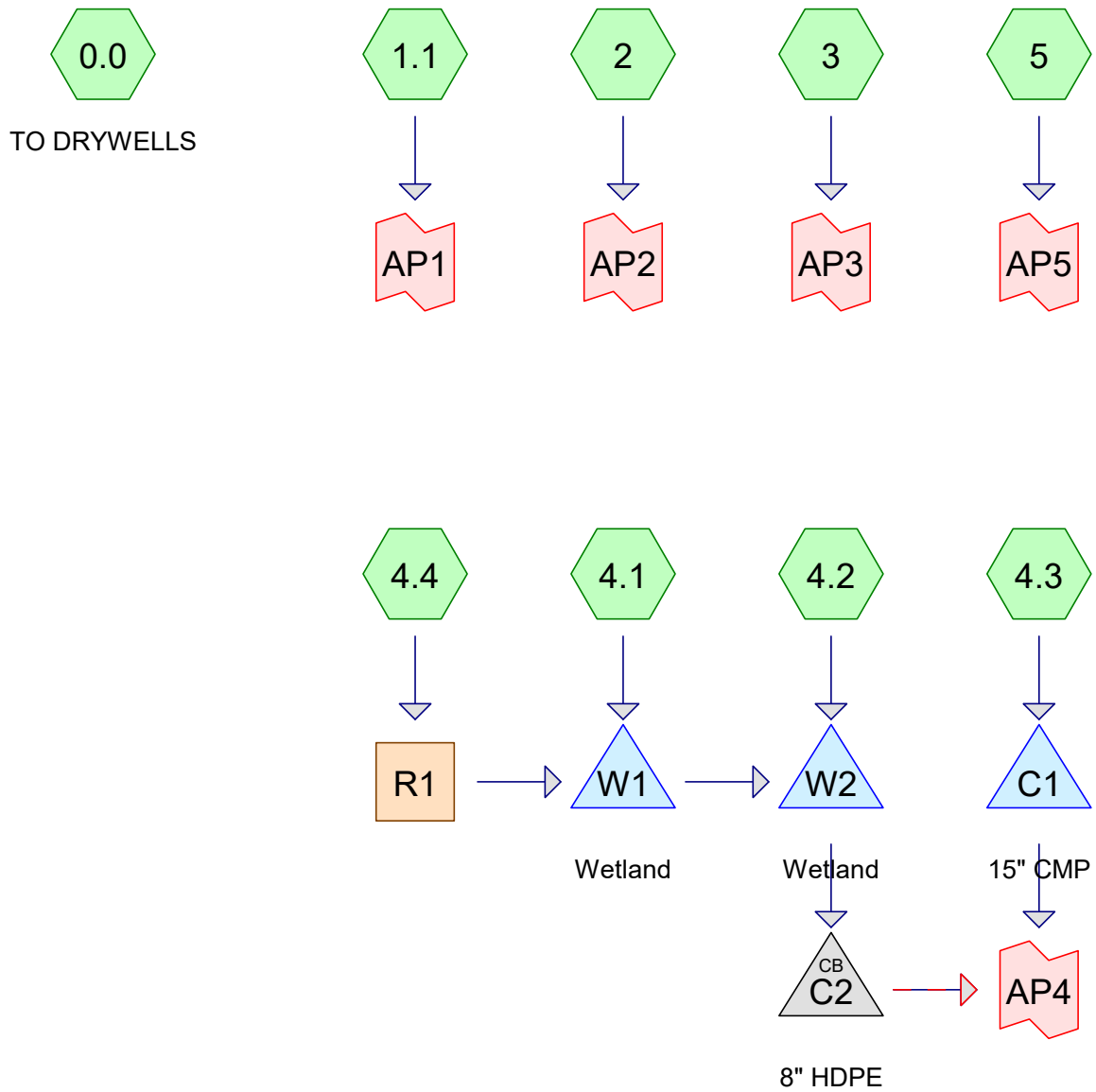
R2.0 – Post Development Pollutant Loading Plan

D1.0 – Pre Development Drainage Plan

D2.0 – Post Development Drainage Plan

D3.0 – Stormwater Treatment Plan

Appendix A:
Pre-Development HydroCAD Calculations



Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 0.0: TO DRYWELLS	Runoff Area=16,178 sf 100.00% Impervious Runoff Depth>2.87" Tc=5.0 min CN=98 Runoff=1.15 cfs 0.089 af
Subcatchment 1.1:	Runoff Area=73,008 sf 67.16% Impervious Runoff Depth>1.26" Tc=5.0 min CN=79 Runoff=2.52 cfs 0.176 af
Subcatchment 2:	Runoff Area=28,684 sf 92.59% Impervious Runoff Depth>2.45" Tc=5.0 min CN=94 Runoff=1.87 cfs 0.134 af
Subcatchment 3:	Runoff Area=43,749 sf 61.78% Impervious Runoff Depth>1.53" Tc=5.0 min CN=83 Runoff=1.86 cfs 0.128 af
Subcatchment 4.1:	Runoff Area=155,030 sf 42.26% Impervious Runoff Depth>0.59" Flow Length=520' Tc=13.8 min CN=66 Runoff=1.50 cfs 0.175 af
Subcatchment 4.2:	Runoff Area=154,566 sf 72.80% Impervious Runoff Depth>2.07" Tc=5.0 min CN=90 Runoff=8.84 cfs 0.613 af
Subcatchment 4.3:	Runoff Area=34,895 sf 0.00% Impervious Runoff Depth>1.14" Flow Length=80' Slope=0.0900 '/' Tc=10.0 min CN=77 Runoff=0.90 cfs 0.076 af
Subcatchment 4.4:	Runoff Area=24,940 sf 100.00% Impervious Runoff Depth>2.87" Tc=5.0 min CN=98 Runoff=1.78 cfs 0.137 af
Subcatchment 5:	Runoff Area=80,791 sf 67.43% Impervious Runoff Depth>1.26" Tc=5.0 min CN=79 Runoff=2.79 cfs 0.195 af
Reach R1:	Avg. Flow Depth=0.24' Max Vel=2.90 fps Inflow=1.78 cfs 0.137 af n=0.022 L=300.0' S=0.0167 '/' Capacity=111.27 cfs Outflow=1.72 cfs 0.137 af
Pond C1: 15" CMP	Peak Elev=95.53' Storage=79 cf Inflow=0.90 cfs 0.076 af 15.0" Round Culvert n=0.025 L=20.0' S=0.0050 '/' Outflow=0.85 cfs 0.076 af
Pond C2: 8" HDPE	Peak Elev=98.04' Inflow=15.87 cfs 0.859 af Primary=1.93 cfs 0.616 af Secondary=13.94 cfs 0.243 af Outflow=15.87 cfs 0.859 af
Pond W1: Wetland	Peak Elev=100.41' Storage=6,526 cf Inflow=2.63 cfs 0.312 af Outflow=0.31 cfs 0.246 af
Pond W2: Wetland	Peak Elev=98.01' Storage=1,215 cf Inflow=8.96 cfs 0.859 af Outflow=15.87 cfs 0.859 af
Link AP1:	Inflow=2.52 cfs 0.176 af Primary=2.52 cfs 0.176 af
Link AP2:	Inflow=1.87 cfs 0.134 af Primary=1.87 cfs 0.134 af
Link AP3:	Inflow=1.86 cfs 0.128 af Primary=1.86 cfs 0.128 af

Pre-Development_COM*Type III 24-hr 2-Yr Storm Rainfall=3.10"*

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Link AP4:Inflow=16.60 cfs 0.935 af
Primary=16.60 cfs 0.935 af**Link AP5:**Inflow=2.79 cfs 0.195 af
Primary=2.79 cfs 0.195 af**Total Runoff Area = 14.046 ac Runoff Volume = 1.723 af Average Runoff Depth = 1.47"**
38.50% Pervious = 5.408 ac 61.50% Impervious = 8.638 ac

Summary for Subcatchment 0.0: TO DRYWELLS

Runoff = 1.15 cfs @ 12.07 hrs, Volume= 0.089 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 16,178	98	Impervious
16,178		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 1.1:

Runoff = 2.52 cfs @ 12.08 hrs, Volume= 0.176 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 49,030	98	Impervious
23,978	39	>75% Grass cover, Good, HSG A
73,008	79	Weighted Average
23,978		32.84% Pervious Area
49,030		67.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 1.87 cfs @ 12.07 hrs, Volume= 0.134 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 26,559	98	Impervious
2,125	39	>75% Grass cover, Good, HSG A
28,684	94	Weighted Average
2,125		7.41% Pervious Area
26,559		92.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 1.86 cfs @ 12.08 hrs, Volume= 0.128 af, Depth> 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	27,030	98	Impervious
	3,290	39	>75% Grass cover, Good, HSG A
	3,686	80	>75% Grass cover, Good, HSG D
	2,065	30	Brush, Good, HSG A
	1,737	30	Woods, Good, HSG A
	5,941	77	Woods, Good, HSG D
	43,749	83	Weighted Average
	16,719		38.22% Pervious Area
	27,030		61.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.1:

Runoff = 1.50 cfs @ 12.23 hrs, Volume= 0.175 af, Depth> 0.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	65,523	98	Impervious
	30,118	39	>75% Grass cover, Good, HSG A
	41,927	30	Woods, Good, HSG A
	17,462	77	Woods, Good, HSG D
	155,030	66	Weighted Average
	89,507		57.74% Pervious Area
	65,523		42.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	110	0.0140	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.10"
0.9	110	0.1600	2.00		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
0.5	300	0.0170	9.36	112.37	Trap/Vee/Rect Channel Flow, CD Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.022 Earth, clean & straight
13.8	520	Total			

Summary for Subcatchment 4.2:

Runoff = 8.84 cfs @ 12.07 hrs, Volume= 0.613 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	112,529	98	Impervious
	3,492	39	>75% Grass cover, Good, HSG A
	3,392	80	>75% Grass cover, Good, HSG D
	3,417	30	Brush, Good, HSG A
	31,736	77	Woods, Good, HSG D
	154,566	90	Weighted Average
	42,037		27.20% Pervious Area
	112,529		72.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.3:

Runoff = 0.90 cfs @ 12.15 hrs, Volume= 0.076 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
	34,895	77	Woods, Good, HSG D
	34,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	80	0.0900	0.13		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 4.4:

Runoff = 1.78 cfs @ 12.07 hrs, Volume= 0.137 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	24,940	98	Impervious
	24,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 2.79 cfs @ 12.08 hrs, Volume= 0.195 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	54,474	98	Impervious
	24,317	39	>75% Grass cover, Good, HSG A
*	2,000	39	
	80,791	79	Weighted Average
	26,317		32.57% Pervious Area
	54,474		67.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach R1:

Inflow Area = 0.573 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Yr Storm event
Inflow = 1.78 cfs @ 12.07 hrs, Volume= 0.137 af
Outflow = 1.72 cfs @ 12.09 hrs, Volume= 0.137 af, Atten= 3%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 2.90 fps, Min. Travel Time= 1.7 min
Avg. Velocity= 0.83 fps, Avg. Travel Time= 6.0 min

Peak Storage= 178 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 111.27 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 ' ' Top Width= 10.00'
Length= 300.0' Slope= 0.0167 ' '
Inlet Invert= 108.00', Outlet Invert= 103.00'

**Summary for Pond C1: 15" CMP**

Inflow Area = 0.801 ac, 0.00% Impervious, Inflow Depth > 1.14" for 2-Yr Storm event
Inflow = 0.90 cfs @ 12.15 hrs, Volume= 0.076 af
Outflow = 0.85 cfs @ 12.19 hrs, Volume= 0.076 af, Atten= 6%, Lag= 2.4 min
Primary = 0.85 cfs @ 12.19 hrs, Volume= 0.076 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

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Type III 24-hr 2-Yr Storm Rainfall=3.10"

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Peak Elev= 95.53' @ 12.19 hrs Surf.Area= 446 sf Storage= 79 cf

Plug-Flow detention time= 0.5 min calculated for 0.076 af (100% of inflow)

Center-of-Mass det. time= 0.5 min (857.0 - 856.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	95.00'	3,164 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
95.00	0	0.0	0	0	0	
96.00	1,595	626.0	532	532	31,186	
97.00	3,831	882.0	2,633	3,164	61,916	

Device	Routing	Invert	Outlet Devices
#1	Primary	94.90'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.90' / 94.80' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=0.84 cfs @ 12.19 hrs HW=95.53' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 0.84 cfs @ 2.00 fps)**Summary for Pond C2: 8" HDPE**

Inflow Area = 7.680 ac, 60.68% Impervious, Inflow Depth > 1.34" for 2-Yr Storm event
 Inflow = 15.87 cfs @ 12.12 hrs, Volume= 0.859 af
 Outflow = 15.87 cfs @ 12.12 hrs, Volume= 0.859 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.93 cfs @ 12.12 hrs, Volume= 0.616 af
 Secondary = 13.94 cfs @ 12.12 hrs, Volume= 0.243 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 98.04' @ 12.12 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.60'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.60' / 95.30' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	97.40'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.93 cfs @ 12.12 hrs HW=98.04' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.93 cfs @ 5.52 fps)**Secondary OutFlow** Max=13.94 cfs @ 12.12 hrs HW=98.04' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 13.94 cfs @ 2.16 fps)

Summary for Pond W1: Wetland

Inflow Area = 4.132 ac, 50.27% Impervious, Inflow Depth > 0.91" for 2-Yr Storm event
 Inflow = 2.63 cfs @ 12.13 hrs, Volume= 0.312 af
 Outflow = 0.31 cfs @ 14.19 hrs, Volume= 0.246 af, Atten= 88%, Lag= 123.7 min
 Primary = 0.31 cfs @ 14.19 hrs, Volume= 0.246 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 100.41' @ 14.19 hrs Surf.Area= 8,342 sf Storage= 6,526 cf

Plug-Flow detention time= 279.0 min calculated for 0.245 af (79% of inflow)
 Center-of-Mass det. time= 191.2 min (1,028.8 - 837.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	99.40'	31,698 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
99.40	0	0.0	0	0	0
99.50	5,121	314.0	171	171	7,846
100.00	7,402	583.0	3,113	3,284	27,049
101.00	9,781	571.0	8,564	11,848	28,293
102.00	14,071	697.0	11,861	23,709	41,022
102.50	17,962	697.0	7,988	31,698	41,371

Device	Routing	Invert	Outlet Devices
#1	Primary	99.40'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 99.40' S= 0.0000 ' /' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.20 sf
#2	Device 1	99.40'	18.0" Round Culvert L= 14.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 99.40' S= 0.0000 ' /' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=0.31 cfs @ 14.19 hrs HW=100.41' TW=97.24' (Dynamic Tailwater)

↑ **1=Culvert** (Barrel Controls 0.31 cfs @ 1.56 fps)

↑ **2=Culvert** (Passes 0.31 cfs of 2.15 cfs potential flow)

Summary for Pond W2: Wetland

Inflow Area = 7.680 ac, 60.68% Impervious, Inflow Depth > 1.34" for 2-Yr Storm event
 Inflow = 8.96 cfs @ 12.07 hrs, Volume= 0.859 af
 Outflow = 15.87 cfs @ 12.12 hrs, Volume= 0.859 af, Atten= 0%, Lag= 2.8 min
 Primary = 15.87 cfs @ 12.12 hrs, Volume= 0.859 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 98.01' @ 12.11 hrs Surf.Area= 2,664 sf Storage= 1,215 cf

Plug-Flow detention time= 1.6 min calculated for 0.859 af (100% of inflow)
 Center-of-Mass det. time= 1.3 min (871.5 - 870.2)

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Type III 24-hr 2-Yr Storm Rainfall=3.10"

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Volume	Invert	Avail.Storage	Storage Description			
#1	97.00'	6,210 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.00	209	106.0	0	0	209	
98.00	2,637	405.0	1,196	1,196	12,370	
99.00	7,853	571.0	5,014	6,210	25,272	

Device	Routing	Invert	Outlet Devices			
#1	Primary	97.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)			
			Head (feet)	0.00	1.00	2.00
			Width (feet)	4.00	6.00	8.00

Primary OutFlow Max=0.00 cfs @ 12.12 hrs HW=98.01' TW=98.04' (Dynamic Tailwater)
 ↑1=Custom Weir/Orifice (Controls 0.00 cfs)

Summary for Link AP1:

Inflow Area = 1.676 ac, 67.16% Impervious, Inflow Depth > 1.26" for 2-Yr Storm event
 Inflow = 2.52 cfs @ 12.08 hrs, Volume= 0.176 af
 Primary = 2.52 cfs @ 12.08 hrs, Volume= 0.176 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP2:

Inflow Area = 0.658 ac, 92.59% Impervious, Inflow Depth > 2.45" for 2-Yr Storm event
 Inflow = 1.87 cfs @ 12.07 hrs, Volume= 0.134 af
 Primary = 1.87 cfs @ 12.07 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP3:

Inflow Area = 1.004 ac, 61.78% Impervious, Inflow Depth > 1.53" for 2-Yr Storm event
 Inflow = 1.86 cfs @ 12.08 hrs, Volume= 0.128 af
 Primary = 1.86 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP4:

Inflow Area = 8.481 ac, 54.95% Impervious, Inflow Depth > 1.32" for 2-Yr Storm event
 Inflow = 16.60 cfs @ 12.12 hrs, Volume= 0.935 af
 Primary = 16.60 cfs @ 12.12 hrs, Volume= 0.935 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP5:

Inflow Area = 1.855 ac, 67.43% Impervious, Inflow Depth > 1.26" for 2-Yr Storm event
Inflow = 2.79 cfs @ 12.08 hrs, Volume= 0.195 af
Primary = 2.79 cfs @ 12.08 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 0.0: TO DRYWELLS	Runoff Area=16,178 sf 100.00% Impervious Runoff Depth>4.36" Tc=5.0 min CN=98 Runoff=1.72 cfs 0.135 af
Subcatchment 1.1:	Runoff Area=73,008 sf 67.16% Impervious Runoff Depth>2.46" Tc=5.0 min CN=79 Runoff=5.00 cfs 0.343 af
Subcatchment 2:	Runoff Area=28,684 sf 92.59% Impervious Runoff Depth>3.91" Tc=5.0 min CN=94 Runoff=2.92 cfs 0.215 af
Subcatchment 3:	Runoff Area=43,749 sf 61.78% Impervious Runoff Depth>2.81" Tc=5.0 min CN=83 Runoff=3.42 cfs 0.235 af
Subcatchment 4.1:	Runoff Area=155,030 sf 42.26% Impervious Runoff Depth>1.46" Flow Length=520' Tc=13.8 min CN=66 Runoff=4.45 cfs 0.432 af
Subcatchment 4.2:	Runoff Area=154,566 sf 72.80% Impervious Runoff Depth>3.49" Tc=5.0 min CN=90 Runoff=14.55 cfs 1.032 af
Subcatchment 4.3:	Runoff Area=34,895 sf 0.00% Impervious Runoff Depth>2.29" Flow Length=80' Slope=0.0900 '/' Tc=10.0 min CN=77 Runoff=1.87 cfs 0.153 af
Subcatchment 4.4:	Runoff Area=24,940 sf 100.00% Impervious Runoff Depth>4.36" Tc=5.0 min CN=98 Runoff=2.66 cfs 0.208 af
Subcatchment 5:	Runoff Area=80,791 sf 67.43% Impervious Runoff Depth>2.46" Tc=5.0 min CN=79 Runoff=5.53 cfs 0.380 af
Reach R1:	Avg. Flow Depth=0.30' Max Vel=3.31 fps Inflow=2.66 cfs 0.208 af n=0.022 L=300.0' S=0.0167 '/' Capacity=111.27 cfs Outflow=2.59 cfs 0.208 af
Pond C1: 15" CMP	Peak Elev=95.80' Storage=271 cf Inflow=1.87 cfs 0.153 af 15.0" Round Culvert n=0.025 L=20.0' S=0.0050 '/' Outflow=1.64 cfs 0.153 af
Pond C2: 8" HDPE	Peak Elev=98.08' Inflow=16.90 cfs 1.493 af Primary=1.94 cfs 0.957 af Secondary=14.95 cfs 0.536 af Outflow=16.90 cfs 1.493 af
Pond W1: Wetland	Peak Elev=101.30' Storage=14,973 cf Inflow=6.09 cfs 0.640 af Outflow=0.51 cfs 0.462 af
Pond W2: Wetland	Peak Elev=98.21' Storage=1,832 cf Inflow=14.78 cfs 1.494 af Outflow=16.90 cfs 1.493 af
Link AP1:	Inflow=5.00 cfs 0.343 af Primary=5.00 cfs 0.343 af
Link AP2:	Inflow=2.92 cfs 0.215 af Primary=2.92 cfs 0.215 af
Link AP3:	Inflow=3.42 cfs 0.235 af Primary=3.42 cfs 0.235 af

Pre-Development_COM*Type III 24-hr 10-Yr Storm Rainfall=4.60"*

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Link AP4:Inflow=18.05 cfs 1.646 af
Primary=18.05 cfs 1.646 af**Link AP5:**Inflow=5.53 cfs 0.380 af
Primary=5.53 cfs 0.380 af**Total Runoff Area = 14.046 ac Runoff Volume = 3.133 af Average Runoff Depth = 2.68"**
38.50% Pervious = 5.408 ac 61.50% Impervious = 8.638 ac

Summary for Subcatchment 0.0: TO DRYWELLS

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 0.135 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 16,178	98	Impervious
16,178		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 1.1:

Runoff = 5.00 cfs @ 12.08 hrs, Volume= 0.343 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 49,030	98	Impervious
23,978	39	>75% Grass cover, Good, HSG A
73,008	79	Weighted Average
23,978		32.84% Pervious Area
49,030		67.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 2.92 cfs @ 12.07 hrs, Volume= 0.215 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 26,559	98	Impervious
2,125	39	>75% Grass cover, Good, HSG A
28,684	94	Weighted Average
2,125		7.41% Pervious Area
26,559		92.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 3.42 cfs @ 12.07 hrs, Volume= 0.235 af, Depth> 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	27,030	98	Impervious
	3,290	39	>75% Grass cover, Good, HSG A
	3,686	80	>75% Grass cover, Good, HSG D
	2,065	30	Brush, Good, HSG A
	1,737	30	Woods, Good, HSG A
	5,941	77	Woods, Good, HSG D
	43,749	83	Weighted Average
	16,719		38.22% Pervious Area
	27,030		61.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.1:

Runoff = 4.45 cfs @ 12.20 hrs, Volume= 0.432 af, Depth> 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	65,523	98	Impervious
	30,118	39	>75% Grass cover, Good, HSG A
	41,927	30	Woods, Good, HSG A
	17,462	77	Woods, Good, HSG D
	155,030	66	Weighted Average
	89,507		57.74% Pervious Area
	65,523		42.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	110	0.0140	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.10"
0.9	110	0.1600	2.00		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
0.5	300	0.0170	9.36	112.37	Trap/Vee/Rect Channel Flow, CD Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.022 Earth, clean & straight
13.8	520	Total			

Summary for Subcatchment 4.2:

Runoff = 14.55 cfs @ 12.07 hrs, Volume= 1.032 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	112,529	98	Impervious
	3,492	39	>75% Grass cover, Good, HSG A
	3,392	80	>75% Grass cover, Good, HSG D
	3,417	30	Brush, Good, HSG A
	31,736	77	Woods, Good, HSG D
	154,566	90	Weighted Average
	42,037		27.20% Pervious Area
	112,529		72.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.3:

Runoff = 1.87 cfs @ 12.14 hrs, Volume= 0.153 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
	34,895	77	Woods, Good, HSG D
	34,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	80	0.0900	0.13		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 4.4:

Runoff = 2.66 cfs @ 12.07 hrs, Volume= 0.208 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	24,940	98	Impervious
	24,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 5.53 cfs @ 12.08 hrs, Volume= 0.380 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	54,474	98	Impervious
	24,317	39	>75% Grass cover, Good, HSG A
*	2,000	39	
	80,791	79	Weighted Average
	26,317		32.57% Pervious Area
	54,474		67.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach R1:

Inflow Area = 0.573 ac, 100.00% Impervious, Inflow Depth > 4.36" for 10-Yr Storm event
Inflow = 2.66 cfs @ 12.07 hrs, Volume= 0.208 af
Outflow = 2.59 cfs @ 12.09 hrs, Volume= 0.208 af, Atten= 2%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.31 fps, Min. Travel Time= 1.5 min
Avg. Velocity= 0.94 fps, Avg. Travel Time= 5.3 min

Peak Storage= 235 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 111.27 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 ' ' Top Width= 10.00'
Length= 300.0' Slope= 0.0167 ' '
Inlet Invert= 108.00', Outlet Invert= 103.00'

**Summary for Pond C1: 15" CMP**

Inflow Area = 0.801 ac, 0.00% Impervious, Inflow Depth > 2.29" for 10-Yr Storm event
Inflow = 1.87 cfs @ 12.14 hrs, Volume= 0.153 af
Outflow = 1.64 cfs @ 12.20 hrs, Volume= 0.153 af, Atten= 12%, Lag= 3.6 min
Primary = 1.64 cfs @ 12.20 hrs, Volume= 0.153 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Yr Storm Rainfall=4.60"

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Peak Elev= 95.80' @ 12.20 hrs Surf.Area= 1,017 sf Storage= 271 cf

Plug-Flow detention time= 1.0 min calculated for 0.153 af (100% of inflow)

Center-of-Mass det. time= 1.0 min (837.1 - 836.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	95.00'	3,164 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
95.00	0	0.0	0	0	0	
96.00	1,595	626.0	532	532	31,186	
97.00	3,831	882.0	2,633	3,164	61,916	

Device	Routing	Invert	Outlet Devices
#1	Primary	94.90'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.90' / 94.80' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=1.64 cfs @ 12.20 hrs HW=95.80' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 1.64 cfs @ 2.44 fps)**Summary for Pond C2: 8" HDPE**

Inflow Area = 7.680 ac, 60.68% Impervious, Inflow Depth > 2.33" for 10-Yr Storm event
 Inflow = 16.90 cfs @ 12.08 hrs, Volume= 1.493 af
 Outflow = 16.90 cfs @ 12.08 hrs, Volume= 1.493 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.94 cfs @ 12.08 hrs, Volume= 0.957 af
 Secondary = 14.95 cfs @ 12.08 hrs, Volume= 0.536 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 98.08' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.60'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.60' / 95.30' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	97.40'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.93 cfs @ 12.08 hrs HW=98.05' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.93 cfs @ 5.53 fps)**Secondary OutFlow** Max=14.29 cfs @ 12.08 hrs HW=98.06' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 14.29 cfs @ 2.18 fps)

Summary for Pond W1: Wetland

Inflow Area = 4.132 ac, 50.27% Impervious, Inflow Depth > 1.86" for 10-Yr Storm event
 Inflow = 6.09 cfs @ 12.16 hrs, Volume= 0.640 af
 Outflow = 0.51 cfs @ 14.88 hrs, Volume= 0.462 af, Atten= 92%, Lag= 163.3 min
 Primary = 0.51 cfs @ 14.88 hrs, Volume= 0.462 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 101.30' @ 14.88 hrs Surf.Area= 10,991 sf Storage= 14,973 cf

Plug-Flow detention time= 316.1 min calculated for 0.462 af (72% of inflow)

Center-of-Mass det. time= 216.5 min (1,046.8 - 830.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	99.40'	31,698 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
99.40	0	0.0	0	0	0
99.50	5,121	314.0	171	171	7,846
100.00	7,402	583.0	3,113	3,284	27,049
101.00	9,781	571.0	8,564	11,848	28,293
102.00	14,071	697.0	11,861	23,709	41,022
102.50	17,962	697.0	7,988	31,698	41,371

Device	Routing	Invert	Outlet Devices
#1	Primary	99.40'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 99.40' S= 0.0000 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.20 sf
#2	Device 1	99.40'	18.0" Round Culvert L= 14.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 99.40' S= 0.0000 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=0.51 cfs @ 14.88 hrs HW=101.30' TW=97.30' (Dynamic Tailwater)

↑ **1=Culvert** (Barrel Controls 0.51 cfs @ 2.58 fps)

↑ **2=Culvert** (Passes 0.51 cfs of 5.85 cfs potential flow)

Summary for Pond W2: Wetland

Inflow Area = 7.680 ac, 60.68% Impervious, Inflow Depth > 2.33" for 10-Yr Storm event
 Inflow = 14.78 cfs @ 12.07 hrs, Volume= 1.494 af
 Outflow = 16.90 cfs @ 12.08 hrs, Volume= 1.493 af, Atten= 0%, Lag= 0.6 min
 Primary = 16.90 cfs @ 12.08 hrs, Volume= 1.493 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 98.21' @ 12.11 hrs Surf.Area= 3,493 sf Storage= 1,832 cf

Plug-Flow detention time= 1.7 min calculated for 1.493 af (100% of inflow)

Center-of-Mass det. time= 1.4 min (872.4 - 871.0)

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Type III 24-hr 10-Yr Storm Rainfall=4.60"

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Volume	Invert	Avail.Storage	Storage Description			
#1	97.00'	6,210 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.00	209	106.0	0	0	209	
98.00	2,637	405.0	1,196	1,196	12,370	
99.00	7,853	571.0	5,014	6,210	25,272	

Device	Routing	Invert	Outlet Devices			
#1	Primary	97.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)			
			Head (feet)	0.00	1.00	2.00
			Width (feet)	4.00	6.00	8.00

Primary OutFlow Max=10.66 cfs @ 12.08 hrs HW=98.19' TW=98.06' (Dynamic Tailwater)
 ↳ **1=Custom Weir/Orifice** (Weir Controls 10.66 cfs @ 1.73 fps)

Summary for Link AP1:

Inflow Area = 1.676 ac, 67.16% Impervious, Inflow Depth > 2.46" for 10-Yr Storm event
 Inflow = 5.00 cfs @ 12.08 hrs, Volume= 0.343 af
 Primary = 5.00 cfs @ 12.08 hrs, Volume= 0.343 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP2:

Inflow Area = 0.658 ac, 92.59% Impervious, Inflow Depth > 3.91" for 10-Yr Storm event
 Inflow = 2.92 cfs @ 12.07 hrs, Volume= 0.215 af
 Primary = 2.92 cfs @ 12.07 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP3:

Inflow Area = 1.004 ac, 61.78% Impervious, Inflow Depth > 2.81" for 10-Yr Storm event
 Inflow = 3.42 cfs @ 12.07 hrs, Volume= 0.235 af
 Primary = 3.42 cfs @ 12.07 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP4:

Inflow Area = 8.481 ac, 54.95% Impervious, Inflow Depth > 2.33" for 10-Yr Storm event
 Inflow = 18.05 cfs @ 12.08 hrs, Volume= 1.646 af
 Primary = 18.05 cfs @ 12.08 hrs, Volume= 1.646 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP5:

Inflow Area = 1.855 ac, 67.43% Impervious, Inflow Depth > 2.46" for 10-Yr Storm event
Inflow = 5.53 cfs @ 12.08 hrs, Volume= 0.380 af
Primary = 5.53 cfs @ 12.08 hrs, Volume= 0.380 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Time span=0.00-24.00 hrs, dt=0.02 hrs, 1201 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 0.0: TO DRYWELLS	Runoff Area=16,178 sf 100.00% Impervious Runoff Depth>5.56" Tc=5.0 min CN=98 Runoff=2.18 cfs 0.172 af
Subcatchment 1.1:	Runoff Area=73,008 sf 67.16% Impervious Runoff Depth>3.50" Tc=5.0 min CN=79 Runoff=7.10 cfs 0.489 af
Subcatchment 2:	Runoff Area=28,684 sf 92.59% Impervious Runoff Depth>5.10" Tc=5.0 min CN=94 Runoff=3.74 cfs 0.280 af
Subcatchment 3:	Runoff Area=43,749 sf 61.78% Impervious Runoff Depth>3.90" Tc=5.0 min CN=83 Runoff=4.70 cfs 0.327 af
Subcatchment 4.1:	Runoff Area=155,030 sf 42.26% Impervious Runoff Depth>2.29" Flow Length=520' Tc=13.8 min CN=66 Runoff=7.27 cfs 0.678 af
Subcatchment 4.2:	Runoff Area=154,566 sf 72.80% Impervious Runoff Depth>4.65" Tc=5.0 min CN=90 Runoff=19.09 cfs 1.374 af
Subcatchment 4.3:	Runoff Area=34,895 sf 0.00% Impervious Runoff Depth>3.30" Flow Length=80' Slope=0.0900 '/' Tc=10.0 min CN=77 Runoff=2.71 cfs 0.220 af
Subcatchment 4.4:	Runoff Area=24,940 sf 100.00% Impervious Runoff Depth>5.56" Tc=5.0 min CN=98 Runoff=3.36 cfs 0.265 af
Subcatchment 5:	Runoff Area=80,791 sf 67.43% Impervious Runoff Depth>3.50" Tc=5.0 min CN=79 Runoff=7.86 cfs 0.541 af
Reach R1:	Avg. Flow Depth=0.34' Max Vel=3.56 fps Inflow=3.36 cfs 0.265 af n=0.022 L=300.0' S=0.0167 '/' Capacity=111.27 cfs Outflow=3.29 cfs 0.265 af
Pond C1: 15" CMP	Peak Elev=95.98' Storage=501 cf Inflow=2.71 cfs 0.220 af 15.0" Round Culvert n=0.025 L=20.0' S=0.0050 '/' Outflow=2.25 cfs 0.220 af
Pond C2: 8" HDPE	Peak Elev=98.16' Inflow=19.70 cfs 1.974 af Primary=1.98 cfs 1.130 af Secondary=17.72 cfs 0.844 af Outflow=19.70 cfs 1.974 af
Pond W1: Wetland	Peak Elev=102.01' Storage=23,799 cf Inflow=9.33 cfs 0.943 af Outflow=0.62 cfs 0.601 af
Pond W2: Wetland	Peak Elev=98.37' Storage=2,472 cf Inflow=19.43 cfs 1.975 af Outflow=19.70 cfs 1.974 af
Link AP1:	Inflow=7.10 cfs 0.489 af Primary=7.10 cfs 0.489 af
Link AP2:	Inflow=3.74 cfs 0.280 af Primary=3.74 cfs 0.280 af
Link AP3:	Inflow=4.70 cfs 0.327 af Primary=4.70 cfs 0.327 af

Pre-Development_COM*Type III 24-hr 25-Yr Storm Rainfall=5.80"*

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Link AP4:Inflow=21.45 cfs 2.195 af
Primary=21.45 cfs 2.195 af**Link AP5:**Inflow=7.86 cfs 0.541 af
Primary=7.86 cfs 0.541 af**Total Runoff Area = 14.046 ac Runoff Volume = 4.345 af Average Runoff Depth = 3.71"**
38.50% Pervious = 5.408 ac 61.50% Impervious = 8.638 ac

Summary for Subcatchment 0.0: TO DRYWELLS

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 0.172 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	16,178	98	Impervious
	16,178		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 1.1:

Runoff = 7.10 cfs @ 12.07 hrs, Volume= 0.489 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	49,030	98	Impervious
	23,978	39	>75% Grass cover, Good, HSG A
	73,008	79	Weighted Average
	23,978		32.84% Pervious Area
	49,030		67.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 3.74 cfs @ 12.07 hrs, Volume= 0.280 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	26,559	98	Impervious
	2,125	39	>75% Grass cover, Good, HSG A
	28,684	94	Weighted Average
	2,125		7.41% Pervious Area
	26,559		92.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 4.70 cfs @ 12.07 hrs, Volume= 0.327 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	27,030	98	Impervious
	3,290	39	>75% Grass cover, Good, HSG A
	3,686	80	>75% Grass cover, Good, HSG D
	2,065	30	Brush, Good, HSG A
	1,737	30	Woods, Good, HSG A
	5,941	77	Woods, Good, HSG D
	43,749	83	Weighted Average
	16,719		38.22% Pervious Area
	27,030		61.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.1:

Runoff = 7.27 cfs @ 12.20 hrs, Volume= 0.678 af, Depth> 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	65,523	98	Impervious
	30,118	39	>75% Grass cover, Good, HSG A
	41,927	30	Woods, Good, HSG A
	17,462	77	Woods, Good, HSG D
	155,030	66	Weighted Average
	89,507		57.74% Pervious Area
	65,523		42.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	110	0.0140	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.10"
0.9	110	0.1600	2.00		Shallow Concentrated Flow, BC Woodland Kv= 5.0 fps
0.5	300	0.0170	9.36	112.37	Trap/Vee/Rect Channel Flow, CD Bot.W=2.00' D=2.00' Z= 2.0 ' Top.W=10.00' n= 0.022 Earth, clean & straight
13.8	520	Total			

Summary for Subcatchment 4.2:

Runoff = 19.09 cfs @ 12.07 hrs, Volume= 1.374 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	112,529	98	Impervious
	3,492	39	>75% Grass cover, Good, HSG A
	3,392	80	>75% Grass cover, Good, HSG D
	3,417	30	Brush, Good, HSG A
	31,736	77	Woods, Good, HSG D
	154,566	90	Weighted Average
	42,037		27.20% Pervious Area
	112,529		72.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.3:

Runoff = 2.71 cfs @ 12.14 hrs, Volume= 0.220 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
	34,895	77	Woods, Good, HSG D
	34,895		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	80	0.0900	0.13		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 4.4:

Runoff = 3.36 cfs @ 12.07 hrs, Volume= 0.265 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	24,940	98	Impervious
	24,940		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 7.86 cfs @ 12.07 hrs, Volume= 0.541 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	54,474	98	Impervious
	24,317	39	>75% Grass cover, Good, HSG A
*	2,000	39	
	80,791	79	Weighted Average
	26,317		32.57% Pervious Area
	54,474		67.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach R1:

Inflow Area = 0.573 ac, 100.00% Impervious, Inflow Depth > 5.56" for 25-Yr Storm event
Inflow = 3.36 cfs @ 12.07 hrs, Volume= 0.265 af
Outflow = 3.29 cfs @ 12.09 hrs, Volume= 0.265 af, Atten= 2%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
Max. Velocity= 3.56 fps, Min. Travel Time= 1.4 min
Avg. Velocity= 1.02 fps, Avg. Travel Time= 4.9 min

Peak Storage= 277 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 111.27 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 ' ' Top Width= 10.00'
Length= 300.0' Slope= 0.0167 ' '
Inlet Invert= 108.00', Outlet Invert= 103.00'

**Summary for Pond C1: 15" CMP**

Inflow Area = 0.801 ac, 0.00% Impervious, Inflow Depth > 3.30" for 25-Yr Storm event
Inflow = 2.71 cfs @ 12.14 hrs, Volume= 0.220 af
Outflow = 2.25 cfs @ 12.21 hrs, Volume= 0.220 af, Atten= 17%, Lag= 4.4 min
Primary = 2.25 cfs @ 12.21 hrs, Volume= 0.220 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Peak Elev= 95.98' @ 12.21 hrs Surf.Area= 1,533 sf Storage= 501 cf

Plug-Flow detention time= 1.4 min calculated for 0.220 af (100% of inflow)

Center-of-Mass det. time= 1.4 min (827.0 - 825.6)

Volume	Invert	Avail.Storage	Storage Description			
#1	95.00'	3,164 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
95.00	0	0.0	0	0	0	
96.00	1,595	626.0	532	532	31,186	
97.00	3,831	882.0	2,633	3,164	61,916	

Device	Routing	Invert	Outlet Devices
#1	Primary	94.90'	15.0" Round Culvert L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 94.90' / 94.80' S= 0.0050 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.23 sf

Primary OutFlow Max=2.25 cfs @ 12.21 hrs HW=95.98' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 2.25 cfs @ 2.67 fps)**Summary for Pond C2: 8" HDPE**

Inflow Area = 7.680 ac, 60.68% Impervious, Inflow Depth > 3.08" for 25-Yr Storm event
 Inflow = 19.70 cfs @ 12.10 hrs, Volume= 1.974 af
 Outflow = 19.70 cfs @ 12.10 hrs, Volume= 1.974 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.98 cfs @ 12.10 hrs, Volume= 1.130 af
 Secondary = 17.72 cfs @ 12.10 hrs, Volume= 0.844 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Peak Elev= 98.16' @ 12.10 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	95.60'	8.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.60' / 95.30' S= 0.0150 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.35 sf
#2	Secondary	97.40'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.98 cfs @ 12.10 hrs HW=98.15' TW=0.00' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.98 cfs @ 5.66 fps)**Secondary OutFlow** Max=17.45 cfs @ 12.10 hrs HW=98.15' TW=0.00' (Dynamic Tailwater)↑**2=Broad-Crested Rectangular Weir** (Weir Controls 17.45 cfs @ 2.33 fps)

Summary for Pond W1: Wetland

Inflow Area = 4.132 ac, 50.27% Impervious, Inflow Depth > 2.74" for 25-Yr Storm event
 Inflow = 9.33 cfs @ 12.16 hrs, Volume= 0.943 af
 Outflow = 0.62 cfs @ 15.38 hrs, Volume= 0.601 af, Atten= 93%, Lag= 192.9 min
 Primary = 0.62 cfs @ 15.38 hrs, Volume= 0.601 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 102.01' @ 15.38 hrs Surf.Area= 14,118 sf Storage= 23,799 cf

Plug-Flow detention time= 338.3 min calculated for 0.600 af (64% of inflow)
 Center-of-Mass det. time= 227.5 min (1,052.0 - 824.6)

Volume	Invert	Avail.Storage	Storage Description		
#1	99.40'	31,698 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
99.40	0	0.0	0	0	0
99.50	5,121	314.0	171	171	7,846
100.00	7,402	583.0	3,113	3,284	27,049
101.00	9,781	571.0	8,564	11,848	28,293
102.00	14,071	697.0	11,861	23,709	41,022
102.50	17,962	697.0	7,988	31,698	41,371

Device	Routing	Invert	Outlet Devices
#1	Primary	99.40'	6.0" Round Culvert L= 40.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 99.40' S= 0.0000 ' /' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.20 sf
#2	Device 1	99.40'	18.0" Round Culvert L= 14.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 99.40' S= 0.0000 ' /' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=0.62 cfs @ 15.38 hrs HW=102.01' TW=97.33' (Dynamic Tailwater)

↑ **1=Culvert** (Barrel Controls 0.62 cfs @ 3.16 fps)
 ↑ **2=Culvert** (Passes 0.62 cfs of 8.84 cfs potential flow)

Summary for Pond W2: Wetland

Inflow Area = 7.680 ac, 60.68% Impervious, Inflow Depth > 3.09" for 25-Yr Storm event
 Inflow = 19.43 cfs @ 12.07 hrs, Volume= 1.975 af
 Outflow = 19.70 cfs @ 12.10 hrs, Volume= 1.974 af, Atten= 0%, Lag= 1.8 min
 Primary = 19.70 cfs @ 12.10 hrs, Volume= 1.974 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs
 Peak Elev= 98.37' @ 12.11 hrs Surf.Area= 4,260 sf Storage= 2,472 cf

Plug-Flow detention time= 1.8 min calculated for 1.973 af (100% of inflow)
 Center-of-Mass det. time= 1.6 min (867.4 - 865.8)

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Volume	Invert	Avail.Storage	Storage Description			
#1	97.00'	6,210 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.00	209	106.0	0	0	209	
98.00	2,637	405.0	1,196	1,196	12,370	
99.00	7,853	571.0	5,014	6,210	25,272	

Device	Routing	Invert	Outlet Devices			
#1	Primary	97.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)			
			Head (feet)	0.00	1.00	2.00
			Width (feet)	4.00	6.00	8.00

Primary OutFlow Max=15.86 cfs @ 12.10 hrs HW=98.37' TW=98.15' (Dynamic Tailwater)
 ↳1=Custom Weir/Orifice (Weir Controls 15.86 cfs @ 2.15 fps)

Summary for Link AP1:

Inflow Area = 1.676 ac, 67.16% Impervious, Inflow Depth > 3.50" for 25-Yr Storm event
 Inflow = 7.10 cfs @ 12.07 hrs, Volume= 0.489 af
 Primary = 7.10 cfs @ 12.07 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP2:

Inflow Area = 0.658 ac, 92.59% Impervious, Inflow Depth > 5.10" for 25-Yr Storm event
 Inflow = 3.74 cfs @ 12.07 hrs, Volume= 0.280 af
 Primary = 3.74 cfs @ 12.07 hrs, Volume= 0.280 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP3:

Inflow Area = 1.004 ac, 61.78% Impervious, Inflow Depth > 3.90" for 25-Yr Storm event
 Inflow = 4.70 cfs @ 12.07 hrs, Volume= 0.327 af
 Primary = 4.70 cfs @ 12.07 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP4:

Inflow Area = 8.481 ac, 54.95% Impervious, Inflow Depth > 3.11" for 25-Yr Storm event
 Inflow = 21.45 cfs @ 12.10 hrs, Volume= 2.195 af
 Primary = 21.45 cfs @ 12.10 hrs, Volume= 2.195 af, Atten= 0%, Lag= 0.0 min

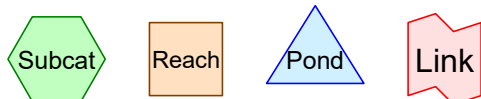
Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Summary for Link AP5:

Inflow Area = 1.855 ac, 67.43% Impervious, Inflow Depth > 3.50" for 25-Yr Storm event
Inflow = 7.86 cfs @ 12.07 hrs, Volume= 0.541 af
Primary = 7.86 cfs @ 12.07 hrs, Volume= 0.541 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.02 hrs

Appendix B:
Post-Development HydroCAD Calculations



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Time span=0.00-50.00 hrs, dt=0.02 hrs, 2501 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 0.0: TO DRYWELLS	Runoff Area=16,178 sf 100.00% Impervious Runoff Depth=2.87" Tc=5.0 min CN=98 Runoff=1.15 cfs 0.089 af
Subcatchment 1.1:	Runoff Area=67,320 sf 61.89% Impervious Runoff Depth=1.08" Tc=5.0 min CN=76 Runoff=1.95 cfs 0.139 af
Subcatchment 2:	Runoff Area=3,142 sf 0.00% Impervious Runoff Depth=0.00" Tc=5.0 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment 3:	Runoff Area=12,320 sf 0.00% Impervious Runoff Depth=0.28" Tc=5.0 min CN=57 Runoff=0.04 cfs 0.007 af
Subcatchment 4.1:	Runoff Area=85,556 sf 22.76% Impervious Runoff Depth=0.25" Flow Length=338' Tc=8.3 min CN=56 Runoff=0.20 cfs 0.041 af
Subcatchment 4.10:	Runoff Area=38,900 sf 100.00% Impervious Runoff Depth=2.87" Tc=5.0 min CN=98 Runoff=2.77 cfs 0.213 af
Subcatchment 4.11:	Runoff Area=15,561 sf 10.00% Impervious Runoff Depth=1.46" Tc=5.0 min CN=82 Runoff=0.63 cfs 0.043 af
Subcatchment 4.12:	Runoff Area=30,195 sf 94.29% Impervious Runoff Depth=2.76" Tc=5.0 min CN=97 Runoff=2.12 cfs 0.159 af
Subcatchment 4.13:	Runoff Area=7,038 sf 10.83% Impervious Runoff Depth=0.03" Tc=5.0 min CN=45 Runoff=0.00 cfs 0.000 af
Subcatchment 4.2:	Runoff Area=64,010 sf 24.27% Impervious Runoff Depth=0.17" Tc=5.0 min CN=53 Runoff=0.08 cfs 0.021 af
Subcatchment 4.3:	Runoff Area=49,308 sf 76.69% Impervious Runoff Depth=1.99" Tc=5.0 min CN=89 Runoff=2.71 cfs 0.188 af
Subcatchment 4.4:	Runoff Area=26,029 sf 94.93% Impervious Runoff Depth=2.65" Tc=5.0 min CN=96 Runoff=1.79 cfs 0.132 af
Subcatchment 4.5:	Runoff Area=23,192 sf 94.13% Impervious Runoff Depth=2.55" Tc=5.0 min CN=95 Runoff=1.56 cfs 0.113 af
Subcatchment 4.6:	Runoff Area=10,062 sf 0.00% Impervious Runoff Depth=1.20" Tc=5.0 min CN=78 Runoff=0.33 cfs 0.023 af
Subcatchment 4.7:	Runoff Area=31,446 sf 5.78% Impervious Runoff Depth=1.26" Tc=5.0 min CN=79 Runoff=1.09 cfs 0.076 af
Subcatchment 4.8:	Runoff Area=25,845 sf 0.00% Impervious Runoff Depth=1.14" Tc=5.0 min CN=77 Runoff=0.80 cfs 0.056 af
Subcatchment 4.9:	Runoff Area=24,940 sf 100.00% Impervious Runoff Depth=2.87" Tc=5.0 min CN=98 Runoff=1.78 cfs 0.137 af

Subcatchment 5: Runoff Area=80,791 sf 68.61% Impervious Runoff Depth=1.26"
Tc=5.0 min CN=79 Runoff=2.79 cfs 0.195 af

Reach R1.1: Avg. Flow Depth=0.22' Max Vel=2.93 fps Inflow=1.78 cfs 0.158 af
n=0.030 L=300.0' S=0.0367 ' /' Capacity=160.95 cfs Outflow=1.72 cfs 0.158 af

Pond C1: Twin 18" HDPE Peak Elev=96.15' Storage=791 cf Inflow=5.81 cfs 0.929 af
Primary=5.08 cfs 0.929 af Secondary=0.00 cfs 0.000 af Outflow=5.08 cfs 0.929 af

Pond C2: 15" HDPE Peak Elev=95.88' Inflow=1.46 cfs 0.275 af
Primary=1.46 cfs 0.275 af Secondary=0.00 cfs 0.000 af Outflow=1.46 cfs 0.275 af

Pond C3: 18" HDPE Peak Elev=102.28' Inflow=1.75 cfs 0.199 af
18.0" Round Culvert n=0.013 L=28.0' S=0.0571 ' /' Outflow=1.75 cfs 0.199 af

Pond CB1: CB2.2 Peak Elev=102.37' Inflow=1.79 cfs 0.132 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0050 ' /' Outflow=1.79 cfs 0.132 af

Pond CB2: CB2.3 Peak Elev=101.75' Inflow=3.34 cfs 0.245 af
18.0" Round Culvert n=0.013 L=155.0' S=0.0050 ' /' Outflow=3.34 cfs 0.245 af

Pond CB3: CB2.5 Peak Elev=96.93' Inflow=2.18 cfs 0.448 af
18.0" Round Culvert n=0.013 L=145.0' S=0.0050 ' /' Outflow=2.18 cfs 0.448 af

Pond CB4: CB3.3 Peak Elev=122.07' Inflow=1.78 cfs 0.158 af
15.0" Round Culvert n=0.013 L=102.0' S=0.0200 ' /' Outflow=1.78 cfs 0.158 af

Pond CB5: CB3.4 Peak Elev=119.93' Inflow=1.78 cfs 0.158 af
15.0" Round Culvert n=0.013 L=120.0' S=0.0607 ' /' Outflow=1.78 cfs 0.158 af

Pond CB6: CB1.10 Peak Elev=100.12' Inflow=2.71 cfs 0.188 af
15.0" Round Culvert n=0.013 L=21.0' S=0.0052 ' /' Outflow=2.71 cfs 0.188 af

Pond D2: DMH-RD2 Peak Elev=107.85' Inflow=2.77 cfs 0.214 af
15.0" Round Culvert n=0.013 L=280.0' S=0.0357 ' /' Outflow=2.77 cfs 0.214 af

Pond ED: EX DMH Peak Elev=125.08' Inflow=1.78 cfs 0.137 af
10.0" Round Culvert n=0.013 L=48.0' S=0.0260 ' /' Outflow=1.78 cfs 0.137 af

Pond SF1: Soil Filter 1 Peak Elev=99.48' Storage=5,852 cf Inflow=3.04 cfs 0.211 af
Primary=0.08 cfs 0.211 af Secondary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.211 af

Pond SF2: Soil Filter 2 Peak Elev=100.64' Storage=5,706 cf Inflow=3.97 cfs 0.288 af
Primary=1.16 cfs 0.288 af Secondary=0.00 cfs 0.000 af Outflow=1.16 cfs 0.288 af

Pond W1: Wetland Peak Elev=99.81' Storage=1,998 cf Inflow=1.75 cfs 0.199 af
18.0" Round Culvert n=0.013 L=80.0' S=0.0113 ' /' Outflow=0.69 cfs 0.199 af

Pond W2: Wetland Peak Elev=97.22' Storage=79 cf Inflow=1.48 cfs 0.275 af
Outflow=1.46 cfs 0.275 af

Link AP1: Inflow=1.95 cfs 0.139 af
Primary=1.95 cfs 0.139 af

Link AP2: Inflow=0.00 cfs 0.000 af
Primary=0.00 cfs 0.000 af

Post-Development_COM*Type III 24-hr 2-Yr Storm Rainfall=3.10"*

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Link AP3:Inflow=0.04 cfs 0.007 af
Primary=0.04 cfs 0.007 af**Link AP4:**Inflow=6.53 cfs 1.203 af
Primary=6.53 cfs 1.203 af**Link AP5:**Inflow=2.79 cfs 0.195 af
Primary=2.79 cfs 0.195 af**Total Runoff Area = 14.046 ac Runoff Volume = 1.633 af Average Runoff Depth = 1.40"**
46.21% Pervious = 6.491 ac 53.79% Impervious = 7.555 ac

Summary for Subcatchment 0.0: TO DRYWELLS

Runoff = 1.15 cfs @ 12.07 hrs, Volume= 0.089 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 16,178	98	Impervious
16,178		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 1.1:

Runoff = 1.95 cfs @ 12.08 hrs, Volume= 0.139 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 41,661	98	Impervious
25,659	39	>75% Grass cover, Good, HSG A
67,320	76	Weighted Average
25,659		38.11% Pervious Area
41,661		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
3,142	39	>75% Grass cover, Good, HSG A
3,142		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 0.04 cfs @ 12.29 hrs, Volume= 0.007 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
4,259	39	>75% Grass cover, Good, HSG A
2,584	73	Brush, Good, HSG D
1,591	30	Woods, Good, HSG A
3,886	77	Woods, Good, HSG D
12,320	57	Weighted Average
12,320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.1:

Runoff = 0.20 cfs @ 12.36 hrs, Volume= 0.041 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 19,475	98	Impervious
20,340	39	>75% Grass cover, Good, HSG A
3,943	80	>75% Grass cover, Good, HSG D
11,472	77	Woods, Good, HSG D
30,326	30	Woods, Good, HSG A
85,556	56	Weighted Average
66,081		77.24% Pervious Area
19,475		22.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	40	0.1000	0.12		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.10"
2.3	30	0.5000	0.22		Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	95	0.0260	8.47	135.53	Trap/Vee/Rect Channel Flow, CD Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.030 Earth, grassed & winding
0.1	28	0.0180	7.98	14.09	Pipe Channel, DE 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.2	145	0.0510	11.86	189.82	Trap/Vee/Rect Channel Flow, EF Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.030 Earth, grassed & winding
8.3	338	Total			

Summary for Subcatchment 4.10:

Runoff = 2.77 cfs @ 12.07 hrs, Volume= 0.213 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 38,900	98	Impervious
38,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.11:

Runoff = 0.63 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 1,556	98	Impervious
14,005	80	>75% Grass cover, Good, HSG D
15,561	82	Weighted Average
14,005		90.00% Pervious Area
1,556		10.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.12:

Runoff = 2.12 cfs @ 12.07 hrs, Volume= 0.159 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 28,472	98	Impervious
1,723	80	>75% Grass cover, Good, HSG D
30,195	97	Weighted Average
1,723		5.71% Pervious Area
28,472		94.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.13:

Runoff = 0.00 cfs @ 15.60 hrs, Volume= 0.000 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 762	98	Impervious
6,276	39	>75% Grass cover, Good, HSG A
7,038	45	Weighted Average
6,276		89.17% Pervious Area
762		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.2:

Runoff = 0.08 cfs @ 12.39 hrs, Volume= 0.021 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 15,536	98	Impervious
48,474	39	>75% Grass cover, Good, HSG A
64,010	53	Weighted Average
48,474		75.73% Pervious Area
15,536		24.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.3:

Runoff = 2.71 cfs @ 12.07 hrs, Volume= 0.188 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
* 37,812	98	Impervious
5,466	39	>75% Grass cover, Good, HSG A
6,030	80	>75% Grass cover, Good, HSG D
49,308	89	Weighted Average
11,496		23.31% Pervious Area
37,812		76.69% Impervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.4:

Runoff = 1.79 cfs @ 12.07 hrs, Volume= 0.132 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	24,710	98	Impervious
	821	39	>75% Grass cover, Good, HSG A
	498	80	>75% Grass cover, Good, HSG D
	26,029	96	Weighted Average
	1,319		5.07% Pervious Area
	24,710		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.5:

Runoff = 1.56 cfs @ 12.07 hrs, Volume= 0.113 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	21,831	98	Impervious
	1,322	39	>75% Grass cover, Good, HSG A
	39	80	>75% Grass cover, Good, HSG D
	23,192	95	Weighted Average
	1,361		5.87% Pervious Area
	21,831		94.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.6:

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.023 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
	10,062	78	Meadow, non-grazed, HSG D
	10,062		100.00% Pervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.7:

Runoff = 1.09 cfs @ 12.08 hrs, Volume= 0.076 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	1,817	98	Impervious
	4,925	80	>75% Grass cover, Good, HSG D
	24,704	77	Woods, Good, HSG D
	31,446	79	Weighted Average
	29,629		94.22% Pervious Area
	1,817		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.8:

Runoff = 0.80 cfs @ 12.08 hrs, Volume= 0.056 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
	25,845	77	Woods, Good, HSG D
	25,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.9:

Runoff = 1.78 cfs @ 12.07 hrs, Volume= 0.137 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	24,940	98	Impervious
	24,940		100.00% Impervious Area

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Type III 24-hr 2-Yr Storm Rainfall=3.10"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 2.79 cfs @ 12.08 hrs, Volume= 0.195 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	55,430	98	Impervious
	25,361	39	>75% Grass cover, Good, HSG A
	80,791	79	Weighted Average
	25,361		31.39% Pervious Area
	55,430		68.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach R1.1:

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 0.93" for 2-Yr Storm event
Inflow = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af
Outflow = 1.72 cfs @ 12.09 hrs, Volume= 0.158 af, Atten= 3%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
Max. Velocity= 2.93 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 5.4 min

Peak Storage= 176 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 160.95 cfs

2.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 3.0 ' Top Width= 14.00'
Length= 300.0' Slope= 0.0367 '
Inlet Invert= 113.00', Outlet Invert= 102.00'

**Summary for Pond C1: Twin 18" HDPE**

Inflow Area = 5.191 ac, 68.12% Impervious, Inflow Depth = 2.15" for 2-Yr Storm event
Inflow = 5.81 cfs @ 12.07 hrs, Volume= 0.929 af
Outflow = 5.08 cfs @ 12.12 hrs, Volume= 0.929 af, Atten= 13%, Lag= 2.6 min
Primary = 5.08 cfs @ 12.12 hrs, Volume= 0.929 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 96.15' @ 12.12 hrs Surf.Area= 1,869 sf Storage= 791 cf

Plug-Flow detention time= 1.6 min calculated for 0.928 af (100% of inflow)
Center-of-Mass det. time= 1.5 min (1,128.3 - 1,126.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	95.00'	6,851 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
95.00	0	0.0	0	0	0	
96.00	1,595	626.0	532	532	31,186	
97.00	3,831	882.0	2,633	3,164	61,916	
97.50	11,617	951.0	3,687	6,851	71,991	

Device	Routing	Invert	Outlet Devices
#1	Primary	95.10'	18.0" Round Culvert X 2.00 L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.10' / 95.00' S= 0.0050 ' / ' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Secondary	97.40'	400.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=5.06 cfs @ 12.12 hrs HW=96.15' TW=0.00' (Dynamic Tailwater)
↑**1=Culvert** (Barrel Controls 5.06 cfs @ 2.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=95.00' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C2: 15" HDPE

Inflow Area = 4.728 ac, 29.99% Impervious, Inflow Depth = 0.70" for 2-Yr Storm event
Inflow = 1.46 cfs @ 12.11 hrs, Volume= 0.275 af
Outflow = 1.46 cfs @ 12.11 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.0 min
Primary = 1.46 cfs @ 12.11 hrs, Volume= 0.275 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 95.88' @ 12.11 hrs
Flood Elev= 97.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	95.20'	15.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.20' / 95.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	97.40'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=1.45 cfs @ 12.11 hrs HW=95.88' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 1.45 cfs @ 3.11 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=95.20' TW=0.00' (Dynamic Tailwater)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond C3: 18" HDPE

Inflow Area = 4.006 ac, 34.35% Impervious, Inflow Depth = 0.60" for 2-Yr Storm event
 Inflow = 1.75 cfs @ 12.09 hrs, Volume= 0.199 af
 Outflow = 1.75 cfs @ 12.09 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.75 cfs @ 12.09 hrs, Volume= 0.199 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 102.28' @ 12.09 hrs

Flood Elev= 104.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.60'	18.0" Round Culvert L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 101.60' / 100.00' S= 0.0571 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.74 cfs @ 12.09 hrs HW=102.28' TW=99.72' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 1.74 cfs @ 2.22 fps)

Summary for Pond CB1: CB2.2

Inflow Area = 0.598 ac, 94.93% Impervious, Inflow Depth = 2.65" for 2-Yr Storm event
 Inflow = 1.79 cfs @ 12.07 hrs, Volume= 0.132 af
 Outflow = 1.79 cfs @ 12.07 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.79 cfs @ 12.07 hrs, Volume= 0.132 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 102.37' @ 12.07 hrs

Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.57'	15.0" Round Culvert L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.57' / 101.02' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.77 cfs @ 12.07 hrs HW=102.36' TW=101.75' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 1.77 cfs @ 3.08 fps)

Summary for Pond CB2: CB2.3

Inflow Area = 1.130 ac, 94.56% Impervious, Inflow Depth = 2.60" for 2-Yr Storm event
 Inflow = 3.34 cfs @ 12.07 hrs, Volume= 0.245 af
 Outflow = 3.34 cfs @ 12.07 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.34 cfs @ 12.07 hrs, Volume= 0.245 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 101.75' @ 12.07 hrs
Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.77'	18.0" Round Culvert L= 155.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.77' / 100.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.32 cfs @ 12.07 hrs HW=101.75' TW=100.17' (Dynamic Tailwater)
1=Culvert (Barrel Controls 3.32 cfs @ 3.86 fps)

Summary for Pond CB3: CB2.5

Inflow Area = 2.180 ac, 80.62% Impervious, Inflow Depth = 2.46" for 2-Yr Storm event
Inflow = 2.18 cfs @ 12.07 hrs, Volume= 0.448 af
Outflow = 2.18 cfs @ 12.07 hrs, Volume= 0.448 af, Atten= 0%, Lag= 0.0 min
Primary = 2.18 cfs @ 12.07 hrs, Volume= 0.448 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 96.93' @ 12.08 hrs
Flood Elev= 103.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.13'	18.0" Round Culvert L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.13' / 95.41' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=2.17 cfs @ 12.07 hrs HW=96.92' TW=96.09' (Dynamic Tailwater)
1=Culvert (Outlet Controls 2.17 cfs @ 3.33 fps)

Summary for Pond CB4: CB3.3

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 0.93" for 2-Yr Storm event
Inflow = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af
Outflow = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min
Primary = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
Peak Elev= 122.07' @ 12.07 hrs
Flood Elev= 125.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	121.42'	15.0" Round Culvert L= 102.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.42' / 119.38' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.76 cfs @ 12.07 hrs HW=122.07' TW=119.93' (Dynamic Tailwater)
1=Culvert (Inlet Controls 1.76 cfs @ 2.74 fps)

Summary for Pond CB5: CB3.4

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 0.93" for 2-Yr Storm event
 Inflow = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af
 Outflow = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.78 cfs @ 12.07 hrs, Volume= 0.158 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 119.93' @ 12.07 hrs

Flood Elev= 125.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.28'	15.0" Round Culvert L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.28' / 112.00' S= 0.0607 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.76 cfs @ 12.07 hrs HW=119.93' TW=113.22' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 1.76 cfs @ 2.74 fps)

Summary for Pond CB6: CB1.10

Inflow Area = 1.132 ac, 76.69% Impervious, Inflow Depth = 1.99" for 2-Yr Storm event
 Inflow = 2.71 cfs @ 12.07 hrs, Volume= 0.188 af
 Outflow = 2.71 cfs @ 12.07 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.71 cfs @ 12.07 hrs, Volume= 0.188 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.12' @ 12.07 hrs

Flood Elev= 103.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	99.11'	15.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.11' / 99.00' S= 0.0052 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.70 cfs @ 12.07 hrs HW=100.12' TW=98.66' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 2.70 cfs @ 3.48 fps)

Summary for Pond D2: DMH-RD2

Inflow Area = 1.055 ac, 86.34% Impervious, Inflow Depth = 2.43" for 2-Yr Storm event
 Inflow = 2.77 cfs @ 12.07 hrs, Volume= 0.214 af
 Outflow = 2.77 cfs @ 12.07 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.77 cfs @ 12.07 hrs, Volume= 0.214 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 107.85' @ 12.07 hrs

Flood Elev= 113.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	15.0" Round Culvert L= 280.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 107.00' / 97.00' S= 0.0357 ' ' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.75 cfs @ 12.07 hrs HW=107.84' TW=96.09' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 2.75 cfs @ 3.13 fps)

Summary for Pond ED: EX DMH

Inflow Area = 0.573 ac, 100.00% Impervious, Inflow Depth = 2.87" for 2-Yr Storm event
 Inflow = 1.78 cfs @ 12.07 hrs, Volume= 0.137 af
 Outflow = 1.78 cfs @ 12.07 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.78 cfs @ 12.07 hrs, Volume= 0.137 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 125.08' @ 12.07 hrs

Flood Elev= 128.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	124.20'	10.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.20' / 122.95' S= 0.0260 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.76 cfs @ 12.07 hrs HW=125.07' TW=122.07' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 1.76 cfs @ 3.23 fps)

Summary for Pond SF1: Soil Filter 1

Inflow Area = 1.363 ac, 63.69% Impervious, Inflow Depth = 1.86" for 2-Yr Storm event
 Inflow = 3.04 cfs @ 12.07 hrs, Volume= 0.211 af
 Outflow = 0.08 cfs @ 16.70 hrs, Volume= 0.211 af, Atten= 97%, Lag= 277.7 min
 Primary = 0.08 cfs @ 16.70 hrs, Volume= 0.211 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 99.48' @ 16.70 hrs Surf.Area= 4,818 sf Storage= 5,852 cf

Plug-Flow detention time= 746.4 min calculated for 0.211 af (100% of inflow)

Center-of-Mass det. time= 746.4 min (1,562.0 - 815.7)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	15,804 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.00	3,092	0	0
99.50	4,842	5,951	5,951
101.00	6,522	8,523	14,474
101.20	6,781	1,330	15,804

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.50' / 95.40' S= 0.0029 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	98.00'	0.750 in/hr Exfiltration over Surface area Phase-In= 0.01'

#3	Device 1	99.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	99.90'	10.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.08 cfs @ 16.70 hrs HW=99.48' TW=95.37' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 0.08 cfs of 6.86 cfs potential flow)

↑ **2=Exfiltration** (Exfiltration Controls 0.08 cfs)

↑ **3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=95.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SF2: Soil Filter 2

Inflow Area =	1.487 ac, 74.24% Impervious, Inflow Depth = 2.33" for 2-Yr Storm event
Inflow =	3.97 cfs @ 12.07 hrs, Volume= 0.288 af
Outflow =	1.16 cfs @ 12.39 hrs, Volume= 0.288 af, Atten= 71%, Lag= 19.3 min
Primary =	1.16 cfs @ 12.39 hrs, Volume= 0.288 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.64' @ 12.39 hrs Surf.Area= 4,133 sf Storage= 5,706 cf

Plug-Flow detention time= 549.4 min calculated for 0.288 af (100% of inflow)

Center-of-Mass det. time= 549.3 min (1,335.6 - 786.2)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	16,412 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	2,831	0	0
100.50	4,010	5,131	5,131
102.00	5,316	6,995	12,125
102.80	5,402	4,287	16,412

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 96.13' S= 0.0051 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	99.00'	0.750 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#3	Device 1	100.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	101.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.16 cfs @ 12.39 hrs HW=100.64' TW=96.81' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 1.16 cfs of 9.94 cfs potential flow)

↑ **2=Exfiltration** (Exfiltration Controls 0.07 cfs)

↑ **3=Orifice/Grate** (Weir Controls 1.09 cfs @ 1.23 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.00' TW=99.40' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond W1: Wetland

Inflow Area = 4.006 ac, 34.35% Impervious, Inflow Depth = 0.60" for 2-Yr Storm event
 Inflow = 1.75 cfs @ 12.09 hrs, Volume= 0.199 af
 Outflow = 0.69 cfs @ 12.46 hrs, Volume= 0.199 af, Atten= 61%, Lag= 22.2 min
 Primary = 0.69 cfs @ 12.46 hrs, Volume= 0.199 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 99.81' @ 12.46 hrs Surf.Area= 6,509 sf Storage= 1,998 cf

Plug-Flow detention time= 62.3 min calculated for 0.199 af (100% of inflow)

Center-of-Mass det. time= 62.4 min (886.5 - 824.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	99.40'	23,709 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
99.40	0	0.0	0	0	0
99.50	5,121	314.0	171	171	7,846
100.00	7,402	583.0	3,113	3,284	27,049
101.00	9,781	571.0	8,564	11,848	28,293
102.00	14,071	697.0	11,861	23,709	41,022

Device	Routing	Invert	Outlet Devices
#1	Primary	99.40'	18.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 98.50' S= 0.0113 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=0.69 cfs @ 12.46 hrs HW=99.81' TW=97.18' (Dynamic Tailwater)

↑ **1=Culvert** (Inlet Controls 0.69 cfs @ 1.73 fps)

Summary for Pond W2: Wetland

Inflow Area = 4.728 ac, 29.99% Impervious, Inflow Depth = 0.70" for 2-Yr Storm event
 Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.275 af
 Outflow = 1.46 cfs @ 12.11 hrs, Volume= 0.275 af, Atten= 1%, Lag= 1.0 min
 Primary = 1.46 cfs @ 12.11 hrs, Volume= 0.275 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 97.22' @ 12.11 hrs Surf.Area= 518 sf Storage= 79 cf

Plug-Flow detention time= 1.5 min calculated for 0.275 af (100% of inflow)

Center-of-Mass det. time= 1.2 min (876.8 - 875.5)

Post-Development_COM

Type III 24-hr 2-Yr Storm Rainfall=3.10"

Prepared by Site Design Associates

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Volume	Invert	Avail.Storage	Storage Description			
#1	97.00'	6,210 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.00	209	106.0	0	0	209	
98.00	2,637	405.0	1,196	1,196	12,370	
99.00	7,853	571.0	5,014	6,210	25,272	

Device	Routing	Invert	Outlet Devices			
#1	Primary	97.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)			
			Head (feet)	0.00	1.00	2.00
			Width (feet)	4.00	6.00	8.00

Primary OutFlow Max=1.45 cfs @ 12.11 hrs HW=97.22' TW=95.88' (Dynamic Tailwater)

↑1=Custom Weir/Orifice (Weir Controls 1.45 cfs @ 1.53 fps)

Summary for Link AP1:

Inflow Area = 1.545 ac, 61.89% Impervious, Inflow Depth = 1.08" for 2-Yr Storm event
 Inflow = 1.95 cfs @ 12.08 hrs, Volume= 0.139 af
 Primary = 1.95 cfs @ 12.08 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP2:

Inflow Area = 0.072 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Yr Storm event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP3:

Inflow Area = 0.283 ac, 0.00% Impervious, Inflow Depth = 0.28" for 2-Yr Storm event
 Inflow = 0.04 cfs @ 12.29 hrs, Volume= 0.007 af
 Primary = 0.04 cfs @ 12.29 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP4:

Inflow Area = 9.919 ac, 49.95% Impervious, Inflow Depth = 1.46" for 2-Yr Storm event
 Inflow = 6.53 cfs @ 12.11 hrs, Volume= 1.203 af
 Primary = 6.53 cfs @ 12.11 hrs, Volume= 1.203 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP5:

Inflow Area = 1.855 ac, 68.61% Impervious, Inflow Depth = 1.26" for 2-Yr Storm event
Inflow = 2.79 cfs @ 12.08 hrs, Volume= 0.195 af
Primary = 2.79 cfs @ 12.08 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Time span=0.00-50.00 hrs, dt=0.02 hrs, 2501 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 0.0: TO DRYWELLS	Runoff Area=16,178 sf 100.00% Impervious Runoff Depth=4.36" Tc=5.0 min CN=98 Runoff=1.72 cfs 0.135 af
Subcatchment 1.1:	Runoff Area=67,320 sf 61.89% Impervious Runoff Depth=2.21" Tc=5.0 min CN=76 Runoff=4.13 cfs 0.285 af
Subcatchment 2:	Runoff Area=3,142 sf 0.00% Impervious Runoff Depth=0.13" Tc=5.0 min CN=39 Runoff=0.00 cfs 0.001 af
Subcatchment 3:	Runoff Area=12,320 sf 0.00% Impervious Runoff Depth=0.90" Tc=5.0 min CN=57 Runoff=0.25 cfs 0.021 af
Subcatchment 4.1:	Runoff Area=85,556 sf 22.76% Impervious Runoff Depth=0.84" Flow Length=338' Tc=8.3 min CN=56 Runoff=1.37 cfs 0.138 af
Subcatchment 4.10:	Runoff Area=38,900 sf 100.00% Impervious Runoff Depth=4.36" Tc=5.0 min CN=98 Runoff=4.14 cfs 0.325 af
Subcatchment 4.11:	Runoff Area=15,561 sf 10.00% Impervious Runoff Depth=2.72" Tc=5.0 min CN=82 Runoff=1.18 cfs 0.081 af
Subcatchment 4.12:	Runoff Area=30,195 sf 94.29% Impervious Runoff Depth=4.25" Tc=5.0 min CN=97 Runoff=3.19 cfs 0.245 af
Subcatchment 4.13:	Runoff Area=7,038 sf 10.83% Impervious Runoff Depth=0.32" Tc=5.0 min CN=45 Runoff=0.02 cfs 0.004 af
Subcatchment 4.2:	Runoff Area=64,010 sf 24.27% Impervious Runoff Depth=0.68" Tc=5.0 min CN=53 Runoff=0.81 cfs 0.084 af
Subcatchment 4.3:	Runoff Area=49,308 sf 76.69% Impervious Runoff Depth=3.39" Tc=5.0 min CN=89 Runoff=4.54 cfs 0.320 af
Subcatchment 4.4:	Runoff Area=26,029 sf 94.93% Impervious Runoff Depth=4.14" Tc=5.0 min CN=96 Runoff=2.72 cfs 0.206 af
Subcatchment 4.5:	Runoff Area=23,192 sf 94.13% Impervious Runoff Depth=4.02" Tc=5.0 min CN=95 Runoff=2.39 cfs 0.179 af
Subcatchment 4.6:	Runoff Area=10,062 sf 0.00% Impervious Runoff Depth=2.38" Tc=5.0 min CN=78 Runoff=0.66 cfs 0.046 af
Subcatchment 4.7:	Runoff Area=31,446 sf 5.78% Impervious Runoff Depth=2.46" Tc=5.0 min CN=79 Runoff=2.15 cfs 0.148 af
Subcatchment 4.8:	Runoff Area=25,845 sf 0.00% Impervious Runoff Depth=2.29" Tc=5.0 min CN=77 Runoff=1.65 cfs 0.113 af
Subcatchment 4.9:	Runoff Area=24,940 sf 100.00% Impervious Runoff Depth=4.36" Tc=5.0 min CN=98 Runoff=2.66 cfs 0.208 af

Subcatchment 5: Runoff Area=80,791 sf 68.61% Impervious Runoff Depth=2.46"
Tc=5.0 min CN=79 Runoff=5.53 cfs 0.380 af

Reach R1.1: Avg. Flow Depth=0.32' Max Vel=3.59 fps Inflow=3.41 cfs 0.292 af
n=0.030 L=300.0' S=0.0367 '/' Capacity=160.95 cfs Outflow=3.33 cfs 0.292 af

Pond C1: Twin 18" HDPE Peak Elev=96.77' Storage=2,363 cf Inflow=13.07 cfs 1.519 af
Primary=10.63 cfs 1.519 af Secondary=0.00 cfs 0.000 af Outflow=10.63 cfs 1.519 af

Pond C2: 15" HDPE Peak Elev=96.27' Inflow=3.00 cfs 0.578 af
Primary=3.00 cfs 0.578 af Secondary=0.00 cfs 0.000 af Outflow=3.00 cfs 0.578 af

Pond C3: 18" HDPE Peak Elev=102.82' Inflow=4.56 cfs 0.430 af
18.0" Round Culvert n=0.013 L=28.0' S=0.0571 '/' Outflow=4.56 cfs 0.430 af

Pond CB1: CB2.2 Peak Elev=102.65' Inflow=2.72 cfs 0.206 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0050 '/' Outflow=2.72 cfs 0.206 af

Pond CB2: CB2.3 Peak Elev=102.05' Inflow=5.12 cfs 0.384 af
18.0" Round Culvert n=0.013 L=155.0' S=0.0050 '/' Outflow=5.12 cfs 0.384 af

Pond CB3: CB2.5 Peak Elev=97.89' Inflow=7.53 cfs 0.711 af
18.0" Round Culvert n=0.013 L=145.0' S=0.0050 '/' Outflow=7.53 cfs 0.711 af

Pond CB4: CB3.3 Peak Elev=122.39' Inflow=3.41 cfs 0.292 af
15.0" Round Culvert n=0.013 L=102.0' S=0.0200 '/' Outflow=3.41 cfs 0.292 af

Pond CB5: CB3.4 Peak Elev=120.25' Inflow=3.41 cfs 0.292 af
15.0" Round Culvert n=0.013 L=120.0' S=0.0607 '/' Outflow=3.41 cfs 0.292 af

Pond CB6: CB1.10 Peak Elev=100.55' Inflow=4.54 cfs 0.320 af
15.0" Round Culvert n=0.013 L=21.0' S=0.0052 '/' Outflow=4.54 cfs 0.320 af

Pond D2: DMH-RD2 Peak Elev=108.11' Inflow=4.15 cfs 0.329 af
15.0" Round Culvert n=0.013 L=280.0' S=0.0357 '/' Outflow=4.15 cfs 0.329 af

Pond ED: EX DMH Peak Elev=125.64' Inflow=2.66 cfs 0.208 af
10.0" Round Culvert n=0.013 L=48.0' S=0.0260 '/' Outflow=2.66 cfs 0.208 af

Pond SF1: Soil Filter 1 Peak Elev=99.68' Storage=6,864 cf Inflow=5.20 cfs 0.366 af
Primary=1.72 cfs 0.366 af Secondary=0.00 cfs 0.000 af Outflow=1.72 cfs 0.366 af

Pond SF2: Soil Filter 2 Peak Elev=100.88' Storage=6,709 cf Inflow=6.29 cfs 0.466 af
Primary=4.85 cfs 0.466 af Secondary=0.00 cfs 0.000 af Outflow=4.85 cfs 0.466 af

Pond W1: Wetland Peak Elev=100.12' Storage=4,168 cf Inflow=4.56 cfs 0.430 af
18.0" Round Culvert n=0.013 L=80.0' S=0.0113 '/' Outflow=1.90 cfs 0.430 af

Pond W2: Wetland Peak Elev=97.36' Storage=164 cf Inflow=3.04 cfs 0.578 af
Outflow=3.00 cfs 0.578 af

Link AP1: Inflow=4.13 cfs 0.285 af
Primary=4.13 cfs 0.285 af

Link AP2: Inflow=0.00 cfs 0.001 af
Primary=0.00 cfs 0.001 af

Post-Development_COM*Type III 24-hr 10-Yr Storm Rainfall=4.60"*

Prepared by Site Design Associates

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Link AP3:

Inflow=0.25 cfs 0.021 af

Primary=0.25 cfs 0.021 af

Link AP4:

Inflow=13.53 cfs 2.097 af

Primary=13.53 cfs 2.097 af

Link AP5:

Inflow=5.53 cfs 0.380 af

Primary=5.53 cfs 0.380 af

Total Runoff Area = 14.046 ac Runoff Volume = 2.919 af Average Runoff Depth = 2.49"
46.21% Pervious = 6.491 ac 53.79% Impervious = 7.555 ac

Summary for Subcatchment 0.0: TO DRYWELLS

Runoff = 1.72 cfs @ 12.07 hrs, Volume= 0.135 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 16,178	98	Impervious
16,178		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 1.1:

Runoff = 4.13 cfs @ 12.08 hrs, Volume= 0.285 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 41,661	98	Impervious
25,659	39	>75% Grass cover, Good, HSG A
67,320	76	Weighted Average
25,659		38.11% Pervious Area
41,661		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 0.00 cfs @ 14.58 hrs, Volume= 0.001 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
3,142	39	>75% Grass cover, Good, HSG A
3,142		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
4,259	39	>75% Grass cover, Good, HSG A
2,584	73	Brush, Good, HSG D
1,591	30	Woods, Good, HSG A
3,886	77	Woods, Good, HSG D
12,320	57	Weighted Average
12,320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.1:

Runoff = 1.37 cfs @ 12.14 hrs, Volume= 0.138 af, Depth= 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 19,475	98	Impervious
20,340	39	>75% Grass cover, Good, HSG A
3,943	80	>75% Grass cover, Good, HSG D
11,472	77	Woods, Good, HSG D
30,326	30	Woods, Good, HSG A
85,556	56	Weighted Average
66,081		77.24% Pervious Area
19,475		22.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	40	0.1000	0.12		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.10"
2.3	30	0.5000	0.22		Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	95	0.0260	8.47	135.53	Trap/Vee/Rect Channel Flow, CD Bot.W=2.00' D=2.00' Z= 3.0 ' Top.W=14.00' n= 0.030 Earth, grassed & winding
0.1	28	0.0180	7.98	14.09	Pipe Channel, DE 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.2	145	0.0510	11.86	189.82	Trap/Vee/Rect Channel Flow, EF Bot.W=2.00' D=2.00' Z= 3.0 ' Top.W=14.00' n= 0.030 Earth, grassed & winding
8.3	338	Total			

Summary for Subcatchment 4.10:

Runoff = 4.14 cfs @ 12.07 hrs, Volume= 0.325 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 38,900	98	Impervious
38,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.11:

Runoff = 1.18 cfs @ 12.07 hrs, Volume= 0.081 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 1,556	98	Impervious
14,005	80	>75% Grass cover, Good, HSG D
15,561	82	Weighted Average
14,005		90.00% Pervious Area
1,556		10.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.12:

Runoff = 3.19 cfs @ 12.07 hrs, Volume= 0.245 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 28,472	98	Impervious
1,723	80	>75% Grass cover, Good, HSG D
30,195	97	Weighted Average
1,723		5.71% Pervious Area
28,472		94.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.13:

Runoff = 0.02 cfs @ 12.34 hrs, Volume= 0.004 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 762	98	Impervious
6,276	39	>75% Grass cover, Good, HSG A
7,038	45	Weighted Average
6,276		89.17% Pervious Area
762		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.2:

Runoff = 0.81 cfs @ 12.10 hrs, Volume= 0.084 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 15,536	98	Impervious
48,474	39	>75% Grass cover, Good, HSG A
64,010	53	Weighted Average
48,474		75.73% Pervious Area
15,536		24.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.3:

Runoff = 4.54 cfs @ 12.07 hrs, Volume= 0.320 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 37,812	98	Impervious
5,466	39	>75% Grass cover, Good, HSG A
6,030	80	>75% Grass cover, Good, HSG D
49,308	89	Weighted Average
11,496		23.31% Pervious Area
37,812		76.69% Impervious Area

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Type III 24-hr 10-Yr Storm Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.4:

Runoff = 2.72 cfs @ 12.07 hrs, Volume= 0.206 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	24,710	98	Impervious
	821	39	>75% Grass cover, Good, HSG A
	498	80	>75% Grass cover, Good, HSG D
	26,029	96	Weighted Average
	1,319		5.07% Pervious Area
	24,710		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.5:

Runoff = 2.39 cfs @ 12.07 hrs, Volume= 0.179 af, Depth= 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	21,831	98	Impervious
	1,322	39	>75% Grass cover, Good, HSG A
	39	80	>75% Grass cover, Good, HSG D
	23,192	95	Weighted Average
	1,361		5.87% Pervious Area
	21,831		94.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.6:

Runoff = 0.66 cfs @ 12.08 hrs, Volume= 0.046 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
	10,062	78	Meadow, non-grazed, HSG D
	10,062		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.7:

Runoff = 2.15 cfs @ 12.08 hrs, Volume= 0.148 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 1,817	98	Impervious
4,925	80	>75% Grass cover, Good, HSG D
24,704	77	Woods, Good, HSG D
31,446	79	Weighted Average
29,629		94.22% Pervious Area
1,817		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.8:

Runoff = 1.65 cfs @ 12.08 hrs, Volume= 0.113 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
25,845	77	Woods, Good, HSG D
25,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.9:

Runoff = 2.66 cfs @ 12.07 hrs, Volume= 0.208 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
* 24,940	98	Impervious
24,940		100.00% Impervious Area

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Type III 24-hr 10-Yr Storm Rainfall=4.60"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 5.53 cfs @ 12.08 hrs, Volume= 0.380 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	55,430	98	Impervious
	25,361	39	>75% Grass cover, Good, HSG A
	80,791	79	Weighted Average
	25,361		31.39% Pervious Area
	55,430		68.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach R1.1:

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 1.72" for 10-Yr Storm event

Inflow = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af

Outflow = 3.33 cfs @ 12.10 hrs, Volume= 0.292 af, Atten= 2%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Max. Velocity= 3.59 fps, Min. Travel Time= 1.4 min

Avg. Velocity = 1.10 fps, Avg. Travel Time= 4.6 min

Peak Storage= 279 cf @ 12.10 hrs

Average Depth at Peak Storage= 0.32'

Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 160.95 cfs

2.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding

Side Slope Z-value= 3.0 ' Top Width= 14.00'

Length= 300.0' Slope= 0.0367 ' /'

Inlet Invert= 113.00', Outlet Invert= 102.00'

**Summary for Pond C1: Twin 18" HDPE**

Inflow Area = 5.191 ac, 68.12% Impervious, Inflow Depth = 3.51" for 10-Yr Storm event

Inflow = 13.07 cfs @ 12.09 hrs, Volume= 1.519 af

Outflow = 10.63 cfs @ 12.16 hrs, Volume= 1.519 af, Atten= 19%, Lag= 4.2 min

Primary = 10.63 cfs @ 12.16 hrs, Volume= 1.519 af

Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Type III 24-hr 10-Yr Storm Rainfall=4.60"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 96.77' @ 12.16 hrs Surf.Area= 3,239 sf Storage= 2,363 cf

Plug-Flow detention time= 2.0 min calculated for 1.519 af (100% of inflow)
 Center-of-Mass det. time= 2.0 min (1,017.2 - 1,015.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	95.00'	6,851 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
95.00	0	0.0	0	0	0	
96.00	1,595	626.0	532	532	31,186	
97.00	3,831	882.0	2,633	3,164	61,916	
97.50	11,617	951.0	3,687	6,851	71,991	

Device	Routing	Invert	Outlet Devices
#1	Primary	95.10'	18.0" Round Culvert X 2.00 L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.10' / 95.00' S= 0.0050 ' / ' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Secondary	97.40'	400.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.63 cfs @ 12.16 hrs HW=96.77' TW=0.00' (Dynamic Tailwater)
 ↑ **1=Culvert** (Barrel Controls 10.63 cfs @ 3.37 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=95.00' TW=0.00' (Dynamic Tailwater)
 ↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C2: 15" HDPE

Inflow Area = 4.728 ac, 29.99% Impervious, Inflow Depth = 1.47" for 10-Yr Storm event
 Inflow = 3.00 cfs @ 12.12 hrs, Volume= 0.578 af
 Outflow = 3.00 cfs @ 12.12 hrs, Volume= 0.578 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.00 cfs @ 12.12 hrs, Volume= 0.578 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 96.27' @ 12.12 hrs
 Flood Elev= 97.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	95.20'	15.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.20' / 95.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	97.40'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=3.00 cfs @ 12.12 hrs HW=96.26' TW=0.00' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 3.00 cfs @ 3.62 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=95.20' TW=0.00' (Dynamic Tailwater)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C3: 18" HDPE

Inflow Area = 4.006 ac, 34.35% Impervious, Inflow Depth = 1.29" for 10-Yr Storm event
 Inflow = 4.56 cfs @ 12.11 hrs, Volume= 0.430 af
 Outflow = 4.56 cfs @ 12.11 hrs, Volume= 0.430 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.56 cfs @ 12.11 hrs, Volume= 0.430 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 102.82' @ 12.11 hrs

Flood Elev= 104.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.60'	18.0" Round Culvert L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 101.60' / 100.00' S= 0.0571 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.53 cfs @ 12.11 hrs HW=102.81' TW=99.92' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 4.53 cfs @ 2.96 fps)

Summary for Pond CB1: CB2.2

Inflow Area = 0.598 ac, 94.93% Impervious, Inflow Depth = 4.14" for 10-Yr Storm event
 Inflow = 2.72 cfs @ 12.07 hrs, Volume= 0.206 af
 Outflow = 2.72 cfs @ 12.07 hrs, Volume= 0.206 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.72 cfs @ 12.07 hrs, Volume= 0.206 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 102.65' @ 12.07 hrs

Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.57'	15.0" Round Culvert L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.57' / 101.02' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.70 cfs @ 12.07 hrs HW=102.64' TW=102.05' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 2.70 cfs @ 3.24 fps)

Summary for Pond CB2: CB2.3

Inflow Area = 1.130 ac, 94.56% Impervious, Inflow Depth = 4.08" for 10-Yr Storm event
 Inflow = 5.12 cfs @ 12.07 hrs, Volume= 0.384 af
 Outflow = 5.12 cfs @ 12.07 hrs, Volume= 0.384 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.12 cfs @ 12.07 hrs, Volume= 0.384 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

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Type III 24-hr 10-Yr Storm Rainfall=4.60"

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Peak Elev= 102.05' @ 12.07 hrs

Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.77'	18.0" Round Culvert L= 155.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.77' / 100.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=5.08 cfs @ 12.07 hrs HW=102.05' TW=100.81' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 5.08 cfs @ 4.26 fps)**Summary for Pond CB3: CB2.5**

Inflow Area = 2.180 ac, 80.62% Impervious, Inflow Depth = 3.91" for 10-Yr Storm event
Inflow = 7.53 cfs @ 12.11 hrs, Volume= 0.711 af
Outflow = 7.53 cfs @ 12.11 hrs, Volume= 0.711 af, Atten= 0%, Lag= 0.0 min
Primary = 7.53 cfs @ 12.11 hrs, Volume= 0.711 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 97.89' @ 12.11 hrs

Flood Elev= 103.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.13'	18.0" Round Culvert L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.13' / 95.41' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.49 cfs @ 12.11 hrs HW=97.88' TW=96.69' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 7.49 cfs @ 4.57 fps)**Summary for Pond CB4: CB3.3**

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 1.72" for 10-Yr Storm event
Inflow = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af
Outflow = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af, Atten= 0%, Lag= 0.0 min
Primary = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 122.39' @ 12.08 hrs

Flood Elev= 125.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	121.42'	15.0" Round Culvert L= 102.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.42' / 119.38' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.40 cfs @ 12.08 hrs HW=122.39' TW=120.25' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 3.40 cfs @ 3.35 fps)

Summary for Pond CB5: CB3.4

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 1.72" for 10-Yr Storm event
 Inflow = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af
 Outflow = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.41 cfs @ 12.08 hrs, Volume= 0.292 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 120.25' @ 12.08 hrs
 Flood Elev= 125.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.28'	15.0" Round Culvert L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.28' / 112.00' S= 0.0607 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.40 cfs @ 12.08 hrs HW=120.25' TW=113.31' (Dynamic Tailwater)
 ↑1=Culvert (Inlet Controls 3.40 cfs @ 3.35 fps)

Summary for Pond CB6: CB1.10

Inflow Area = 1.132 ac, 76.69% Impervious, Inflow Depth = 3.39" for 10-Yr Storm event
 Inflow = 4.54 cfs @ 12.07 hrs, Volume= 0.320 af
 Outflow = 4.54 cfs @ 12.07 hrs, Volume= 0.320 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.54 cfs @ 12.07 hrs, Volume= 0.320 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 100.55' @ 12.07 hrs
 Flood Elev= 103.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	99.11'	15.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.11' / 99.00' S= 0.0052 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.50 cfs @ 12.07 hrs HW=100.54' TW=99.25' (Dynamic Tailwater)
 ↑1=Culvert (Barrel Controls 4.50 cfs @ 4.01 fps)

Summary for Pond D2: DMH-RD2

Inflow Area = 1.055 ac, 86.34% Impervious, Inflow Depth = 3.74" for 10-Yr Storm event
 Inflow = 4.15 cfs @ 12.07 hrs, Volume= 0.329 af
 Outflow = 4.15 cfs @ 12.07 hrs, Volume= 0.329 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.15 cfs @ 12.07 hrs, Volume= 0.329 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 108.11' @ 12.07 hrs
 Flood Elev= 113.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	15.0" Round Culvert L= 280.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 107.00' / 97.00' S= 0.0357 '/' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.11 cfs @ 12.07 hrs HW=108.11' TW=96.52' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 4.11 cfs @ 3.58 fps)

Summary for Pond ED: EX DMH

Inflow Area = 0.573 ac, 100.00% Impervious, Inflow Depth = 4.36" for 10-Yr Storm event
 Inflow = 2.66 cfs @ 12.07 hrs, Volume= 0.208 af
 Outflow = 2.66 cfs @ 12.07 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.66 cfs @ 12.07 hrs, Volume= 0.208 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 125.64' @ 12.07 hrs

Flood Elev= 128.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	124.20'	10.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.20' / 122.95' S= 0.0260 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.64 cfs @ 12.07 hrs HW=125.62' TW=122.38' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 2.64 cfs @ 4.83 fps)

Summary for Pond SF1: Soil Filter 1

Inflow Area = 1.363 ac, 63.69% Impervious, Inflow Depth = 3.22" for 10-Yr Storm event
 Inflow = 5.20 cfs @ 12.07 hrs, Volume= 0.366 af
 Outflow = 1.72 cfs @ 12.36 hrs, Volume= 0.366 af, Atten= 67%, Lag= 17.2 min
 Primary = 1.72 cfs @ 12.36 hrs, Volume= 0.366 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 99.68' @ 12.36 hrs Surf.Area= 5,049 sf Storage= 6,864 cf

Plug-Flow detention time= 510.4 min calculated for 0.366 af (100% of inflow)

Center-of-Mass det. time= 510.3 min (1,310.9 - 800.6)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	15,804 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.00	3,092	0	0
99.50	4,842	5,951	5,951
101.00	6,522	8,523	14,474
101.20	6,781	1,330	15,804

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.50' / 95.40' S= 0.0029 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	98.00'	0.750 in/hr Exfiltration over Surface area Phase-In= 0.01'

#3	Device 1	99.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	99.90'	10.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.72 cfs @ 12.36 hrs HW=99.68' TW=96.51' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 1.72 cfs of 6.74 cfs potential flow)
- ↑ **2=Exfiltration** (Exfiltration Controls 0.09 cfs)
- ↑ **3=Orifice/Grate** (Weir Controls 1.63 cfs @ 1.41 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=95.00' (Dynamic Tailwater)

- ↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SF2: Soil Filter 2

Inflow Area =	1.487 ac, 74.24% Impervious, Inflow Depth = 3.76" for 10-Yr Storm event
Inflow =	6.29 cfs @ 12.07 hrs, Volume= 0.466 af
Outflow =	4.85 cfs @ 12.13 hrs, Volume= 0.466 af, Atten= 23%, Lag= 3.7 min
Primary =	4.85 cfs @ 12.13 hrs, Volume= 0.466 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.88' @ 12.13 hrs Surf.Area= 4,339 sf Storage= 6,709 cf

Plug-Flow detention time= 375.0 min calculated for 0.466 af (100% of inflow)

Center-of-Mass det. time= 375.0 min (1,150.5 - 775.4)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	16,412 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	2,831	0	0
100.50	4,010	5,131	5,131
102.00	5,316	6,995	12,125
102.80	5,402	4,287	16,412

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 96.13' S= 0.0051 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	99.00'	0.750 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#3	Device 1	100.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	101.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.83 cfs @ 12.13 hrs HW=100.88' TW=97.86' (Dynamic Tailwater)

↑ **1=Culvert** (Passes 4.83 cfs of 9.56 cfs potential flow)

↑ **2=Exfiltration** (Exfiltration Controls 0.08 cfs)

↑ **3=Orifice/Grate** (Weir Controls 4.76 cfs @ 2.01 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.00' TW=99.40' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond W1: Wetland

Inflow Area = 4.006 ac, 34.35% Impervious, Inflow Depth = 1.29" for 10-Yr Storm event
 Inflow = 4.56 cfs @ 12.11 hrs, Volume= 0.430 af
 Outflow = 1.90 cfs @ 12.43 hrs, Volume= 0.430 af, Atten= 58%, Lag= 19.5 min
 Primary = 1.90 cfs @ 12.43 hrs, Volume= 0.430 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.12' @ 12.43 hrs Surf.Area= 7,664 sf Storage= 4,168 cf

Plug-Flow detention time= 53.5 min calculated for 0.430 af (100% of inflow)

Center-of-Mass det. time= 53.6 min (883.9 - 830.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	99.40'	23,709 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
99.40	0	0.0	0	0	0
99.50	5,121	314.0	171	171	7,846
100.00	7,402	583.0	3,113	3,284	27,049
101.00	9,781	571.0	8,564	11,848	28,293
102.00	14,071	697.0	11,861	23,709	41,022

Device	Routing	Invert	Outlet Devices
#1	Primary	99.40'	18.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 98.50' S= 0.0113 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=1.90 cfs @ 12.43 hrs HW=100.12' TW=97.32' (Dynamic Tailwater)

↑ **1=Culvert** (Inlet Controls 1.90 cfs @ 2.28 fps)

Summary for Pond W2: Wetland

Inflow Area = 4.728 ac, 29.99% Impervious, Inflow Depth = 1.47" for 10-Yr Storm event
 Inflow = 3.04 cfs @ 12.10 hrs, Volume= 0.578 af
 Outflow = 3.00 cfs @ 12.12 hrs, Volume= 0.578 af, Atten= 1%, Lag= 1.1 min
 Primary = 3.00 cfs @ 12.12 hrs, Volume= 0.578 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 97.36' @ 12.12 hrs Surf.Area= 765 sf Storage= 164 cf

Plug-Flow detention time= 1.3 min calculated for 0.578 af (100% of inflow)

Center-of-Mass det. time= 1.1 min (870.5 - 869.4)

Post-Development_COM

Type III 24-hr 10-Yr Storm Rainfall=4.60"

Prepared by Site Design Associates

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Volume	Invert	Avail.Storage	Storage Description			
#1	97.00'	6,210 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.00	209	106.0	0	0	209	
98.00	2,637	405.0	1,196	1,196	12,370	
99.00	7,853	571.0	5,014	6,210	25,272	

Device	Routing	Invert	Outlet Devices			
#1	Primary	97.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)			
			Head (feet)	0.00	1.00	2.00
			Width (feet)	4.00	6.00	8.00

Primary OutFlow Max=3.00 cfs @ 12.12 hrs HW=97.36' TW=96.26' (Dynamic Tailwater)

↑1=Custom Weir/Orifice (Weir Controls 3.00 cfs @ 1.93 fps)

Summary for Link AP1:

Inflow Area = 1.545 ac, 61.89% Impervious, Inflow Depth = 2.21" for 10-Yr Storm event
 Inflow = 4.13 cfs @ 12.08 hrs, Volume= 0.285 af
 Primary = 4.13 cfs @ 12.08 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP2:

Inflow Area = 0.072 ac, 0.00% Impervious, Inflow Depth = 0.13" for 10-Yr Storm event
 Inflow = 0.00 cfs @ 14.58 hrs, Volume= 0.001 af
 Primary = 0.00 cfs @ 14.58 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP3:

Inflow Area = 0.283 ac, 0.00% Impervious, Inflow Depth = 0.90" for 10-Yr Storm event
 Inflow = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af
 Primary = 0.25 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP4:

Inflow Area = 9.919 ac, 49.95% Impervious, Inflow Depth = 2.54" for 10-Yr Storm event
 Inflow = 13.53 cfs @ 12.15 hrs, Volume= 2.097 af
 Primary = 13.53 cfs @ 12.15 hrs, Volume= 2.097 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP5:

Inflow Area = 1.855 ac, 68.61% Impervious, Inflow Depth = 2.46" for 10-Yr Storm event
Inflow = 5.53 cfs @ 12.08 hrs, Volume= 0.380 af
Primary = 5.53 cfs @ 12.08 hrs, Volume= 0.380 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Time span=0.00-50.00 hrs, dt=0.02 hrs, 2501 points x 2
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 0.0: TO DRYWELLS	Runoff Area=16,178 sf 100.00% Impervious Runoff Depth=5.56" Tc=5.0 min CN=98 Runoff=2.18 cfs 0.172 af
Subcatchment 1.1:	Runoff Area=67,320 sf 61.89% Impervious Runoff Depth=3.21" Tc=5.0 min CN=76 Runoff=6.01 cfs 0.413 af
Subcatchment 2:	Runoff Area=3,142 sf 0.00% Impervious Runoff Depth=0.39" Tc=5.0 min CN=39 Runoff=0.01 cfs 0.002 af
Subcatchment 3:	Runoff Area=12,320 sf 0.00% Impervious Runoff Depth=1.56" Tc=5.0 min CN=57 Runoff=0.48 cfs 0.037 af
Subcatchment 4.1:	Runoff Area=85,556 sf 22.76% Impervious Runoff Depth=1.48" Flow Length=338' Tc=8.3 min CN=56 Runoff=2.78 cfs 0.242 af
Subcatchment 4.10:	Runoff Area=38,900 sf 100.00% Impervious Runoff Depth=5.56" Tc=5.0 min CN=98 Runoff=5.24 cfs 0.414 af
Subcatchment 4.11:	Runoff Area=15,561 sf 10.00% Impervious Runoff Depth=3.80" Tc=5.0 min CN=82 Runoff=1.63 cfs 0.113 af
Subcatchment 4.12:	Runoff Area=30,195 sf 94.29% Impervious Runoff Depth=5.44" Tc=5.0 min CN=97 Runoff=4.04 cfs 0.315 af
Subcatchment 4.13:	Runoff Area=7,038 sf 10.83% Impervious Runoff Depth=0.72" Tc=5.0 min CN=45 Runoff=0.08 cfs 0.010 af
Subcatchment 4.2:	Runoff Area=64,010 sf 24.27% Impervious Runoff Depth=1.26" Tc=5.0 min CN=53 Runoff=1.88 cfs 0.154 af
Subcatchment 4.3:	Runoff Area=49,308 sf 76.69% Impervious Runoff Depth=4.54" Tc=5.0 min CN=89 Runoff=5.99 cfs 0.428 af
Subcatchment 4.4:	Runoff Area=26,029 sf 94.93% Impervious Runoff Depth=5.33" Tc=5.0 min CN=96 Runoff=3.46 cfs 0.265 af
Subcatchment 4.5:	Runoff Area=23,192 sf 94.13% Impervious Runoff Depth=5.21" Tc=5.0 min CN=95 Runoff=3.06 cfs 0.231 af
Subcatchment 4.6:	Runoff Area=10,062 sf 0.00% Impervious Runoff Depth=3.40" Tc=5.0 min CN=78 Runoff=0.95 cfs 0.066 af
Subcatchment 4.7:	Runoff Area=31,446 sf 5.78% Impervious Runoff Depth=3.50" Tc=5.0 min CN=79 Runoff=3.06 cfs 0.211 af
Subcatchment 4.8:	Runoff Area=25,845 sf 0.00% Impervious Runoff Depth=3.31" Tc=5.0 min CN=77 Runoff=2.38 cfs 0.163 af
Subcatchment 4.9:	Runoff Area=24,940 sf 100.00% Impervious Runoff Depth=5.56" Tc=5.0 min CN=98 Runoff=3.36 cfs 0.265 af

Subcatchment 5: Runoff Area=80,791 sf 68.61% Impervious Runoff Depth=3.50"
Tc=5.0 min CN=79 Runoff=7.86 cfs 0.541 af

Reach R1.1: Avg. Flow Depth=0.39' Max Vel=4.05 fps Inflow=5.20 cfs 0.419 af
n=0.030 L=300.0' S=0.0367 ' Outflow=5.10 cfs 0.419 af

Pond C1: Twin 18" HDPE Peak Elev=97.37' Storage=5,473 cf Inflow=20.87 cfs 2.005 af
Primary=14.64 cfs 2.005 af Secondary=0.00 cfs 0.000 af Outflow=14.64 cfs 2.005 af

Pond C2: 15" HDPE Peak Elev=96.87' Inflow=4.76 cfs 0.872 af
Primary=4.76 cfs 0.872 af Secondary=0.00 cfs 0.000 af Outflow=4.76 cfs 0.872 af

Pond C3: 18" HDPE Peak Elev=103.67' Inflow=7.71 cfs 0.661 af
18.0" Round Culvert n=0.013 L=28.0' S=0.0571 ' Outflow=7.71 cfs 0.661 af

Pond CB1: CB2.2 Peak Elev=102.89' Inflow=3.46 cfs 0.265 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0050 ' Outflow=3.46 cfs 0.265 af

Pond CB2: CB2.3 Peak Elev=102.30' Inflow=6.52 cfs 0.497 af
18.0" Round Culvert n=0.013 L=155.0' S=0.0050 ' Outflow=6.52 cfs 0.497 af

Pond CB3: CB2.5 Peak Elev=99.48' Inflow=10.62 cfs 0.924 af
18.0" Round Culvert n=0.013 L=145.0' S=0.0050 ' Outflow=10.62 cfs 0.924 af

Pond CB4: CB3.3 Peak Elev=122.82' Inflow=5.20 cfs 0.419 af
15.0" Round Culvert n=0.013 L=102.0' S=0.0200 ' Outflow=5.20 cfs 0.419 af

Pond CB5: CB3.4 Peak Elev=120.68' Inflow=5.20 cfs 0.419 af
15.0" Round Culvert n=0.013 L=120.0' S=0.0607 ' Outflow=5.20 cfs 0.419 af

Pond CB6: CB1.10 Peak Elev=100.99' Inflow=5.99 cfs 0.428 af
15.0" Round Culvert n=0.013 L=21.0' S=0.0052 ' Outflow=5.99 cfs 0.428 af

Pond D2: DMH-RD2 Peak Elev=108.43' Inflow=5.30 cfs 0.424 af
15.0" Round Culvert n=0.013 L=280.0' S=0.0357 ' Outflow=5.30 cfs 0.424 af

Pond ED: EX DMH Peak Elev=126.25' Inflow=3.36 cfs 0.265 af
10.0" Round Culvert n=0.013 L=48.0' S=0.0260 ' Outflow=3.36 cfs 0.265 af

Pond SF1: Soil Filter 1 Peak Elev=99.84' Storage=7,681 cf Inflow=6.94 cfs 0.494 af
Primary=4.23 cfs 0.494 af Secondary=0.00 cfs 0.000 af Outflow=4.23 cfs 0.494 af

Pond SF2: Soil Filter 2 Peak Elev=100.98' Storage=7,167 cf Inflow=8.15 cfs 0.610 af
Primary=6.96 cfs 0.610 af Secondary=0.00 cfs 0.000 af Outflow=6.96 cfs 0.610 af

Pond W1: Wetland Peak Elev=100.40' Storage=6,404 cf Inflow=7.71 cfs 0.661 af
18.0" Round Culvert n=0.013 L=80.0' S=0.0113 ' Outflow=3.35 cfs 0.661 af

Pond W2: Wetland Peak Elev=97.48' Storage=272 cf Inflow=4.81 cfs 0.872 af
Outflow=4.76 cfs 0.872 af

Link AP1: Inflow=6.01 cfs 0.413 af
Primary=6.01 cfs 0.413 af

Link AP2: Inflow=0.01 cfs 0.002 af
Primary=0.01 cfs 0.002 af

Post-Development_COM*Type III 24-hr 25-Yr Storm Rainfall=5.80"*

Prepared by Site Design Associates

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Link AP3:

Inflow=0.48 cfs 0.037 af

Primary=0.48 cfs 0.037 af

Link AP4:

Inflow=19.16 cfs 2.877 af

Primary=19.16 cfs 2.877 af

Link AP5:

Inflow=7.86 cfs 0.541 af

Primary=7.86 cfs 0.541 af

Total Runoff Area = 14.046 ac Runoff Volume = 4.043 af Average Runoff Depth = 3.45"
46.21% Pervious = 6.491 ac 53.79% Impervious = 7.555 ac

Summary for Subcatchment 0.0: TO DRYWELLS

Runoff = 2.18 cfs @ 12.07 hrs, Volume= 0.172 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 16,178	98	Impervious
16,178		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 1.1:

Runoff = 6.01 cfs @ 12.08 hrs, Volume= 0.413 af, Depth= 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 41,661	98	Impervious
25,659	39	>75% Grass cover, Good, HSG A
67,320	76	Weighted Average
25,659		38.11% Pervious Area
41,661		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 0.01 cfs @ 12.35 hrs, Volume= 0.002 af, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
3,142	39	>75% Grass cover, Good, HSG A
3,142		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
4,259	39	>75% Grass cover, Good, HSG A
2,584	73	Brush, Good, HSG D
1,591	30	Woods, Good, HSG A
3,886	77	Woods, Good, HSG D
12,320	57	Weighted Average
12,320		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.1:

Runoff = 2.78 cfs @ 12.13 hrs, Volume= 0.242 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 19,475	98	Impervious
20,340	39	>75% Grass cover, Good, HSG A
3,943	80	>75% Grass cover, Good, HSG D
11,472	77	Woods, Good, HSG D
30,326	30	Woods, Good, HSG A
85,556	56	Weighted Average
66,081		77.24% Pervious Area
19,475		22.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	40	0.1000	0.12		Sheet Flow, AB Woods: Light underbrush n= 0.400 P2= 3.10"
2.3	30	0.5000	0.22		Sheet Flow, BC Woods: Light underbrush n= 0.400 P2= 3.10"
0.2	95	0.0260	8.47	135.53	Trap/Vee/Rect Channel Flow, CD Bot.W=2.00' D=2.00' Z= 3.0 ' Top.W=14.00' n= 0.030 Earth, grassed & winding
0.1	28	0.0180	7.98	14.09	Pipe Channel, DE 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.2	145	0.0510	11.86	189.82	Trap/Vee/Rect Channel Flow, EF Bot.W=2.00' D=2.00' Z= 3.0 ' Top.W=14.00' n= 0.030 Earth, grassed & winding
8.3	338	Total			

Summary for Subcatchment 4.10:

Runoff = 5.24 cfs @ 12.07 hrs, Volume= 0.414 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 38,900	98	Impervious
38,900		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.11:

Runoff = 1.63 cfs @ 12.07 hrs, Volume= 0.113 af, Depth= 3.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 1,556	98	Impervious
14,005	80	>75% Grass cover, Good, HSG D
15,561	82	Weighted Average
14,005		90.00% Pervious Area
1,556		10.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.12:

Runoff = 4.04 cfs @ 12.07 hrs, Volume= 0.315 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 28,472	98	Impervious
1,723	80	>75% Grass cover, Good, HSG D
30,195	97	Weighted Average
1,723		5.71% Pervious Area
28,472		94.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.13:

Runoff = 0.08 cfs @ 12.12 hrs, Volume= 0.010 af, Depth= 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 762	98	Impervious
6,276	39	>75% Grass cover, Good, HSG A
7,038	45	Weighted Average
6,276		89.17% Pervious Area
762		10.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.2:

Runoff = 1.88 cfs @ 12.09 hrs, Volume= 0.154 af, Depth= 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 15,536	98	Impervious
48,474	39	>75% Grass cover, Good, HSG A
64,010	53	Weighted Average
48,474		75.73% Pervious Area
15,536		24.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.3:

Runoff = 5.99 cfs @ 12.07 hrs, Volume= 0.428 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 37,812	98	Impervious
5,466	39	>75% Grass cover, Good, HSG A
6,030	80	>75% Grass cover, Good, HSG D
49,308	89	Weighted Average
11,496		23.31% Pervious Area
37,812		76.69% Impervious Area

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.4:

Runoff = 3.46 cfs @ 12.07 hrs, Volume= 0.265 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	24,710	98	Impervious
	821	39	>75% Grass cover, Good, HSG A
	498	80	>75% Grass cover, Good, HSG D
	26,029	96	Weighted Average
	1,319		5.07% Pervious Area
	24,710		94.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.5:

Runoff = 3.06 cfs @ 12.07 hrs, Volume= 0.231 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	21,831	98	Impervious
	1,322	39	>75% Grass cover, Good, HSG A
	39	80	>75% Grass cover, Good, HSG D
	23,192	95	Weighted Average
	1,361		5.87% Pervious Area
	21,831		94.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.6:

Runoff = 0.95 cfs @ 12.08 hrs, Volume= 0.066 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
	10,062	78	Meadow, non-grazed, HSG D
	10,062		100.00% Pervious Area

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.7:

Runoff = 3.06 cfs @ 12.07 hrs, Volume= 0.211 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 1,817	98	Impervious
4,925	80	>75% Grass cover, Good, HSG D
24,704	77	Woods, Good, HSG D
31,446	79	Weighted Average
29,629		94.22% Pervious Area
1,817		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.8:

Runoff = 2.38 cfs @ 12.08 hrs, Volume= 0.163 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
25,845	77	Woods, Good, HSG D
25,845		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4.9:

Runoff = 3.36 cfs @ 12.07 hrs, Volume= 0.265 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
* 24,940	98	Impervious
24,940		100.00% Impervious Area

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 7.86 cfs @ 12.07 hrs, Volume= 0.541 af, Depth= 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	55,430	98	Impervious
	25,361	39	>75% Grass cover, Good, HSG A
	80,791	79	Weighted Average
	25,361		31.39% Pervious Area
	55,430		68.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach R1.1:

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 2.46" for 25-Yr Storm event

Inflow = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af

Outflow = 5.10 cfs @ 12.09 hrs, Volume= 0.419 af, Atten= 2%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Max. Velocity= 4.05 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 1.21 fps, Avg. Travel Time= 4.1 min

Peak Storage= 377 cf @ 12.09 hrs

Average Depth at Peak Storage= 0.39'

Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 160.95 cfs

2.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding

Side Slope Z-value= 3.0 ' Top Width= 14.00'

Length= 300.0' Slope= 0.0367 ' "

Inlet Invert= 113.00', Outlet Invert= 102.00'

**Summary for Pond C1: Twin 18" HDPE**

Inflow Area = 5.191 ac, 68.12% Impervious, Inflow Depth = 4.64" for 25-Yr Storm event

Inflow = 20.87 cfs @ 12.10 hrs, Volume= 2.005 af

Outflow = 14.64 cfs @ 12.22 hrs, Volume= 2.005 af, Atten= 30%, Lag= 6.8 min

Primary = 14.64 cfs @ 12.22 hrs, Volume= 2.005 af

Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 97.37' @ 12.22 hrs Surf.Area= 9,132 sf Storage= 5,473 cf

Plug-Flow detention time= 2.6 min calculated for 2.005 af (100% of inflow)
 Center-of-Mass det. time= 2.6 min (963.9 - 961.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	95.00'	6,851 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
95.00	0	0.0	0	0	0	
96.00	1,595	626.0	532	532	31,186	
97.00	3,831	882.0	2,633	3,164	61,916	
97.50	11,617	951.0	3,687	6,851	71,991	

Device	Routing	Invert	Outlet Devices
#1	Primary	95.10'	18.0" Round Culvert X 2.00 L= 20.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.10' / 95.00' S= 0.0050 ' / ' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf
#2	Secondary	97.40'	400.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=14.64 cfs @ 12.22 hrs HW=97.37' TW=0.00' (Dynamic Tailwater)

↑ **1=Culvert** (Barrel Controls 14.64 cfs @ 4.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=95.00' TW=0.00' (Dynamic Tailwater)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C2: 15" HDPE

Inflow Area = 4.728 ac, 29.99% Impervious, Inflow Depth = 2.21" for 25-Yr Storm event
 Inflow = 4.76 cfs @ 12.13 hrs, Volume= 0.872 af
 Outflow = 4.76 cfs @ 12.13 hrs, Volume= 0.872 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.76 cfs @ 12.13 hrs, Volume= 0.872 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 96.87' @ 12.13 hrs
 Flood Elev= 97.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	95.20'	15.0" Round Culvert L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 95.20' / 95.00' S= 0.0100 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	97.40'	10.0' long x 7.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.40 2.52 2.70 2.68 2.68 2.67 2.66 2.65 2.65 2.65 2.66 2.65 2.66 2.68 2.70 2.73 2.78

Primary OutFlow Max=4.75 cfs @ 12.13 hrs HW=96.86' TW=0.00' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 4.75 cfs @ 3.87 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=95.20' TW=0.00' (Dynamic Tailwater)

↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond C3: 18" HDPE

Inflow Area = 4.006 ac, 34.35% Impervious, Inflow Depth = 1.98" for 25-Yr Storm event
 Inflow = 7.71 cfs @ 12.11 hrs, Volume= 0.661 af
 Outflow = 7.71 cfs @ 12.11 hrs, Volume= 0.661 af, Atten= 0%, Lag= 0.0 min
 Primary = 7.71 cfs @ 12.11 hrs, Volume= 0.661 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 103.67' @ 12.10 hrs

Flood Elev= 104.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.60'	18.0" Round Culvert L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 101.60' / 100.00' S= 0.0571 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=7.67 cfs @ 12.11 hrs HW=103.66' TW=100.13' (Dynamic Tailwater)

↑1=Culvert (Inlet Controls 7.67 cfs @ 4.34 fps)

Summary for Pond CB1: CB2.2

Inflow Area = 0.598 ac, 94.93% Impervious, Inflow Depth = 5.33" for 25-Yr Storm event
 Inflow = 3.46 cfs @ 12.07 hrs, Volume= 0.265 af
 Outflow = 3.46 cfs @ 12.07 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.46 cfs @ 12.07 hrs, Volume= 0.265 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 102.89' @ 12.07 hrs

Flood Elev= 105.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	101.57'	15.0" Round Culvert L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 101.57' / 101.02' S= 0.0050 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.43 cfs @ 12.07 hrs HW=102.88' TW=102.29' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 3.43 cfs @ 3.31 fps)

Summary for Pond CB2: CB2.3

Inflow Area = 1.130 ac, 94.56% Impervious, Inflow Depth = 5.27" for 25-Yr Storm event
 Inflow = 6.52 cfs @ 12.07 hrs, Volume= 0.497 af
 Outflow = 6.52 cfs @ 12.07 hrs, Volume= 0.497 af, Atten= 0%, Lag= 0.0 min
 Primary = 6.52 cfs @ 12.07 hrs, Volume= 0.497 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 102.30' @ 12.07 hrs

Flood Elev= 105.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	100.77'	18.0" Round Culvert L= 155.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 100.77' / 100.00' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.47 cfs @ 12.07 hrs HW=102.29' TW=100.94' (Dynamic Tailwater)↑**1=Culvert** (Barrel Controls 6.47 cfs @ 4.48 fps)**Summary for Pond CB3: CB2.5**

Inflow Area = 2.180 ac, 80.62% Impervious, Inflow Depth = 5.09" for 25-Yr Storm event
Inflow = 10.62 cfs @ 12.10 hrs, Volume= 0.924 af
Outflow = 10.62 cfs @ 12.10 hrs, Volume= 0.924 af, Atten= 0%, Lag= 0.0 min
Primary = 10.62 cfs @ 12.10 hrs, Volume= 0.924 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 99.48' @ 12.11 hrs

Flood Elev= 103.10'

Device	Routing	Invert	Outlet Devices
#1	Primary	96.13'	18.0" Round Culvert L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.13' / 95.41' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=10.60 cfs @ 12.10 hrs HW=99.44' TW=97.12' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 10.60 cfs @ 6.00 fps)**Summary for Pond CB4: CB3.3**

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 2.46" for 25-Yr Storm event
Inflow = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af
Outflow = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af, Atten= 0%, Lag= 0.0 min
Primary = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 122.82' @ 12.08 hrs

Flood Elev= 125.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	121.42'	15.0" Round Culvert L= 102.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 121.42' / 119.38' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.19 cfs @ 12.08 hrs HW=122.82' TW=120.68' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 5.19 cfs @ 4.23 fps)

Summary for Pond CB5: CB3.4

Inflow Area = 2.042 ac, 45.50% Impervious, Inflow Depth = 2.46" for 25-Yr Storm event
 Inflow = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af
 Outflow = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.20 cfs @ 12.08 hrs, Volume= 0.419 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 120.68' @ 12.08 hrs
 Flood Elev= 125.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	119.28'	15.0" Round Culvert L= 120.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 119.28' / 112.00' S= 0.0607 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.19 cfs @ 12.08 hrs HW=120.68' TW=113.39' (Dynamic Tailwater)
 ↑**1=Culvert** (Inlet Controls 5.19 cfs @ 4.23 fps)

Summary for Pond CB6: CB1.10

Inflow Area = 1.132 ac, 76.69% Impervious, Inflow Depth = 4.54" for 25-Yr Storm event
 Inflow = 5.99 cfs @ 12.07 hrs, Volume= 0.428 af
 Outflow = 5.99 cfs @ 12.07 hrs, Volume= 0.428 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.99 cfs @ 12.07 hrs, Volume= 0.428 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 100.99' @ 12.07 hrs
 Flood Elev= 103.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	99.11'	15.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 99.11' / 99.00' S= 0.0052 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.94 cfs @ 12.07 hrs HW=100.97' TW=99.68' (Dynamic Tailwater)
 ↑**1=Culvert** (Barrel Controls 5.94 cfs @ 4.84 fps)

Summary for Pond D2: DMH-RD2

Inflow Area = 1.055 ac, 86.34% Impervious, Inflow Depth = 4.82" for 25-Yr Storm event
 Inflow = 5.30 cfs @ 12.07 hrs, Volume= 0.424 af
 Outflow = 5.30 cfs @ 12.07 hrs, Volume= 0.424 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.30 cfs @ 12.07 hrs, Volume= 0.424 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2
 Peak Elev= 108.43' @ 12.07 hrs
 Flood Elev= 113.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	107.00'	15.0" Round Culvert L= 280.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 107.00' / 97.00' S= 0.0357 ' ' Cc= 0.900

n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.26 cfs @ 12.07 hrs HW=108.42' TW=96.95' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 5.26 cfs @ 4.29 fps)

Summary for Pond ED: EX DMH

Inflow Area = 0.573 ac, 100.00% Impervious, Inflow Depth = 5.56" for 25-Yr Storm event
 Inflow = 3.36 cfs @ 12.07 hrs, Volume= 0.265 af
 Outflow = 3.36 cfs @ 12.07 hrs, Volume= 0.265 af, Atten= 0%, Lag= 0.0 min
 Primary = 3.36 cfs @ 12.07 hrs, Volume= 0.265 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 126.25' @ 12.07 hrs

Flood Elev= 128.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	124.20'	10.0" Round Culvert L= 48.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 124.20' / 122.95' S= 0.0260 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=3.33 cfs @ 12.07 hrs HW=126.23' TW=122.80' (Dynamic Tailwater)

↑**1=Culvert** (Inlet Controls 3.33 cfs @ 6.11 fps)

Summary for Pond SF1: Soil Filter 1

Inflow Area = 1.363 ac, 63.69% Impervious, Inflow Depth = 4.35" for 25-Yr Storm event
 Inflow = 6.94 cfs @ 12.07 hrs, Volume= 0.494 af
 Outflow = 4.23 cfs @ 12.17 hrs, Volume= 0.494 af, Atten= 39%, Lag= 5.7 min
 Primary = 4.23 cfs @ 12.17 hrs, Volume= 0.494 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 99.84' @ 12.17 hrs Surf.Area= 5,227 sf Storage= 7,681 cf

Plug-Flow detention time= 399.3 min calculated for 0.494 af (100% of inflow)

Center-of-Mass det. time= 399.3 min (1,191.8 - 792.5)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	15,804 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.00	3,092	0	0
99.50	4,842	5,951	5,951
101.00	6,522	8,523	14,474
101.20	6,781	1,330	15,804

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	12.0" Round Culvert L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.50' / 95.40' S= 0.0029 ' ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	98.00'	0.750 in/hr Exfiltration over Surface area Phase-In= 0.01'

#3	Device 1	99.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	99.90'	10.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.21 cfs @ 12.17 hrs HW=99.84' TW=97.34' (Dynamic Tailwater)

- ↑ **1=Culvert** (Passes 4.21 cfs of 5.98 cfs potential flow)
- ↑ **2=Exfiltration** (Exfiltration Controls 0.09 cfs)
- ↑ **3=Orifice/Grate** (Weir Controls 4.12 cfs @ 1.91 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=95.00' (Dynamic Tailwater)

- ↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SF2: Soil Filter 2

Inflow Area =	1.487 ac, 74.24% Impervious, Inflow Depth = 4.92" for 25-Yr Storm event
Inflow =	8.15 cfs @ 12.07 hrs, Volume= 0.610 af
Outflow =	6.96 cfs @ 12.12 hrs, Volume= 0.610 af, Atten= 15%, Lag= 2.8 min
Primary =	6.96 cfs @ 12.12 hrs, Volume= 0.610 af
Secondary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.98' @ 12.12 hrs Surf.Area= 4,430 sf Storage= 7,167 cf

Plug-Flow detention time= 297.8 min calculated for 0.610 af (100% of inflow)

Center-of-Mass det. time= 297.8 min (1,067.4 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	16,412 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	2,831	0	0
100.50	4,010	5,131	5,131
102.00	5,316	6,995	12,125
102.80	5,402	4,287	16,412

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 96.13' S= 0.0051 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	99.00'	0.750 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#3	Device 1	100.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	101.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=6.85 cfs @ 12.12 hrs HW=100.98' TW=99.43' (Dynamic Tailwater)

- ↑ **1=Culvert** (Outlet Controls 6.85 cfs @ 5.58 fps)
 - ↑ **2=Exfiltration** (Passes < 0.08 cfs potential flow)
 - ↑ **3=Orifice/Grate** (Passes < 6.87 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.00' TW=99.40' (Dynamic Tailwater)

- ↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond W1: Wetland

Inflow Area = 4.006 ac, 34.35% Impervious, Inflow Depth = 1.98" for 25-Yr Storm event
 Inflow = 7.71 cfs @ 12.11 hrs, Volume= 0.661 af
 Outflow = 3.35 cfs @ 12.39 hrs, Volume= 0.661 af, Atten= 57%, Lag= 17.1 min
 Primary = 3.35 cfs @ 12.39 hrs, Volume= 0.661 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.40' @ 12.39 hrs Surf.Area= 8,308 sf Storage= 6,404 cf

Plug-Flow detention time= 48.0 min calculated for 0.661 af (100% of inflow)

Center-of-Mass det. time= 48.0 min (876.4 - 828.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	99.40'	23,709 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
99.40	0	0.0	0	0	0
99.50	5,121	314.0	171	171	7,846
100.00	7,402	583.0	3,113	3,284	27,049
101.00	9,781	571.0	8,564	11,848	28,293
102.00	14,071	697.0	11,861	23,709	41,022

Device	Routing	Invert	Outlet Devices
#1	Primary	99.40'	18.0" Round Culvert L= 80.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 99.40' / 98.50' S= 0.0113 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.35 cfs @ 12.39 hrs HW=100.40' TW=97.45' (Dynamic Tailwater)

- ↑ **1=Culvert** (Inlet Controls 3.35 cfs @ 2.68 fps)

Summary for Pond W2: Wetland

Inflow Area = 4.728 ac, 29.99% Impervious, Inflow Depth = 2.21" for 25-Yr Storm event
 Inflow = 4.81 cfs @ 12.11 hrs, Volume= 0.872 af
 Outflow = 4.76 cfs @ 12.13 hrs, Volume= 0.872 af, Atten= 1%, Lag= 1.3 min
 Primary = 4.76 cfs @ 12.13 hrs, Volume= 0.872 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 97.48' @ 12.13 hrs Surf.Area= 1,032 sf Storage= 272 cf

Plug-Flow detention time= 1.0 min calculated for 0.872 af (100% of inflow)

Center-of-Mass det. time= 1.0 min (863.1 - 862.1)

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Volume	Invert	Avail.Storage	Storage Description			
#1	97.00'	6,210 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
97.00	209	106.0	0	0	209	
98.00	2,637	405.0	1,196	1,196	12,370	
99.00	7,853	571.0	5,014	6,210	25,272	

Device	Routing	Invert	Outlet Devices			
#1	Primary	97.00'	Custom Weir/Orifice, Cv= 2.62 (C= 3.28)			
			Head (feet)	0.00	1.00	2.00
			Width (feet)	4.00	6.00	8.00

Primary OutFlow Max=4.75 cfs @ 12.13 hrs HW=97.48' TW=96.86' (Dynamic Tailwater)

↑1=Custom Weir/Orifice (Weir Controls 4.75 cfs @ 2.22 fps)

Summary for Link AP1:

Inflow Area = 1.545 ac, 61.89% Impervious, Inflow Depth = 3.21" for 25-Yr Storm event
 Inflow = 6.01 cfs @ 12.08 hrs, Volume= 0.413 af
 Primary = 6.01 cfs @ 12.08 hrs, Volume= 0.413 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP2:

Inflow Area = 0.072 ac, 0.00% Impervious, Inflow Depth = 0.39" for 25-Yr Storm event
 Inflow = 0.01 cfs @ 12.35 hrs, Volume= 0.002 af
 Primary = 0.01 cfs @ 12.35 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP3:

Inflow Area = 0.283 ac, 0.00% Impervious, Inflow Depth = 1.56" for 25-Yr Storm event
 Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af
 Primary = 0.48 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP4:

Inflow Area = 9.919 ac, 49.95% Impervious, Inflow Depth = 3.48" for 25-Yr Storm event
 Inflow = 19.16 cfs @ 12.21 hrs, Volume= 2.877 af
 Primary = 19.16 cfs @ 12.21 hrs, Volume= 2.877 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Summary for Link AP5:

Inflow Area = 1.855 ac, 68.61% Impervious, Inflow Depth = 3.50" for 25-Yr Storm event
Inflow = 7.86 cfs @ 12.07 hrs, Volume= 0.541 af
Primary = 7.86 cfs @ 12.07 hrs, Volume= 0.541 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs

Appendix C:
Stormwater BMP Spillway Calculations

SOIL FILTER SF1 SPILLWAY CALCULATION - 25-YEAR

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Summary for Pond SF1: Soil Filter 1

Inflow Area = 1.363 ac, 63.69% Impervious, Inflow Depth = 4.35" for 25-Yr Storm event
 Inflow = 6.94 cfs @ 12.07 hrs, Volume= 0.494 af
 Outflow = 3.71 cfs @ 12.19 hrs, Volume= 0.311 af, Atten= 47%, Lag= 7.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 3.71 cfs @ 12.19 hrs, Volume= 0.311 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.17' @ 12.19 hrs Surf.Area= 5,589 sf Storage= 9,430 cf

Plug-Flow detention time= 190.4 min calculated for 0.311 af (63% of inflow)

Center-of-Mass det. time= 89.9 min (882.5 - 792.5)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	15,804 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.00	3,092	0	0
99.50	4,842	5,951	5,951
101.00	6,522	8,523	14,474
101.20	6,781	1,330	15,804

1' of freeboard
with primary
outlet clogged

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	12.0" Round Culvert X 0.00 L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.50' / 95.40' S= 0.0029 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	98.00'	0.750 in/hr Exfiltration over Surface area Phase-In= 0.01'
#3	Device 1	99.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	99.90'	10.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=95.00' (Dynamic Tailwater)

- ↑ 1=Culvert (Controls 0.00 cfs)
- ↑ 2=Exfiltration (Controls 0.00 cfs)
- ↑ 3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=3.69 cfs @ 12.19 hrs HW=100.17' TW=97.31' (Dynamic Tailwater)

- ↑ 4=Broad-Crested Rectangular Weir (Weir Controls 3.69 cfs @ 1.39 fps)

SOIL FILTER SF1 SPILLWAY CALCULATION - 100-YEAR

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Type III 24-hr 100-Yr Storm Rainfall=8.10"

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Summary for Pond SF1: Soil Filter 1

Inflow Area = 1.363 ac, 63.69% Impervious, Inflow Depth = 6.56" for 100-Yr Storm event
 Inflow = 10.26 cfs @ 12.07 hrs, Volume= 0.746 af
 Outflow = 8.70 cfs @ 12.12 hrs, Volume= 0.562 af, Atten= 15%, Lag= 2.9 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 8.70 cfs @ 12.12 hrs, Volume= 0.562 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 100.37' @ 12.12 hrs Surf.Area= 5,817 sf Storage= 10,588 cf

Plug-Flow detention time= 150.6 min calculated for 0.562 af (75% of inflow)

Center-of-Mass det. time= 66.3 min (848.1 - 781.8)

Volume	Invert	Avail.Storage	Storage Description
#1	98.00'	15,804 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
98.00	3,092	0	0
99.50	4,842	5,951	5,951
101.00	6,522	8,523	14,474
101.20	6,781	1,330	15,804

Filter does not
overtop in
100-year with
primary outlet
clogged.

Device	Routing	Invert	Outlet Devices
#1	Primary	95.50'	12.0" Round Culvert X 0.00 L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 95.50' / 95.40' S= 0.0029 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	98.00'	0.750 in/hr Exfiltration over Surface area Phase-In= 0.01'
#3	Device 1	99.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	99.90'	10.0' long x 20.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=98.00' TW=95.00' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

2=Exfiltration (Controls 0.00 cfs)

3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=8.70 cfs @ 12.12 hrs HW=100.37' TW=97.45' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Weir Controls 8.70 cfs @ 1.85 fps)

SOIL FILTER SF2 SPILLWAY CALCULATION - 25-YEAR

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Type III 24-hr 25-Yr Storm Rainfall=5.80"

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Summary for Pond SF2: Soil Filter 2

Inflow Area = 1.487 ac, 74.24% Impervious, Inflow Depth = 4.92" for 25-Yr Storm event
 Inflow = 8.15 cfs @ 12.07 hrs, Volume= 0.610 af
 Outflow = 7.04 cfs @ 12.12 hrs, Volume= 0.390 af, Atten= 14%, Lag= 2.7 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 7.04 cfs @ 12.12 hrs, Volume= 0.390 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 101.77' @ 12.12 hrs Surf.Area= 5,115 sf Storage= 10,924 cf

Plug-Flow detention time= 193.2 min calculated for 0.390 af (64% of inflow)

Center-of-Mass det. time= 91.5 min (861.2 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	16,412 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	2,831	0	0
100.50	4,010	5,131	5,131
102.00	5,316	6,995	12,125
102.80	5,402	4,287	16,412

1' of freeboard
with primary
outlet clogged

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert X 0.00 L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 96.13' S= 0.0051 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	99.00'	0.750 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#3	Device 1	100.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	101.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.00' TW=96.13' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)
 2=Exfiltration (Controls 0.00 cfs)
 3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=7.01 cfs @ 12.12 hrs HW=101.77' TW=100.36' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Weir Controls 7.01 cfs @ 1.30 fps)

SOIL FILTER SF2 SPILLWAY CALCULATION - 100-YEAR

Post-Development_COM

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Type III 24-hr 100-Yr Storm Rainfall=8.10"

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Summary for Pond SF2: Soil Filter 2

Inflow Area = 1.487 ac, 74.24% Impervious, Inflow Depth = 7.18" for 100-Yr Storm event
 Inflow = 11.71 cfs @ 12.07 hrs, Volume= 0.890 af
 Outflow = 10.97 cfs @ 12.10 hrs, Volume= 0.670 af, Atten= 6%, Lag= 1.8 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Secondary = 10.97 cfs @ 12.10 hrs, Volume= 0.670 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-50.00 hrs, dt= 0.02 hrs / 2

Peak Elev= 101.86' @ 12.10 hrs Surf.Area= 5,193 sf Storage= 11,386 cf

Plug-Flow detention time= 158.7 min calculated for 0.669 af (75% of inflow)

Center-of-Mass det. time= 73.4 min (835.4 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	99.00'	16,412 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
99.00	2,831	0	0
100.50	4,010	5,131	5,131
102.00	5,316	6,995	12,125
102.80	5,402	4,287	16,412

Filter does not
overtop in
100-year with
primary outlet
clogged.

Device	Routing	Invert	Outlet Devices
#1	Primary	96.50'	15.0" Round Culvert X 0.00' L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 96.50' / 96.13' S= 0.0051 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	99.00'	0.750 in/hr Exfiltration over Horizontal area Phase-In= 0.01'
#3	Device 1	100.50'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	101.50'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=99.00' TW=96.13' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

2=Exfiltration (Controls 0.00 cfs)

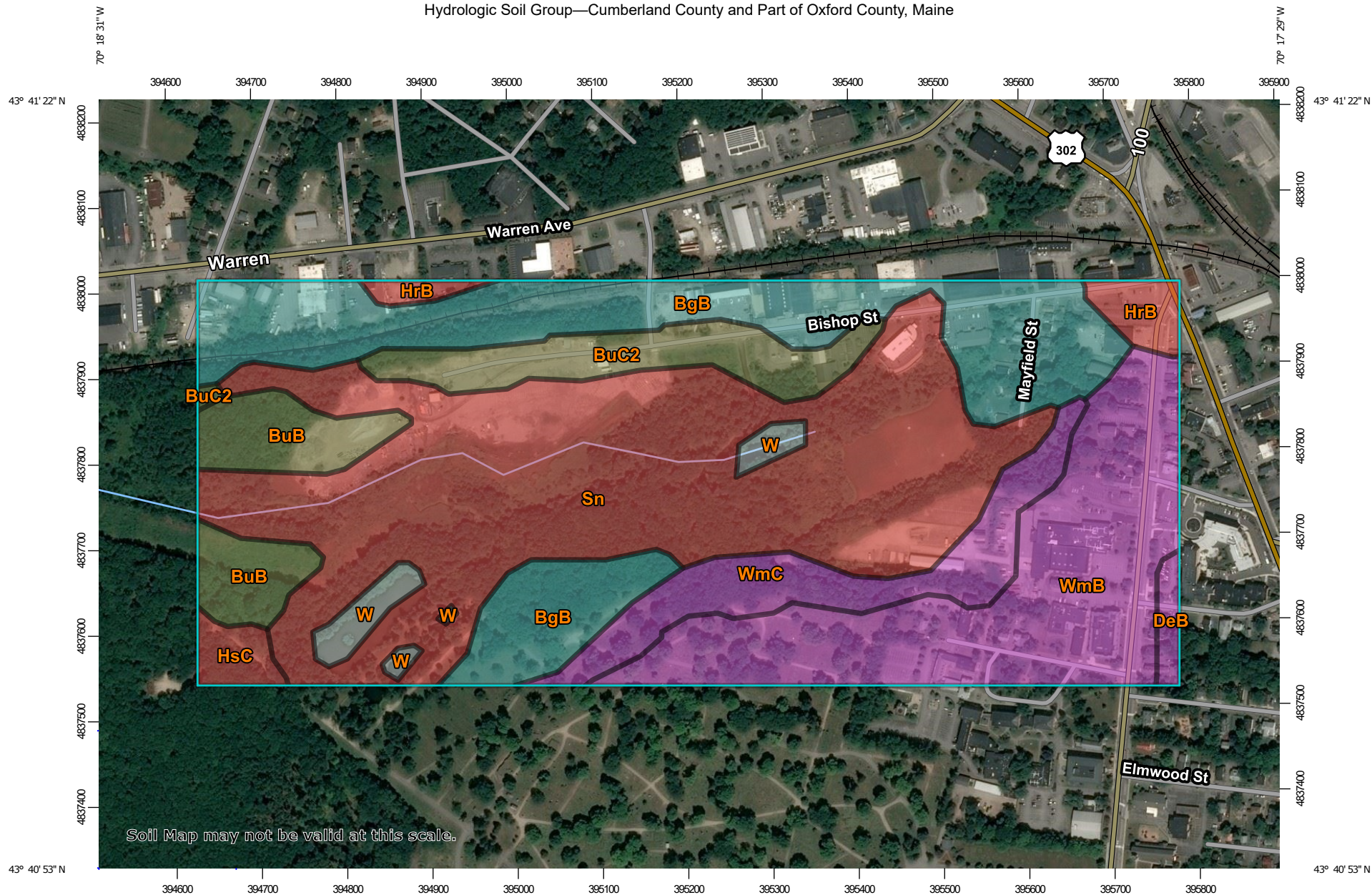
3=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=10.96 cfs @ 12.10 hrs HW=101.86' TW=101.15' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Weir Controls 10.96 cfs @ 1.53 fps)

Appendix D:
USDA Soil Map

Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine



Soil Map may not be valid at this scale.

Map Scale: 1:6,330 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 300 600 1200 1800 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey
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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
 Survey Area Data: Version 17, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	C	27.4	20.2%
BuB	Lamoine silt loam, 3 to 8 percent slopes	C/D	7.4	5.4%
BuC2	Buxton silt loam, 8 to 15 percent slopes	C/D	7.7	5.7%
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	A	1.0	0.7%
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	D	2.6	1.9%
HsC	Lyman-Abram complex, 8 to 15 percent slopes, very rocky	D	1.7	1.2%
Sn	Scantic silt loam, 0 to 3 percent slopes	D	51.6	38.1%
W	Water		2.5	1.9%
WmB	Windsor loamy sand, 0 to 8 percent slopes	A	24.1	17.8%
WmC	Windsor loamy sand, 8 to 15 percent slopes	A	9.4	6.9%
Totals for Area of Interest			135.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix E:
Inspection & Maintenance Plan &
City of Portland Stormwater Maintenance Agreement

Inspection and Maintenance Plan For Stormwater Management Facilities

University of New England
Center for Health Sciences
Stevens Avenue, Portland, Maine

April 29, 2022

Stormwater management facilities include paved surfaces, catch basins and drainage manholes, culverts, storm drain pipe, ditches/swales, and grassed underdrain soil filters. During construction activities and upon completion of construction, the operation and maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book will be the responsibility of the University of New England.

The University of New England shall enter into a Stormwater Drainage System Maintenance Agreement with the City of Portland to be recorded at the Cumberland County Registry of Deeds. A template for this agreement is included in this section and shall be completed upon final approval of the project.

At a minimum, the following maintenance activities for each stormwater management system shall be performed on a prescribed schedule.

Paved Surfaces

Accumulations of winter sand along paved surfaces shall be cleared at least once a year, preferably in the spring, and periodically during the year on an as-needed basis, to minimize transportation of sediment during rainfall events. Accumulations on pavement may be removed by pavement sweeping or vacuuming. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

Ditches and Swales

Open swales and ditches shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the ditches and slopes proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal vegetation in the ditches and slopes as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap channel lining to prevent scour of the channel invert, removing vegetation and debris from the culverts.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where

the vegetation fails will be subject to erosion and should be reseeded and mulched immediately.

Riprap ditches and aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

Catch Basins, Field Inlets, and Drainage Manholes

All catch basins, field inlets, and drainage manholes throughout the collection system shall be inspected twice per year (in spring and fall) to assure that the inlet entry and grates are clear of debris and will accept the intended flows. Any debris and sediments shall be cleared. Sediment should be removed from these structures when it accumulates within 12 inches of the lowest pipe invert. At a minimum, remove floating debris and hydrocarbons at the time of the inspection. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules. Confined space entry safety procedures shall be practiced should entry into these structures be required.

Culverts and Storm Drainage Pipes

Culverts and piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the stormwater filter or wetland areas as this will reduce the ponds capacity and ability to infiltrate runoff, and will hasten the time when the pond must be cleaned or rehabilitated.

Riprap aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

Grassed Underdrained Soil Filters

Mowing and removal of woody growth – underdrained soil filters are designed to grow water tolerant plantings and mowing is not required in the interior of the structure. However, the external and top slopes of earthen embankments will be mowed up to three times per growing season to control over growth.

Outlet inspection and cleaning – The soil filter outlet consists of a layer of planting loam and sand with a stone and perforated pipe underdrain. Influx of sediments will be limited by sumps on all upstream catch basin structures and vegetated swales. Outlet inspections shall include flushing of the underdrain through the cleanout at the end of the pipe. Trash, sediment and debris shall be removed from the vicinity of the outlet and disposed of at a

licensed off-site facility. The basin shall be inspected bi-annually for evidence of excessive retention or rapid release of flow.

If the filter fails to drain within 72 hours, the surface of the pond shall be rototilled to promote aeration of the filter media and vegetation shall be re-established. If aeration of the surface soil fails to promote filtration of impounded water within 72 hours, then the filter media shall be replaced as necessary. The stone underdrain shall also be replaced at this time, along with the perforated pipe.

If the filter drains too rapidly, (i.e. prior to 24 hours), then an adjustable orifice shall be installed on the underdrain outlet pipe. The orifice shall be adjusted such that the filter completely drains within 24 to 72 hours.

Underdrained soil filters shall not be used for snow storage areas.

Vehicular equipment used to maintain or rehabilitate underdrained soil filters should work from the basin perimeter and not enter the basin area, as this will compact the soil surface and reduce the design infiltration rate.

Disposal

Any sediment or debris removed during maintenance of the stormwater system must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

Recordkeeping

University of New England will keep a written maintenance log that summarizes inspections, maintenance, and any corrective actions taken. The log shall include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediment or debris, the location where the sediment or debris was disposed after removal will be indicated. This log shall be made available to the City of Portland upon request.

UNE Center for Health Sciences
Stevens Avenue, Portland, Maine

INSPECTION / MAINTENANCE LOG

SWALES, DITCHES, PAVED SURFACES
AND RIPRAP APRONS

I: INSPECTED - C: CLEANED - S: SWEPT - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	GHI	I, C	EXAMPLE: removed sand along the edge of the road near lots 7 & 8. Heavy rain over the weekend.

UNE Center for Health Sciences
Stevens Avenue, Portland, Maine

INSPECTION / MAINTENANCE LOG

OUTLET STRUCTURES, CATCH BASINS, AND DRAIN PIPES

I: INSPECTED - C: CLEANED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	JKL	I, C	EXAMPLE: Called ACME to clean the outlet structure in pond 1, cleaned debris from culvert inlet in pond 2.

**UNE Center for Health Sciences
Stevens Avenue, Portland, Maine**

INSPECTION / MAINTENANCE LOG

UNDERDRAINED SOIL FILTERS

I: INSPECTED - C: CLEANED - S: SWEEPED - R: REPAIRED

DATE	INITIALS	ACTION	COMMENT
3/28/22	RST	I	EXAMPLE: Cleared sediment and plant debris from inlet area, mowed filter area, crest, and sideslopes.

UNE Center for Health Sciences Stevens Avenue, Portland, Maine					
STORMWATER MANAGEMENT SYSTEM MAINTENANCE PROGRAM SUMMARY CHECKLIST					
Item	Commentary	Frequency			
		Month	Semi-Annual	Annual	Long-Term
Pavement	Review for damage and buildup of debris and sand.	X	X Sweep		
Swales, Ditches, and Riprap Aprons	Inspect for debris accumulation, erosion and excessive vegetation. Mow monthly, remove debris, repair and revegetate any area of erosion	X Mow		X	
Outlet Structures, Catch Basins, and Drain Pipes	Inspect for sediment buildup in pipe. Flush and remove as required.			X	
Underdrained Soil Filter	Mow twice per year. Inspect for erosion.		X		

Appendix F Drainage Plans

I1.0 – Pre Development Impervious Area Plan

I2.0 – Post Development Impervious Area Plan

R1.0 – Pre Development Pollutant Loading Plan

R2.0 – Post Development Pollutant Loading Plan

D1.0 – Pre Development Drainage Plan

D2.0 – Post Development Drainage Plan

D3.0 – Stormwater Treatment Plan

	
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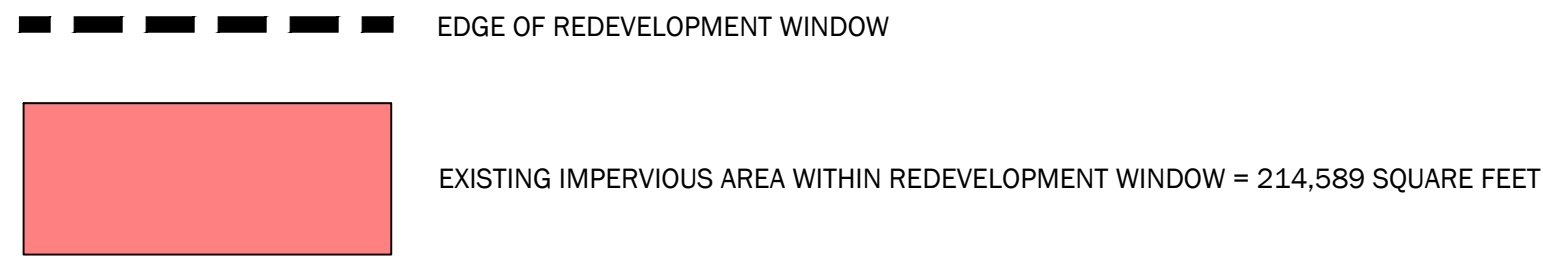
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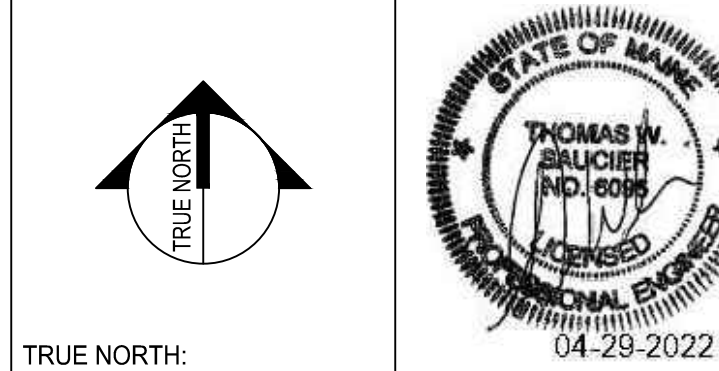
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3	30
4	40
5	50

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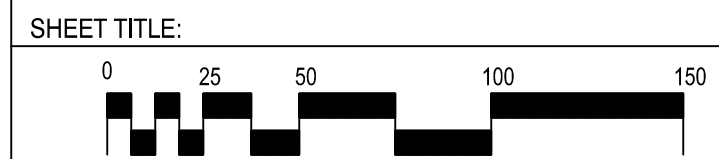
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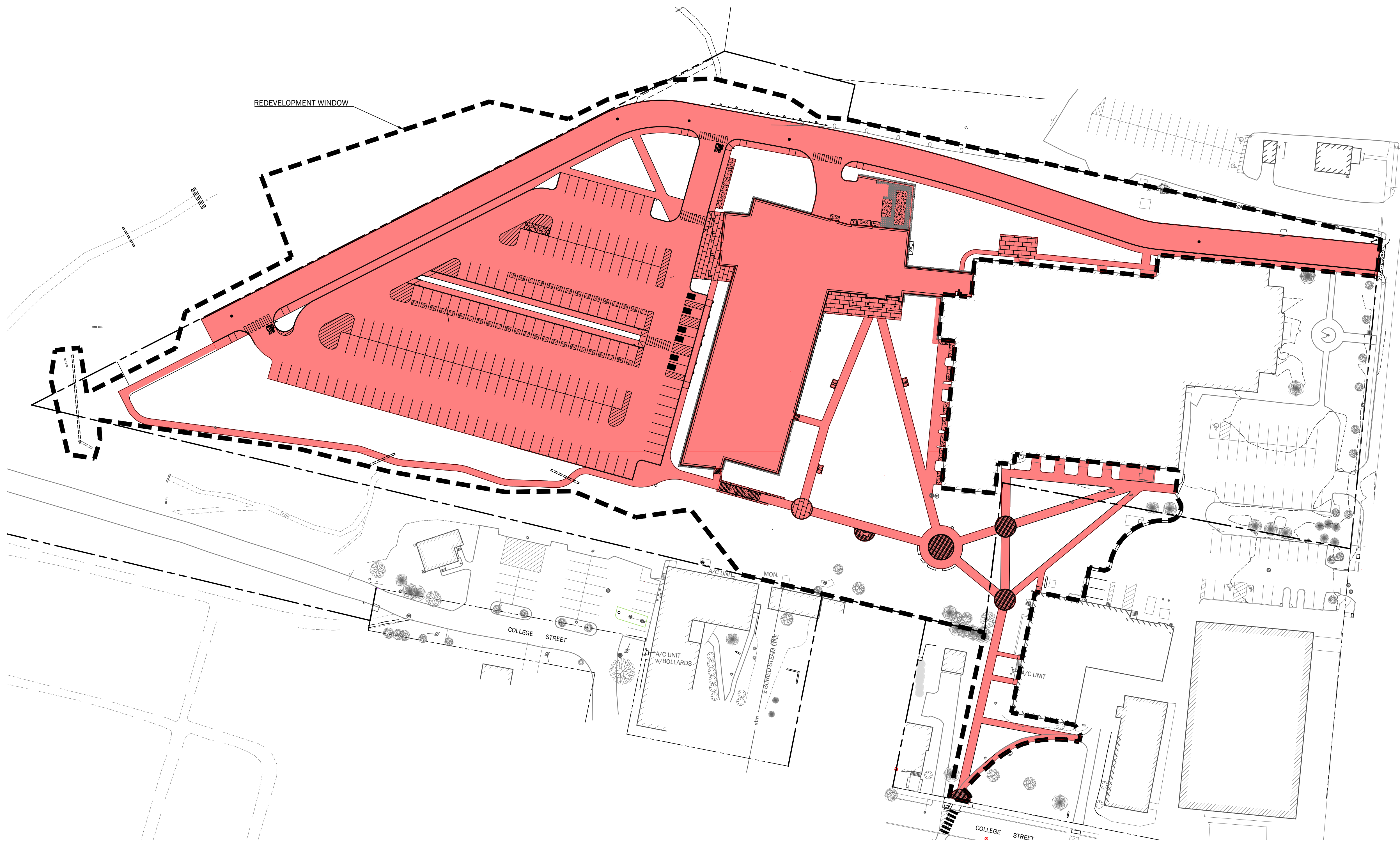
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**POST DEVELOPMENT
IMPERVIOUS AREA PLAN**



SCALE: 1" = 50'	KD	PROJECT NO:	21004
PROJECT MANAGER:	TWS	A/E OF RECORD:	ECC
JOB CAPTAIN:	TNL	DRAWN BY:	12.0
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--- EDGE OF REDEVELOPMENT WINDOW

PROPOSED IMPERVIOUS AREA WITHIN REDEVELOPMENT WINDOW = 171,482 SQUARE FEET

NET DEDUCTION OF IMPERVIOUS AREA WITHIN REDEVELOPMENT WINDOW = 214,589 SF - 171,482 SF = 43,107 SQUARE FEET

TABLE 1 Existing Stormwater Redevelopment Calculations UNE COM Building			
Land Use	Pollutant Ranking	Area (Acres)	Weighted Average
Roads with Idling High Use Parking Lots	5	0.0	0.0
Other Roads Medium Use Parking Lots	4	4.6	18.4
Other Parking Lots Flat Asphalt Roofs Industrial Roofs	3	0.0	0.0
Other Rooftops Bikeways/Lawns Pedestrian Pavement	2	1.1	2.2
Non-grass Landscaped areas Stormwater Facilities	1	0.1	0.1
Meadows Forest	0	1.4	0.0
Total Redevelopment Area (A)		7.2	
Existing Impact Rating (EIA)			20.7
Existing Pollutant Ranking (EPR) =		EIA/A =	2.86



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**PRE DEVELOPMENT
POLLUTANT LOADING PLAN**

SHEET TITLE:

SCALE: 1" = 50'

PROJECT MANAGER:	KD	PROJECT NO:	21004
A/E OF RECORD:	TWS		
JOB CAPTAIN:	ECC		
DRAWN BY:	TNL		
SMRT FILE:	R1.0:21004	SHEET No.	R1.0

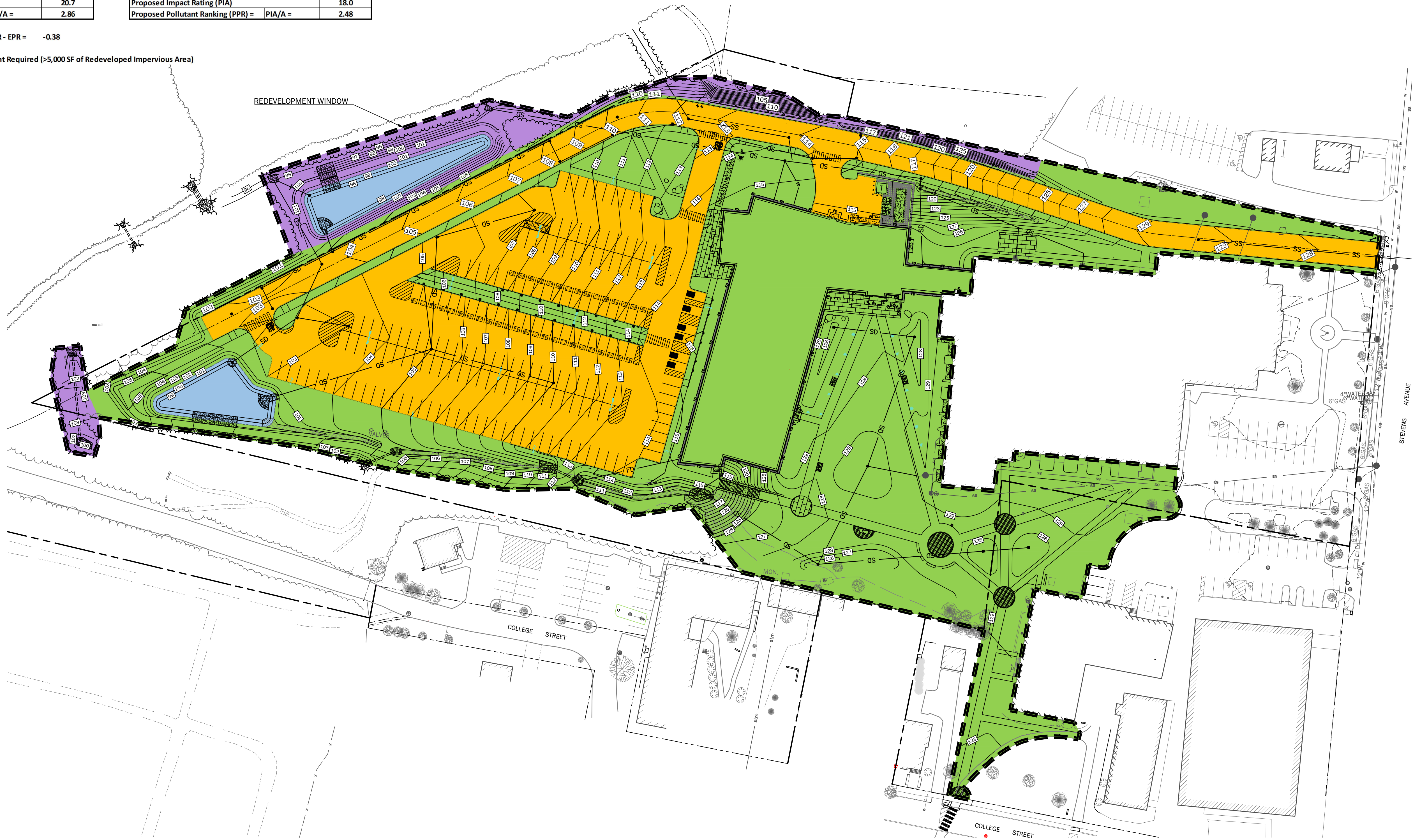
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TABLE 1 Existing Stormwater Redevelopment Calculations UNE COM Building			
Land Use	Pollutant Ranking	Area (Acres)	Weighted Average
Roads with Idling High Use Parking Lots	5	0.0	0.0
Other Roads Medium Use Parking Lots	4	4.6	18.4
Other Parking Lots Flat Asphalt Roofs Industrial Roofs	3	0.0	0.0
Other Rooftops Bikeways/Lawns Pedestrian Pavement	2	1.1	2.2
Non-grass Landscaped areas Stormwater Facilities	1	0.1	0.1
Meadows Forest	0	1.4	0.0
Total Redevelopment Area (A)		7.2	
Existing Impact Rating (EIA)			20.7
Existing Pollutant Ranking (EPR) =		EIA/A =	2.86

TABLE 2 Proposed Stormwater Redevelopment Calculations UNE COM Building			
Land Use	Pollutant Ranking	Area (Acres)	Weighted Average
Roads with Idling High Use Parking Lots	5	0.0	0.0
Other Roads Medium Use Parking Lots	4	2.3	9.3
Other Parking Lots Flat Asphalt Roofs Industrial Roofs	3	0.0	0.0
Other Rooftops Bikeways/Lawns Pedestrian Pavement	2	4.2	8.4
Non-grass Landscaped areas Stormwater Facilities	1	0.2	0.2
Meadows Forest	0	0.5	0.0
Total Redevelopment Area (A)		7.2	
Proposed Impact Rating (PIA)			18.0
Proposed Pollutant Ranking (PPR) =		PIA/A =	2.48

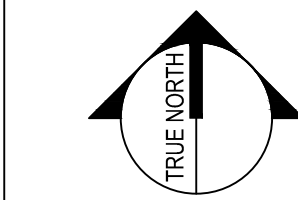
Ranked Impact Change (RIC) = PPR - EPR = -0.38

RIC < 0.0 => 50% Impervious Area Treatment Required (>5,000 SF of Redeveloped Impervious Area)

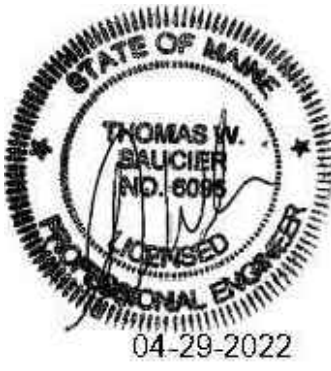


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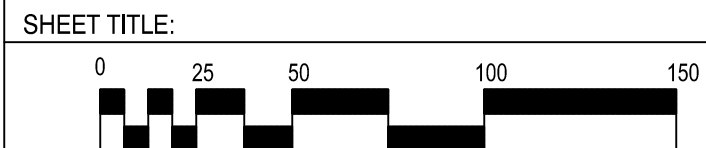
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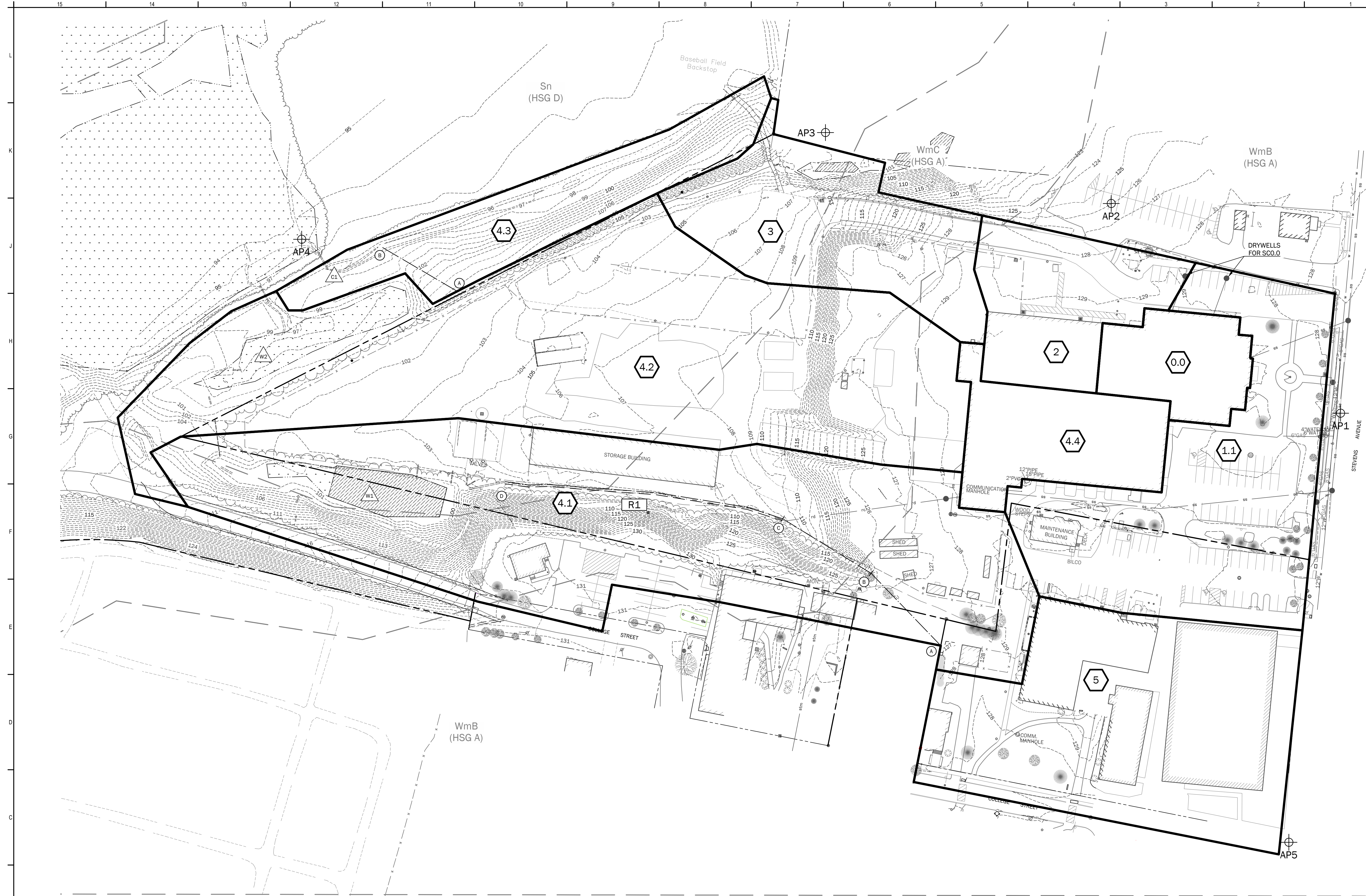
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**POST DEVELOPMENT
POLLUTANT LOADING PLAN**



SCALE: 1" = 50'	
PROJECT MANAGER: KD	PROJECT NO: 21004
A/E OF RECORD: TWS	
JOB CAPTAIN: ECC	
DRAWN BY: TNL	
SMRT FILE: R2.0-21004	SHEET No. R2.0

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Tc FLOW LINE DATA:

SUBCATCHMENT 4.1				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	12.4	110'	0.014	SHEET FLOW
BC	0.9	110	0.160	SHALLOW CONCENTRATED FLOW
CD	0.5	300	0.017	TRAP FLOW

SUBCATCHMENT 4.3				
SEGMENT	TIME (MIN.)	LENGTH	SLOPE	FLOW TYPE
AB	10.0	80'	0.090	SHEET FLOW

Tc FOR ALL REMAINING SUBCATCHMENTS = 5 MINUTES.

SOIL NOTES

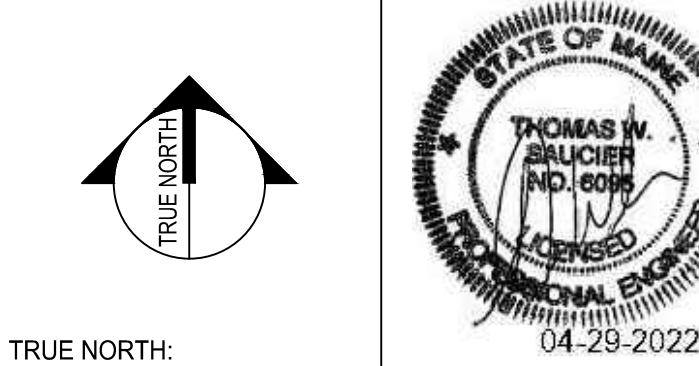
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DRAINAGE LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT DESIGNATION
- TIME OF CONCENTRATION FLOW
- REACH
- REACH DESIGNATION
- ANALYSIS POINT
- POND TEXT



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PRE DEVELOPMENT
DRAINAGE PLAN

SHEET TITLE:			
SCALE: 1" = 50'			
PROJECT MANAGER:	KD	PROJECT NO:	21004
A/E OF RECORD:	TWS	D1.0	
JOB CAPTAIN:	ECC		
DRAWN BY:	TNL		
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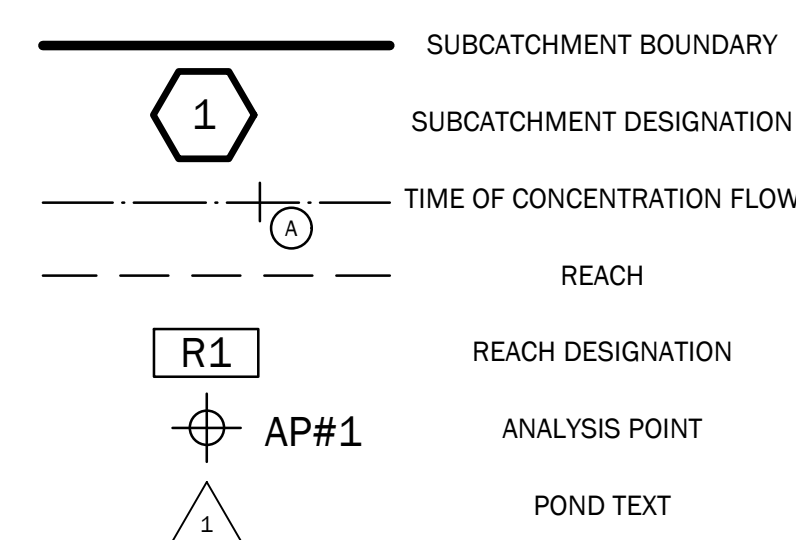
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Tc FOR ALL REMAINING SUBCATCHMENTS = 5 MINUTES

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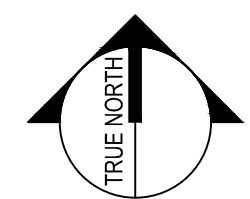
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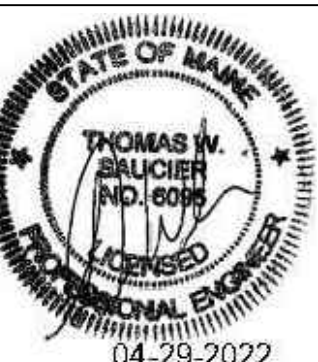
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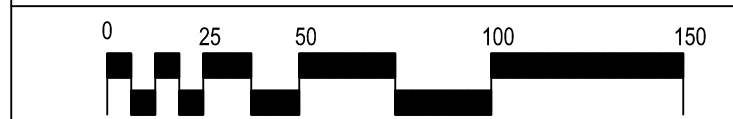
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POST DEVELOPMENT DRAINAGE PLAN

SHEET TITLE:



SCALE: 1" = 50'

PROJECT MANAGER:	KD	PROJECT NO:	21004
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JOB CAPTAIN:	ECC
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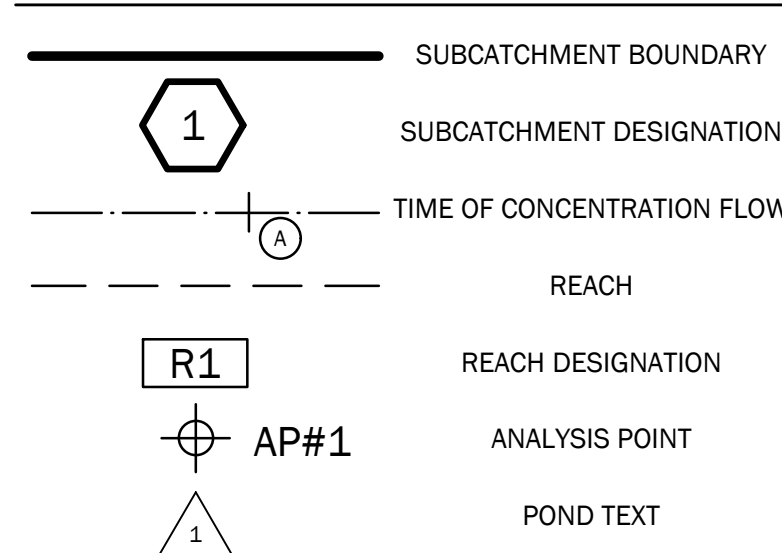


Table 2
Water Quality Calculations

Subcatchment Area	Impervious Area (SF)	Landscaped Area (SF)	Developed Area (SF)	Filter Area Required ¹ (SF)	Filter Area Provided (SF)	Water Quality Volume Required ² (CF)	Water Quality Volume Provided (CF)	Sediment Forebay Volume required ³ (CF)	Sediment Forebay Volume Provided (CF)	BMP
TREATED AREAS										
4.3	37,812	11,495	49,307	2,322	3,092	3,850	5,951	48	61	Soil Filter (SF1)
4.6	0	10,062	10,062							
4.4	24,710	1,319	26,029							
4.5	21,831	1,361	23,192	2,739	2,831	4,543	5,131	61	61	Soil Filter (SF2)
4.11	1,556	14,005	15,561							
TOTAL TREATED	85,909	38,242	124,151							
TOTAL REDEVELOPED IMPERVIOUS AREA ⁴	171,482									
PERCENT REDEVELOPED IMPERVIOUS AREA TREATED	50.1%									

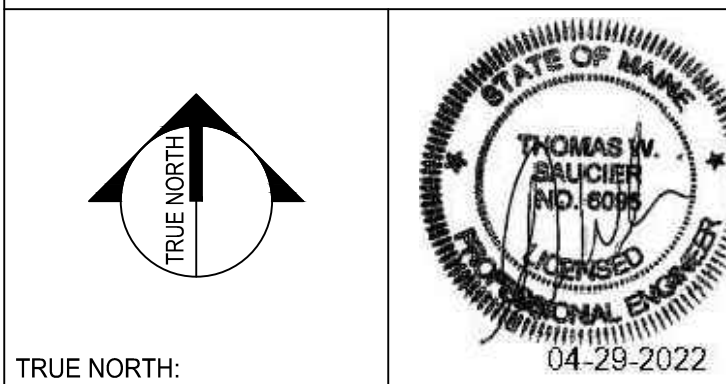
Notes:
1. Filter area required is calculated at 5% of contributing impervious area and 2% of contributing landscaped area.
2. Water quality volume required is calculated as 1" over the contributing impervious area plus 0.4" over the contributing landscaped area.
3. Sediment Volume Required is calculated as Sanded Area (acres) x 500lbs/acre x 90 lbs/CF x 10 storms/year.
4. See Sheet I2.0 for Total Redeveloped Impervious Area.

DRAINAGE LEGEND



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STORMWATER TREATMENT PLAN

SHEET TITLE:
0 25 50 100 150
SCALE: 1" = 50'
PROJECT MANAGER: KD PROJECT NO: 21004
A/E OF RECORD: TWS
JOB CAPTAIN: ECC
DRAWN BY: TNL
SMRT FILE: D3.0-21004 SHEET No. D3.0
D3.0
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Department of Public Works
Christopher C. Branch, P.E.
Director



Date: March 23, 2022

Re: Wastewater Capacity Authorization

Address: 780 Stevens Avenue

Applicant: University of New England – Site Design Associates- Tom Saucier, P.E.

Planner: Matthew Grooms

Estimate of Anticipated Wastewater Flows				
Development	Unit Size	Number of Units	Gallons per Day per Unit	Total Gallons per Day
Existing Flow to Remain				
Vacant				
Proposed Flow				
Employees at place of employment with showers	# Employees	130	20 GPD	2600
University - Lecture Hall – Class Room	Student	440	10 GPD	4400
Net Change				+ 7,000
*Values based on STATE OF MAINE: SUBSURFACE WASTEWATER DISPOSAL RULES, most recent edition				

Comments:

The Department of Public Works, which includes the Water Resource Division, have reviewed and determined that the downstream sewers from the project address have the capacity to convey the estimated dry weather wastewater flows which will be generated from this development.

If the City can be of further assistance, please contact me at all 874-8840 or brad@portlandmaine.gov

Sincerely,

A handwritten signature in dark ink that reads "Bradley A. Roland".

Bradley A. Roland, P.E.,
Senior Project Engineer



Submittal Spec Sheet

Dynamically Generated
Series: RSX2

Att. K

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: AA

Qty:

RSX2 LED Area Luminaire

Up to 31,000 lumens



Product Submittal Description:

RSX Area Size 2, LED, Package 1, 4000K, IES type III asymmetric, 120-277V, Square pole mounting, Textured black, super durable



The product images shown are for illustration purposes only and may not be an exact representation of the product.

[IES Files](#)

[BIM Models](#)

[Full Spec Sheet](#)

Product Webpage: www.acuitybrands.com/products/detail/885181

Warranty: www.acuitybrands.com/support/warranty/terms-and-conditions

Model #: RSX2 LED P1 40K R3 MVOLT SPA DBLBXD ✓

Series*		Lamp Type*		LED Configuration*		Correlated Color Temperature*	
RSX2	RSX Area Size 2	LED	LED	P1	Package 1	30K	3000K
				P2	Package 2	40K	4000K
				P3	Package 3	50K	5000K
				P4	Package 4		
				P5	Package 5		
				P6	Package 6		
Distribution*				Voltage*		Bird Deterrent	
AFR	Auto front row distribution	R5S	Type V, square	120	120V	BS	Bird spikes
AFRL90	Auto front row left rotated optics			208	208V		
AFRR90	Auto front row right rotated optics			240	240V		
R2	IES type II			277	277V		
R3	IES type III asymmetric			347	347V		
R3S	Type III short			480	480V		
R4	IES type IV forward throw			HVOLT	347-480V		
R4S	Type IV short			MVOLT	120-277V		
R5	Type V distribution			XVOLT	XVOLT		
Shielding		Mounting				Mounting Option	
EGFV	External glare full visor shield	AARP	Adjustable tilt arm round pole	WBASC	Wall mount bracket surface conduit	IS	Integral Slipfitter
EGS	External Glare Shield	AASP	Adjustable tilt arm square pole				
HS	House-side shield	AAWB	Adjustable tilt arm wall bracket				
		AAWSC	Adjustable tilt arm wall bracket surface conduit				
		MA	Mast arm adaptor, integral				
		RPA	Round pole mounting				
		SPA	Square pole mounting				
		WBA	Wall mount bracket				



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Submittal Spec Sheet

Dynamically Generated
Series: RSX2

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: AA

Qty:

Driver Configuration		Dimming Wires		Dimmable/Controllable		Receptacle Type	
DS	Dual switching; Provides 50/50 luminaire operation via two independent drivers on two separate circuits	DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)	NLTAIR2	Nlight air gen 2 controller	PER7	Seven-wire receptacle only (no controls)
Photocell		Internal Control		Surge Protection		Field Adjustable	
PE	Photocell, buttontype	PIRHN	Motion/ambient sensor 15-30FT- Networked	SPD20KV	Additional surge protection 20KV	FAO	Field adjustable output
PEX	Photocell, buttontype, external threaded adjustable						
Fusing		Conduit Entry		Finish*		Assembled in America	
DF	Double Fuse	CE34	Conduit entry 3/4IN NPT	DBLBXD	Textured black, super durable	BAA	Buy American Act
SF	Single Fuse			DBLXD	Black finish, super durable		
				DDBTXD	Textured dark bronze, super durable		
				DDBXD	Dark bronze finish, super durable		
				DNATXD	Textured natural aluminum, super durable		
				DNAXD	Natural aluminum finish, super durable		
				DWHGXD	Textured white, super durable		
				DWHXD	White, super durable		

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Submittal Spec Sheet

Dynamically Generated
Series: RSX2

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: AB

Qty:

RSX2 LED Area Luminaire

Up to 31,000 lumens



Product Submittal Description:

RSX Area Size 2, LED, Package 1, 4000K, IES type IV forward throw, 120-277V, Square pole mounting, Textured black, super durable



The product images shown are for illustration purposes only and may not be an exact representation of the product.

[IES Files](#)

[BIM Models](#)

[Full Spec Sheet](#)

Product Webpage: www.acuitybrands.com/products/detail/885181

Warranty: www.acuitybrands.com/support/warranty/terms-and-conditions

Model #: RSX2 LED P1 40K R4 MVOLT SPA DBLBXD ✓

Series*		Lamp Type*		LED Configuration*		Correlated Color Temperature*	
RSX2	RSX Area Size 2	LED	LED	P1	Package 1	30K	3000K
				P2	Package 2	40K	4000K
				P3	Package 3	50K	5000K
				P4	Package 4		
				P5	Package 5		
				P6	Package 6		
Distribution*				Voltage*		Bird Deterrent	
AFR	Auto front row distribution	R5S	Type V, square	120	120V	BS	Bird spikes
AFRL90	Auto front row left rotated optics			208	208V		
AFRR90	Auto front row right rotated optics			240	240V		
R2	IES type II			277	277V		
R3	IES type III asymmetric			347	347V		
R3S	Type III short			480	480V		
R4	IES type IV forward throw			HVOLT	347-480V		
R4S	Type IV short			MVOLT	120-277V		
R5	Type V distribution			XVOLT	XVOLT		
Shielding		Mounting				Mounting Option	
EGFV	External glare full visor shield	AARP	Adjustable tilt arm round pole	WBASC	Wall mount bracket surface conduit	IS	Integral Slipfitter
EGS	External Glare Shield	AASP	Adjustable tilt arm square pole				
HS	House-side shield	AAWB	Adjustable tilt arm wall bracket				
		AAWSC	Adjustable tilt arm wall bracket surface conduit				
		MA	Mast arm adaptor, integral				
		RPA	Round pole mounting				
		SPA	Square pole mounting				
		WBA	Wall mount bracket				



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Submittal Spec Sheet

Dynamically Generated
Series: RSX2

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: AB

Qty:

Driver Configuration		Dimming Wires		Dimmable/Controllable		Receptacle Type	
DS	Dual switching; Provides 50/50 luminaire operation via two independent drivers on two separate circuits	DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)	NLTAIR2	Nlight air gen 2 controller	PER7	Seven-wire receptacle only (no controls)
Photocell		Internal Control		Surge Protection		Field Adjustable	
PE	Photocell, buttontype	PIRHN	Motion/ambient sensor 15-30FT- Networked	SPD20KV	Additional surge protection 20KV	FAO	Field adjustable output
PEX	Photocell, buttontype, external threaded adjustable						
Fusing		Conduit Entry		Finish*		Assembled in America	
DF	Double Fuse	CE34	Conduit entry 3/4IN NPT	DBLBXD	Textured black, super durable	BAA	Buy American Act
SF	Single Fuse			DBLXD	Black finish, super durable		
				DDBTXD	Textured dark bronze, super durable		
				DDBXD	Dark bronze finish, super durable		
				DNATXD	Textured natural aluminum, super durable		
				DNAXD	Natural aluminum finish, super durable		
				DWHGXD	Textured white, super durable		
				DWHXD	White, super durable		

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Submittal Spec Sheet

Dynamically Generated
Series: RSX2

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: AC

Qty:

RSX2 LED Area Luminaire

Up to 31,000 lumens



Product Submittal Description:

RSX Area Size 2, LED, Package 1, 4000K, IES type II, 120-277V,
Square pole mounting, Textured black, super durable



The product images shown are for illustration purposes only
and may not be an exact representation of the product.

[IES Files](#)

[BIM Models](#)

[Full Spec Sheet](#)

Product Webpage: www.acuitybrands.com/products/detail/885181

Warranty: www.acuitybrands.com/support/warranty/terms-and-conditions

Model #: RSX2 LED P1 40K R2 MVOLT SPA DBLBXD ✓

Series*		Lamp Type*		LED Configuration*		Correlated Color Temperature*	
RSX2	RSX Area Size 2	LED	LED	P1	Package 1	30K	3000K
				P2	Package 2	40K	4000K
				P3	Package 3	50K	5000K
				P4	Package 4		
				P5	Package 5		
				P6	Package 6		
Distribution*				Voltage*		Bird Deterrent	
AFR	Auto front row distribution	R5S	Type V, square	120	120V	BS	Bird spikes
AFRL90	Auto front row left rotated optics			208	208V		
AFRR90	Auto front row right rotated optics			240	240V		
R2	IES type II			277	277V		
R3	IES type III asymmetric			347	347V		
R3S	Type III short			480	480V		
R4	IES type IV forward throw			HVOLT	347-480V		
R4S	Type IV short			MVOLT	120-277V		
R5	Type V distribution			XVOLT	XVOLT		
Shielding		Mounting				Mounting Option	
EGFV	External glare full visor shield	AARP	Adjustable tilt arm round pole	WBASC	Wall mount bracket surface conduit	IS	Integral Slipfitter
EGS	External Glare Shield	AASP	Adjustable tilt arm square pole				
HS	House-side shield	AAWB	Adjustable tilt arm wall bracket				
		AAWSC	Adjustable tilt arm wall bracket surface conduit				
		MA	Mast arm adaptor, integral				
		RPA	Round pole mounting				
		SPA	Square pole mounting				
		WBA	Wall mount bracket				



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Submittal Spec Sheet

Dynamically Generated
Series: RSX2

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: AC

Qty:

Driver Configuration		Dimming Wires		Dimmable/Controllable		Receptacle Type	
DS	Dual switching; Provides 50/50 luminaire operation via two independent drivers on two separate circuits	DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)	NLTAIR2	Nlight air gen 2 controller	PER7	Seven-wire receptacle only (no controls)
Photocell		Internal Control		Surge Protection		Field Adjustable	
PE	Photocell, buttontype	PIRHN	Motion/ambient sensor 15-30FT- Networked	SPD20KV	Additional surge protection 20KV	FAO	Field adjustable output
PEX	Photocell, buttontype, external threaded adjustable						
Fusing		Conduit Entry		Finish*		Assembled in America	
DF	Double Fuse	CE34	Conduit entry 3/4IN NPT	DBLBXD	Textured black, super durable	BAA	Buy American Act
SF	Single Fuse			DBLXD	Black finish, super durable		
				DDBTXD	Textured dark bronze, super durable		
				DDBXD	Dark bronze finish, super durable		
				DNATXD	Textured natural aluminum, super durable		
				DNAXD	Natural aluminum finish, super durable		
				DWHGXD	Textured white, super durable		
				DWHXD	White, super durable		

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Submittal Spec Sheet

Dynamically Generated

Series: DSXB

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: BB

Qty:

D-Series Bollard

D-Series Bollard

Product Submittal Description:

D-Series LED bollard, LED, 12 LEDs, Gen C, 350mA driver, 4000K, Asymmetric, 120-277V, Bollard 36IN height, Textured black, super durable



The product images shown are for illustration purposes only and may not be an exact representation of the product.

[IES Files](#)

[BIM Models](#)

[Full Spec Sheet](#)

Product Webpage: www.acuitybrands.com/products/detail/229085

Warranty: www.acuitybrands.com/support/warranty/terms-and-conditions

Model #: DSXB LED 12C 350 40K ASY MVOLT H36 DBLBXD ✓

Series*		Lamp Type*		LED Configuration*		Driver*	
DSXB	D-Series LED bollard	LED	LED	12C	12 LEDs, Gen C	350	350mA driver
				16C	16 LEDs, Gen C	450	450mA
						530	530mA driver
						700	700mA driver
Correlated Color Temperature*		Distribution*		Voltage*		Dimming Wires	
30K	3000K	ASY	Asymmetric	120	120V	DMG	0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)
40K	4000K	SYM	Symmetric	208	208V		
50K	5000K			240	240V		
AMBPC	Amber, Phosphor Converted			277	277V		
				347	347V		
				MVOLT	120-277V		
Receptacle Type		Photocell		Fusing		Emergency Battery Pack	
FG	Festoon with ground fault	PE	Photocell, buttontype	DF	Double Fuse	ELCW	Emergency battery backup, Cold weather
				SF	Single Fuse		



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Submittal Spec Sheet

Dynamically Generated
Series: DSXB

Date: 5/2/2022

Project: UNE ACHS Building

Group/Type: BB

Qty:

Height		Finish*				Less Anchor Bolts	
H24	Bollard 24IN height	DBLBXD	Textured black, super durable	DSPDXD	Textured dark grey, super durable	L/AB	Less anchor bolts
H30	Bollard 30IN height	DBLXD	Black finish, super durable	DTGXD	Tennis green, super durable	L/AB4	Less anchor bolts for 4 bolt pattern on LED bollards
H36	Bollard 36IN height	DDBTXD	Textured dark bronze, super durable	DWHGXD	Textured white, super durable		
		DDBXD	Dark bronze finish, super durable	DWHXD	White, super durable		
		DGCXD	Charcoal grey, super durable				
		DGRHDXD	Dark green, RAL6012, super durable				
		DMBXD	Medium bronze, super durable				
		DNATXD	Textured natural aluminum, super durable				
		DNAXD	Natural aluminum finish, super durable				

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February 28, 2022

Tom Saucier, P.E.
Site Design Associates
23 Whitney Way
Topsham, Maine 04086

RE: SR#502606 772 Stevens Avenue, PO

Dear Mr. Saucier:

The Portland Water District Internal Review Team has met, discussed and ruled on your recent appeal to our decision to serve the proposed development at 772 Stevens Avenue, Portland. The Team has decided the following:

The Portland Water District will allow construction of a public water main within an easement, with terms acceptable to PWD, on the University of New England (UNE) campus to serve multiple UNE buildings. PWD will work with the development team to ensure that all horizontal and vertical separation requirements between water and adjacent utilities and subsurface features are met prior to plan approval. Water services to UNE buildings shall meet the minimum standard requirements as outlined in the PWD Terms & Conditions.

Should you disagree with this determination, you may further appeal this case to the Portland Water District Board of Trustees. The request must be made in writing to the Portland Water District c/o Board of Trustees. The Board of Trustees case appeals are scheduled at the discretion of the President of the Board.

If you choose not to appeal further, please continue to work with the Portland Water District MEANS group in order to advance the project.

Sincerely,
Portland Water District

A handwritten signature in black ink, appearing to read 'Robert Bartels', is written over a horizontal line.

Robert Bartels, PE
Senior Project Engineer

**TRAFFIC IMPACT STUDY
COLLEGE OF OSTEOPATHIC MEDICINE
UNIVERSITY OF NEW ENGLAND
PORTLAND, MAINE**

May 5, 2022



Prepared for:

Diane W. Morabito

UNIVERSITY OF NEW ENGLAND



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INTRODUCTION

The purpose of this report is to summarize the information requested by the City of Portland regarding a planned relocation of the College of Osteopathic Medicine (COM) to the Portland campus of the University of New England (UNE). The relocation of this program from the Biddeford campus to the Portland campus off Stevens Avenue will result in an additional 400 students on the Portland campus. The campus location is shown on the map in Figure 1.

It is understood that the Portland campus currently serves 1,198 students (fall of 2021). The COM program move would result in an additional 400 students on the Portland campus. Given this, the current enrollment of 1,198 students would grow to 1,598 students.

Construction of the new COM building is expected to begin as soon as permits are issued with occupancy planned for summer of 2024. Hence, 2024 was selected as the study year for traffic analysis purposes.

TRIP GENERATION ANALYSIS

The number of trips to be generated by the proposed student increase due to the COM program was estimated utilizing the most recent Institute of Transportation Engineers (ITE) "Trip Generation" 11th edition report. This newest edition is based upon the largest and most current database and is the best information regarding trip making trends and is used as the basis for state traffic permitting in Maine. Land use code (LUC) 550 – University/College was used on the basis of student population. The results for the existing 1,198 and proposed 1,598 student populations are summarized in the table below:

<u>Time Period</u>	ITE TRIP GENERATION – one-way trip ends		
	<u>Existing</u>	<u>Proposed</u>	<u>Increase</u>
Daily	1,870	2,494	624
AM – Adjacent Street & Generator	179	240	61
Entering	139	187	48
Exiting	40	53	13
PM – Adjacent Street & Generator	179	240	61
Entering	58	77	19
Exiting	121	163	42

As seen above, the proposed 400 student increase is expected to generate 61 new one-way trips during both the AM and PM peak hours.

PERMITTING REQUIREMENTS

UNE last obtained a traffic movement permit (TMP) in 2008 for the College of Pharmacy (COP) when overall enrollment was 735 students. The TMP was issued for 300 new COP students bringing total enrollment to 1,035. Since that time UNE obtained City of Portland approval in 2012 to locate the College of Dental Medicine on the campus, which was projected to add an additional 138 students for a total enrollment of 1,173. A TMP was not required for the College of Dental Medicine since new trip generation was under 100 trips.

Currently, the college is looking to expand enrollment to 1,598 to accommodate the 400 student COM program. Since the last TMP was issued for 1,035 students the 563-student enrollment increase must be evaluated to determine if a TMP is required. Trip generation analysis was similarly performed for the previously approved 1,035 student population and the 1,598 proposed with the COM program. The results are summarized below:

<u>Time Period</u>	ITE TRIP GENERATION – one-way trip ends		
	Permitted <u>1,035</u>	Proposed <u>1,598</u>	<u>Increase</u>
Daily	1,614	2,494	880
AM – Adjacent Street & Generator	155	240	85
Entering	121	187	66
Exiting	34	53	19
PM – Adjacent Street & Generator	155	240	85
Entering	49	77	28
Exiting	106	163	57

As can be seen above, the increase in trips from the previously permitted 1,035 students to the proposed 1,598 students is 85 new one-way trips. Given that this is less than 100, a TMP should not be required for the currently proposed COM program. A TMP will likely be required for any additional future development on the UNE campus which is expected to increase student population.

TRAFFIC VOLUMES

Turning movement/classification counts were conducted by Accurate Counts on September 21, 2021 during the AM (7:00 – 9:00 AM) and PM (3:00 – 6:00) peak hour periods at the following study area intersections, as determined at a preliminary meeting with City staff:

<u>Stevens/Forest Avenue Intersection Description</u>	<u>AM Peak Hour</u>	<u>PM Peak Hour</u>
Signalized Walton Street & Stevens Avenue	7:30-8:30	4:30-5:30
Unsignalized Finley Center Drive & Stevens Avenue	7:30-8:30	4:30-5:30
Unsignalized College Street & Stevens Avenue	7:30-8:30	4:30-5:30
Unsignalized Poland Street & UNE Drive	7:30-8:30	4:30-5:30
Signalized Forest Avenue, Stevens Avenue & Bishop	7:30-8:30	4:30-5:30
Signalized Forest Avenue and Allen Avenue	7:30-8:30	4:30-5:30
Unsignalized Warren Avenue & Bishop Street Ext.	7:15-8:15	4:00-5:00

As seen above, the AM and PM peak hours consistently occurred from 7:30 – 8:30 AM and 4:30 – 5:30 PM with the exception of the Warren Avenue & Bishop Street Extension intersection, which was slightly offset. Hence, these are the analysis periods for the study. The signalized Forest Avenue intersections of Stevens/Bishop and Allen are commonly referred to collectively as Morrill's Corner. Since the counts were performed under peak conditions for the school year no seasonal factoring was required. The 2021 AM and PM peak hour volumes for the adjacent street system, the analysis periods, are shown in Figure 2.

Existing average annual daily traffic (AADT) data for the vicinity of the campus was obtained from "Traffic Volume Counts, 2019, 2014 and 2012 Annual Reports", published by MaineDOT as well as the current MaineDOT interactive traffic map. This data is summarized below:

<u>Location</u>	Average Annual Daily Traffic				
	<u>2008</u>	<u>2010</u>	<u>2013</u>	<u>2016</u>	<u>2019</u>
Bishop Street, west of Forest Avenue	---	---	1650	---	---
Walton Street, west of Forest Avenue	---	2800	3120	2580	---
Forest Avenue, nw of Warren Avenue	20020	19010	19820	18140	---
Forest Avenue, no. of Arbor Street			24500	22140	22570
Forest Avenue, no. of Walton Street	---	---	21830	---	---
Forest Avenue, so. of Walton Street	---	---	21710	---	---
Stevens Avenue, so. of Walton Street	---	12510	11680	11620	---
Stevens Avenue, no. of Walton Street	---	11170	10980	11180	---
Stevens Avenue, so. of Forest Avenue	---	10360	10050	11230	---
Warren Avenue, sw of Forest Avenue	13370	11560	13130	11390	12380

As demonstrated above, traffic volumes in the vicinity of the campus have generally declined over the most recent 2013 to 2019 period. Only two locations showed positive growth, both on Stevens Avenue. The average annual growth on Stevens Avenue was 0.5 %. This 0.5 % annual growth rate was conservatively used for the entire study area to project the recent 2021 volumes to base 2024 volumes.

In terms of other approved developments, which need to be considered in the future traffic analysis, the City Planner identified:

- 844 Stevens Avenue – 21 residential units and 800 S.F. office
- 1207 Stevens Avenue - Sweet Dirt – 2,000 S.F. Marijuana Sales Shop
- Stevens Square – 140 Additional Senior Dwelling Units

The trips for 844 and 1207 Stevens Avenue were estimated using the 11th edition ITE report, since no traffic studies have been performed. 844 Stevens is projected to generate 9 AM peak hour trips (3 in and 6 out) and 14 PM peak hour trips (8 in and 6 out). Sweet Dirt is projected to generate 21 AM (11 in and 10 out) and 38 PM (19 in and 19 out) peak hour trips based upon LUC 882 – Marijuana Dispensary. The trips for Stevens Square were obtained from information contained in “Stevens Square, Trip Generation and Parking Demand” memorandum, prepared by Sewall and dated 11/9/2021. Stevens Square will generate 28 AM peak hour trips (10 in and 18 out) and 36 PM peak hour trips (20 in and 16 out). The Stevens Square trips were assigned based upon trip assignment patterns of the original Traffic Impact Study, prepared by Maine Traffic Resources. The 844 Stevens and Sweet Dirt trips were assigned to the study area based upon the existing travel patterns since no traffic studies were performed. The other development trips are shown in Figures 3 and 4 for the AM and PM peak hours.

The projected 2024 No Build volumes, considering both the 0.5 % annual traffic growth rate and the trips generated by the three other area development projects, are shown in Figure 5.

The trip assignments for the 61 new AM and PM peak hour trips were assigned based upon the existing university travel patterns revealed by the fall 2021 counts at the primary college access drives. These peak hour patterns are as follows:

<u>Peak Hour Period</u>	<u>Trip Type</u>	<u>To/From North</u>	<u>To/From South</u>	<u>To/From West</u>	<u>To/From East</u>
AM Peak Hour	Entering	42 %	42 %	15 %	1 %
AM Peak Hour	Exiting	39 %	46 %	15 %	0 %
PM Peak Hour	Entering	42 %	42 %	11 %	5%
PM Peak Hour	Exiting	41 %	43 %	14 %	2 %

It is understood that the COM program will be assigned parking in the planned A1 lot, which would be accessed by the campus drive north of Innovation Hall. Given that the Bishop Street lot is a free lot some students would be expected to park there. The percentage of trips assigned to Bishop Street, versus the A1 lot, was based upon the overall

percentage of all campus trips utilizing the Bishop Street lot. The new COM trips were then assigned to the other study intersections based upon the existing traffic patterns recorded during the counts. The resulting trip assignments are shown in Figure 6. The projected 2024 Build volumes, allowing for annual traffic growth, the three other development projects, and for the 400 student COM program are shown in Figure 7.

CAPACITY ANALYSIS

Traffic operations are evaluated in terms of level of service (LOS). Level of service is a qualitative measure that describes operations by letter designation. The levels range from A - very little delay to F - extreme delays. Level of service "D" is generally considered acceptable in urban locations while LOS "E" is generally considered the capacity of a facility and the minimum tolerable level. The level of service for signalized intersections is based upon the average control or signal delay per vehicle. These criteria are defined in the following table excerpted from the 2010 "Highway Capacity Manual":

Signalized Intersection Level of Service

<u>LOS</u>	<u>Delay Range</u>
A	< = 10.0 seconds
B	> 10.0 and <= 20.0
C	> 20.0 and <= 35.0
D	> 35.0 and <= 55.0
E	> 55.0 and <= 80.0
F	> 80.0

The level of service for unsignalized intersections is based upon average control delay per vehicle for each minor, opposed movement, as defined in the following table:

Unsignalized Intersection Level of Service

<u>LOS</u>	<u>Delay Range</u>
A	< = 10.0 seconds
B	> 10.0 and <= 15.0
C	> 15.0 and <= 25.0
D	> 25.0 and <= 35.0
E	> 35.0 and <= 50.0
F	> 50.0

SIGNALIZED INTERSECTION ANALYSIS

The level of service (LOS) was calculated for the signalized study area intersections for base 2021 and projected 2024 No Build and Build conditions using Synchro 11 and SimTraffic. The existing signal timings and phasings were previously obtained from the City of Portland. Both signals are running under adaptive control, which was best simulated by optimizing timings. The average of the results of five (5) SimTraffic runs are provided in the appendix and are summarized in the following table for the AM and PM analysis periods:

Stevens Avenue, Forest Avenue & Bishop Street			
AM Peak Hour Level of Service			
<u>Approach/Lane</u>	<u>Base 2021</u>	<u>No Build 2024</u>	<u>Build 2024</u>
Eastbound Bishop Street	E (67.7)	E (67.2)	E (71.6)
Northbound Forest Through/Left	D (44.0)	D (50.4)	D (50.2)
Northbound Forest Through	D (54.1)	E (66.9)	E (63.0)
Northbound Forest Overall	D (49.3)	E (58.8)	E (56.8)
Southbound Forest Through	D (51.4)	D (49.6)	D (50.9)
Southbound Forest Right	E (58.2)	E (55.2)	E (58.7)
Southbound Forest Overall	D (54.4)	D (52.0)	D (54.3)
Stevens Left	D (42.6)	D (44.8)	D (47.8)
Stevens Left/Right	E (66.6)	E (71.6)	E (79.4)
Stevens Overall	D (54.8)	E (57.8)	E (63.2)
Intersection Overall	D (54.0)	E (55.8)	E (57.7)
PM Peak Hour Level of Service			
<u>Approach/Lane</u>	<u>Base 2021</u>	<u>No Build 2024</u>	<u>Build 2024</u>
Eastbound Bishop Street	D (41.0)	D (40.0)	D (40.7)
Northbound Forest Throughs/Left	D (37.3)	D (48.4)	D (52.9)
Northbound Forest Through	C (24.1)	C (35.0)	D (37.1)
Northbound Forest Overall	C (29.0)	D (40.3)	D (43.0)
Southbound Forest Through	B (17.5)	B (18.5)	B (19.3)
Southbound Forest Right	B (16.8)	B (18.9)	B (18.5)
Southbound Forest Overall	B (17.2)	B (18.7)	B (19.0)
Stevens Left	C (30.3)	C (29.7)	C (30.4)
Stevens Lefts/Right	D (42.7)	D (46.2)	D (46.1)
Stevens Overall	D (36.6)	D (37.8)	D (38.1)
Intersection Overall	C (25.9)	C (30.2)	C (31.4)

As seen in the preceding table, the intersection of Forest Avenue, Stevens Avenue and Bishop Street currently is experiencing some capacity constraints, with the greatest constraints occurring in the AM peak hour. During the AM peak hour under 2024 No Build volumes, the Bishop Street, northbound Forest, and Stevens Avenue approaches are all expected to operate at LOS “E” with the overall intersection also at “E”. The proposed COM relocation is not expected to significantly impact the intersection since the same LOS “E” is projected for the constrained approaches as well as the overall intersection. Delay at the intersection is expected to increase by less than 2 seconds due to the additional COM trips.

During the PM peak hour no capacity concerns were identified by the analysis with all approaches operating at LOS “D” or better. The intersection will operate at LOS “C” overall during the PM peak hour under both 2024 No Build and Build volumes. The recent “Portland – South Portland Smart Corridor Plan”, completed in 2019 found similar capacity constraints.

Allen Avenue & Forest Avenue			
AM Peak Hour Level of Service			
<u>Approach/Lane</u>	<u>Base</u> <u>2021</u>	<u>No Build</u> <u>2024</u>	<u>Build</u> <u>2024</u>
Eastbound Driveway Left	C (23.0)	C (27.2)	C (33.5)
Eastbound Driveway Through	D (50.3)	D (48.2)	D (46.6)
Eastbound Driveway Right	F (87.2)	F (76.6)	F (85.2)
Eastbound Driveway	E (65.5)	E (60.5)	E (66.6)
Westbound Allen Ave Left	F (334.7)	F (333.4)	F (334.0)
Westbound Allen Ave Left/Through	F (242.7)	F (266.4)	F (247.3)
Westbound Allen Ave Right	A (6.8)	A (8.2)	A (7.4)
Westbound Allen Ave	F (186.3)	F (190.8)	F (189.6)
Northbound Forest Left	E (61.9)	E (56.3)	D (51.9)
Northbound Forest Through	C (28.4)	C (31.5)	C (34.5)
Northbound Forest Through	D (40.8)	D (43.4)	D (45.5)
Northbound Forest Right	A (9.7)	A (9.9)	A (9.7)
Northbound Forest Overall	C (25.0)	C (27.0)	C (28.3)
Southbound Forest Left	D (54.3)	D (53.7)	E (57.9)
Southbound Forest Through	F (334.4)	F (327.2)	F (336.6)
Southbound Forest Through/Right	F (215.2)	F (205.9)	F (219.9)
Southbound Forest Overall	F (236.7)	F (229.9)	F (236.9)
Intersection Overall	F (145.8)	F (143.3)	F (146.2)

<u>Approach/Lane</u>	PM Peak Hour Level of Service		
	Base	No Build	Build
	<u>2021</u>	<u>2024</u>	<u>2024</u>
Eastbound Driveway Left	C (32.2)	C (31.8)	C (29.5)
Eastbound Driveway Through	D (44.2)	D (47.6)	D (43.8)
Eastbound Driveway Right	A (9.5)	A (9.8)	A (9.4)
Eastbound Driveway	C (30.2)	C (31.7)	C (29.9)
Westbound Allen Ave Left	C (29.2)	C (31.0)	C (32.0)
Westbound Allen Ave Left/Through	D (53.4)	D (41.9)	D (48.7)
Westbound Allen Ave Right	B (11.4)	A (9.0)	B (11.1)
Westbound Allen Ave	C (25.7)	C (23.0)	C (24.8)
Northbound Forest Left	D (48.0)	D (39.2)	D (43.2)
Northbound Forest Through	C (29.5)	C (34.2)	C (29.7)
Northbound Forest Through	D (42.0)	D (49.8)	D (45.1)
Northbound Forest Right	C (25.8)	C (28.6)	C (25.3)
Northbound Forest Overall	C (32.5)	D (37.1)	C (33.0)
Southbound Forest Left	D (44.5)	D (48.9)	E (73.6)
Southbound Forest Through	C (20.5)	C (24.6)	E (61.6)
Southbound Forest Through/Right	B (12.9)	B (13.0)	C (27.3)
Southbound Forest Overall	C (25.6)	C (28.8)	D (54.5)
Intersection Overall	C (28.6)	C (30.9)	D (38.3)

As seen in the preceding tables, there are also existing constraints at the intersection of Forest Avenue and Allen Avenue during the AM peak hour. Both the westbound Allen Avenue approach and the southbound Forest Avenue operate at LOS “F”. Similar LOS and delays are projected for both No Build and Build conditions demonstrating the UNE project will have little impact on this intersection during the AM period.

During the PM peak hour there are also fewer constraints at this intersection with most lanes projected to operate at acceptable levels under 2024 Build volumes. The city has a planned improvement project at the Morrill’s Corner intersections. The planned improvements, based upon the Smart Corridor Plan, would be expected to address the existing capacity constraints. This analysis has demonstrated that the additional UNE trips will not have significant impacts on Morrill’s Corner operations.

UNE has previously contributed a \$ 29,000 impact fee to the city specifically for Morrill’s Corner improvements. This fee was required as part of the 2008 approval for the College of Pharmacy.

Stevens Avenue & Walton Street AM Peak Hour Level of Service			
<u>Approach/Lane</u>	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Westbound Walton Left	D (39.0)	D (40.3)	D (41.1)
Westbound Walton Right	A (4.9)	A (5.4)	A (6.7)
Westbound Walton Overall	C (27.6)	C (27.7)	C (28.7)
Northbound Stevens Overall	A (9.2)	B (10.3)	B (10.6)
Southbound Stevens Left	B (11.5)	B (12.9)	B (13.2)
Southbound Stevens Through	A (9.2)	B (10.4)	A (9.6)
Southbound Stevens Overall	A (9.4)	B (10.6)	A (9.8)
Intersection Overall	B (12.9)	B (13.9)	B (13.9)

PM Peak Hour Level of Service			
<u>Approach/Lane</u>	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Westbound Walton Left	D (53.5)	D (47.1)	D (51.9)
Westbound Walton Right	A (6.3)	A (7.5)	A (7.1)
Westbound Walton Overall	D (40.0)	D (35.9)	D (39.2)
Northbound Stevens Overall	B (15.7)	C (21.7)	C (20.5)
Southbound Stevens Left	B (18.1)	B (19.3)	C (20.8)
Southbound Stevens Through	B (11.7)	B (11.9)	B (12.2)
Southbound Stevens Overall	B (12.8)	B (13.1)	B (13.7)
Intersection Overall	B (18.4)	C (20.4)	C (20.6)

As seen above, there are no capacity concerns at the signalized intersection of Stevens Avenue and Walton Street under projected 2024 No Build and Build volumes. All lanes are projected to operate at LOS "D" or better, during both peak hours, indicating that the intersection has the ability to accommodate the additional traffic from the relocation of the COM program to the Portland campus.

UNSIGNALIZED INTERSECTION ANALYSIS

The level of service (LOS) was similarly determined for the unsignalized study area intersections for 2021 and projected 2024 No Build and Build conditions using Synchro 11 and SimTraffic. The average of the results of five (5) SimTraffic runs are provided in the appendix and are summarized in the following tables:

Warren Avenue & Bishop Street Extension

AM Peak Hour LOS

<u>Approach/Lane</u>	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound Warren Through/Right	A (2.8)	A (2.8)	A (2.9)
Westbound Warren Left/Through	A (3.3)	A (3.6)	A (3.0)
Northbound Bishop St. Ext. Left/Right	C (18.3)	C (16.1)	C (18.4)
Intersection Overall	A (3.5)	A (3.6)	A (3.5)

PM Peak Hour LOS

<u>Approach/Lane</u>	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound Warren Through/Right	A (1.8)	A (1.8)	A (1.8)
Westbound Warren Left/Through	A (1.3)	A (1.2)	A (1.7)
Northbound Bishop St. Ext. Left/Right	C (16.4)	C (16.1)	C (17.3)
Intersection Overall	A (2.7)	A (2.5)	A (2.8)

As seen in the preceding tables, the unsignalized Bishop Street Extension approach to Warren Avenue operates at a good level of service during both peak hour periods under Build volumes. As a result, there are no capacity concerns at this intersection.

Stevens Avenue & College Street

AM Peak Hour LOS

<u>Approach/Lane</u>	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound College Street	B (11.3)	B (15.7)	A (5.9)
Northbound Stevens Avenue	A (1.5)	A (1.6)	A (1.4)
Southbound Stevens Avenue	A (1.3)	A (1.2)	A (1.2)
Intersection Overall	A (1.5)	A (1.5)	A (1.4)

<u>Approach/Lane</u>	PM Peak Hour LOS		
	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound College Street	B (10.8)	B (11.4)	B (11.5)
Northbound Stevens Avenue	A (0.8)	A (0.9)	A (0.8)
Southbound Stevens Avenue	A (0.7)	A (0.8)	A (0.8)
Intersection Overall	A (1.6)	A (1.6)	A (1.6)

Stevens Avenue & Finley Center Drive			
<u>Approach/Lane</u>	AM Peak Hour LOS		
	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound Finley Center Drive	A (5.1)	A (4.4)	A (4.7)
Northbound Stevens Avenue	A (2.9)	A (2.9)	A (2.9)
Southbound Stevens Avenue	A (1.3)	A (1.3)	A (1.2)
Intersection Overall	A (2.2)	A (2.1)	A (2.2)

<u>Approach/Lane</u>	PM Peak Hour LOS		
	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound Finley Center Drive	A (9.5)	A (9.6)	B (10.7)
Northbound Stevens Avenue	A (2.5)	A (2.7)	A (2.6)
Southbound Stevens Avenue	A (1.1)	A (1.1)	A (1.1)
Intersection Overall	A (2.0)	A (2.1)	A (2.1)

Stevens Avenue, UNE Driveway & Poland Street			
<u>Approach/Lane</u>	AM Peak Hour LOS		
	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound UNE Driveway	B (12.4)	B (15.0)	B (10.1)
Westbound Poland Street	A (8.1)	A (10.2)	B (11.1)
Northbound Stevens Avenue	A (1.3)	A (1.0)	A (1.8)
Southbound Stevens Avenue	A (3.0)	A (2.8)	A (3.2)
Intersection Overall	A (2.5)	A (2.4)	A (3.0)

<u>Approach/Lane</u>	PM Peak Hour LOS		
	Base <u>2021</u>	No Build <u>2024</u>	Build <u>2024</u>
Eastbound UNE Driveway	A (9.6)	A (8.6)	B (10.6)
Westbound Poland Street	B (10.1)	B (11.4)	B (11.2)
Northbound Stevens Avenue	A (0.8)	A (0.8)	A (1.0)
Southbound Stevens Avenue	A (2.5)	A (2.5)	A (2.6)
Intersection Overall	A (1.9)	A (2.0)	A (2.4)

As seen in the preceding tables, all major university drive intersections currently operate at good levels of service, “B” or better, during both peak hours. The LOS is projected to remain at good levels through 2024 Build conditions with the COM program relocated to Portland. Hence, there are no capacity concerns regarding operations at these access intersections.

[SAFETY ANALYSIS](#)

[ACCIDENT REVIEW](#)

The Maine Department of Transportation uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a measure of the accident rate. A CRF greater than one indicates a location which has a higher than expected crash rate. The expected rate is calculated as a statewide average of similar facilities.

The second criterion, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must occur over the three-year study period for the location to be considered a high crash location. Accident data was obtained from MaineDOT for the vicinity of the campus within the study area outlined at the staff meeting. The CRF and number of accidents are summarized by location for the most recent three-year period, 2018 to 2020, in the tables on the following page:

<u>Stevens Avenue Location Description</u>	<u># of Acc.</u>	<u>CRF</u>
Intersection of Walton Street	1	0.06
Between Walton and St. Joseph's Streets	1	0.29
Intersection of St. Joseph's Street	2	0.39
Between St. Joseph's and Elmwood Streets	2	0.39
Between Elmwood and Waverly Streets	1	0.25
Intersection of Waverly Street	5	1.05
Intersection of College Street	0	---
Between College and Poland Streets	1	0.27
Between Poland and Arbor Streets	4	0.71
Intersection of Arbor Street	2	0.42
Between Arbor Street and 0.03 mile south of Forest Avenue/Bishop	8	1.23
0.03 mile south of Forest Avenue/Bishop Street	1	0.21
<i>Intersection of Forest Avenue and Bishop Street</i>	33	0.89

<u>Forest Avenue Location Description</u>	<u># of Acc.</u>	<u>CRF</u>
Between Bishop Street and slip to Allen Avenue	12	1.64
Intersection of Allen Avenue and McDonald's Drive	48	1.26

<u>Warren Avenue Location Description</u>	<u># of Acc.</u>	<u>CRF</u>
Intersection of Bishop Street Extension	1	0.20
Between Bishop Street Extension and Hicks Street	6	0.36
Intersection of Hicks Street	2	0.35
Between Hicks Street and Forest Avenue	3	0.24

<u>Bishop Street Location Description</u>	<u># of Acc.</u>	<u>CRF</u>
Between Mayfield Street and 0.22 mile west	2	0.57

As seen above, there are three high crash locations within the vicinity of the UNE campus, highlighted in bold print. One additional location (in italics) is approaching the high crash criteria. As a result, collision diagrams were requested from MaineDOT to determine if there are any accident patterns or trends, which may indicate a potentially correctable safety deficiency. These diagrams are included in the appendix and are evaluated as follows:

Stevens Avenue Between Arbor Street and 0.03 mile south of Forest Avenue/Bishop

Three crashes occurred in 2018, two in 2019 and three in 2020. One was a rear-end collision as a vehicle turned, attributed to speed. One crash occurred as a vehicle improperly backed from a drive into traffic. One sideswipe occurred when a parked vehicle pulled into traffic, typical of on-street parking locations. One angle collision occurred when a vehicle exited a drive. A single vehicle hit a parked vehicle, attributed to reckless driving. One bicyclist was hit crossing Stevens, which was attributed to bicyclist error. There were two pedestrian accidents, one attributed to pedestrian error and one which was a hit and run. It appears that these pedestrian and bicyclist accidents occurred in the middle of the link and not at a crosswalk location. Given that there are marked crosswalks on the north side of Arbor Street and at Bishop/Forest, which are only 600' apart, no additional crosswalks are recommended since crosswalks would be closer than the 400' MaineDOT standard and removal of on-street parking would also be required.

Forest Avenue Between Bishop Street and slip to Allen Avenue

There were seven accidents in 2018, three in 2019 and two in 2020. Six of the crashes were rear-end collisions; four northbound and two southbound, mostly attributed to following too close, which are generally considered uncorrectable. There were two sideswipe type collisions, typical of multi-lane facilities. The remaining four crashes were angles with vehicles entering or exiting the ScrubaDub driveway. Access management is recommended as properties redevelop along this segment of Forest Avenue to reduce the number of conflict points and turning movements.

Intersection of Forest Avenue and Bishop Street

There were 17 accidents in 2018, 8 in 2019 and 8 in 2020. Approximately half (17) of the crashes were rear end collisions, typical of signalized approaches. Most of the rear-ends were attributed to following too closely. Adaptive traffic signal control was implemented at this intersection in 2019. It appears that rear-ends have been reduced significantly since it was activated since only two rear-ends occurred in 2020 and 11 had occurred in 2018. There were 11 angle collisions, all involving left turns on or off Forest Avenue. There were three sideswipe type collisions, typical of multi-lane approaches. There was one head on collision due to OUI. Lastly, one pedestrian was struck on Forest Avenue, which was attributed to pedestrian error. The general decline in yearly accidents appears to confirm that the adaptive signal control has reduced accident potential.

Intersection of Allen Avenue, Forest Avenue and McDonald's Drive

There were 22 crashes in 2018, 17 in 2019 and 9 in 2020. The majority of the accidents were rear-end collisions on the signalized intersection approaches, 27 in total. These are typical of signalized intersections and are generally considered uncorrectable. However, again, the adaptive signal control appears to have reduced yearly collisions since it was activated in 2019. There were 7 angle collisions, due to red light running and failure to yield. Five of these angle collisions occurred in 2018, prior to adaptive control. Twelve were sideswipe collisions due to failure to keep in lane, typical of high-volume multilane facilities. There was a single pedestrian accident, attributed to intoxication of the pedestrian. There was a head single head on type collision on Forest Avenue. There is no pattern of correctable type collisions evident from the diagram. Accident potential overall appears to have been reduced due to the activation of adaptive control in 2019.

SUMMARY AND RECOMMENDATIONS

Traffic analysis was performed for the relocation of the College of Osteopathic Medicine to the UNE Portland campus. This relocation is expected to generate 61 new one-way trips during both the AM and PM peak hours to the campus. An analysis of new trip generation since the last TMP was issued to the University in 2008 shows that a TMP is not required for this program nor for previous enrollment growth.

Based upon the capacity analyses, there are existing capacity constraints at the Morrill's corner intersections. The analysis indicates that the greatest constraints occur during the AM peak hour. The analyses show that the proposed additional trips from the relocation of the COM program to Portland will not have significant impacts on either of these signalized intersections. It is understood that the City of Portland has planned an improvement project for Morrill's Corner that is expected to address the capacity constraints, which will be based upon the "Portland – South Portland Smart Corridor Plan". The small number of new UNE trips at Morrill's Corner are not expected to impact the capacity improvements, based upon the minimal number of new lane hour trips shown by the trip assignments. UNE previously contributed a \$ 29,000 impact fee for future improvements at Morrill's Corner as part of the College of Pharmacy approval.

All other signalized and unsignalized study area intersections are expected to operate at acceptable levels of service under 2024 Build volumes. The additional peak hour trips should have no significant impact off site based upon the analyses. All university drives are expected to function at good levels of service with no capacity concerns.

In terms of safety, there are three high crash locations within the study area. One additional intersection is approaching the high crash criteria. Collision diagrams were obtained and evaluated for all four locations. The implementation of adaptive signal control at the Morrill's Corner intersections in 2019 appears to have reduced accident potential at both intersections based upon the yearly numbers. No correctable accident patterns were identified at the other two link locations, but access management is recommended as properties along Forest Avenue redevelop.

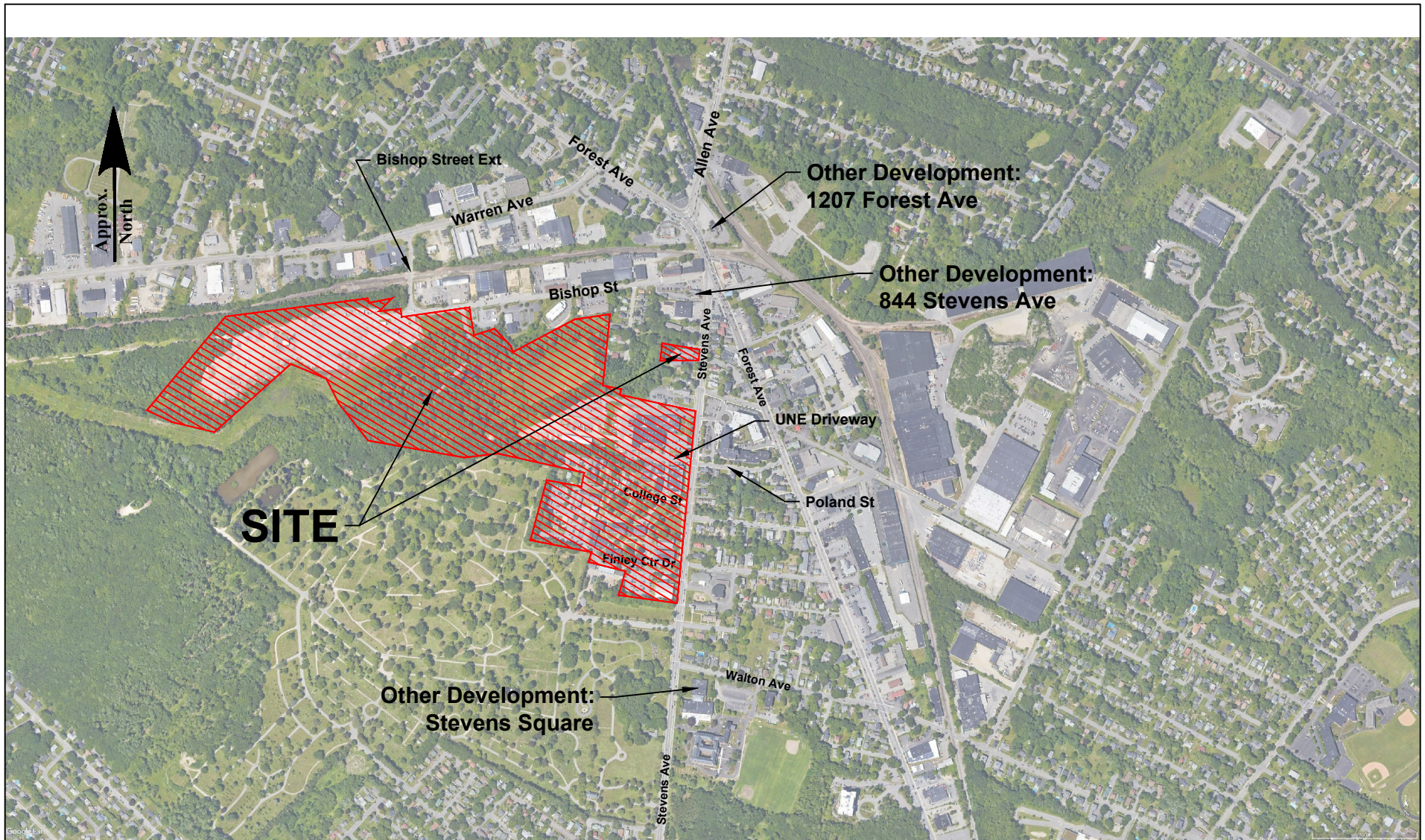
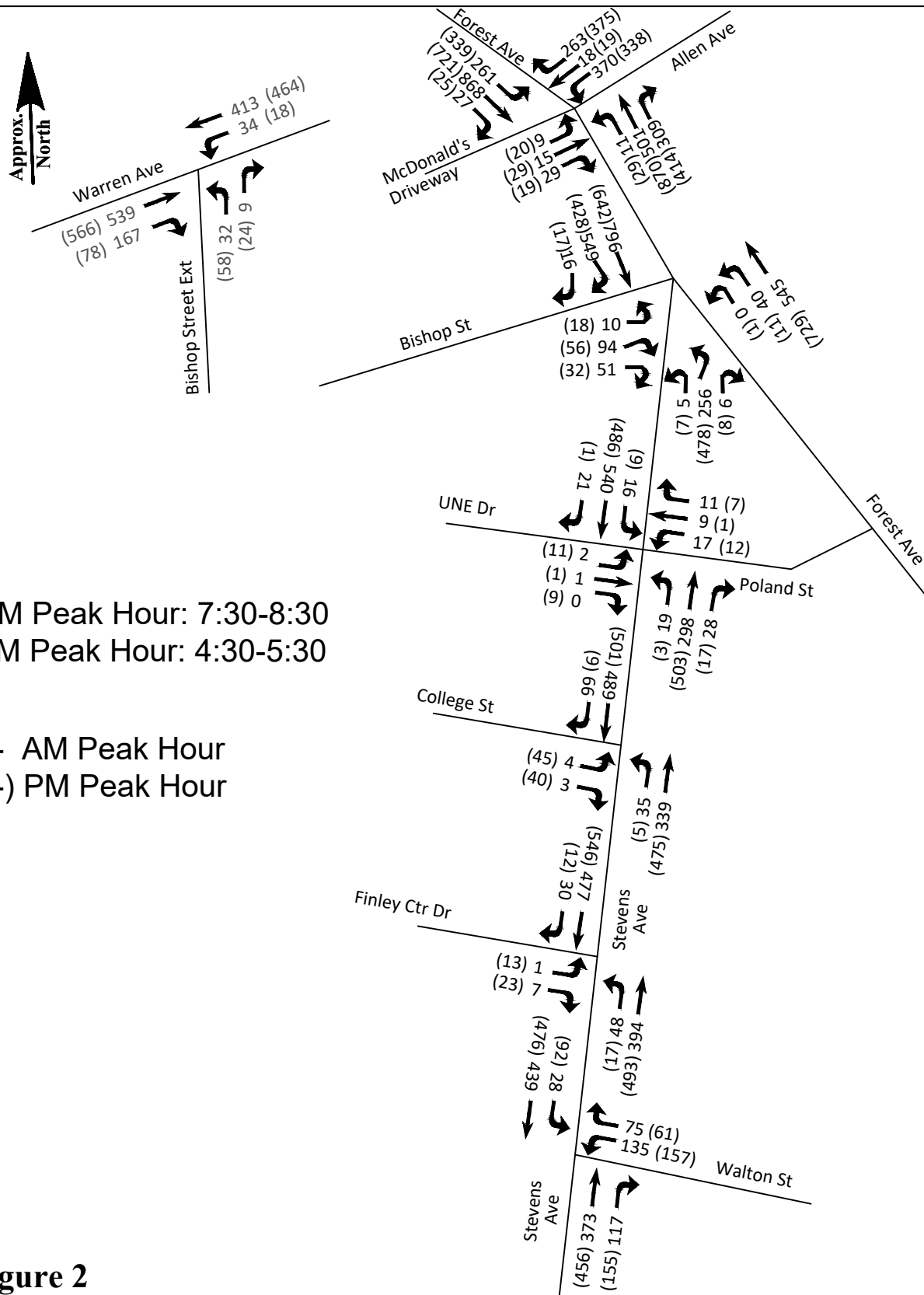


Figure 1
Site Location Map
University of New England
Portland, Maine



AM Peak Hour: 7:30-8:30
 PM Peak Hour: 4:30-5:30

-- AM Peak Hour
 (--) PM Peak Hour

Figure 2

2021 Base Volumes
University of New England
Portland, Maine



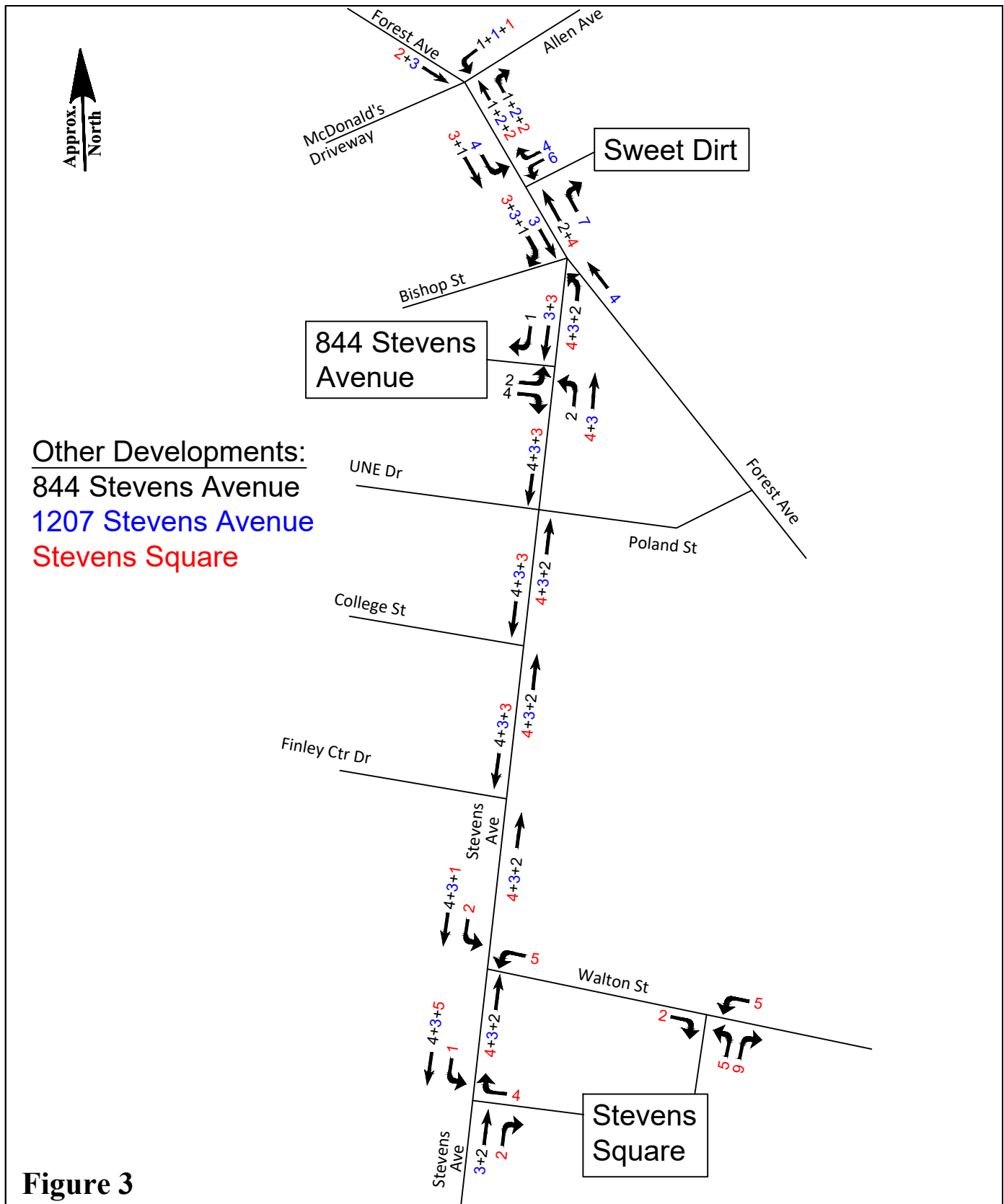
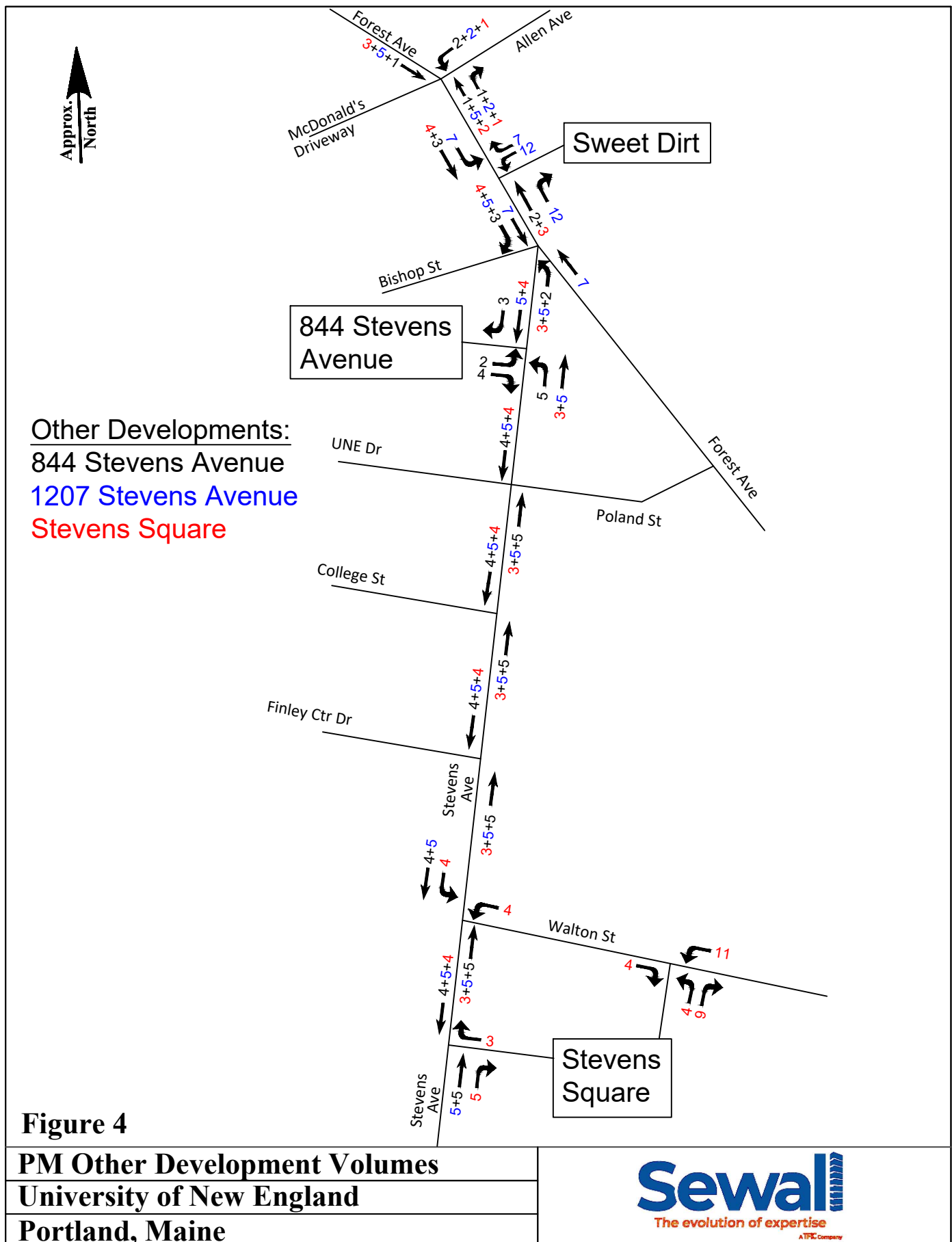


Figure 3

AM Other Development Volumes
University of New England
Portland, Maine



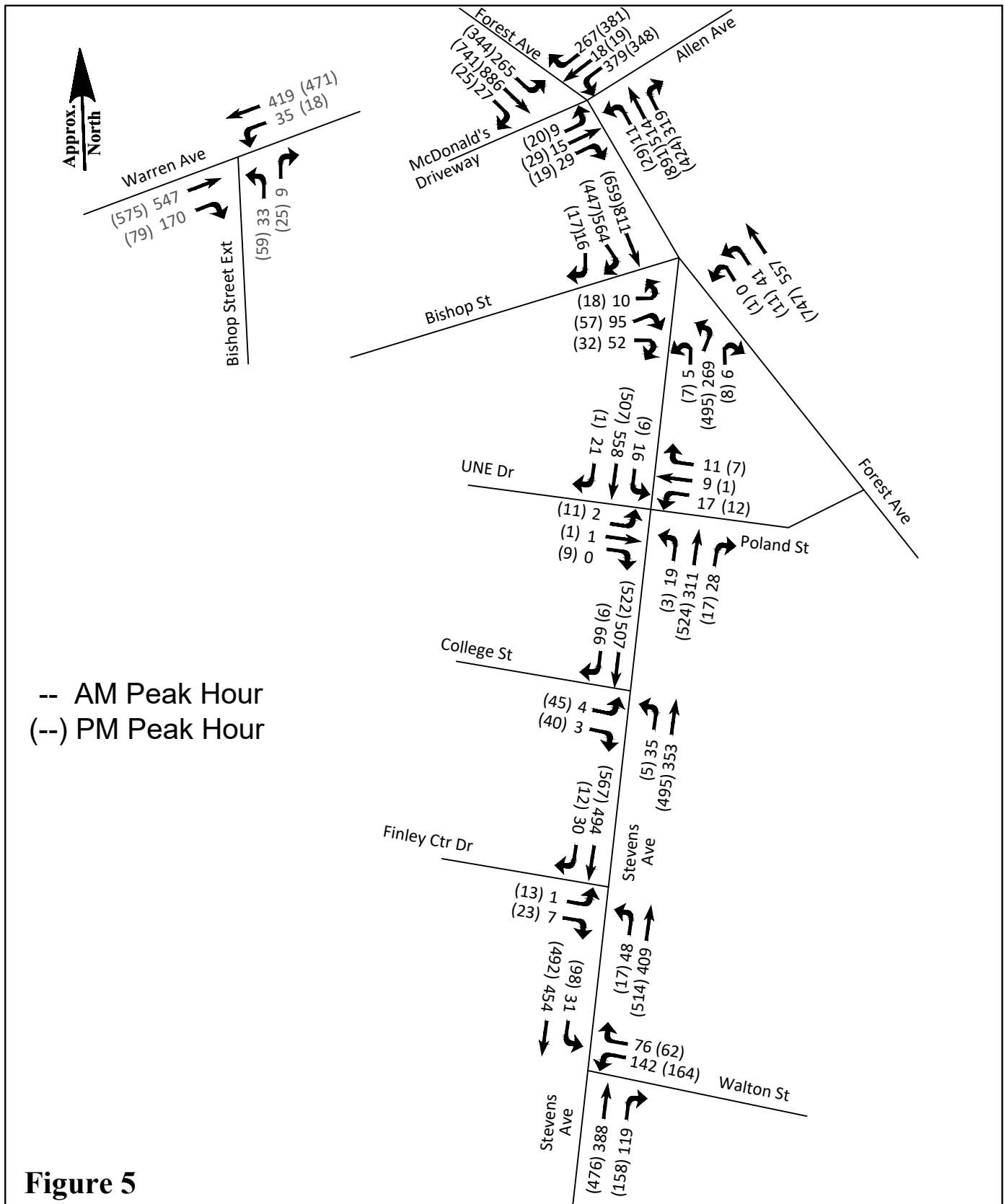


Figure 5

2024 No Build Volumes

University of New England

Portland, Maine

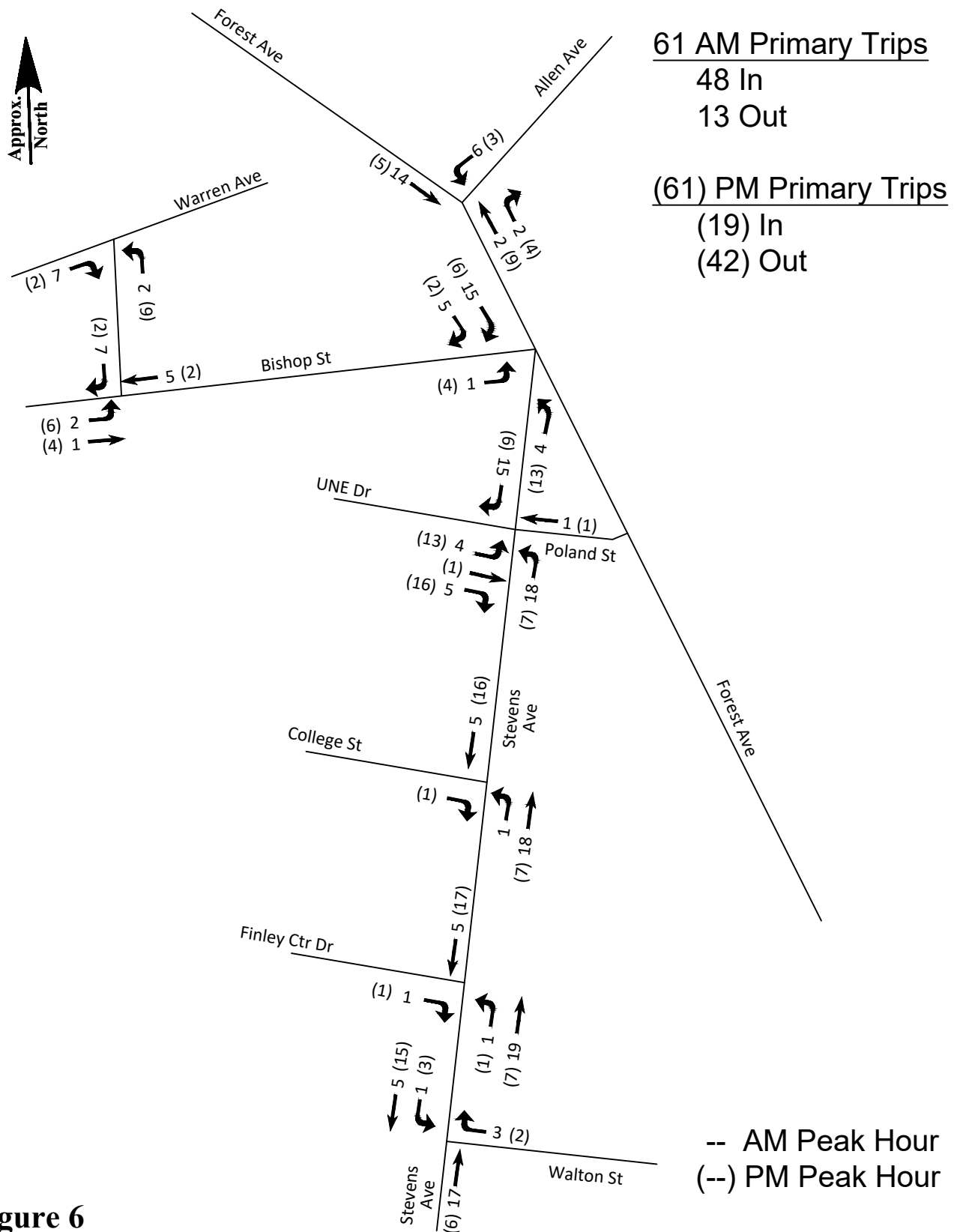


Figure 6

AM & PM Trip Assignments
University of New England
Portland, Maine



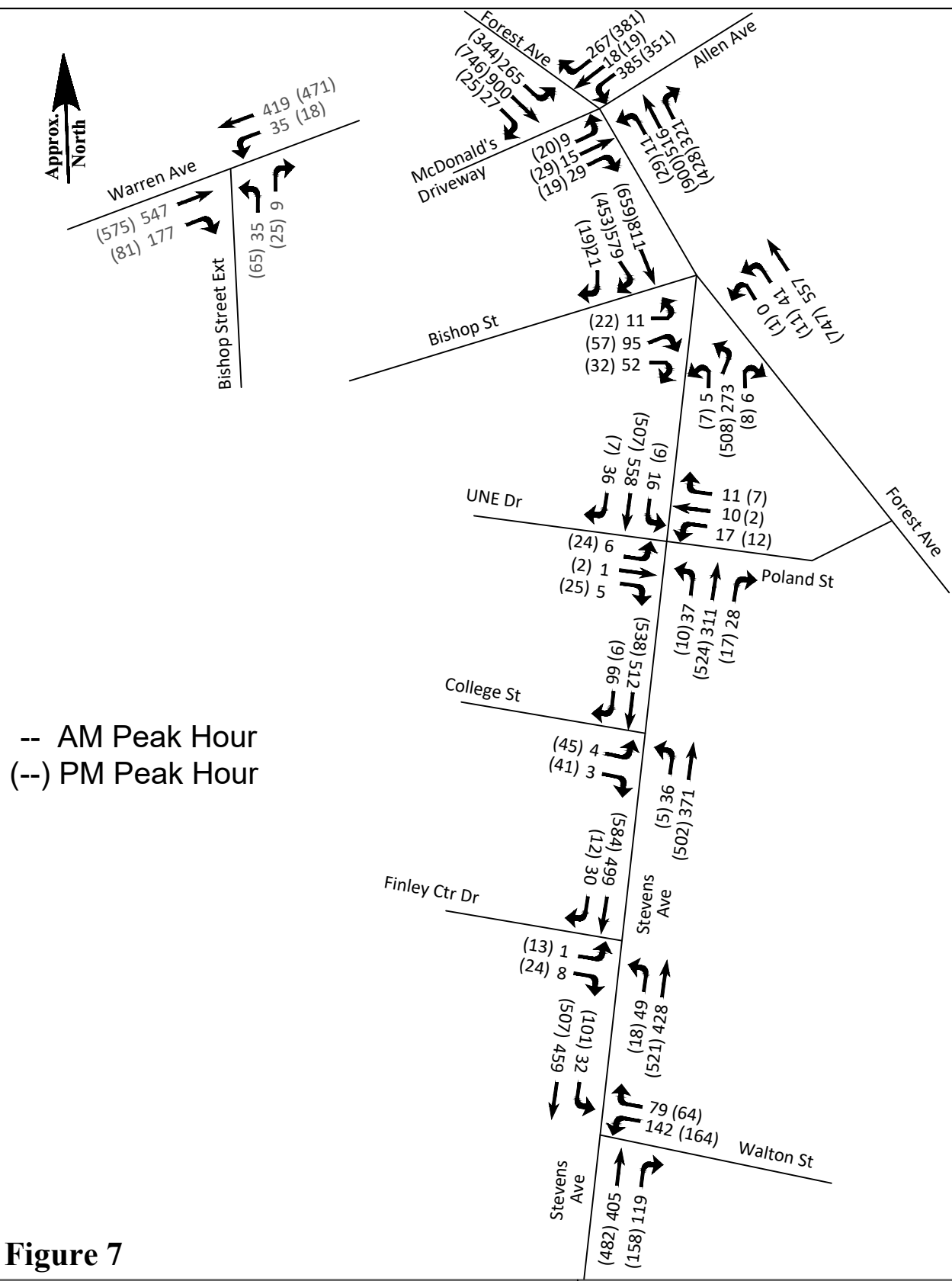


Figure 7

2024 Build Volumes
University of New England
Portland, Maine



APPENDIX

Turning Movement Counts

Capacity Analysis

Accident Data

Accurate Counts

978-664-2565

N/S Street : Forest Avenue
E/W Street : Allen Avenue / Driveway
City/State : Portland, ME
Weather : Clear

File Name : 19050001
Site Code : 19050001
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Forest Ave From North			Allen Ave From East			Forest Ave From South			Dwy From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	45	179	4	67	1	53	5	104	50	2	1	5	516
07:15 AM	38	185	5	87	8	85	2	100	42	2	2	8	564
07:30 AM	49	226	7	97	5	89	3	120	60	4	3	4	667
07:45 AM	63	200	11	84	6	60	2	129	79	3	4	13	654
Total	195	790	27	335	20	287	12	453	231	11	10	30	2401
08:00 AM	76	229	3	93	4	72	5	145	102	0	3	6	738
08:15 AM	73	213	6	96	3	42	1	107	68	2	5	6	622
08:30 AM	51	221	2	80	3	59	4	135	70	1	4	3	633
08:45 AM	47	207	1	96	5	93	4	137	59	1	1	5	656
Total	247	870	12	365	15	266	14	524	299	4	13	20	2649
Grand Total	442	1660	39	700	35	553	26	977	530	15	23	50	5050
Apprch %	20.6	77.5	1.8	54.3	2.7	42.9	1.7	63.7	34.6	17	26.1	56.8	
Total %	8.8	32.9	0.8	13.9	0.7	11	0.5	19.3	10.5	0.3	0.5	1	
Cars	431	1611	39	689	35	534	26	939	512	15	23	50	4904
% Cars	97.5	97	100	98.4	100	96.6	100	96.1	96.6	100	100	100	97.1
Trucks	11	49	0	11	0	19	0	38	18	0	0	0	146
% Trucks	2.5	3	0	1.6	0	3.4	0	3.9	3.4	0	0	0	2.9

	Forest Ave From North				Allen Ave From East				Forest Ave From South				Dwy From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	49	226	7	282	97	5	89	191	3	120	60	183	4	3	4	11	667
07:45 AM	63	200	11	274	84	6	60	150	2	129	79	210	3	4	13	20	654
08:00 AM	76	229	3	308	93	4	72	169	5	145	102	252	0	3	6	9	738
08:15 AM	73	213	6	292	96	3	42	141	1	107	68	176	2	5	6	13	622
Total Volume	261	868	27	1156	370	18	263	651	11	501	309	821	9	15	29	53	2681
% App. Total	22.6	75.1	2.3		56.8	2.8	40.4		1.3	61	37.6		17	28.3	54.7		
PHF	.859	.948	.614	.938	.954	.750	.739	.852	.550	.864	.757	.814	.563	.750	.558	.663	.908
Cars	253	842	27	1122	366	18	256	640	11	488	298	797	9	15	29	53	2612
% Cars	96.9	97.0	100	97.1	98.9	100	97.3	98.3	100	97.4	96.4	97.1	100	100	100	100	97.4
Trucks	8	26	0	34	4	0	7	11	0	13	11	24	0	0	0	0	69
% Trucks	3.1	3.0	0	2.9	1.1	0	2.7	1.7	0	2.6	3.6	2.9	0	0	0	0	2.6

Accurate Counts

978-664-2565

N/S Street : Forest Avenue
E/W Street : Allen Avenue / Driveway
City/State : Portland, ME
Weather : Clear

File Name : 19050001
Site Code : 19050001
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks - Bikes Peds

	Forest Ave From North			Allen Ave From East			Forest Ave From South			Dwy From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	71	149	6	103	3	92	4	206	88	4	6	8	740
03:15 PM	67	154	8	83	2	72	2	210	102	5	6	5	716
03:30 PM	69	166	5	83	6	96	2	209	83	5	2	3	729
03:45 PM	68	173	5	77	5	94	4	208	102	5	3	3	747
Total	275	642	24	346	16	354	12	833	375	19	17	19	2932
04:00 PM	77	175	8	80	3	93	3	200	109	7	7	3	765
04:15 PM	72	187	4	73	3	99	4	218	101	3	6	2	772
04:30 PM	75	189	7	77	5	104	10	229	92	5	7	3	803
04:45 PM	86	169	6	88	6	65	9	226	121	4	5	5	790
Total	310	720	25	318	17	361	26	873	423	19	25	13	3130
05:00 PM	88	164	5	99	3	117	4	200	102	4	10	3	799
05:15 PM	90	199	7	74	5	89	6	215	99	7	7	8	806
05:30 PM	69	169	5	64	4	72	4	227	114	3	5	4	740
05:45 PM	65	155	5	69	3	69	11	206	104	6	8	7	708
Total	312	687	22	306	15	347	25	848	419	20	30	22	3053
Grand Total	897	2049	71	970	48	1062	63	2554	1217	58	72	54	9115
Apprch %	29.7	67.9	2.4	46.6	2.3	51.1	1.6	66.6	31.7	31.5	39.1	29.3	
Total %	9.8	22.5	0.8	10.6	0.5	11.7	0.7	28	13.4	0.6	0.8	0.6	
Cars	881	2008	71	956	48	1043	63	2509	1189	58	71	54	8951
% Cars	98.2	98	100	98.6	100	98.2	100	98.2	97.7	100	98.6	100	98.2
Trucks	14	28	0	9	0	19	0	37	19	0	0	0	126
% Trucks	1.6	1.4	0	0.9	0	1.8	0	1.4	1.6	0	0	0	1.4
Bikes Peds	2	13	0	5	0	0	0	8	9	0	1	0	38
% Bikes Peds	0.2	0.6	0	0.5	0	0	0	0.3	0.7	0	1.4	0	0.4

	Forest Ave From North				Allen Ave From East				Forest Ave From South				Dwy From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	75	189	7	271	77	5	104	186	10	229	92	331	5	7	3	15	803
04:45 PM	86	169	6	261	88	6	65	159	9	226	121	356	4	5	5	14	790
05:00 PM	88	164	5	257	99	3	117	219	4	200	102	306	4	10	3	17	799
05:15 PM	90	199	7	296	74	5	89	168	6	215	99	320	7	7	8	22	806
Total Volume	339	721	25	1085	338	19	375	732	29	870	414	1313	20	29	19	68	3198
% App. Total	31.2	66.5	2.3		46.2	2.6	51.2		2.2	66.3	31.5		29.4	42.6	27.9		
PHF	.942	.906	.893	.916	.854	.792	.801	.836	.725	.950	.855	.922	.714	.725	.594	.773	.992
Cars	333	711	25	1069	336	19	373	728	29	855	408	1292	20	29	19	68	3157
% Cars	98.2	98.6	100	98.5	99.4	100	99.5	99.5	100	98.3	98.6	98.4	100	100	100	100	98.7
Trucks	5	7	0	12	1	0	2	3	0	11	3	14	0	0	0	0	29
% Trucks	1.5	1.0	0	1.1	0.3	0	0.5	0.4	0	1.3	0.7	1.1	0	0	0	0	0.9
Bikes Peds	1	3	0	4	1	0	0	1	0	4	3	7	0	0	0	0	12
% Bikes Peds	0.3	0.4	0	0.4	0.3	0	0	0.1	0	0.5	0.7	0.5	0	0	0	0	0.4

Accurate Counts

978-664-2565

N/S Street : Forest Avenue
E/W Street : Dwy / Stevens Ave / Bishop St
City/State : Portland, ME
Weather : Clear

File Name : 19050002
Site Code : 19050002
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Forest Ave From North				Dwy From East				Forest Ave From South				Stevens Ave From West				Bishop St From Northwest				Int. Total
Start Time	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	
07:00 AM	2	179	70	8	1	1	0	3	0	4	115	6	3	33	0	0	1	0	8	8	442
07:15 AM	5	180	93	10	5	0	0	4	1	10	103	4	1	41	1	0	1	2	16	8	485
07:30 AM	0	213	138	3	3	1	0	1	0	10	123	5	2	54	2	0	0	0	20	11	586
07:45 AM	3	182	140	6	1	0	0	6	0	14	138	3	0	67	0	0	3	0	24	19	606
Total	10	754	441	27	10	2	0	14	1	38	479	18	6	195	3	0	5	2	68	46	2119
08:00 AM	2	213	154	4	0	1	1	0	0	10	170	0	1	70	0	5	1	0	29	19	680
08:15 AM	5	188	117	3	3	0	0	4	0	6	114	5	2	65	1	1	6	1	21	2	544
08:30 AM	3	193	110	6	3	2	0	3	0	10	153	4	1	60	1	0	3	0	16	7	575
08:45 AM	7	205	96	6	3	1	0	7	1	9	128	5	0	45	1	3	5	1	12	7	542
Total	17	799	477	19	9	4	1	14	1	35	565	14	4	240	3	9	15	2	78	35	2341
Grand Total	27	1553	918	46	19	6	1	28	2	73	1044	32	10	435	6	9	20	4	146	81	4460
Apprch %	1.1	61	36.1	1.8	35.2	11.1	1.9	51.9	0.2	6.3	90.7	2.8	2.2	94.6	1.3	2	8	1.6	58.2	32.3	
Total %	0.6	34.8	20.6	1	0.4	0.1	0	0.6	0	1.6	23.4	0.7	0.2	9.8	0.1	0.2	0.4	0.1	3.3	1.8	
Cars	27	1507	908	45	19	6	1	28	2	70	1006	32	10	421	6	8	13	4	145	79	4337
% Cars	100	97	98.9	97.8	100	100	100	100	100	95.9	96.4	100	100	96.8	100	88.9	65	100	99.3	97.5	97.2
Trucks	0	46	10	1	0	0	0	0	0	3	38	0	0	14	0	1	7	0	1	2	123
% Trucks	0	3	1.1	2.2	0	0	0	0	0	4.1	3.6	0	0	3.2	0	11.1	35	0	0.7	2.5	2.8

	Forest Ave From North					Dwy From East					Forest Ave From South					Stevens Ave From West					Bishop St From Northwest					
Start Time	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:30 AM																										
07:30 AM	0	213	138	3	354	3	1	0	1	5	0	10	123	5	138	2	54	2	0	58	0	0	20	11	31	586
07:45 AM	3	182	140	6	331	1	0	0	6	7	0	14	138	3	155	0	67	0	0	67	3	0	24	19	46	606
08:00 AM	2	213	154	4	373	0	1	1	0	2	0	10	170	0	180	1	70	0	5	76	1	0	29	19	49	680
08:15 AM	5	188	117	3	313	3	0	0	4	7	0	6	114	5	125	2	65	1	1	69	6	1	21	2	30	544
Total Volume	10	796	549	16	1371	7	2	1	11	21	0	40	545	13	598	5	256	3	6	270	10	1	94	51	156	2416
% App. Total	0.7	58.1	40	1.2		33.3	9.5	4.8	52.4		0	6.7	91.1	2.2		1.9	94.8	1.1	2.2		6.4	0.6	60.3	32.7		
PHF	.500	.934	.891	.667	.919	.583	.500	.250	.458	.750	.000	.714	.801	.650	.831	.625	.914	.375	.300	.888	.417	.250	.810	.671	.796	.888
Cars	10	774	542	16	1342	7	2	1	11	21	0	38	530	13	581	5	249	3	5	262	5	1	93	50	149	2355
% Cars	100	97.2	98.7	100	97.9	100	100	100	100	100	0	95.0	97.2	100	97.2	100	97.3	100	83.3	97.0	50.0	100	98.9	98.0	95.5	97.5
Trucks	0	22	7	0	29	0	0	0	0	0	0	2	15	0	17	0	7	0	1	8	5	0	1	1	7	61
% Trucks	0	2.8	1.3	0	2.1	0	0	0	0	0	0	5.0	2.8	0	2.8	0	2.7	0	16.7	3.0	50.0	0	1.1	2.0	4.5	2.5

Accurate Counts

978-664-2565

N/S Street : Forest Avenue
 E/W Street : Dwy / Stevens Ave / Bishop St
 City/State : Portland, ME
 Weather : Clear

File Name : 19050002
 Site Code : 19050002
 Start Date : 9/21/2021
 Page No : 1

Groups Printed- Cars - Trucks

	Forest Ave From North				Dwy From East				Forest Ave From South				Stevens Ave From West				Bishop St From Northwest				Int. Total
Start Time	Left	Thru	Right	Hd Rt	Left	Thru	Br Rt	Right	Left	Br Lt	Thru	Right	Hd Lt	Left	Thru	Right	Hd Lt	Br Lt	Br Rt	Hd Rt	
03:00 PM	6	160	84	4	8	1	0	1	0	2	192	15	1	96	1	1	3	1	22	5	603
03:15 PM	4	166	82	1	2	1	2	3	0	7	223	11	2	84	2	2	1	0	12	1	606
03:30 PM	16	148	85	2	5	1	0	6	0	5	175	11	0	91	4	1	3	0	9	6	568
03:45 PM	8	162	96	2	4	1	2	3	0	2	193	14	0	99	2	7	4	2	4	6	611
Total	34	636	347	9	19	4	4	13	0	16	783	51	3	370	9	11	11	3	47	18	2388
04:00 PM	3	165	74	1	2	3	0	10	0	7	194	7	1	115	3	6	4	1	16	8	620
04:15 PM	3	135	110	4	1	0	2	9	0	5	156	11	0	129	4	4	0	0	11	5	589
04:30 PM	6	162	112	8	8	0	0	8	0	3	172	9	3	105	4	2	4	1	20	10	637
04:45 PM	8	168	94	2	1	1	2	7	0	2	210	10	0	121	2	0	4	0	12	4	648
Total	20	630	390	15	12	4	4	34	0	17	732	37	4	470	13	12	12	2	59	27	2494
05:00 PM	7	140	98	3	6	0	0	6	1	4	167	14	2	116	6	4	5	1	17	10	607
05:15 PM	3	172	124	4	3	2	1	7	0	2	180	13	2	136	7	2	5	0	7	8	678
05:30 PM	6	137	107	2	5	0	2	10	0	3	171	9	1	132	5	3	5	0	11	2	611
05:45 PM	6	139	79	9	3	1	0	11	0	7	203	10	0	80	4	5	2	2	15	3	579
Total	22	588	408	18	17	3	3	34	1	16	721	46	5	464	22	14	17	3	50	23	2475
Grand Total	76	1854	1145	42	48	11	11	81	1	49	2236	134	12	1304	44	37	40	8	156	68	7357
Apprch %	2.4	59.5	36.7	1.3	31.8	7.3	7.3	53.6	0	2	92.4	5.5	0.9	93.3	3.1	2.6	14.7	2.9	57.4	25	
Total %	1	25.2	15.6	0.6	0.7	0.1	0.1	1.1	0	0.7	30.4	1.8	0.2	17.7	0.6	0.5	0.5	0.1	2.1	0.9	
Cars	76	1827	1134	41	48	11	11	81	1	46	2190	134	12	1287	43	37	31	8	156	68	7242
% Cars	100	98.5	99	97.6	100	100	100	100	100	93.9	97.9	100	100	98.7	97.7	100	77.5	100	100	100	98.4
Trucks	0	27	11	1	0	0	0	0	0	3	46	0	0	17	1	0	9	0	0	0	115
% Trucks	0	1.5	1	2.4	0	0	0	0	0	6.1	2.1	0	0	1.3	2.3	0	22.5	0	0	0	1.6

	Forest Ave From North					Dwy From East					Forest Ave From South					Stevens Ave From West					Bishop St From Northwest						
Start Time	Left	Thru	Right	Hd Rt	App. Total	Left	Thru	Br Rt	Right	App. Total	Left	Br Lt	Thru	Right	App. Total	Hd Lt	Left	Thru	Right	App. Total	Hd Lt	Br Lt	Br Rt	Hd Rt	App. Total	Int. Total	
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 04:30 PM																											
04:30 PM	6	162	112	8	288	8	0	0	8	16	0	3	172	9	184	3	105	4	2	114	4	1	20	10	35	637	
04:45 PM	8	168	94	2	272	1	1	2	7	11	0	2	210	10	222	0	121	2	0	123	4	0	12	4	20	648	
05:00 PM	7	140	98	3	248	6	0	0	6	12	1	4	167	14	186	2	116	6	4	128	5	1	17	10	33	607	
05:15 PM	3	172	124	4	303	3	2	1	7	13	0	2	180	13	195	2	136	7	2	147	5	0	7	8	20	678	
Total Volume	24	642	428	17	1111	18	3	3	28	52	1	11	729	46	787	7	478	19	8	512	18	2	56	32	108	2570	
% App. Total	2.2	57.8	38.5	1.5		34.6	5.8	5.8	53.8		0.1	1.4	92.6	5.8		1.4	93.4	3.7	1.6		16.7	1.9	51.9	29.6			
PHF	.750	.933	.863	.531	.917	.563	.375	.375	.875	.813	.250	.688	.868	.821	.886	.583	.879	.679	.500	.871	.900	.500	.700	.800	.771	.948	
Cars	24	636	427	17	1104	18	3	3	28	52	1	10	718	46	775	7	475	18	8	508	14	2	56	32	104	2543	
% Cars	100	99.1	99.8	100	99.4	100	100	100	100	100	100	90.9	98.5	100	98.5	100	99.4	94.7	100	99.2	77.8	100	100	100	96.3	98.9	
Trucks	0	6	1	0	7	0	0	0	0	0	0	1	11	0	12	0	3	1	0	4	4	0	0	0	4	27	
% Trucks	0	0.9	0.2	0	0.6	0	0	0	0	0	0	9.1	1.5	0	1.5	0	0.6	5.3	0	0.8	22.2	0	0	0	3.7	1.1	

Accurate Counts

978-664-2565

N/S Street : Bishop Street Extension
E/W Street : Warren Avenue
City/State : Portland, ME
Weather : Clear

File Name : 19050003
Site Code : 19050003
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Warren Ave From East		Bishop St Ext. From South		Warren Ave From West		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	6	63	7	3	85	19	183
07:15 AM	5	110	4	0	106	36	261
07:30 AM	8	107	12	1	138	66	332
07:45 AM	10	119	12	3	128	41	313
Total	29	399	35	7	457	162	1089
08:00 AM	9	104	2	2	147	30	294
08:15 AM	7	83	6	3	126	30	255
08:30 AM	11	101	8	0	105	17	242
08:45 AM	4	123	6	1	118	26	278
Total	31	411	22	6	496	103	1069
Grand Total	60	810	57	13	953	265	2158
Apprch %	6.9	93.1	81.4	18.6	78.2	21.8	
Total %	2.8	37.5	2.6	0.6	44.2	12.3	
Cars	57	775	55	13	906	262	2068
% Cars	95	95.7	96.5	100	95.1	98.9	95.8
Trucks	3	35	2	0	47	3	90
% Trucks	5	4.3	3.5	0	4.9	1.1	4.2

	Warren Ave From East			Bishop St Ext. From South			Warren Ave From West			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	5	110	115	4	0	4	106	36	142	261
07:30 AM	8	107	115	12	1	13	138	66	204	332
07:45 AM	10	119	129	12	3	15	128	41	169	313
08:00 AM	9	104	113	2	2	4	147	30	177	294
Total Volume	32	440	472	30	6	36	519	173	692	1200
% App. Total	6.8	93.2		83.3	16.7		75	25		
PHF	.800	.924	.915	.625	.500	.600	.883	.655	.848	.904
Cars	30	426	456	29	6	35	491	172	663	1154
% Cars	93.8	96.8	96.6	96.7	100	97.2	94.6	99.4	95.8	96.2
Trucks	2	14	16	1	0	1	28	1	29	46
% Trucks	6.3	3.2	3.4	3.3	0	2.8	5.4	0.6	4.2	3.8

Accurate Counts
978-664-2565

N/S Street : Bishop Street Extension
E/W Street : Warren Avenue
City/State : Portland, ME
Weather : Clear

File Name : 19050003
Site Code : 19050003
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Warren Ave From East		Bishop St Ext. From South		Warren Ave From West		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	7	148	13	4	132	12	316
03:15 PM	4	124	10	2	133	13	286
03:30 PM	3	138	12	4	144	17	318
03:45 PM	3	120	9	2	128	11	273
Total	17	530	44	12	537	53	1193
04:00 PM	5	123	14	6	154	19	321
04:15 PM	5	139	12	6	134	18	314
04:30 PM	2	137	18	7	140	24	328
04:45 PM	6	108	8	5	150	22	299
Total	18	507	52	24	578	83	1262
05:00 PM	2	118	20	4	152	20	316
05:15 PM	8	101	12	8	124	12	265
05:30 PM	11	103	12	6	105	7	244
05:45 PM	4	82	12	1	94	15	208
Total	25	404	56	19	475	54	1033
Grand Total	60	1441	152	55	1590	190	3488
Apprch %	4	96	73.4	26.6	89.3	10.7	
Total %	1.7	41.3	4.4	1.6	45.6	5.4	
Cars	52	1412	150	55	1557	190	3416
% Cars	86.7	98	98.7	100	97.9	100	97.9
Trucks	8	29	2	0	33	0	72
% Trucks	13.3	2	1.3	0	2.1	0	2.1

	Warren Ave From East			Bishop St Ext. From South			Warren Ave From West			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	5	123	128	14	6	20	154	19	173	321
04:15 PM	5	139	144	12	6	18	134	18	152	314
04:30 PM	2	137	139	18	7	25	140	24	164	328
04:45 PM	6	108	114	8	5	13	150	22	172	299
Total Volume	18	507	525	52	24	76	578	83	661	1262
% App. Total	3.4	96.6		68.4	31.6		87.4	12.6		
PHF	.750	.912	.911	.722	.857	.760	.938	.865	.955	.962
Cars	17	493	510	52	24	76	568	83	651	1237
% Cars	94.4	97.2	97.1	100	100	100	98.3	100	98.5	98.0
Trucks	1	14	15	0	0	0	10	0	10	25
% Trucks	5.6	2.8	2.9	0	0	0	1.7	0	1.5	2.0

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : Poland Street / UNE Drive
City/State : Portland, ME
Weather : Clear

File Name : 19050004
Site Code : 19050004
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North			Poland St From East			Stevens Ave From South			UNE Dr From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	2	71	2	3	0	0	0	44	2	0	0	0	124
07:15 AM	1	101	0	3	0	2	0	52	3	0	0	1	163
07:30 AM	1	121	6	2	2	5	1	70	4	1	0	0	213
07:45 AM	6	147	2	5	1	4	7	76	7	0	0	0	255
Total	10	440	10	13	3	11	8	242	16	1	0	1	755
08:00 AM	3	154	7	3	6	0	6	73	12	1	1	0	266
08:15 AM	6	118	6	7	0	2	5	79	5	0	0	0	228
08:30 AM	6	115	1	4	1	0	1	64	8	0	0	1	201
08:45 AM	4	99	1	6	0	1	1	48	5	1	0	2	168
Total	19	486	15	20	7	3	13	264	30	2	1	3	863
Grand Total	29	926	25	33	10	14	21	506	46	3	1	4	1618
Apprch %	3	94.5	2.6	57.9	17.5	24.6	3.7	88.3	8	37.5	12.5	50	
Total %	1.8	57.2	1.5	2	0.6	0.9	1.3	31.3	2.8	0.2	0.1	0.2	
Cars	29	910	25	33	10	14	21	488	46	3	1	4	1584
% Cars	100	98.3	100	100	100	100	100	96.4	100	100	100	100	97.9
Trucks	0	16	0	0	0	0	0	18	0	0	0	0	34
% Trucks	0	1.7	0	0	0	0	0	3.6	0	0	0	0	2.1

	Stevens Ave From North				Poland St From East				Stevens Ave From South				UNE Dr From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	1	121	6	128	2	2	5	9	1	70	4	75	1	0	0	1	213
07:45 AM	6	147	2	155	5	1	4	10	7	76	7	90	0	0	0	0	255
08:00 AM	3	154	7	164	3	6	0	9	6	73	12	91	1	1	0	2	266
08:15 AM	6	118	6	130	7	0	2	9	5	79	5	89	0	0	0	0	228
Total Volume	16	540	21	577	17	9	11	37	19	298	28	345	2	1	0	3	962
% App. Total	2.8	93.6	3.6		45.9	24.3	29.7		5.5	86.4	8.1		66.7	33.3	0		
PHF	.667	.877	.750	.880	.607	.375	.550	.925	.679	.943	.583	.948	.500	.250	.000	.375	.904
Cars	16	530	21	567	17	9	11	37	19	286	28	333	2	1	0	3	940
% Cars	100	98.1	100	98.3	100	100	100	100	100	96.0	100	96.5	100	100	0	100	97.7
Trucks	0	10	0	10	0	0	0	0	0	12	0	12	0	0	0	0	22
% Trucks	0	1.9	0	1.7	0	0	0	0	0	4.0	0	3.5	0	0	0	0	2.3

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : Poland Street / UNE Drive
City/State : Portland, ME
Weather : Clear

File Name : 19050004
Site Code : 19050004
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North			Poland St From East			Stevens Ave From South			UNE Dr From West			Int. Total
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
03:00 PM	3	97	1	1	1	0	0	119	5	1	1	1	230
03:15 PM	0	87	0	6	0	1	0	79	0	2	0	1	176
03:30 PM	1	86	0	1	0	0	0	99	3	3	0	0	193
03:45 PM	2	115	0	2	0	0	2	99	2	3	0	2	227
Total	6	385	1	10	1	1	2	396	10	9	1	4	826
04:00 PM	5	102	0	2	0	0	0	126	2	2	0	0	239
04:15 PM	1	122	0	2	0	2	1	111	3	2	0	2	246
04:30 PM	1	122	0	6	1	3	2	123	5	4	0	5	272
04:45 PM	2	107	0	4	0	1	0	142	4	3	1	1	265
Total	9	453	0	14	1	6	3	502	14	11	1	8	1022
05:00 PM	3	119	0	2	0	2	0	114	1	2	0	2	245
05:15 PM	3	138	1	0	0	1	1	124	7	2	0	1	278
05:30 PM	3	118	0	2	0	0	0	133	1	0	2	1	260
05:45 PM	1	84	0	0	0	2	2	90	2	0	0	0	181
Total	10	459	1	4	0	5	3	461	11	4	2	4	964
Grand Total	25	1297	2	28	2	12	8	1359	35	24	4	16	2812
Apprch %	1.9	98	0.2	66.7	4.8	28.6	0.6	96.9	2.5	54.5	9.1	36.4	
Total %	0.9	46.1	0.1	1	0.1	0.4	0.3	48.3	1.2	0.9	0.1	0.6	
Cars	25	1285	2	28	2	12	8	1343	35	24	4	16	2784
% Cars	100	99.1	100	100	100	100	100	98.8	100	100	100	100	99
Trucks	0	12	0	0	0	0	0	16	0	0	0	0	28
% Trucks	0	0.9	0	0	0	0	0	1.2	0	0	0	0	1

	Stevens Ave From North				Poland St From East				Stevens Ave From South				UNE Dr From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	122	0	123	6	1	3	10	2	123	5	130	4	0	5	9	272
04:45 PM	2	107	0	109	4	0	1	5	0	142	4	146	3	1	1	5	265
05:00 PM	3	119	0	122	2	0	2	4	0	114	1	115	2	0	2	4	245
05:15 PM	3	138	1	142	0	0	1	1	1	124	7	132	2	0	1	3	278
Total Volume	9	486	1	496	12	1	7	20	3	503	17	523	11	1	9	21	1060
% App. Total	1.8	98	0.2		60	5	35		0.6	96.2	3.3		52.4	4.8	42.9		
PHF	.750	.880	.250	.873	.500	.250	.583	.500	.375	.886	.607	.896	.688	.250	.450	.583	.953
Cars	9	484	1	494	12	1	7	20	3	500	17	520	11	1	9	21	1055
% Cars	100	99.6	100	99.6	100	100	100	100	100	99.4	100	99.4	100	100	100	100	99.5
Trucks	0	2	0	2	0	0	0	0	0	3	0	3	0	0	0	0	5
% Trucks	0	0.4	0	0.4	0	0	0	0	0	0.6	0	0.6	0	0	0	0	0.5

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : College Street
City/State : Portland, ME
Weather : Clear

File Name : 19050005
Site Code : 19050005
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North		Stevens Ave From South		College St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	66	5	3	48	0	0	122
07:15 AM	95	13	6	54	1	1	170
07:30 AM	99	19	11	74	0	1	204
07:45 AM	132	22	14	90	0	2	260
Total	392	59	34	266	1	4	756
08:00 AM	141	14	5	89	2	0	251
08:15 AM	117	11	5	86	2	0	221
08:30 AM	116	3	2	72	2	0	195
08:45 AM	100	6	4	51	2	0	163
Total	474	34	16	298	8	0	830
Grand Total	866	93	50	564	9	4	1586
Apprch %	90.3	9.7	8.1	91.9	69.2	30.8	
Total %	54.6	5.9	3.2	35.6	0.6	0.3	
Cars	847	92	50	548	8	4	1549
% Cars	97.8	98.9	100	97.2	88.9	100	97.7
Trucks	19	1	0	16	1	0	37
% Trucks	2.2	1.1	0	2.8	11.1	0	2.3

	Stevens Ave From North			Stevens Ave From South			College St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	99	19	118	11	74	85	0	1	1	204
07:45 AM	132	22	154	14	90	104	0	2	2	260
08:00 AM	141	14	155	5	89	94	2	0	2	251
08:15 AM	117	11	128	5	86	91	2	0	2	221
Total Volume	489	66	555	35	339	374	4	3	7	936
% App. Total	88.1	11.9		9.4	90.6		57.1	42.9		
PHF	.867	.750	.895	.625	.942	.899	.500	.375	.875	.900
Cars	477	65	542	35	329	364	3	3	6	912
% Cars	97.5	98.5	97.7	100	97.1	97.3	75.0	100	85.7	97.4
Trucks	12	1	13	0	10	10	1	0	1	24
% Trucks	2.5	1.5	2.3	0	2.9	2.7	25.0	0	14.3	2.6

Accurate Counts
978-664-2565

N/S Street : Stevens Avenue
E/W Street : College Street
City/State : Portland, ME
Weather : Clear

File Name : 19050005
Site Code : 19050005
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North		Stevens Ave From South		College St From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
03:00 PM	97	2	2	120	7	4	232
03:15 PM	91	1	0	74	5	7	178
03:30 PM	89	0	1	97	6	8	201
03:45 PM	113	3	0	101	1	5	223
Total	390	6	3	392	19	24	834
04:00 PM	106	1	0	115	13	18	253
04:15 PM	124	2	2	104	11	10	253
04:30 PM	129	2	0	111	20	16	278
04:45 PM	115	0	3	134	12	10	274
Total	474	5	5	464	56	54	1058
05:00 PM	123	2	1	109	6	7	248
05:15 PM	134	5	1	121	7	7	275
05:30 PM	117	2	3	124	10	6	262
05:45 PM	82	1	4	91	1	8	187
Total	456	10	9	445	24	28	972
Grand Total	1320	21	17	1301	99	106	2864
Apprch %	98.4	1.6	1.3	98.7	48.3	51.7	
Total %	46.1	0.7	0.6	45.4	3.5	3.7	
Cars	1307	21	17	1286	99	106	2836
% Cars	99	100	100	98.8	100	100	99
Trucks	13	0	0	15	0	0	28
% Trucks	1	0	0	1.2	0	0	1

	Stevens Ave From North			Stevens Ave From South			College St From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	129	2	131	0	111	111	20	16	36	278
04:45 PM	115	0	115	3	134	137	12	10	22	274
05:00 PM	123	2	125	1	109	110	6	7	13	248
05:15 PM	134	5	139	1	121	122	7	7	14	275
Total Volume	501	9	510	5	475	480	45	40	85	1075
% App. Total	98.2	1.8		1	99		52.9	47.1		
PHF	.935	.450	.917	.417	.886	.876	.563	.625	.590	.967
Cars	499	9	508	5	473	478	45	40	85	1071
% Cars	99.6	100	99.6	100	99.6	99.6	100	100	100	99.6
Trucks	2	0	2	0	2	2	0	0	0	4
% Trucks	0.4	0	0.4	0	0.4	0.4	0	0	0	0.4

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : UNE Drive
City/State : Portland, ME
Weather : Clear

File Name : 19050006
Site Code : 19050006
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North		Stevens Ave From South		UNE Dr From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
07:00 AM	63	2	6	50	0	1	122
07:15 AM	81	6	10	63	0	2	162
07:30 AM	94	6	17	88	0	2	207
07:45 AM	127	13	14	104	1	1	260
Total	365	27	47	305	1	6	751
08:00 AM	135	8	11	102	0	0	256
08:15 AM	121	3	6	100	0	4	234
08:30 AM	117	1	6	68	1	0	193
08:45 AM	91	9	7	58	0	2	167
Total	464	21	30	328	1	6	850
Grand Total	829	48	77	633	2	12	1601
Apprch %	94.5	5.5	10.8	89.2	14.3	85.7	
Total %	51.8	3	4.8	39.5	0.1	0.7	
Cars	803	48	77	615	2	12	1557
% Cars	96.9	100	100	97.2	100	100	97.3
Trucks	26	0	0	18	0	0	44
% Trucks	3.1	0	0	2.8	0	0	2.7

	Stevens Ave From North			Stevens Ave From South			UNE Dr From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	94	6	100	17	88	105	0	2	2	207
07:45 AM	127	13	140	14	104	118	1	1	2	260
08:00 AM	135	8	143	11	102	113	0	0	0	256
08:15 AM	121	3	124	6	100	106	0	4	4	234
Total Volume	477	30	507	48	394	442	1	7	8	957
% App. Total	94.1	5.9		10.9	89.1		12.5	87.5		
PHF	.883	.577	.886	.706	.947	.936	.250	.438	.500	.920
Cars	460	30	490	48	384	432	1	7	8	930
% Cars	96.4	100	96.6	100	97.5	97.7	100	100	100	97.2
Trucks	17	0	17	0	10	10	0	0	0	27
% Trucks	3.6	0	3.4	0	2.5	2.3	0	0	0	2.8

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : UNE Drive
City/State : Portland, ME
Weather : Clear

File Name : 19050006
Site Code : 19050006
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North		Stevens Ave From South		UNE Dr From West		
Start Time	Thru	Right	Left	Thru	Left	Right	Int. Total
03:00 PM	107	1	0	116	1	2	227
03:15 PM	93	0	2	78	0	2	175
03:30 PM	99	1	3	96	0	6	205
03:45 PM	121	2	2	107	3	4	239
Total	420	4	7	397	4	14	846
04:00 PM	121	0	4	98	6	7	236
04:15 PM	131	3	1	113	1	5	254
04:30 PM	144	6	5	115	3	7	280
04:45 PM	124	1	3	141	4	7	280
Total	520	10	13	467	14	26	1050
05:00 PM	131	2	6	113	3	5	260
05:15 PM	147	3	3	124	3	4	284
05:30 PM	122	5	3	112	3	1	246
05:45 PM	84	2	2	95	3	6	192
Total	484	12	14	444	12	16	982
Grand Total	1424	26	34	1308	30	56	2878
Apprch %	98.2	1.8	2.5	97.5	34.9	65.1	
Total %	49.5	0.9	1.2	45.4	1	1.9	
Cars	1410	26	34	1292	30	56	2848
% Cars	99	100	100	98.8	100	100	99
Trucks	14	0	0	16	0	0	30
% Trucks	1	0	0	1.2	0	0	1

	Stevens Ave From North			Stevens Ave From South			UNE Dr From West			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	144	6	150	5	115	120	3	7	10	280
04:45 PM	124	1	125	3	141	144	4	7	11	280
05:00 PM	131	2	133	6	113	119	3	5	8	260
05:15 PM	147	3	150	3	124	127	3	4	7	284
Total Volume	546	12	558	17	493	510	13	23	36	1104
% App. Total	97.8	2.2		3.3	96.7		36.1	63.9		
PHF	.929	.500	.930	.708	.874	.885	.813	.821	.818	.972
Cars	544	12	556	17	491	508	13	23	36	1100
% Cars	99.6	100	99.6	100	99.6	99.6	100	100	100	99.6
Trucks	2	0	2	0	2	2	0	0	0	4
% Trucks	0.4	0	0.4	0	0.4	0.4	0	0	0	0.4

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : Walton Street
City/State : Portland, ME
Weather : Clear

File Name : 19050007
Site Code : 19050007
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North		Walton St From East		Stevens Ave From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	1	59	7	5	51	20	143
07:15 AM	4	69	13	18	63	13	180
07:30 AM	4	87	24	25	84	26	250
07:45 AM	9	119	41	22	95	28	314
Total	18	334	85	70	293	87	887
08:00 AM	4	121	45	11	104	37	322
08:15 AM	11	112	25	17	90	26	281
08:30 AM	13	111	22	10	63	21	240
08:45 AM	10	83	17	10	59	20	199
Total	38	427	109	48	316	104	1042
Grand Total	56	761	194	118	609	191	1929
Apprch %	6.9	93.1	62.2	37.8	76.1	23.9	
Total %	2.9	39.5	10.1	6.1	31.6	9.9	
Cars	56	736	193	118	594	186	1883
% Cars	100	96.7	99.5	100	97.5	97.4	97.6
Trucks	0	25	1	0	15	5	46
% Trucks	0	3.3	0.5	0	2.5	2.6	2.4

	Stevens Ave From North			Walton St From East			Stevens Ave From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	4	87	91	24	25	49	84	26	110	250
07:45 AM	9	119	128	41	22	63	95	28	123	314
08:00 AM	4	121	125	45	11	56	104	37	141	322
08:15 AM	11	112	123	25	17	42	90	26	116	281
Total Volume	28	439	467	135	75	210	373	117	490	1167
% App. Total	6	94		64.3	35.7		76.1	23.9		
PHF	.636	.907	.912	.750	.750	.833	.897	.791	.869	.906
Cars	28	423	451	134	75	209	363	114	477	1137
% Cars	100	96.4	96.6	99.3	100	99.5	97.3	97.4	97.3	97.4
Trucks	0	16	16	1	0	1	10	3	13	30
% Trucks	0	3.6	3.4	0.7	0	0.5	2.7	2.6	2.7	2.6

Accurate Counts

978-664-2565

N/S Street : Stevens Avenue
E/W Street : Walton Street
City/State : Portland, ME
Weather : Clear

File Name : 19050007
Site Code : 19050007
Start Date : 9/21/2021
Page No : 1

Groups Printed- Cars - Trucks

	Stevens Ave From North		Walton St From East		Stevens Ave From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
03:00 PM	8	97	31	6	110	30	282
03:15 PM	6	99	28	3	76	29	241
03:30 PM	12	87	32	6	92	27	256
03:45 PM	9	128	22	1	110	32	302
Total	35	411	113	16	388	118	1081
04:00 PM	13	116	21	3	107	27	287
04:15 PM	18	122	23	7	103	29	302
04:30 PM	22	127	36	19	102	32	338
04:45 PM	19	104	40	12	131	46	352
Total	72	469	120	41	443	134	1279
05:00 PM	21	130	44	13	118	35	361
05:15 PM	30	115	37	17	105	42	346
05:30 PM	16	118	32	14	101	18	299
05:45 PM	7	86	31	7	86	31	248
Total	74	449	144	51	410	126	1254
Grand Total	181	1329	377	108	1241	378	3614
Apprch %	12	88	77.7	22.3	76.7	23.3	
Total %	5	36.8	10.4	3	34.3	10.5	
Cars	181	1316	375	108	1224	377	3581
% Cars	100	99	99.5	100	98.6	99.7	99.1
Trucks	0	13	2	0	17	1	33
% Trucks	0	1	0.5	0	1.4	0.3	0.9

	Stevens Ave From North			Walton St From East			Stevens Ave From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:30 PM										
04:30 PM	22	127	149	36	19	55	102	32	134	338
04:45 PM	19	104	123	40	12	52	131	46	177	352
05:00 PM	21	130	151	44	13	57	118	35	153	361
05:15 PM	30	115	145	37	17	54	105	42	147	346
Total Volume	92	476	568	157	61	218	456	155	611	1397
% App. Total	16.2	83.8		72	28		74.6	25.4		
PHF	.767	.915	.940	.892	.803	.956	.870	.842	.863	.967
Cars	92	474	566	157	61	218	454	154	608	1392
% Cars	100	99.6	99.6	100	100	100	99.6	99.4	99.5	99.6
Trucks	0	2	2	0	0	0	2	1	3	5
% Trucks	0	0.4	0.4	0	0	0	0.4	0.6	0.5	0.4

Sewall

40 Forest Falls Drive
Yarmouth, ME 04096

TITLE: UNE Bishop Street Lot
TOWN: Portland
COUNTER: JM
WEATHER: Cloudy

File Name : PortlandBishopLotAM2022
Site Code : 06522777
Start Date : 2/2/2022
Page No : 1

Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

	Bishop St. Ext. Southbound					Bishop Street Westbound					Northbound					UNE Parking Lot Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	8	0	12	0	20	8	6	0	0	14	0	0	0	0	0	0	4	0	0	4	38
07:15 AM	18	0	30	0	48	5	6	0	0	11	0	0	0	0	0	0	4	1	0	5	64
07:30 AM	32	0	42	0	74	3	14	0	0	17	0	0	0	0	0	0	2	0	0	2	93
07:45 AM	11	0	44	0	55	9	4	0	0	13	0	0	0	0	0	0	2	1	0	3	71
Total	69	0	128	0	197	25	30	0	0	55	0	0	0	0	0	0	12	2	0	14	266
08:00 AM	8	0	27	0	35	6	4	0	0	10	0	0	0	0	0	0	3	1	0	4	49
08:15 AM	11	0	36	0	47	12	7	0	0	19	0	0	0	0	0	0	4	2	0	6	72
08:30 AM	14	0	18	0	32	13	9	0	0	22	0	0	0	0	0	0	4	1	0	5	59
08:45 AM	5	0	23	0	28	3	2	0	0	5	0	0	0	0	0	0	3	0	0	3	36
Total	38	0	104	0	142	34	22	0	0	56	0	0	0	0	0	0	14	4	0	18	216
Grand Total	107	0	232	0	339	59	52	0	0	111	0	0	0	0	0	0	26	6	0	32	482
Apprch %	31.6	0	68.4	0		53.2	46.8	0	0		0	0	0	0	0	0	81.2	18.8	0		
Total %	22.2	0	48.1	0	70.3	12.2	10.8	0	0	23	0	0	0	0	0	0	5.4	1.2	0	6.6	
Passenger Vehicles	103	0	231	0	334	58	49	0	0	107	0	0	0	0	0	0	24	2	0	26	467
% Passenger Vehicles	96.3	0	99.6	0	98.5	98.3	94.2	0	0	96.4	0	0	0	0	0	0	92.3	33.3	0	81.2	96.9
Light Trucks	4	0	1	0	5	1	3	0	0	4	0	0	0	0	0	0	2	4	0	6	15
% Light Trucks	3.7	0	0.4	0	1.5	1.7	5.8	0	0	3.6	0	0	0	0	0	0	7.7	66.7	0	18.8	3.1
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: 9 entering and 10 exiting vehicles in AM were the shuttle bus

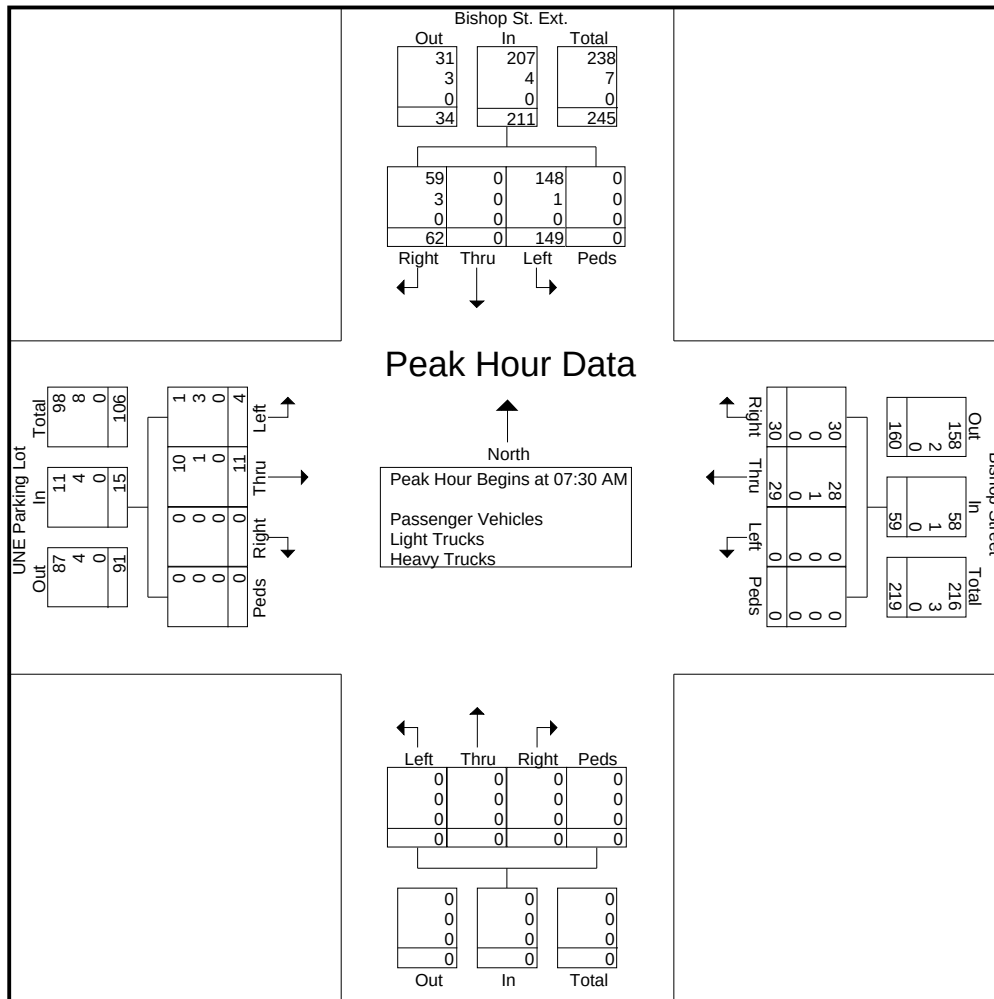
Sewall

40 Forest Falls Drive
Yarmouth, ME 04096

TITLE: UNE Bishop Street Lot
TOWN: Portland
COUNTER: JM
WEATHER: Cloudy

File Name : PortlandBishopLotAM2022
Site Code : 06522777
Start Date : 2/2/2022
Page No : 2

	Bishop St. Ext. Southbound					Bishop Street Westbound					Northbound					UNE Parking Lot Eastbound					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Int. Total
07:30 AM	32	0	42	0	74	3	14	0	0	17	0	0	0	0	0	0	2	0	0	2	93
07:45 AM	11	0	44	0	55	9	4	0	0	13	0	0	0	0	0	0	2	1	0	3	71
08:00 AM	8	0	27	0	35	6	4	0	0	10	0	0	0	0	0	0	3	1	0	4	49
08:15 AM	11	0	36	0	47	12	7	0	0	19	0	0	0	0	0	0	4	2	0	6	72
Total Volume	62	0	149	0	211	30	29	0	0	59	0	0	0	0	0	0	11	4	0	15	285
% App. Total	29.4	0	70.6	0		50.8	49.2	0	0		0	0	0	0	0	0	73.3	26.7	0		
PHF	.484	.000	.847	.000	.713	.625	.518	.000	.000	.776	.000	.000	.000	.000	.000	.000	.688	.500	.000	.625	.766
Passenger Vehicles	59	0	148	0	207	30	28	0	0	58	0	0	0	0	0	0	10	1	0	11	276
% Passenger Vehicles	95.2	0	99.3	0	98.1	100	96.6	0	0	98.3	0	0	0	0	0	0	90.9	25.0	0	73.3	96.8
Light Trucks	3	0	1	0	4	0	1	0	0	1	0	0	0	0	0	0	1	3	0	4	9
% Light Trucks	4.8	0	0.7	0	1.9	0	3.4	0	0	1.7	0	0	0	0	0	0	9.1	75.0	0	26.7	3.2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



Sewall

40 Forest Falls Drive
Yarmouth, ME 04096

TITLE:
TOWN:
COUNTER:
WEATHER:

File Name : PortlandBishopLotPM2022
Site Code : 52233253
Start Date : 2/2/2022
Page No : 1

Groups Printed- Passenger Vehicles - Light Trucks - Heavy Trucks

	Bishop St Ext Southbound					Bishop Street Westbound					Northbound					UNE Parking Lot Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
03:30 PM	0	0	11	0	11	14	2	0	0	16	0	0	0	0	0	0	6	9	0	15	42
03:45 PM	1	0	28	0	29	20	3	0	0	23	0	0	0	0	0	0	4	2	0	6	58
Total	1	0	39	0	40	34	5	0	0	39	0	0	0	0	0	0	10	11	0	21	100
04:00 PM	0	0	19	0	19	18	1	0	0	19	0	0	0	0	0	0	5	4	0	9	47
04:15 PM	1	0	20	0	21	21	1	0	0	22	0	0	0	0	0	0	2	1	0	3	46
04:30 PM	0	0	21	0	21	20	3	0	0	23	0	0	0	0	0	0	6	13	0	19	63
04:45 PM	2	0	35	0	37	12	2	0	0	14	0	0	0	0	0	0	8	3	0	11	62
Total	3	0	95	0	98	71	7	0	0	78	0	0	0	0	0	0	21	21	0	42	218
05:00 PM	1	0	19	0	20	13	2	0	0	15	0	0	0	0	0	0	5	3	0	8	43
05:15 PM	0	0	28	0	28	12	3	0	0	15	0	0	0	0	0	0	4	3	0	7	50
Grand Total	5	0	181	0	186	130	17	0	0	147	0	0	0	0	0	0	40	38	0	78	411
Apprch %	2.7	0	97.3	0		88.4	11.6	0	0		0	0	0	0	0	0	51.3	48.7	0		
Total %	1.2	0	44	0	45.3	31.6	4.1	0	0	35.8	0	0	0	0	0	0	9.7	9.2	0	19	
Passenger Vehicles	5	0	180	0	185	128	17	0	0	145	0	0	0	0	0	0	39	38	0	77	407
% Passenger Vehicles	100	0	99.4	0	99.5	98.5	100	0	0	98.6	0	0	0	0	0	0	97.5	100	0	98.7	99
Light Trucks	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	3
% Light Trucks	0	0	0.6	0	0.5	0.8	0	0	0	0.7	0	0	0	0	0	0	2.5	0	0	1.3	0.7
Heavy Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Heavy Trucks	0	0	0	0	0	0.8	0	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0.2

Group 1 Seasonal Adjustment Factor: 1.13/ 0.90 = 1.26

Note: 15 entering and 14 exiting vehicles were UNE Shuttle

Sewall

40 Forest Falls Drive
Yarmouth, ME 04096

TITLE:
TOWN:
COUNTER:
WEATHER:

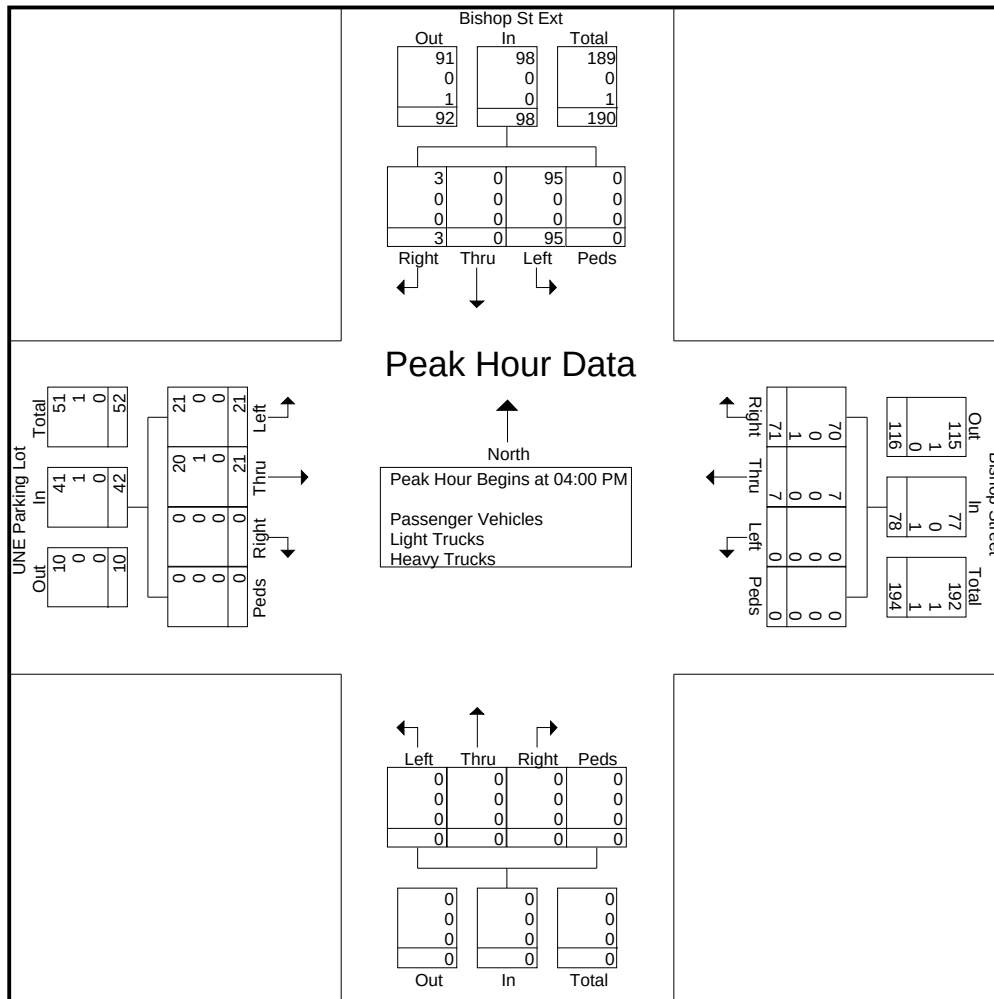
File Name : PortlandBishopLotPM2022
Site Code : 52233253
Start Date : 2/2/2022
Page No : 2

	Bishop St Ext Southbound					Bishop Street Westbound					Northbound					UNE Parking Lot Eastbound					
Start Time	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Rig ht	Thr u	Left	Ped s	App. Total	Int. Total

Peak Hour Analysis From 03:30 PM to 05:15 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	0	0	19	0	19	18	1	0	0	19	0	0	0	0	0	0	5	4	0	9	47
04:15 PM	1	0	20	0	21	21	1	0	0	22	0	0	0	0	0	0	2	1	0	3	46
04:30 PM	0	0	21	0	21	20	3	0	0	23	0	0	0	0	0	0	6	13	0	19	63
04:45 PM	2	0	35	0	37	12	2	0	0	14	0	0	0	0	0	0	8	3	0	11	62
Total Volume	3	0	95	0	98	71	7	0	0	78	0	0	0	0	0	0	21	21	0	42	218
% App. Total	3.1	0	96.9	0		91	9	0	0		0	0	0	0		0	50	50	0		
PHF	.375	.000	.679	.000	.662	.845	.583	.000	.000	.848	.000	.000	.000	.000	.000	.000	.656	.404	.000	.553	.865
Passenger Vehicles	3	0	95	0	98	70	7	0	0	77	0	0	0	0	0	0	20	21	0	41	216
% Passenger Vehicles	100	0	100	0	100	98.6	100	0	0	98.7	0	0	0	0	0	0	95.2	100	0	97.6	99.1
Light Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Light Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.8	0	0	2.4	0.5
Heavy Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Heavy Trucks	0	0	0	0	0	1.4	0	0	0	1.3	0	0	0	0	0	0	0	0	0	0	0.5



Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4235	4290	4286	4280	4370	4292
Vehs Exited	4129	4187	4160	4222	4227	4184
Starting Vehs	139	127	136	138	130	129
Ending Vehs	245	230	262	196	273	236
Travel Distance (mi)	2213	2213	2231	2231	2246	2227
Travel Time (hr)	448.7	376.4	360.0	310.4	379.9	375.1
Total Delay (hr)	368.3	295.8	278.7	229.1	297.9	294.0
Total Stops	4931	5006	5293	4802	5498	5104
Fuel Used (gal)	159.1	142.8	139.2	127.7	143.6	142.5

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4235	4290	4286	4280	4370	4292
Vehs Exited	4129	4187	4160	4222	4227	4184
Starting Vehs	139	127	136	138	130	129
Ending Vehs	245	230	262	196	273	236
Travel Distance (mi)	2213	2213	2231	2231	2246	2227
Travel Time (hr)	448.7	376.4	360.0	310.4	379.9	375.1
Total Delay (hr)	368.3	295.8	278.7	229.1	297.9	294.0
Total Stops	4931	5006	5293	4802	5498	5104
Fuel Used (gal)	159.1	142.8	139.2	127.7	143.6	142.5

1: Bishop Street Ext. & Warren Ave Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.5
Total Del/Veh (s)	2.8	3.3	17.8	3.5

4: Stevens Ave & Forest Ave & Bishop Street Performance by lane

Lane	EB	NB	NB	SB	SB	NE	NE	All
Movements Served	LR>	LT	T	T	R>	<L	LR	
Denied Del/Veh (s)								9.1
Total Del/Veh (s)	67.2	44.0	54.1	51.4	58.2	42.6	66.6	54.0

5: Stevens Ave & Walton St Performance by lane

Lane	WB	WB	NB	SB	SB	All
Movements Served	L	R	TR	L	T	
Denied Del/Veh (s)						0.4
Total Del/Veh (s)	39.0	4.9	9.2	11.5	9.2	12.9

9: Stevens Ave & College St Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	11.3	1.5	1.3	1.5

10: Stevens Ave & Finley Ctr Dr Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	5.1	2.9	1.3	2.2

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	L	LT	R	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	23.0	50.3	87.2	334.7	242.7	6.8	61.9	28.4	40.8	9.7	54.3	334.4

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	SB	All
Movements Served	TR	
Denied Del/Veh (s)		210.1
Total Del/Veh (s)	215.2	145.8

18: Stevens Ave & UNE Drive/Poland St Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	12.4	8.1	1.2	3.0	2.5

Total Network Performance

Denied Del/Veh (s)			122.5		
Total Del/Veh (s)			109.9		

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	19	202	66
Average Queue (ft)	1	46	23
95th Queue (ft)	12	138	53
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	LT	T	T	R>	<L	LR
Maximum Queue (ft)	238	292	335	283	275	180	217
Average Queue (ft)	128	191	228	268	259	80	131
95th Queue (ft)	216	278	321	280	287	153	201
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				58	46		
Queuing Penalty (veh)				366	290		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	213	90	280	149	284
Average Queue (ft)	99	51	121	17	99
95th Queue (ft)	177	106	236	66	234
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	24	0			5
Queuing Penalty (veh)	18	1			1

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	38	108
Average Queue (ft)	8	21
95th Queue (ft)	30	70
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	30	149	4
Average Queue (ft)	5	27	0
95th Queue (ft)	24	90	3
Link Distance (ft)	529	539	411
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	21	51	74	771	805	225	83	243	259	100	275	1008
Average Queue (ft)	3	13	30	539	505	99	6	106	122	63	223	922
95th Queue (ft)	15	39	69	967	996	273	41	234	272	138	357	1212
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)		0	7	19	27			0	1			74
Queuing Penalty (veh)		0	0	0	0			2	5			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					20	2		17	12	6	3	72
Queuing Penalty (veh)					53	4		2	38	15	14	187

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	1002
Average Queue (ft)	901
95th Queue (ft)	1267
Link Distance (ft)	962
Upstream Blk Time (%)	52
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	24	42	75	79
Average Queue (ft)	1	22	8	8
95th Queue (ft)	11	43	40	45
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 995

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	4	5	6
Movement(s) Served	SBT	EBL	NEL	NBTL
Maximum Green (s)	47.0	23.5	19.5	39.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	51.7	18.8	17.8	40.8
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	29	50	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	18.0	34.0	14.0	29.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	5.6	60.5	11.5	21.5	61.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	87	3	3	55	3
Cycles @ Minimum (%)	8	0	8	0	0
Cycles Maxed Out (%)	0	97	0	0	97
Cycles with Peds (%)	0	0	0	45	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	20.3	25.7	13.5	22.5	18.0	28.0	18.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	19.5	36.1	19.0	20.4	7.4	52.7	6.5	35.4
g/C Ratio	-0.01	NA	NA	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	17	0	0	31	76	0	88	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	40	100	97	46	0	100	0	66
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4235	4290	4286	4280	4370	4292
Vehs Exited	4129	4187	4160	4222	4227	4184
Starting Vehs	139	127	136	138	130	129
Ending Vehs	245	230	262	196	273	236
Travel Distance (mi)	2213	2213	2231	2231	2246	2227
Travel Time (hr)	448.7	376.4	360.0	310.4	379.9	375.1
Total Delay (hr)	368.3	295.8	278.7	229.1	297.9	294.0
Total Stops	4931	5006	5293	4802	5498	5104
Fuel Used (gal)	159.1	142.8	139.2	127.7	143.6	142.5

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4235	4290	4286	4280	4370	4292
Vehs Exited	4129	4187	4160	4222	4227	4184
Starting Vehs	139	127	136	138	130	129
Ending Vehs	245	230	262	196	273	236
Travel Distance (mi)	2213	2213	2231	2231	2246	2227
Travel Time (hr)	448.7	376.4	360.0	310.4	379.9	375.1
Total Delay (hr)	368.3	295.8	278.7	229.1	297.9	294.0
Total Stops	4931	5006	5293	4802	5498	5104
Fuel Used (gal)	159.1	142.8	139.2	127.7	143.6	142.5

1: Bishop Street Ext. & Warren Ave Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.6	0.4	0.1	0.5
Total Del/Veh (s)	2.8	3.3	18.3	3.5

4: Stevens Ave & Forest Ave & Bishop Street Performance by approach

Approach	EB	NB	SB	NE	All
Denied Del/Veh (s)	0.2	0.0	18.0	0.0	9.1
Total Del/Veh (s)	67.7	49.3	54.4	54.8	54.0

5: Stevens Ave & Walton St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.1	0.4	0.0	0.4
Total Del/Veh (s)	27.6	9.2	9.4	12.9

9: Stevens Ave & College St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	11.3	1.5	1.3	1.5

10: Stevens Ave & Finley Ctr Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.1	2.9	1.3	2.2

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	2.1	73.2	0.1	446.1	210.1
Total Del/Veh (s)	65.5	186.3	25.0	236.7	145.8

18: Stevens Ave & UNE Drive/Poland St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	12.4	7.9	1.2	3.0	2.5

Total Network Performance

Denied Del/Veh (s)	122.5
Total Del/Veh (s)	109.9

Queuing and Blocking Report
2021 Base AM

03/24/2022

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	19	202	66
Average Queue (ft)	1	46	23
95th Queue (ft)	12	138	53
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	LT	T	T	R>	<L	LR
Maximum Queue (ft)	238	292	335	283	275	180	217
Average Queue (ft)	128	191	228	268	259	80	131
95th Queue (ft)	216	278	321	280	287	153	201
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				58	46		
Queuing Penalty (veh)				366	290		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	213	90	280	149	284
Average Queue (ft)	99	51	121	17	99
95th Queue (ft)	177	106	236	66	234
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	24	0			5
Queuing Penalty (veh)	18	1			1

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	38	108
Average Queue (ft)	8	21
95th Queue (ft)	30	70
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	30	149	4
Average Queue (ft)	5	27	0
95th Queue (ft)	24	90	3
Link Distance (ft)	529	539	411
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	21	51	74	771	805	225	83	243	259	100	275	1008
Average Queue (ft)	3	13	30	539	505	99	6	106	122	63	223	922
95th Queue (ft)	15	39	69	967	996	273	41	234	272	138	357	1212
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)		0	7	19	27			0	1			74
Queuing Penalty (veh)		0	0	0	0			2	5			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					20	2		17	12	6	3	72
Queuing Penalty (veh)					53	4		2	38	15	14	187

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	1002
Average Queue (ft)	901
95th Queue (ft)	1267
Link Distance (ft)	962
Upstream Blk Time (%)	52
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	24	42	75	79
Average Queue (ft)	1	22	8	8
95th Queue (ft)	11	43	40	45
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 995

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	4	5	6
Movement(s) Served	SBT	EBL	NEL	NBTL
Maximum Green (s)	47.0	23.5	19.5	39.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	51.7	18.8	17.8	40.8
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	29	50	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	18.0	34.0	14.0	29.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	5.6	60.5	11.5	21.5	61.9
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	87	3	3	55	3
Cycles @ Minimum (%)	8	0	8	0	0
Cycles Maxed Out (%)	0	97	0	0	97
Cycles with Peds (%)	0	0	0	45	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	20.3	25.7	13.5	22.5	18.0	28.0	18.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	19.5	36.1	19.0	20.4	7.4	52.7	6.5	35.4
g/C Ratio	-0.01	NA	NA	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	17	0	0	31	76	0	88	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	40	100	97	46	0	100	0	66
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5013	5049	5115	4994	4959	5026
Vehs Exited	5008	5064	5124	4971	4937	5020
Starting Vehs	162	156	157	119	147	145
Ending Vehs	167	141	148	142	169	149
Travel Distance (mi)	2733	2714	2779	2712	2684	2725
Travel Time (hr)	158.7	157.2	161.3	160.6	155.6	158.7
Total Delay (hr)	59.3	59.1	60.5	62.2	57.9	59.8
Total Stops	5348	5095	5445	5366	5112	5273
Fuel Used (gal)	105.3	104.7	106.9	105.6	103.4	105.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	5013	5049	5115	4994	4959	5026
Vehs Exited	5008	5064	5124	4971	4937	5020
Starting Vehs	162	156	157	119	147	145
Ending Vehs	167	141	148	142	169	149
Travel Distance (mi)	2733	2714	2779	2712	2684	2725
Travel Time (hr)	158.7	157.2	161.3	160.6	155.6	158.7
Total Delay (hr)	59.3	59.1	60.5	62.2	57.9	59.8
Total Stops	5348	5095	5445	5366	5112	5273
Fuel Used (gal)	105.3	104.7	106.9	105.6	103.4	105.2

1: Bishop Street Ext. & Warren Ave Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.4
Total Del/Veh (s)	1.8	1.3	16.4	2.7

4: Stevens Ave & Forest Ave & Bishop Street Performance by lane

Lane	EB	NB	NB	SB	SB	NE	NE	All
Movements Served	LR>	<LT	T	T	R>	<L	LR	
Denied Del/Veh (s)								0.1
Total Del/Veh (s)	40.6	37.3	24.1	17.5	16.8	30.3	42.7	25.9

5: Stevens Ave & Walton St Performance by lane

Lane	WB	WB	NB	SB	SB	All
Movements Served	L	R	TR	L	T	
Denied Del/Veh (s)						0.4
Total Del/Veh (s)	53.5	6.3	15.7	18.1	11.7	18.4

9: Stevens Ave & College St Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	10.7	0.8	0.7	1.6

10: Stevens Ave & Finley Ctr Dr Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	9.5	2.5	1.1	2.0

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	L	LT	R	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	32.2	44.2	9.5	29.2	53.4	11.4	48.0	29.5	42.0	25.8	44.5	20.5

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	SB	All
Movements Served	TR	
Denied Del/Veh (s)		1.2
Total Del/Veh (s)	12.9	28.6

18: Stevens Ave & UNE Drive/Poland St Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	9.6	10.1	0.8	2.5	1.9

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	40.6

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	23	82	85
Average Queue (ft)	1	13	38
95th Queue (ft)	10	54	71
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	<LT	T	T	R>	<L	LR
Maximum Queue (ft)	193	272	312	277	271	222	276
Average Queue (ft)	71	143	170	198	153	107	147
95th Queue (ft)	142	247	283	311	258	176	228
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				5	1		
Queuing Penalty (veh)				27	5		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	298	90	378	148	348
Average Queue (ft)	135	39	190	63	133
95th Queue (ft)	253	96	332	136	291
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	33	0		0	7
Queuing Penalty (veh)	20	1		0	7

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	85	78
Average Queue (ft)	37	5
95th Queue (ft)	67	35
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	48	146
Average Queue (ft)	22	14
95th Queue (ft)	48	69
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	57	59	43	326	483	225	100	261	267	100	274	443
Average Queue (ft)	15	22	15	117	141	87	20	177	199	90	198	170
95th Queue (ft)	41	52	40	285	394	246	77	278	305	130	288	340
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	1	1	0					2	5			
Queuing Penalty (veh)	0	0	0					10	30			
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					0	12	0	32	19	19	6	1
Queuing Penalty (veh)					1	23	1	9	80	82	21	3

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	308
Average Queue (ft)	103
95th Queue (ft)	210
Link Distance (ft)	962
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	44	33	34	97
Average Queue (ft)	15	14	2	9
95th Queue (ft)	41	37	20	51
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 319

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	3	4	6
Movement(s) Served	SBT	NEL	EBL	NBTL
Maximum Green (s)	32.0	22.0	19.5	32.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	45.3	18.9	11.3	45.3
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	13	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	53	5	100
Cycles with Peds (%)	0	3	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	3.0	22.0	23.0	14.0	30.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	6.1	59.9	13.3	21.8	67.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	58	20	20	60	21
Cycles @ Minimum (%)	27	0	5	0	0
Cycles Maxed Out (%)	9	80	9	16	79
Cycles with Peds (%)	0	0	0	40	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	18.5	28.5	7.0	18.0	5.7	41.3	6.9	18.1
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	18.8	30.3	16.1	17.8	6.0	48.4	6.8	24.1
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	7	0	3	42	49	0	64	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	63	100	90	42	31	100	10	74
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5013	5049	5115	4994	4959	5026
Vehs Exited	5008	5064	5124	4971	4937	5020
Starting Vehs	162	156	157	119	147	145
Ending Vehs	167	141	148	142	169	149
Travel Distance (mi)	2733	2714	2779	2712	2684	2725
Travel Time (hr)	158.7	157.2	161.3	160.6	155.6	158.7
Total Delay (hr)	59.3	59.1	60.5	62.2	57.9	59.8
Total Stops	5348	5095	5445	5366	5112	5273
Fuel Used (gal)	105.3	104.7	106.9	105.6	103.4	105.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	5013	5049	5115	4994	4959	5026
Vehs Exited	5008	5064	5124	4971	4937	5020
Starting Vehs	162	156	157	119	147	145
Ending Vehs	167	141	148	142	169	149
Travel Distance (mi)	2733	2714	2779	2712	2684	2725
Travel Time (hr)	158.7	157.2	161.3	160.6	155.6	158.7
Total Delay (hr)	59.3	59.1	60.5	62.2	57.9	59.8
Total Stops	5348	5095	5445	5366	5112	5273
Fuel Used (gal)	105.3	104.7	106.9	105.6	103.4	105.2

1: Bishop Street Ext. & Warren Ave Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.5	0.3	0.2	0.4
Total Del/Veh (s)	1.8	1.3	16.4	2.7

4: Stevens Ave & Forest Ave & Bishop Street Performance by approach

Approach	EB	NB	SB	NE	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.0	0.1
Total Del/Veh (s)	41.0	29.0	17.2	36.6	25.9

5: Stevens Ave & Walton St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.8	0.5	0.0	0.4
Total Del/Veh (s)	40.0	15.7	12.8	18.4

9: Stevens Ave & College St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	10.8	0.8	0.7	1.6

10: Stevens Ave & Finley Ctr Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.5	2.5	1.1	2.0

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.3	1.9	0.8	1.2	1.2
Total Del/Veh (s)	30.2	25.7	32.5	25.6	28.6

18: Stevens Ave & UNE Drive/Poland St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0
Total Del/Veh (s)	9.6	9.5	0.8	2.5	1.9

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	40.6

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	23	82	85
Average Queue (ft)	1	13	38
95th Queue (ft)	10	54	71
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	<LT	T	T	R>	<L	LR
Maximum Queue (ft)	193	272	312	277	271	222	276
Average Queue (ft)	71	143	170	198	153	107	147
95th Queue (ft)	142	247	283	311	258	176	228
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				5	1		
Queuing Penalty (veh)				27	5		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	298	90	378	148	348
Average Queue (ft)	135	39	190	63	133
95th Queue (ft)	253	96	332	136	291
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	33	0		0	7
Queuing Penalty (veh)	20	1		0	7

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	85	78
Average Queue (ft)	37	5
95th Queue (ft)	67	35
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	48	146
Average Queue (ft)	22	14
95th Queue (ft)	48	69
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	57	59	43	326	483	225	100	261	267	100	274	443
Average Queue (ft)	15	22	15	117	141	87	20	177	199	90	198	170
95th Queue (ft)	41	52	40	285	394	246	77	278	305	130	288	340
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	1	1	0					2	5			
Queuing Penalty (veh)	0	0	0					10	30			
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					0	12	0	32	19	19	6	1
Queuing Penalty (veh)					1	23	1	9	80	82	21	3

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	308
Average Queue (ft)	103
95th Queue (ft)	210
Link Distance (ft)	962
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	44	33	34	97
Average Queue (ft)	15	14	2	9
95th Queue (ft)	41	37	20	51
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 319

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	3	4	6
Movement(s) Served	SBT	NEL	EBL	NBTL
Maximum Green (s)	32.0	22.0	19.5	32.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	45.3	18.9	11.3	45.3
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	13	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	53	5	100
Cycles with Peds (%)	0	3	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	3.0	22.0	23.0	14.0	30.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	6.1	59.9	13.3	21.8	67.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	58	20	20	60	21
Cycles @ Minimum (%)	27	0	5	0	0
Cycles Maxed Out (%)	9	80	9	16	79
Cycles with Peds (%)	0	0	0	40	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	18.5	28.5	7.0	18.0	5.7	41.3	6.9	18.1
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	18.8	30.3	16.1	17.8	6.0	48.4	6.8	24.1
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	7	0	3	42	49	0	64	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	63	100	90	42	31	100	10	74
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4333	4430	4374	4248	4229	4323
Vehs Exited	4225	4333	4277	4169	4151	4233
Starting Vehs	146	146	148	137	140	143
Ending Vehs	254	243	245	216	218	229
Travel Distance (mi)	2264	2308	2289	2232	2213	2261
Travel Time (hr)	432.7	418.4	385.3	336.6	387.4	392.1
Total Delay (hr)	350.6	334.6	302.2	255.4	306.8	309.9
Total Stops	5440	5505	5519	5217	5244	5383
Fuel Used (gal)	156.6	155.1	146.2	133.7	145.1	147.3

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4333	4430	4374	4248	4229	4323
Vehs Exited	4225	4333	4277	4169	4151	4233
Starting Vehs	146	146	148	137	140	143
Ending Vehs	254	243	245	216	218	229
Travel Distance (mi)	2264	2308	2289	2232	2213	2261
Travel Time (hr)	432.7	418.4	385.3	336.6	387.4	392.1
Total Delay (hr)	350.6	334.6	302.2	255.4	306.8	309.9
Total Stops	5440	5505	5519	5217	5244	5383
Fuel Used (gal)	156.6	155.1	146.2	133.7	145.1	147.3

1: Bishop Street Ext. & Warren Ave Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.5
Total Del/Veh (s)	2.8	3.6	15.7	3.6

4: Stevens Ave & Forest Ave & Bishop Street Performance by lane

Lane	EB	NB	NB	SB	SB	NE	NE	All
Movements Served	LR>	LT	T	T	R>	<L	LR	
Denied Del/Veh (s)								7.2
Total Del/Veh (s)	66.7	50.4	66.9	49.6	55.2	44.8	71.6	55.8

5: Stevens Ave & Walton St Performance by lane

Lane	WB	WB	NB	SB	SB	All
Movements Served	L	R	TR	L	T	
Denied Del/Veh (s)						0.4
Total Del/Veh (s)	40.3	5.4	10.3	12.9	10.4	13.9

9: Stevens Ave & College St Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	13.5	1.6	1.2	1.5

10: Stevens Ave & Finley Ctr Dr Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	4.4	2.9	1.3	2.1

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	L	LT	R	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	27.2	48.2	76.6	333.4	266.4	8.2	56.3	31.5	43.4	9.9	53.7	327.2

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	SB	All
Movements Served	TR	
Denied Del/Veh (s)		222.0
Total Del/Veh (s)	205.9	143.3

18: Stevens Ave & UNE Drive/Poland St Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	15.0	9.9	1.0	2.8	2.4

Total Network Performance

Denied Del/Veh (s)			130.8		
Total Del/Veh (s)			110.9		

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	19	274	72
Average Queue (ft)	1	43	25
95th Queue (ft)	10	147	52
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	LT	T	T	R>	<L	LR
Maximum Queue (ft)	224	362	434	284	273	189	245
Average Queue (ft)	132	212	255	268	254	86	136
95th Queue (ft)	213	333	387	280	300	160	216
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				57	41		
Queuing Penalty (veh)				369	264		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	214	90	311	87	343
Average Queue (ft)	95	49	127	20	109
95th Queue (ft)	169	102	252	71	254
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	23	0		0	5
Queuing Penalty (veh)	18	0		0	2

Intersection: 9: Stevens Ave & College St

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	33	122	4
Average Queue (ft)	6	23	0
95th Queue (ft)	26	88	3
Link Distance (ft)	662	411	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	170
Average Queue (ft)	6	29
95th Queue (ft)	26	97
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	38	46	73	816	815	225	66	249	260	100	275	1009
Average Queue (ft)	6	13	33	543	528	113	4	121	137	65	238	941
95th Queue (ft)	24	39	69	928	991	286	31	255	288	141	358	1162
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	0	4	12	28			1	2			75
Queuing Penalty (veh)	0	0	0	0	0			3	8			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					21	3		18	13	6	6	73
Queuing Penalty (veh)					57	7		2	43	15	26	193

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	1011
Average Queue (ft)	923
95th Queue (ft)	1208
Link Distance (ft)	962
Upstream Blk Time (%)	46
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	51	58	38
Average Queue (ft)	2	21	7	4
95th Queue (ft)	15	46	37	26
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1007

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	4	5	6
Movement(s) Served	SBT	EBL	NEL	NBTL
Maximum Green (s)	46.0	25.5	19.5	38.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	52.6	18.8	17.7	39.8
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	25	54	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	18.0	34.0	14.0	29.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	5.8	60.0	11.7	21.9	62.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	82	3	8	53	3
Cycles @ Minimum (%)	16	0	5	0	0
Cycles Maxed Out (%)	0	97	0	0	97
Cycles with Peds (%)	0	0	0	47	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	20.5	25.5	13.7	22.3	18.0	28.0	18.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	20.2	35.0	18.4	18.9	7.2	52.1	12.2	34.7
g/C Ratio	-0.01	NA	NA	-0.01	-0.01	NA	-0.01	-0.01
Cycles Skipped (%)	14	0	0	23	71	0	82	3
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	37	100	100	49	0	100	3	60
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4333	4430	4374	4248	4229	4323
Vehs Exited	4225	4333	4277	4169	4151	4233
Starting Vehs	146	146	148	137	140	143
Ending Vehs	254	243	245	216	218	229
Travel Distance (mi)	2264	2308	2289	2232	2213	2261
Travel Time (hr)	432.7	418.4	385.3	336.6	387.4	392.1
Total Delay (hr)	350.6	334.6	302.2	255.4	306.8	309.9
Total Stops	5440	5505	5519	5217	5244	5383
Fuel Used (gal)	156.6	155.1	146.2	133.7	145.1	147.3

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4333	4430	4374	4248	4229	4323
Vehs Exited	4225	4333	4277	4169	4151	4233
Starting Vehs	146	146	148	137	140	143
Ending Vehs	254	243	245	216	218	229
Travel Distance (mi)	2264	2308	2289	2232	2213	2261
Travel Time (hr)	432.7	418.4	385.3	336.6	387.4	392.1
Total Delay (hr)	350.6	334.6	302.2	255.4	306.8	309.9
Total Stops	5440	5505	5519	5217	5244	5383
Fuel Used (gal)	156.6	155.1	146.2	133.7	145.1	147.3

1: Bishop Street Ext. & Warren Ave Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.6	0.4	0.1	0.5
Total Del/Veh (s)	2.8	3.6	16.1	3.6

4: Stevens Ave & Forest Ave & Bishop Street Performance by approach

Approach	EB	NB	SB	NE	All
Denied Del/Veh (s)	0.2	0.0	14.5	0.0	7.2
Total Del/Veh (s)	67.2	58.8	52.0	57.8	55.8

5: Stevens Ave & Walton St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.1	0.4	0.0	0.4
Total Del/Veh (s)	27.7	10.3	10.6	13.9

9: Stevens Ave & College St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	15.7	1.6	1.2	1.5

10: Stevens Ave & Finley Ctr Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.4	2.9	1.3	2.1

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.1	43.3	0.0	486.7	222.0
Total Del/Veh (s)	60.5	190.8	27.0	229.9	143.3

18: Stevens Ave & UNE Drive/Poland St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	10.0	10.2	1.0	2.8	2.4

Total Network Performance

Denied Del/Veh (s)	130.8
Total Del/Veh (s)	110.9

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	19	274	72
Average Queue (ft)	1	43	25
95th Queue (ft)	10	147	52
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	LT	T	T	R>	<L	LR
Maximum Queue (ft)	224	362	434	284	273	189	245
Average Queue (ft)	132	212	255	268	254	86	136
95th Queue (ft)	213	333	387	280	300	160	216
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				57	41		
Queuing Penalty (veh)				369	264		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	214	90	311	87	343
Average Queue (ft)	95	49	127	20	109
95th Queue (ft)	169	102	252	71	254
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	23	0		0	5
Queuing Penalty (veh)	18	0		0	2

Intersection: 9: Stevens Ave & College St

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	33	122	4
Average Queue (ft)	6	23	0
95th Queue (ft)	26	88	3
Link Distance (ft)	662	411	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	170
Average Queue (ft)	6	29
95th Queue (ft)	26	97
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	38	46	73	816	815	225	66	249	260	100	275	1009
Average Queue (ft)	6	13	33	543	528	113	4	121	137	65	238	941
95th Queue (ft)	24	39	69	928	991	286	31	255	288	141	358	1162
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	0	4	12	28			1	2			75
Queuing Penalty (veh)	0	0	0	0	0			3	8			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					21	3		18	13	6	6	73
Queuing Penalty (veh)					57	7		2	43	15	26	193

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	1011
Average Queue (ft)	923
95th Queue (ft)	1208
Link Distance (ft)	962
Upstream Blk Time (%)	46
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	51	58	38
Average Queue (ft)	2	21	7	4
95th Queue (ft)	15	46	37	26
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1007

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	4	5	6
Movement(s) Served	SBT	EBL	NEL	NBTL
Maximum Green (s)	46.0	25.5	19.5	38.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	52.6	18.8	17.7	39.8
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	25	54	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	18.0	34.0	14.0	29.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	5.8	60.0	11.7	21.9	62.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	82	3	8	53	3
Cycles @ Minimum (%)	16	0	5	0	0
Cycles Maxed Out (%)	0	97	0	0	97
Cycles with Peds (%)	0	0	0	47	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	20.5	25.5	13.7	22.3	18.0	28.0	18.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	20.2	35.0	18.4	18.9	7.2	52.1	12.2	34.7
g/C Ratio	-0.01	NA	NA	-0.01	-0.01	NA	-0.01	-0.01
Cycles Skipped (%)	14	0	0	23	71	0	82	3
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	37	100	100	49	0	100	3	60
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5162	5136	5318	5312	5218	5229
Vehs Exited	5107	5088	5247	5264	5200	5182
Starting Vehs	144	136	118	148	156	136
Ending Vehs	199	184	189	196	174	183
Travel Distance (mi)	2786	2808	2895	2895	2827	2842
Travel Time (hr)	175.7	161.8	176.1	175.8	170.0	171.9
Total Delay (hr)	74.4	59.9	70.3	70.4	67.2	68.4
Total Stops	5904	5552	6087	5988	5670	5839
Fuel Used (gal)	110.1	107.9	113.5	113.7	110.6	111.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	5162	5136	5318	5312	5218	5229
Vehs Exited	5107	5088	5247	5264	5200	5182
Starting Vehs	144	136	118	148	156	136
Ending Vehs	199	184	189	196	174	183
Travel Distance (mi)	2786	2808	2895	2895	2827	2842
Travel Time (hr)	175.7	161.8	176.1	175.8	170.0	171.9
Total Delay (hr)	74.4	59.9	70.3	70.4	67.2	68.4
Total Stops	5904	5552	6087	5988	5670	5839
Fuel Used (gal)	110.1	107.9	113.5	113.7	110.6	111.2

1: Bishop Street Ext. & Warren Ave Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.4
Total Del/Veh (s)	1.8	1.2	16.1	2.5

4: Stevens Ave & Forest Ave & Bishop Street Performance by lane

Lane	EB	NB	NB	SB	SB	NE	NE	All
Movements Served	LR>	<LT	T	T	R>	<L	LR	
Denied Del/Veh (s)								0.1
Total Del/Veh (s)	40.0	48.4	35.0	18.5	18.9	29.7	46.2	30.2

5: Stevens Ave & Walton St Performance by lane

Lane	WB	WB	NB	SB	SB	All
Movements Served	L	R	TR	L	T	
Denied Del/Veh (s)						0.4
Total Del/Veh (s)	47.1	7.5	21.7	19.3	11.9	20.4

9: Stevens Ave & College St Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	11.4	0.9	0.8	1.6

10: Stevens Ave & Finley Ctr Dr Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	9.6	2.7	1.1	2.1

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	L	LT	R	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	31.8	47.6	9.8	31.0	41.9	9.0	39.2	34.2	49.8	28.6	48.9	24.6

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	SB	All
Movements Served	TR	
Denied Del/Veh (s)		1.3
Total Del/Veh (s)	13.0	30.9

18: Stevens Ave & UNE Drive/Poland St Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	8.6	10.9	0.8	2.5	2.0

Total Network Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	44.8

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	9	87	105
Average Queue (ft)	0	12	35
95th Queue (ft)	4	49	69
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	<LT	T	T	R>	<L	LR
Maximum Queue (ft)	163	378	423	277	266	217	270
Average Queue (ft)	73	183	214	203	177	110	156
95th Queue (ft)	137	345	385	308	270	192	238
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				6	2		
Queuing Penalty (veh)				31	9		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	268	90	527	149	384
Average Queue (ft)	131	46	238	58	143
95th Queue (ft)	231	99	452	121	304
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	32	1		0	8
Queuing Penalty (veh)	20	1		1	7

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	84	132
Average Queue (ft)	36	7
95th Queue (ft)	67	52
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	57	137	10
Average Queue (ft)	26	18	0
95th Queue (ft)	50	80	7
Link Distance (ft)	529	539	411
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	56	69	33	214	352	221	99	278	271	100	275	607
Average Queue (ft)	10	21	13	103	129	80	15	202	221	95	217	220
95th Queue (ft)	34	53	37	177	292	237	66	297	306	121	306	473
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	1	0					4	9			
Queuing Penalty (veh)	0	0	0					23	55			
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					0	7	0	37	24	25	13	1
Queuing Penalty (veh)					1	14	0	11	102	113	49	2

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	500
Average Queue (ft)	139
95th Queue (ft)	352
Link Distance (ft)	962
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	48	54	36	86
Average Queue (ft)	18	16	2	8
95th Queue (ft)	45	43	18	46
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 440

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	3	4	6
Movement(s) Served	SBT	NEL	EBL	NBTL
Maximum Green (s)	32.0	20.0	21.5	32.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	44.8	18.4	12.1	44.8
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	8	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	68	5	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	20.0	22.0	14.0	31.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	6.8	53.7	13.2	21.5	60.2
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	52	14	16	60	16
Cycles @ Minimum (%)	22	0	7	0	0
Cycles Maxed Out (%)	4	86	9	14	84
Cycles with Peds (%)	0	0	0	40	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	19.5	27.5	7.0	18.0	5.7	41.3	6.9	18.1
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	20.0	30.2	16.8	17.8	6.2	49.4	6.6	24.7
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	7	0	3	51	51	0	77	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	60	100	92	33	28	100	5	67
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5162	5136	5318	5312	5218	5229
Vehs Exited	5107	5088	5247	5264	5200	5182
Starting Vehs	144	136	118	148	156	136
Ending Vehs	199	184	189	196	174	183
Travel Distance (mi)	2786	2808	2895	2895	2827	2842
Travel Time (hr)	175.7	161.8	176.1	175.8	170.0	171.9
Total Delay (hr)	74.4	59.9	70.3	70.4	67.2	68.4
Total Stops	5904	5552	6087	5988	5670	5839
Fuel Used (gal)	110.1	107.9	113.5	113.7	110.6	111.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	5162	5136	5318	5312	5218	5229
Vehs Exited	5107	5088	5247	5264	5200	5182
Starting Vehs	144	136	118	148	156	136
Ending Vehs	199	184	189	196	174	183
Travel Distance (mi)	2786	2808	2895	2895	2827	2842
Travel Time (hr)	175.7	161.8	176.1	175.8	170.0	171.9
Total Delay (hr)	74.4	59.9	70.3	70.4	67.2	68.4
Total Stops	5904	5552	6087	5988	5670	5839
Fuel Used (gal)	110.1	107.9	113.5	113.7	110.6	111.2

1: Bishop Street Ext. & Warren Ave Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.5	0.4	0.1	0.4
Total Del/Veh (s)	1.8	1.2	16.1	2.5

4: Stevens Ave & Forest Ave & Bishop Street Performance by approach

Approach	EB	NB	SB	NE	All
Denied Del/Veh (s)	0.2	0.0	0.2	0.0	0.1
Total Del/Veh (s)	40.0	40.3	18.7	37.8	30.2

5: Stevens Ave & Walton St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.9	0.5	0.0	0.4
Total Del/Veh (s)	35.9	21.6	13.1	20.4

9: Stevens Ave & College St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	11.2	0.9	0.8	1.6

10: Stevens Ave & Finley Ctr Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.4	2.7	1.1	2.1

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	1.8	1.0	1.3	1.3
Total Del/Veh (s)	31.7	23.0	37.1	28.8	30.9

18: Stevens Ave & UNE Drive/Poland St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	0.0
Total Del/Veh (s)	8.6	11.4	0.8	2.5	2.0

Total Network Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	44.8

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	9	87	105
Average Queue (ft)	0	12	35
95th Queue (ft)	4	49	69
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	<LT	T	T	R>	<L	LR
Maximum Queue (ft)	163	378	423	277	266	217	270
Average Queue (ft)	73	183	214	203	177	110	156
95th Queue (ft)	137	345	385	308	270	192	238
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				6	2		
Queuing Penalty (veh)				31	9		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	268	90	527	149	384
Average Queue (ft)	131	46	238	58	143
95th Queue (ft)	231	99	452	121	304
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	32	1		0	8
Queuing Penalty (veh)	20	1		1	7

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	84	132
Average Queue (ft)	36	7
95th Queue (ft)	67	52
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	57	137	10
Average Queue (ft)	26	18	0
95th Queue (ft)	50	80	7
Link Distance (ft)	529	539	411
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	56	69	33	214	352	221	99	278	271	100	275	607
Average Queue (ft)	10	21	13	103	129	80	15	202	221	95	217	220
95th Queue (ft)	34	53	37	177	292	237	66	297	306	121	306	473
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	1	0					4	9			
Queuing Penalty (veh)	0	0	0					23	55			
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					0	7	0	37	24	25	13	1
Queuing Penalty (veh)					1	14	0	11	102	113	49	2

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	500
Average Queue (ft)	139
95th Queue (ft)	352
Link Distance (ft)	962
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	48	54	36	86
Average Queue (ft)	18	16	2	8
95th Queue (ft)	45	43	18	46
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 440

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	3	4	6
Movement(s) Served	SBT	NEL	EBL	NBTL
Maximum Green (s)	32.0	20.0	21.5	32.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	44.8	18.4	12.1	44.8
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	8	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	68	5	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	20.0	22.0	14.0	31.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	6.8	53.7	13.2	21.5	60.2
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	52	14	16	60	16
Cycles @ Minimum (%)	22	0	7	0	0
Cycles Maxed Out (%)	4	86	9	14	84
Cycles with Peds (%)	0	0	0	40	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	19.5	27.5	7.0	18.0	5.7	41.3	6.9	18.1
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	20.0	30.2	16.8	17.8	6.2	49.4	6.6	24.7
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	7	0	3	51	51	0	77	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	60	100	92	33	28	100	5	67
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4441	4423	4443	4404	4432	4432
Vehs Exited	4355	4306	4369	4310	4305	4329
Starting Vehs	131	130	160	123	132	131
Ending Vehs	217	247	234	217	259	233
Travel Distance (mi)	2326	2331	2319	2291	2283	2310
Travel Time (hr)	420.9	396.6	400.9	405.7	428.2	410.5
Total Delay (hr)	335.9	311.4	316.4	322.2	345.2	326.2
Total Stops	5551	5635	5784	5247	5324	5511
Fuel Used (gal)	155.3	150.2	150.9	150.9	156.5	152.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4441	4423	4443	4404	4432	4432
Vehs Exited	4355	4306	4369	4310	4305	4329
Starting Vehs	131	130	160	123	132	131
Ending Vehs	217	247	234	217	259	233
Travel Distance (mi)	2326	2331	2319	2291	2283	2310
Travel Time (hr)	420.9	396.6	400.9	405.7	428.2	410.5
Total Delay (hr)	335.9	311.4	316.4	322.2	345.2	326.2
Total Stops	5551	5635	5784	5247	5324	5511
Fuel Used (gal)	155.3	150.2	150.9	150.9	156.5	152.7

1: Bishop Street Ext. & Warren Ave Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.5
Total Del/Veh (s)	2.9	3.0	18.0	3.5

4: Stevens Ave & Forest Ave & Bishop Street Performance by lane

Lane	EB	NB	NB	SB	SB	NE	NE	All
Movements Served	LR>	LT	T	T	R>	<L	LR	
Denied Del/Veh (s)								10.9
Total Del/Veh (s)	71.6	50.2	63.0	50.9	58.7	47.8	79.4	57.7

5: Stevens Ave & Walton St Performance by lane

Lane	WB	WB	NB	SB	SB	All
Movements Served	L	R	TR	L	T	
Denied Del/Veh (s)						0.4
Total Del/Veh (s)	41.1	6.7	10.6	13.2	9.6	13.9

9: Stevens Ave & College St Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	5.9	1.4	1.2	1.4

10: Stevens Ave & Finley Ctr Dr Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	4.7	2.9	1.2	2.2

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	L	LT	R	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	33.5	46.6	85.2	334.0	247.3	7.4	51.9	34.5	45.5	9.7	57.9	336.6

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	SB	All
Movements Served	TR	
Denied Del/Veh (s)		232.1
Total Del/Veh (s)	219.9	146.2

18: Stevens Ave & UNE Drive/Poland St Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	10.1	11.1	1.8	3.2	3.0

Total Network Performance

Denied Del/Veh (s)	136.1
Total Del/Veh (s)	111.9

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	32	155	68
Average Queue (ft)	2	38	26
95th Queue (ft)	14	107	56
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	LT	T	T	R>	<L	LR
Maximum Queue (ft)	278	320	373	281	273	218	261
Average Queue (ft)	149	205	244	267	260	99	153
95th Queue (ft)	241	295	344	280	293	188	240
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				58	48		
Queuing Penalty (veh)				382	314		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	198	90	335	83	305
Average Queue (ft)	95	53	140	18	103
95th Queue (ft)	163	104	276	55	236
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	25	1			5
Queuing Penalty (veh)	20	2			2

Intersection: 9: Stevens Ave & College St

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	29	111	9
Average Queue (ft)	4	20	0
95th Queue (ft)	21	77	5
Link Distance (ft)	662	411	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	131
Average Queue (ft)	7	26
95th Queue (ft)	28	86
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	33	51	75	812	810	225	80	257	267	100	275	1011
Average Queue (ft)	5	10	32	561	535	119	8	133	144	64	242	930
95th Queue (ft)	22	35	75	897	955	292	49	271	300	140	351	1204
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	0	8	14	26			1	2			74
Queuing Penalty (veh)	0	0	0	0	0			6	10			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					24	3		20	15	7	7	72
Queuing Penalty (veh)					65	6		2	48	17	32	190

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	999
Average Queue (ft)	920
95th Queue (ft)	1211
Link Distance (ft)	962
Upstream Blk Time (%)	45
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	35	59	120	91
Average Queue (ft)	9	23	22	8
95th Queue (ft)	32	49	83	44
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1097

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	4	5	6
Movement(s) Served	SBT	EBL	NEL	NBTL
Maximum Green (s)	48.0	23.5	18.5	39.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	51.4	20.1	17.5	40.0
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	46	71	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	18.0	34.0	14.0	29.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	5.5	62.3	11.4	21.3	63.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	87	3	5	58	3
Cycles @ Minimum (%)	8	0	8	0	0
Cycles Maxed Out (%)	0	97	0	0	97
Cycles with Peds (%)	0	0	0	42	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	20.5	25.5	13.7	22.3	18.0	28.0	18.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	19.9	34.1	19.9	21.0	6.6	51.1	8.2	36.4
g/C Ratio	-0.01	NA	NA	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	17	0	0	31	74	0	86	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	49	100	100	51	0	100	0	74
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4441	4423	4443	4404	4432	4432
Vehs Exited	4355	4306	4369	4310	4305	4329
Starting Vehs	131	130	160	123	132	131
Ending Vehs	217	247	234	217	259	233
Travel Distance (mi)	2326	2331	2319	2291	2283	2310
Travel Time (hr)	420.9	396.6	400.9	405.7	428.2	410.5
Total Delay (hr)	335.9	311.4	316.4	322.2	345.2	326.2
Total Stops	5551	5635	5784	5247	5324	5511
Fuel Used (gal)	155.3	150.2	150.9	150.9	156.5	152.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	4441	4423	4443	4404	4432	4432
Vehs Exited	4355	4306	4369	4310	4305	4329
Starting Vehs	131	130	160	123	132	131
Ending Vehs	217	247	234	217	259	233
Travel Distance (mi)	2326	2331	2319	2291	2283	2310
Travel Time (hr)	420.9	396.6	400.9	405.7	428.2	410.5
Total Delay (hr)	335.9	311.4	316.4	322.2	345.2	326.2
Total Stops	5551	5635	5784	5247	5324	5511
Fuel Used (gal)	155.3	150.2	150.9	150.9	156.5	152.7

1: Bishop Street Ext. & Warren Ave Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.6	0.4	0.1	0.5
Total Del/Veh (s)	2.9	3.0	18.4	3.5

4: Stevens Ave & Forest Ave & Bishop Street Performance by approach

Approach	EB	NB	SB	NE	All
Denied Del/Veh (s)	0.2	0.0	21.9	0.0	10.9
Total Del/Veh (s)	71.2	56.8	54.3	63.2	57.7

5: Stevens Ave & Walton St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.0	0.4	0.0	0.4
Total Del/Veh (s)	28.7	10.6	9.8	13.9

9: Stevens Ave & College St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	5.9	1.4	1.2	1.4

10: Stevens Ave & Finley Ctr Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	4.7	2.9	1.2	2.2

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.4	42.1	0.1	511.9	232.1
Total Del/Veh (s)	66.6	189.6	28.3	236.9	146.2

18: Stevens Ave & UNE Drive/Poland St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.3	11.1	1.8	3.2	3.0

Total Network Performance

Denied Del/Veh (s)	136.1
Total Del/Veh (s)	111.9

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	32	155	68
Average Queue (ft)	2	38	26
95th Queue (ft)	14	107	56
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	LT	T	T	R>	<L	LR
Maximum Queue (ft)	278	320	373	281	273	218	261
Average Queue (ft)	149	205	244	267	260	99	153
95th Queue (ft)	241	295	344	280	293	188	240
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				58	48		
Queuing Penalty (veh)				382	314		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	198	90	335	83	305
Average Queue (ft)	95	53	140	18	103
95th Queue (ft)	163	104	276	55	236
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	25	1			5
Queuing Penalty (veh)	20	2			2

Intersection: 9: Stevens Ave & College St

Movement	EB	NB	SB
Directions Served	LR	LT	TR
Maximum Queue (ft)	29	111	9
Average Queue (ft)	4	20	0
95th Queue (ft)	21	77	5
Link Distance (ft)	662	411	225
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	30	131
Average Queue (ft)	7	26
95th Queue (ft)	28	86
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	33	51	75	812	810	225	80	257	267	100	275	1011
Average Queue (ft)	5	10	32	561	535	119	8	133	144	64	242	930
95th Queue (ft)	22	35	75	897	955	292	49	271	300	140	351	1204
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	0	8	14	26			1	2			74
Queuing Penalty (veh)	0	0	0	0	0			6	10			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					24	3		20	15	7	7	72
Queuing Penalty (veh)					65	6		2	48	17	32	190

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	999
Average Queue (ft)	920
95th Queue (ft)	1211
Link Distance (ft)	962
Upstream Blk Time (%)	45
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	35	59	120	91
Average Queue (ft)	9	23	22	8
95th Queue (ft)	32	49	83	44
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1097

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	4	5	6
Movement(s) Served	SBT	EBL	NEL	NBTL
Maximum Green (s)	48.0	23.5	18.5	39.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	51.4	20.1	17.5	40.0
g/C Ratio	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	46	71	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	18.0	34.0	14.0	29.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	5.5	62.3	11.4	21.3	63.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	87	3	5	58	3
Cycles @ Minimum (%)	8	0	8	0	0
Cycles Maxed Out (%)	0	97	0	0	97
Cycles with Peds (%)	0	0	0	42	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	20.5	25.5	13.7	22.3	18.0	28.0	18.0	18.0
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	19.9	34.1	19.9	21.0	6.6	51.1	8.2	36.4
g/C Ratio	-0.01	NA	NA	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	17	0	0	31	74	0	86	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	49	100	100	51	0	100	0	74
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5108	5253	5393	5257	5160	5232
Vehs Exited	5077	5188	5370	5221	5158	5203
Starting Vehs	158	131	162	152	149	146
Ending Vehs	189	196	185	188	151	179
Travel Distance (mi)	2770	2828	2935	2828	2802	2833
Travel Time (hr)	163.5	166.7	191.0	215.7	176.7	182.7
Total Delay (hr)	62.6	63.8	84.1	112.6	74.7	79.6
Total Stops	5390	5603	6408	6723	5894	6002
Fuel Used (gal)	107.3	109.4	118.2	122.9	111.9	113.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00					
End Time	8:00					
Total Time (min)	60					
Volumes adjusted by Growth Factors.						
Run Number	1	2	3	4	5	Avg
Vehs Entered	5108	5253	5393	5257	5160	5232
Vehs Exited	5077	5188	5370	5221	5158	5203
Starting Vehs	158	131	162	152	149	146
Ending Vehs	189	196	185	188	151	179
Travel Distance (mi)	2770	2828	2935	2828	2802	2833
Travel Time (hr)	163.5	166.7	191.0	215.7	176.7	182.7
Total Delay (hr)	62.6	63.8	84.1	112.6	74.7	79.6
Total Stops	5390	5603	6408	6723	5894	6002
Fuel Used (gal)	107.3	109.4	118.2	122.9	111.9	113.9

1: Bishop Street Ext. & Warren Ave Performance by lane

Lane	EB	WB	NB	All
Movements Served	TR	LT	LR	
Denied Del/Veh (s)				0.4
Total Del/Veh (s)	1.8	1.7	17.1	2.8

4: Stevens Ave & Forest Ave & Bishop Street Performance by lane

Lane	EB	NB	NB	SB	SB	NE	NE	All
Movements Served	LR>	<LT	T	T	R>	<L	LR	
Denied Del/Veh (s)								0.1
Total Del/Veh (s)	40.7	52.9	37.1	19.3	18.5	30.4	46.1	31.4

5: Stevens Ave & Walton St Performance by lane

Lane	WB	WB	NB	SB	SB	All
Movements Served	L	R	TR	L	T	
Denied Del/Veh (s)						0.4
Total Del/Veh (s)	51.9	7.1	20.5	20.8	12.2	20.6

9: Stevens Ave & College St Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	11.5	0.8	0.8	1.6

10: Stevens Ave & Finley Ctr Dr Performance by lane

Lane	EB	NB	SB	All
Movements Served	LR	LT	TR	
Denied Del/Veh (s)				0.0
Total Del/Veh (s)	10.7	2.6	1.1	2.1

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	L	LT	R	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	29.5	43.8	9.4	32.0	48.7	11.1	43.2	29.7	45.1	25.3	73.6	61.6

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by lane

Lane	SB	All
Movements Served	TR	
Denied Del/Veh (s)		4.7
Total Del/Veh (s)	27.3	38.3

18: Stevens Ave & UNE Drive/Poland St Performance by lane

Lane	EB	WB	NB	SB	All
Movements Served	LTR	LTR	LTR	LTR	
Denied Del/Veh (s)					0.0
Total Del/Veh (s)	10.4	10.7	1.0	2.6	2.4

Total Network Performance

Denied Del/Veh (s)			3.3		
Total Del/Veh (s)			50.0		

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	4	154	81
Average Queue (ft)	0	19	36
95th Queue (ft)	3	81	69
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	<LT	T	T	R>	<L	LR
Maximum Queue (ft)	187	422	472	274	271	246	292
Average Queue (ft)	76	185	220	196	161	119	162
95th Queue (ft)	145	400	456	301	271	203	252
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				6	2		
Queuing Penalty (veh)				33	10		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	305	90	532	149	324
Average Queue (ft)	133	46	234	68	147
95th Queue (ft)	244	104	459	142	285
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	36	1		0	10
Queuing Penalty (veh)	23	1		1	10

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	76	79
Average Queue (ft)	38	5
95th Queue (ft)	66	36
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	55	146
Average Queue (ft)	25	18
95th Queue (ft)	51	80
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	52	63	47	376	482	225	100	262	267	100	275	744
Average Queue (ft)	13	24	14	116	138	106	17	184	203	94	240	411
95th Queue (ft)	38	55	41	255	359	262	70	283	305	126	322	919
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	1	0					2	5			11
Queuing Penalty (veh)	0	0	0					14	35			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					0	11	0	33	22	22	34	1
Queuing Penalty (veh)					1	21	0	10	92	100	125	5

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	706
Average Queue (ft)	328
95th Queue (ft)	863
Link Distance (ft)	962
Upstream Blk Time (%)	5
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	46	91	123
Average Queue (ft)	29	16	7	8
95th Queue (ft)	55	41	47	55
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 481

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	3	4	6
Movement(s) Served	SBT	NEL	EBL	NBTL
Maximum Green (s)	33.0	21.0	19.5	33.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	44.5	19.1	12.4	44.5
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	13	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	63	8	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	20.0	22.0	14.0	31.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	6.5	58.9	13.7	21.5	65.8
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	54	19	19	60	19
Cycles @ Minimum (%)	20	0	5	0	0
Cycles Maxed Out (%)	7	81	9	19	81
Cycles with Peds (%)	0	0	0	40	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	15.5	30.5	9.5	16.5	7.5	38.5	7.5	18.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	17.1	31.6	17.8	16.5	7.0	48.3	6.5	25.2
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	5	0	3	46	58	0	68	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	83	100	85	41	13	100	8	74
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	5108	5253	5393	5257	5160	5232
Vehs Exited	5077	5188	5370	5221	5158	5203
Starting Vehs	158	131	162	152	149	146
Ending Vehs	189	196	185	188	151	179
Travel Distance (mi)	2770	2828	2935	2828	2802	2833
Travel Time (hr)	163.5	166.7	191.0	215.7	176.7	182.7
Total Delay (hr)	62.6	63.8	84.1	112.6	74.7	79.6
Total Stops	5390	5603	6408	6723	5894	6002
Fuel Used (gal)	107.3	109.4	118.2	122.9	111.9	113.9

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	5108	5253	5393	5257	5160	5232
Vehs Exited	5077	5188	5370	5221	5158	5203
Starting Vehs	158	131	162	152	149	146
Ending Vehs	189	196	185	188	151	179
Travel Distance (mi)	2770	2828	2935	2828	2802	2833
Travel Time (hr)	163.5	166.7	191.0	215.7	176.7	182.7
Total Delay (hr)	62.6	63.8	84.1	112.6	74.7	79.6
Total Stops	5390	5603	6408	6723	5894	6002
Fuel Used (gal)	107.3	109.4	118.2	122.9	111.9	113.9

1: Bishop Street Ext. & Warren Ave Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.5	0.4	0.1	0.4
Total Del/Veh (s)	1.8	1.7	17.3	2.8

4: Stevens Ave & Forest Ave & Bishop Street Performance by approach

Approach	EB	NB	SB	NE	All
Denied Del/Veh (s)	0.1	0.0	0.2	0.0	0.1
Total Del/Veh (s)	40.7	43.0	19.0	38.1	31.4

5: Stevens Ave & Walton St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.9	0.6	0.0	0.4
Total Del/Veh (s)	39.2	20.5	13.7	20.6

9: Stevens Ave & College St Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	11.5	0.8	0.8	1.6

10: Stevens Ave & Finley Ctr Dr Performance by approach

Approach	EB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	10.7	2.6	1.1	2.1

15: Forest Ave & McDonald's Driveway/Allen Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	1.9	0.6	12.0	4.7
Total Del/Veh (s)	29.9	24.8	33.0	54.5	38.3

18: Stevens Ave & UNE Drive/Poland St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.1	0.0
Total Del/Veh (s)	10.6	11.2	1.0	2.6	2.4

Total Network Performance

Denied Del/Veh (s)	3.3
Total Del/Veh (s)	50.0

Intersection: 1: Bishop Street Ext. & Warren Ave

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	4	154	81
Average Queue (ft)	0	19	36
95th Queue (ft)	3	81	69
Link Distance (ft)	842	1022	466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Movement	EB	NB	NB	SB	SB	NE	NE
Directions Served	LR>	<LT	T	T	R>	<L	LR
Maximum Queue (ft)	187	422	472	274	271	246	292
Average Queue (ft)	76	185	220	196	161	119	162
95th Queue (ft)	145	400	456	301	271	203	252
Link Distance (ft)	1774	830	830	248	248	1107	1107
Upstream Blk Time (%)				6	2		
Queuing Penalty (veh)				33	10		
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 5: Stevens Ave & Walton St

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	305	90	532	149	324
Average Queue (ft)	133	46	234	68	147
95th Queue (ft)	244	104	459	142	285
Link Distance (ft)	1307		736		539
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)		65		125	
Storage Blk Time (%)	36	1		0	10
Queuing Penalty (veh)	23	1		1	10

Intersection: 9: Stevens Ave & College St

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	76	79
Average Queue (ft)	38	5
95th Queue (ft)	66	36
Link Distance (ft)	662	411
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 10: Stevens Ave & Finley Ctr Dr

Movement	EB	NB
Directions Served	LR	LT
Maximum Queue (ft)	55	146
Average Queue (ft)	25	18
95th Queue (ft)	51	80
Link Distance (ft)	529	539
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	LT	R	L	T	T	R	L	T
Maximum Queue (ft)	52	63	47	376	482	225	100	262	267	100	275	744
Average Queue (ft)	13	24	14	116	138	106	17	184	203	94	240	411
95th Queue (ft)	38	55	41	255	359	262	70	283	305	126	322	919
Link Distance (ft)	60	60	60	789	789			248	248			962
Upstream Blk Time (%)	0	1	0					2	5			11
Queuing Penalty (veh)	0	0	0					14	35			0
Storage Bay Dist (ft)						200	75			75	250	
Storage Blk Time (%)					0	11	0	33	22	22	34	1
Queuing Penalty (veh)					1	21	0	10	92	100	125	5

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Movement	SB
Directions Served	TR
Maximum Queue (ft)	706
Average Queue (ft)	328
95th Queue (ft)	863
Link Distance (ft)	962
Upstream Blk Time (%)	5
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: Stevens Ave & UNE Drive/Poland St

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	58	46	91	123
Average Queue (ft)	29	16	7	8
95th Queue (ft)	55	41	47	55
Link Distance (ft)	302	390	225	1107
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 481

Intersection: 4: Stevens Ave & Forest Ave & Bishop Street

Phase	2	3	4	6
Movement(s) Served	SBT	NEL	EBL	NBTL
Maximum Green (s)	33.0	21.0	19.5	33.0
Minimum Green (s)	10.0	5.0	5.0	10.0
Recall	C-Max	None	None	Max
Avg. Green (s)	44.5	19.1	12.4	44.5
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	13	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	63	8	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Stevens Ave & Walton St

Phase	1	2	3	4	6
Movement(s) Served	SBL	NBT	WBL	Ped	SBTL
Maximum Green (s)	6.0	20.0	22.0	14.0	31.0
Minimum Green (s)	5.0	10.0	5.0	4.0	10.0
Recall	None	C-Max	None	None	C-Max
Avg. Green (s)	6.5	58.9	13.7	21.5	65.8
g/C Ratio	-0.01	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	54	19	19	60	19
Cycles @ Minimum (%)	20	0	5	0	0
Cycles Maxed Out (%)	7	81	9	19	81
Cycles with Peds (%)	0	0	0	40	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 15: Forest Ave & McDonald's Driveway/Allen Ave

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	15.5	30.5	9.5	16.5	7.5	38.5	7.5	18.5
Minimum Green (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	17.1	31.6	17.8	16.5	7.0	48.3	6.5	25.2
g/C Ratio	-0.01	NA	-0.01	-0.01	-0.01	NA	-0.01	NA
Cycles Skipped (%)	5	0	3	46	58	0	68	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	83	100	85	41	13	100	8	74
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I
 ☐ Section Detail
 ☒ Crash Summary II
 ☐ 1320 Public
 ☐ 1320 Private
 ☐ 1320 Summary

REPORT DESCRIPTION

Portland
 Stevens Ave., Warren Ave., Forest Ave., Bishop St. Area

REPORT PARAMETERS

Year 2018, Start Month 1 through Year 2020 End Month: 12

Route: 0302X	Start Node: 16867 End Node: 16874	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☐ Exclude Last Node
Route: 3200987	Start Node: 13185 End Node: 13190	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☐ Exclude Last Node
Route: 0560678	Start Node: 13190 End Node: 16870	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node
Route: 3209381	Start Node: 16870 End Node: 66108	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node
Route: 0560767	Start Node: 15896 End Node: 16874	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☒ Exclude Last Node
Route: 3210294	Start Node: 16874 End Node: 71538	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node
Route: 0560062	Start Node: 11015 End Node: 16870	Start Offset: 0 End Offset: 0	☐ Exclude First Node ☒ Exclude Last Node
Route: 0561237	Start Node: 11015 End Node: 18354	Start Offset: 0 End Offset: 0	☒ Exclude First Node ☒ Exclude Last Node

Maine Department Of Transportation - Office of Safety, Crash Records Section

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
P16872	0302X - 2.27	Int of ALLEN AV ENTRANCE TO MCDONALDS Z RD FORE	9	48	0	0	1	14	33	31.3	11.113	1.44	1.15	1.26
												Statewide Crash Rate: 0.77		
16867	0302X - 1.99	Int of ADELAIDE ST FOREST AV READ ST	2	6	0	0	0	2	4	33.3	7.674	0.26	0.34	0.00 0.77
												Statewide Crash Rate: 0.15		
16868	0302X - 2.02	Int of ARBOR ST FOREST AV	2	5	0	0	0	0	5	0.0	7.104	0.23	0.34	0.00 0.68
												Statewide Crash Rate: 0.15		
16869	0302X - 2.10	Int of FOREST AV MORRILL ST	2	8	0	0	0	1	7	12.5	7.282	0.37	0.34	1.08
												Statewide Crash Rate: 0.15		
16870	0302X - 2.20	Int of BISHOP ST FOREST AV STEVENS AV	9	33	0	1	4	7	21	36.4	10.762	1.02	1.15	0.89
												Statewide Crash Rate: 0.77		
16873	0302X - 2.36	Int of ELEANOR ST FOREST AV	2	3	0	0	0	1	2	33.3	9.154	0.11	0.32	0.00 0.34
												Statewide Crash Rate: 0.15		
A71535	0302X - 2.25	Int of FOREST AV RD INV 3210293	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate: 0.15		
16874	0302X - 2.41	Int of FOREST AV MAGGIE LN WARREN AV	9	28	0	0	1	5	22	21.4	9.526	0.98	1.18	0.83
												Statewide Crash Rate: 0.77		
A71534	0302X - 2.29	Int of FOREST AV RD INV 3210292	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate: 0.15		
13190	3200987 - 0.75	Int of STEVENS AV, WALTON ST	9	1	0	0	0	0	1	0.0	3.826	0.09	1.39	0.00 0.06
												Statewide Crash Rate: 0.77		
13182	3200987 - 0.49	Int of CROSBY ST STEVENS AV	2	0	0	0	0	0	0	0.0	3.446	0.00	0.43	0.00
												Statewide Crash Rate: 0.16		
13183	3200987 - 0.46	Int of PERCIVAL ST STEVENS AV	2	0	0	0	0	0	0	0.0	3.323	0.00	0.44	0.00
												Statewide Crash Rate: 0.16		
13185	3200987 - 0.41	Int of HARTLEY ST STEVENS AV	2	2	0	0	0	0	2	0.0	3.283	0.20	0.44	0.00 0.45
												Statewide Crash Rate: 0.16		
13181	3200987 - 0.54	Int of NEW ST STEVENS AV	2	2	0	0	0	0	2	0.0	3.521	0.19	0.43	0.00 0.44
												Statewide Crash Rate: 0.16		
P13196	0560678 - 0.19	Int of STEVENS AV WAVERLY LN	2	5	0	0	0	3	2	60.0	3.768	0.44	0.42	1.05
												Statewide Crash Rate: 0.16		
A13198	0560678 - 0.21	Int of COLLEGE ST STEVENS AV	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate: 0.16		
13194	0560678 - 0.13	Int of ELMWOOD STEVENS AV	2	1	0	0	1	0	0	100.0	3.581	0.09	0.43	0.00 0.21
												Statewide Crash Rate: 0.16		
13192	0560678 - 0.05	Int of ST JOSEPH ST STEVENS AV	2	1	0	0	0	0	1	0.0	3.492	0.10	0.43	0.00 0.23
												Statewide Crash Rate: 0.16		
13200	0560678 - 0.35	Int of ARBOR ST STEVENS AV	2	2	0	1	0	0	1	50.0	3.640	0.18	0.43	0.00 0.42
												Statewide Crash Rate: 0.16		
13199	0560678 - 0.26	Int of POLAND ST STEVENS AV	2	0	0	0	0	0	0	0.0	3.690	0.00	0.42	0.00
												Statewide Crash Rate: 0.16		
66108	0560678 - 0.46	Non Int STEVENS AV	2	1	0	0	0	0	1	0.0	3.573	0.09	0.43	0.00 0.21
												Statewide Crash Rate: 0.16		
18354	0560767 - 1.63	Int of BISHOP ST EXT WARREN AV	2	1	0	0	0	0	1	0.0	4.194	0.08	0.41	0.00 0.20
												Statewide Crash Rate: 0.16		

Crash Summary I

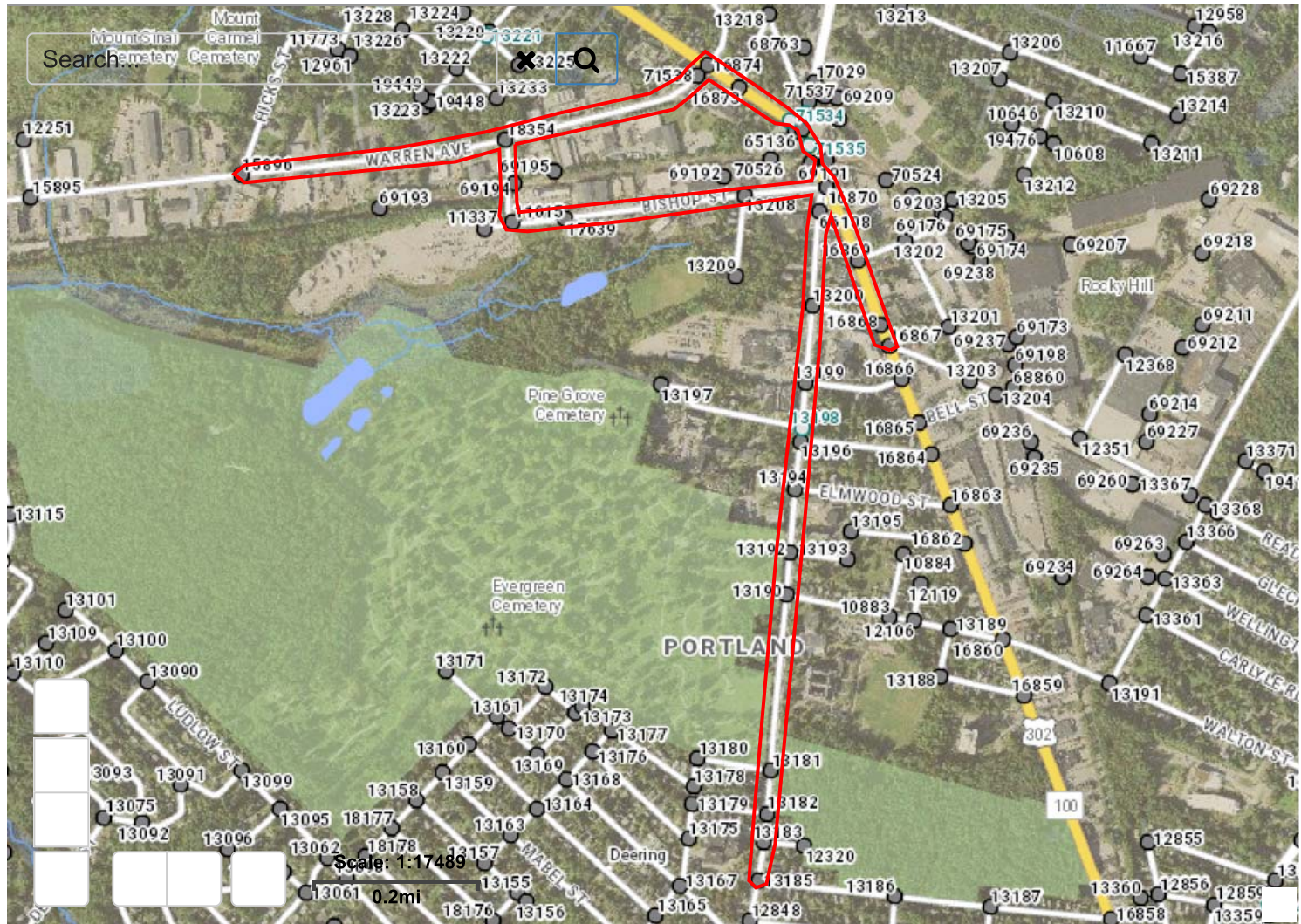
Nodes															
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF	
15896	0560767 - 1.31	Int of HICKS ST WARREN AV	2	2	0	0	0	0	2	0.0	4.748	0.14	0.40	0.00	0.35
												Statewide Crash Rate:	0.16		
71538	0560767 - 1.87	Non Int WARREN AV	2	0	0	0	0	0	0	0.0	3.890	0.00	0.42	0.00	
												Statewide Crash Rate:	0.16		
13208	0560062 - 0.31	Int of BISHOP ST MAYFIELD ST	2	0	0	0	0	0	0	0.0	0.526	0.00	0.63	0.00	
												Statewide Crash Rate:	0.15		
17639	0560062 - 0.09	0508057 POR,BISHOP ST,,22W/O MAYFIELD	2	0	0	0	0	0	0	0.0	0.363	0.00	0.65	0.00	
												Statewide Crash Rate:	0.15		
11015	0560062 - 0.03	0501427 POR,BISHOP ST,BISHOP ST EXT	2	0	0	0	0	0	0	0.0	0.352	0.00	0.65	0.00	
												Statewide Crash Rate:	0.15		
Study Years: 3.00			NODE TOTALS:		149	0	2	7	33	107	28.2	115.831	0.43	0.42	1.02

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section U/R Length	Total Crashes	K	Injury A	Crashes B	Crashes C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF	
16867	16868	3118708	0 - 0.03	0302X - 1.99	0.03	2	0	0	0	0	0	0.0	0.00212	0.00	605.48	0.00	
Int of ADELAIDE ST		FOREST AV	READ ST	US 302										Statewide Crash Rate: 212.77			
16868	16869	3129283	0 - 0.08	0302X - 2.02	0.08	2	12	0	1	0	1	10	16.7	0.00567	705.10	471.42	1.50
Int of ARBOR ST		FOREST AV		US 302										Statewide Crash Rate: 212.77			
16869	16870	3106425	0 - 0.10	0302X - 2.10	0.10	2	13	0	1	2	1	9	30.8	0.00732	592.13	443.59	1.33
Int of FOREST AV		MORRILL ST		US 302										Statewide Crash Rate: 212.77			
16870	71535	4047225	0 - 0.05	0302X - 2.20	0.05	2	12	0	0	0	2	10	16.7	0.00503	795.19	485.51	1.64
Int of BISHOP ST		FOREST AV	STEVENS AV	US 302										Statewide Crash Rate: 212.77			
71535	16872	4047226	0 - 0.02	0302X - 2.25	0.02	2	0	0	0	0	0	0.0	0.00163	0.00	647.60	0.00	
Int of FOREST AV		RD INV 3210293		US 302										Statewide Crash Rate: 212.77			
16872	71534	4047135	0 - 0.02	0302X - 2.27	0.02	2	0	0	0	0	0	0.0	0.00158	0.00	652.74	0.00	
Int of ALLEN AV		ENTRANCE TO MCDONALDS Z	RD FOREST AV	US 302										Statewide Crash Rate: 212.77			
71534	16873	4047136	0 - 0.07	0302X - 2.29	0.07	2	12	0	0	1	1	10	16.7	0.00645	620.51	457.12	1.36
Int of FOREST AV		RD INV 3210292		US 302										Statewide Crash Rate: 212.77			
16873	16874	3119258	0 - 0.05	0302X - 2.36	0.05	2	9	0	0	1	2	6	33.3	0.00454	661.37	498.14	1.33
Int of ELEANOR ST		FOREST AV		US 302										Statewide Crash Rate: 212.77			
13183	13185	3119201	0 - 0.05	3200987 - 0.41	0.05	2	4	0	0	0	1	3	25.0	0.00163	815.76	689.63	1.18
Int of PERCIVAL ST		STEVENS AV		RD INV 3200987										Statewide Crash Rate: 231.67			
13182	13183	3130460	0 - 0.03	3200987 - 0.46	0.03	2	0	0	0	0	0	0.0	0.00101	0.00	779.42	0.00	
Int of CROSBY ST		STEVENS AV		RD INV 3200987										Statewide Crash Rate: 231.67			
13181	13182	3123618	0 - 0.05	3200987 - 0.49	0.05	2	1	0	0	0	0	1	0.0	0.00170	196.46	683.00	0.00
Int of NEW ST		STEVENS AV		RD INV 3200987										Statewide Crash Rate: 231.67			0.29
13181	13190	187848	0 - 0.21	3200987 - 0.54	0.21	2	0	0	0	0	0	0.0	0.00695	0.00	479.24	0.00	
Int of NEW ST		STEVENS AV		RD INV 3200987										Statewide Crash Rate: 231.67			
13190	13192	187859	0 - 0.05	0560678 - 0	0.05	2	1	0	0	0	0	1	0.0	0.00170	195.93	682.53	0.00
Int of STEVENS AV,		WALTON ST		RD INV 05 60678										Statewide Crash Rate: 231.67			0.29
13192	13194	3118519	0 - 0.08	0560678 - 0.05	0.08	2	2	0	0	1	0	1	50.0	0.00285	234.24	597.43	0.00
Int of ST JOSEPH ST		STEVENS AV		RD INV 05 60678										Statewide Crash Rate: 231.67			0.39
13194	13196	3118901	0 - 0.06	0560678 - 0.13	0.06	2	1	0	0	0	0	1	0.0	0.00211	158.17	645.69	0.00
Int of ELMWOOD		STEVENS AV		RD INV 05 60678										Statewide Crash Rate: 231.67			0.25
13196	13198	3118816	0 - 0.02	0560678 - 0.19	0.02	2	0	0	0	0	0	0.0	0.00072	0.00	842.82	0.00	
Int of STEVENS AV		WAVERLY LN		RD INV 05 60678										Statewide Crash Rate: 231.67			
13198	13199	3130135	0 - 0.05	0560678 - 0.21	0.05	2	1	0	0	0	0	1	0.0	0.00184	181.47	669.12	0.00
Int of COLLEGE ST		STEVENS AV		RD INV 05 60678										Statewide Crash Rate: 231.67			0.27
13199	13200	3123933	0 - 0.09	0560678 - 0.26	0.09	2	4	0	0	0	2	2	50.0	0.00328	406.98	576.29	0.00
Int of POLAND ST		STEVENS AV		RD INV 05 60678										Statewide Crash Rate: 231.67			0.71
13200	66108	3129804	0 - 0.11	0560678 - 0.35	0.11	2	8	0	0	1	3	4	50.0	0.00394	676.90	550.02	1.23
Int of ARBOR ST		STEVENS AV		RD INV 05 60678										Statewide Crash Rate: 231.67			
66108	16870	3129805	0 - 0.03	0560678 - 0.46	0.03	2	0	0	0	0	0	0.0	0.00054	0.00	897.19	0.00	
Non Int		STEVENS AV		RD INV 05 60678										Statewide Crash Rate: 231.67			

Crash Summary I

Sections																	
Start Node	End Node	Element	Offset Begin - End	Route - MP	Section U/R Length	Total Crashes	K	Injury Crashes				Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF	
16870	66108	3139995	0 - 0.03	3209381 - 0	0.03	2	0	0	0	0	0	0	0.0	0.00053	0.00	898.97	0.00
Int of BISHOP ST FOREST AV STEVENS AV				RD INV 3209381										Statewide Crash Rate: 231.67			
15896	18354	3105909	0 - 0.32	0560767 - 1.31	0.32	2	6	0	0	2	0	4	33.3	0.01330	150.40	415.44	0.00 0.36
Int of HICKS ST WARREN AV				RD INV 05 60767										Statewide Crash Rate: 231.67			
71538	18354	4047195	0 - 0.24	0560767 - 1.63	0.24	2	3	0	1	0	0	2	33.3	0.00934	107.12	448.11	0.00 0.24
Non Int WARREN AV				RD INV 05 60767										Statewide Crash Rate: 231.67			
16874	71538	4047194	0 - 0.02	0560767 - 1.87	0.02	2	0	0	0	0	0	0	0.0	0.00039	0.00	950.99	0.00
Int of FOREST AV MAGGIE LN WARREN AV				RD INV 05 60767										Statewide Crash Rate: 231.67			
16874	71538	4047196	0 - 0.02	3210294 - 0	0.02	2	0	0	0	0	0	0	0.0	0.00039	0.00	950.99	0.00
Int of FOREST AV MAGGIE LN WARREN AV				RD INV 3210294										Statewide Crash Rate: 231.67			
11015	17639	184811	0 - 0.06	0560062 - 0.03	0.06	2	0	0	0	0	0	0	0.0	0.00017	0.00	1720.74	0.00
0501427 POR,BISHOP ST,BISHOP ST EXT				RD INV 05 60062										Statewide Crash Rate: 404.31			
13208	17639	187890	0 - 0.22	0560062 - 0.09	0.22	2	2	0	0	0	1	1	50.0	0.00099	676.07	1187.62	0.00 0.57
Int of BISHOP ST MAYFIELD ST				RD INV 05 60062										Statewide Crash Rate: 404.31			
13208	16870	5080564	0 - 0.10	0560062 - 0.31	0.10	2	0	0	0	0	0	0	0.0	0.00055	0.00	1379.29	0.00
Int of BISHOP ST MAYFIELD ST				RD INV 05 60062										Statewide Crash Rate: 404.31			
11015	18354	184812	0 - 0.10	0561237 - 0	0.10	2	0	0	0	0	0	0	0.0	0.00034	0.00	1532.68	0.00
0501427 POR,BISHOP ST,BISHOP ST EXT				RD INV 05 61237										Statewide Crash Rate: 404.31			
Study Years:		3.00		Section Totals:		2.36	91	0	3	8	14	66	27.5	0.08858	342.43	301.95	1.13
				Grand Totals:		2.36	240	0	5	15	47	173	27.9	0.08858	903.11	428.86	2.11



H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: CUMBERLAND

TOWN: PORTLAND

LOW NODE: 13200 HIGH NODE: 66108

REGION: 1

U/R: URBAN

DESCRIPTION: Stevens Ave from Arbour St to Forest Ave median

RTE # / RD #: 0560678 DATE DRAWN: 5/27/2021 DRAWN BY: BOB K

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

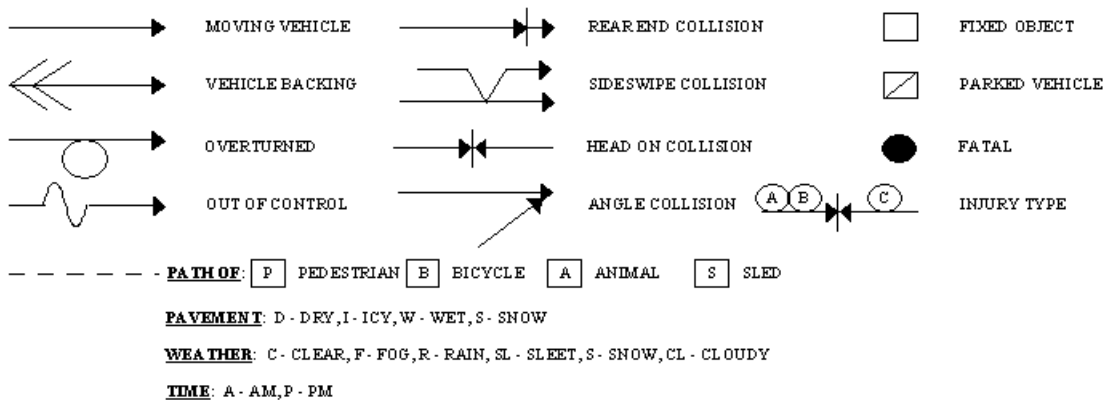
CRASH RATE: 676.9

CRF: 1.24

% INJURY: 50

TOTAL CRASHES: 8

LEGEND



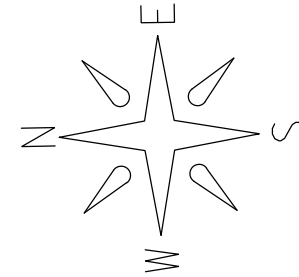
Portland
Link: 13200-66108

Element: 3129804

Study Period: 2018-2020

of Crashes: 8 / CRF: 1.24

Prepared by Office of Safety
RFK3 5-27-21



66108

13200

#803

Stevens Ave.

64514 9-11-19 8:24A W/R Improper Pass

(C)

20839 8-1-19 4:18P D/CL Fail To Yield

(B)

22718 9-23-20 5:18P D/C Bicyclist error

35436 11-20-18 6:30P S/S Speed

27332 9-25-18 5:24P W/R Ped Error

(P)(C)

35446 11-25-18 5:05P
W/R Reckless

21373 9-1-20 4:30P D/C Hit and run

(P)(C)

26765 11-4-20 1:10P D/C Improper backing

#824

#812

#808

#798

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: CUMBERLAND

TOWN: PORTLAND

LOW NODE: 16870 HIGH NODE: 71535

REGION: 1

U/R: URBAN

DESCRIPTION: Forest Ave from Bishop St to cut to Allen Ave

RTE # / RD #: 0100X

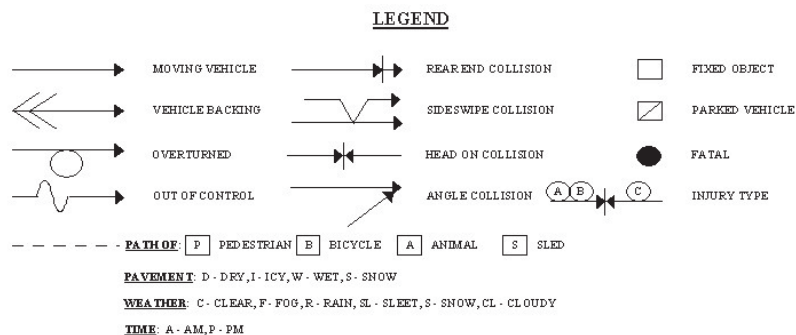
DATE DRAWN: 6/4/2021

DRAWN BY: BOB K

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

CRASH RATE: 795.19 CRF: 1.64 % INJURY: 16.7 TOTAL CRASHES: 12



Scrub-A-Dub Auto Wash
#1185

28001 11-10-20 5:45P D/C Follow too close

50797 5-3-19 11:07A D/CL Follow too close

62410 8-21-19 4:00P W/R Unknown

20033 8-11-20 2:55P D/C Follow too close

20756 7-30-18 5:00P
D/C Other

(Fire Truck w/Lights-Sirens On)

28512 10-6-18 4:53P
D/CL Fail to Yield

62062 8-15-19 3:50P D/C Fail to yield

23941 8-13-18 12:14P D/C Fail to Yield

12784 5-1-18 12:04P
D/C Follow too Close

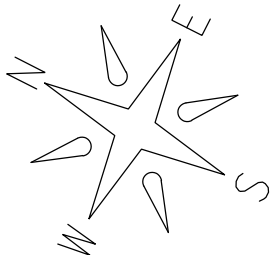
41244 12-12-18 2:31P
D/C Follow too Close

6718 2-24-18 9:22A
D/C Improper Turn

42201 10-30-18 3:27P D/CL Fail to Keep in Lane

Rte. 302/100/Forest Ave.

71535



Portland

Prepared by Office of Safety

RFK3 6-4-21

16870

Link: 16870-71535

Element: 4047225

Study Period: 2018-2020

of Crashes: 12 / CRF: 1.64

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: CUMBERLAND

TOWN: PORTLAND

LOW NODE: 16870 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Jct of Forest Ave & Stevens Ave/Bishop St

RTE # / RD #: 0100X

DATE DRAWN: 3/14/2022 DRAWN BY: Michelle

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

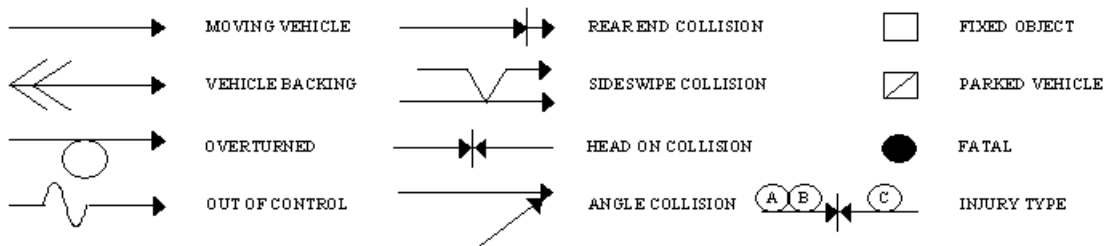
CRASH RATE: 1.02

CRF: 0.89

% INJURY: 36.4

TOTAL CRASHES: 33

LEGEND



--- PATH OF: [P] PEDESTRIAN [B] BICYCLE [A] ANIMAL [S] SLED

PAVEMENT: D - DRY, I - ICY, W - WET, S - SNOW

WEATHER: C - CLEAR, F - FOG, R - RAIN, SL - SLEET, S - SNOW, CL - CLOUDY

TIME: A - AM, P - PM

Stevens Ave

Bishop St

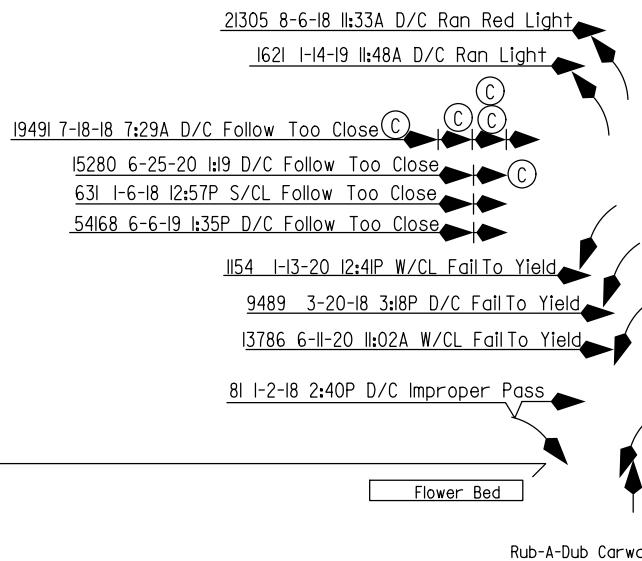
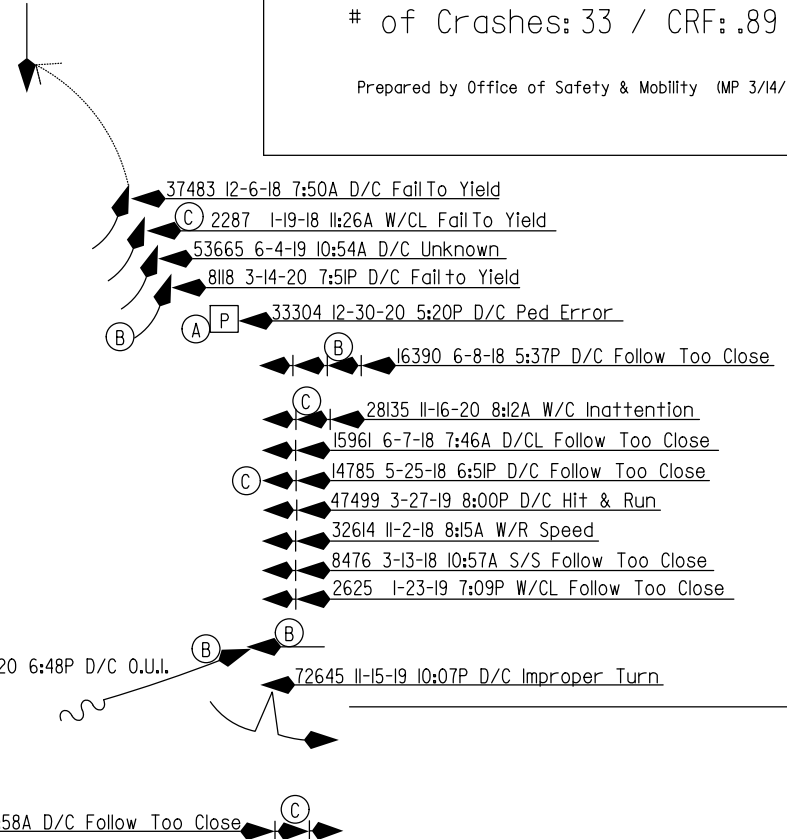
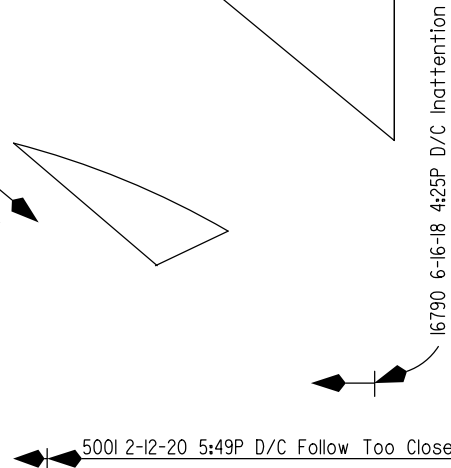
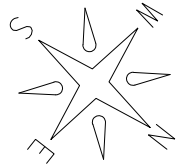
Portland

Node: I6870

Study Period: 2018-2020

of Crashes: 33 / CRF: .89

Prepared by Office of Safety & Mobility (MP 3/14/22)



Forest Ave
Rt 100 / 302

Rub-A-Dub Carwash

Sunoco Gas Station

 = Traffic Signal

H. C. L. CRASH COLLISION DIAGRAM DATA PACKAGE

COUNTY: CUMBERLAND

TOWN: PORTLAND

LOW NODE: 16872 HIGH NODE: 0000

REGION: 1

U/R: URBAN

DESCRIPTION: Int of Allen Ave and Forest Ave

RTE # / RD #: 0100S

DATE DRAWN: 5/4/2021

DRAWN BY: BOB K

STUDY FROM: 1/1/2018

STUDY TO: 12/31/2020

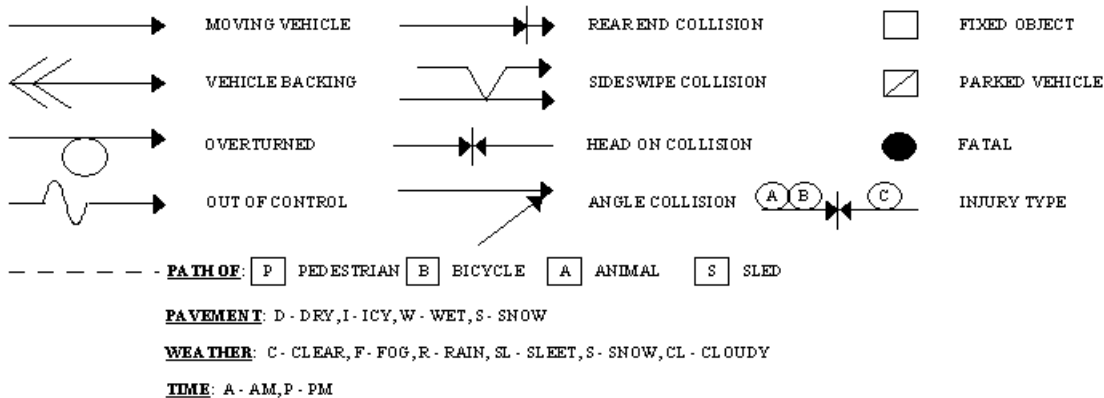
CRASH RATE: 1.44

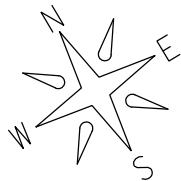
CRF: 1.26

% INJURY: 31.3

TOTAL CRASHES: 48

LEGEND





Allen Ave.

17028

Portland

Nodes: 16872(P)

71534(A) 71535(A) 17028(A)

Study Period: 2018-2020

of Crashes: 48 /CRF: 1.26

Prepared by Office of Safety

RFK3 5-4-21

71534

71535

16872

15985 6-7-18 6:27P D/C Unknown



13645 5-8-18 1:20P D/C
Fail To Keep In Lane



2998 1-25-20 11:44A W/CL
Fail To Keep In Lane



46859 3-23-19 12:36P D/C
Improper Passing

30227 10-22-18 1:55P D/C
Fail To Keep In Lane

31717 10-30-18 8:21A D/C Follow Too Close
2465 1-18-18 5:20P W/C Improper Turn

9474 3-21-18 2:00P D/CL Follow Too Close

65624 9-20-19 2:29P D/CL Follow Too Close

30414 10-25-18 6:35P D/C Follow Too Close

6447 2-19-18 1:20P W/C Fail To Keep In Lane

12253 4-23-18 9:39A D/C
Fail To Keep In Lane



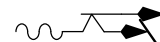
55115 6-17-19 11:58A D/C Speed

74283 11-22-19 7:43A W/CL Hit & Run

10637 4-5-18 12:00P D/C
Follow Too Close

1082 1-6-18 5:22P D/C Fail To Keep In Lane

603 1-4-18 10:16A S/S Speed
Plow Truck Hit Bus



30444 12-5-20 10:22A W/R Fail to keep in lane



63146 8-23-19 2:06P D/C Follow Too Close

43054 2-16-19 2:21P D/C Follow Too Close

12329 4-25-18 7:24A D/CL Follow Too Close

662 1-3-19 2:34P W/C Follow Too Close

67921 10-11-19 11:59A D/C Speed

14025 6-14-20 5:26P D/C Unknown

20754 7-30-18 2:30P D/C Improper Pass

2126 1-17-20 8:44A W/C Foot slipped

55746 6-21-19 10:21A D/CL Follow Too Close

69721 10-30-19 7:24A W/CL Follow Too Close

41365 12-28-18 6:40A S/S Speed

28907 10-11-18 7:22P W/R Fail To Yield

61404 8-9-19 6:57P D/C Unknown

1525 1-14-18 6:04P D/C Ran Red Light

62525 8-22-19 7:52A D/CL Follow Too Close

13269 6-4-20 10:50P D/C Ran Red Light

48195 4-6-19 1:59P D/C Follow Too Close

14269 5-18-18 1:23P D/C Fail To Yield

20903 8-2-18 11:59A D/C
Beat Yellow Light



980 1-10-19 3:00P D/C Hit & Run



56241 6-23-19 6:00P D/C Follow Too Close



21304 8-6-18 12:39P D/C Improper Turn



15829 7-4-20 3:47P D/C Follow too close



= Traffic Signal

McDonald's



INNOVATION FOR A HEALTHIER PLANET

Transportation Demand Management Plan

Updated April 2022



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INNOVATION FOR A HEALTHIER PLANET

Introduction

University of New England's Portland Campus has been a member of the Portland community and a provider of quality and inclusive education since its inception in 1831 as the Westbrook Seminary. The campus has been strategically transformed since its modest beginning, in both size and curriculum, to meet the secondary educational and work force needs of the Portland, Maine area and beyond.

Purpose of the TDM Plan

University of New England's, UNE's, Transportation Demand Management Plan, in effect since 2010, is intended to provide a comprehensive strategy towards reducing the amount of single-occupancy vehicles coming to campus and seeks to promote multimodal accessibility to and from the University's Portland campus. UNE is continually updating the plan and is always considering enhancements to encourage more walking, cycling and public transportation use by its students, faculty and staff.

UNE believes that its promotion of alternative modes of transportation and success in transportation demand management has and will continue to positively impact the City's issues with traffic in and around the Morrill's Corner node and routes feeding to it.

UNE offers transportation alternatives designed to preserve the green spaces on campus and to reduce our carbon footprint, in concert with one of the University's Core Values; Stewardship of Our Planet.

Mission, Vision and Core Values

The University of New England is directed by its Mission, Vision Statement and Core Values. These were utilized to create the Strategic Plan 2018-2023, *Our World, Our Future*.

MISSION

The University of New England prepares students to thrive in a rapidly changing world and, in so doing, to improve the health of people, communities, and our planet.

VISION

We will realize this mission by committing to a distinctive approach to education that will make UNE among the most experientially driven institutions of higher education in the nation. We will provide teaching and learning that conjoins problem-based and hands-on learning, liberal education, and professional training to immerse students in an educational experience that prepares them with:

- Habits of mind, such as cultural, quantitative, and information literacy, critical thinking, tolerance for ambiguity, and problem solving;
- Discipline-based knowledge in their chosen programs of study; and
- Professional competencies, including emotional intelligence, the ability to collaborate in diverse teams, communicate persuasively, and be a thoughtful leader.

We are an institution that challenges students to learn broadly, master their professional skills, and ask probing questions. In this way, they will prepare themselves for further study and successful careers, deeply rewarding lives, and meaningful contributions to their communities and the world.

CORE VALUES

We are guided by the following values, essential to the culture of the UNE community.

Student Centeredness - We put the aspirations, needs, and success of our students at the center of all we do.

Diversity, Inclusion, Connection - We believe the benefits of a richly varied campus community arise not only from the diversity of its people but also from a sense of belonging and the context this creates to explore and celebrate differences in backgrounds, experiences, and perspectives, underpinned by a sense of cultural humility and a commitment to ethical ideals.

Relentless Inquiry - We take nothing for granted and view thoughtful—even uncomfortable—questioning as essential to the pursuit of knowledge, contribution to society, and a life worth living. Our commitment to University-wide academic freedom is fundamental to this value.

Boundary Crossing - Solutions to the complex and varied challenges we face in our personal and professional lives, our communities, and society will not be found in any single discipline, college, physical location, or individual. Thus, our ability to move easily across such boundaries in order to collaborate with colleagues makes us better problem solvers and more likely of success in whatever ventures we undertake.

Learning Everywhere - We believe that teaching and learning should occur beyond traditional classrooms and laboratories—in any place ripe for inquiry and experimentation, including clinics, environmental and field-study sites, online forums, libraries, museums, theaters, and places of civic engagement, among many others.

Progressive Change - We are not afraid to take thoughtful risks in the pursuit of our shared goals.

Stewardship of Our Planet - We recognize that the health of individuals, communities, and the natural environment is essential to the survival of the planet and its inhabitants and to a well-functioning society.

Portland Campus History and Programs

Although UNE's 70 acre campus has always been located in the same geographic place, the neighborhood where it is located has been part of three different municipalities over the years: Westbrook (1831-1870), Deering (1871-1898), and Portland (1899-present). UNE itself has had five name changes – Westbrook Seminary, Westbrook Junior College, Westbrook College, the Westbrook College Campus of the University of New England, and its current name the Portland Campus of the University of New England.

In July 1996, Westbrook College and the University of New England in Biddeford merged, creating a larger, more diverse institution of higher learning. The merger took place under the original 1831 Westbrook College charter. When the documents were signed, the combined institutions became Westbrook College and Westbrook College changed its name to the University of New England.

Today the University of New England Portland Campus is home to three of the UNE's premier Colleges.

The Westbrook College of Health Professions (WCHP) is a model for interdisciplinary health and wellness. With students, faculty and staff working in graduate programs in Social Work, Physician Assistant, Occupational Therapy, Physical Therapy, Pharmacy and Nurse Anesthesia and with undergraduate students in Nursing and Dental Hygiene, the WCHP honors the academic legacy of Westbrook College.

In the fall of 2013, the College of Dental Medicine unveiled a state-of-the-art Oral Health Center, built on Stevens Avenue, as it welcomed its inaugural class of dental students on the Portland Campus.

The College of Professional Studies is the University's on-line college, whose faculty and staff are also located on the Portland Campus, but whose students do not travel to campus.

Additionally, UNE NORTH is housed at 1075 Forest Avenue. UNE NORTH – the Institute for North Atlantic Studies of the University of New England — connects researchers, educators, policymakers, and industry leaders from across Maine and the North Atlantic region to implement collaborative approaches to building resilient communities, healthy environments, and thriving economies.



FACILITIES

- 1 Finley Recreation Center
- 2 College of Pharmacy
- 3 Ludcke Auditorium
- 4 Coleman Dental Hygiene Building
- 5 Goddard Hall
- 6 Hersey Hall
- 6A Graduate Admissions
- 7 Blewett Hall
- 8 Parker Pavilion
- 9 WCHP Lecture Hall
- 10 Proctor Hall
- 11 Art Gallery
- 12 Alumni Hall
- 13 Abplanalp Library
- 14 Ginn Hall
- 15 McDougall Hall
- 16 Safety and Security/ Shuttle Terminal
- 17 Alexander Hall
- 18 Linnell Hall
- 19 Oral Health Center
- 20 Facilities Management
- 21 Innovation Hall
- 22 UNE North (see inset)
- 23 Gulliver's Field (see inset)

PARKING

- 3 Innovation Hall South: Patient Parking ONLY
- 4 Oral Health Center: Patient Parking ONLY
- 5 Behind Ginn/McDougall Halls
- 6 Behind Library
- 7 Behind Proctor Hall
- 8 Finley Recreation Center
- Handicap Parking
- Additional UNE Parking Available (see inset)
- 1 812 Stevens Avenue
- 2 Innovation Hall Rear
- 9 Stevens Avenue Congregational Church (2 Middle Rows, Mon-Fri)
- 10 UNE North: 1075 Forest Avenue (South Side Only)
- 11 Bishop Street Extension Lot

The UNE Portland Campus is proud to be on the National Register of Historic Places (1977) and to be the original home of Westbrook Seminary (1831-1929), Westbrook Junior College (1929-1970), and Westbrook College (1970-1996).

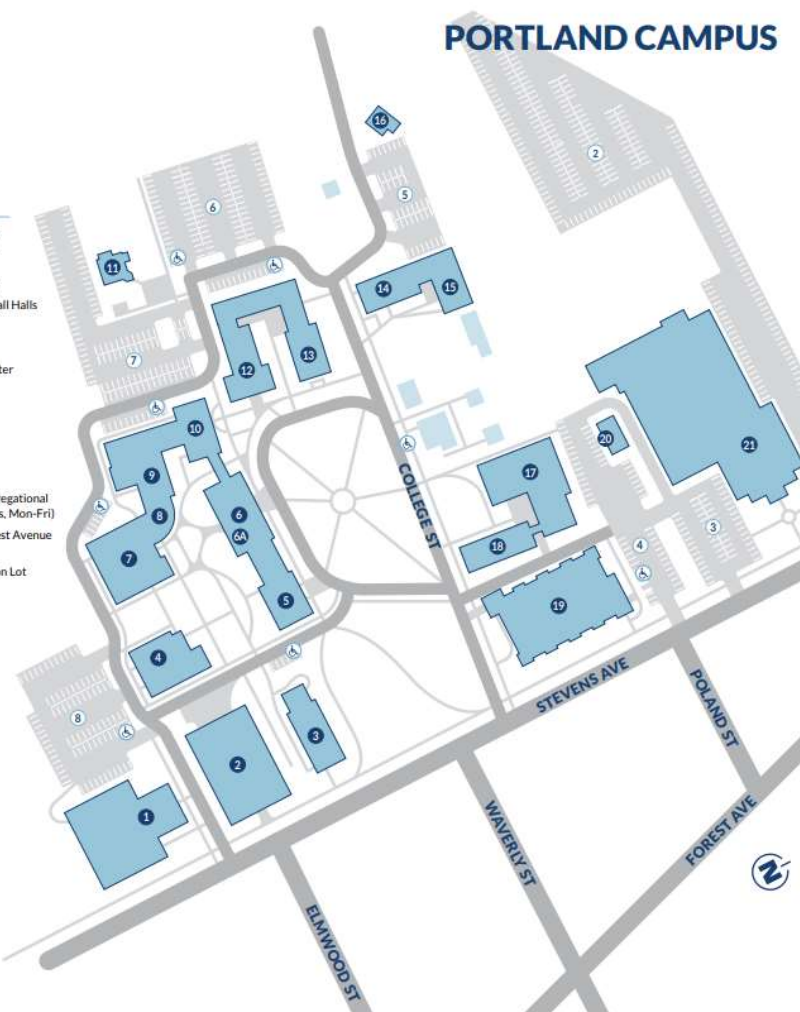
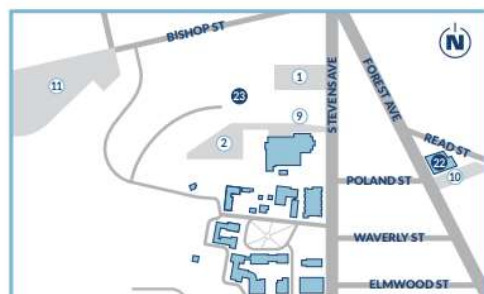


Figure 1 – Site Location Map

UNE's Portland Campus is essentially a graduate, commuter (non-residential) campus, supporting health professions programs. All of these academic programs require clinical experience towards the awarding of a degree. Each program has different clinical criteria, in regards to timing and duration, and thus the student population on campus can fluctuate during the course of an academic year as the students rotate into clinical settings. UNE has approximately 100 clinical affiliations, at 65 sites in Portland, and over 450 statewide. UNE

students generally complete their degree programming on either the Biddeford or Portland campus, and faculty and staff are generally assigned to one campus or the other. There is, however, some commuting between campuses that occurs.

Facility Planning

University of New England continues to improve its ability to provide state of the art post-secondary and graduate studies in fields such as healthcare, dentistry and pharmacy in order to provide a highly skilled and much needed workforce to the City of Portland and local areas. UNE is Maine's leader in providing health care professionals. UNE has recently announced plans to consolidate its College of Osteopathic Medicine onto its Portland campus to improve its Inter-professional Education (IPE) model to provide an even better prepared and more robust workforce in the future.

The establishment of a unique, nationally recognized Institute for Professional Education and Practice in Portland can only be achieved with the relocation of the College of Osteopathic Medicine from its current home on the Biddeford campus to the Portland campus. This reorganization is UNE's highest priority which will establish a world-class academic healthcare campus in Portland, oriented around inter-professional education, and will allow UNE to strengthen its collaboration with clinical partners throughout Portland and the state. By introducing, strengthening and supporting Inter-professional Practice with hospitals and healthcare networks such as Maine General, Maine Health, Northern Light and others, UNE will develop a distributed teaching hospital model, using telemedicine and digital health technologies to transform healthcare access and delivery across Maine, with a particular focus on Maine's underserved, rural population.

In order to support the transformation discussed above, UNE will be building a new, state-of-the-art home for the College of Osteopathic Medicine on the Portland campus, creating a comprehensive, fully integrated educational institution that can efficiently and effectively tackle Maine's deepest healthcare problems through systemic, coordinated education and clinical practice. Moving the College of Osteopathic Medicine to the Portland campus also will afford the opportunity to repurpose spaces on the Biddeford campus to expand existing undergraduate programs and to develop new ones to address critical workforce needs for the State.

Additionally, anticipated short term improvements to the campus parking and parking access road will be undertaken in support of this project, and will positively impact the university's TDM Plan.

Mobility Context

Neighborhood Context

UNE's Portland campus is located in the Deering Center area of the City of Portland, along the northern end of Stevens Avenue. The campus abuts the 239 acre Evergreen Cemetery, a National Historic Landmark, which was established by the city in 1854. The campus serves, in many ways, as a transitional zone between areas with diverse character, land uses, and demographics. Along with Evergreen Cemetery, it is bordered by residential neighborhoods (Mayfield Street off of Bishop Street, Stevens Avenue and the streets off of Stevens Avenue: College Street, Poland Street, Waverly Street, Elmwood Street and St. Joseph Street), an assisted living and senior housing complex (Park Danforth) across Stevens Avenue, two churches: (Stevens Avenue Congregational Church and St. Joseph Catholic Church), a Catholic elementary school (St. Brigid), and several small businesses.

Pedestrian Access

Pedestrian access is provided by numerous sidewalks both on campus and off campus. Sidewalks exist on both sides of Stevens Avenue and on both sides of Forest Avenue, as well as on the primary side streets between these arterials, including Poland Street, which allows access to UNE's property at 1075 Forest Avenue. There are crosswalks across Stevens Avenue and Forest Avenue in the vicinity of the campus at both signalized and un-signalized locations, including direct signalized access to UNE's property at 1075 Forest Avenue. These pedestrian facilities also provide contiguous pedestrian access to other educational facilities, namely Longfellow Elementary School, Lincoln Middle School, and Deering High School, as well as the local businesses frequented by UNE community members.

The Portland Trails network abuts the campus and could be utilized by some local community members to access the campus. UNE is working with Portland Trails to extend this network across the UNE campus as the new access road is developed, which would provide additional alternative pedestrian access to the campus. See Figure 2.

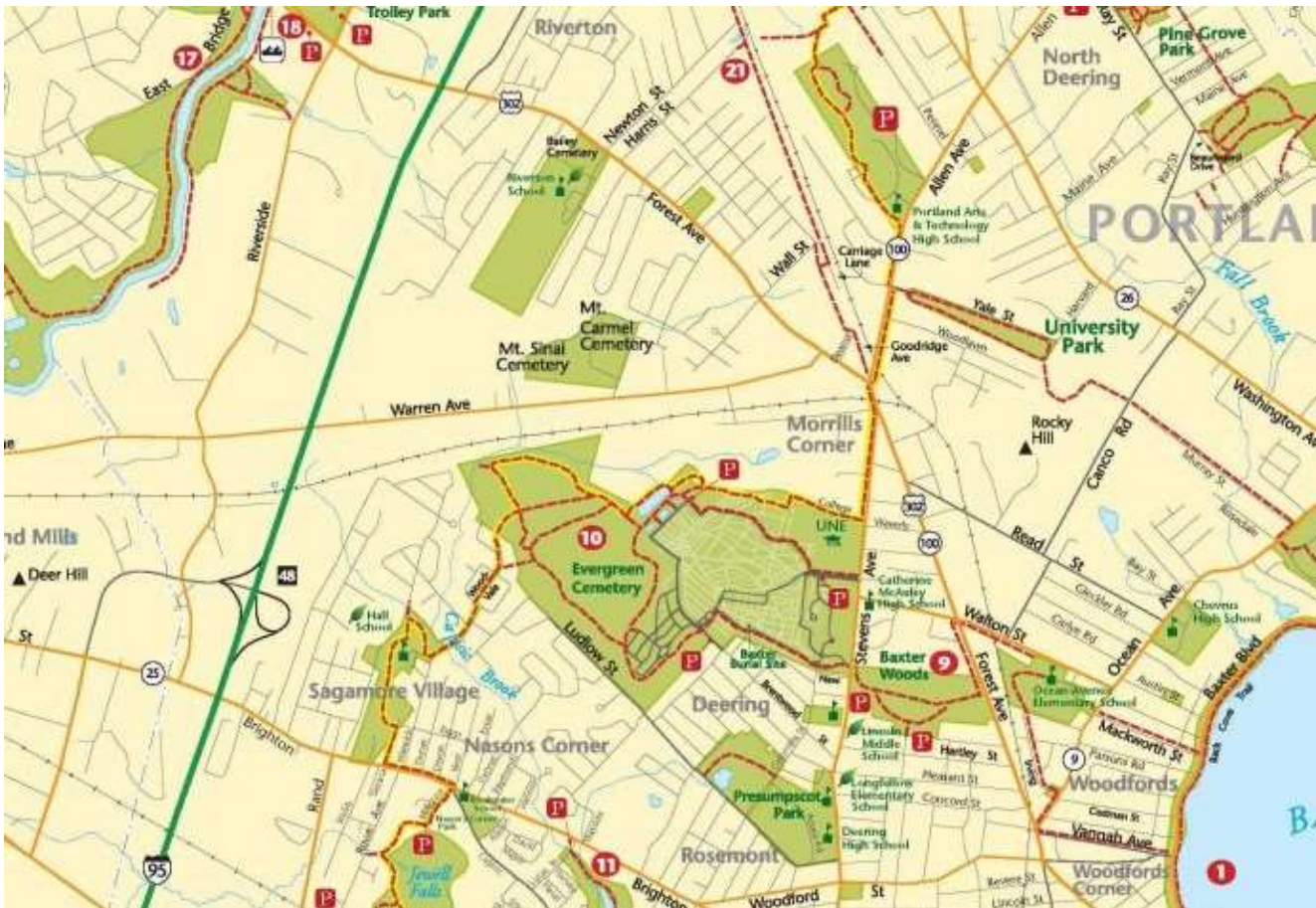


Figure 2 – Portland Trails trail map adjacent to the UNE Campus

Walkscore.com, a real estate website that evaluates walkability and transportation when choosing where to live, scores the Portland Campus as a 69 out of 100 and considers the campus location to be “Somewhat Walkable”, indicating “some errands can be accomplished on foot”. Their walking Travel Time Map, in Figure 3 below, illustrates this.

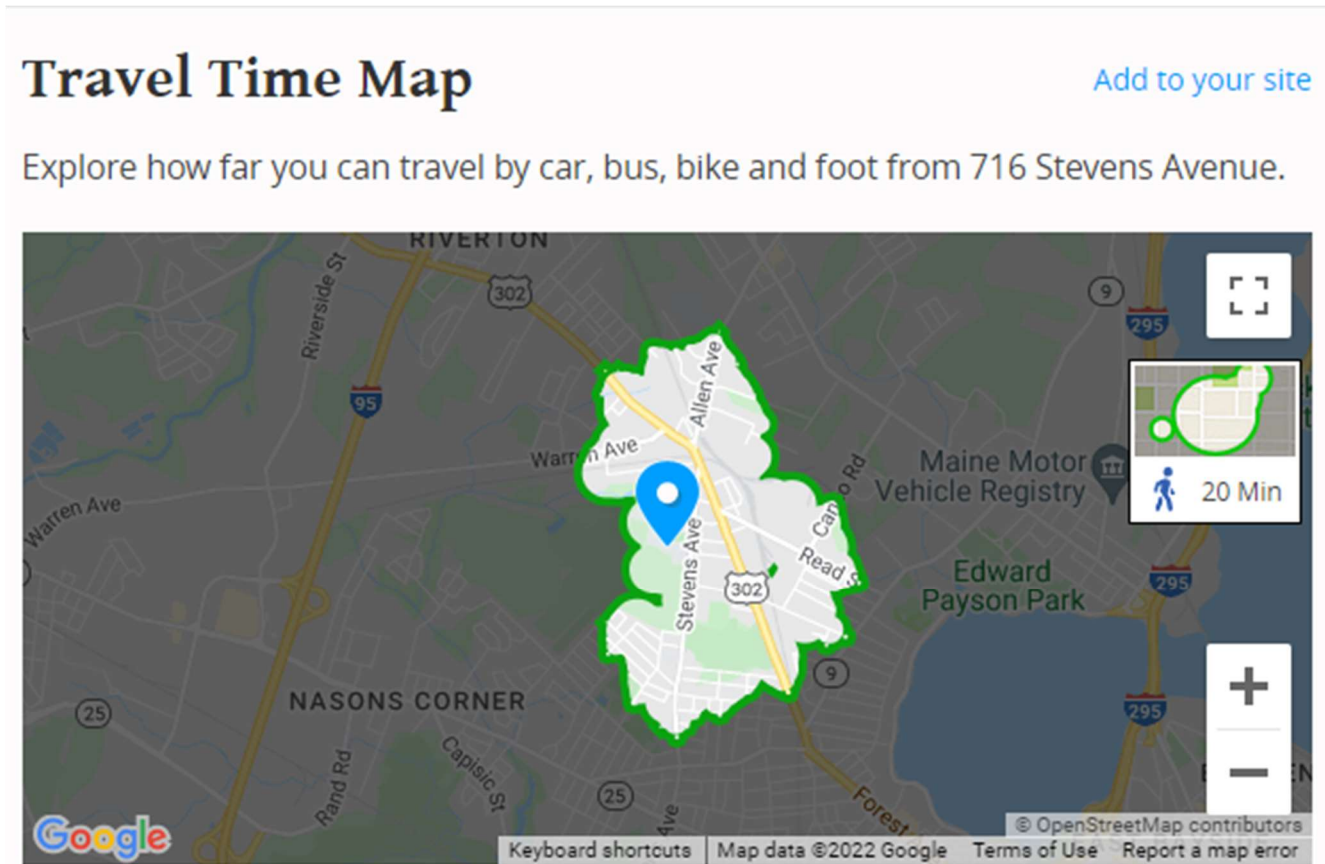


Figure 3 – Pedestrian Travel Time Map from Walkscore.com

Data analysis of current student and employee home addresses indicate 13% of the of the UNE Portland Campus community live within a walkable 1.5 miles radius and a bikeable 1.5 - 5 mile radius of the campus, as indicated in Figure 4 and Figure 5. A recent survey of faculty, students, and staff of the Portland campus revealed that 11.5% of the survey respondents walk to campus 1-9% of the time. Comments indicate that 31% of the survey respondents desire using an alternative mode of transportation, but are unable due to external commitments, such as work, daycare pickups and clinical requirements. Opportunities to increase the alternative modes of transportation percentage exist, and efforts will continue to be made to identify incentives that would increase these modes of commuting, including potential extension of the Portland Trails network through the campus, which might allow additional Deering Center or Riverton residents to more easily walk to campus.

UNE Student & Employee Commute Distances

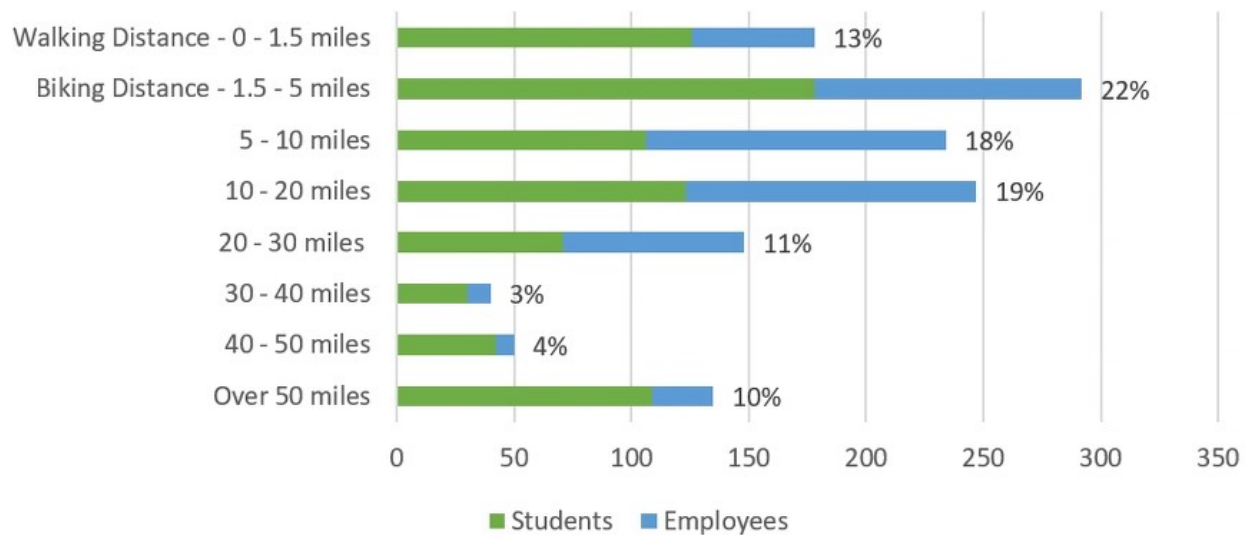


Figure 4 – Commute distances from UNE Portland Campus

University of New England Distances to Portland Campus - 10 Mile Focus

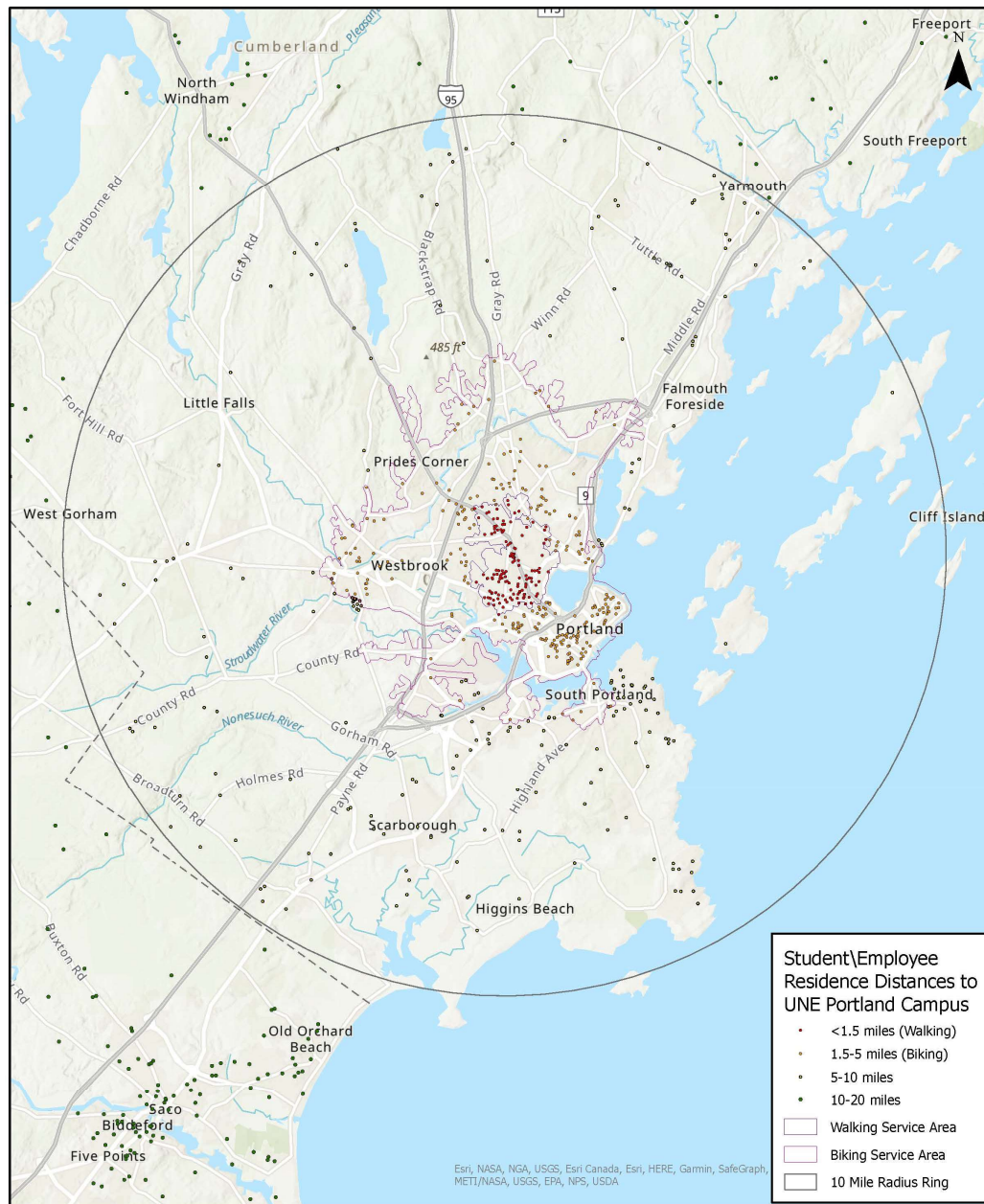


Figure 5 - Home Address Distances to Campus

Bicycle Access

Stevens Avenue is a designated bicycle route in the City of Portland, providing direct access to the campus. UNE provides bicycle racks at a ratio of 1 bicycle rack space per every 20 UNE Portland Campus community members. Additionally, there is access to showers and lockers in the Finley Recreation Center, further facilitating bicycle commuting.

The Stevens Avenue on-road bike route connects to multiple nearby bike routes, including Allen Avenue, Walton Street, Read Street, Woodford Street and Congress Street. These bike routes then connect to facilities

with dedicated bicycle lanes, such as Forest Avenue. See Figure 6 - City of Portland Bikeway and Pedestrian Network map.

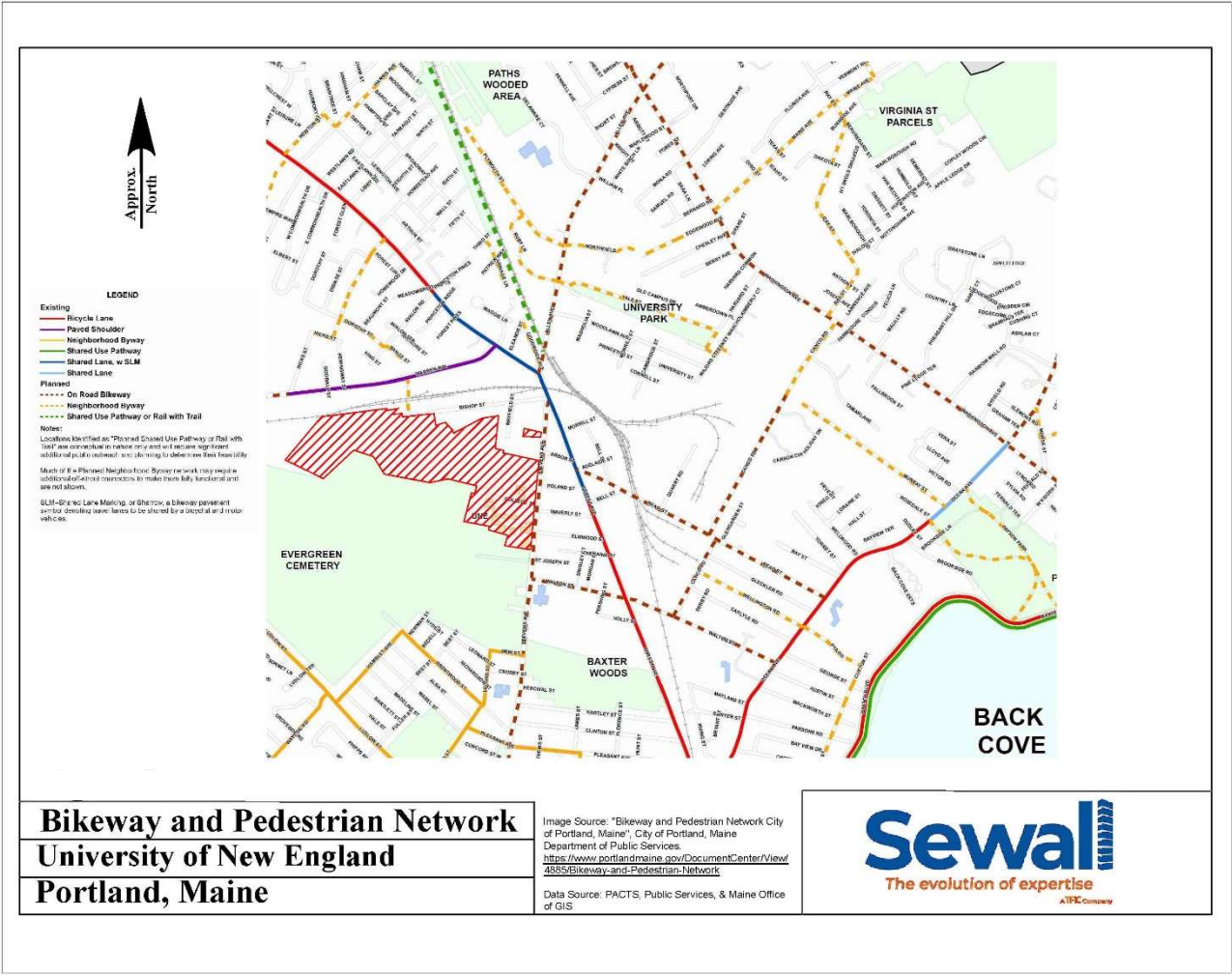


Figure 6 – City of Portland Local Bikeway and Pedestrian Network

Walkscore.com scores the Portland Campus as a 65 out of 100 for bicycle commuting and designates the campus location to be “Bikeable”, indicating “some bike infrastructure” in the vicinity of the campus. Their Travel Time map, in Figure 7 below, illustrates this.

Travel Time Map

[Add to your site](#)

Explore how far you can travel by car, bus, bike and foot from 716 Stevens Avenue.

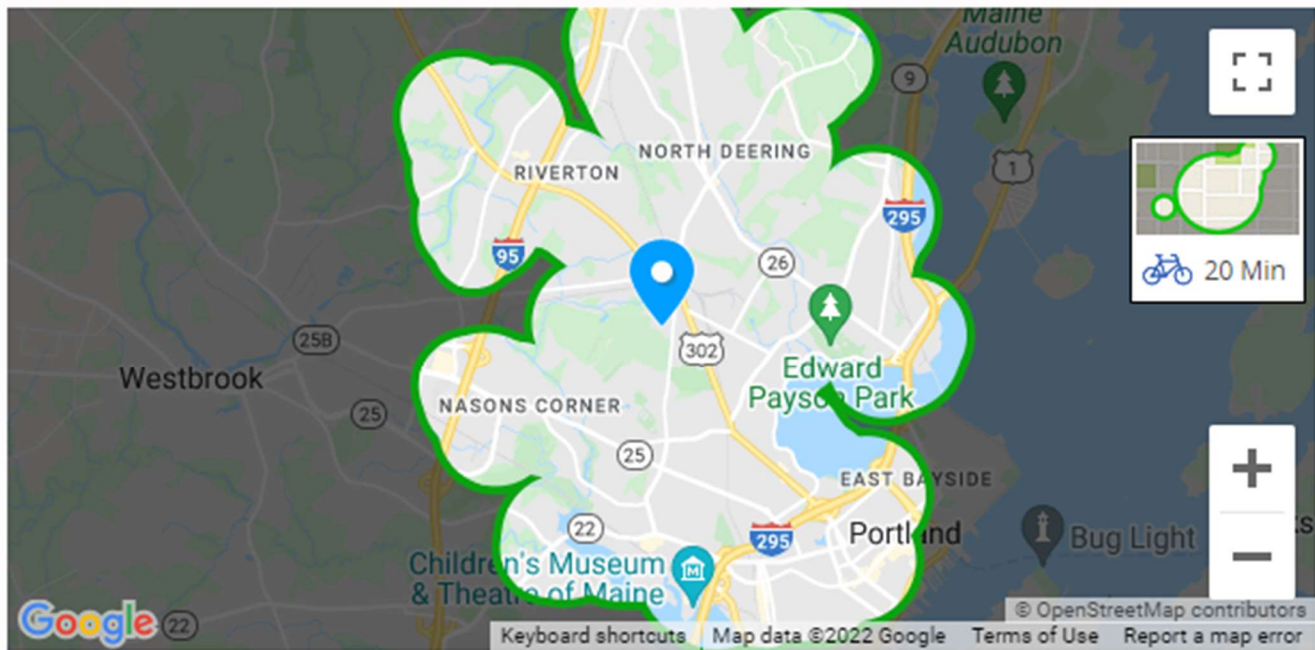


Figure 7 – Bicycle Travel Time Map from Walkscore.com

Transit Service

Transit service is available via Greater Portland Metro's Route 9, which connects downtown Portland to North Deering via Stevens Avenue and also by Metro Route 2, which connects downtown Portland to Riverton via Forest Avenue. There are two Route 9 Metro stops located at the Portland campus, both of which are equipped with ADA complaint shelters and are located in well lit, conveniently located areas of the campus. The Route 2 stops on Forest Avenue are within 1,000 feet of the core campus and are immediately adjacent to the UNE's 1075 Forest Avenue property (UNE North). UNE provides free bus passes to all students and employees to encourage Metro use, including the Metro Breeze from Portland to Brunswick, and the Route 2 bus route to the Metro Pulse (the downtown hub). Additionally, the University provides free bus passes to the South Portland City Bus Services as well as the Biddeford, Saco, Old Orchard Beach Transit (BSOOB Transit) including the ZOOM Express between Portland and Biddeford. Free public transportation is thus offered between the University's two Maine campuses, as well as to/from the Portland Transportation Center, the Saco Transportation Center, the Greyhound Bus terminal, and the Portland International Jetport.

With UNE's recent (January 2021) upgrade to the centralized automated fare payment system, Dirigo TouchPass, for all of these transit services, enhanced ridership data is now available to UNE and can be utilized in future TDM considerations. Previously, the ridership data was recorded manually or only available for the number of passes issued, and not actual rides utilized. Previously, UNE would procure and manually distribute hardcopy passes, as community members requested them from the Student Affairs office. Thus, UNE community members were required to conscientiously obtain these in advance of their use, and there was no way to track whether or not all passes in the packet were used. For 2019, UNE purchased and distributed

monthly passes (40 rides per month) and weekly passes (10 rides per week) totaling approximately 10,590 rides, or 882 ride passes per month. During the academic year 2021-2022 actual average ridership, now tracked electronically through the Dirigo TouchPass system, is averaging approximately 107 rides per month. While the pandemic has undoubtedly impacted ridership, it is unlikely that the significantly lower ridership in 2021-2022 is only due to this cause. We believe the manually distributed hardcopy passes artificially inflated the ridership data, and the Dirigo TouchPass system will provide better data sets moving forward.

Additionally, the Dirigo TouchPass has improved convenience and removed barriers for all students, faculty, and staff to ride the buses for free, without first having to obtain a hardcopy pass. Now that the pandemic is entering an endemic phase, UNE anticipates the ridership to increase with the added ease and convenience of accessing these transit services. Current survey results indicate 10.5% of the respondents ride the bus between 1-20% of the time. Enhanced promotional activities are underway to highlight this free transit option, and ridership is anticipated to rebound and expand to at least double the current rate within the next year.

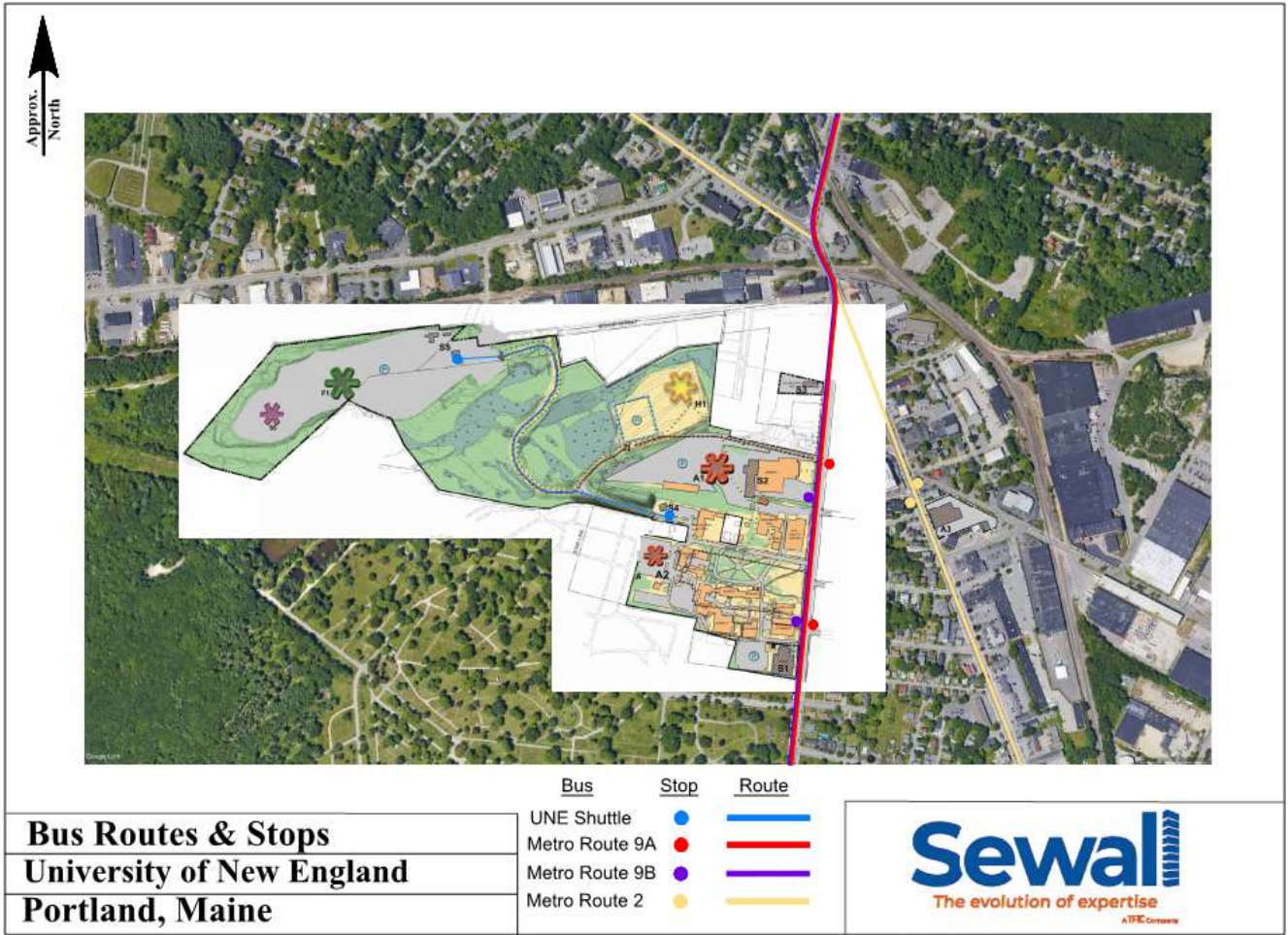


Figure 8 - Greater Portland Metro routes servicing the Portland Campus

Vehicle Access

The campus is located off of Stevens Avenue, which is classified as a minor arterial. Nearby Forest Avenue is a principal arterial, and Warren Avenue to the north is a minor arterial. The campus, located within close

proximity of these three arterials, provides convenient access to the Maine Turnpike, I-95 and to Interstate I-295.

The Portland campus has no on-campus housing, so all students, faculty, and staff arrive from Portland and surrounding communities, and utilize multiple unsignalized access drives from Stevens Avenue, or from the Bishop Street Extension to the Bishop Street parking lot. The access point is generally determined by the parking permit acquired by each individual, as it relates to the parking lot in which they are authorized to park. Access points are depicted in Figure 9.

Recent survey results indicate approximately 68% of the respondents drive alone to campus most of the time and 19% carpool occasionally. This results in approximately 13 percent of persons utilizing alternative methods to arrive to campus.

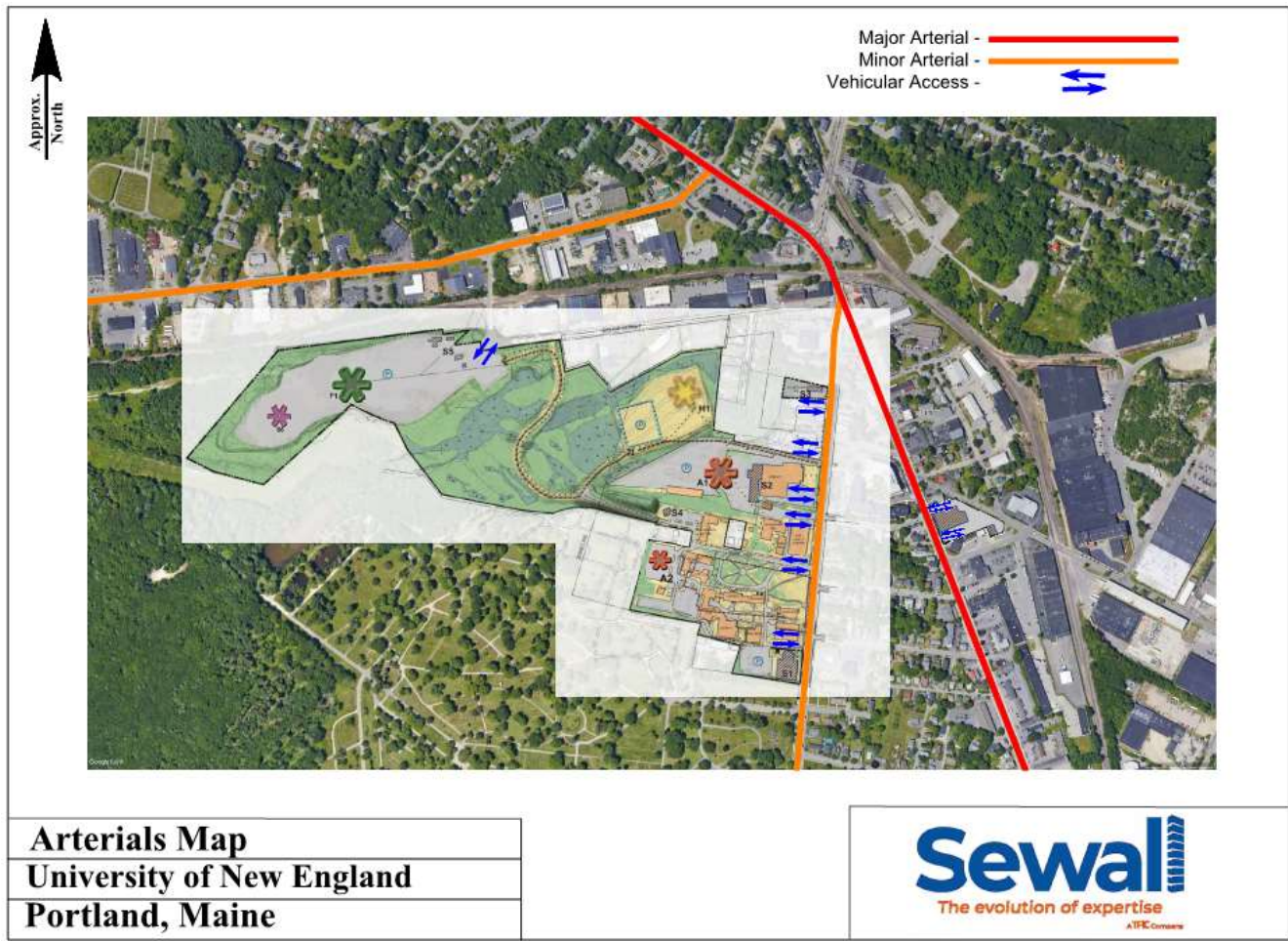


Figure 9 – Vehicle access points

Parking

There are currently eleven parking lots located at UNE’s Portland campus, plus on-street parking along two campus roadways. The lot locations are depicted in yellow dashes in Figure 10 below. The number of spaces located in each of these lots is detailed below in Table 1. All campus parking lots require the display of parking decals, and the lots on the core campus require the purchase of a parking permit through a lottery process. If a UNE community member isn’t successful in obtaining a permit in the lottery process, they can park for free in

the remote lots, which include Bishop Street parking, 1075 Forest Avenue, 812 Stevens Avenue, the leased lot at the neighboring Congregational Church, or the dirt parking lot behind Innovation Hall.

In addition to the on-campus parking, there is also on-street parking located on some of the surrounding streets, which is available to UNE community members. This on-street parking includes College Street on the core campus and parking along both sides of Stevens Avenue off-campus.



Figure 10 - Portland Campus parking lot diagram



Lot # & Description	# of Parking Spaces
1 – 812 Stevens	30
2 – Innovation Hall, Upper/Lower	101
3 – Innovation Hall, Front	34
4 – Oral Health Center/Alexander	38
5 – Ginn/McDougal	28
6 – Library	104
7 – Proctor	121
8 – Finley Rec Center	85
9 – Stevens Ave. Church	36
10 – UNE North, 1075 Forest Ave.	77
11 – Bishop St., Extension Lot	600

X – Proctor Access Road	3
Y – Hersey Circle	4
Total	1,261

Table 1- Current parking lot and space inventory

Existing Parking Analysis

While there are several alternative transportation modes available to access the Portland campus, the majority, 87%, of students and employees arrive by private vehicle, based on the most recent transportation survey. The UNE Office of Safety and Security conducts biannual parking lot counts in October and April in all campus lots. Security Officers count the open spaces daily for one week between the hours of 8 am and 5 pm. Based upon the most recent parking counts conducted in fall of 2021, parking demand generally peaks between 11:00 am and 2:00 pm. The largest number of vehicles recorded during the fall 2021 counts in the university lots was 651. This highest demand occurred on a Wednesday at 1:00 PM. This represents 51.5% of current overall on-campus capacity. The overall capacity will decrease when the Repair Facility building, currently under construction on the Bishop Street lot, is opened.

On-street parking census counts are included in the biannual parking analysis; however, these on-street vehicles counts are informational only, as the parking along these streets is also utilized by the general public with no UNE connection. The number of vehicles parked along College Avenue during the peak periods ranged from 18 to 22. The majority of these users are likely UNE community members. The number of vehicles recorded in the Stevens Avenue spaces during the 2021 peak period was 109. As previously noted, not all of these users are UNE community members, as there are private single and multifamily residences, local businesses, a daycare center, a school, a couple of churches, and a couple of larger housing complexes located along this stretch of road.

The City of Portland has implemented residential parking permit requirements and one-hour parking restrictions on most side streets in the vicinity of campus, reducing the amount of on-street parking available to UNE community members. However, as long as there continues to be free on-street parking along Stevens Avenue, proximal to the campus core, continued use of these spaces by UNE community member is expected, given their convenience. UNE will continue to support the city in its parking regulations in this area, and will consider these parking needs in the total on-campus parking capacity.

Shuttle Service

A free shuttle bus, outfitted with Wi-Fi, is provided from the Bishop Street parking lot to the campus core to provide for convenient parking access. There is a heated shelter with Wi-Fi at each end of the shuttle route to encourage ridership. The shuttle runs continuously from 7 am to 7 pm with minimal wait times. With these incentives, parking in this remote lot has increased significantly from 37 vehicles in October 2012, to 179 during the peak period (11:00 am to 2:00 pm) in October 2021.

Transportation Demand Management Plan

Overview

The University has had a Transportation Demand Management (TDM) Plan in place since 2010. This 2022 TDM Plan revision has been developed with the primary goal of reducing vehicle trips to campus and, thus, reducing the demand for on-site parking. The plan further aims to reduce traffic impacts, both on-campus and off-site, improve traffic flow in the surrounding area, and reduce UNE's Scope 3 carbon emissions.

UNE hopes to achieve these goals by implementing TDM strategies that promote and encourage alternative modes of transportation. In June 2019 a “Transportation Think Tank” (TTT) committee formed, with representation from Campus Planning, Student Affairs, Safety and Security, Undergraduate and COM Student Governments, Sustainability Office, and the Environmental Council. With oversight from the TTT committee, the Transportation Demand Management (TDM) strategies are regularly reviewed and updated to respond to changing conditions and needs. The TTT committee is actively engaged in implementing the TDM strategies outlined below.

TDM Strategies

EDUCATION & PROMOTION

UNE provides both educational and promotional material regarding the advantages of alternative transportation modes. The TDM Coordinator regularly publishes the “*Movements*” newsletter, which is hung in all bathroom stalls throughout the campus, ensuring visibility and contemplation. The newsletter informs the UNE community about ongoing, new, or revised transportation programs, events and resources, like bus maps and schedules, GoMaine carpool and rideshare information, parking updates, bike infrastructure updates, incentive program information and safety practices for pedestrians, among other topics. Additionally the university regularly provides specific TDM-related information to the campus community through various methods and media formats, including bulletin boards, strategically placed bus schedule brochure holders, weekly community-wide emails, digital screens, and website.

GOMAINE

UNE utilizes the GoMaine service to encourage “greener commuting” to each campus as well as between campuses when required. UNE has its own landing page on the [GoMaine website](#), which helps users find carpool partners, map out alternative transportation methods with transit, walking and biking routes, incentivizes users with rewards, and offers emergency “ride home guarantee” for regular users. Additionally UNE takes advantage of the expertise of GoMaine staff for educational and promotional events with informational tabling, swag give-aways, and educational presentations.

WAY-2-GO COMPETITION

During the last Way-2-Go, GoMaine competition in 2019, UNE won two awards: Most New Members in the XXL Company Category and the Team Spirit Awards. There was significant momentum developing in the alternative transportation realm and the university is eager to return to this pre-pandemic activity and progress. The TTT committee plans to participate in and support future Way-2-Go competitions.

CARPOOLING

The university provides free parking to carpoolers and dedicates some of the most convenient parking spaces as incentives. The carpool program is not widely publicized, as it is administered manually and challenging to enforce. The TTT committee has identified the need to streamline carpool permitting procedures, which would make the incentive more desirable while making administration of the program less cumbersome. This update is a goal for the 2022-2023 academic year.

TRANSIT SERVICE

The TDM plan includes the continuation of the provision of free GP Metro, South Portland City Bus Services, and Biddeford, Saco Old Orchard Beach Bus Transit (BSOOB) passes for all students, faculty, and staff to encourage transit usage. Each of these services provides GPS trackers with mobile apps for cell phones, which aid riders in knowing exactly where the bus is located and how close it is to their stop. The TTT committee actively engages with administration from these transit providers to update materials and promote ridership.

INCENTIVES

Since 2008, UNE has continually promoted the use of alternative modes of transportation through incentives, including: raffling of new bicycles and iPads for transportation competitions, providing free coffee and doughnuts to users of the Bishop Street parking lot, free use of electric vehicle charging stations, and free public transit passes. The TTT committee will continue to evaluate the effectiveness of incentives, and implement when warranted.

ON-GOING ASSESSMENTS OF EFFECTIVENESS

UNE has performed several student and employee surveys to determine arrival and departure times, transportation modality and parking usage, as well as to gauge interest in various alternative transportation and incentive programs. The results have guided UNE in making adjustments to its TDM plan, including infrastructure upgrades, and bus schedule changes, among others.

Recent hot mapping of faculty, staff, and student home addresses is being utilized to identify additional measures for enhanced promotional activities towards fostering alternative transportation modes and programs.

The Director of Safety and Security monitors the effectiveness of the TDM plan through biannual parking utilization studies. The TDM Coordinator and TTT Committee use the data collected from these parking studies to continually review and anticipate parking demand on campus and guide ongoing revisions to the TDM plan.

EV CHARGING INFRASTRUCTURE

UNE provides free charging for electric vehicles. There are three EV charging stations located at the Bishop Street parking lot behind the bus shelter. These charging stations are powered by grid-tied solar panels on the roof of the bus shelter. Additionally, there are five outlets on campus designated for EV slow-charging. Expanded EV infrastructure is planned with the development of the Harold and Bibby Alford Center of Health Sciences, as described later. The TTT Committee will continue to monitor the growth of EV adoption in the campus community and will advise administration regarding further expansion of charging infrastructure as needed.

BICYCLE INFRASTRUCTURE

UNE promotes bicycling as a convenient means to access campus for those students and employees that reside within the appropriate range, and for exercise and wellness benefits. The university has several bikes on campus that the UNE community members can borrow to utilize during the day. Bike racks are conveniently located across campus for campus community members to store their personal bikes as well. Additional bikes and racks will be added with the anticipated development of the Harold and Bibby Alford Center of Health Sciences, as described later. UNE has previously discussed, and would consider, being a site for a city-wide bike share program.

CAMPUS PLANNING

The University has traditionally located its programs so that it limits the travel between campuses by its community members. Thus, faculty and staff are generally assigned to only one campus and student degree programs are generally offered/completed on one campus or the other. However, there are several programs that are currently required to travel between campuses to access the highly specific and state-of-the-art facilities housed only on one of the two Maine campuses. For example, graduate students studying Dental Medicine in Portland are required to learn Gross Anatomy on the Biddeford Campus. Conversely, the Osteopathic Medicine students, located in Biddeford, are required to access the Simulation Center on the Portland Campus to learn using hi-tech robotics and virtual reality health care programming offered there. This

results in potentially hundreds of students commuting between Portland and Biddeford, during the day, several times a week. Development of the Harold and Bibby Alford Center of Health Sciences, described below will further limit this intercampus travel.

Proposed Access and Circulation Modifications

VEHICLE ACCESS AND PARKING

The Harold and Bibby Alford Center of Health Sciences (HBACHS) project will reconfigure the access point on Stevens Avenue at Innovation Hall, extending beyond the HBACHS, to the expanded parking area behind this new facility. The current drive will be widened and installed with a sidewalk from Stevens Avenue to the renovated parking area. The parking lot capacity will be approximately doubled. Pavement and lighting will be installed that meets the University's enhanced safety standards. Charging stations, a combination of Level 2 and 110v outlets, will be installed for free and convenient electric vehicle charging.

The Campus Master Plan provides for additional improvements to the parking access road connecting the proposed HBACHS facility parking lot, College Street, and the Bishop Street lot. This future access road will allow vehicles, bicycles and pedestrians, to travel between the core campus on Stevens Avenue, through to the Bishop Street parking lot and on to Warren Avenue. This future access road will eliminate unnecessary trips on Stevens Avenue, Forest Avenue, Bishop Street and Warren Avenue by allowing UNE community members to enter and exit the campus at the location most proximal to their origin/destination by either Bishop Street Extension or Stevens Avenue. More importantly, it will eliminate traffic that is currently routed through Morrill's Corner. The University is currently discussing its design with the Maine Department of Transportation and Portland Trails. Additional information related to this proposed development will be made available as it is developed.

PEDESTRIAN AND BICYCLE ACCESS

The Harold and Bibby Alford Center for Health Sciences building will include men's, women's and gender-neutral locker room facilities, complete with showers. These additional facilities encourage and support additional active transportation commuting modes to campus.

The Portland Trails network of trails abuts the campus and could be utilized by some local community members to access the campus. UNE is actively working with Portland Trails to extend this network across the UNE campus as the future access road is developed, which could provide additional alternative pedestrian access to the campus, as well as rerouting the Portland Trails route away from Morrill's Corner.

Additionally, the University anticipates the UNE community utilizing this future access road for increased bicycle access to campus. This would provide additional opportunities for UNE community members to bike to campus, without having to bike through Morrill's Corner, with its intimidating shared vehicle and bicycle lanes.

City Planning staff have suggested that the University consider allowing bike access to the general public along this future access drive. See Figure 11, below. However, the current design and anticipated funding sources limit the access road to two shared travel lanes and a sidewalk, and would not support significant additional traffic, including bicycles. The Maine DOT has also expressed interest in this alternative pedestrian and bicycle route away from Morrill's Corner. They are seeking grant opportunities to assist with the addition of bike lanes, which would allow for this potential increased usage. This expanded infrastructure would aid in connecting pedestrians and bicyclists from the Riverton Neighborhood to the Deering Center Neighborhood, without traveling through Morrill's Corner. If external funding is available, UNE may be able to consider the addition of bike lanes to the access road to accommodate this additional bicycle traffic.

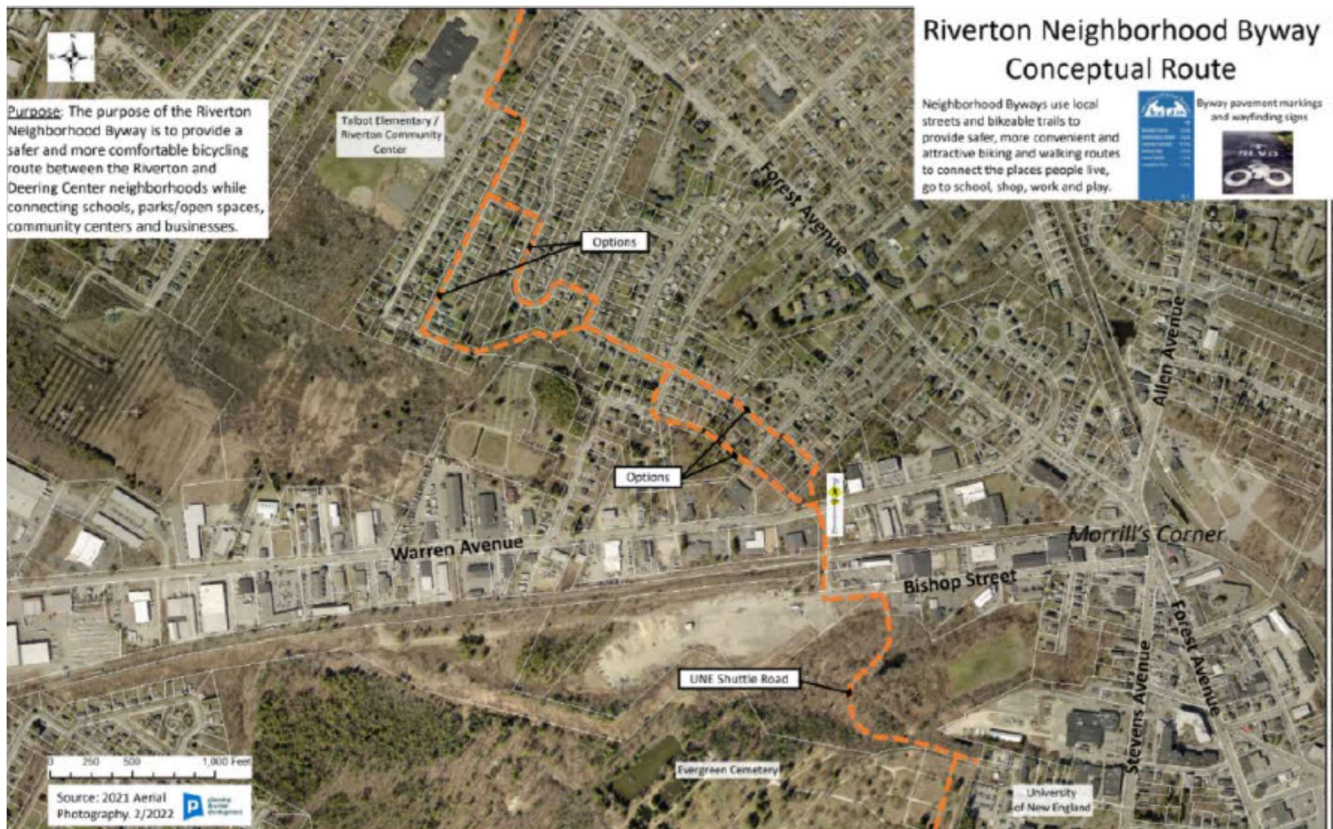


Figure 11 – City of Portland - Riverton Neighborhood Byway Conceptual Plan

Future Parking Needs

Through all of these actions, UNE has shown long-term dedication to reducing overall single-occupancy vehicle trips to campus and the associated traffic impacts to the area, and in being a good neighbor, as well as reducing its carbon footprint. Alternative transportation goals remain focused on realizing further reductions in these areas.

The goals for UNE in terms of parking are to:

- Continue to provide an adequate on-campus parking supply
- Reduce parking needs over time through continued TDM strategies
- Reduce neighborhood impact by reducing on-street parking usage by UNE community members

In previous projects, as approved by the City, UNE's parking needs, based on actual data, has been typically based on the student population, at an actual rate of 0.58 spaces per student. With a campus dominated by health professions graduate students, who often spend their entire day and week on campus, the parking demand is significantly more than the Institute of Transportation Engineers (ITE) would predict for a typical college or university. UNE intends to continue to monitor parking demand, twice a year, with the goal being to reduce the parking supply rate over time. With the construction of the HBACHS, the development will result in a net gain of 92 spaces in this area of campus. The recently approved Repair Facility near the Bishop Street parking lot, results in the loss of 256 spaces, while adding additional green space, resulting in a total of 1086 spaces on campus. With completion of these projects, the resultant parking need would be estimated at 0.54 spaces per student. This projected need does not include UNE community vehicles legally parked on adjacent public streets.

Lot # & Description	# of Parking Spaces
1 – 812 Stevens	30
2 – Innovation Hall, Upper/Lower	193
3 – Innovation Hall, Front	34
4 – Oral Health Center/Alexander	27
5 – Ginn/McDougal	28
6 – Library	104
7 – Proctor	121
8 – Finley Rec Center	85
9 – Stevens Ave. Church	36
10 – UNE North, 1075 Forest Ave.	77
11 – Bishop St., Extension Lot	344
X – Proctor Access Road	3
Y – Hersey Circle	4
Total	1,086

Table 2 - Anticipated parking availability with the development of HBACHS

Reduction Goals

With the ongoing efforts to increase transit ridership and increase carpooling and other alternative means of transportation, UNE anticipates a reduction in parking demand of approximately 4% over the next couple of years. With the completion of the HBACHS facility, UNE aims to increase on-campus parking and begin to reduce the on-street parking demand. This would be achieved through the addition of more on-campus parking within the campus core and incentivizing the use of alternative methods of transportation, primarily transit and carpooling. Survey results indicate options for carpooling could be enhanced with additional promotional events. The Go Maine Programs are featured prominently and regularly in the UNE Movements Newsletter, and a GO Maine informational event was recently held on campus.

Future Planning Efforts

UNE will continue to work with neighbors and neighborhood groups as campus development projects are planned to identify any neighborhood transportation issues and concerns so that they can be considered in the planning and design process. This will ensure that UNE will continue to be a good neighbor and minimize the impact on surrounding roadways as much as possible.

Additionally, UNE will continue to work with the City of Portland, the Maine Department of Transportation, Portland trails and other stakeholders to review and consider options for increasing active transportation to, from, and through the campus.

Appendix A: TDM Roles & Responsibilities

TDM COORDINATOR/ASSISTANT DIRECTOR OF SUSTAINABILITY

- Promote non-SOV transportation choices to faculty, staff, and commuter and resident students.
- Review potential new alternative transportation technology or SOV reduction technology and coordinate implementation efforts associated with them.
- Champion the implementation of new TDM strategies to reduce parking demand and increase the use of non-SOV transportation modes.
- Recruit and engage participants for any outreach events or campaigns associated with the TDM program over time.
- Conduct/provide information for new student/new employee orientation to educate incoming affiliates regarding their transportation options to and from the campus.
- Maintain the transportation webpage (<https://www.une.edu/studentlife/security/transportation>) content to include TDM strategies outlined in the TDM plan.
- Coordinate the implementation of TDM strategies with Student Affairs, Registrar, Human Resources, Safety and Security, Campus Planning, and any other departments as necessary.
- Work with the City of Portland, GP Metro, GoMaine, and other potential partners to improve non-SOV transportation access to the campus and to gain support for program implementation.
- Coordinate all monitoring and evaluation activities necessary to measure the effectiveness of the TDM program in achieving the targets.
- Facilitate collaborative, representative Transportation Think Tank Committee reviews.
- Co-develop with the Transportation Think Tank Committee financial parking incentives or disincentives as identified by the TDM plan.
- Update annual TDM Report, which will provide an assessment of strategies implemented to date and outline the activities to be implemented in the upcoming year.

VICE PRESIDENT OF CAMPUS OPERATIONS

- Maintain regular membership with the Transportation Think Tank Committee.
- Assist in the coordination of all monitoring and evaluation activities necessary to measure the effectiveness of the TDM program in achieving the targets.
- Review annual TDM Report, which will provide an assessment of strategies implemented to date and outline the activities to be implemented in the upcoming year.
- Provide consultation on TDM strategies that impact parking supply, services, and technology.
- Provide up-to-date data on parking lot inventories.
- Provide support for conducting additional parking assessments and measurements annually.
- Co-develop with the Transportation Think Tank Committee financial parking incentives or disincentives as identified by the TDM plan.
- Maintain existing parking infrastructure and technology, with support of Facilities Management and Campus Planning.
- Maintain parking services, including payments, campus notifications, and website updates.

DIRECTOR OF SAFETY AND SECURITY

- Maintain regular membership with the Transportation Think Tank Committee.
- Administer the parking permit process.
- Carry-out parking enforcement.
- Maintain interactive parking maps on transportation website.

- Conduct parking assessments in October and April annually, and report data to Transportation Think Tank Committee.

DIRECTOR OF INSTITUTIONAL RESEARCH AND DATA ANALYTICS

- Assist with annual transportation survey to faculty, students and professional staff.
- Provide data to assist with affiliate population density mapping to develop non-SOV transportation programming.

Unit Overview

Chiller Model	Ascend (TM) Air-Cooled Chiller Model ACS
Unit Nominal Tonnage	140 Nominal Tons
Refrigeration Capacity	127.07 tons
Cooling Efficiency	9.981 EER (Btu/W-h)
IPLV.IP	16.407 EER (Btu/W-h)
NPLV.IP	15.807 EER (Btu/W-h)
Elevation	0.00 ft
Unit Voltage	460V/60Hz/3 phase
Refrigerant Type	Refrigerant Charge R-410A
Agency Listing	UL listed to US & Canadian safety std
Model Number	ACSA1402EUAALUXAXNB2XFNX SMEX1HBBBXXAA1XX****X



Evaporator Information

Evaporator Application	Evaporator Application	Fluid Properties	
Fouling Factor	0.000100 hr-sq ft-deg F/ Btu	Fluid Type	Evaporator fluid type
Flow Sense Set Point	Flow Switch Set Point 35	Fluid Concentration	35.00 %
Design Flow	213.41 gpm	Fluid Freeze Point	2.40 F
Evaporator Head Loss	6.29 ft H2O	Entering Temperature	57.00 F
Strainer Head Loss	3.09 ft H2O	Leaving Temperature	42.00 F
VPF Min Flow	170.21 gpm		

Condenser Information

Unit Application	Standard Ambient	Temperatures	
Condenser Fin Options	Aluminum Micro Channel	Ambient Air Temp.	95.00 F
Number of Fans	8	Saturated Cond - ckt 1	119.01 F
		Saturated Cond - ckt 2	119.01 F

Unit Electrical

Compressor Starter	Across-The-Line-Starter		RLA	LRA XL
Unit Voltage	460V/60Hz/3 phase	Comp 1A	54.00 A	294.00 A
Unit Power	152.78 kW	Comp 1B	69.00 A	344.00 A
Incoming Power Line Conn. Type	Single Point Unit Power Connection	Comp 2A	54.00 A	294.00 A
Power Line Conn. Type	High Fault Rated Circuit Breaker	Comp 2B	69.00 A	344.00 A
FLA - Condenser Fan (each)	2.70 A	Single Point Power		
Short Circuit Current Option	High Short Circuit Rating	MCA	289 A	
Short Circuit Current Rating	65000 A	MOP	350 A	

Physical Information

Dimensions		Weights		Charge	Circuit 1	Circuit 2
Length	229 in	Operating	7897 lb	Refrigerant	57.0 lb	57.0 lb
Width	88 in	Shipping	7754 lb	Oil	3.10 gal	3.10 gal
Height	98 in					

Acoustical Performance

Unit Sound Level					Superior Sound Level				
Sound Power Levels (Lw, in dB, ref1 pW)									
Percent Load	Octave Band Center Frequency (Hz)								Overall A-Wtd
	63	125	250	500	1000	2000	4000	8000	
100	96 dB	100 dB	95 dB	94 dB	92 dB	85 dB	79 dB	73 dB	96 dBA
75		98 dB	93 dB	92 dB	89 dB	83 dB	77 dB	71 dB	94 dBA
50	91 dB	89 dB	88 dB	88 dB	87 dB	80 dB	74 dB	69 dB	90 dBA
25	88 dB	85 dB	84 dB	84 dB	83 dB	77 dB	71 dB	67 dB	86 dBA

Standard full and part-load rating conditions per AHRI 550/590

Sound Pressure Levels (Lw, in dB, ref1 pW) 10m from center of broad sides of chiller									
Percent Load	Octave Band Center Frequency (Hz)								Overall A-Wtd
	63	125	250	500	1000	2000	4000	8000	
100	69 dB	73 dB	68 dB	67 dB	65 dB	58 dB	52 dB	46 dB	69 dBA
75	68 dB	71 dB	66 dB	65 dB	62 dB	56 dB	50 dB	44 dB	67 dBA
50	64 dB	62 dB	61 dB	61 dB	60 dB	53 dB	47 dB	42 dB	63 dBA
25	61 dB	58 dB	57 dB	57 dB	56 dB	50 dB	44 dB	40 dB	59 dBA

Standard full and part-load rating conditions per AHRI 550/590

Regulatory Compliance

ASHRAE 90.1									
AHRI Standard 550/590									
Certified in accordance with Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Certified units may be found in the AHRI Directory at www.ahridirectory.org									

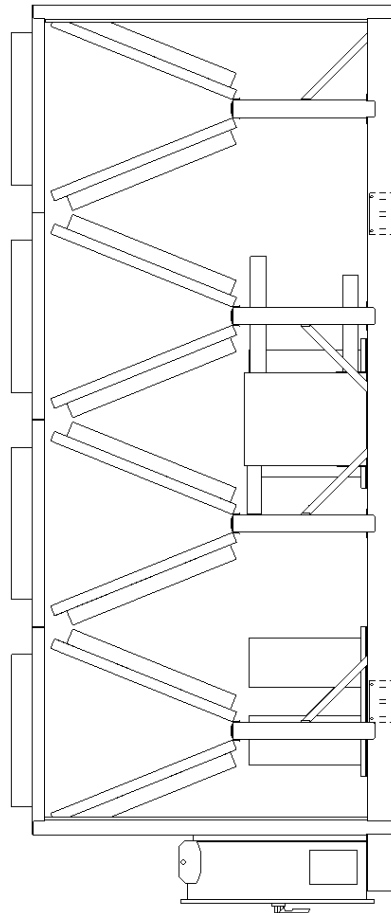
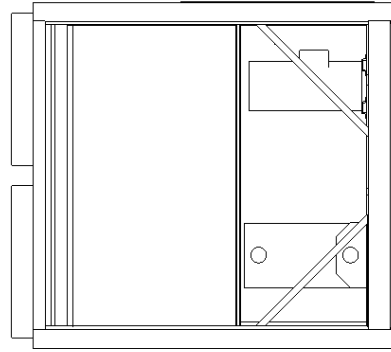
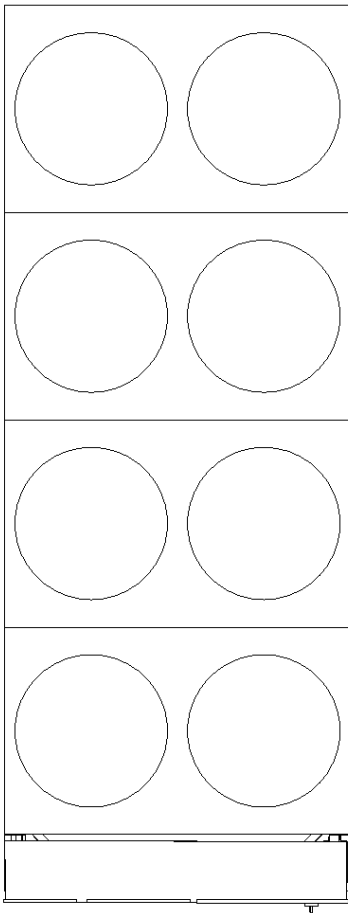


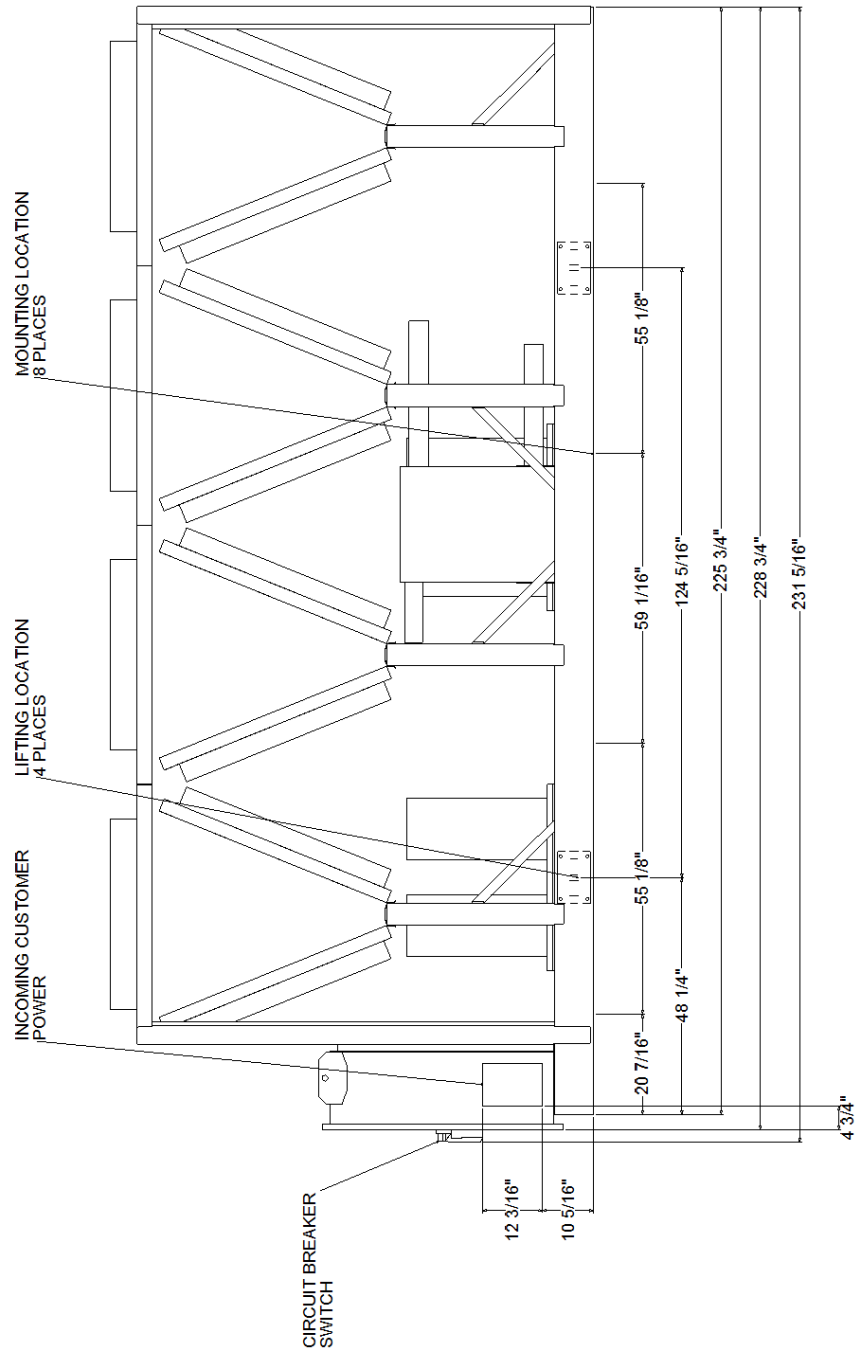
Information for LEED Projects

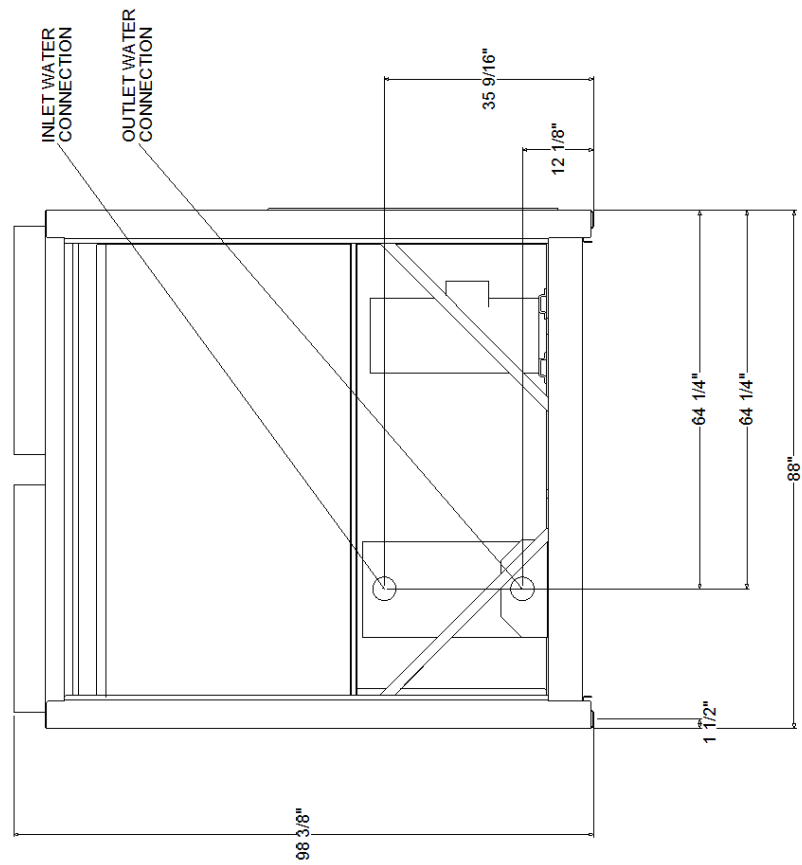
Refrigerant Charge - ckt 1	57.0 lb	This product meets the minimum efficiency requirements of ASHRAE Standard 90.1 and CANS/CSA C743 for all versions (which are based on AHRI standard rating conditions) and, therefore, also meets the LEED "Minimum Energy Performance" prerequisite in the Energy and Atmosphere section.
Refrigerant Charge - ckt 2	57.0 lb	
Rated Capacity (AHRI)	134.11 tons	The LEED Green Building Rating System™, developed by the U.S. Green Building Council, provides independent, third-party verification that a building project meets green building and performance measures.
Rated Efficiency (AHRI)	10.379 EER (Btu/W-h)	
IPLV	16.407 EER (Btu/W-h)	
Refrigeration Capacity	127.07 tons	
Compressor Power	143.87 kW	
Fan Motor Power	8.88 kW	

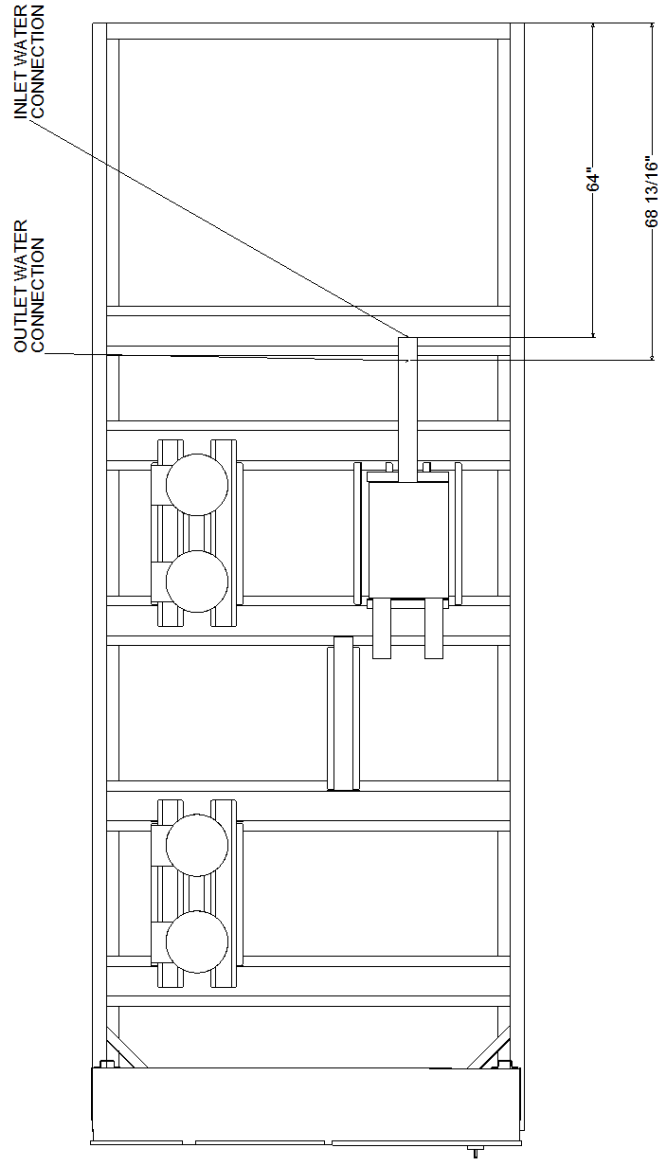
Trane Select Assist
Version Number: 250
Data Generation Date: 8/20/2021

NOMINAL TONNAGE 140
 WATER CONNECTION 4" (100mm)
 WATER VOLUME 4481 in3
 NOTE: WIRING AND MOST PIPING IS
 NOT SHOWN FOR CLARITY. ONLY MAJOR
 COMPONENTS ARE SHOWN.









CONDENSER REMOVED FOR CLARITY

- NOTES:**
1. DO NOT FORK LIFT UNIT.
 2. KEEP UNIT LEVEL WHEN LIFTING.
 3. TOTAL WEIGHT IS TYPICAL FOR UNITS WITH R-410A AND WITHOUT LOUVER PANELS.
 4. DIAGRAM IS A GENERIC REPRESENTATION OF THE UNIT.
 5. THE MAXIMUM RIGGING ABLE AT EACH CHILLER LIFT POINT IS 30 DEGREES FROM VERTICAL.
 6. DO NOT ALLOW LIFTING STRAPS/CHAINS TO CONTACT UNIT DURING LIFT.

TOTAL SHIPPING/LIFTING WEIGHT 7,754 lb

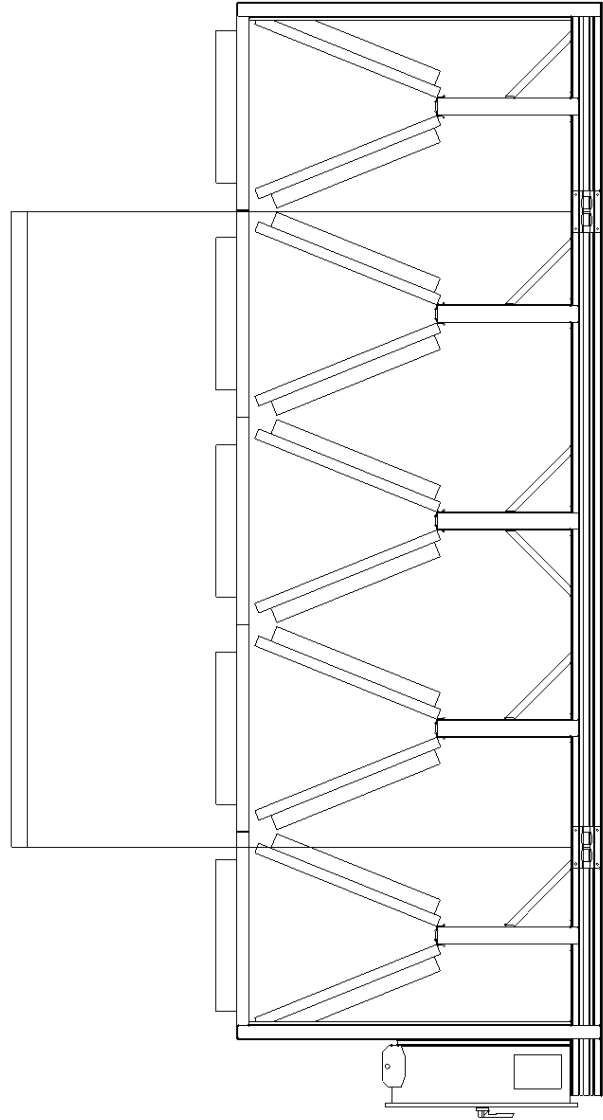
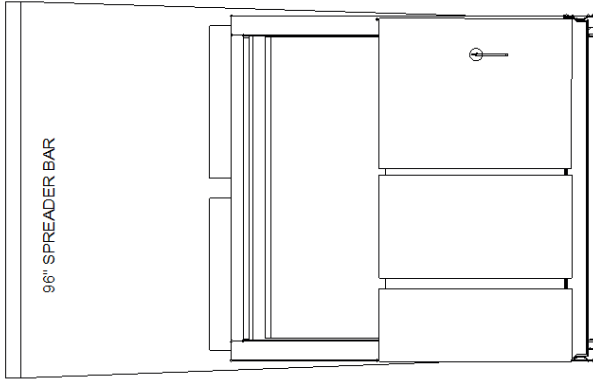
WARNING

LIFTING AND RIGGING

Use the spreader bar as shown in the diagram. Refer to installation instructions located inside control panel for further rigging information.

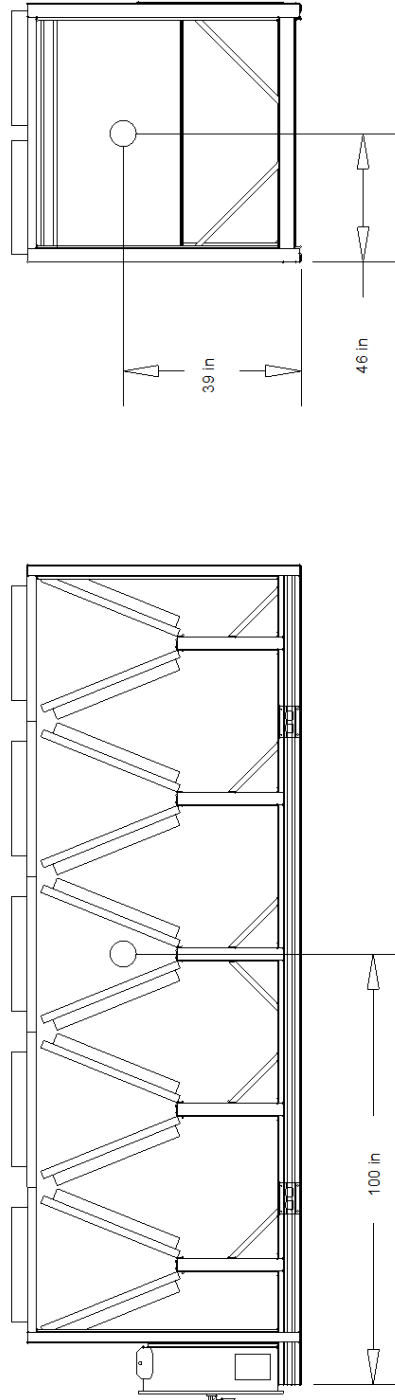
Other lifting arrangements could result in death, serious injury or equipment damage.

DO NOT ALL LIFTING STRAPS TO CONTACT UNIT DURING LIFT.

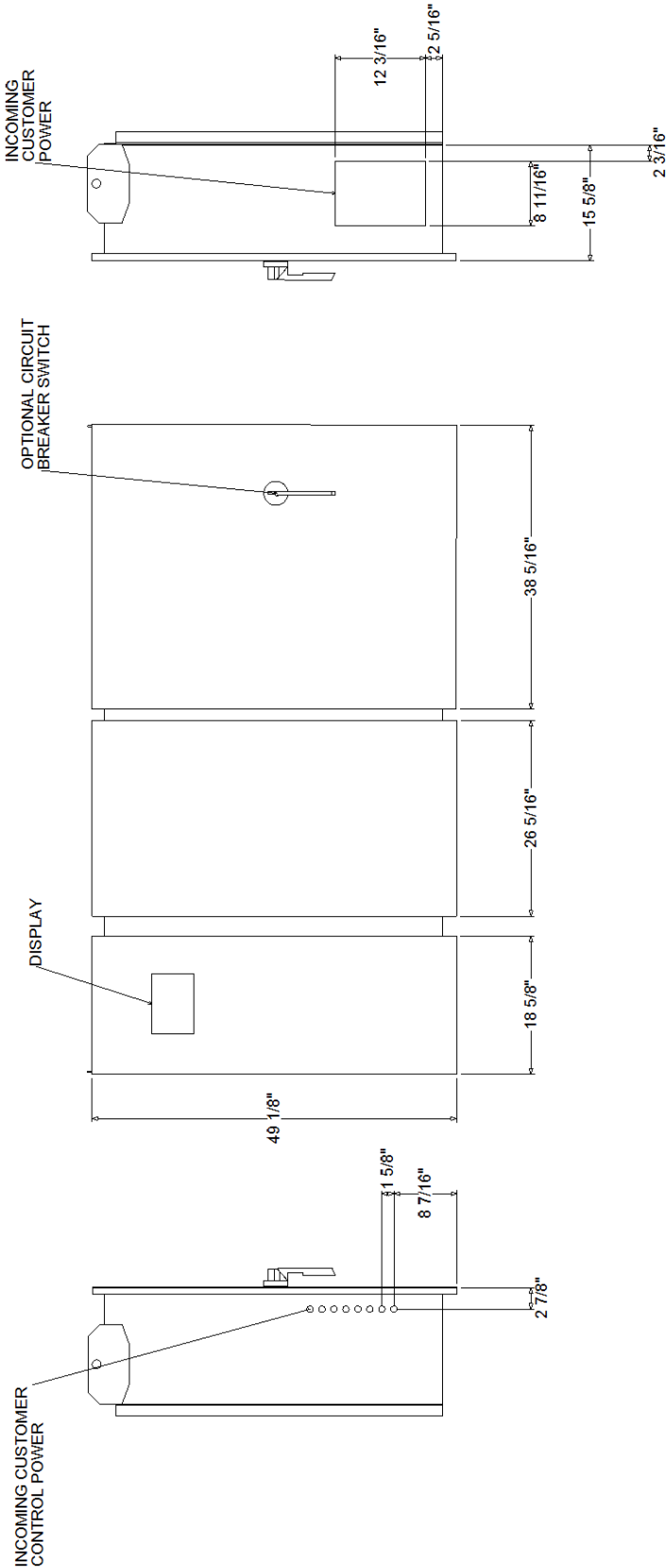
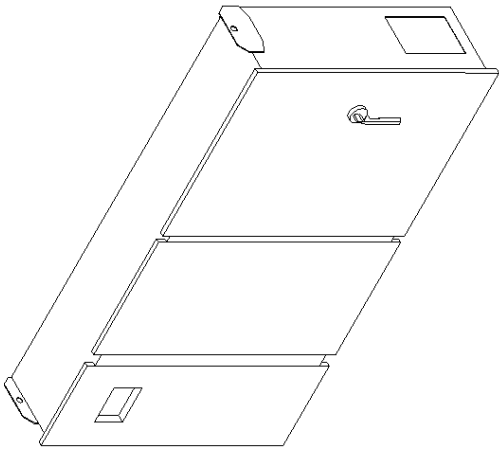


CENTER OF GRAVITY

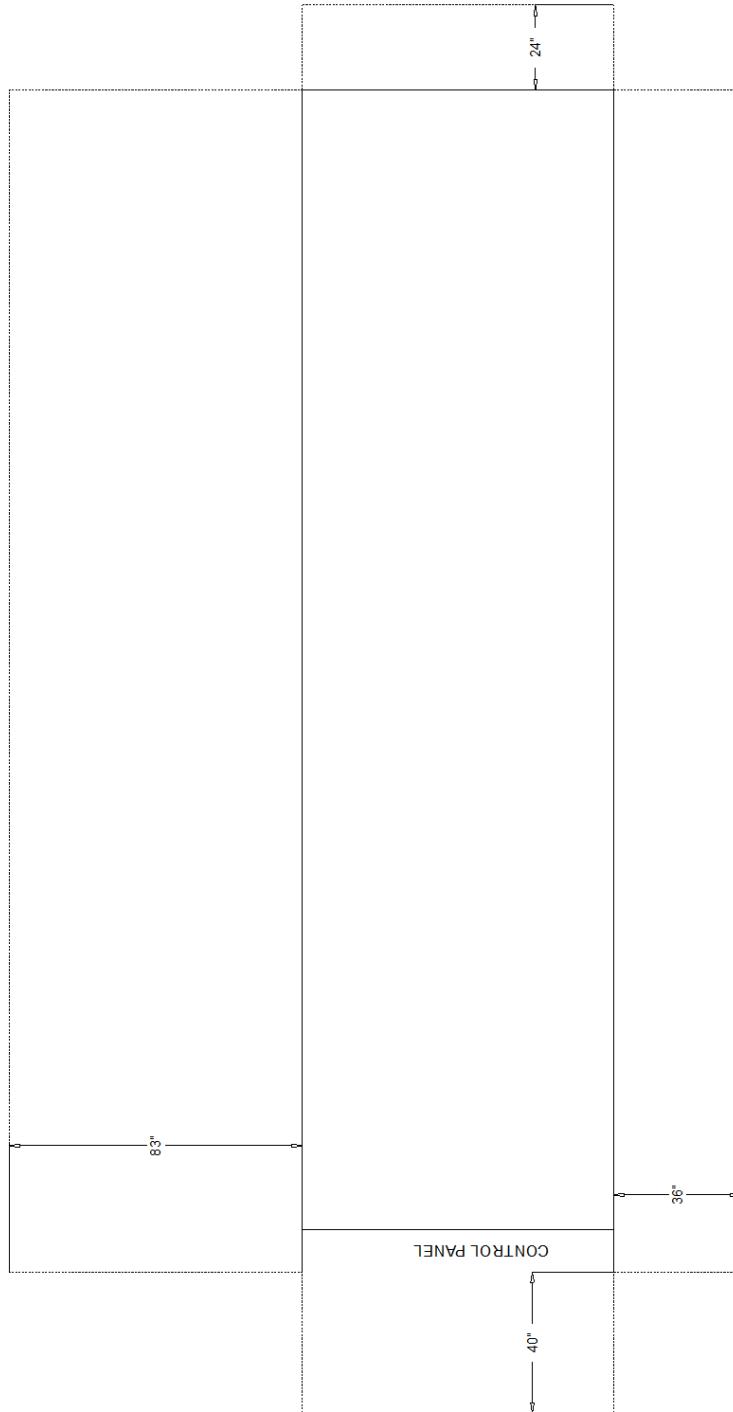
Different unit configurations and options may cause a variation in the center of gravity from what is listed. Refer to the Installation, Operating and Maintenance manual for specific lifting instructions.



CUSTOMER WIRE SELECTION TABLE		
POWER WIRE CONNECTION TO HIGH FAULT CIRCUIT BREAKER		
CIRCUIT 1 & 2 (SINGLE POINT POWER) LUG WIRE SIZE RANGE (PER PHASE)	(2) 2/0 - 500 MCM	
SHORT CIRCUIT RATING	65,000 A	



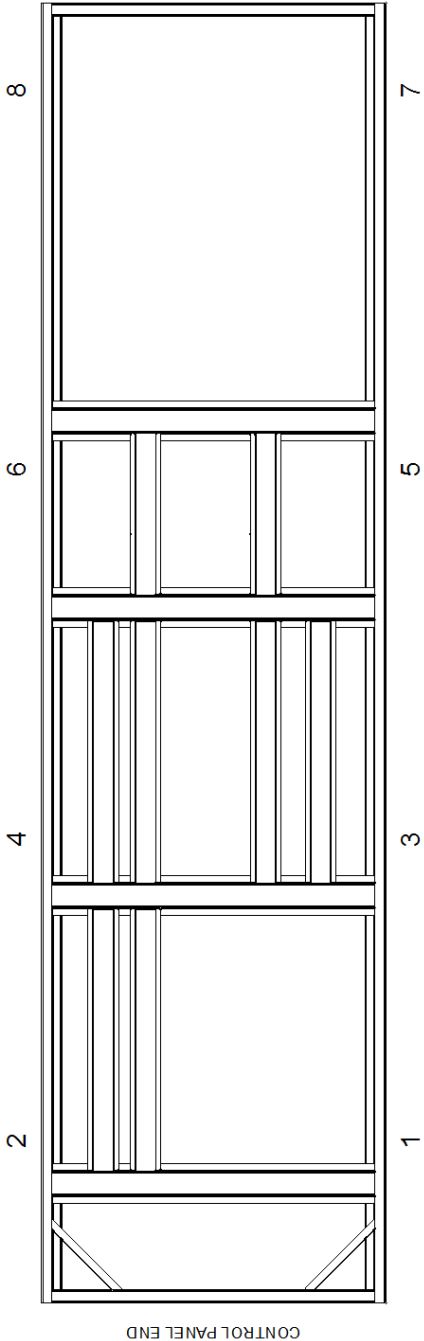
UNIT CLEARANCE
NO OBSTRUCTIONS ABOVE UNIT



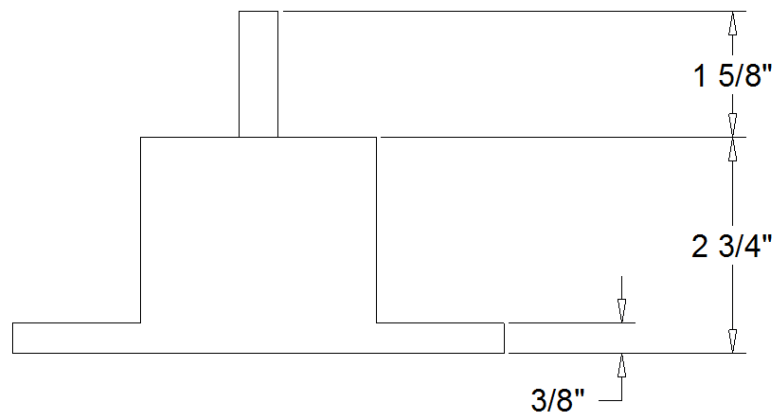
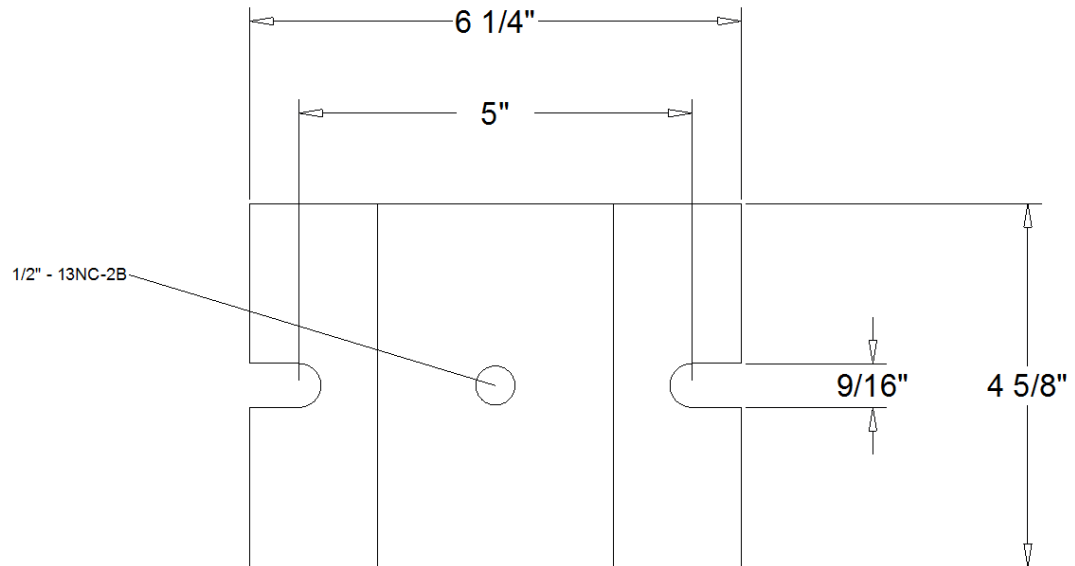
POINT LOAD WEIGHTS AND ISOLATOR SELECTIONS

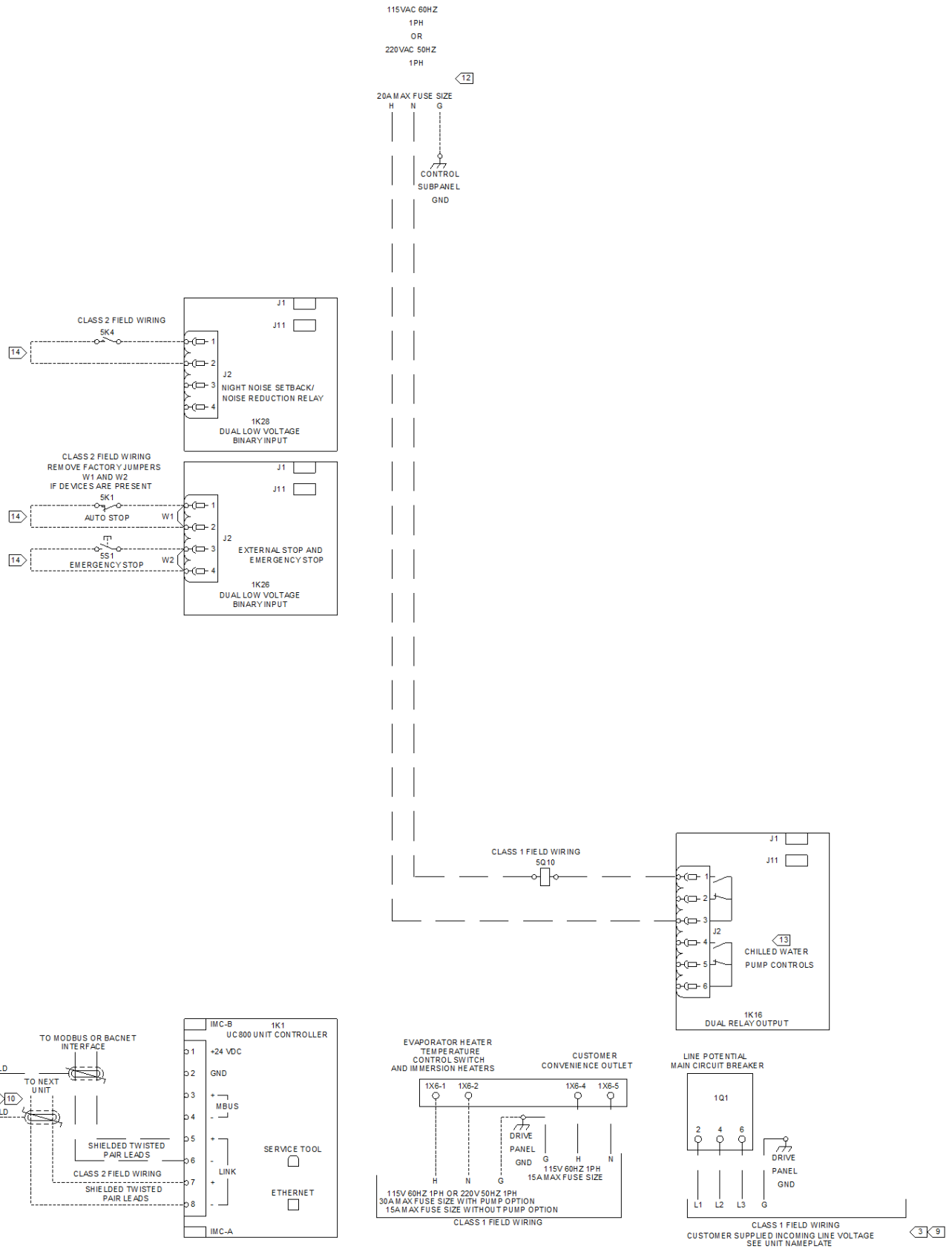
Mounting Hole Diameter: 9/16"

1	1,329 lb	RDP4-WR BRICK RED MAX LOAD 2250.0 lb
2	1,410 lb	RDP4-WR LIME MAX LOAD 3000.0 lb
3	1,170 lb	RDP4-WR BRICK RED MAX LOAD 2250.0 lb
4	1,369 lb	RDP4-WR LIME MAX LOAD 3000.0 lb
5	684 lb	RDP4-WR BROWN MAX LOAD 1500.0 lb
6	671 lb	RDP4-WR BROWN MAX LOAD 1500.0 lb
7	601 lb	RDP4-WR BROWN MAX LOAD 1500.0 lb
8	663 lb	RDP4-WR BROWN MAX LOAD 1500.0 lb



NEOPRENE ISOLATOR DIMENSIONS





GENERAL NOTES:

1. WIRE REPRESENTED BY DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
2. ALL STANDARD AND OPTIONAL COMPONENTS SHOWN.
- 3 SINGLE SOURCE POWER IS PROVIDED AS STANDARD ON THIS PRODUCT. FIELD CONNECTIONS ARE MADE TO DEVICES 1Q1 OR 1X1.
4. ALL MOTORS ARE PROTECTED FROM PRIMARY SINGLE PHASE FAILURES.
5. CAUTION - TRANE PUMP CONTROL MUST BE USED TO PROVIDE PUMP CONTROL. EVAPORATOR CHILLED WATER PUMP MUST BE CONTROLLED BY THE CHILLER OUTPUT. FAILURE TO COMPLY WITH THIS REQUIREMENT MAY RESULT IN DAMAGE TO THE UNIT.
6. CAUTION - DO NOT ENERGIZE THE UNIT UNTIL CHECK OUT AND STARTUP PROCEDURES HAVE BEEN COMPLETED.

WIRING REQUIREMENTS:

7. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC), STATE AND LOCAL CODES.
8. DO NOT RUN LOW VOLTAGE CONTROL WIRING (30V OR LESS) IN CONDUIT WITH 110V OR HIGHER WIRING. DO NOT EXCEED THE FOLLOWING MAXIMUM RUN LENGTH FOR A GIVEN SIZE: 14 AWG OF 5000 FT, 16 AWG OF 2000 FT OR 18 AWG OF 1000 FT.
- 9 ALL UNIT POWER WIRING MUST BE 600V COPPER CONDUCTORS ONLY AND HAVE A MINIMUM TEMPERATURE INSULATION RATING OF 90 C. REFER TO UNIT NAMEPLATE FOR MINIMUM CIRCUIT AMPACITY AND MAXIMUM OVERCURRENT PROTECTION DEVICE. PROVIDE AN EQUIPMENT GROUNDING IN ACCORDANCE WITH APPLICABLE ELECTRIC CODES. REFER TO WIRE RANGE TABLE FOR LUG SIZES.
- 10 SHIELDED, TWISTED PAIR LEADS ARE REQUIRED FOR CONNECTIONS TO THE COMMUNICATIONS INTERFACE MODULES (1K1 OR OPTIONAL 1K6). THE SHIELD SHOULD BE GROUNDED AT THE UNIT CONTROL PANEL END.
- 11 22 AWG SHIELDED COMMUNICATION WIRE EQUIVALENT TO HELIX LF22P0014216 IS RECOMMENDED FOR WIRING TO NEXT UNIT. THE SUM TOTAL OF ALL INTERCONNECTED CABLE SEGMENTS ARE NOT TO EXCEED 4500 FT. CONNECTION TOPOLOGY SHOULD BE DAISY CHAIN. REFER TO BUILDING AUTOMATION SYSTEM (BAS) COMMUNICATION INSTALLATION LITERATURE FOR END OF LINE TERMINATION RESISTOR REQUIREMENTS.
- 12 ALL CUSTOMER SUPPLIED CONTROL CIRCUIT WIRING MUST BE COPPER CONDUCTORS ONLY AND HAVE A MINIMUM INSULATION RATING OF 300V. EXCEPT AS NOTED, ALL CUSTOMER WIRING CONNECTIONS ARE MADE TO CIRCUIT BOARD MOUNTED BOX LUGS WITH A WIRE RANGE OF 14 TO 18 AWG OR TO DIN RAIL MOUNTED SPRING FORCE TERMINALS.

CONTACT RATINGS AND REQUIREMENTS:

- 13 UNIT PROVIDED DRY CONTACTS FOR THE CONDENSER / CHILLED WATER PUMP CONTROL. RELAY CONTACT RATINGS AT 120VAC: 7.2A RESISTIVE, 2.88A PILOT DUTY, OR 1/3 HP, 7.2 FLA. CONTACTS ARE RATED FOR 240VAC, 5A GENERAL PURPOSE DUTY. 1K16 IS NOT PRESENT WITH PUMP PACKAGE OPTION.
- 14 CUSTOMER SUPPLIED CONTACTS FOR ALL LOW VOLTAGE CONNECTIONS MUST BE COMPATABLE WITH DRY CIRCUIT 24VDC FOR A 12mA RESISTIVE LOAD. SILVER OR GOLD PLATED CONTACTS ARE RECOMMENDED.

Trane Performance Climate Changer Air Handler

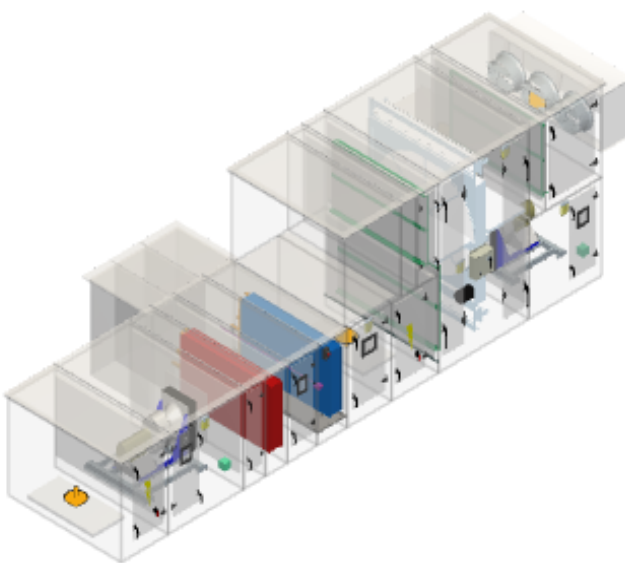
Unit Overview - DOAS-1

Application	Unit Size	External Dimensions			Weight	
		Height	Width	Length	Installed	Rigging
Outdoor unit	CSAA017	104.4 in	Width: 72.000	Unit length: 306.757	8700 lb	7462 lb
Quantity of Shipping Sections		Largest Ship Split			Heaviest Ship Split	Elevation
		Height	Width	Length		
5 piece(s)		55.2 in	72.0 in	202.4 in	3949 lb	0.00 ft
Supply Fan				Return/Exhaust Fan		
Airflow	7275 cfm	Total Static Pressure	5.792 in H2O	Airflow	6826 cfm	Total Static Pressure 4.039 in H2O

Note: Height includes air handler sloped roof panel and standing seam.

Construction Features

Panel	2in. foam injected R-13 with thermal break
Panel Material	All unit inner panels - galvanized
Integral Base Frame	6in. integral base frame
Paint	Slate gray
Short Circuit Current Rating	5 kA
Agency Approval	UL listed unit
Roof Curb Type	Standard roof curb



Unit Electrical

Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size
Circuit number 1 SPP (Field provided unit disconnect)	460/3/60	36.52 A	41.77 A	60.00 A
Circuit number 2 UV lights 1	115/1/60	1.54 A	1.93 A	15.00 A
Circuit number 3 Lights + switch	115/1/60	2.61 A	3.26 A	15.00 A
Circuit number 4 Receptacle	115/1/60	8.00 A	10.00 A	15.00 A

Unit Acoustics

Sound Path	63 (Hz)	125	250	500	1K	2K	4K	8K
Supply bottom:	81 dB	79 dB	78 dB	87 dB	80 dB	75 dB	79 dB	67 dB
Return:	67 dB	64 dB	76 dB	64 dB	60 dB	60 dB	60 dB	46 dB
Outdoor:	69 dB	71 dB	64 dB	68 dB	61 dB	60 dB	58 dB	47 dB
Exhaust:	82 dB	78 dB	88 dB	80 dB	76 dB	73 dB	77 dB	63 dB
Casing:	81 dB	79 dB	82 dB	86 dB	78 dB	63 dB	64 dB	56 dB

Unit Controls

Controller Type	No controller
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Warranty

Warranty section	Extd. warranty
Labor - 1st year	1st year labor warranty

Pipe cabinet section

Pipe cabinet 1 side doors	One side door
Pipe cabinet 1 door front position	One front door
Pipe cabinet 1 door back position	One back door

Exhaust fan section - Position: 1

Fan Data				Motor Data			
Wheel Diameter/Type/Class		22.25in. dd plenum, 80% width, M press		Power / Fan		10 hp	
Fan Quantity		1		Voltage		460/3	
Discharge Location		Side opp. drive		Speed		1800	
Motor Location		Right side drive		Class		NEMA premium compliant ODP	
Blades		Higher eff.(some bands lower,more spike)		Precision Motor		No	
Drive Service Factor		Direct drive		Efficiency		92.12 %	
Fan Performance				Part Load Efficiency		86.09 %	
				Fan Electrical Power		5.83 kW	
				Fan Section Options			
Airflow		6826 cfm		Inlet Sound Attenuator		Inlet bell (reduces spike)	
Total Static Pressure		4.039 in H2O		Fan Wheel Balance		Inverter balance with shaft grounding	
Total Brake Power		6.873 hp		Perforated Panel		Perforated panels	
Operating Speed		1960 rpm		Door Location		Right	
Total Brake HP		6.873 hp		Window		Right - thermal	
AMCA FEG		FEG80		Door Guard		Yes	
Unit Static Efficiency		63.24 %		Marine Light		Marine LED light	
Motor Interface Options							
Selection Type		VFD					
Voltage		460/3					
Mounting Location		Internal mounting					
Motor Wire In Conduit		Motor wiring conduit					
VFD Frequency		66.00 Hz					
Fan Discharge Options							
Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Damper Torque Requirement	Exhaust Hood
Side Face Feature	Opposed blade damper	7000 cfm	1241 ft/min	5.64 sq ft	0.144 in H2O	N/A	N/A

Exhaust fan Acoustics

Sound Path	63 (Hz)	125	250	500	1K	2K	4K	8K
Return:	67 dB	64 dB	76 dB	64 dB	60 dB	60 dB	60 dB	46 dB
Exhaust:	82 dB	78 dB	88 dB	80 dB	76 dB	73 dB	77 dB	63 dB
Casing:	76 dB	74 dB	81 dB	76 dB	71 dB	58 dB	57 dB	52 dB

Pressure Drop in (in w.g.)

Exhaust fan	
Wheel	1.53
Fan section	0.51
Internal Static Pressure	2.04
External Static Pressure	2.00
Total Static Pressure	4.04

Starter/VFD only section - Position: 2

Return/Exhaust Fan Motor Interface Door			Right			
Openings						
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Return	Rectangular	7000 cfm		5.91 sq ft	

Air mixing section - Position: 3

Openings							
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Back	Outside	Std TRAQ	7326 cfm	1748 ft/min	4.19 sq ft	0.271 in H2O	Yes
Filter							
Type	Frame	MERV Rating	Quantity	Size		Pressure Drop	
Pleated media - MERV 8	2"	MERV 8	2.00	20in.x20in. 20in.x24in.		0.606	
			4.00				
Condition	Face Velocity	Airflow	Area				
Mid-life	388 ft/min	7326 cfm	18.89 sq ft				
Section Options							
Door Location			Right				

Custom length section - Position: 4

Section Length	10.523 in
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Dedicated outside air Energy wheel - Position: 5

Wheel				Motor			Dampers												
Size		Efficiency		Model Number		Voltage		Interface Options		Exhaust Air Bypass		Outside Air Bypass		Recirculation					
7000		High		Wheel 7000 Poly H		460/3		Starter		Yes		Yes							
Design Airflow																			
Ventilation				Exhaust				Return				Supply							
7000 cfm				6500 cfm				6775 cfm				7275 cfm							
Pressure Drop @ Design Airflow						SA to RA Pressure Diff	OACF Ratio	OATR Flow	EATR	EATR Flow									
Supply Side		Exhaust Side		Recirculation Damper															
1.00 in H2O		0.94 in H2O		N/A															
				1.500 in H2O		1.01 Number		326 cfm		3.8 %		275 cfm							
Summer Conditions																			
Outside Air			Return Air			Supply Air			Exhaust Air			Effectiveness							
Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Latent		Sensible	Total				
87.00 F		72.00 F	75.00 F		63.00 F	78.17 F		65.77 F	84.21 F		69.93 F	71.8 %		76.5 %	73.5 %				
Winter Conditions																			
Outside Air			Return Air			Supply Air			Exhaust Air			Effectiveness							
Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Latent		Sensible	Total				
-5.00 F		-6.00 F	70.00 F		53.00 F	48.29 F		39.79 F	12.05 F		11.94 F	72.3 %		77.6 %	75.9 %				
Energy Savings																			
Summer												Winter							
Sensible			Latent			Total			Sensible										
68.82 MBh			87.99 MBh			156.81 MBh			414.49 MBh										
Economizing																			
Supply Airflow				Supply Side Pressure Drop				Exhaust Airflow				Exhaust Side Pressure Drop							
7000 cfm				0.53 in H2O				6500 cfm				0.55 in H2O							
Return/Exhaust Air Filter																			
Type		Frame		MERV Rating		Airflow		Face Area		Face Velocity		Condition		Pressure Drop		Quantity		Size	
Pleated media - MERV 8		2"		MERV 8		6775 cfm		18.89 sq ft		359 ft/min		Mid-life		0.595 in H2O		2.00 4.00		20in.x20in. 20in.x24in.	
Energy Wheel Section Options																			
Door Location										Right									
1st level - air entering LED light										Marine LED light									
2nd level - air entering light										Marine LED light									
AHRI 1060 Classification - Summer																			
AHRI 1060 Classification										AHRI ERV Certified									
Data Generation Date										8/6/2021									
Trane Select Assist update number										2490									

Note: Purge is Not Included.

Note: Certified in accordance with the AHRI ERV Certification Program, which is based on AHRI Standard 1060. Certified units may be found in the AHRI Directory at www.ahridirectory.org.




AHRI 1060 Classification - Winter

AHRI 1060 Classification Outside Scope of AHRI 1060

Data Generation Date 8/6/2021

Trane Select Assist update number 2490

Note: Application Rating is outside of the scope of AHRI ERV Certification Program, but is rated in accordance with AHRI Standard 1060.

Filter section - Position: 6

Primary Filter

Type	Frame	Loading	Airflow	Face Area	Face Velocity	Condition	Pressure Drop	Filter Quantity	Filter Size
4in. cartridge - MERV 14 - premium	4in. filter frame	Side load filters	7275 cfm	18.89 sq ft	385 ft/min	Mid-life	0.762 in H ₂ O	2.00 4.00	20x20 20x24

Filter Section Options

Door Location

Right

Extra sets of filter type 1

1 extra set

Custom length section - Position: 7

Section Length 10.000 in

Access/blank/turning section - Position: 8

Options

Section Length 36.000 in

Air mixing section - Position: 9

Openings

Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Section Options							
Door Location			Right				
Window			Right - thermal				
Marine Light			Marine LED light				

Cooling coil section - Position: 10

Coil Construction		Coil Performance	
Model	Chilled water - UW	Capacity	
Rows	8	Total	300.86 MBh
Tube Diameter	1/2in. tube diameter (12.7 mm)	Sensible	209.68 MBh
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes	Air	
Fin Spacing	101 Per Foot	Flow	7275 cfm
Fin Material	Aluminum fins	Entering Dry Bulb	78.17 F
Fin Type	Delta flo H (Hi efficient)	Entering Wet Bulb	65.77 F
Face Area	16.81 sq ft	Leaving Dry Bulb	52.00 F
Coil (top/single) H x L	40 in. (1016 mm) X 61" (1549 mm) finned length	Leaving Wet Bulb	51.87 F
Casing	Galvanized	Pressure Drop	0.716 in H ₂ O
Turbulators	Yes	Face Velocity	433 ft/min
Rigging Weight	323.3 lb	Fluid	
Installed Weight	461.4 lb	Flow	44.12 gpm
Voltage	115/60/1	Entering	42.00 F
Coil Section Options		Leaving	57.00 F
Extended Drain and Vent	Holes only	Pressure Drop	12.42 ft H ₂ O
Drain Pan	Stainless steel	Tube Velocity	2.44 ft/s
Drain Connection	Left	Reynolds Number	1858.20
Minimum Trap Height (L)	10.582 in	Type	Propylene glycol
H Trap Dimension	6.388 in	Concentration	35.00 %
J Trap Dimension	3.194 in	Fouling Factor	0.00000 hr-sq ft-deg F/Btu
Service Panel	Coil connection side	Volume	14.70 gal
UV Light	Yes	AHRI 410 Classification	
		AHRI 410 Classification	NOT Certified by AHRI
		Data Generation Date	8/6/2021
		Trane Select Assist update number	2490



Note: Coil is NOT certified by AHRI. Coil is within the scope of AHRI Standard 410.

Access/blank/turning section - Position: 11**Options**

Section Length	19.000 in
Door Location 1	Right
Window 1	Right - thermal

Heating coil section - Position: 12

Coil Construction		Coil Performance	
Model	Hot water - UW	Capacity	
Rows	2	Total	531.41 MBh
Tube Diameter	1/2in. tube diameter (12.7 mm)	Air	
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes	Flow	7000 cfm
Fin Spacing	137 Per Foot	Entering Dry Bulb	-5.00 F
Fin Material	Aluminum fins	Leaving Dry Bulb	65.00 F
Fin Type	Delta flo H (Hi efficient)	Pressure Drop	0.150 in H2O
Face Area	16.81 sq ft	Face Velocity	417 ft/min
Coil (top/single) H x L	40 in. (1016 mm) X 61" (1549 mm) finned length	Fluid	
Casing	Galvanized	Flow	26.63 gpm
Turbulators	Not Included	Entering	140.00 F
Rigging Weight	125.1 lb	Leaving	100.00 F
Installed Weight	167.0 lb	Pressure Drop	0.77 ft H2O
Coil Section Options		Tube Velocity	1.47 ft/s
Extended Drain and Vent	Holes only	Reynolds Number	10312.74
Service Panel	Coil connection side	Type	Water
		Concentration	100.00 %
		Fouling Factor	0.00025 hr-sq ft-deg F/Btu
		Volume	5.03 gal
		AHRI 410 Classification	
		AHRI 410 Classification	Outside Scope of AHRI 410
		Data Generation Date	8/6/2021
		Trane Select Assist update number	2490

Note: Coil is NOT certified by AHRI. Coil is outside the scope of AHRI Standard 410.

Access/blank/turning section - Position: 13**Options**

Section Length	14.000 in
Door Location 1	Right

Supply fan section - Position: 14

Fan Data		Motor Data	
Wheel Diameter/Type/Class	22.25in. dd plenum, 80% width, H press	Power / Fan	15 hp
Fan Quantity	1	Voltage	460/3
Discharge Location	Front top	Speed	1800
Motor Location	Right side drive	Class	NEMA premium compliant ODP
Blades	Improved sound(lowest overall,less spike	Precision Motor	No
Drive Service Factor	Direct drive	Efficiency	93.46 %
Fan Performance		Part Load Efficiency	88.96 %
Airflow	7275 cfm	Fan Electrical Power	8.71 kW
Total Static Pressure	5.792 in H2O	Fan Section Options	
Total Brake Power	10.473 hp	Inlet Sound Attenuator	Inlet bell (reduces spike)
Operating Speed	2213 rpm	Fan Wheel Balance	Inverter balance with shaft grounding
Total Brake HP	10.473 hp	Perforated Panel	Perforated panels
AMCA FEG	FEG80	Door Location	Right
Unit Static Efficiency	63.43 %	Window	Right - thermal
Motor Interface Options		Door Guard	Yes
Selection Type	VFD	Marine Light	Marine LED light
Voltage	460/3		
Mounting Location	Internal mounting		
Motor Wire In Conduit	Motor wiring conduit		
VFD Frequency	75.00 Hz		

Supply fan Acoustics

Sound Path	63 (Hz)	125	250	500	1K	2K	4K	8K
Supply bottom:	81 dB	79 dB	78 dB	87 dB	80 dB	75 dB	79 dB	67 dB
Outdoor:	69 dB	71 dB	64 dB	68 dB	61 dB	60 dB	58 dB	47 dB
Casing:	79 dB	77 dB	73 dB	85 dB	77 dB	62 dB	63 dB	54 dB

Pressure Drop in (in w.g.)

Supply fan	
Air mixing section	1.07
Wheel	1.00
Filter section	0.76
Coil section	0.72
Coil section	0.17
Fan section	0.02
Controls section	0.04
Internal Static Pressure	3.79
External Static Pressure	2.00
Total Static Pressure	5.79

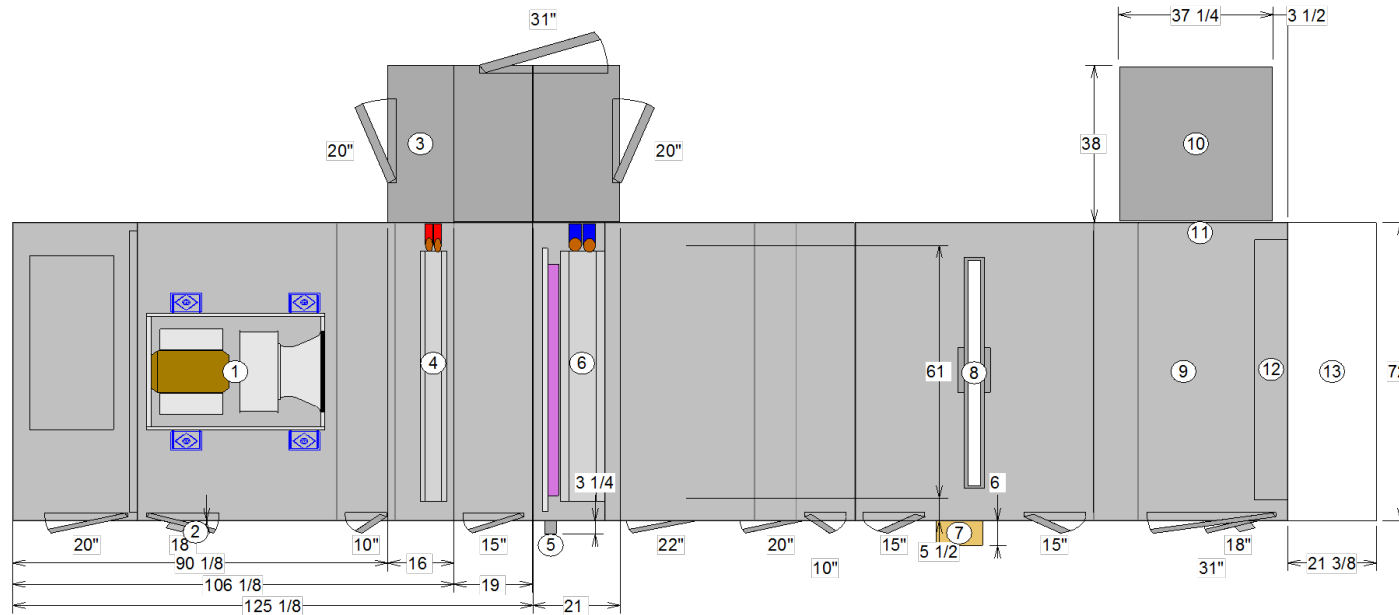
Starter/VFD only section - Position: 15

Supply Fan Motor Interface Door			Right			
Openings						
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Supply	Rectangular	7000 cfm	1185 ft/min	5.91 sq ft	0.044 in H2O



Job Name: UNE IIPE COM Building

CSAA
Quantity: 1
Tags: DOAS-1



- 1 Plenum fan - 22.25in. dd plenum, 80% width, H press Supply fan 15 hp 460/3 None
 - 2 Light switch and/or receptacle RH
 - 3 Pipe cabinet left (3)
 - 4 Heating coil - 2 Coil type UW
 - 5 UV light switch RH
 - 6 Cooling coil - 8 Coil type UW
 - 7 External starter RH
 - 8 Energy wheel - 7000
 - 9 Plenum fan - 22.25in. dd plenum, 80% width, M press Exhaust fan 10 hp 460/3 None
 - 10 Hood left
 - 11 Damper left-opposed blade 29 x 34.22
 - 12 Standard Traq damper back 19.75 x 62.75
 - 13 Hood back
- Doors
- 20 width x 42 height
 - 10 width x 42 height
 - 18 width x 42 height
 - 20 width x 41 height
 - 15 width x 42 height
 - 31 width x 41 height
 - 22 width x 42 height
 - 15 width x 92 height
 - 31 width x 42 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 17	Job Name: UNE IIPE COM Building	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8



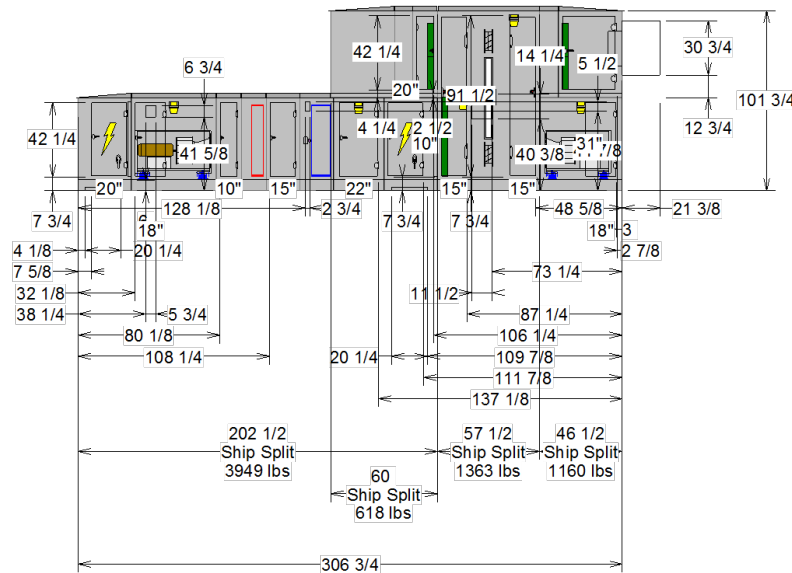
TRANE

Performance Climate Changer
Air Handlers



Job Name: UNE IIPE COM Building

CSAA
Quantity: 1
Tags: DOAS-1



- 1 Plenum fan - 22.25in. dd plenum, 80% width, H press Supply fan 15 hp 460/3 None
 - 2 Light switch and/or receptacle RH
 - 3 Pipe cabinet left (3)
 - 4 Heating coil - 2 Coil type UW
 - 5 UV light switch RH
 - 6 Cooling coil - 8 Coil type UW
 - 7 External starter RH
 - 8 Energy wheel - 7000
 - 9 Plenum fan - 22.25in. dd plenum, 80% width, M press Exhaust fan 10 hp 460/3 None
 - 10 Hood left
 - 11 Damper left-opposed blade 29 x 34.22
 - 12 Standard Traq damper back 19.75 x 62.75
 - 13 Hood back
- Doors
- 20 width x 42 height
 - 10 width x 42 height
 - 18 width x 42 height
 - 20 width x 41 height
 - 15 width x 42 height
 - 31 width x 41 height
 - 22 width x 42 height
 - 15 width x 92 height
 - 31 width x 42 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

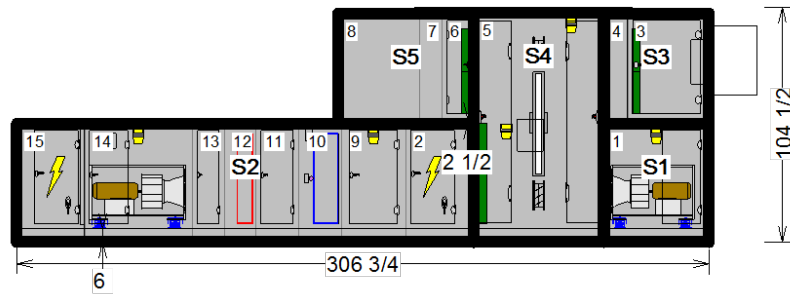
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 17	Job Name: UNE IIPE COM Building	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8



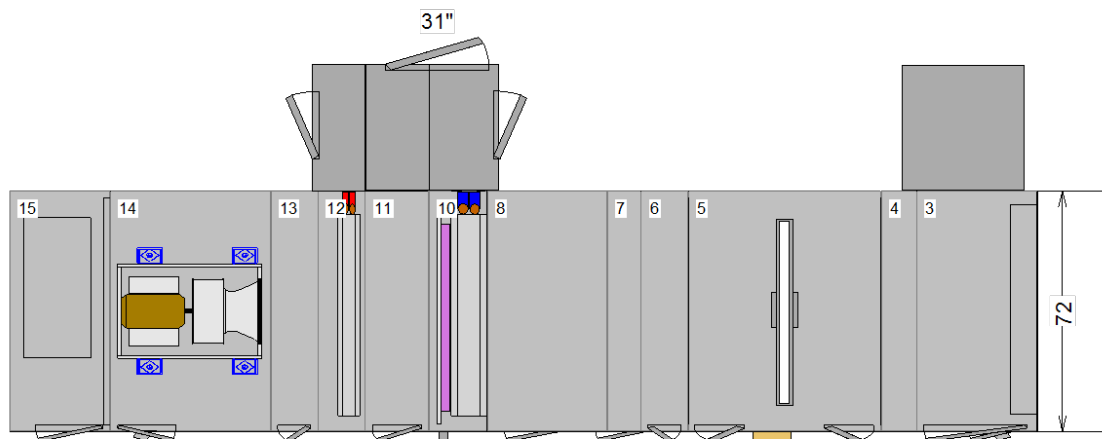
TRANE

Performance Climate Changer
Air Handlers



For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length sh

Pos #	Module	Length	Weight	Pos #	Module	Length	Weight
1	Fan section	46 1/2	1159.64	14	Fan section	48	1278.59
2	Controls section	30	444.86	15	Controls section	30	470.57
3	Air mixing section	36	461.92		Roof Curb		1057.91
4	Custom length section	10 1/2	90.30	Installed Unit Weight 8699.85 lbs			
5	Wheel	57 1/2	1363.03				
6	Filter section	14	174.91				
7	Custom length section	10	86.01				
8	Access section	36	356.81				
9	Air mixing section	28 3/8	261.97				
10	Coil section	19	732.28				
11	Access section	19	221.98				
12	Coil section	14 1/8	391.36				
13	Access section	14 1/8	147.71				



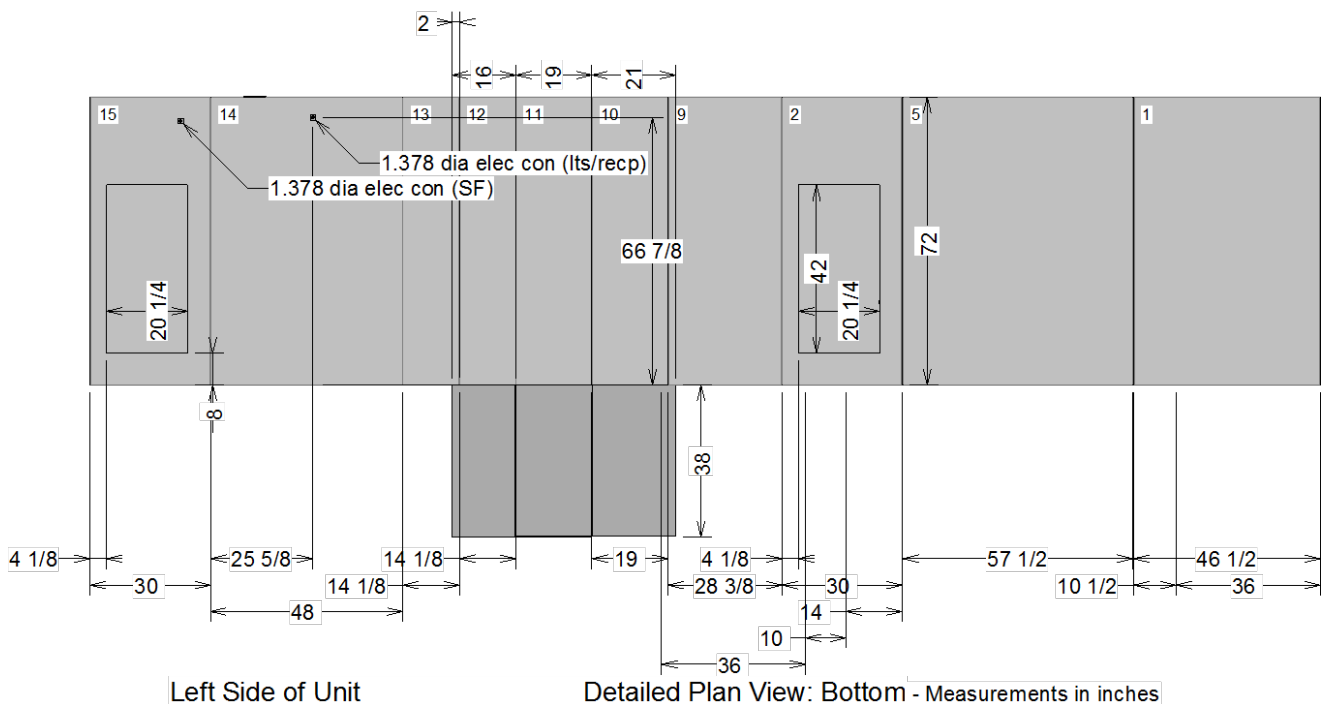
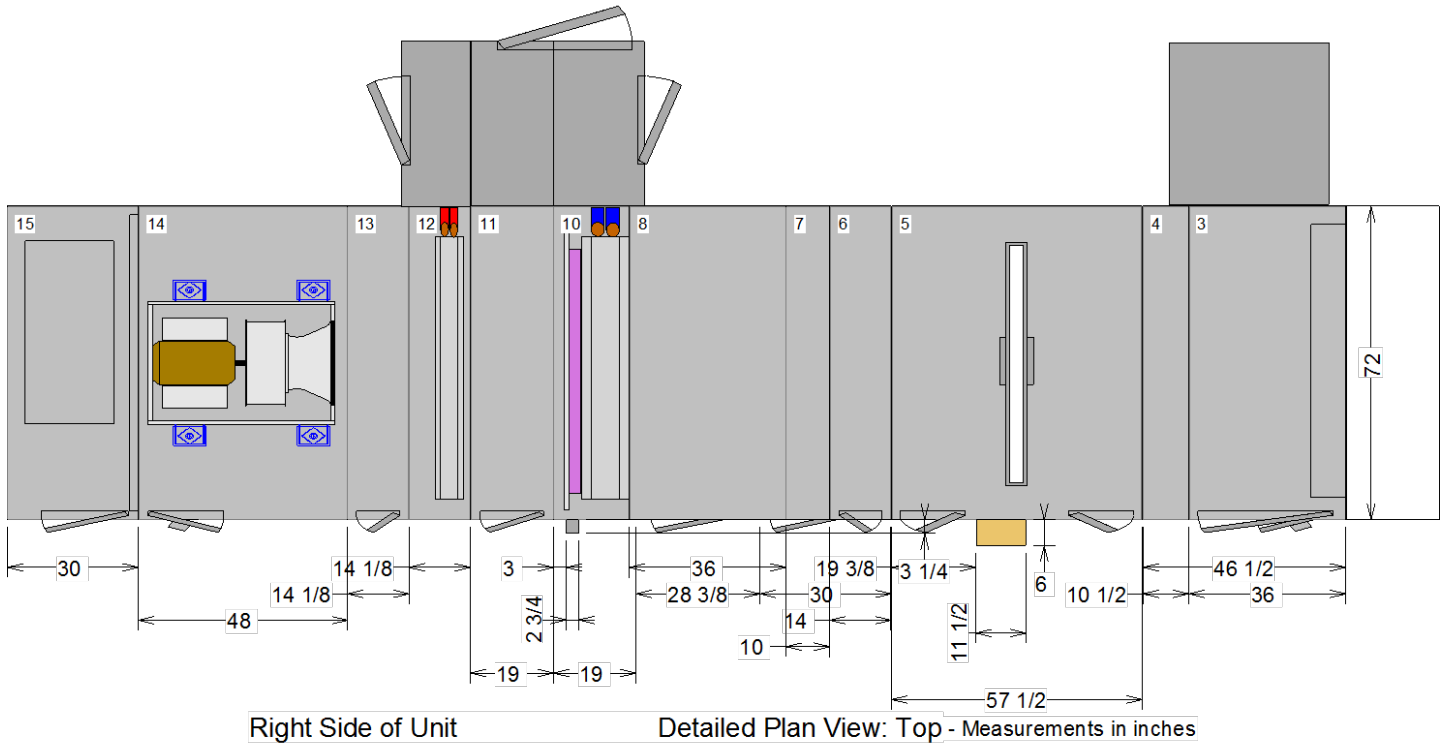
Basic Overall Plan View: Top - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 17	Job Name: UNE IIPE COM Building	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8


TRANE

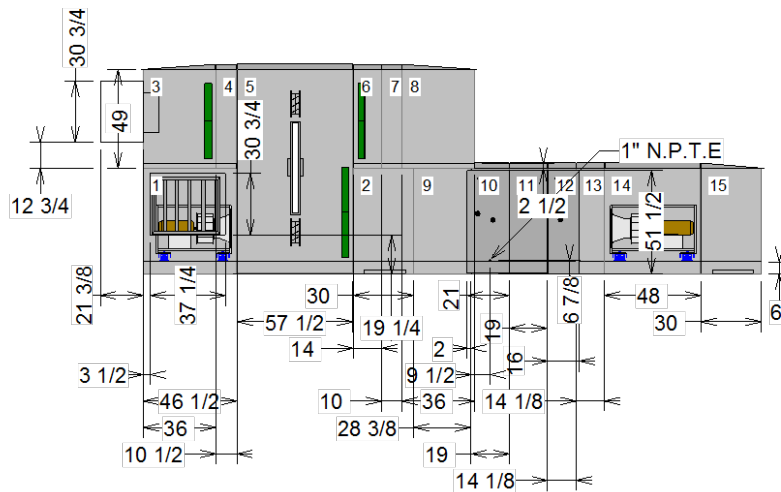
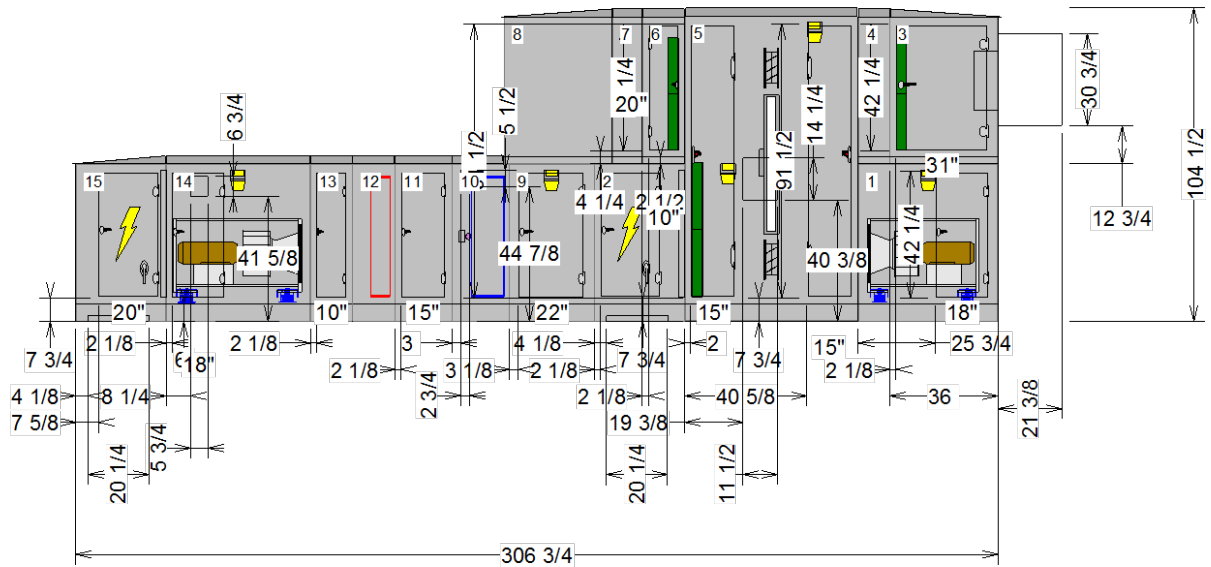
Performance Climate Changer
Air Handlers



****Placement of electrical conduit may vary by a tolerance of 8" in any direction.**

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 17	Job Name: UNE IIPE COM Building	Unit Casing: 2in Double Wall Foam	 TRANE Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1	
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8	



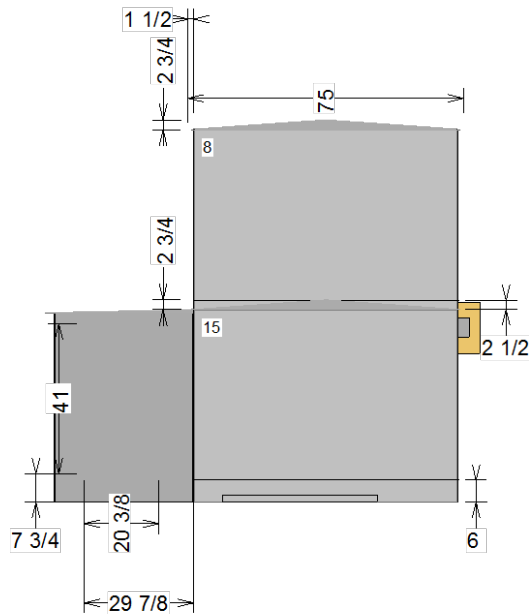
Detailed Elevation View: Left - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

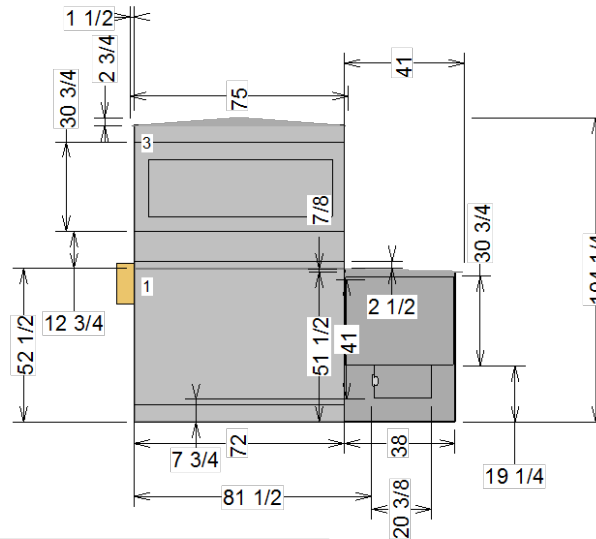
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Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8


TRANE

Performance Climate Changer
Air Handlers



Detailed Elevation View: Front - Measurements in inches



Detailed Elevation View: Back - Measurements in inches

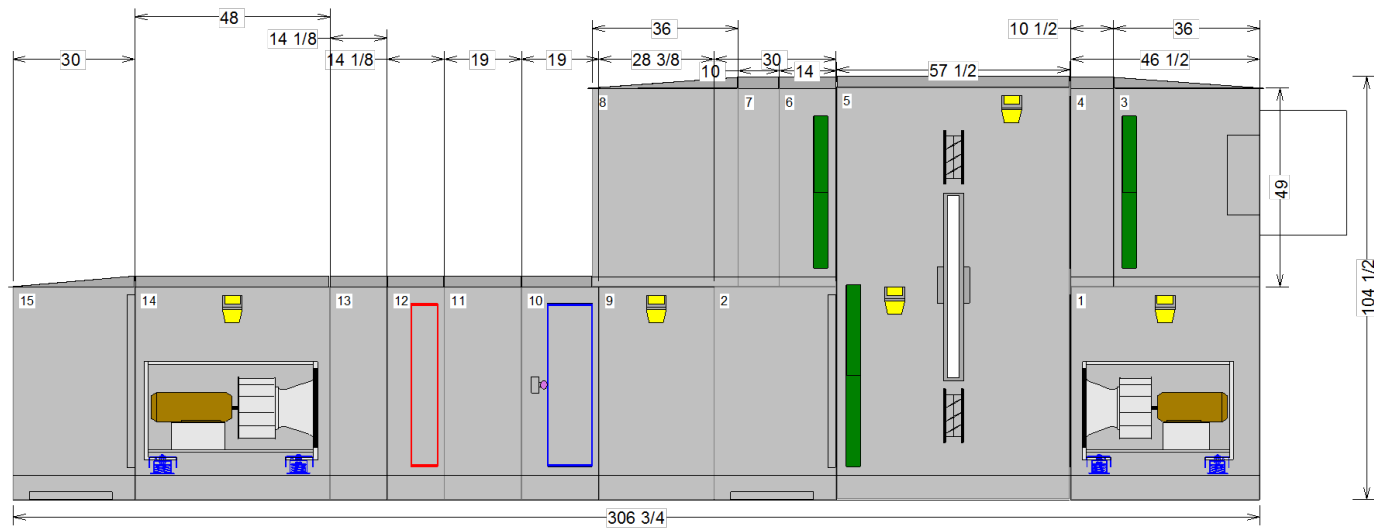
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Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1	
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8	



Job Name: UNE IIPE COM Building

CSAA
Quantity: 1
Tags: DOAS-1



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

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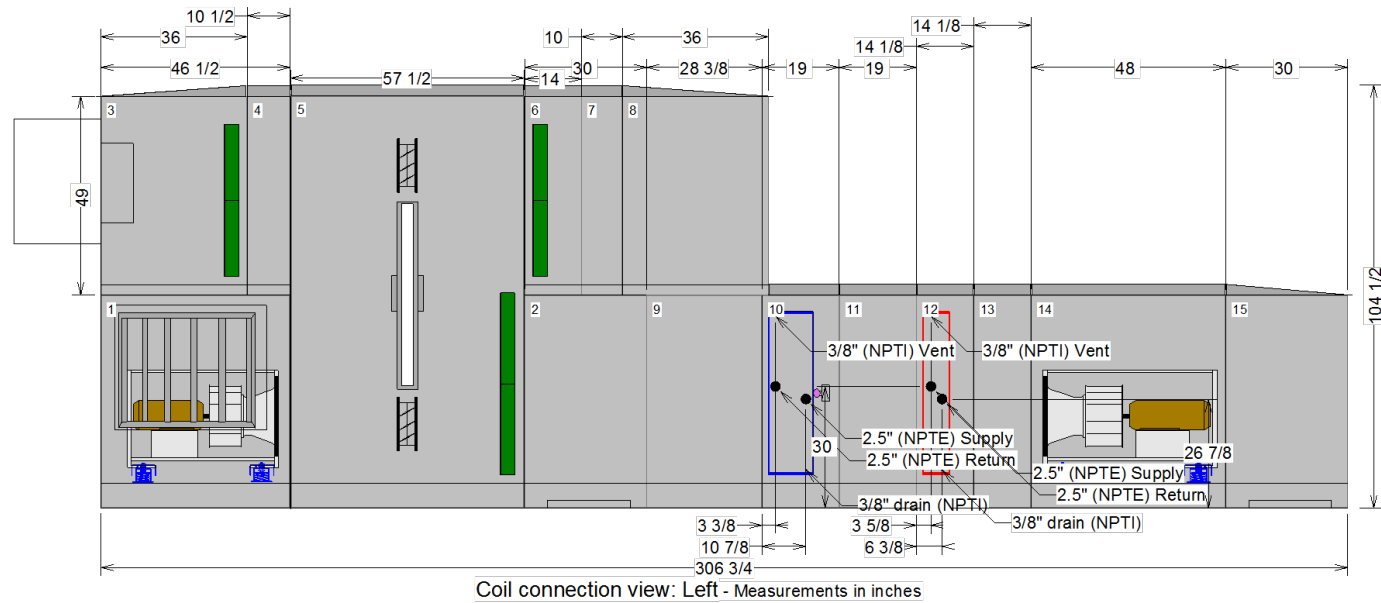
TRANE

Performance Climate Changer
Air Handlers



Job Name: UNE IIPE COM Building

CSAA
Quantity: 1
Tags: DOAS-1



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

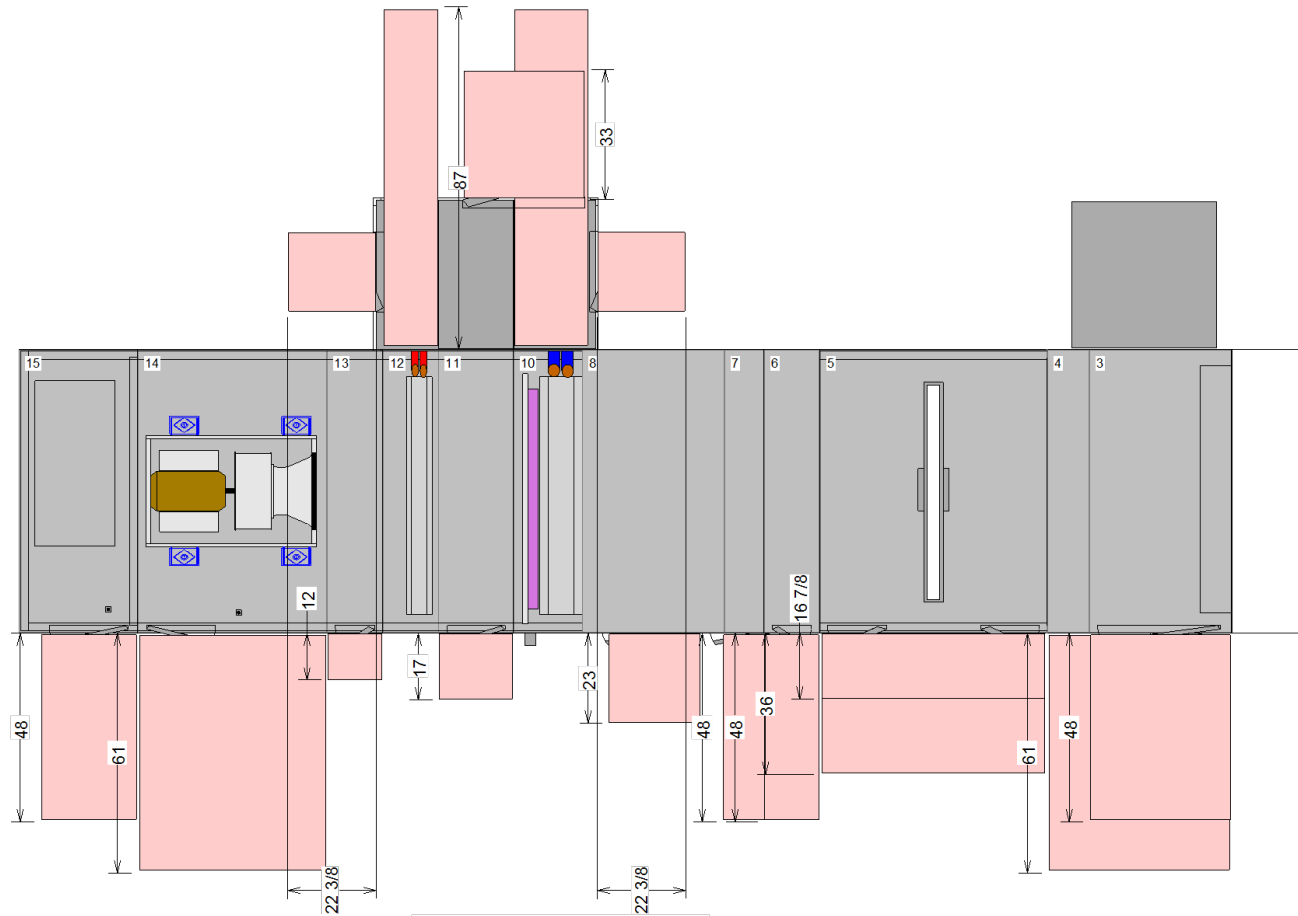
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Unit size: 17	Job Name: UNE IIPE COM Building	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 7000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: DOAS-1
Paint: Slate gray		Rigging weight: 7462.0 / Installed weight: 8699.8



TRANE

Performance Climate Changer
Air Handlers



Basic Service Clearance - Plan - Measurements in inches

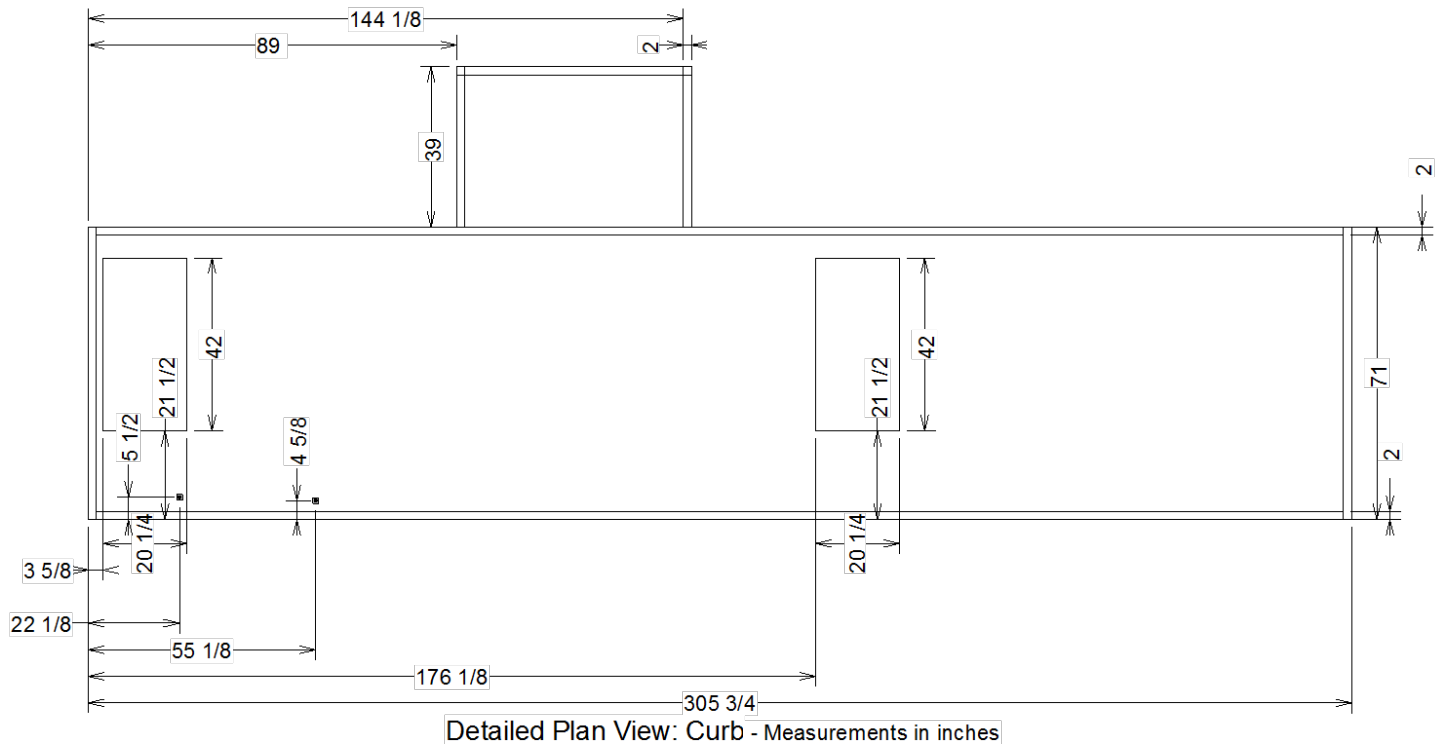
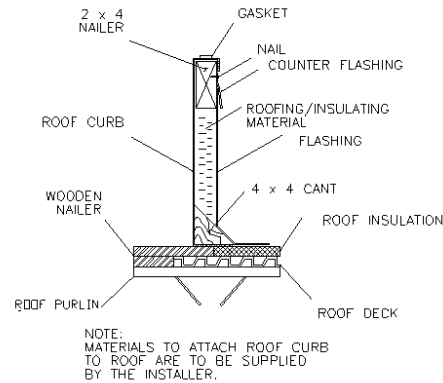
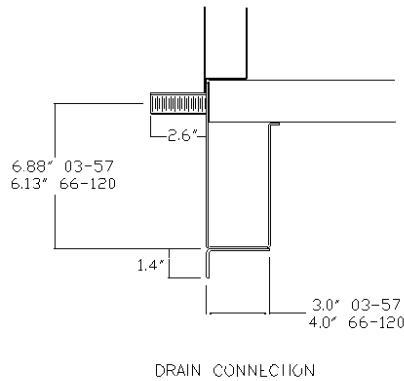
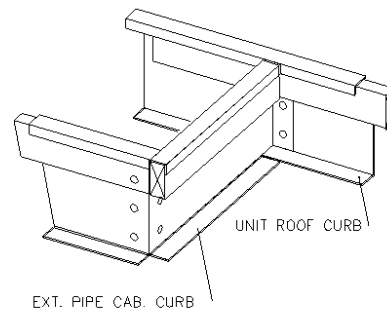
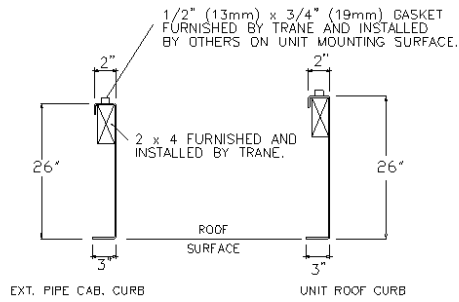
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TRANE

Performance Climate Changer
Air Handlers

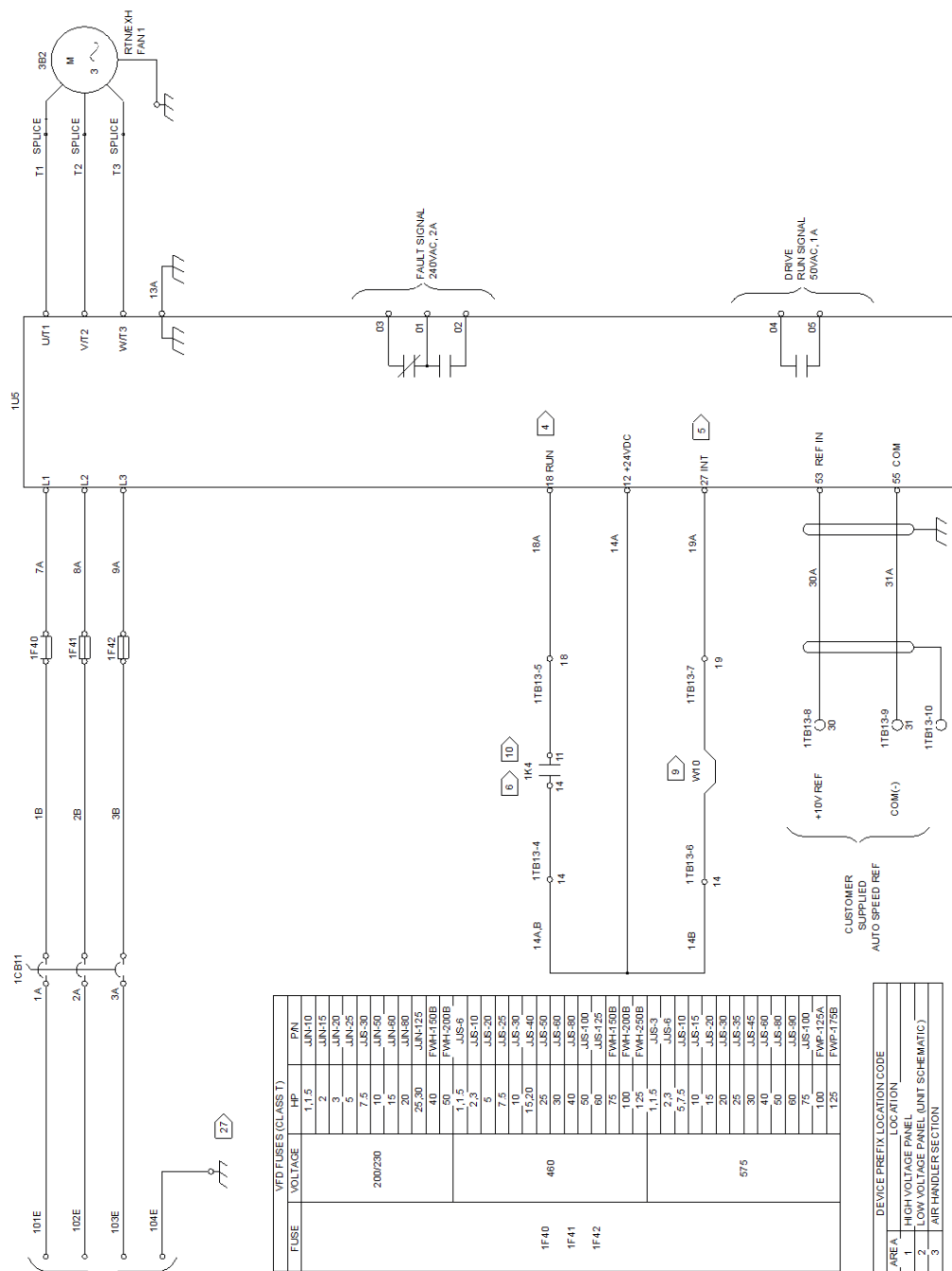


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TRANE

Performance Climate Changer
Air Handlers



NOTES:

- 1 DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. PHANTOM LINES INDICATE CONVENTIONAL FIELD WIRING. CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V. COPPER CONDUCTORS ONLY.
- 2 ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OTHER COUNTRIES MAY HAVE DIFFERENT REQUIREMENTS. FIELD WIRING SHALL BE IN ACCORDANCE WITH THE FIELD WIRING PRACTICES OF THE COUNTRY OF ORIGIN.
- 3 THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430-2 OF THE NATIONAL ELECTRICAL CODE.

- 4 PROGRAM TERMINAL 18 AS RUN.
- 5 PROGRAM TERMINAL 27 INV. COASTING STOP.
- 6 CLOSES TO RUN AUTO MODE OR BYPASS AUTO.
- 9 REMOVE JUMPER AND INSTALL FIELD SAFETY FIELD SUPPLIED CONTACTS.
- 10
- 27 ATTACH GROUND OR EQUIPMENT GROUND.

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1CB11	CIRCUIT BREAKER
1F40 TO 1F42	VFD FUSES
1K4	START/STOP RELAY
1K10	LOW LIMIT RELAY
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3B2	MOTOR 1

DEVICE PREFIX LOCATION CODE	
AREA	LOCATION
1	HIGH VOLTAGE PANEL
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)
3	AIR HANDLER SECTION

! WARNING

HAZARDOUS VOLTAGE!

DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE. REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT

TENSION DANGEREUSE!

COUPER TOUTES LES TENSIONS ET
OUVRIER LES SECTIONNEURS A DISTANCE.
SUIVRE LES PROCEDURES DE
VERROUILLAGE ET DES ETIQUETTES AVANT
TOUTE ENTRETIEN. VÉRIFIER QUE TOUTES
LES CONDENSEURS DES MOTEURS SONT
RECHARGÉS. DANS LE CAS D'UNITÉS
COMPORTANT DES ENTRETIENS À
VITESSE VARIABLE, SE REPORTER AUX
INSTRUCTIONS DE L'ENTRAÎNEMENT POUR
RECHARGER LES CONDENSEURS.

! ADVERTENCIA

VOLTAJE PELI GROSSI!

DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONECCIONES REMOTAS Y LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR. NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

CAUTION

USE COPPER CONDUCTORS ONLY!

UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

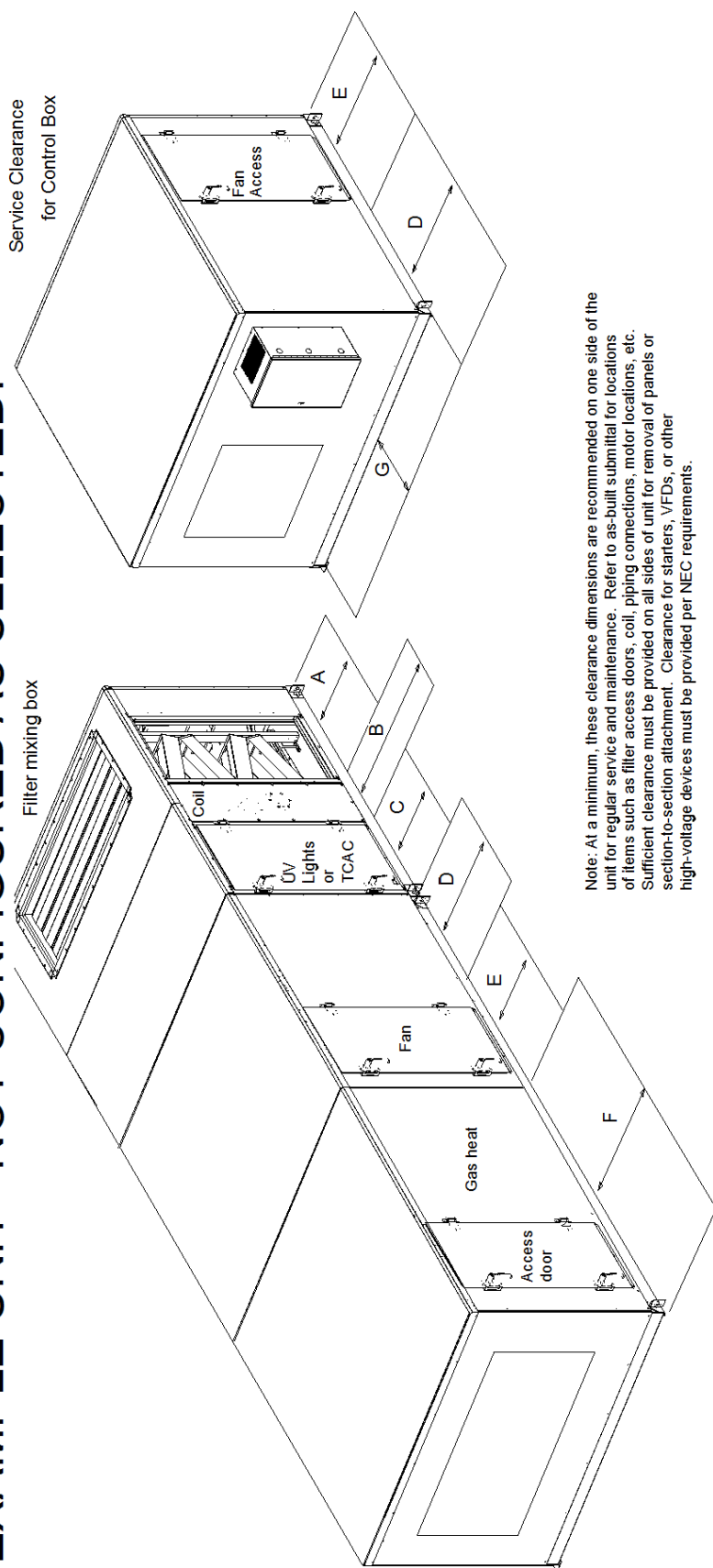
ATTENTION

N'UTILISER QUE DES CONDUCTEURS EN CUIVRE
 LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES
 POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
 L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT
 ENDOMMAGER L'ÉQUIPEMENT.

PRECAUCIÓN

UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

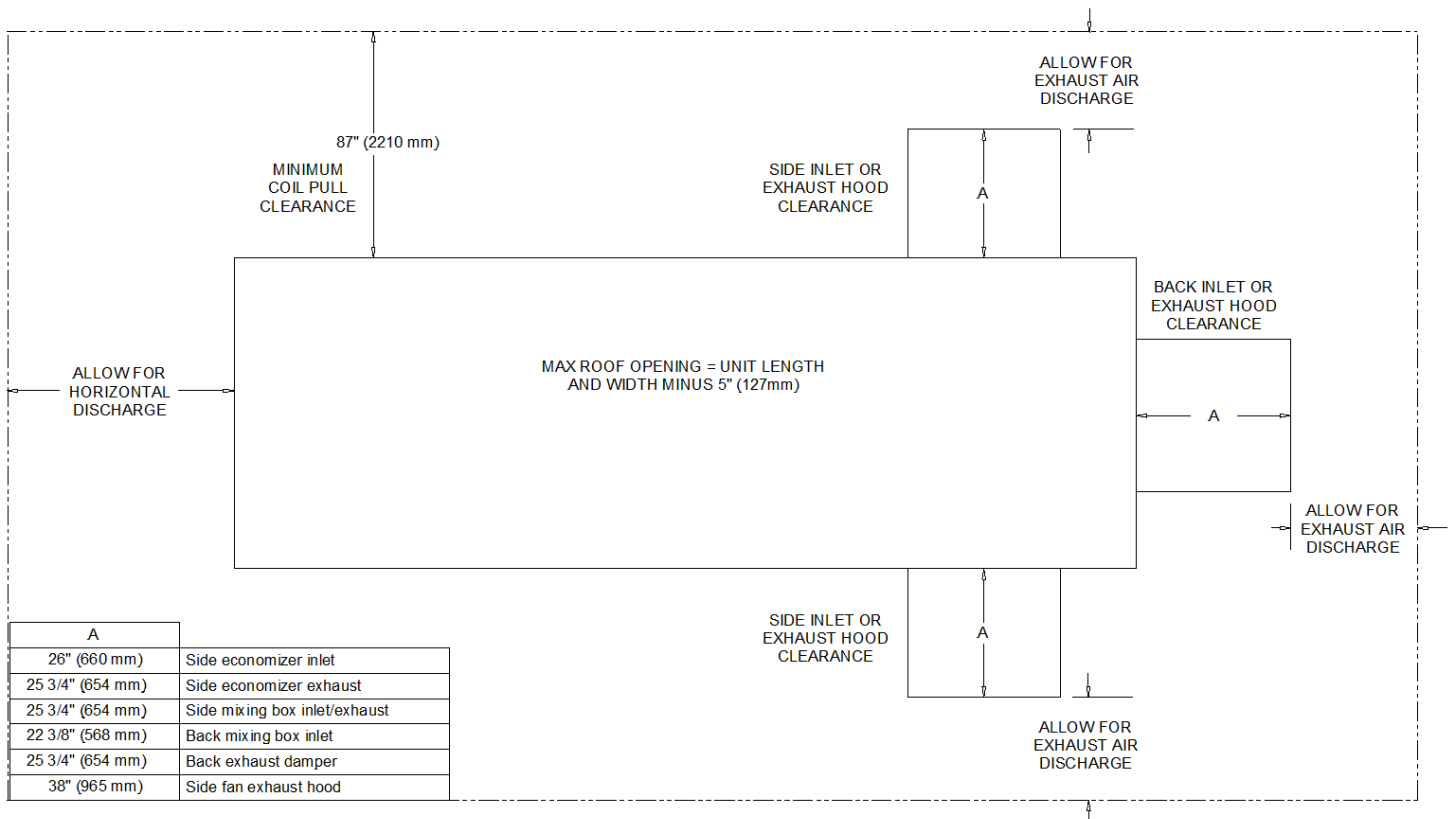
EXAMPLE UNIT - NOT CONFIGURED AS SELECTED.



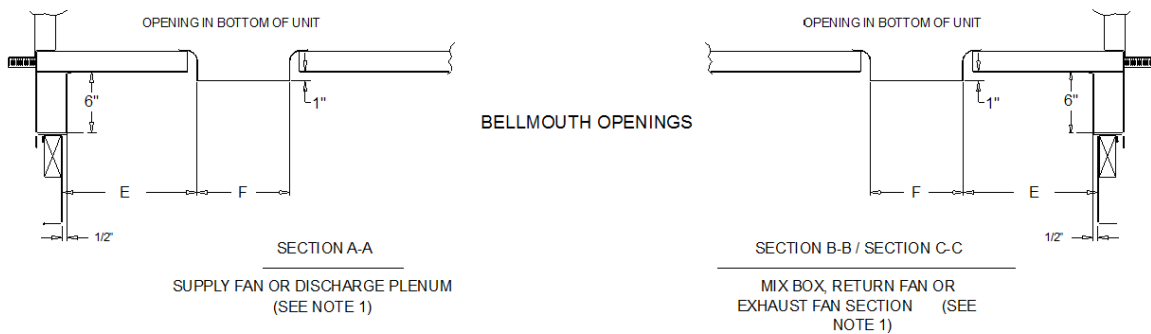
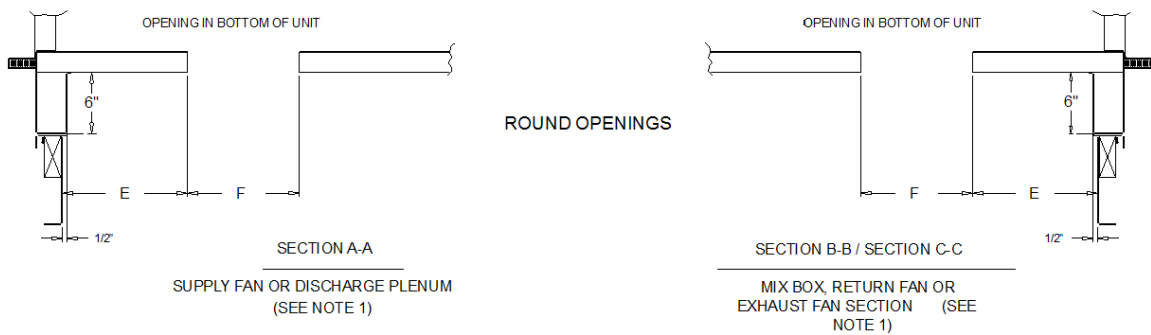
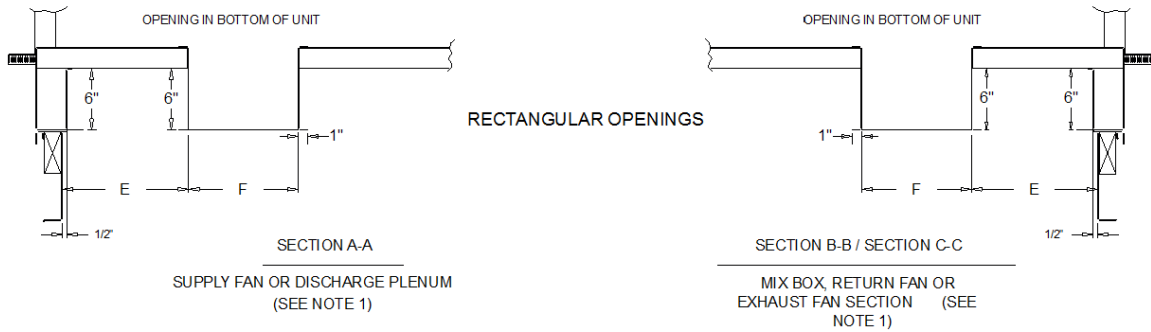
Note: At a minimum, these clearance dimensions are recommended on one side of the unit for regular service and maintenance. Refer to as-built submittal for locations of items such as filter access doors, coil, piping connections, motor locations, etc. Sufficient clearance must be provided on all sides of unit for removal of panels or section-to-section attachment. Clearance for starters, VFDs, or other high-voltage devices must be provided per NEC requirements.

Component	3	4	6	8	10	12	14	17	21	25	30	35	40	50	57	66	80	100	120
A (filter)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
B (coil, humidifier)	48	59	66	77	82	82	87	87	95	95	109	115	128	141	141	156	156	170	197
B (staggered coil)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67	67	76	80	88	96	96	105	105	113	129
C (UV Lights)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	52	56	58	58
C (TCAC)	43	59	63	75	81	81	83	83	58	58	83	75	83	83	83	83	83	75	83
D (External Starter, VFD, LV box or Overload box)	61	61	61	61	61	61	61	61	64	64	64	64	64	64	64	64	64	64	64
D (Internal Starter or VFD)	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
E (fan)	48	48	48	48	51	54	58	61	60	66	66	66	70	77	77	93	93	101	101
F (Gas Heat Ext Vestible)	N/A	N/A	89	90	108	100	100	105	115	115	118	136	140	156	156	170	179	180	N/A
F (Gas Heat Int Vestible)	N/A	N/A	56	63	74	79	84	84	92	92	106	112	125	138	138	153	153	167	194

Component	All Sizes
G (Side mount LV box)	36
G (Front mount LV box)	13

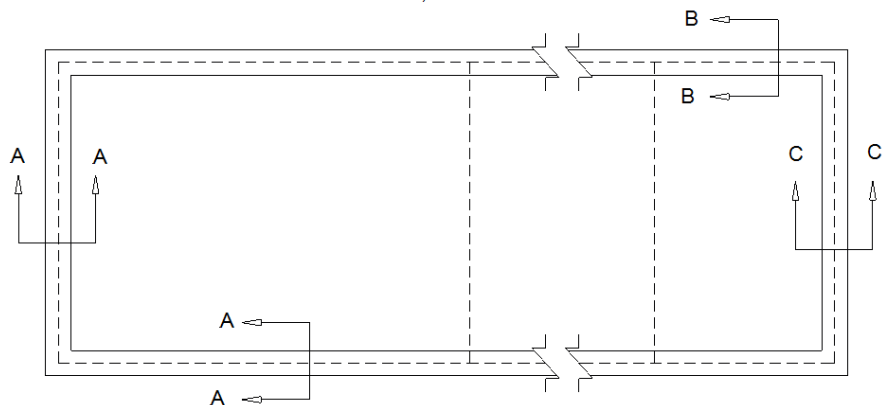


RELATIONSHIP OF CURB TO UNIT AS-BUILT

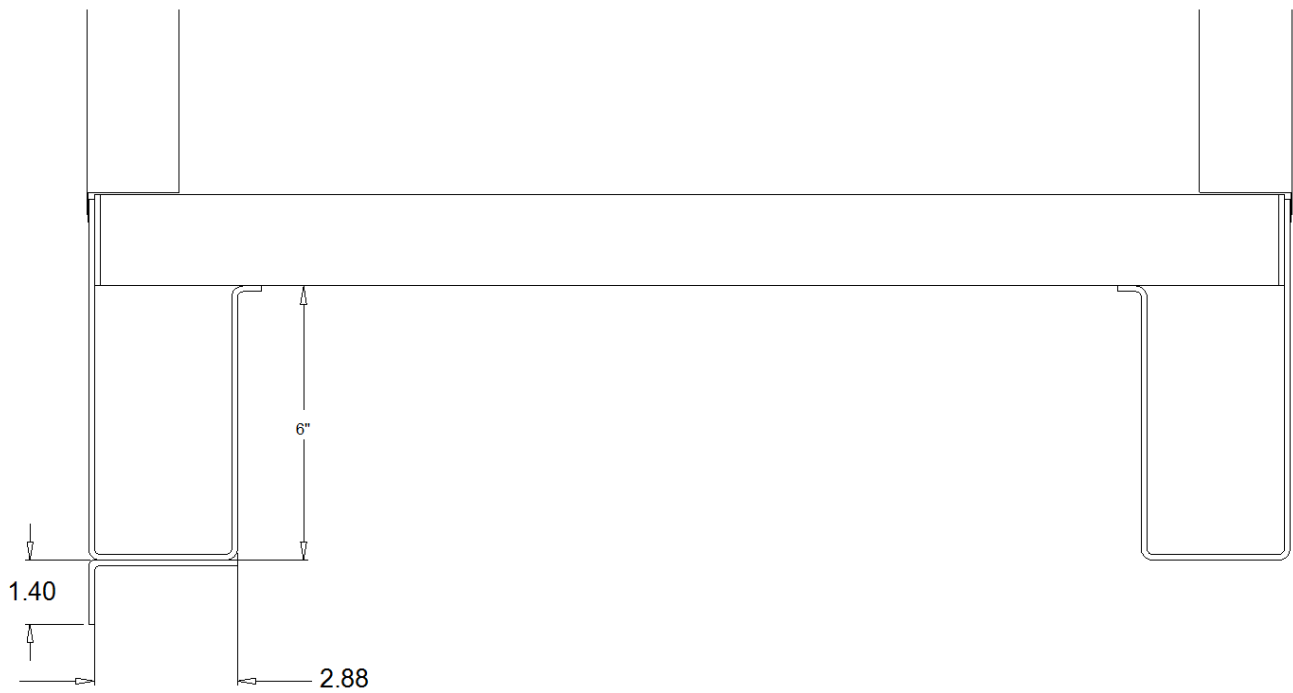


NOTE:

1. E and F are representative of dimensions on the accessory as-built used to locate opening(s) in the roof surface.



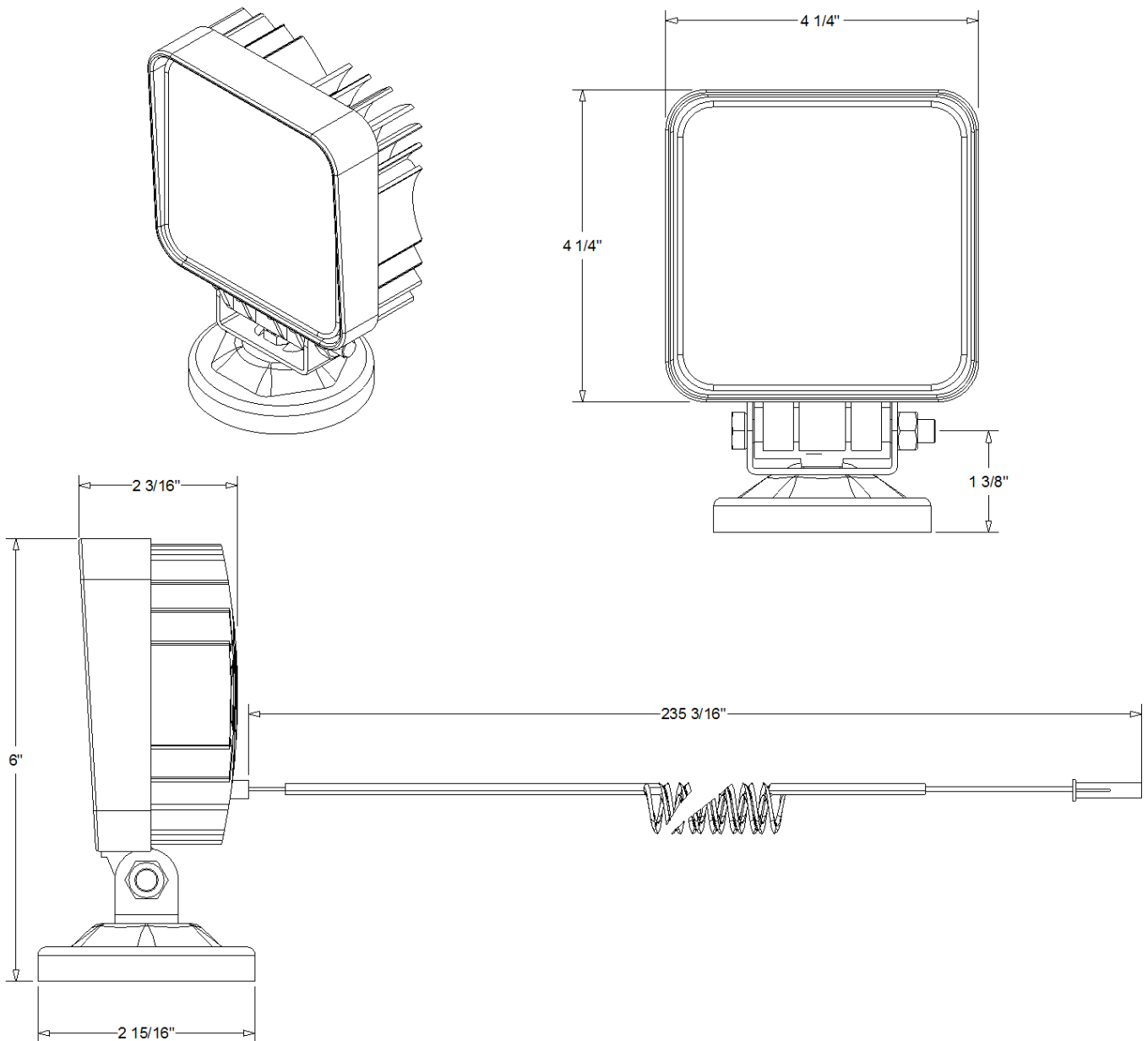
Base Detail



Marine LED Light

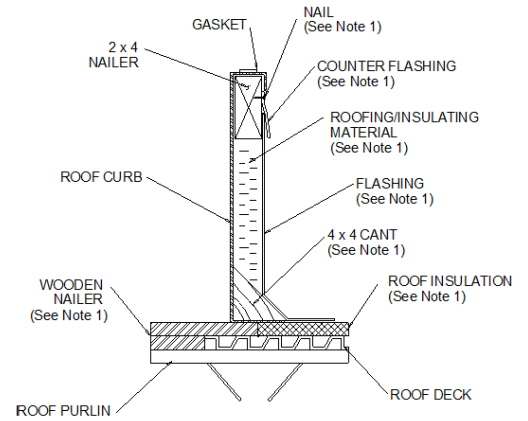
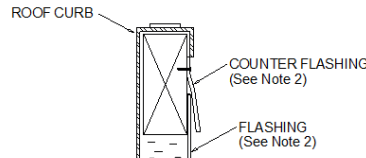
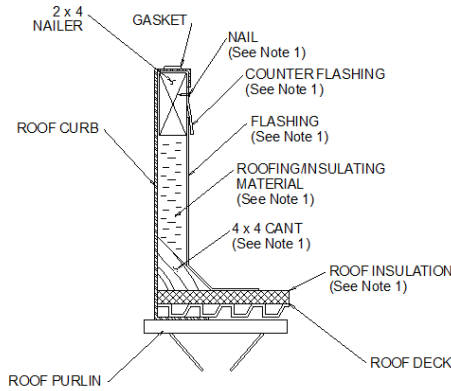
SPECIFICATIONS:

VOLTAGE: 24VAC +33 % -25 %
POWER CONSUMPTION: 19VA
WIRE: 16 GA RED AND BLACK
LIFE: 25,000 HRS
TEMPERATURE RANGE: -40C TO 40C
CONNECTION: AC SUPPLY
ENVIRONMENTAL PROTECTION: WATER/DUST INTRUSTION
IP RATING: IP65
MAGNETIC FLUX DENSITY: 1200 GAUSS ±100



Recommendation for Roof Curb Installation

Refer to Performance IOM for specific installation instructions

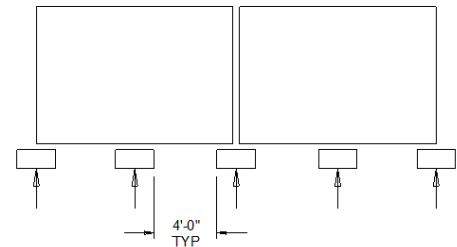
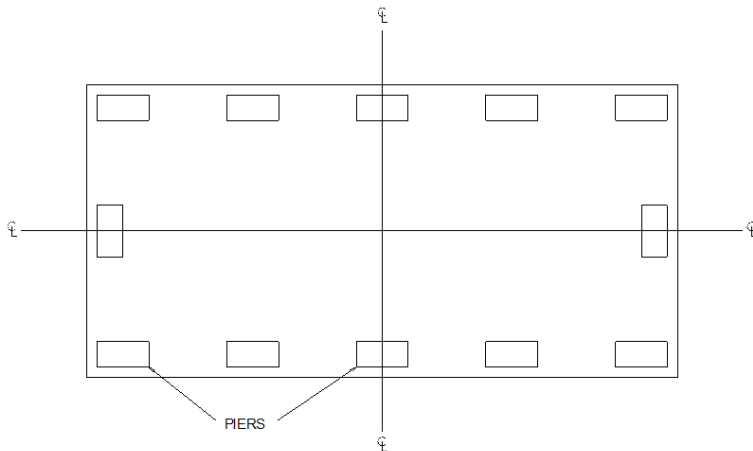


Note:

1. Materials to attach roof curb to roof are to be supplied by the installer.
2. Flashing or counter flashing should not come to or over top of curb.
3. Roof curb must be mechanically fastened to roof surface.

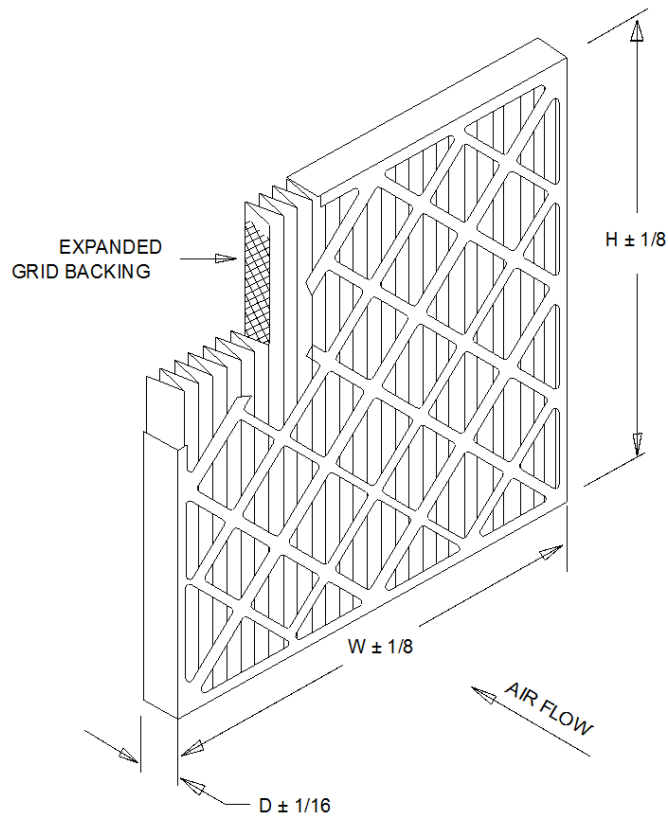
Recommendation for Pier Mounting

Refer to Performance IOM for specific installation instructions



Note:

1. Pier supports should be inside 3" (3 - 50) or 4" (57 - 120) flat of unit base. Unit cannot be supported by unit base drip leg.
2. Piers beneath shipping splits must be structurally sound to support the weight of the unit.



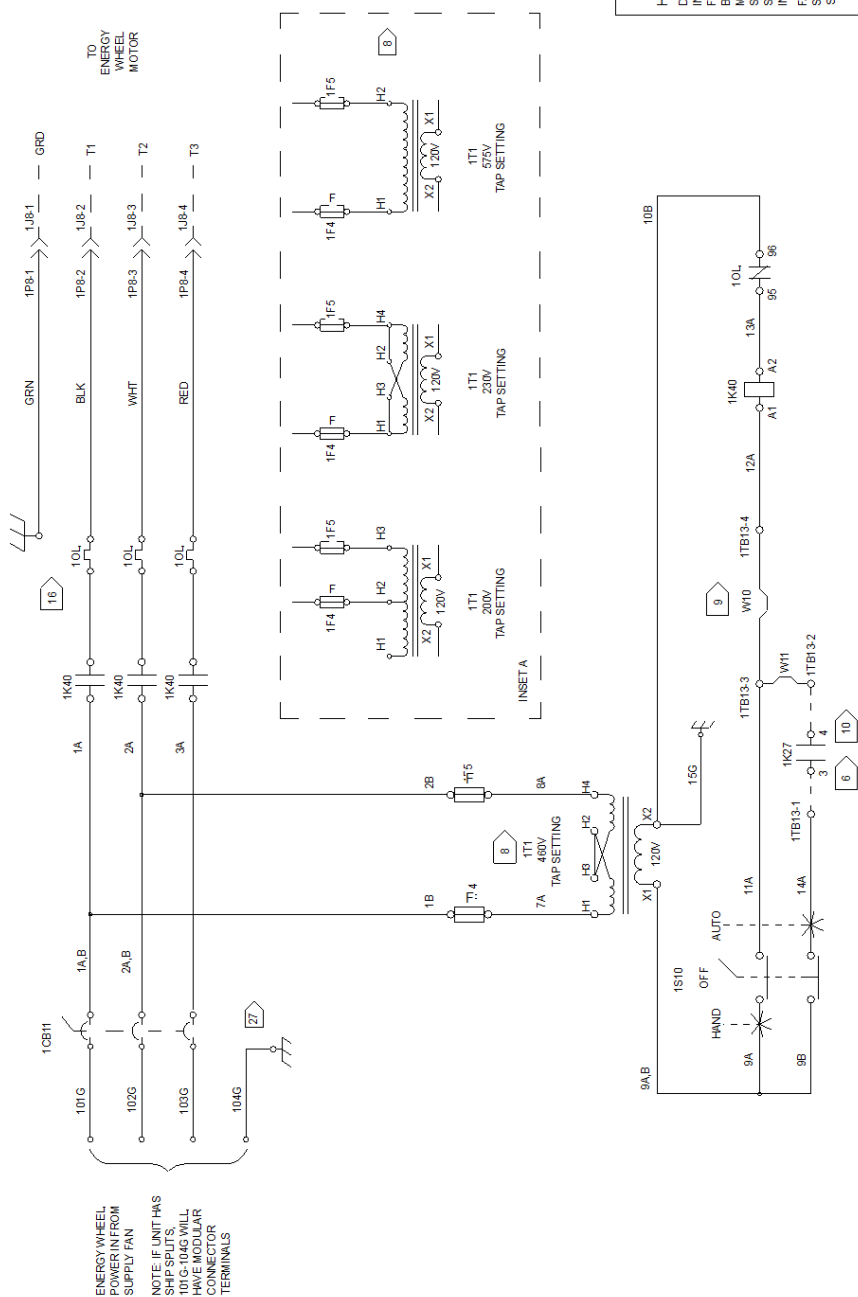
STANDARD CONSTRUCTION

1. 100 % Synthetic White Un-Dyed Media
2. 10.0 Pleats Per Foot
3. Expanded Metal Pleat Supports
4. Moisture Resistant Beverage Board Frame
5. Double Wall Frame

NOTES

1. MERV 8-A Per ASHRAE 52.2-2007 Appendix J.
2. Final Resistance: 1/0" W.G.
3. Rated Velocity: 500 FPM
4. Class 2 Filter Per U.L. Standard 900
5. Maximum Operating Temperature: 225 DEG. F

MODEL NUMBER	NOMINAL SIZE IN. W X H X D	ACTUAL SIZE IN. W X H X D	RATED AIR FLOW CFM	INITIAL RESISTANCE IN. W.G.	MEDIA AREA SQ. FT.
MX40-STD2-217	10 X 20 X 2	9-1/2 X 19-1/2 X 1-3/4	700	0.29	4.7
MX40-STD2-220	12 X 20 X 2	11-1/2 X 19-1/2 X 1-3/4	840	0.29	5.5
MX40-STD2-210	12 X 24 X 2	11-3/8 X 23-3/8 X 1-3/4	1000	0.29	6.2
MX40-STD2-239	14 X 20 X 2	13-1/2 X 19-1/2 X 1-3/4	980	0.29	5.7
MX40-2TD2-241	14 X 25 X 2	13-1/2 X 24-1/2 X 1-3/4	1220	0.29	7.1
MX40-STD2-245	15 X 20 X 2	14-1/2 X 19-1/2 X 1-3/4	1050	0.29	6.2
MX40-STD2-201	16 X 20 X 2	15-1/2 X 19-1/2 X 1-3/4	1120	0.29	6.7
MX40-STD2-216	16 X 24 X 2	15-3/8 X 23-3/8 X 1-3/4	1340	0.29	8.0
MX40-STD2-202	16 X 24 X 2	15-1/2 X 24-1/2 X 1-3/4	1400	0.29	8.0
MX40-STD2-280	15 X 20 X 2	17-1/2 X 19-1/2 X 1-3/4	1250	0.29	7.8
MX40-STD2-212	18 X 24 X 2	17-3/8 X 23-3/8 X 1-3/4	1500	0.29	9.3
MX40-STD2-285	18 X 25 X 2	17-1/2 X 24-1/2 X 1-3/4	1570	0.29	9.7
MX40-STD2-203	20 X 20 X 2	19-1/2 X 19-1/2 X 1-3/4	1400	0.29	8.3
MX40-STD2-211	20 X 24 X 2	19-3/8 X 23-3/8 X 1-3/4	1670	0.29	9.9
MX40-STD2-204	20 X 25 X 2	19-1/2 X 24-1/2 X 1-3/4	1750	0.29	10.3
MX40-STD2-205	24 X 24 X 2	23-3/8 X 23-3/8 X 1-3/4	2000	0.29	11.7
MX40-STD2-225	25 X 25 X 2	24-1/2 X 24-1/2 X 1-3/4	2170	0.29	13.6



PRIMARY CONTROL TRANSFORMER FUSES (CLASS LP-CG)		
FUSE	VOLTAGE	PIN
1F 4	200	KLDR-1/2
	230	KLDR-1/2
1F 5	480	KLDR-1/4
	575	KLDR-1/4

AREA	DEVICE PREFIX LOCATION CODE LOCATION
1	HIGH VOLTAGE PANEL
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)
3	AIR HANDLER SECTION

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1CB11	CIRCUIT BREAKER
1F4 TO 1F5	PRIMARY CONTROL TRANSFORMER TAPES
1K27	START/STOP RELAY
1K40	STARTER CONTACTOR
1OL	OVERLOAD RELAY
1S10	HAND/OFF/AUTO SWITCH
1T1	PRIMARY CONTROL TRANSFORMER
1TB13	TERMINAL STRIP CONTROL CIRCUIT

1. NOTE(S):
DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
PHANTOM LINES INDICATE CONTROL OPTION. REF. CONTROL PANEL
SCHEMATIC FOR SPECIFIC DETAIL.
2. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL
ELECTRICAL CODE, STATE AND LOCAL REQUIREMENTS. OTHER
COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS
SHALL APPLY. FIELD CONDUCTORS SHOULD HAVE INSULATION
RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.
3. MINIMUM CIRCUIT IMPACT, MAXIMUM FUSE SIZE, AND DISCONNECT
SIZE ARE CALCULATED BASED ON THE INERTER INPUT LINE
CURRENT'S PER ARTICLE 430.2 OF THE NATIONAL ELECTRICAL
CODE.
4. CLOSERS TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR
STARTER.

CAUTION

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT
OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE
EQUIPMENT.

ATTENTION

NE PAS UTILISER QUE DES CONDUCTEURS EN CUIVRE
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES
POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT
ENDOMMAGER L'EQUIPEMENT.

PRECAUCIÓN

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LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS
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SINO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

WARNING

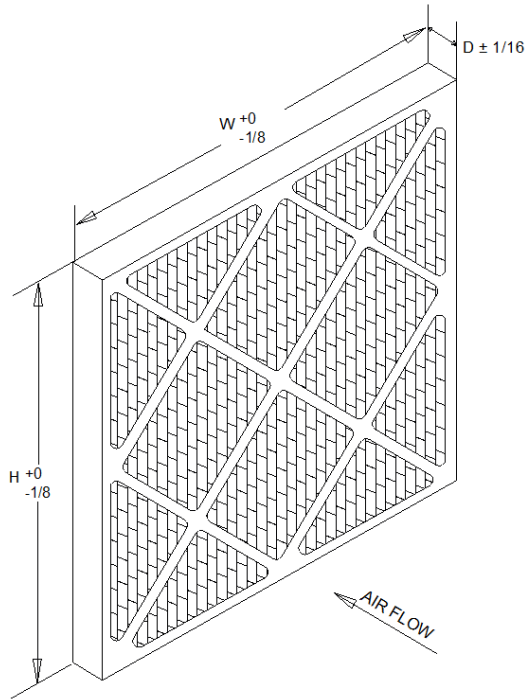
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER,
INCLUDING REMOTE DISCONNECTS AND
FOLLOW LOCK OUT AND TAG PROCEDURES
BEFORE SERVICING. INSURE THAT ALL
MOTOR CAPACITORS HAVE DISCHARGED
STORED VOLTAGE. UNITS WITH VARIABLE
SPEED DRIVE, REFER TO DRIVE
INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE
SERVICING COULD RESULT IN DEATH OR
SERIOUS INJURY.

AVERTISSEMENT

TENSION DANGEREUSE!
COUPEZ TOUTES LES TENSIONS ET
COUVER LES SECTIONNEURS À DISTANCE,
PUIS SUIVRE LES PROCÉDURES DE
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COMPORTANT DES ENTRAÎNEMENTS À
VITESSE VARIABLE, SE REPORTER AUX
INSTRUCTIONS DE L'ENTRAÎNEMENT POUR
DÉCHARGER LES CONDENSATEURS.

ADVERTENCIA

VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA Y
DESCUPLA LAS DISYUNCIÓNES REMOTAS Y
SIGA LOS PROCEDIMIENTOS DE CIERRE Y
BLOQUEO DETALLADOS ANTES DE PROCEDER AL
SERVICIO. ASEGÚRESE DE QUE TODOS
LOS CAPACITORES DEL MOTOR HAYAN
SIDO DESCARGADO EL VOLTAJE ALMACENADO.
PARA LAS UNIDADES CON JE DE
DIFERENCIA DE VELOCIDAD VARIABLE,
CONSULTE LAS INSTRUCCIONES PARA LA
DESCARGA DEL CONDENSADOR.
NO REALIZAR LO ANTERIORMENTE
INDICADO, PODRÍA CAUSAR LA MUERTE
O LESIONES PERSONALES O SERIAS.



USTANDARD CONSTRUCTION

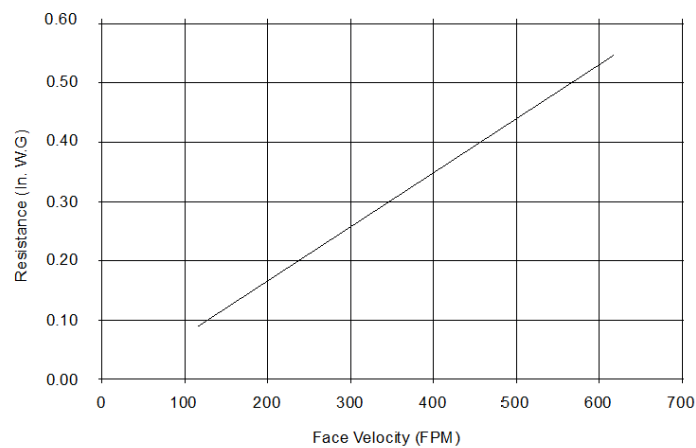
1. 100 % Synthetic Media
2. Bead Separator Packs
3. Moisture Resistant Beverage Board Frame
4. Cross-Straps on Both Sides
5. Pack Sealed to Frame with Adhesive
6. Standard Air Flow Direction as Shown

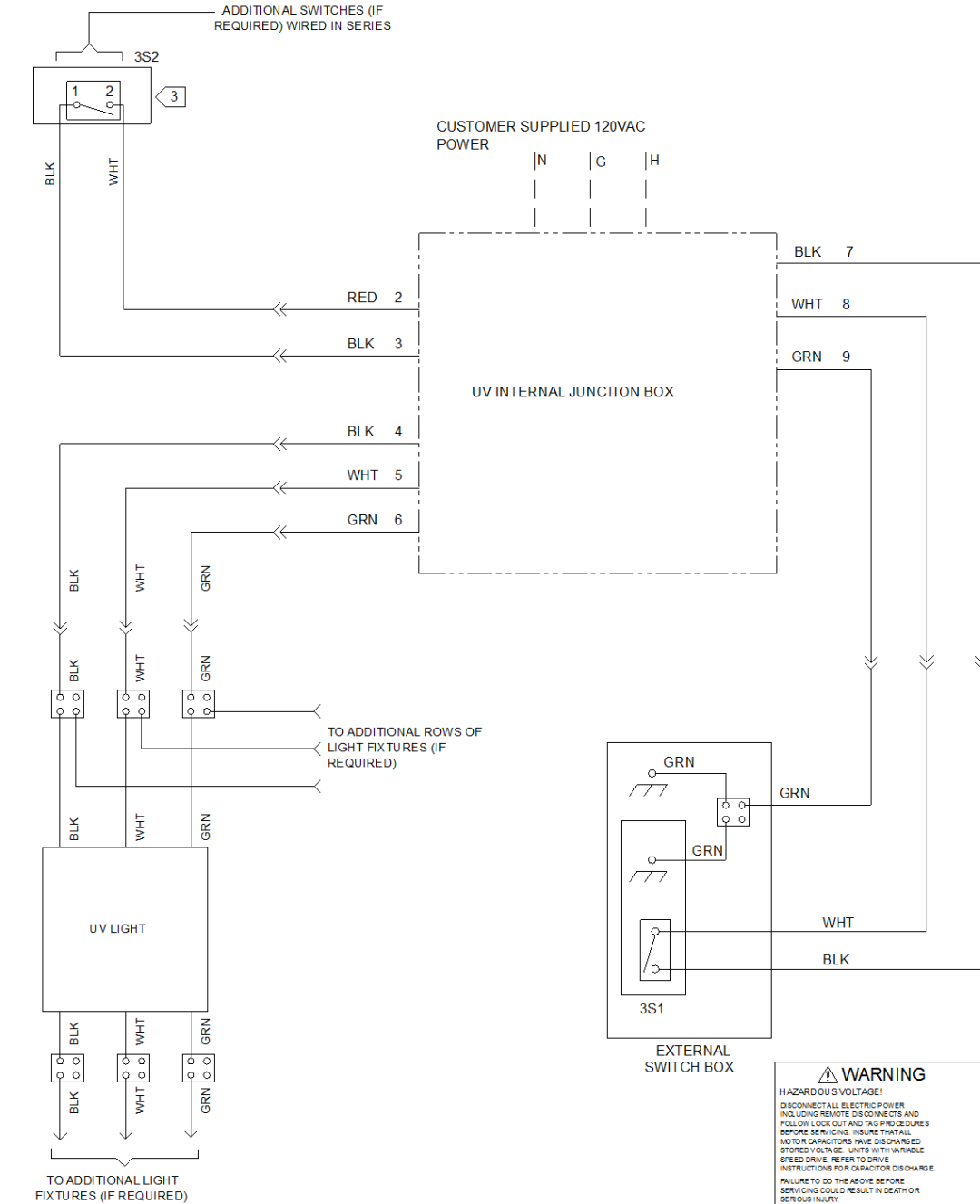
UNOTES

1. Testing per ASHRAE 52.2
Test Velocity 492 FPM on 24x24x4 Nominal Size
Test Data Preliminary
2. Final Resistance: 1.5" W.G.
3. Rated Velocity - 500 FPM
4. Maximum Velocity - 625 FPM
5. Maximum Operating Temperature: 200 deg. F
6. Filter to be Tested Per UL Standard 900 for Flammability

NOMINAL SIZE (INCHES) HXWXD	ACTUAL SIZE (INCHES) HXWXD	RATED AIR FLOW (CFM)	INITIAL RESISTANCE (IN. W.G.)	MEDIA AREA (SQUARE FEET)	MERV RATING
24X24X4	23-3/8X23-3/8X3-3/4	2000	0.43	49.1	14
20X25X4	19-3/8X24-3/8X3-3/4	1750	0.43	42.7	14
20X24X4	19-3/8X23-3/8X3-3/4	1650	0.43	40.9	14
20X20X4	19-3/8X19-3/8X3-3/4	1400	0.43	33.9	14
16X25X4	15-3/8X24-3/8X3-3/4	1400	0.43	34.1	14
16X20X4	15-3/8X19-3/8X3-3/4	1100	0.43	27.1	14
12X24X4	11-3/8X23-3/8X3-3/4	1000	0.43	23.4	14

Filter Resistance vs. Face Velocity





LEGEND	
DEVICE DESIGNATION	DESCRIPTION
3S1	MAIN EXTERNAL UV LIGHT SWITCH
3S2	DOOR KILL SWITCH FOR UV LIGHTS

NOTES

- DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS.
- ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION INSULATION RATING NOT LESS THAN 600V.
- SWITCH CLOSING WHEN ACCESS DOORS ARE SHUT.
- UV LAMPS WILL NEED TO BE INSTALLED IN LAMP FIXTURES BEFORE UNIT START UP.
- UV LAMPS WILL NOT REMOVE AIRBORNE CONTAMINANTS. LAMPS ARE DESIGNED TO CONTROL MICROBIAL GROWTH ON COIL AND DRAIN PAN SURFACES. DO NOT CYCLE LAMPS OFF AND ON. REPLACE LAMPS ONCE PER YEAR.

CAUTION
USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION
N'UTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'ÉQUIPEMENT.

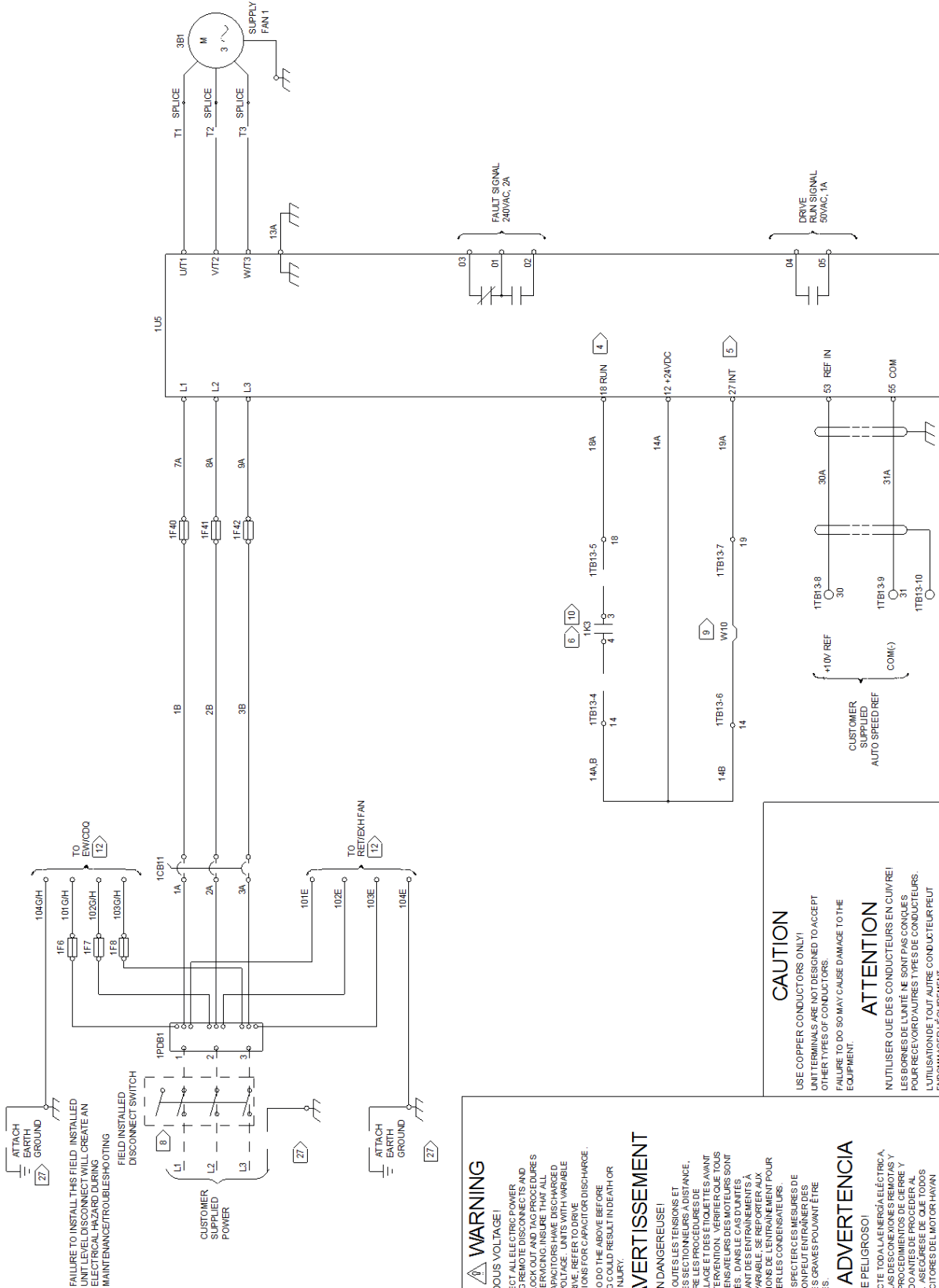
PRECAUCIÓN
¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

WARNING
HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER INCLUDING REMOTE DISCONNECTS AND FOLLOW LOCK OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE. FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT
TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET OUVRIR LES SECTIONNEURS À DISTANCE. PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE REPORTER AUX INSTRUCTIONS DE L'ENTRAÎNEMENT POUR DÉCHARGER LES CONDENSATEURS.

ADVERTENCIA
VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA, INCLUIDO LAS DESCONEXIONES REMOTAS Y SIGA LOS PROCEDIMIENTOS DE CIERRE Y ETIQUETADO ANTES DE PROCEDER AL SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO. PARA LAS UNIDADES CON EJE DE DIRECCIÓN DE VELOCIDAD VARIABLE CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.

EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.



CAUTION

USE COPPER CONDUCTORS ONLY!
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OTHER TYPES OF CONDUCTORS.
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EQUIPMENT.

ATTENTION

NUTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES
POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT
ENDOMMAGER L'EQUIPEMENT.

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SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

⚠ WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRIC POWER
INCLUDING REMOTE DISCONNECTS AND
FOLLOW LOCK OUT AND TAG PROCEDURES
BEFORE SERVICING. INSURE THAT ALL
MOTOR CAPACITORS HAVE DISCHARGED
FULLY BEFORE SERVICING. FOLLOW ALL
INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE
SERVICING COULD RESULT IN DEATH OR
SERIOUS INJURY.

⚠ AVERTISSEMENT

TENSION DANGEREUSE!
COUPER TOUTES LES TENSIONS ET
QUAKER LES SECTIONNEURS ADISTANCE.
PLUS SUIVRE LES PROCEDURES DE
VERROUILLAGE ET DES ETIQUETTES AVANT
TOUTE INTERVENTION. VERIFIER QUE TOUTS
LES CONDENSATEURS DES MOTEURS SONT
CHARGES COMPLETEMENT AVANT
COMPORTER DES ENTRAÎNEMENTS À
VITESSE VARIABLE. SE REPORTER AUX
INSTRUCTIONS DE L'ENTRAÎNEMENT POUR
DECHARGER LES CONDENSATEURS.
NE PAS RESPECTER CES MESURES DE
PRECAUTION PEUT ENTRAINER DE
SERIEUSES GRAVES POUVANT ETRE
MORTELS.

⚠ ADVERTENCIA

VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA
INCLUIDOS LOS SECCIONNEOS REMOTOS Y
SIGA LOS PROCEDIMIENTOS DE BLOQUEO Y
ETIQUETADO ANTES DE PROCEDER AL
SERVICIO. ASEGURESE DE QUE TODOS
LOS CAPACITORES DEL MOTOR HAYAN
DESCARGADO EL VOLTAJE ALMACENADO
ANTES DE SERVICIAR. SIGA TODAS LAS
DIRECCIONES DE CARGA VARIABLE.
CONSULTE LAS INSTRUCCIONES PARA LA
DESCARGA DEL CONDENSADOR.
EL NO REALIZARLO ANTERIORMENTE
INDICADO, PODRIA OCASIONAR LA MUERTE
O SERIAS LESIONES PERSONALES.

NOTES:

- 1 DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. PHANTOM LINES INDICATE CONTROL OPTION.
REF: CONTROL PANEL SCHEMATIC FOR SPECIFIC DETAIL.
- 2 ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.
- 3 THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430-2 OF THE NATIONAL ELECTRICAL CODE.
- 4 PROGRAM TERMINAL 18 AS RUN.
- 5 PROGRAM TERMINAL 27 INV. COASTING STOP.
- 6 CLOSES TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER.
- 8 CUSTOMER SUPPLIED LOCKABLE DISCONNECTING MEANS, SUCH AS A DISCONNECT SWITCH OR CIRCUIT BREAKER, INSTALLED LOCAL TO UNIT. SIZE AND PLACEMENT OF DEVICE SHALL BE DONE IN ACCORDANCE WITH APPLICABLE NATIONAL AND LOCAL ELECTRICAL CODES.
- 9 REMOVE JUMPER AND INSTALL FIELD SAFETY INTERLOCK.
- 10 FIELD SUPPLIED CONTACTS
- 12 IF UNIT HAS SHIPPING SPLITS WIRING WILL TERMINATE TO MODULE AT EACH SHIPPING SPLIT.
- 27 ATTACH GROUND OR EQUIPMENT GROUND.

FUSE	VOLTAGE	VFD FUSES			CLASS
		PANEL HP (MAX)	P/N		
1F40 1F41 1F42	200/230	0.5-2	LP-CC-10	CC	CC
		3	LP-CC-15	CC	
		5	LP-CC-25	CC	
		7.5-10	JUN-50	T	
		15	JUN-80	T	
	200	20-25	JUN-100	T	T
		30-40	FWX-150A	---	
		50	FWX-200A	---	
		0.5-2	LP-CC-10	CC	
		3	LP-CC-25	CC	
230	200	5-7.5	JUN-50	T	T
		10	JUN-80	T	
		15-25	JUN-100	T	
		30-40	FWX-150A	---	
		15	JUN-80	T	T
	230	30-40	JUS-150	---	
		FAN ARRAY	---	---	
		FAN ARRAY	---	---	
		0.5-2	LP-CC-10	CC	
		3	LP-CC-15	CC	
460	200	5	LP-CC-25	CC	CC
		7.5-10	JUN-50	T	
		15	JUN-80	T	
		20-25	JUN-100	T	
		30-40	FWX-150A	---	
	460	50	FWX-200A	---	---
		30-40	JUS-150	T	
		FAN ARRAY	---	---	
		0.5-2	LP-CC-10	CC	
		3-5	LP-CC-15	CC	
575	200	7.5-10	LP-CC-25	CC	CC
		15-20	JUS-50	T	
		25-30	JUS-80	T	
		40-60	JUS-125	T	
		75-100	FWH-200B	---	
	460	125	FWH-250B	---	---
		75-100	JUS-200	T	
		FAN ARRAY	---	---	
		0.5-10	LP-CC-20	CC	
		15-20	LP-CC-30	CC	
460	575	25-40	JUS-80	T	T
		50-75	JUS-125	T	
		100-125	JUS-200	T	
		100-125	JUS-200	T	

#0513385

LEGEND	
DEVICE DESIGNATION	DESCRIPTION
1CB1	CIRCUIT BREAKER
1F5/1F7/1F8	PRIMARY CONTROLLER EW/CDO FUSE
1F40 TO 1F42	VFD FUSES
1K3	START/STOP RELAY
1K5	LOW LIMIT RELAY
1PDB1	POWER DISTRIBUTION BLOCK
1TB13	TERMINAL STRIP CONTROL CIRCUIT
1U5	VFD CONTROLLER
3B1	MOTOR 1

42513380

CAUTION

USE COPPER CONDUCTORS ONLY!
TERMINALS ARE NOT DESIGNED TO ACCEPT
OTHER THAN THE SPECIFIED WIRE SIZE.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE
EQUIPMENT.

ATTENTION

N'utiliser que des conducteurs en cuivre!
Les bornes de l'unité ne sont pas conçues
pour recevoir d'autres types de conducteurs.
L'utilisation de tout autre conducteur peut
endommager l'équipement.

PRECAUCIÓN

Utilice únicamente conductores de cobre!
Las terminales de la unidad no están diseñadas
para aceptar otros tipos de conductores.
Si no lo hace, puede dañar el equipo.

WARNING

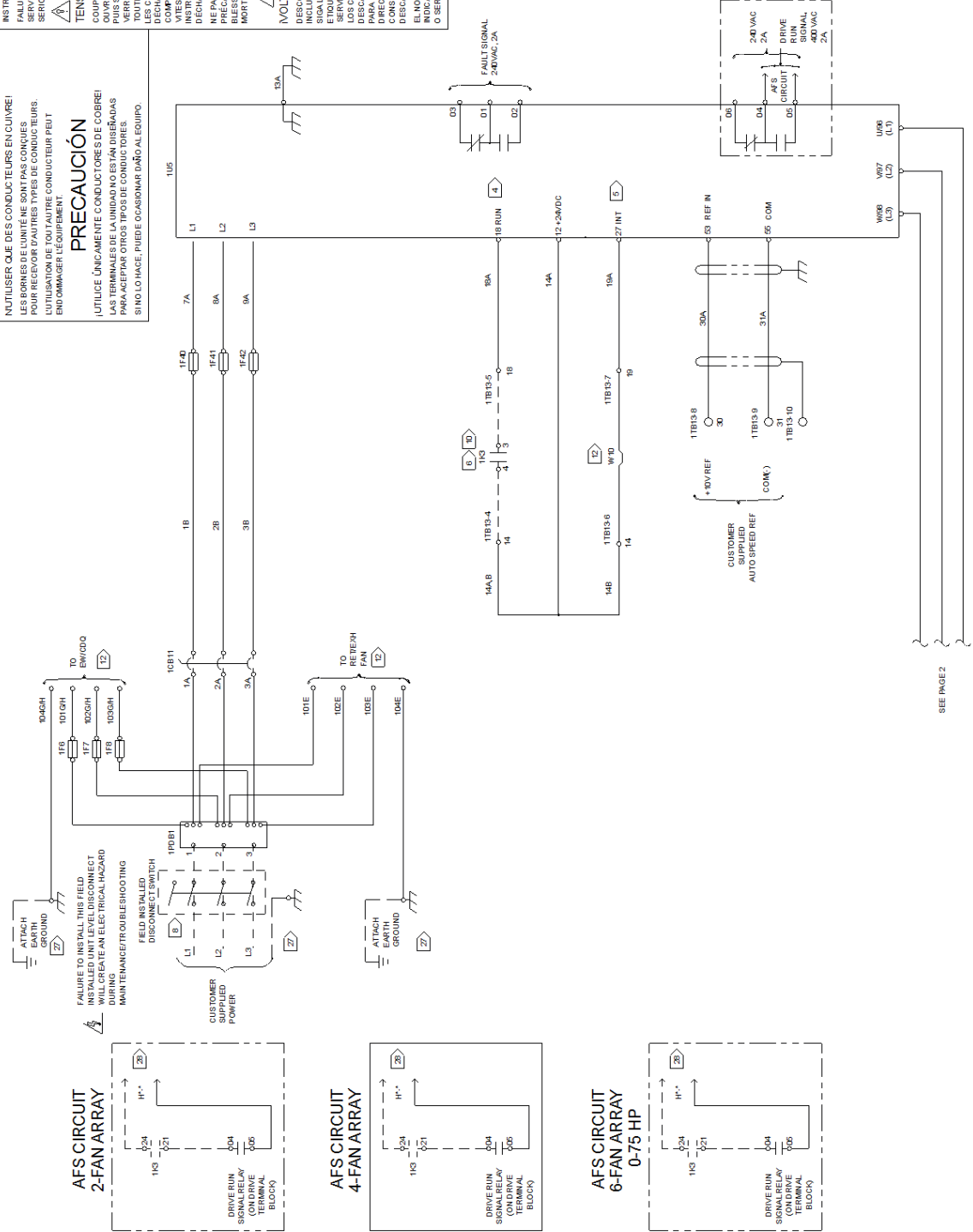
DISCONNECT ALL ELECTRIC POWER
BEFORE SERVICING. INSURE THAT ALL
ELECTRIC POWER IS OFF AND THE
STORAGE VOLTAGE UNITS WITH VARIABLE
SPEED DRIVE REFER TO DRIVE
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AVERTISSEMENT

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TENSION VARIABLE, VOIR LES INSTRUCTIONS
DES CONDENSATEURS DES MOTEURS SONT
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COMPORTANT DES ENTRAÎNEMENTS À
VITESSE VARIABLE, VOIR LES INSTRUCTIONS
DE CHARGES. NE PAS RESPECTER CES MESURES DE
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MORTELLES.

ADVERTENCIA

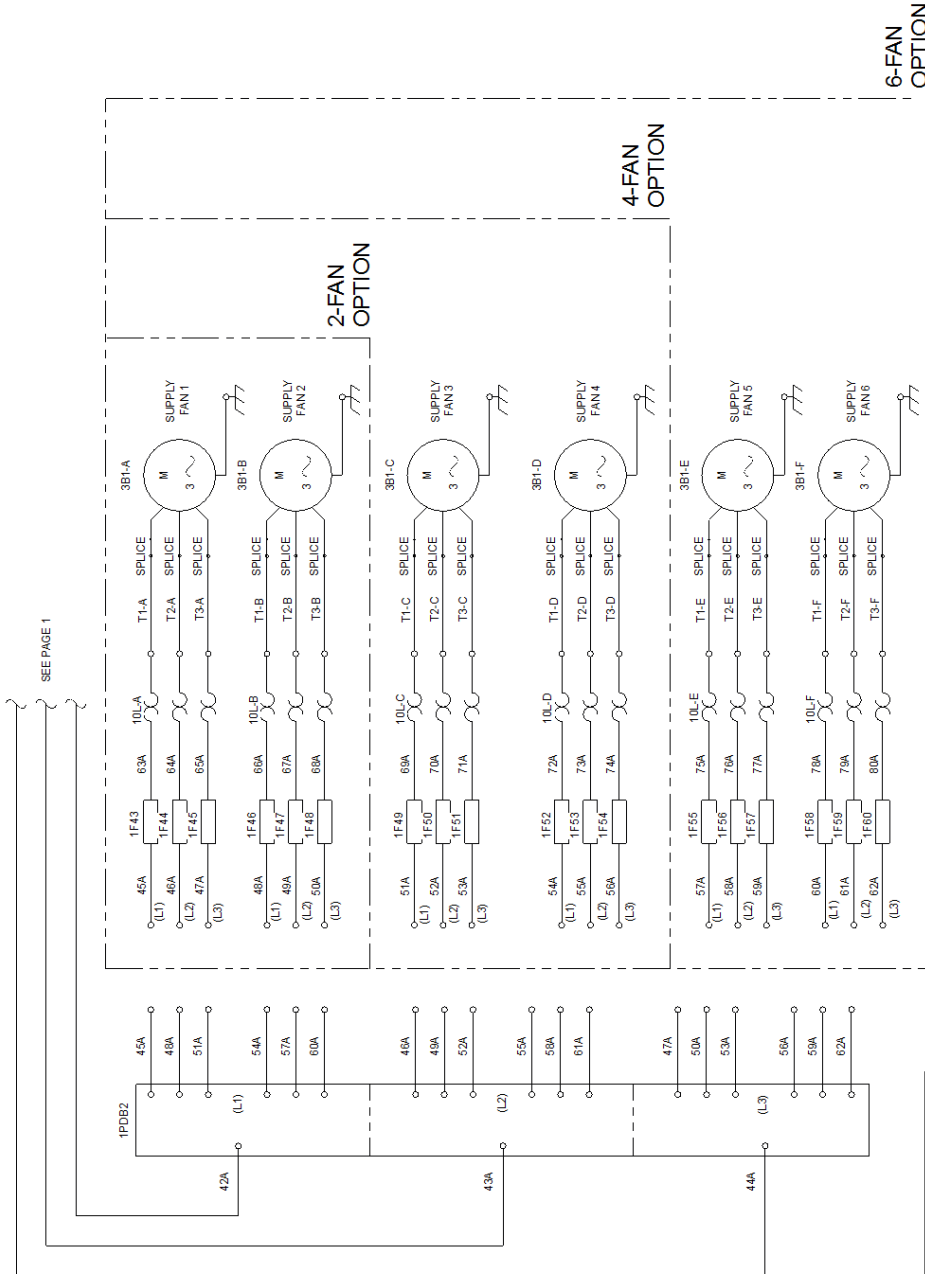
VOLTAJE PELIGROSO!
DESCONECTE TODA LA ENERGÍA ELÉCTRICA
INCLUIDO LAS DESCONEXIONES REMOVIENDO
ETIQUETAS ANTES DE PROCEDER AL
TRABAJO. PARA LAS UNIDADES CON
LOS CAPACITORES DEL MOTOR HAY QUE
DESCARGAR EL VOLTAJE ALMACENADO.
PARA LAS UNIDADES CON EJE DE
VARIABLES, VER LAS INSTRUCCIONES
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SEE PAGE 2

SUPPLY FAN 1 SCHEMATIC PAGE 1 OF 3

SUPPLY FAN 1 SCHEMATIC PAGE 2 OF 3



CAUTION
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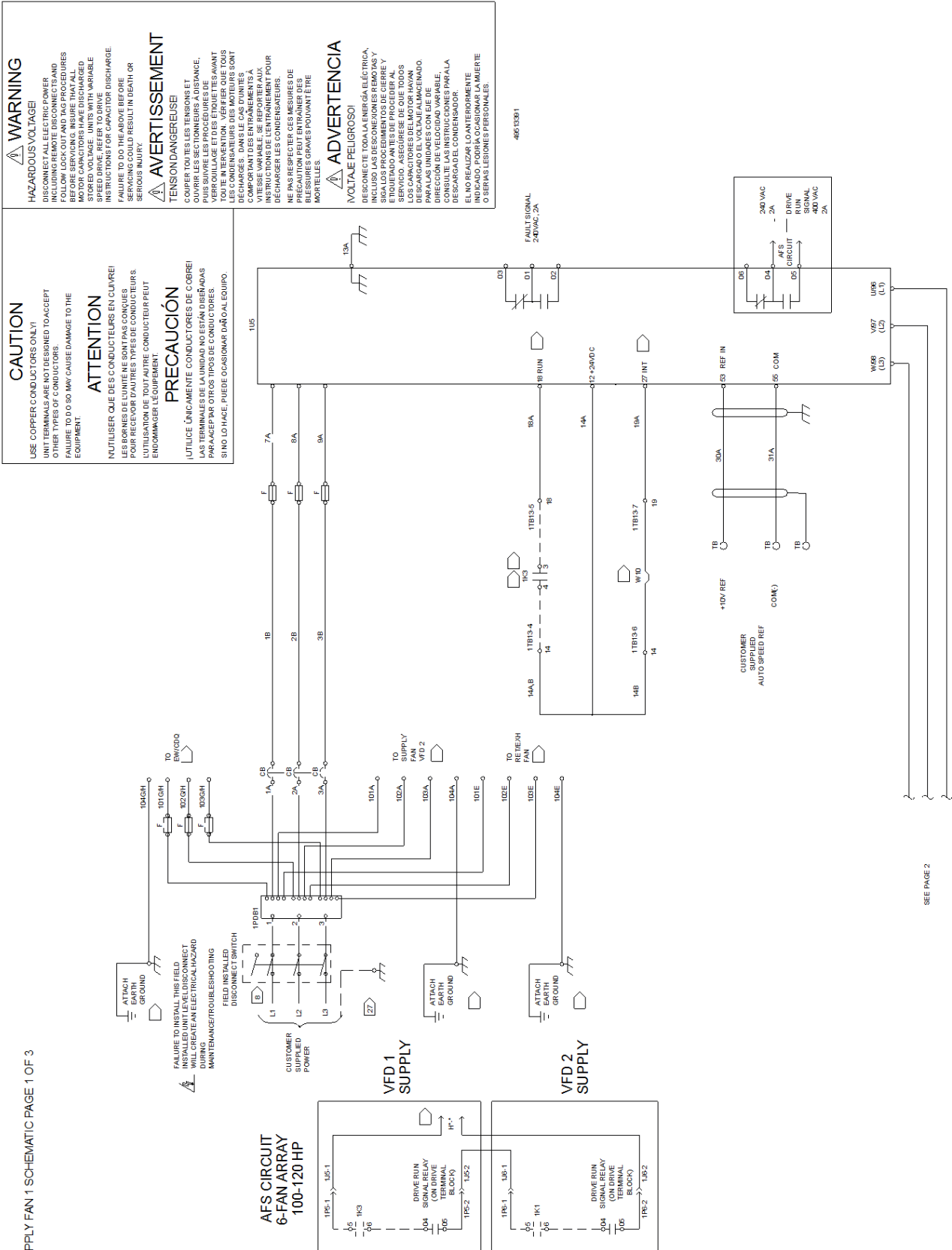
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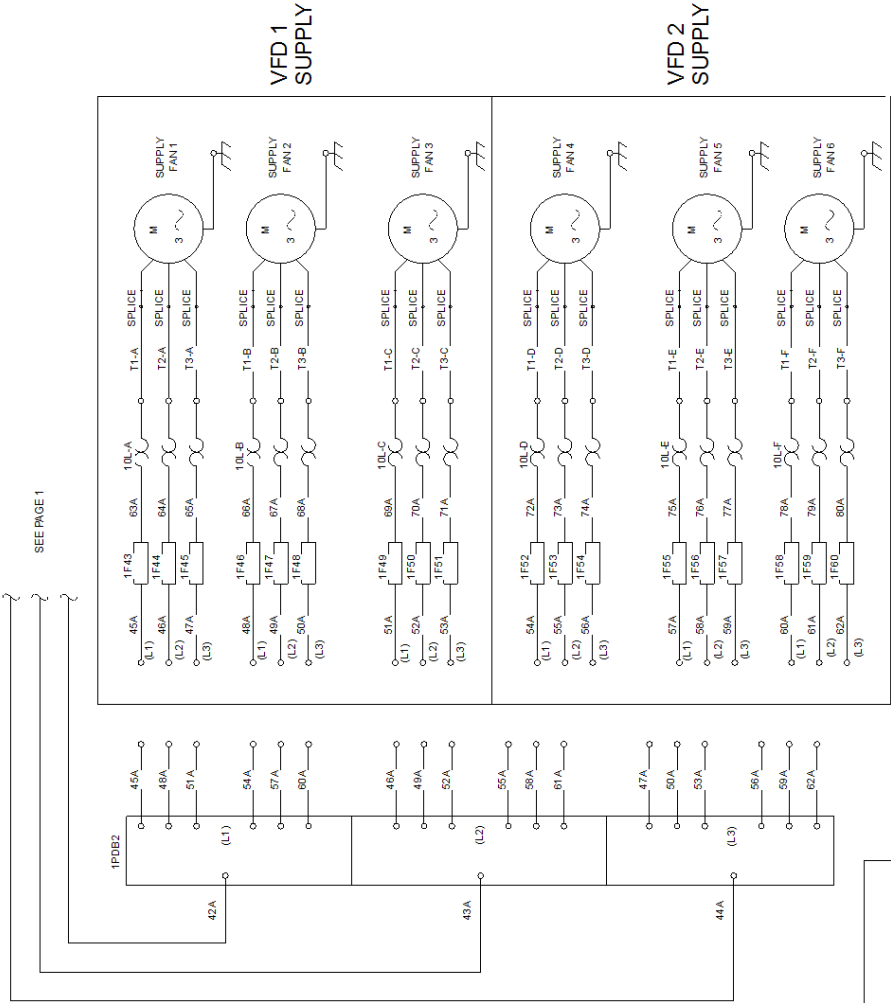
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4801300B

SUPPLY FAN 1 SCHEMATIC PAGE 1 OF 3





40513201

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LES CONDENSATEURS DES MOTEURS SONT
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FUSE	VOLTAGE	MOTOR FUSES			CLASS
		MFR/HP	PIN		
1F43 1F44 1F45 1F46 1F47 1F48 1F49 1F50 1F51 1F52 1F53 1F54 1F55 1F56 1F57 1F58 1F59 1F60	200/230	2x3	LP-CC-15	CC	CC
		4x1.5	LP-CC-10	CC	
		4x5	LP-CC-15	CC	
		2x5	LP-CC-25	CC	
		2x7.5	LP-CC-35	CC	
200	200	2x10	LP-40SP	J	J
		2x15	LP-40SP	J	
		2x15	LP-CC-6	CC	
		4x1	LP-CC-6	CC	
		4x2	LP-CC-15	CC	
		4x5	LP-CC-25	CC	CC
		4x7.5	LP-35SP	J	
		6x5	LP-CC-35	CC	
		2x5	LP-CC-25	CC	
		2x7.5	LP-CC-30	CC	
230	230	2x10	LP-40SP	J	J
		2x15	LP-40SP	J	
		2x20	LP-70SP	J	
		4x1	LP-CC-6	CC	
		4x2	LP-CC-12	CC	
460	460	4x5	LP-CC-20	CC	CC
		2x20	LP-35SP	J	
		2x25	LP-46SP	J	
		2x30	LP-40SP	J	
		2x40	LP-70SP	J	
575	575	4x1	LP-CC-4	CC	CC
		4x1.5	LP-CC-4	CC	
		4x2	LP-CC-4	CC	
		4x3	LP-CC-6	CC	
		4x5	LP-CC-8	CC	
		4x7.5	LP-CC-10	CC	CC
		4x10	LP-CC-15	CC	
		4x15	LP-CC-20	CC	
		4x20	LP-CC-30	CC	
		4x25	LP-35SP	J	
2 @ 3x20	2 @ 3x20	2x30	LP-46SP	J	J
		2x40	LP-40SP	J	
		4x1	LP-CC-4	CC	
		4x1.5	LP-CC-4	CC	
		4x2	LP-CC-4	CC	
		4x3	LP-CC-6	CC	CC
		4x5	LP-CC-8	CC	
		4x7.5	LP-CC-10	CC	
		4x10	LP-CC-15	CC	
		4x15	LP-CC-20	CC	
2 @ 3x20	2 @ 3x20	2x30	LP-46SP	J	J
		2x40	LP-40SP	J	
		4x1	LP-CC-4	CC	
		4x1.5	LP-CC-4	CC	
		4x2	LP-CC-4	CC	
		4x3	LP-CC-6	CC	CC
		4x5	LP-CC-8	CC	
		4x7.5	LP-CC-10	CC	
		4x10	LP-CC-15	CC	
		4x15	LP-CC-20	CC	

DEVICE DESIGNATION	LEGEND	DESCRIPTION
1CB11		CIRCUIT BREAKER
1F61F7/1F8		PRIMARY CONTROLLER EWD/O FUSE
1F40 TO 1F42		VFD FUSES
1K3		START / STOP RELAY
1K5		LOW LIMIT RELAY
1PDB1		POWER DISTRIBUTION BLOCK
1TE13		TERMINAL STRIP CONTROL CIRCUIT
1L5		VFD CONTROLLER
3BH-A TO 3BH-F		MOTORS (FAN ARRAY)
1F43 TO 1F60		MOTOR FUSES (FAN ARRAY)
1K1		START / STOP RELAY (FAN ARRAY/VFD)
1OL-A TO 1OL-F		OVERLOAD RELAYS (FAN ARRAY)
1PDB2		POWER DISTRIBUTION BLOCK (FAN ARRAY)

FUSE	VOLTAGE	PANEL HP (MAX)	PIN	CLASS
1F40 1F41 1F42	230	0.5-2	LP-CC-10	CC
		3	LP-CC-15	CC
		5	LP-CC-25	CC
		7.5-10	JUN-50	T
		15	JUN-80	T
460	460	20-25	JUN-100	T
		30-40	FWM-150A	---
		50	FWM-200A	---
		30-40	JUN-80	T
		30-40	JUN-80	T
575	575	FAN ARRAY	JUN-80	T
		30-40	JUN-80	T
		30-40	JUN-80	T
		30-40	JUN-80	T
		30-40	JUN-80	T

AREA	DEVICE PREFIX	LOCATION CODE
1	HIGH VOLTAGE PANEL	LOCATION
2	LOW VOLTAGE PANEL (UNIT SCHEMATIC)	
3	AIR HANDLER SECTION	
CONTROLLER EWD/O FUSE (CLASS CC)		
FUSE		
1F61F7/1F8	200/230	PIN
	460/575	KLDR-15

CAUTION

USE COPPER CONDUCTORS ONLY!
UNIT TERMINALS ARE NOT DESIGNED TO ACCEPT OTHER TYPES OF CONDUCTORS.
FAILURE TO DO SO MAY CAUSE DAMAGE TO THE EQUIPMENT.

ATTENTION

NUTILISER QUE DES CONDUCTEURS EN CUIVRE!
LES BORNES DE L'UNITÉ NE SONT PAS CONÇUES POUR RECEVOIR D'AUTRES TYPES DE CONDUCTEURS.
L'UTILISATION DE TOUT AUTRE CONDUCTEUR PEUT ENDOMMAGER L'EQUIPEMENT.

PRECAUCIÓN

¡UTILICE ÚNICAMENTE CONDUCTORES DE COBRE!
LAS TERMINALES DE LA UNIDAD NO ESTÁN DISEÑADAS PARA ACEPTAR OTROS TIPOS DE CONDUCTORES.
SI NO LO HACE, PUEDE OCASIONAR DAÑO AL EQUIPO.

48513391

WARNING

HAZARDOUS VOLTAGE!
DISCONNECT ALL ELECTRICAL POWER TO THE UNIT BEFORE SERVICING AND FOLLOW LOCK-OUT AND TAG PROCEDURES BEFORE SERVICING. INSURE THAT ALL MOTOR CAPACITORS HAVE DISCHARGED STORED VOLTAGE. UNITS WITH VARIABLE SPEED DRIVE, REFER TO DRIVE INSTRUCTIONS FOR CAPACITOR DISCHARGE.
FAILURE TO DO THE ABOVE BEFORE SERVICING COULD RESULT IN DEATH OR SERIOUS INJURY.

AVERTISSEMENT

TENSION DANGEREUSE!

COUPER TOUTES LES TENSIONS ET OUVRIER LES SECTIONNELS À DISTANCE, PUIS SUIVRE LES PROCÉDURES DE VERROUILLAGE ET DES ÉTIQUETTES AVANT TOUTE INTERVENTION. VÉRIFIER QUE TOUTS LES CONDENSATEURS DES MOTEURS SONT DÉCHARGÉS. DANS LE CAS D'UNITÉS COMPORTANT DES ENTRAÎNEMENTS À VITESSE VARIABLE, SE RÉFÉRER AUX INSTRUCTIONS DE L'ÉQUIPEMENT POUR DÉCHARGER LES CONDENSATEURS.
NE PAS RESPECTER CES MESURES DE PRÉCAUTION PEUT ENTRAÎNER DES BLESSURES GRAVES POUVANT ÊTRE MORTELLES.

ADVERTENCIA

VOLTAJE PELIGROSO!

DESCONECTE TODA LA ENERGÍA ELÉCTRICA INCLUIDO LAS DESCONEXIONES REMOVIENDO LAS ETIQUETAS DE CIERRE Y SIGUIENDO LOS PROCEDIMIENTOS DE VERROUILLAJE Y ETIQUETADO ANTES DE SERVICIO. ASEGURESE DE QUE TODOS LOS CAPACITORES DEL MOTOR HAYAN DESCARGADO EL VOLTAJE ALMACENADO PARA LAS UNIDADES CON E.E. DE DIRECCIÓN DE VELOCIDAD VARIABLE, CONSULTE LAS INSTRUCCIONES PARA LA DESCARGA DEL CONDENSADOR.
EL NO REALIZAR LO ANTERIORMENTE INDICADO, PODRÍA OCASIONAR LA MUERTE O SERIAS LESIONES PERSONALES.

NOTES:

- DASHED LINES INDICATE RECOMMENDED FIELD WIRING BY OTHERS. PHANTOM LINES INDICATE CONTROL OPTION
REF. CONTROL PANEL SCHEMATIC FOR SPECIFIC DETAIL
- ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS. OTHER COUNTRIES APPLICABLE NATIONAL AND/OR LOCAL REQUIREMENTS SHALL APPLY. FIELD CONDUCTORS SHALL HAVE INSULATION RATING NOT LESS THAN 600V COPPER CONDUCTORS ONLY.
- THE MINIMUM CIRCUIT AMPACITY, THE MAXIMUM FUSE SIZE AND DISCONNECT SIZE ARE CALCULATED BASED ON THE INVERTER INPUT LINE CURRENTS PER ARTICLE 430.2 OF THE NATIONAL ELECTRICAL CODE
- PROGRAM TERMINAL 18 AS RUN
- PROGRAM TERMINAL 27 INV. COASTING STOP.
- CLOSES TO RUN AUTO MODE OR BYPASS AUTO FOR OPTION VFD OR STARTER
- CUSTOMER SUPPLIED LOCKABLE DISCONNECTING MEANS, SUCH AS A DISCONNECT SWITCH OR CIRCUIT BREAKER, INSTALLED LOCAL TO UNIT. SIZE AND PLACEMENT OF DEVICE SHALL BE DONE IN ACCORDANCE WITH APPLICABLE NATIONAL AND LOCAL ELECTRICAL CODES.

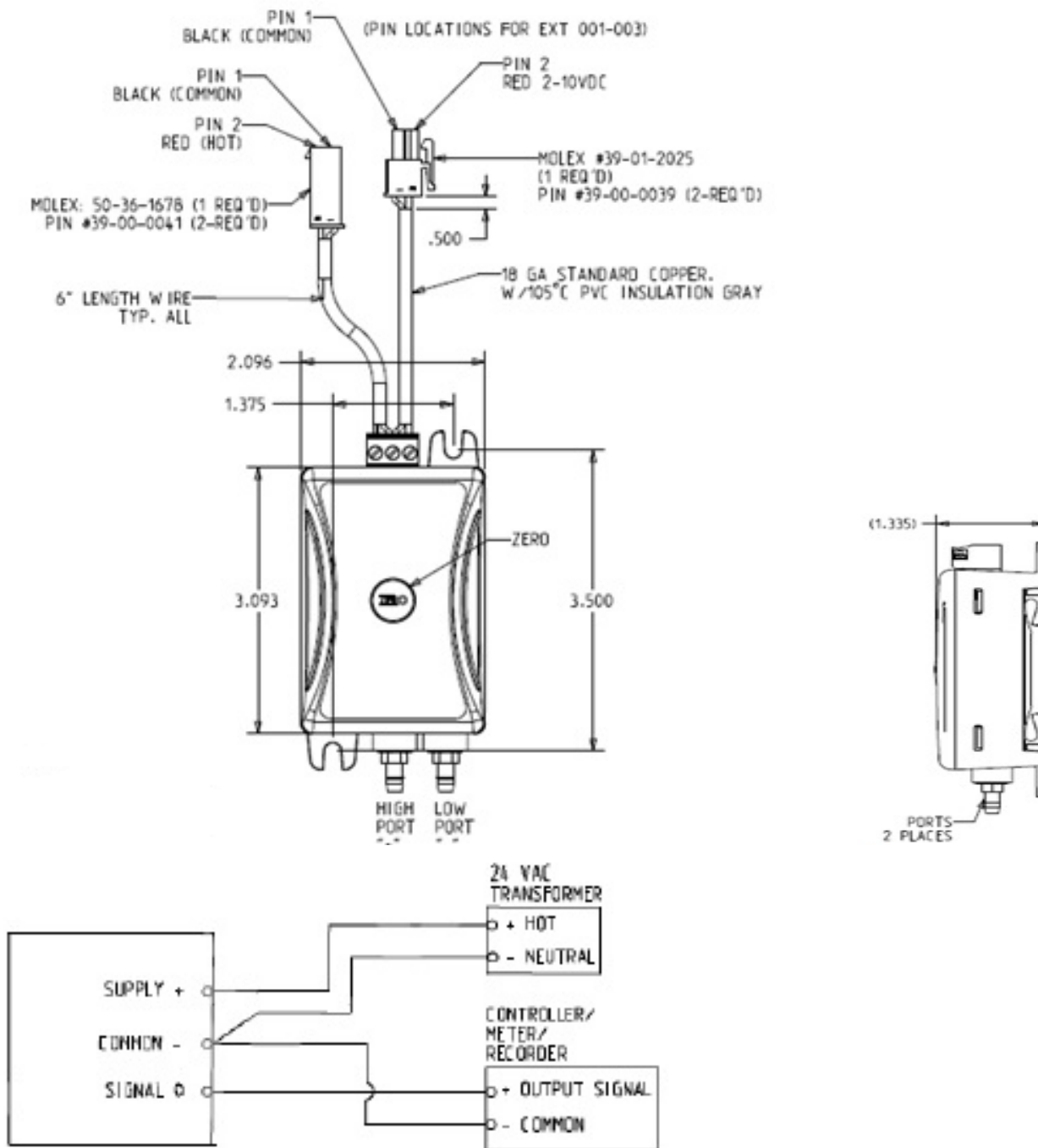
- 9 REMOVE JUMPER AND INSTALL FIELD SAFETY INTERLOCK.

- 10 FIELD SUPPLIED CONTACTS.

- 12 IF UNIT HAS SHIPPING SPLITS, WIRING WILL TERMINATE TO MODULE AT EACH SHIPPING SPLIT.

- 27 ATTACH GROUND OR EQUIPMENT GROUND.

- 28 AIRFLOW SWITCH INPUT, REFER TO LOW VOLTAGE SCHEMATIC.



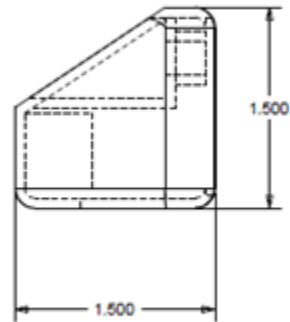
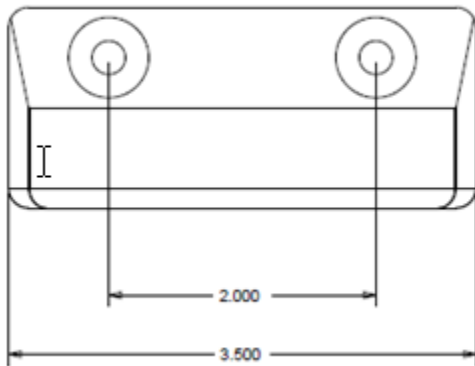
NOTE:

1. PRESSURE CONNECTIONS: 3/16" OD BARBED FITTING FOR 1/4" TUBING
2. OPERATING TEMPERATURE: 0 - 85 C
3. COMPENSATED TEMPERATURE: 0 - 50 C
4. LOAD IMPEDANCE: 500 OHMS
5. TERMINATION: SCREW TERMINAL BLOCK
6. ACCURACY: 0.25%
7. INPUT VOLTAGE: 24VAC (NOMINAL)

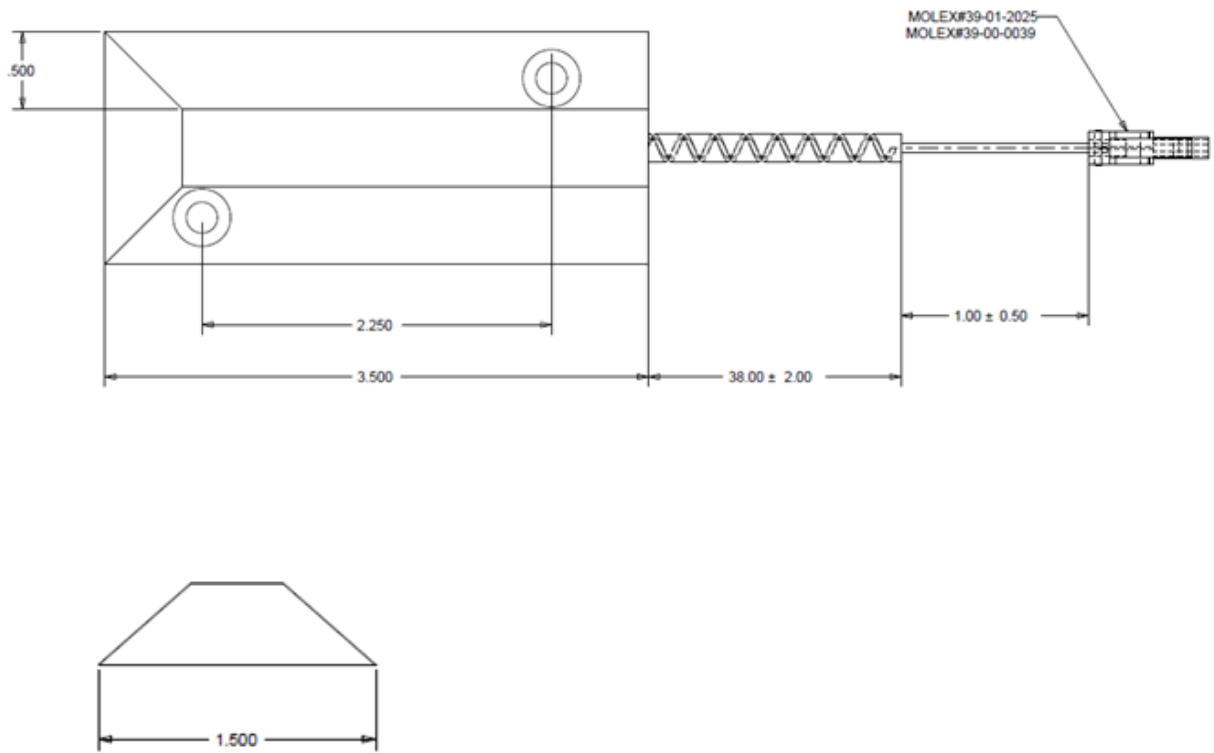
Limit Switch

Notes:

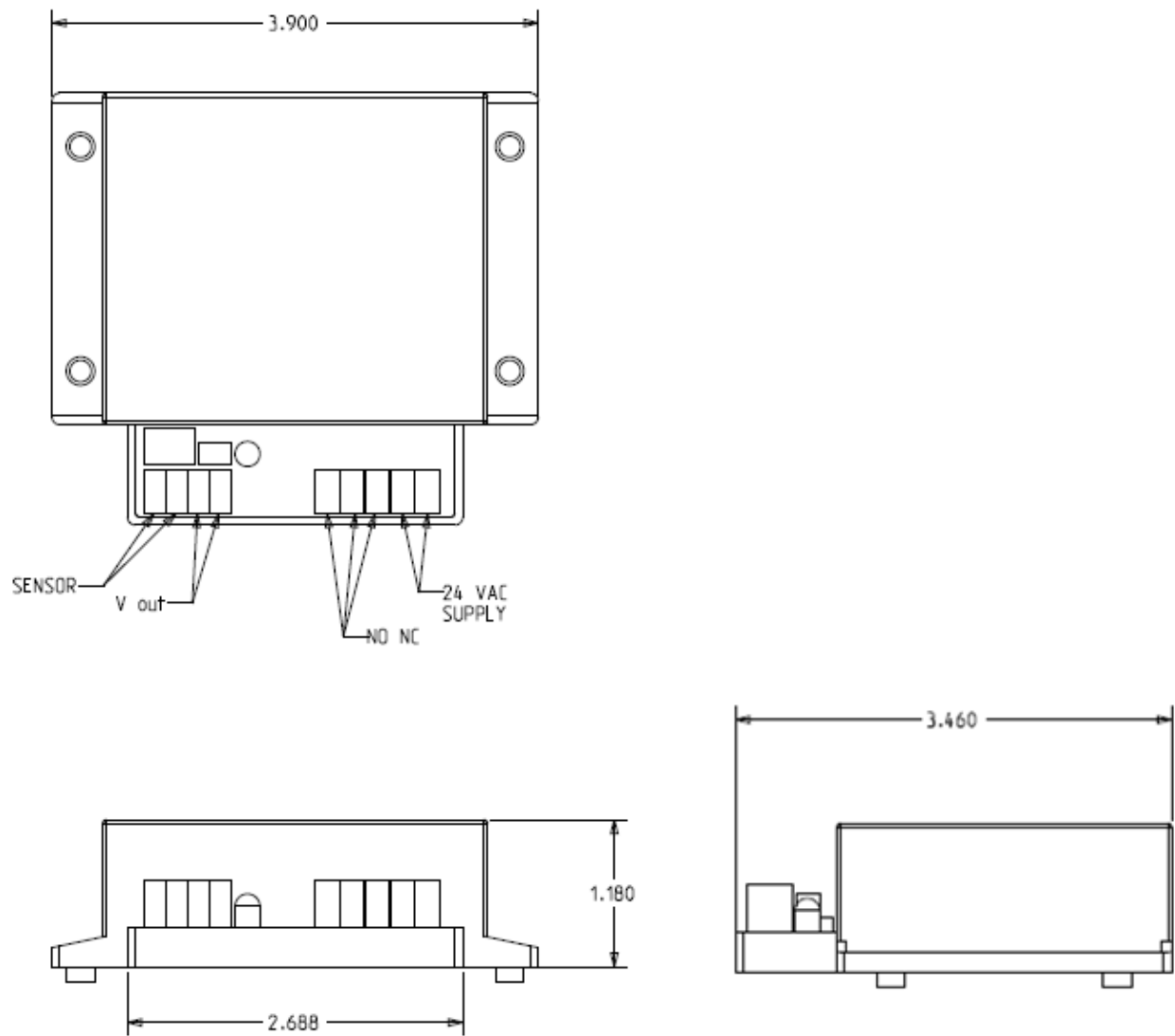
1. Parts Must Have Trane Part Number With Bar Code per ES.
2. All Dimensions Are Reference Dimensions Unless Otherwise Noted.
3. Replace 2 Mounting Screws with Pan Head Combination Drive Sheet Metal Screws, 18-8 Stainless Steel, #6 Size $\frac{1}{2}$ " Length.



L

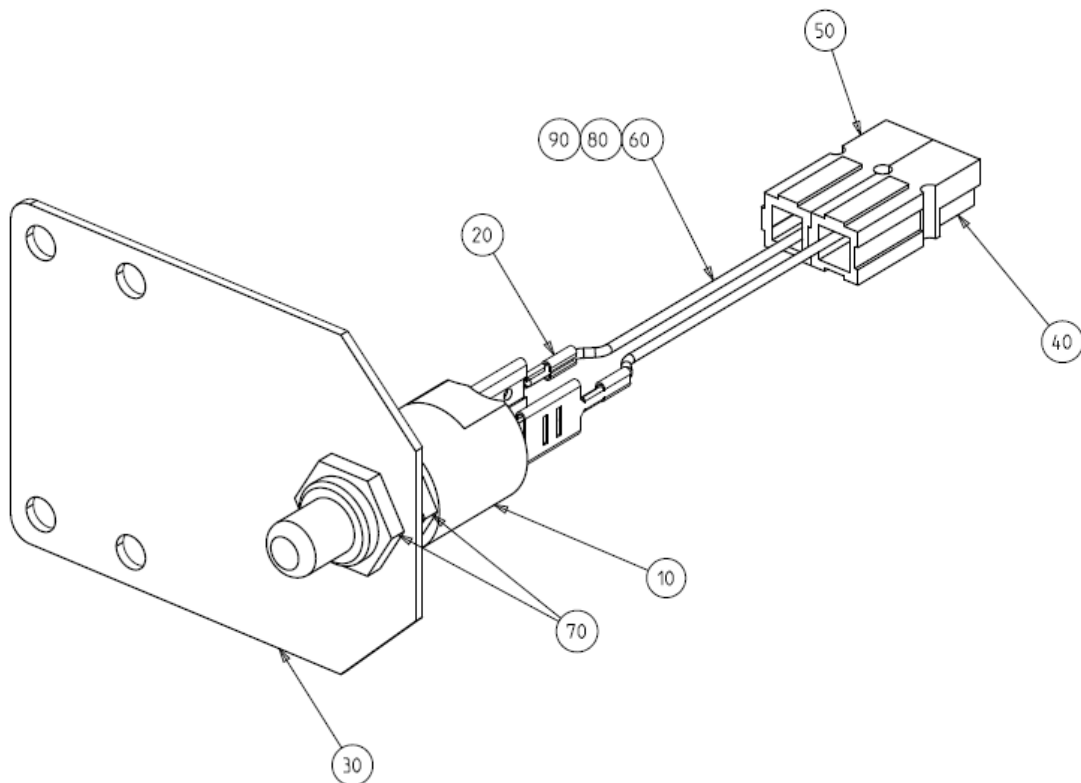


Radiometer



Limit Switch UV

Item	Description	Vendor No. or Equivalent	QTY
10	Momentary Switch. Eaton Metal Button	8418K12	1
20	Female Disconnects (Red) Panduit	DNF18-250FIB-C	2
30	Mounting Bracket 495319590001	16 GA. Galvanized	1
40	Anderson Contact and Connector	1327G6 (Blk)	1
50	Anderson Contact and Connector	1327G7 (Wht)	1
60	18 AWG Wire THHN Blk: Length 2.5"	--	2
70	Nut: 15/32-32; Hexagon. Eaton	15-192	3
80	Heat Shrink Tube: Panduit 3/4": Length 3.5"	HSTTA75-48-5	1
90	Aluminum Tape 2" Wide: Length 4.5"	--	1

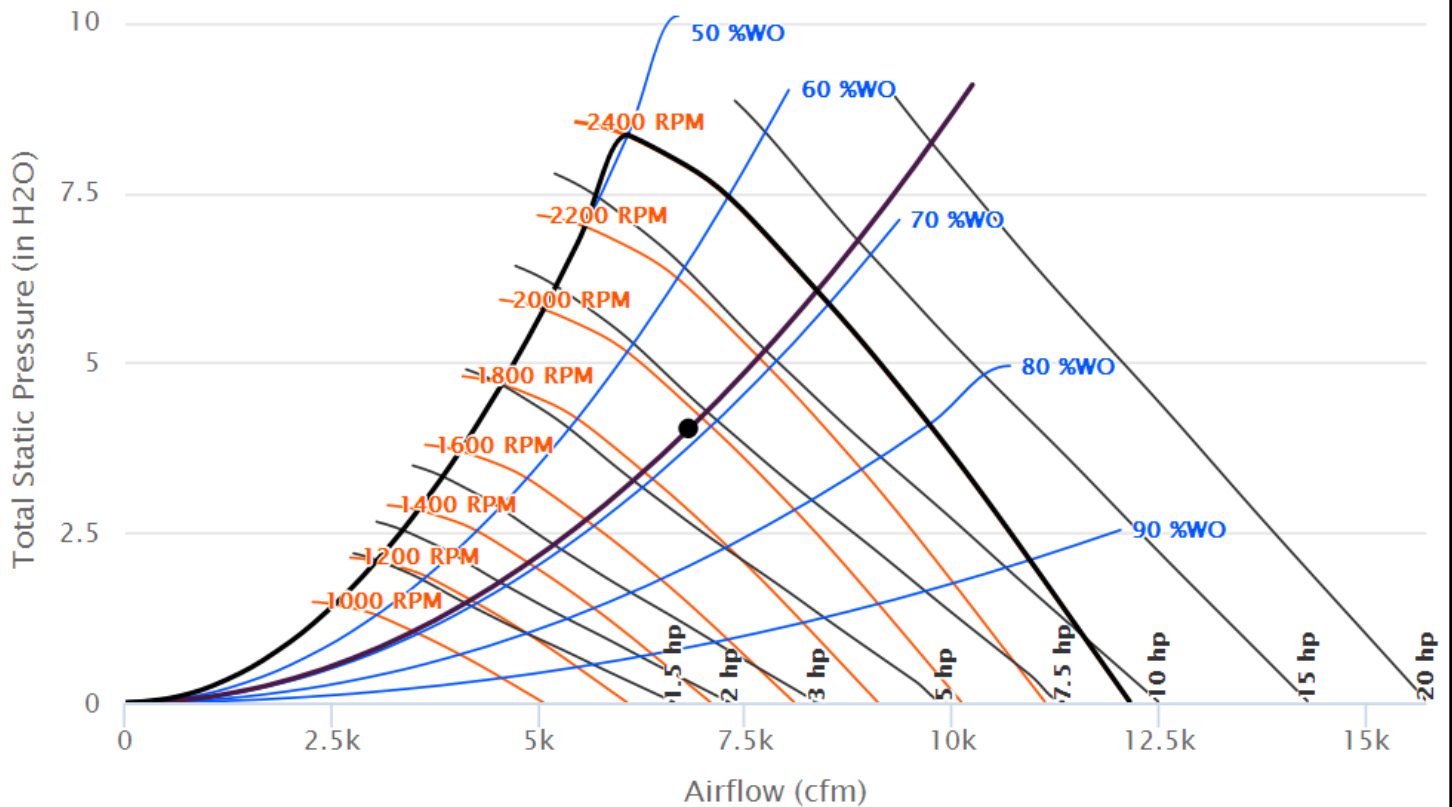


Fan Details

Unit Size	22TR	Operating Brake Power	6.873 hp
Motor Frequency	66.00 Hz	Altitude	0.00 ft
Operating Airflow	6,826 cfm	Design Temp.	70.00 F
Operating Static Pressure	4.039 in H2O	Efficiency	63.24 %
Operating RPM	1,960 rpm		

DOAS-1 – Exhaust – Single Fan

Size 17 DDP 22.25 inch AF M Press 80% Width 9 blades

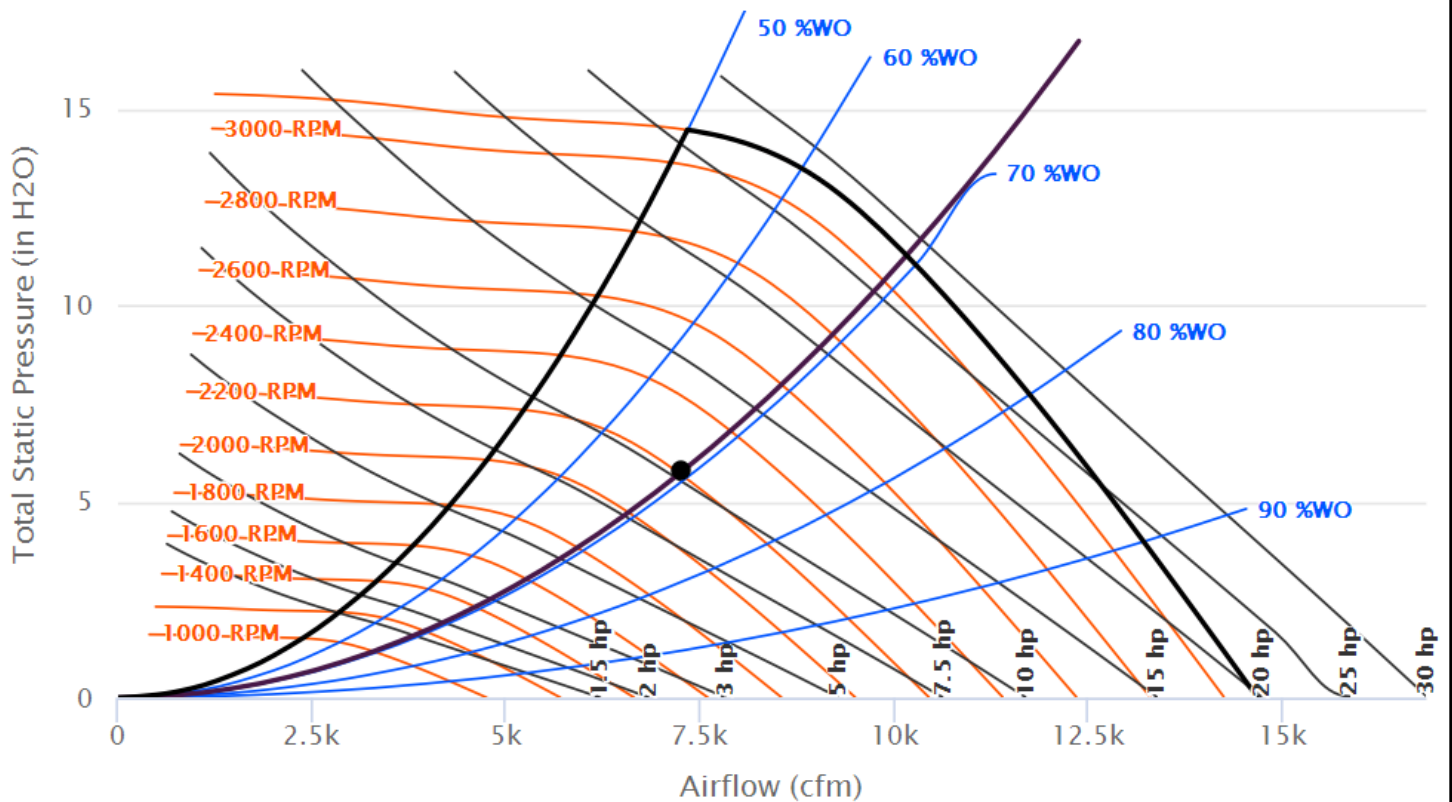


Fan Details

Unit Size	22UR	Operating Brake Power	10.473 hp
Motor Frequency	75.00 Hz	Altitude	0.00 ft
Operating Airflow	7,275 cfm	Design Temp.	70.00 F
Operating Static Pressure	5.792 in H2O	Efficiency	63.43 %
Operating RPM	2,213 rpm		

DOAS-1 – Supply – Single Fan

Size 17 DDP 22.25 inch AF H Press 80% Width 12 blades



Trane Performance Climate Changer Air Handler

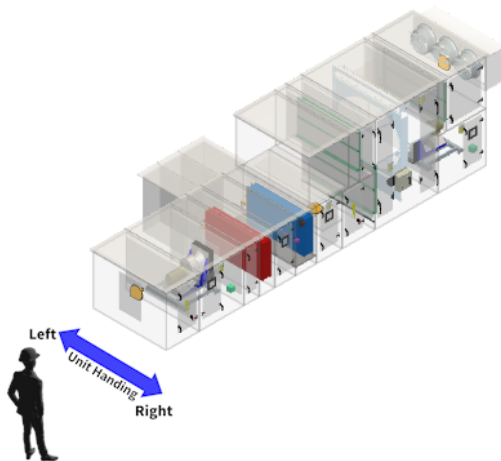
Unit Overview - ERU-2

Application	Unit Size	External Dimensions			Weight	
		Height	Width	Length	Installed	Rigging
Outdoor unit	CSAA012	89.4 in	66.5 in	291.5 in	7240 lb	6117 lb
Quantity of Shipping Sections		Largest Ship Split			Heaviest Ship Split	Elevation
		Height	Width	Length		
5 piece(s)		47.7 in	66.5 in	190.1 in	3145 lb	0.00 ft
Supply Fan				Return/Exhaust Fan		
Airflow	5278 cfm	Total Static Pressure	5.527 in H2O	Airflow	4866 cfm	Total Static Pressure 4.262 in H2O

Note: Height includes air handler sloped roof panel and standing seam.

Construction Features

Panel	2in. foam injected R-13 with thermal break
Panel Material	All unit inner panels - galvanized
Integral Base Frame	6in. integral base frame
Paint	Slate gray
Short Circuit Current Rating	5 kA
Agency Approval	UL listed unit
Roof Curb Type	Standard roof curb



Unit Electrical

Circuit	Voltage/Phase/Frequency	FLA	MCA	Max Fuse Size
Circuit number 1 SPP (Field provided unit disconnect)	460/3/60	26.52 A	30.02 A	40.00 A
Circuit number 2 UV lights 1	115/1/60	1.54 A	1.93 A	15.00 A
Circuit number 3 Lights + switch	115/1/60	2.61 A	3.26 A	15.00 A
Circuit number 4 Receptacle	115/1/60	8.00 A	10.00 A	15.00 A

Unit Acoustics

Sound Path	63 (Hz)	125	250	500	1K	2K	4K	8K
Supply front:	80 dB	83 dB	76 dB	72 dB	66 dB	64 dB	60 dB	52 dB
Return:	70 dB	71 dB	66 dB	64 dB	58 dB	59 dB	51 dB	42 dB
Outdoor:	80 dB	79 dB	72 dB	66 dB	58 dB	59 dB	50 dB	43 dB
Exhaust:	74 dB	84 dB	76 dB	78 dB	73 dB	72 dB	66 dB	56 dB
Casing:	82 dB	80 dB	89 dB	82 dB	73 dB	63 dB	60 dB	52 dB

Unit Controls

Controller Type	No controller
-----------------	---------------

Warranty

Warranty section	Extd. warranty
Labor - 1st year	1st year labor warranty

Pipe cabinet section

Pipe cabinet 1 side doors	One side door
Pipe cabinet 1 door front position	One front door
Pipe cabinet 1 door back position	One back door

Exhaust fan section - Position: 1

Fan Data		Motor Data	
Wheel Diameter/Type/Class	20in. dd plenum, 80% width, M press	Power / Fan	7.5 hp
Fan Quantity	1	Voltage	460/3
Discharge Location	Side opp. drive	Speed	1800
Motor Location	Right side drive	Class	NEMA premium compliant ODP
Blades	Improved sound(lowest overall,less spike	Efficiency	91.23 %
Drive Service Factor	Direct drive	Part Load Efficiency	84.69 %
Fan Performance		Fan Electrical Power	4.53 kW
Airflow	4866 cfm	Note: VFD driven motor fan electrical power calculated in accordance with AHRI 430.	
Total Static Pressure	4.262 in H2O	Fan Section Options	
Total Brake Power	5.272 hp	Inlet Sound Attenuator	Inlet bell (reduces spike)
Operating Speed	2132 rpm	Fan Wheel Balance	Inverter balance with shaft grounding
Total Brake HP	5.272 hp	Perforated Panel	Perforated panels
AMCA FEG	FEG75	Door Location	Right
Unit Static Efficiency	62.01 %	Window	Right - thermal
Motor Interface Options		Door Guard	Yes
Selection Type	VFD	Marine Light	Marine LED light
Voltage	460/3		
Mounting Location	Internal mounting		
Motor Wire In Conduit	Motor wiring conduit		
VFD Frequency	72.00 Hz		

Fan Discharge Options							
Face	Type	Airflow	Face Velocity	Area	Pressure Drop	Damper Torque Requirement	Exhaust Hood
Side Face Feature	Opposed blade damper	5000 cfm	1572 ft/min	3.18 sq ft	0.231 in H2O	N/A	N/A

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Exhaust fan Acoustics

Sound Path	63 (Hz)	125	250	500	1K	2K	4K	8K
Return:	70 dB	71 dB	66 dB	64 dB	58 dB	59 dB	51 dB	42 dB
Exhaust:	74 dB	84 dB	76 dB	78 dB	73 dB	72 dB	66 dB	56 dB
Casing:	77 dB	75 dB	76 dB	77 dB	68 dB	59 dB	56 dB	47 dB

Pressure Drop in (in w.g.)

Exhaust fan	
Wheel	1.38
Fan section	0.88
Internal Static Pressure	2.26
External Static Pressure	2.00
Total Static Pressure	4.26

Starter/VFD only section - Position: 2

Return/Exhaust Fan Motor Interface Door			Right			
Openings						
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop
Bottom Face Feature	Return	Rectangular	5000 cfm	1223 ft/min	4.09 sq ft	0.000 in H2O

Air mixing section - Position: 3

Openings							
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
Back	Outside	Std TRAQ	5316 cfm	1269 ft/min	4.19 sq ft	0.142 in H2O	Yes
Filter							
Type	Frame	MERV Rating	Quantity	Size	Pressure Drop		
Pleated media - MERV 8	2"	MERV 8	6.00	16in.x20in.	0.610		
Condition	Face Velocity	Airflow	Area				
Mid-life	399 ft/min	5316 cfm	13.33 sq ft				
Section Options							
Door Location			Right				

Custom length section - Position: 4

Section Length	7.507 in
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Dedicated outside air Energy wheel - Position: 5

Wheel				Motor			Dampers												
Size		Efficiency		Model Number		Voltage		Interface Options		Exhaust Air Bypass		Outside Air Bypass		Recirculation					
6000		High		Wheel 6000 Poly H		460/3		Starter				Yes							
Design Airflow																			
Ventilation				Exhaust				Return				Supply							
5000 cfm				4550 cfm				4828 cfm				5278 cfm							
Pressure Drop @ Design Airflow						SA to RA Pressure Diff	OACF Ratio	OATR Flow	EATR	EATR Flow									
Supply Side		Exhaust Side		Recirculation Damper															
0.86 in H2O		0.79 in H2O		N/A															
				1.500 in H2O		1.01 Number		316 cfm		5.3 %		278 cfm							
Summer Conditions																			
Outside Air			Return Air			Supply Air			Exhaust Air			Effectiveness							
Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Latent		Sensible		Total			
87.00 F		72.00 F	75.00 F		63.00 F	77.88 F		65.54 F	84.63 F		70.23 F	75.2 %		80.0 %		76.8 %			
Winter Conditions																			
Outside Air			Return Air			Supply Air			Exhaust Air			Effectiveness							
Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Dry Bulb		Wet Bulb	Latent		Sensible		Total			
-87.00 F		-6.00 F	70.00 F		53.00 F	50.12 F		41.02 F	9.62 F		9.52 F	75.7 %		81.0 %		79.0 %			
Energy Savings																			
Summer												Winter							
Sensible			Latent			Total			Sensible										
51.27 MBh			63.53 MBh			114.80 MBh			309.15 MBh										
Economizing																			
Supply Airflow				Supply Side Pressure Drop				Exhaust Airflow				Exhaust Side Pressure Drop							
5000 cfm				0.79 in H2O				4550 cfm				0.50 in H2O							
Return/Exhaust Air Filter																			
Type		Frame		MERV Rating		Airflow		Face Area		Face Velocity		Condition		Pressure Drop		Quantity		Size	
Pleated media - MERV 8		2"		MERV 8		4828 cfm		13.33 sq ft		362 ft/min		Mid-life		0.596 in H2O		6.00		16in.x20in.	
Energy Wheel Section Options																			
Door Location										Right									
1st level - air entering LED light										Marine LED light									
2nd level - air entering light										Marine LED light									
AHRI 1060 Classification - Summer																			
AHRI 1060 Classification										AHRI ERV Certified									
Data Generation Date										1/13/2022									
Trane Select Assist update number										2540									

Note: Purge is Not Included.

Note: Certified in accordance with the AHRI ERV Certification Program, which is based on AHRI Standard 1060. Certified units may be found in the AHRI Directory at www.ahridirectory.org.




AHRI 1060 Classification - Winter

AHRI 1060 Classification Outside Scope of AHRI 1060

Data Generation Date 1/13/2022

Trane Select Assist update number 2540

Note: Application Rating is outside of the scope of AHRI ERV Certification Program, but is rated in accordance with AHRI Standard 1060.

Filter section - Position: 6

Primary Filter

Type	Frame	Loading	Airflow	Face Area	Face Velocity	Condition	Pressure Drop	Filter Quantity	Filter Size
4in. cartridge - MERV 14 - premium	4in. filter frame	Side load filters	5278 cfm	13.33 sq ft	396 ft/min	Mid-life	0.767 in H ₂ O	6.00	16x20

Filter Section Options

Door Location	Right
Extra sets of filter type 1	1 extra set

Custom length section - Position: 7

Section Length	10.000 in
----------------	-----------

Access/blank/turning section - Position: 8

Options

Section Length	36.000 in
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Air mixing section - Position: 9

Openings

Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop	Hood
------	------	------	---------	---------------	------	---------------	------

Section Options

Door Location	Right
Window	Right - thermal
Marine Light	Marine LED light

Cooling coil section - Position: 10

Coil Construction		Coil Performance	
Model	Chilled water - UW	Capacity	
Rows	8	Total	213.68 MBh
Tube Diameter	1/2in. tube diameter (12.7 mm)	Sensible	150.45 MBh
Coil Connection	Standard	Air	
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes	Flow	5278 cfm
Fin Spacing	107 Per Foot	Entering Dry Bulb	77.88 F
Fin Material	Aluminum fins	Entering Wet Bulb	65.54 F
Fin Type	Delta flo H (Hi efficient)	Leaving Dry Bulb	52.00 F
Face Area	12.30 sq ft	Leaving Wet Bulb	51.90 F
Coil (top/single) H x L	32 in. (813 mm) X 55" (1397 mm) finned length	Pressure Drop	0.724 in H ₂ O
Casing	Galvanized	Face Velocity	429 ft/min
Turbulators	Yes	Fluid	
Rigging Weight	245.1 lb	Flow	31.34 gpm
Installed Weight	343.5 lb	Entering	42.00 F
Voltage	115/60/1	Leaving	57.00 F
Coil Section Options		Pressure Drop	8.80 ft H ₂ O
Extended Drain and Vent	Holes only	Tube Velocity	2.15 ft/s
Drain Pan	Stainless steel	Reynolds Number	1636.46
Drain Connection	Left	Type	Propylene glycol
Minimum Trap Height (L)	10.163 in	Concentration	35.00 %
H Trap Dimension	6.108 in	Fouling Factor	0.00000 hr-sq ft-deg F/Btu
J Trap Dimension	3.054 in	Volume	10.42 gal
Service Panel	Coil connection side	AHRI 410 Classification	
UV Light	Yes	AHRI 410 Classification	NOT Certified by AHRI
		Data Generation Date	1/13/2022
		Trane Select Assist update number	2540



Note: Coil is NOT certified by AHRI. Coil is within the scope of AHRI Standard 410.

Access/blank/turning section - Position: 11

Options

Section Length	19.000 in
Door Location 1	Right
Window 1	Right - thermal

Heating coil section - Position: 12

Coil Construction		Coil Performance	
Model	Hot water - UW	Capacity	
Rows	2	Total	379.58 MBh
Tube Diameter	1/2in. tube diameter (12.7 mm)	Air	
Coil Connection	Standard	Flow	5000 cfm
Tube Matl/Wall Thickness	.016" (0.406 mm) copper tubes	Entering Dry Bulb	-5.00 F
Fin Spacing	142 Per Foot	Leaving Dry Bulb	65.00 F
Fin Material	Aluminum fins	Pressure Drop	0.150 in H2O
Fin Type	Delta flo H (Hi efficient)	Face Velocity	406 ft/min
Face Area	12.30 sq ft	Fluid	
Coil (top/single) H x L	32 in. (813 mm) X 55" (1397 mm) finned length	Flow	19.02 gpm
Casing	Galvanized	Entering	140.00 F
Turbulators	Not Included	Leaving	100.00 F
Rigging Weight	93.5 lb	Pressure Drop	0.53 ft H2O
Installed Weight	121.4 lb	Tube Velocity	1.31 ft/s
Coil Section Options		Reynolds Number	9134.14
Extended Drain and Vent	Holes only	Type	Water
Service Panel	Coil connection side	Concentration	100.00 %
		Fouling Factor	0.00025 hr-sq ft-deg F/Btu
		Volume	3.35 gal
		AHRI 410 Classification	
		AHRI 410 Classification	Outside Scope of AHRI 410
		Data Generation Date	1/13/2022
		Trane Select Assist update number	2540

Note: Coil is NOT certified by AHRI. Coil is outside the scope of AHRI Standard 410.

Access/blank/turning section - Position: 13

Options

Section Length	14.000 in
Door Location 1	Right

Supply fan section - Position: 14

Fan Data		Motor Data	
Wheel Diameter/Type/Class	20in. dd plenum, 80% width, M press	Power / Fan	10 hp
Fan Quantity	1	Voltage	460/3
Discharge Location	Front top	Speed	1800
Motor Location	Right side drive	Class	NEMA premium compliant ODP
Blades	Higher eff.(some bands lower,more spike)	Efficiency	92.19 %
Drive Service Factor	Direct drive	Part Load Efficiency	87.00 %
Fan Performance		Fan Electrical Power	6.04 kW
Airflow	5278 cfm	Note: VFD driven motor fan electrical power calculated in accordance with AHRI 430.	
Total Static Pressure	5.527 in H2O	Fan Section Options	
Total Brake Power	7.123 hp	Inlet Sound Attenuator	Inlet bell (reduces spike)
Operating Speed	2374 rpm	Fan Wheel Balance	Inverter balance with shaft grounding
Total Brake HP	7.123 hp	Perforated Panel	Perforated panels
AMCA FEG	FEG80	Door Location	Right
Unit Static Efficiency	64.57 %	Window	Right - thermal
Motor Interface Options		Door Guard	Yes
Selection Type	VFD	Marine Light	Marine LED light
Voltage	460/3		
Mounting Location	Internal mounting		
Motor Wire In Conduit	Motor wiring conduit		
VFD Frequency	80.00 Hz		

Note: Certified by the AHRI Central Station Air-Handling Unit (AHU) Certification Program, based on AHRI Standard 430/431. AHRI certified units are subject to rigorous and continuous testing, have performance ratings independently measured and are third party verified. Certified units may be found in the AHRI Directory at www.ahridirectory.org.



Supply fan Acoustics

Sound Path	63 (Hz)	125	250	500	1K	2K	4K	8K
Supply front:	80 dB	83 dB	76 dB	72 dB	66 dB	64 dB	60 dB	52 dB
Outdoor:	80 dB	79 dB	72 dB	66 dB	58 dB	59 dB	50 dB	43 dB
Casing:	81 dB	79 dB	89 dB	81 dB	71 dB	60 dB	58 dB	50 dB

Pressure Drop in (in w.g.)

Supply fan	
Air mixing section	0.93
Wheel	0.86
Filter section	0.77
Coil section	0.72
Coil section	0.18
Fan section	0.02
Controls section	0.05
Internal Static Pressure	3.53
External Static Pressure	2.00
Total Static Pressure	5.53

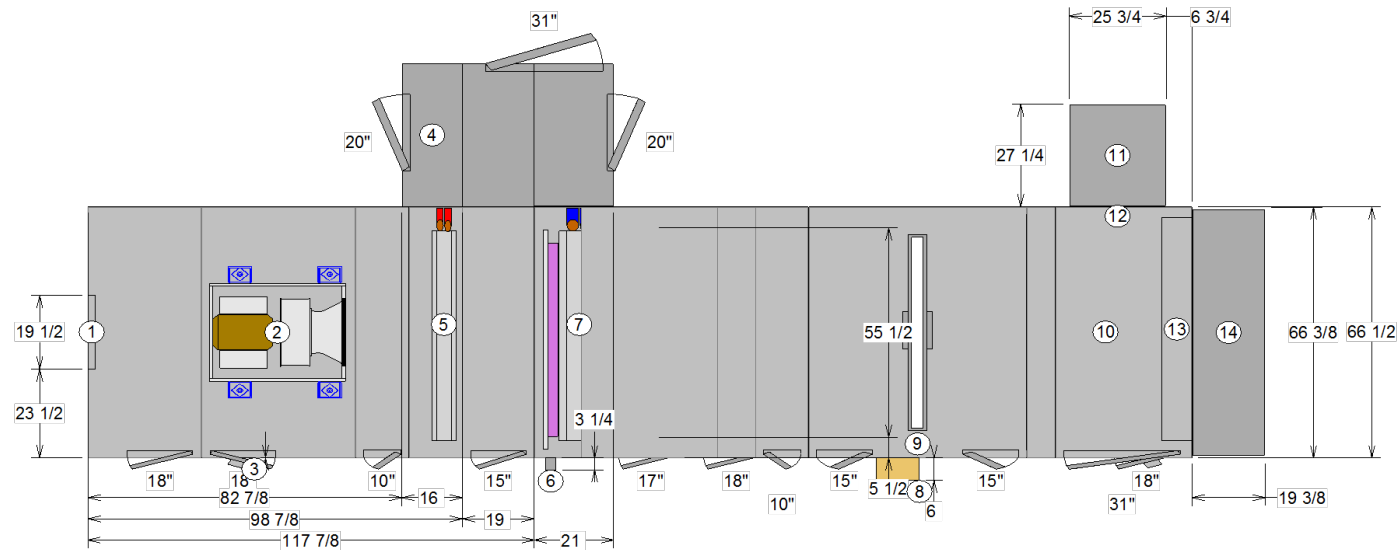
Starter/VFD only section - Position: 15

Supply Fan Motor Interface Door			Right			
Openings						
Face	Path	Type	Airflow	Face Velocity	Area	Pressure Drop
Front Face Feature	Supply	Rectangular	5000 cfm	1231 ft/min	4.06 sq ft	0.047 in H2O



Job Name: UNE - Harold & Bibby Alfond Center-Health Sciences

CSAA
Quantity: 1
Tags: ERU-2



- 1 Opening front
30 x 19.5
 - 2 Plenum fan - 20in. dd
plenum, 80% width, M
press Supply fan 10 hp
460/3 None
 - 3 Light switch and/or
receptacle RH
 - 4 Pipe cabinet left (3)
 - 5 Heating coil - 2 Coil type
UW
 - 6 UV light switch RH
 - 7 Cooling coil - 8 Coil type
UW
 - 8 External starter RH
 - 9 Energy wheel - 6000
 - 10 Plenum fan - 20in. dd
plenum, 80% width, M
press Exhaust fan 7.5 hp
460/3 None
 - 11 Hood left
 - 12 Damper left-opposed
blade
26.25 x 22.72
 - 13 Standard Traq damper
back
22.25 x 59.125
 - 14 Hood back
- Doors
- 18 width x 35 height
 - 10 width x 35 height
 - 20 width x 33 height
 - 15 width x 35 height
 - 31 width x 33 height
 - 17 width x 35 height
 - 15 width x 77 height
 - 31 width x 35 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

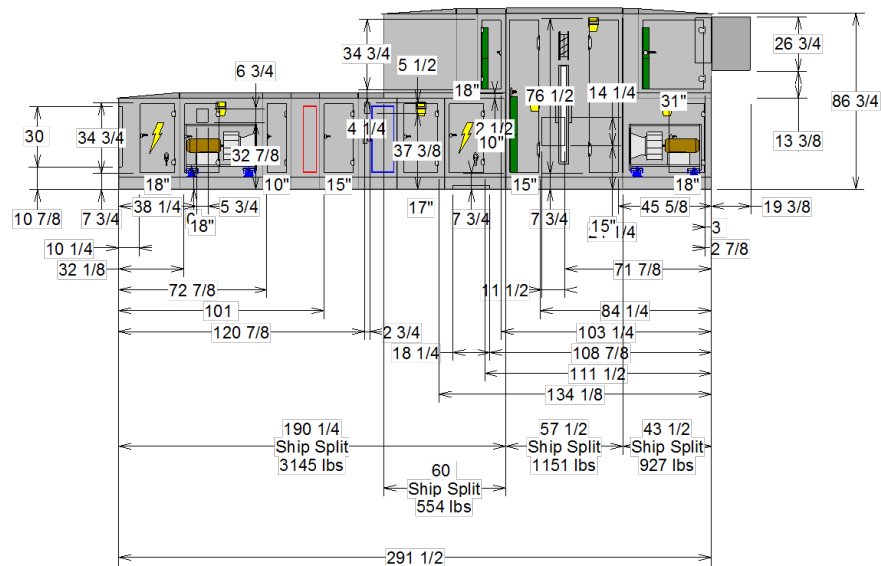
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alfond Center-Health Sciences	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0



TRANE

Performance Climate Changer
Air Handlers

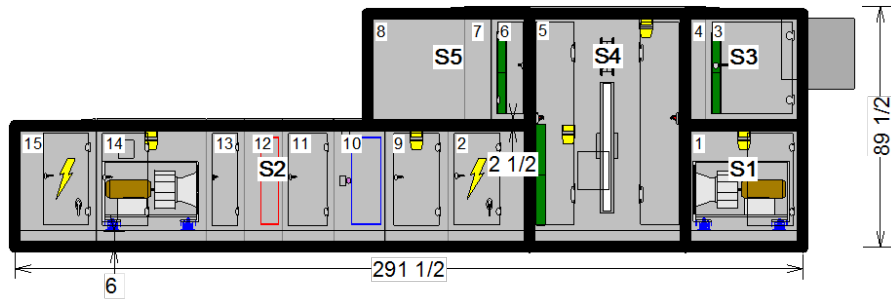


- 1 Opening front
30 x 19.5
 - 2 Plenum fan - 20in. dd
plenum, 80% width, M
press Supply fan 10 hp
460/3 None
 - 3 Light switch and/or
receptacle RH
 - 4 Pipe cabinet left (3)
 - 5 Heating coil - 2 Coil type
UW
 - 6 UV light switch RH
 - 7 Cooling coil - 8 Coil type
UW
 - 8 External starter RH
 - 9 Energy wheel - 6000
 - 10 Plenum fan - 20in. dd
plenum, 80% width, M
press Exhaust fan 7.5 hp
460/3 None
 - 11 Hood left
 - 12 Damper left-opposed
blade
26.25 x 22.72
 - 13 Standard Traq damper
back
22.25 x 59.125
 - 14 Hood back
- Doors
- 18 width x 35 height
 - 10 width x 35 height
 - 20 width x 33 height
 - 15 width x 35 height
 - 31 width x 33 height
 - 17 width x 35 height
 - 15 width x 77 height
 - 31 width x 35 height

For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length shown.

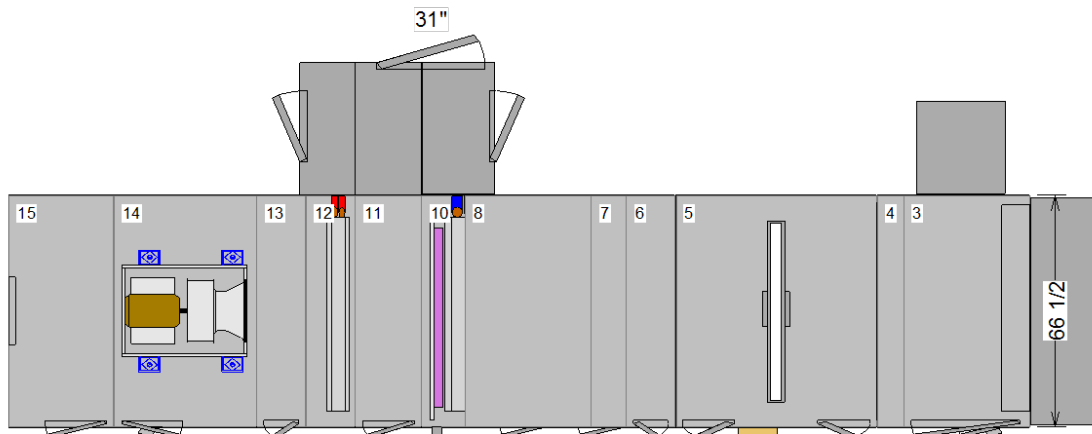
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alfond Center-Health Sciences	Unit Casing: 2in Double Wall Foam	 Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2	
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0	



For maneuvering purposes, include 1.125 inches to each ship split length for overlapping panel flange. Flange will not add to overall installed unit length sh

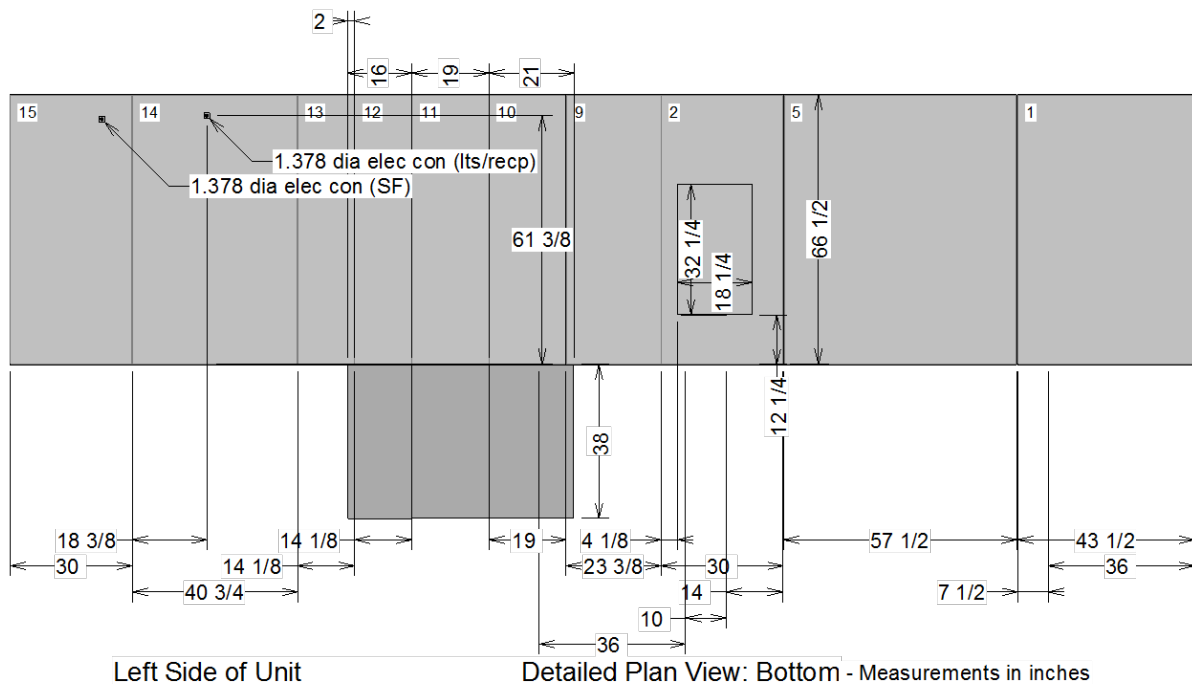
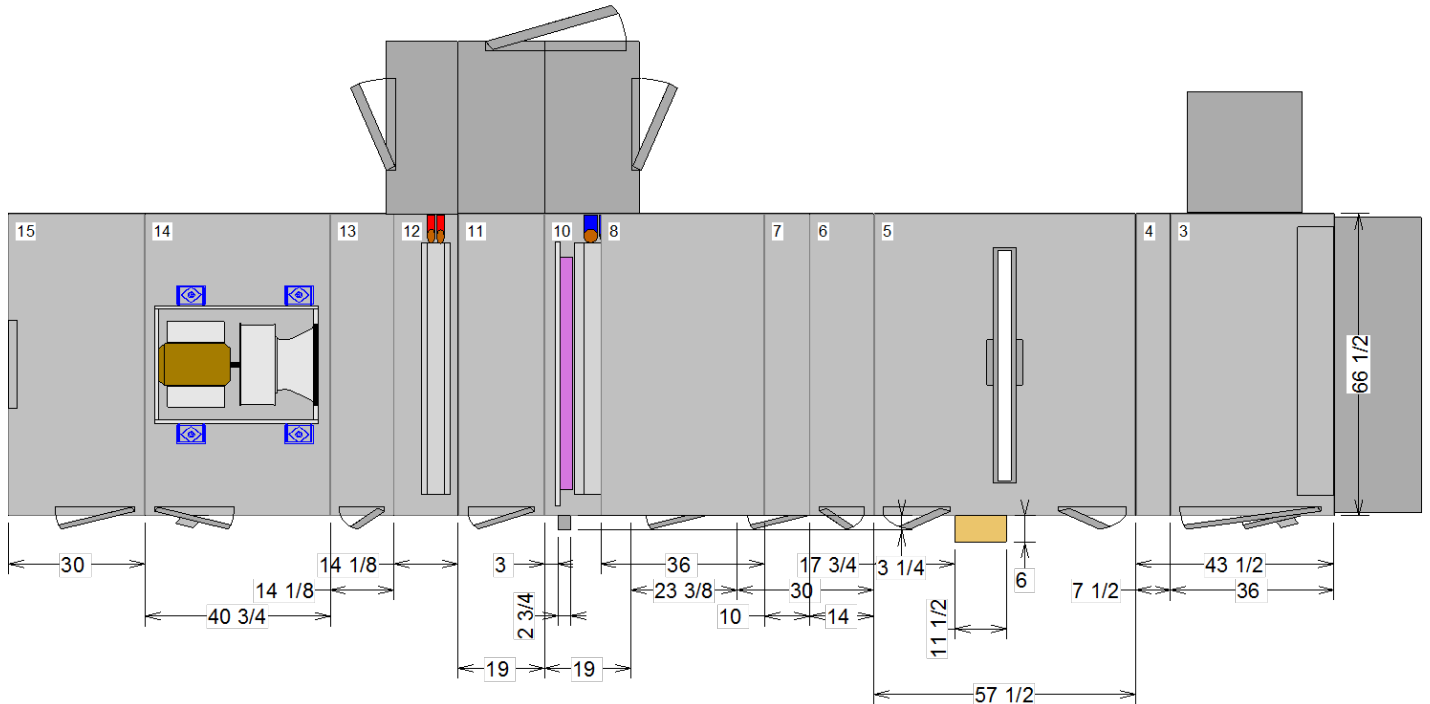
Pos #	Module	Length	Weight	Pos #	Module	Length	Weight
1	Fan section	43 1/2	926.54	14	Fan section	40 3/4	945.35
2	Controls section	30	381.89	15	Controls section	30	359.27
3	Air mixing section	36	406.12		Roof Curb		996.32
4	Custom length section	7 1/2	60.07	Installed Unit Weight 7239.97 lbs			
5	Wheel	57 1/2	1151.10				
6	Filter section	14	157.63				
7	Custom length section	10	78.78				
8	Access section	36	318.06				
9	Air mixing section	23 3/8	205.39				
10	Coil section	19	585.89				
11	Access section	19	204.17				
12	Coil section	14 1/8	326.82				
13	Access section	14 1/8	136.56				



Basic Overall Plan View: Top - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alford Center-Health Sciences	Unit Casing: 2in Double Wall Foam	 TRANE Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2	
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0	



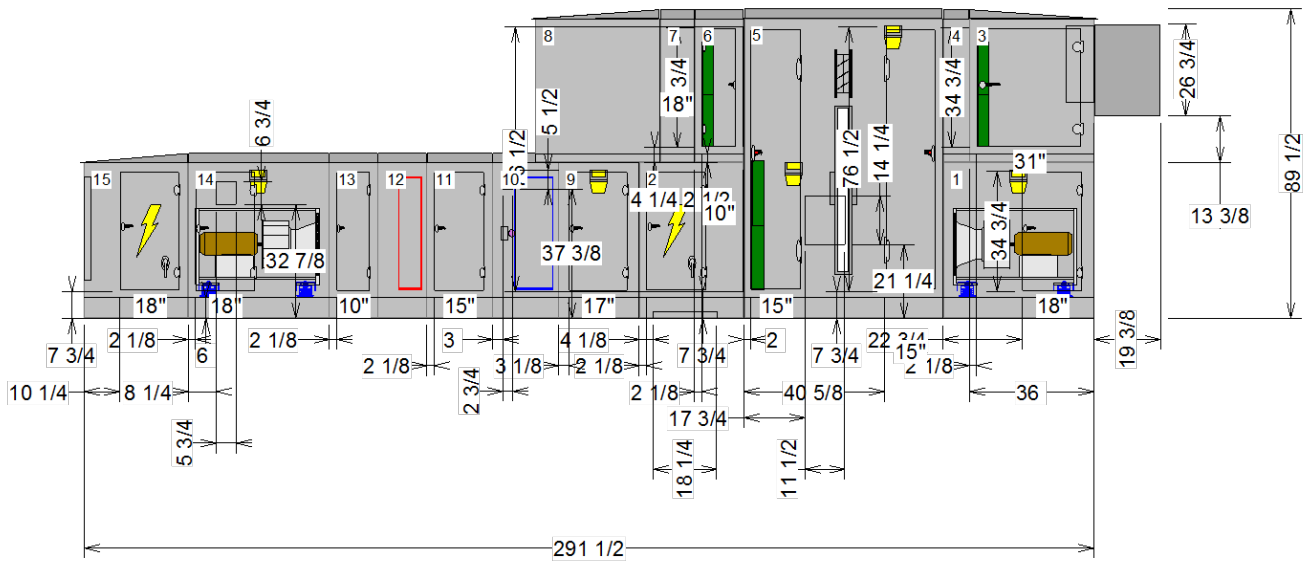
****Placement of electrical conduit may vary by a tolerance of 8" in any direction.**

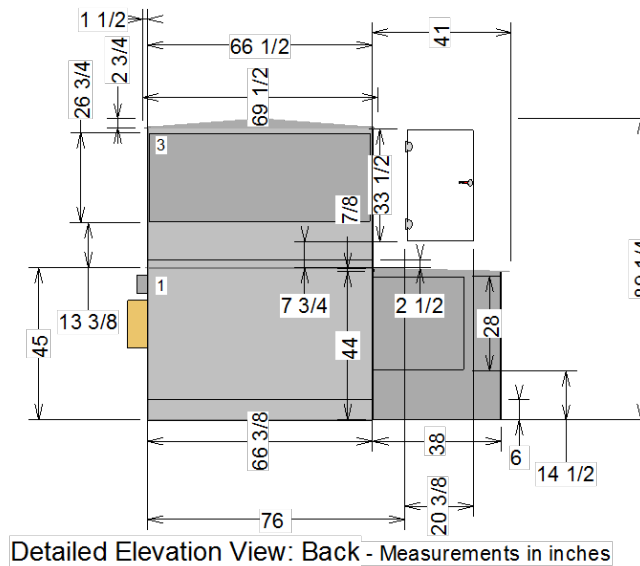
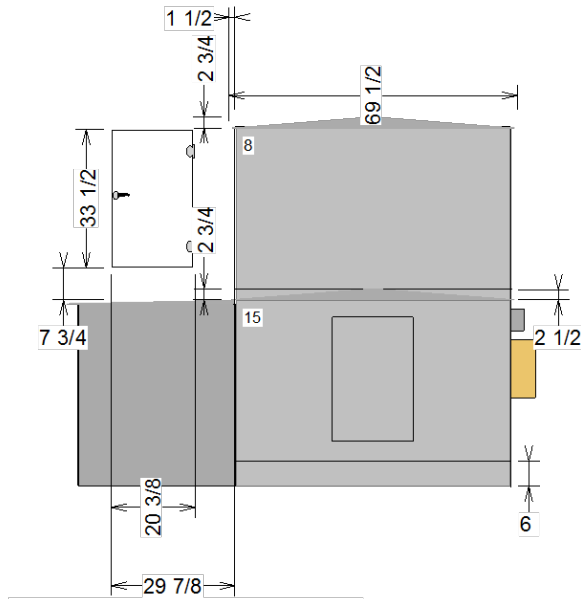
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alford Center-Health Sciences	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0


TRANE

Performance Climate Changer
Air Handlers





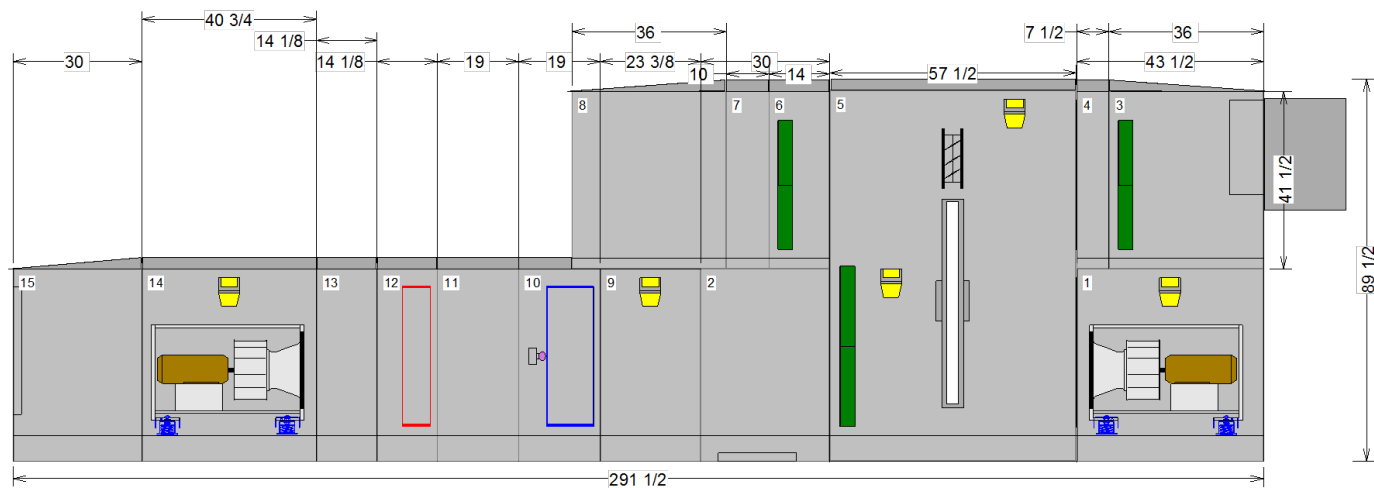
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alford Center-Health Sciences	Unit Casing: 2in Double Wall Foam	 TRANE Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2	
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0	



Job Name: UNE - Harold & Bibby Alford Center-Health Sciences

CSAA
Quantity: 1
Tags: ERU-2



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

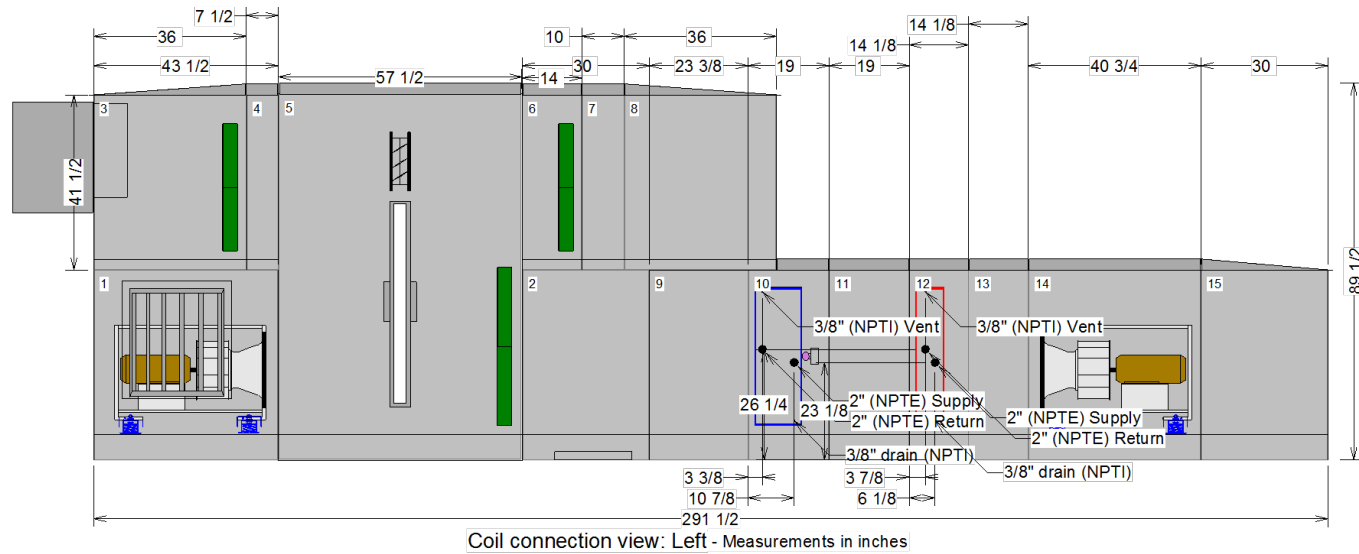
OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alford Center-Health Sciences	Unit Casing: 2in Double Wall Foam	 Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2	
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0	



Job Name: UNE - Harold & Bibby Alfond Center-Health Sciences

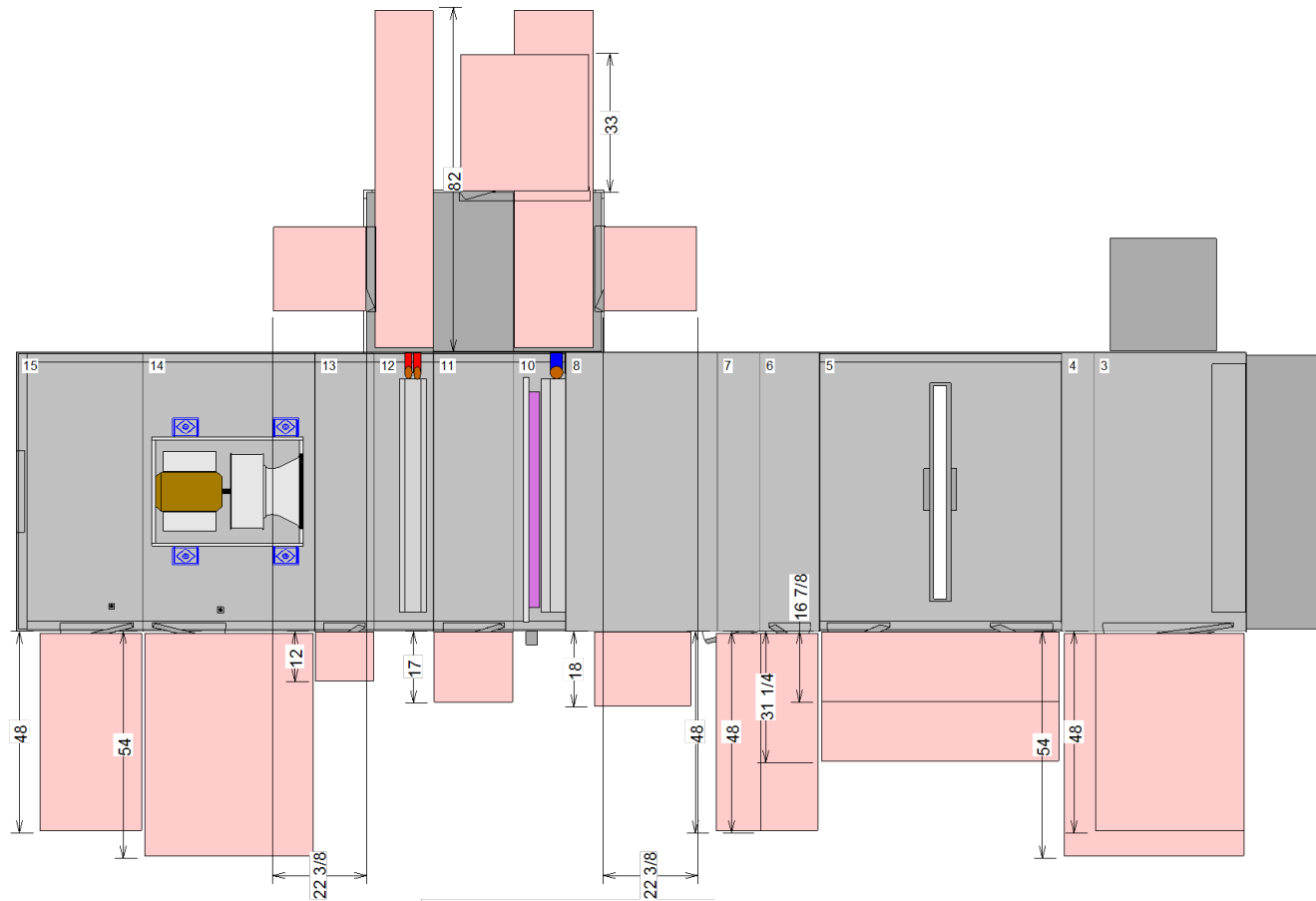
CSAA
Quantity: 1
Tags: ERU-2



NPTI : National Pipe Thread Internal Connection
NPTE : National Pipe Thread External Connection

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

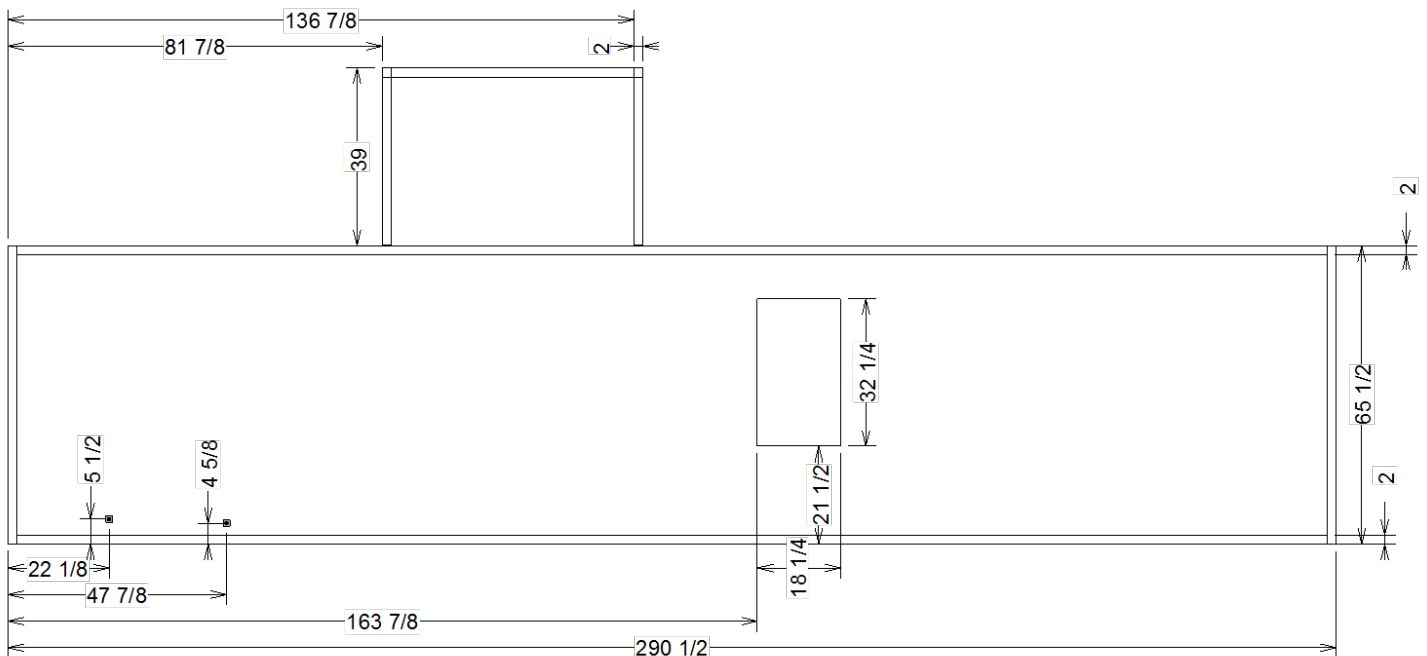
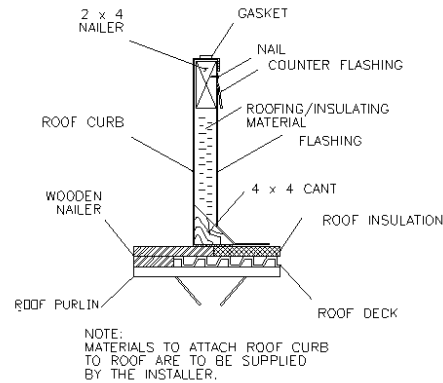
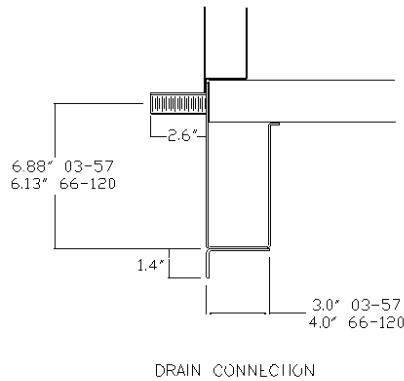
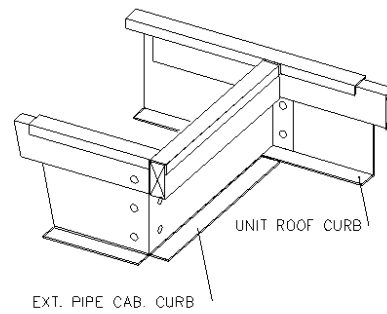
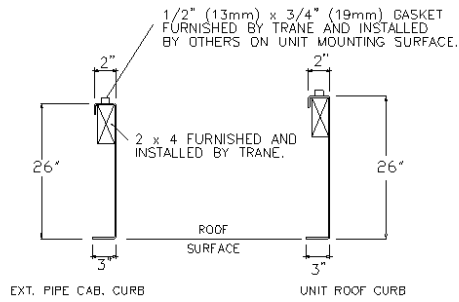
Unit size: 12	Job Name: UNE - Harold & Bibby Alfond Center-Health Sciences	Unit Casing: 2in Double Wall Foam	 Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2	
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0	



Basic Service Clearance - Plan - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alfond Center-Health Sciences	Unit Casing: 2in Double Wall Foam	 Performance Climate Changer Air Handlers
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:	
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2	
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0	



Detailed Plan View: Curb - Measurements in inches

OPENING AND DIMENSIONS MAY VARY FROM CONTRACT DOCUMENTS / RETURN OF APPROVED DRAWINGS CONSTITUTES ACCEPTANCE OF THESE VARIANCES / NOT TO SCALE

Unit size: 12	Job Name: UNE - Harold & Bibby Alford Center-Health Sciences	Unit Casing: 2in Double Wall Foam
Product group: Outdoor unit	Actual airflow: 5000	Proposal Number:
Integral base frame: 6in. integral base frame	Sales Office:	Tags: ERU-2
Paint: Slate gray		Rigging weight: 6117.3 / Installed weight: 7240.0


TRANE

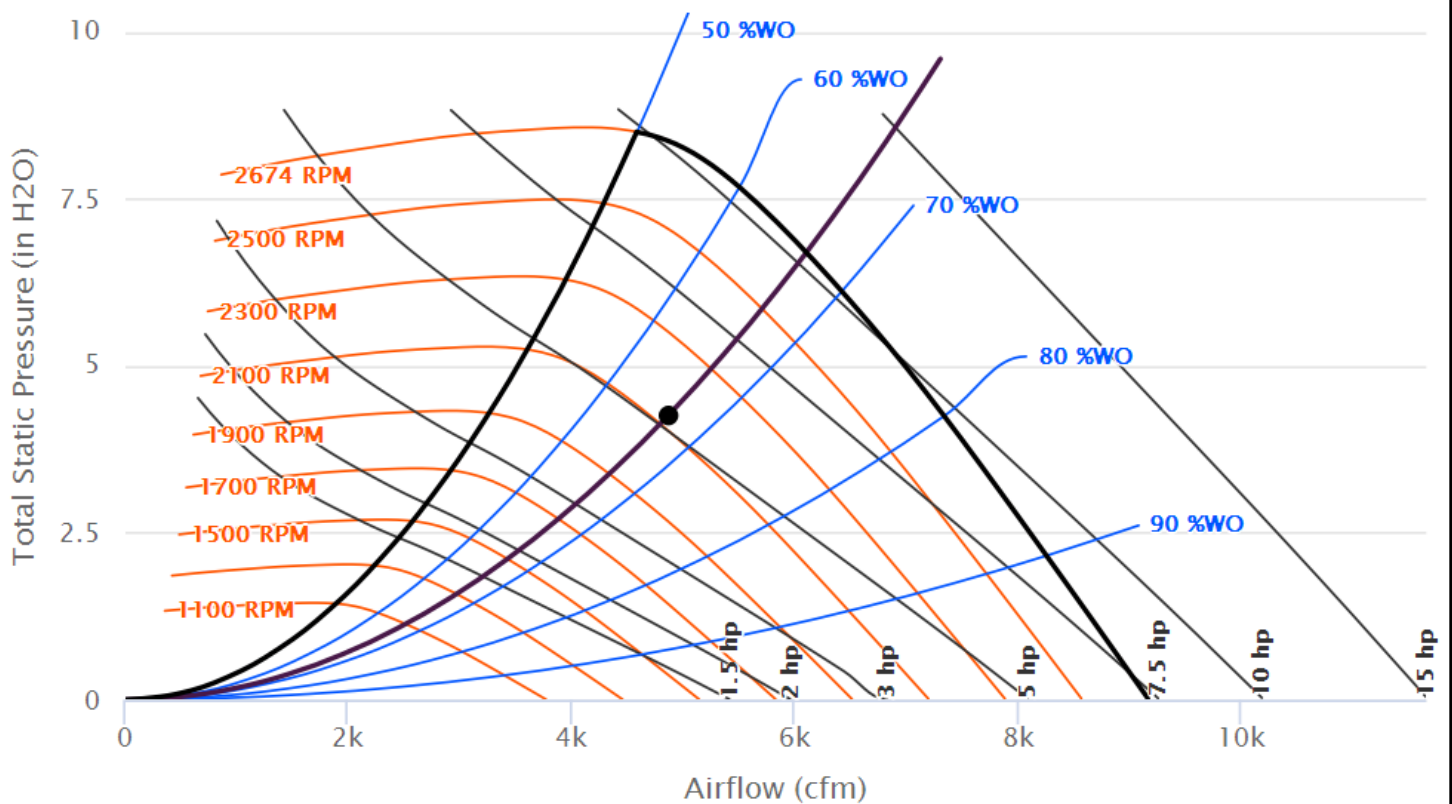
Performance Climate Changer
Air Handlers

Fan Details

Unit Size	20TR	Operating Brake Power	5.272 hp
Motor Frequency	72.00 Hz	Altitude	0.00 ft
Operating Airflow	4,866 cfm	Design Temp.	70.00 F
Operating Static Pressure	4.262 in H2O	Efficiency	62.01 %
Operating RPM	2,132 rpm		

ERU-2 – Exhaust – Single Fan

Size 12 DDP 20 inch AF M Press 80% Width 12 blades

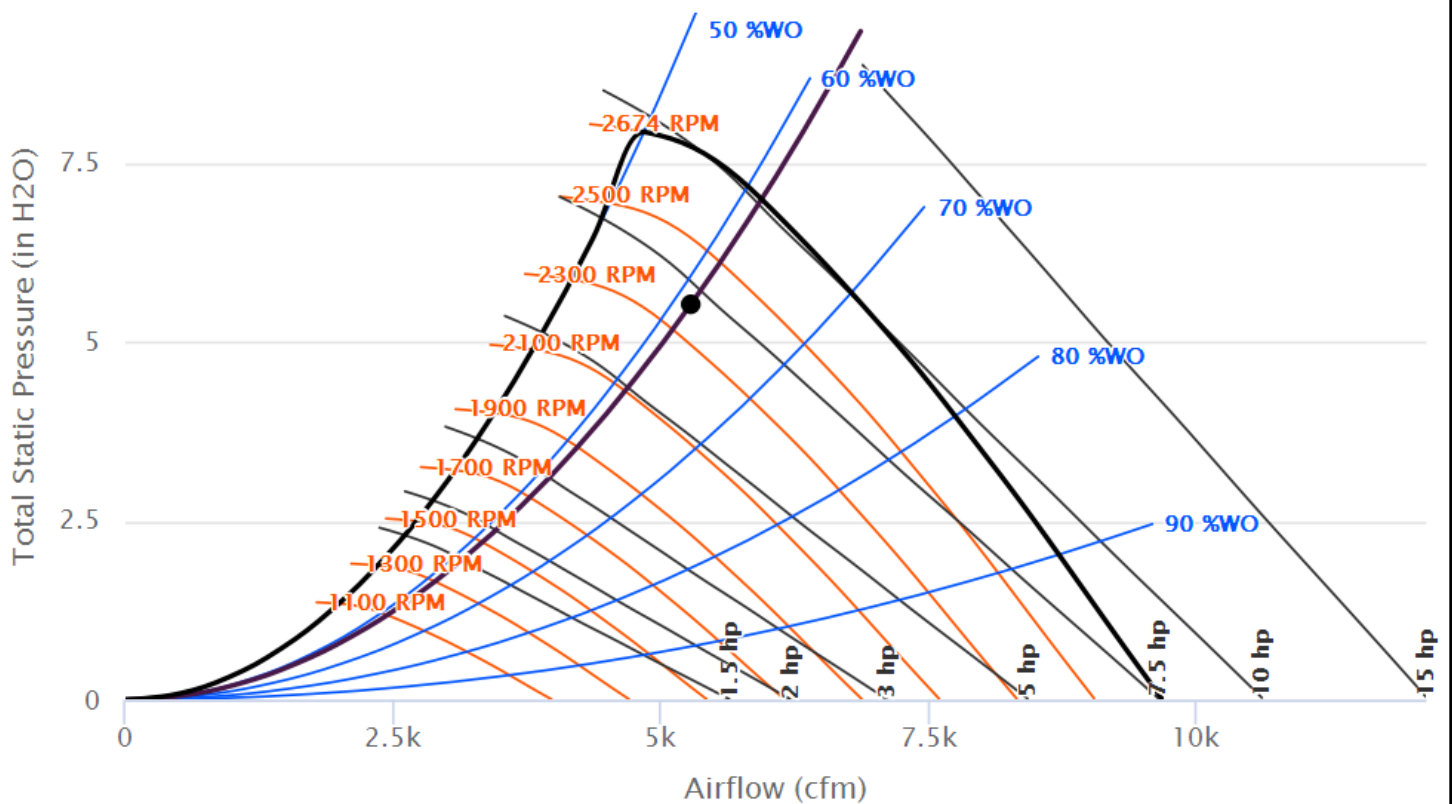


Fan Details

Unit Size	20TR	Operating Brake Power	7.123 hp
Motor Frequency	80.00 Hz	Altitude	0.00 ft
Operating Airflow	5,278 cfm	Design Temp.	70.00 F
Operating Static Pressure	5.527 in H2O	Efficiency	64.57 %
Operating RPM	2,374 rpm		

ERU-2 – Supply – Single Fan

Size 12 DDP 20 inch AF M Press 80% Width 9 blades



A	RA Inlet Dampers (2 x 24"H x 48"W)
B	Filter Section (2.5Hx7L, 24"x24", MERV 8)
C	(4) Konvekta HR coils (FH=28", FL=62")
D	Pipe Chase (18"W x 32"L)
E	(2) MK Plastics Axijet-S 3650 Exhaust Fans with 5ft attenuator
F	Bypass Air Inlet Damper (12" x 24")
G	Bypass Sleeve Assembly w/ Ebtron "Gold Series" AFMS & Integral Silencer Bank (12"H x 24"W x 36"L) - Sleeve Ships Loose
H	Removable Panels
	(2) EF VFD's, 20HP Yaskawa (not shown)

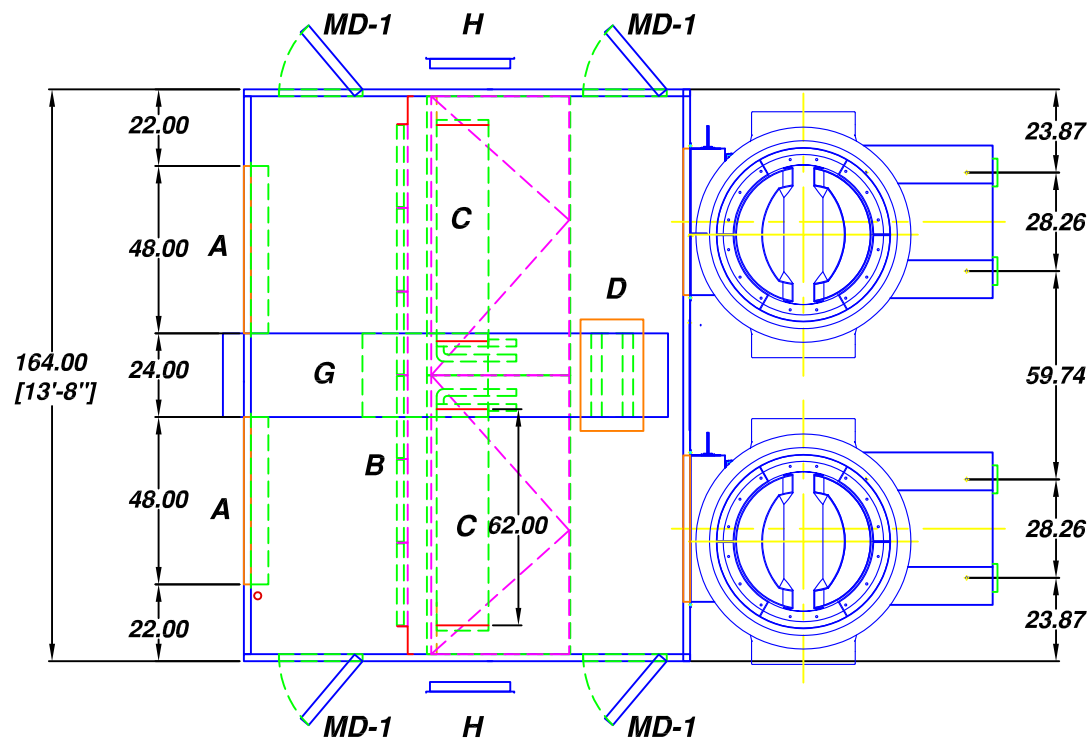
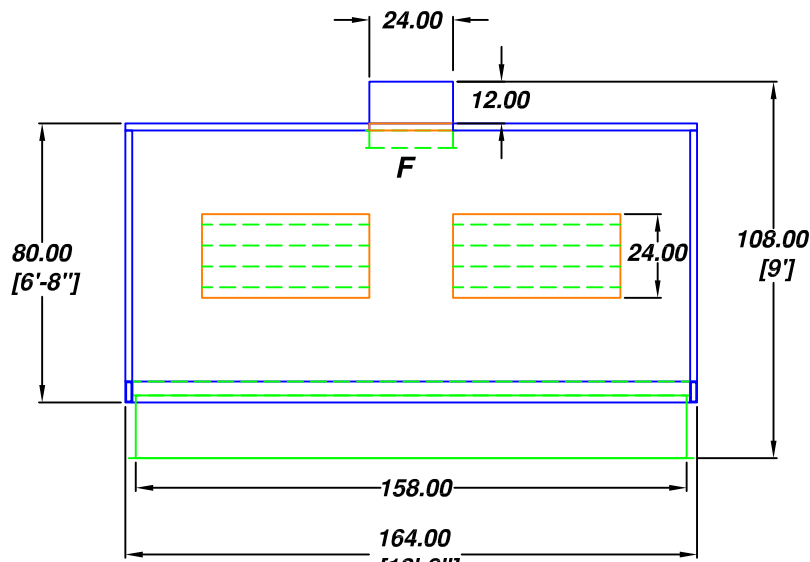
Access Door Legend

MD-4	(4) SD2200T (N) Doors (24"W x 60"H)
-------------	-------------------------------------

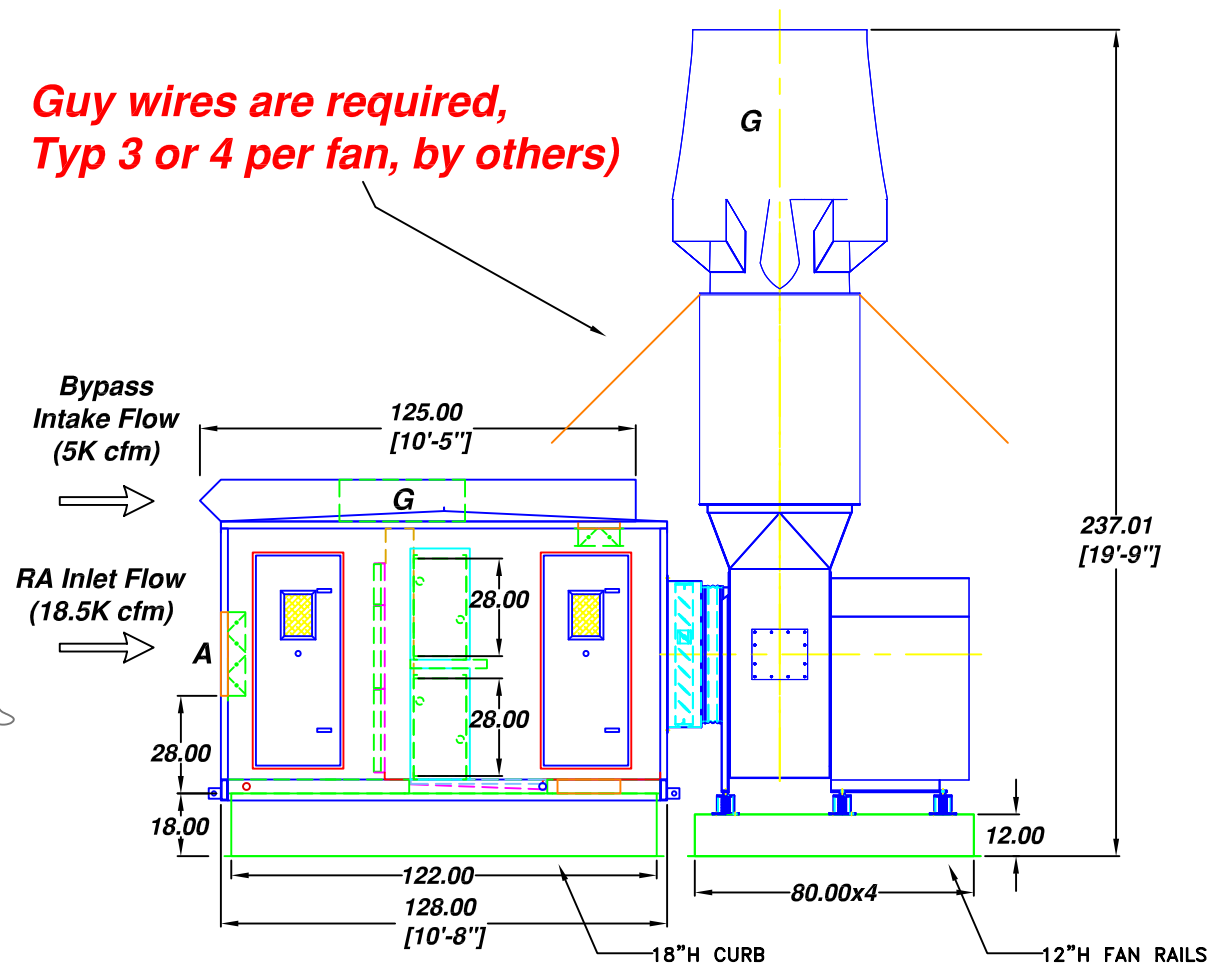
Section Sizes/Rigging Weights

(with 2" Injected Foam Structural Casing, SS Interior, Aluminum Exterior & Base)

ERU	13'-8"L x 10'-8"W x 6'-8"H	9,000 lbs
EA Fans	Axijet-S 3650 (Typ 2X)	1,875 lbs Each
TOTAL UNIT + FANS DRY WEIGHT:		12,750 lbs



Guy wires are required, Typ 3 or 4 per fan, by others)



Project Notes:

- 1) All piping materials & labor will be field-provided by others
- 2) Exhaust fans are shipped direct to the jobsite for field installation by others in 3 pieces: base, attenuator & nozzle. Fan isolation springs, isolation intake dampers, flex connectors and rails to be provided by fan manufacturer, shipped loose for field installation by others
- 3) VFDs are to be provided by manufacturer in NEMA1 enclosures, shipped loose for remote indoor installation by others
- 4) The ERU portion of the unit is designed to be shipped/rigged in one (1) piece
- 5) One (1) bypass sleeve assembly will be shipped loose for field-mounting by others
- 6) Factory-installed/wired 120V lighting package consisting of (4) light fixtures, (2) switches, & (2) GFCI outlets provided
- 7) Outlet openings in ERU casing for each exhaust fan to be field cut by installing contractor per ERU manufacturer recommendations to align with installed fan intake damper and flex connector
- 8) guy wires are required to support fan stacks, Typ 3 or 4 per fan, to be finalized during submittals. Connection ring to be provided by fan manufacturer for wires to connect to top of attenuator

	CAMBRIDGEPORT CUSTOM							
	AHU #	CFM	REVISION #	REVISION DATE	DESCRIPTION	UNIT LAYOUT DRAWING		
	ERU-E	18,500	1	4/1/22	JOB NAME	UNE Portland Donor Lab		
	THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO CAMBRIDGEPORT CUSTOM. THIS DOCUMENT MAY NOT BE ISSUED TO ANOTHER PARTY WITHOUT PRIOR WRITTEN CONSENT AND AUTHORIZATION. CAMBRIDGEPORT CUSTOM & ITS LOGO ARE REGISTERED TRADEMARKS. ALL RIGHTS RESERVED.				Q# or JOB#	6610		
					SCALE	NTS	DATE	9/27/21
DRAWN BY					PSW	PAGE	1 OF 1	

Representative

Dynamic Air Corporation
 Pat Will

Customer
 Project
 Engineer
 P.O. #

UNE Portland

SMRT

JOB #

Date 03/28/2022

Sys. No. LEF -1A; 1B
 2 fan N+ 1 Operation
 Design Flow 18,500 CFM

Drawing A
 Revision

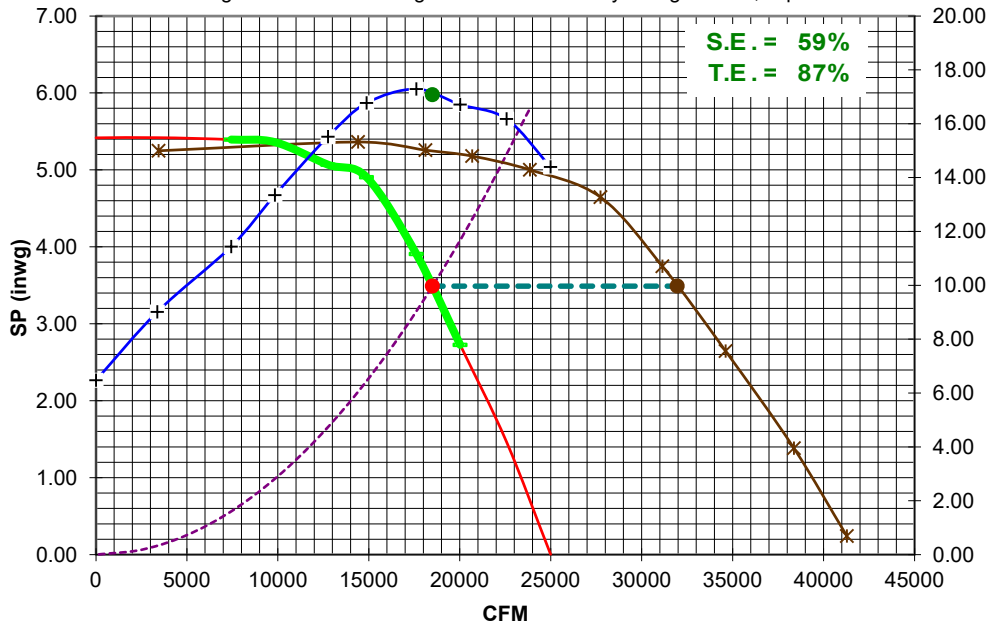
Model AXIJET
 Fan Size 3650
 Dia.[in] 36.50
 CFM 18500
 SP 3.49
 BHP 17.08
 RPM 1091

10 [mph]
 EH = 46.7 [feet]
 PH = 33.5 [feet]
 NV = 5125 [fpm]
 WV = 2376 [fpm]
 TF = 31953 [cfm]
 TS = 10425 [fpm]
 T = 70 [°F]
 ALT = 0 [feet]

This assumes:
 - RA dmptr 0.1"
 - loaded PF 1.0"
 - ER coil: 0.7"
 - fan dmptr: 0.2
 - fan attntr 0.09
 - ESP 1.4"

Air performance

TF=Total Flow; NV=Nozzle Velocity; WV=Windband Velocity; TS=Tip Speed
 EH: Effective Plume Height. (Plume Height + Fan Height)
 Plume Height is calculated using ASHRAE Laboratory Design Guide, Equation 9-2



Density :
 0.075 lb/ft³

CFM-SP
 System Cur
 CFM-BHP
 Total Flow-S
 15% Peak T



M.K. Plastics Corporation of that the models shown here is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and 311 and comply with the requirements of the AMCA Certified Ratings Program.

TSP=3.49

Is ESP=1.4" correct?

If we go to EST/TSP=1.5"/3.59" the bhp would be 17.59 which would still be OK for the 20HP motors, in fact they would be OK up to TSP=4.01" so ESP up to 1.91" worst case.

Performance certified is for installation type C: Ducted inlet, Free outlet. Power rating (BHP) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories). Performance ratings do not include the effects of crosswinds.

Sound power level

The sound power level ratings shown are in decibels, referred to 10⁻¹² watts calculated per AMCA standard 301. Values shown are for (outlet Lwo and LwoA) sound power levels for installation type C :Ducted inlet, Free outlet. Ratings do not include the effects of duct end correction. The A-weighted sound ratings have been calculated per AMCA Standard 301.

RPM	63	125	250	500	1000	2000	4000	8000	LwA
1091	91	91	86	83	83	83	76	66	88

Sound pressure level variation

Values shown are calculated based on a free-field over a reflecting plane conditions. (ASHRAE Fundamentals Handbook). dBA levels are not licensed by AMCA international.

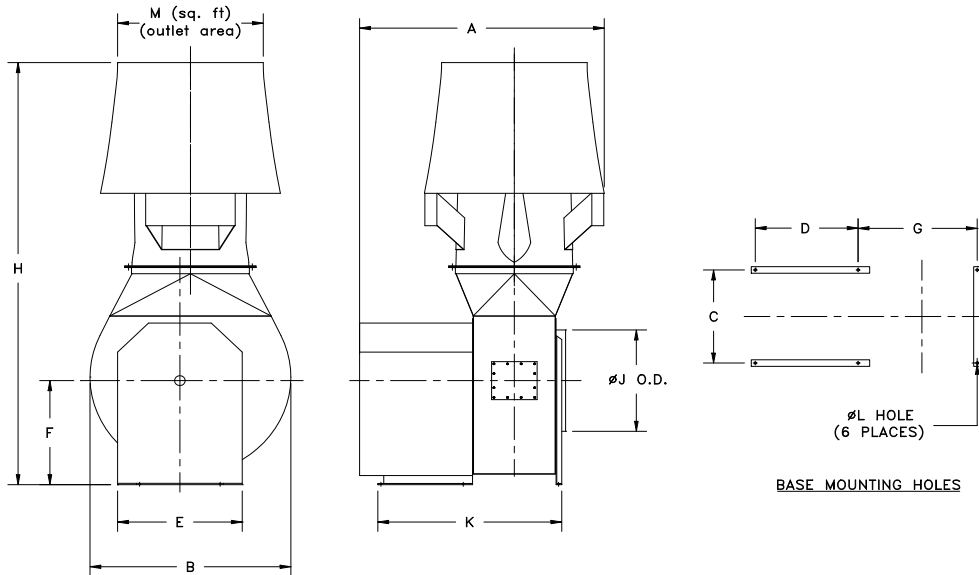
Feet	1	3	5	10	15	50	100	150
dB(A)	91	81	77	71	67	57	51	47

Comments :

Drawing . B
Revision .

Customer .
Project UNE Portland
Engineer SMRT
P.O. # . JOB # .

Dimensions are subject to change. Certified prints are available.



Arrangement 10

Maximum motor frame: 326T

Dimensions	[in]
A	85.77
B	70.51
C	28.26
D	28.88
E	43.75
F	39.50
G	33.44
H	158.45
J	38.50
K	64.56
L	0.69
Stack ext.	0.00

Outlet Area	[sq. ft]
M	13.45

Quantity .
Sys. No. .
.

Materials
Casing 4-6 mils polyester coated steel
Stack FRP
Windband FRP
Impeller 4-6 mils polyester coated steel
Stand 4-6 mils polyester coated steel
Shaft C-1045 Carbon steel
Hardware 304 Stainless steel
Stack ext. .

Motor
Type HIEFF
Enclosure TEFC
HP 20.00
V/Ph/Hz 460/3/60
RPM : .

Weight [Lb]
Fan : 1385
Motor : 290
Total : 1675

Accessories		
☒ Belt drive	☐ Inlet plenum*	☐ Damper control*
☒ Weather cover	☐ Single	☐ AMCA B Construction
☒ Access door	☐ Multiple	☐ AMCA C Construction
☐ 0.75" Drain & Plug	☐ Dampers*	☐ Lifting lugs
☐ Shaft seal	☐ Isolation	☐ Fan rails
☐ Flex. Connector	☐ Bypass	☐ Plenum curb
☐ Stack extension*	☐ Vibration isolators*	☐ Other
☐ Sound attenuator*	☐ Spring	
☐ Disconnect switch (unwired)*	☐ RIS	

Note: * Drawings required

Additional information

Revisions

No.	Description	Date	Approved by

Released by	Checked by	Approved by
Initial		
Date		

Representative

Dynamic Air Corporation

Pat Will

Customer

Project UNE Portland

Engineer SMRT

P.O. #

JOB #

Date 03/28/2022

Sys. No.

LEF -1A; 1B

2 fan N+ 1 Operation

Design Flow 18,500 CFM

Model

AXIJET

Fan Size

3650

Dia.[in]

36.50

CFM

18500

SP

3.49

BHP

17.08

RPM

1091

Attenuator Information

Material:

Length: 60.0

S.P. drop:

Weight:

Sound power level

Without attenuator

RPM	63	125	250	Hz	500	1000	2000	4000	8000	LwA
1091	91	91	86	83	83	83	83	76	66	88

The sound power level ratings shown are in decibels, referred to 10^{-12} watts calculated per AMCA standard 301. Values shown are for (outlet Lwo and LwoA) sound power levels for installation type C :Ducted inlet, Free outlet. Ratings do not include the effects of duct end correction. The A-weighted sound ratings have been calculated per AMCA Standard 301. dBA levels are not licensed by AMCA International.

Sound pressure level variation

Without attenuator

Values shown are calculated based on a free-field over a reflecting plane conditions. (ASHRAE Fundamentals Handbook)

Feet	1	3	5	10	15	50	100	150
dB(A)	91	81	77	71	67	57	51	47

Sound power level

Add insertion loss of attenuator

	63	125	250	Hz	500	1000	2000	4000	8000	
Insertion loss	7	13	18	25	27	20	15	10		
RPM										LwA
1091	84	78	68	58	56	63	61	56	56	69

Sound pressure level variation

With attenuator

Feet	1	3	5	10	15	50	100	150
dB(A)	72	62	58	52	48	38	32	28

Comments :

Sound Attenuator Model MKP 41CSA-57V70 OAL 60 inches P.D. 0.09 " w.c

EC Fans

Voltage	480 VAC
CB Oversize	120%

All Fans	
MCA	39A
MOP	68A
Main CB Size	50A

	FLA	KW	Amps	HP	Thermal CB
Motor 1					
Motor 2					
Motor 3					
Motor 4					
Motor 5					
Motor 6					
Motor 7					
Motor 8					
Motor 9					
Motor 10					
Motor 11					
Motor 12					

AC Fans

	HP	FLA	CB Size
Motor 1	20.0	30.5A	40.0A
Motor 2			
Motor 3			
Motor 4			
Motor 5			
Motor 6			
Motor 7			
Motor 8			
Motor 9			
Motor 10			
Motor 11			
Motor 12			

Unit Tag: ERU-3S
(1) 18.5K cfm Unit

		SP Profile
A	OA Hood w/ Bird Screen, 514 fpm	0.15"
B	OA Damper (60"H x 78"W), 569 fpm	0.05"
C	"Summer" Filter Section (MERV 8) w/ #2001-ASF Gauge, 289 fpm	1.00"
D	(3) Konvekta Snow-Melt Coils (FH=29.3", FL=89"), 341 fpm	0.24"
E	"Winter" Filter Section (MERV 8 & 15) w/ #2001-ASF Gauge, 289 fpm	1.50"
G	(1) Silencer (H=90", L=96", D=36"), 308 fpm	0.05"
F	(3) Konvekta Pre-Heat/Cool Coils (FH=29.3", FL=89"), 341 fpm	0.40"
G	(3) Cooling Coils (FH=30", FL=89"), 333 fpm	0.70"
H	(3) Konvekta Re-Heat Coils (FH=29.3", FL=89"), 341 fpm	0.32"
I	(4) Supply Fans (#HPA-18) w/ 15 HP Motors & (4) Integral Backdraft Isolation Dampers	0.10"
J	SA Smoke Damper (36"H x 72"W), 1,027 fpm	0.10"
K	(8) Removable Panels (TYP)	-
L	VFD Cabinet w/ (2) 6" Sq Vent Dampers for (4) NF Motor Disconnects, (1) Main Disconnect, & (4) Fan VFDs *Fan VFDs will be Selected by DAC & Factory-Installed/Wired by Cambridgeport	-
		2.00"
		6.61"
		External SP
		Total SP

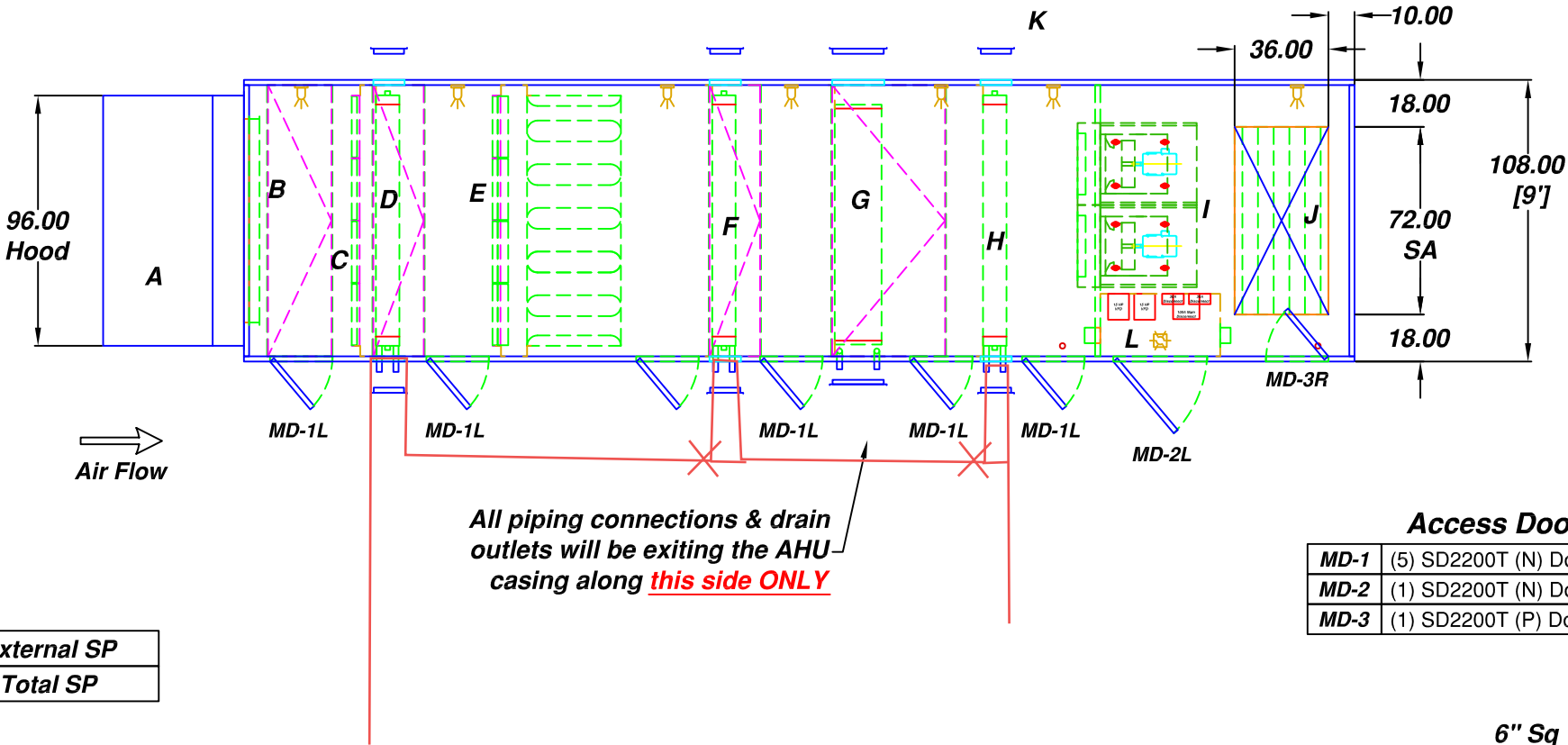
Notes:

- 1) Units are designed for outdoor use & will be shipped/rigged to the jobsite as **one (1) piece**
- 2) Factory-installed/wired 120V lighting package consisting of (7) light fixtures, (2) switches, & (2) GFCI outlets provided.
- 3) Any & all necessary piping materials & labor to be field-provided by others

Estimated Rigging Weight

(with 2" Injected Foam Structural Casing, All-aluminum Casing & Base)

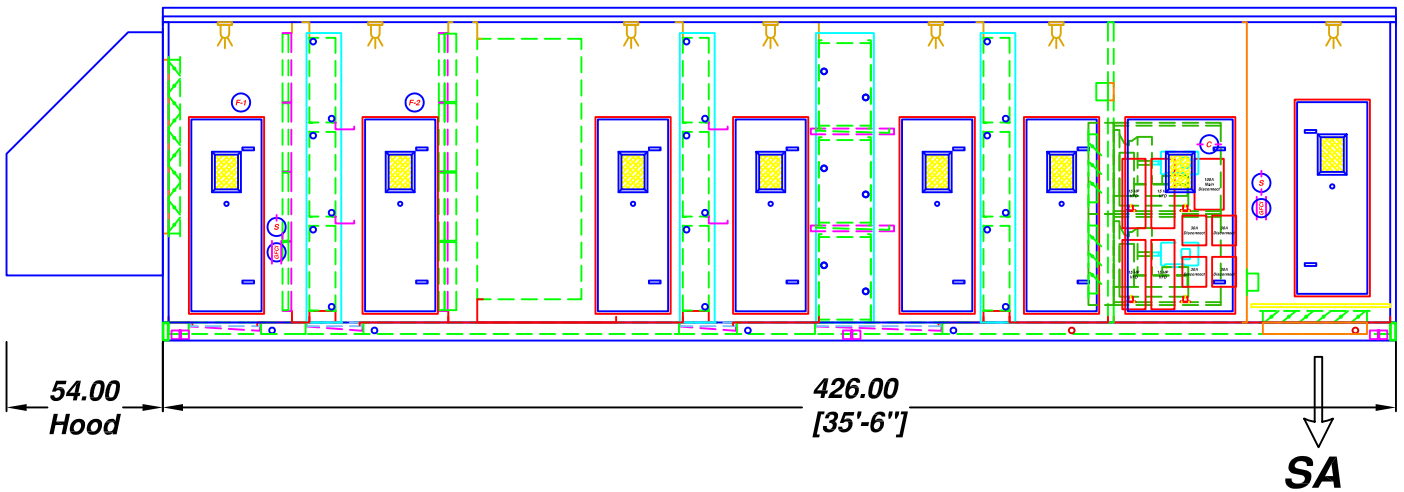
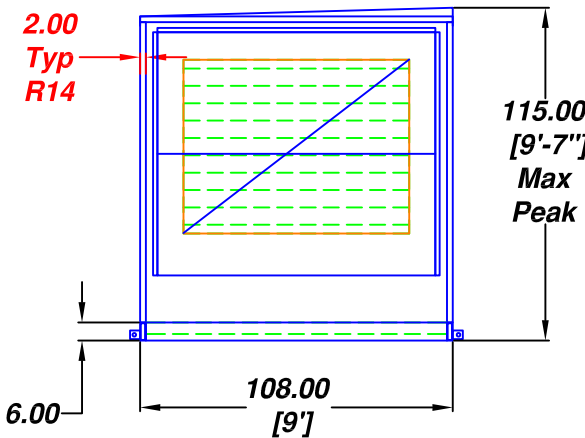
ERU-3S	35'-6"L x 9'-0"W x 9'-7"H	19,500 lbs
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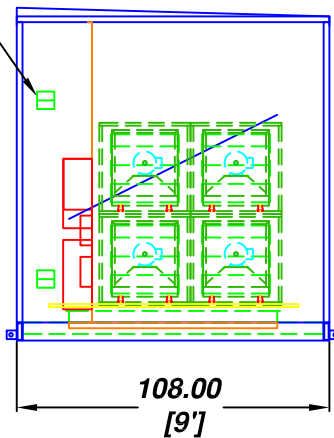
- F-1 — Filter Gauge (2001-ASF)
- F-2 — Filter Gauge (2002-ASF)
- S — Light Switch
- G — GFCI Outlet
- C — Sure-Aire Controller

Access Door Legend

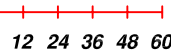
MD-1	(5) SD2200T (N) Doors (24"W x 66"H)
MD-2	(1) SD2200T (N) Door (36"W x 66"H)
MD-3	(1) SD2200T (P) Door (24"W x 66"H)



6" Sq vent damper w/ manual quad actuator (Typ 2X)



Scale (Inches)

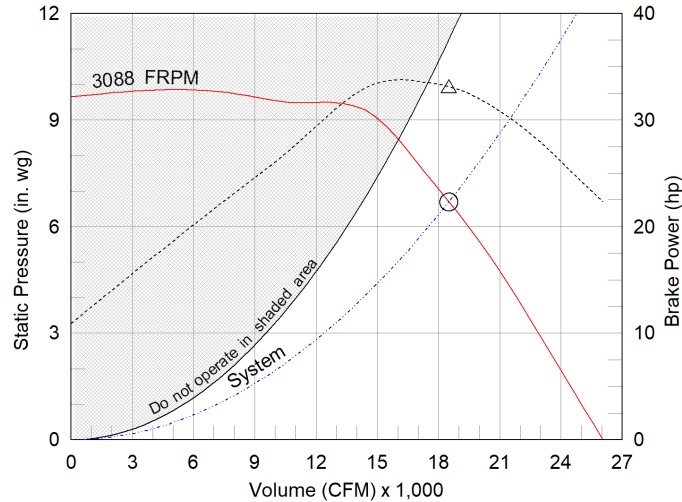


CAMBRIDGEPORT CUSTOM

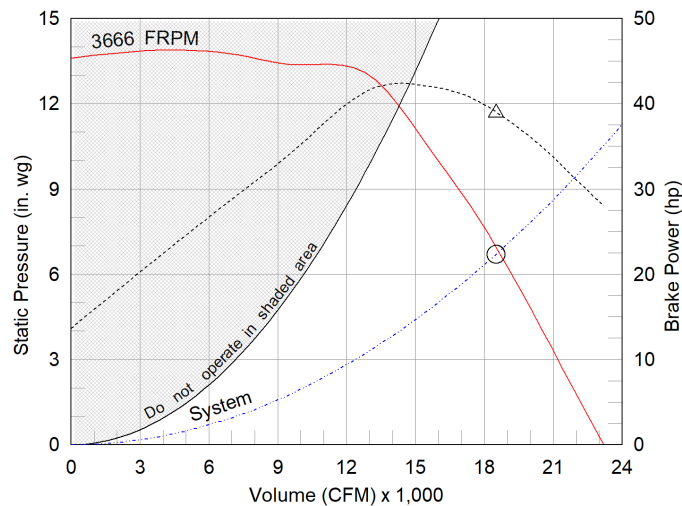
AHU #	CFM	REVISION #	REVISION DATE	DESCRIPTION	SUBMITTAL/UNIT LAYOUT DRAWING		
ERU-3S	18,500	1	4/1/2022	JOB NAME	UNE - PORTLAND DONOR LAB		
THE INFORMATION CONTAINED IN THIS DOCUMENT IS PROPRIETARY TO CAMBRIDGEPORT CUSTOM. THIS DOCUMENT MAY NOT BE ISSUED TO ANOTHER PARTY WITHOUT PRIOR WRITTEN CONSENT AND AUTHORIZATION. CAMBRIDGEPORT CUSTOM & ITS LOGO ARE REGISTERED TRADEMARKS. ALL RIGHTS RESERVED.				Q# or JOB#	Q-6610	DATE	11/23/2021
				SCALE	NTS	PAGE	1 OF 1
				DRAWN BY	CJR		

Model: HPA-18-65-C-150 Housed Plenum Array

Operating Performance



Redundancy Performance



Operating performance shown is for 4 fans operating in parallel. For individual fan performance, divide the airflow and power scales by the number of fans.

- △ Operating Bhp point
- Operating point at Total External SP
- Fan curve
- System curve
- Brake horsepower curve

Sound Power by Octave Band

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA
Inlet	94	96	98	100	93	90	86	80	100	89
Outlet	98	95	92	91	86	85	81	78	93	81

LwA - A weighted sound power level, based on ANSI S1.4

dBA - A weighted sound pressure level, based on 11.5 dB attenuation per octave band at 5 ft- dBA levels are not licensed by AMCA International

Sound Power by Octave Band (Array)

Sound Data	62.5	125	250	500	1000	2000	4000	8000	LwA	dBA
Total Inlet	100	102	104	106	99	96	92	86	106	95
Total Outlet	104	101	98	97	92	91	87	84	99	87

Total Array sound is not licensed by AMCA International

Z:\Shared\Custom\Quote Folders\6600 Quotes\6610 - BC - DAC - UNE Portland Donor Lab\Quote Folders\6610 - BC - DAC - UNE Portland Donor Lab\Equipment Selections\A) Fans
6610_UNE Portland_AHU Supply Fans_Prelim_r0.gfcj

Generated by: crichard@ahu.com



Fan Array	
# fans	4
Fans high	2
Fans wide	2
Total volume	18,500
Total Oper. Power (hp)	32.96

Performance(single fan)	
Volume (CFM)	4,625
Total External SP (in. wg)	6.694
Operating Power (hp)	8.24
Required Power (hp)	8.24
Fan RPM	3088
Max Fan RPM	4,040
Oper. Frequency (Hz)	53
Elevation (ft)	30
Start-up Temp.(F)	70
Operating Temp.(F)	70

N-1 Redundancy Performance(Single Fan)	
Volume (CFM)	6,167
Operating Power (hp)	12.98
Required Power (hp)	12.98
Fan RPM	3666
Max Fan RPM	4,040
Oper. Frequency (Hz)	63

Fan Configuration	
Size	18
Arrangement	4
Housing Size	Compact
Wheel Width	65
Wheel Class	III
Rotation CW Qty	3
Rotation CCW Qty	1
Orientation	Horizontal
Inlet Cone Material	Steel

Total Array Weights	
Fan (LMD)(lb)	1,000
Motor/Drive (lb)	1,012
Accessories (lb)	0

Misc Fan Data	
Fan Eff. Index (FEI)	1.09
Outlet Velocity (ft/min)	896
Static Efficiency (%)	59
Wheel WR2 (lb-ft2)	0
Tip Speed (ft/min)	14,754

Motor and Drives	
Size (hp)	15
RPM	3500
Enclosure	TEFC
V/C/P	460/60/3
Frame Size	254T
Max Frame Size	256
Location	Centered

Model: HPA-18-65-C-150

Housed Plenum Array

Standard Construction Features:

HPA Standard Construction Features

FRAMEWORK: Heavy gauge laser cut and die formed galvanized steel frame integrally isolated from the fan housing with rubber isolators. HOUSING: Heavy gauge galvanized panels containing 2" of sound absorbing insulation with integral lifting points and punched flanges for fan array assembly. Motor lubrication lines will be extended to the outside of the housing panels on all motors with re-greasable bearings. WHEEL: Welded, aluminum 12- blade airfoil centrifugal.

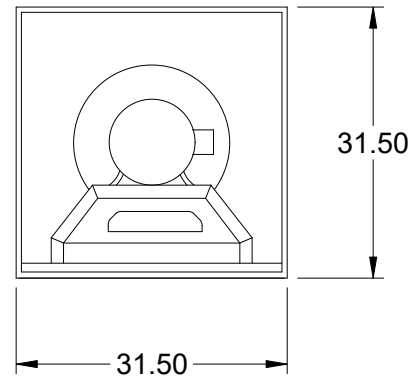
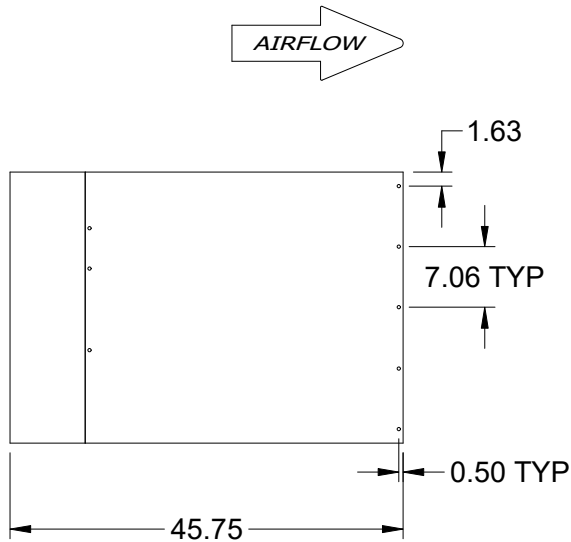
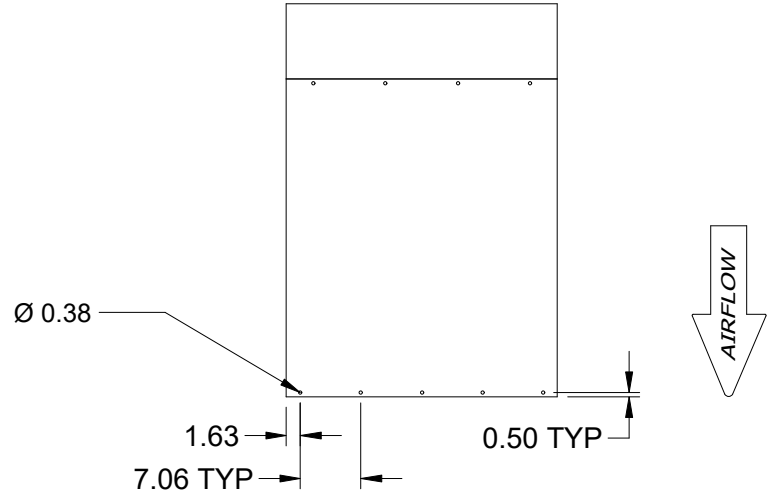
Selected Options & Accessories:

Motor PN - 311916, Baldor Motor Model Number - EM2394T-G
NEMA Premium Efficient Motor - meets NEMA Table 12-12
Motor VFD Rated
Motor sized for fan rpm operation with VFD, not power line Hz
Motor with Shaft Grounding
Motor with Class F or Greater Insulation
Direct Mount Isolators, Isolator-Rubber Mount, 0.25 Inch
Rotation CW Qty - 3, Rotation CCW Qty - 1
Inlet Damper, Gravity, EM-32, Alum. Blade, Parallel, w/ Mill Finish
Sure-Aire Flow Station (With Electronics), 1 per Array
Unit Warranty: 1 Yr (Standard)

Model: HPA-18-65-C-150

Housed Plenum Array

Overview Drawing

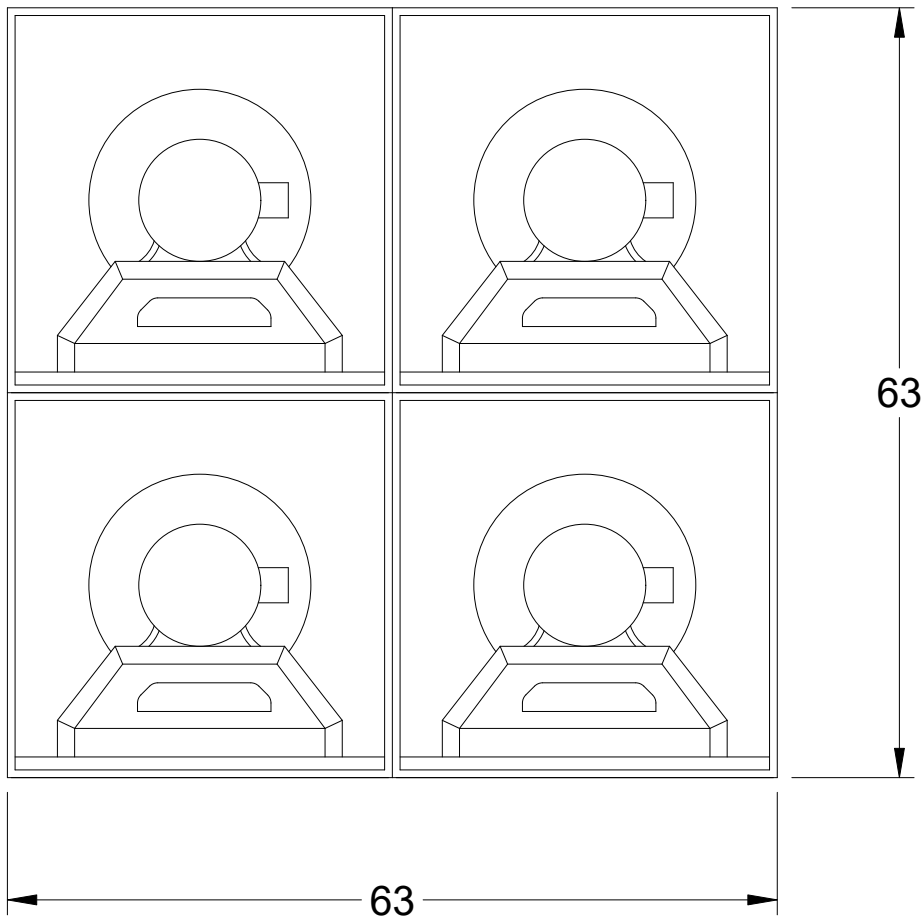


Notes: All dimensions shown are in units of in.

Model: HPA-18-65-C-150

Housed Plenum Array

ASSEMBLED ARRAY DRAWING



Notes: All dimensions shown are in units of in.

Customer: _____ Date: 10/29/2021
 Contact: _____ From: _____
 Telephone: _____ Company: _____
 Cell: _____ Return Tel: _____
 Fax: _____ Return Fax: _____
 Job: _____
 Quote #: _____

Used higher EAT to provide safety factor

Construction

Item: MAU-1 CC
 Coils Per Bank: 3
 Allow Opp. End: No
 Tube OD IN: 5/8
 Coil Duty: Cool-Standard
 Fins Per Inch: Optimize
 Rows: 1
 Fin Surface: Optimize ABC
 Fin Height (IN): 30.00
 Finned Length (IN): 89.00
 Tubing Mat. (IN): 0.035 Copper
 TurboSpirals: No
 Fin Mat. (IN): 0.0095 Aluminum
 Conn Qty/Size (IN): 1 / Optimize
 Circuiting: Optimize
 Face Area (SQ FT): 55.63

need to change spec to .0095" fins OR I can have the selection changed to .0075"?

Air Side

Air Flow (Sft^3/min) 18500.0
 Altitude FT: 0.00
 Ent. Air DB/WB °F: 87.00 / 72.00
 Lvg. Air DB/WB °F: 51.00 / 51.00
 Total / Sensible MBH: 0.00 / 0.00
 Max Air PD "H2O: 0.00
 Fin Fouling Factor ft^2-°F-hr/BTU: 0

Fluid Side

Fluid Type: Propylene
 Percent Glycol: 35
 Ent. Fluid : 42.00
 Lvg. Fluid : 57.00
 Fluid Flow gal/min: 0.00
 Max FPD FT H2O: 0.00
 Fouling Factor ft^2-°F-hr/BTU: 0

OUTPUT DATA		Most Economical			Specified Coil		
		Coil 1 ✓	Coil 2	Coil 3	Coil 4	Coil 5	Coil 6
Model Number:		5WS1212A					
FPI Rows Surf:		12 12 A					
Circuiting:		1					
Air Velocity:	(Sft/min)	332.6					
Total Capacity:	MBH	1246.9					
Sens. Capacity:	MBH	734.3					
Lvg. Air DB:	°F	50.70					
Lvg. Air WB:	°F	50.55					
Standard APD	"H2O	0.70					
Lvg. Fluid:	°F	57.15					
Fluid Flow:	gal/min	176.7					
Fluid PD:	FT H2O	24.01					
Fluid Vel.:	ft/s	3.54					
Conn Size:	IN	(1) 2.000					
Internal Volume:	in^3	6204.8					
Weight (Dry):	lbm	978.6					
Weight (w/Fluid):	lbm	1230.7					
Notes:		AL					

Notes:

A) Certified in accordance with the AHRI Forced-Circulation Air-Cooling and Air-Heating Coils Certification Program which is based on AHRI Standard 410 within the Range of Standard Rating Conditions listed in Table 1 of the Standard. Certified units may be found in the AHRI Directory at www.ahridirectory.org.

L) Coil rating valid for Heatcraft coils only.

Customer:	Date:	10/29/2021
Contact:	From:	
Telephone:	Company:	
Cell:	Return Tel:	
Fax:	Return Fax:	
Job:		
Quote #:		

Item	Coils Per Bank	FA SQ FT	Air Flow ft^3/min	Face Vel. ft/min	Fin Fouling Factor ft^2-°F-hr/BTU	Ent Air DB/WB °F	Lvg Air DB/WB °F	Capacity Total MBH	APD "H2O	Fluid Type	Fluid Fouling Factor ft^2-°F-hr/BTU	Fluid Temp. Ent/Lvg °F	FPD FT H2O	Fluid Vel	Fluid Flow gal/min	Model FHXFL Number IN
MAU-1 CC	3	55.63	S- 18500.0	332.6	0.00	87.00/72.00	50.70/50.55	1246.9/734.3	0.70	35% Propylene	0.00	42.00/57.15	24.01	3.54	176.7	5WS1212A 30.00 x 89.00

Preliminary Electrical Calculations

Job Name: UNE Portland MAU
Unit Tag: 460V, 4 x 15HP SF motors
Unit Type:
Date: 11/3/2021

Unit Electrical Input:

Motor Data:

	Size (hp)	NEC Amps
Motor #1:	15	21
Motor #2:	15	21
Motor #3:	15	21
Motor #4:	15	21

Electric Heater Data:

Heater Power (in KW):

Condensing Unit Data:

Mounted
Amps

Quantity

Compressor #1:	0	1
Compressor #2:	0	1
Condenser Fan #1:	0	1
Condenser Fan #2:	0	1

Separate ACCU Power Feed:

Humidifier Amps:
Other Amps:

☐ Electric Heat-Humidifier and ACCU Lockout

Unit Voltage:
Unit Phase:

Transformer Amps:

	Quantity	VA
Number of Dampers:	6	1000
# of Indirect Gas Heaters:	0	0
Dewpoint Control:	No	0
Direct Fired Gas:	No	0
Indirect Evap. Cooling:	No	0

Unit Electrical Output:

Transformer Amps:
Electric Heater Amps:

Unit FLA:
 Unit MCA:
 ACCU FLA:
 ACCU MCA:
 Unit Max Fuse:

FLA:
 MCA:
 Max Fuse:

The above results are based on simultaneous operation of all of the components.

This was using the "old" electrical calc spreadsheet - see latest spreadsheet that estimates MOP=120A

Voltage	480 VAC
CB Oversize	120%

All Fans	
MCA	98A
MOP	120A
Main CB Size	120A

	EC Fans				
	FLA	KW	Amps	HP	Thermal CB
Motor 1					
Motor 2					
Motor 3					
Motor 4					
Motor 5					
Motor 6					
Motor 7					
Motor 8					
Motor 9					
Motor 10					
Motor 11					
Motor 12					

	AC Fans		
	HP	FLA	CB Size
Motor 1	15.0	22.9A	30.0A
Motor 2	15.0	22.9	30A
Motor 3	15.0	22.9	30A
Motor 4	15.0	22.9	30A
Motor 5			
Motor 6			
Motor 7			
Motor 8			
Motor 9			
Motor 10			
Motor 11			
Motor 12			

This is using the latest electrical calc spreadsheet which estimates MOP=120A (higher than the old spreadsheet which estimated 100A)

Date: 2022-03-15
 Enquiry dated:
 Project:
 Quotation-no.: 112813
 Item: Adiabatic Cooler
 Reference: AS

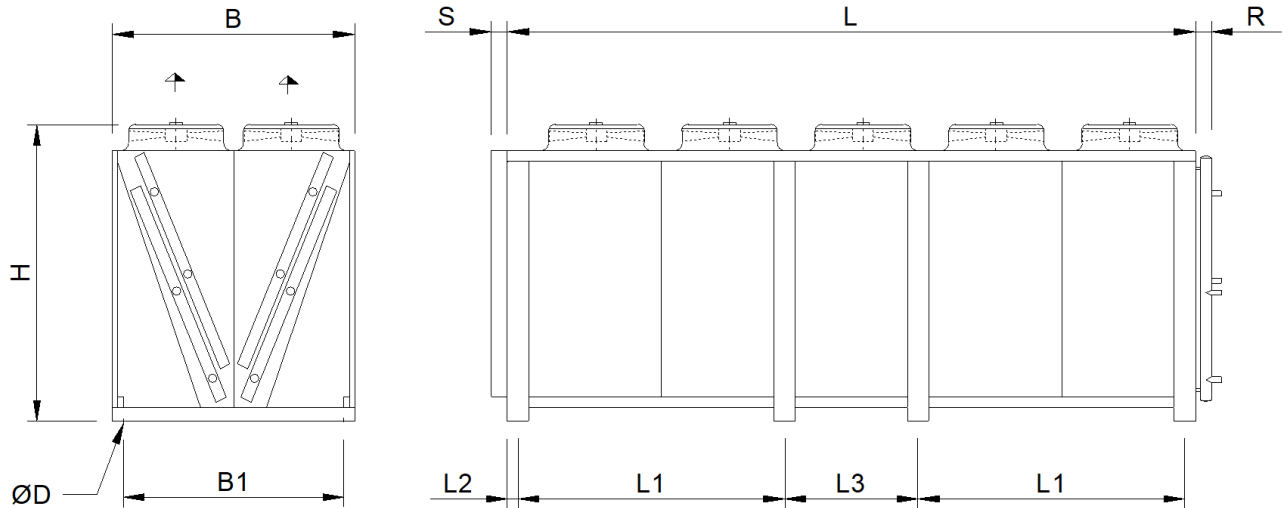
Drycooler S-GFD 080.1D/2x5-N200/4P.M

Capacity:	1627000 Btu/h	Medium:	Propylene glycol 35 Vol. %
Surface reserve:	0.4 %	Inlet:	95.1 °F
Air flow:	129161 cfm ⁽¹⁾⁽²⁾	Outlet:	85.1 °F
Air velocity:	391 ft/min		
Air inlet:	95.0 DB / 74.0 WB °F	Pressure drop:	16.74 psi
Dry switch point:	78.5 °F		
Air pressure:	14.692 psi	Volume flow:	345.00 gpm
Heat transf. coeff.:	6.77 Btu/(h·ft ² ·°F)	Mass flow:	177608 lb/h
Fans:	10 Piece(s) 3~460V 60Hz	Fan diameter:	31 1/2 in
Data per motor (nominal data):		Noise pressure level:	57 dB(A)
Speed:	975 rpm	at a distance of:	32.8 ft
Capacity:	1.94 kW, 2 hp mech.	Noise power level:	91 dB(A)
Current:	3.00 A		
Casing:	Galv. Steel, light grey	Tubes:	Copper ⁽³⁾
Surface:	45631 ft ²	Fins:	Aluminum ⁽³⁾
Tube volume:	17.078 ft ³	Connections per unit:	
Fin spacing:	12.7 FPI	Inlet:	2 x 4 1/8 in
Dry weight:	8296 lb ⁽⁴⁾	Outlet:	2 x 4 1/8 in
Max. operating pressure:	232.1 psi		
Dimensions: ⁽⁴⁾			
Length:	262 9/16 in	Outlet header:	2 x 4 1/8 in
Width:	94 1/2 in	Inlet header:	2 x 4 1/8 in
Height:	112 3/16 in ⁽⁴⁾	Face Area:	326.8 ft ²
No. of legs:	8	Circuits:	2N
		Distributions:	2 * 72

(S = Special coil, Special fan VT03059U.2 3~400V 5060Hz)

S-GFD 080.1D/2x5-N200/4P.M

Project:
Quotation-no.: 112813
Item: Adiabatic Cooler
Reference: AS



File: EMF\GVD_CD2x5_UNI.emf

L	=	253 1/8 in	B	=	94 1/2 in	H	=	112 3/16 in
R	=	8 11/16 in	L1	=	98 5/8 in	L2	=	3 1/16 in
L3	=	49 13/16 in	B1	=	90 9/16 in	S	=	13/16 in
ØD	=	11/16 in						

Attention: Drawing and dimensions not valid for all accessory options!

Accessories	Piece(s)
Special design	1
Extra accessories	
hydroBLU Adiabatic Cooling System	1
EC Fan Motors	10
Coil Modification	1
Mounted Panel#CECC10 - 0300ML - NAUBUNU - N	1
1 x GMM Next EC/16;	
10 x MSP, 2.5-4.0A, 1HP;	
1 x Non Fused Disconnect, Nema 4X, 60 A;	
1 x Power Distribution Block 3x6;	
1 x Control Transformer 230/460 - 115 VAC /750VA, 60Hz;	
1 x Panel Heater 400W 120V;	
1 x GHM Pad Controller Accessory;	
1 x 2x Temperature Sensor for Güntner Controller (for 2 refrigerant circuits);	
1 x NEMA 4 Steel Enclosure (WxHxD) 800x1000x300 [mm] / 31.5x39.37x11.81 [Inch];	
1 x Cabinet Mounting Kit 1200;	
Panel Data:	
Operating Range = -40°C to 43.1°C / -40°F to 109.58°F	
Electrical Power = 3/460V/60Hz - Y	
Control Voltage = 115VAC 50/60Hz	
Largest Load [A] = 3	
FLA [A] = 30	
MCA [A] = 30.75	
MOP [A] = 35	
Adiabatic water use: Evaporation Rate - 4.2 GPM @ Design, Makeup water rate: 5.4 GPM @ Design	0
Water inlet pressure range: 25-60 PSI	0

Important remarks / explanatory notes:

- (1) For the external pressure, 0.132 in H₂O has been taken into account!
- (2) Additional pressure drop for casing and mounted parts is not taken into account.
- (3) The unit may not be suitable for very corrosive atmospheres (close to shores, in smoke rooms, etc.). For further information see program menu "?", "Material recommendations brochure", or ask your sales partner.
- (4) Dimensions and weights are not valid for all possible options! They may differ for units with accessories or special units (S-...).



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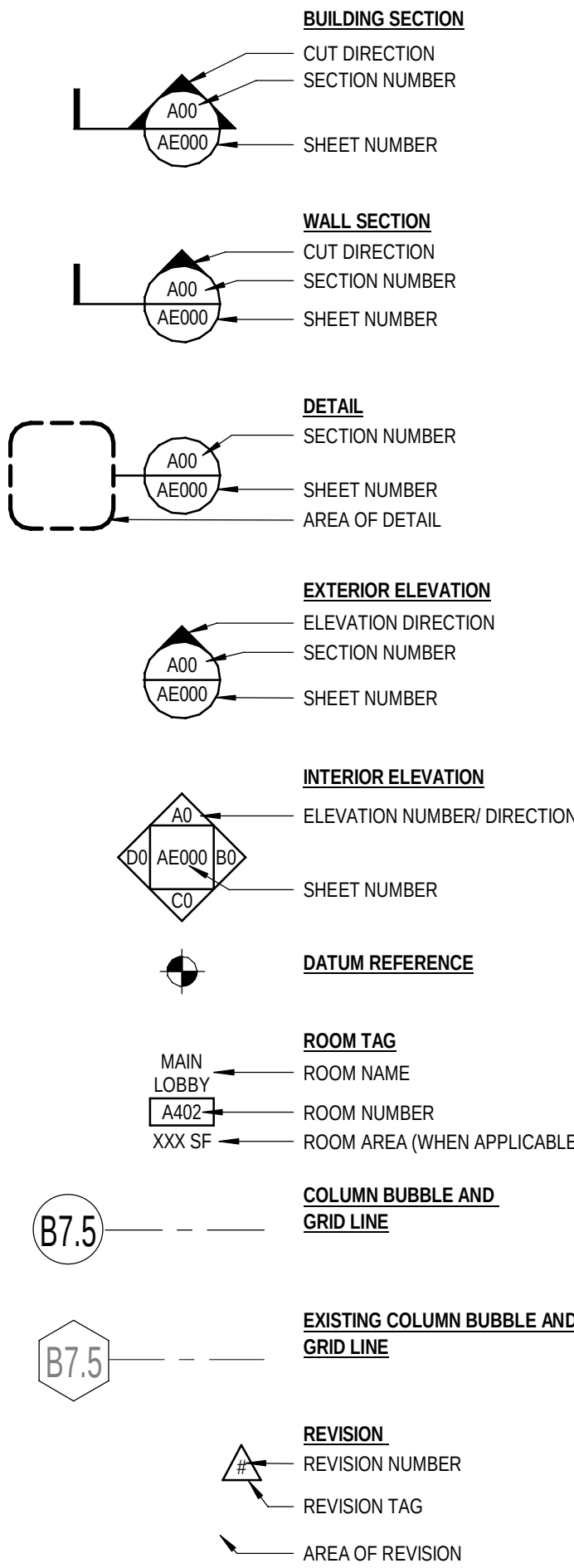
780 STEVENS AVENUE, PORTLAND, MAINE



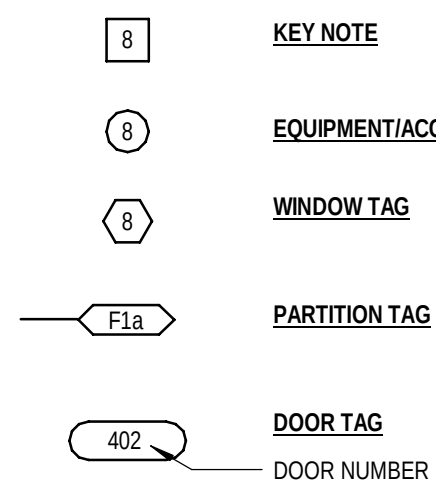
ARCHITECTURAL ABBREVIATIONS:

AB	ANCHOR BOLT	GA	GAUGE	R	RISER / RADIUS
AC	AIR CONDITIONING	GALV	GALVANIZED	RB	RESILIENT BASE
ACCU	AIR CONDITIONING CONDENSER UNIT	GB	GRAB BAR	RD	ROOF DRAIN
ACPLAS	ACCOUSTICAL PLASTER	GC	GENERAL CONTRACTOR	REINF	REINFORCED
ACT	ACOUSTIC CEILING TILE	GDT	GYP SUM DROP-IN TILE	REQ'D	REQUIRED
AFF	ABOVE FINISH FLOOR	GV	GRAVITY VENT	RT	RIGHT
AGG	AGGREGATE	GWB	GYP SUM WALL BOARD	RO	ROUGH OPENING
ALT	ALTERNATE			ROW	RIGHT OF WAY
AP	ACCESS PANEL	H	HORIZONTAL	RR	RUB-RAIL
APROX	APPROXIMATE	HC	HANDICAPPED / HOLLOW CORE	RTU	ROOF-TOP UNIT (HVAC)
ARCH	ARCHITECTURAL	HC	HORIZONTAL		
BCX	BOTTOM CORD EXTENSION	HM	HOLLOW METAL	SACT	SUSPENDED ACOUSTIC TILE CEILING
BD	BOARD	HRU	HEAT RECOVERY UNIT	SC	SOLID CORE
BIT	BITUMINOUS	HV	HEATING AND VENTILATING	SF	SQUARE FOOT / SUPPLY FAN
BLDG	BUILDING	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	SFRM	SPRAYED FIRE-RESISTIVE MATERIAL
BLP	BORROWED LIGHT PANEL	I	INCLUDED ANGLE	SHT	SHEET
BO	BOTTOM OF	ID	INSIDE DIAMETER	SK	SIMILAR
BOF	BOTTOM OF FOOTING	IF	INSIDE FACE	SN	SANITARY NAPKIN (DISPENSER)
BOS	BOTTOM OF STEEL	IJ	ISOLATION JOINT	SP	SPECIAL
BOT	BOTTOM	IMP	IMPACT RESISTANT	SS	STAINLESS STEEL
BRDG	BRIDGING	INS	INSULATED	STA	STATION
BRG	BEARING	INV	INVERT	STL	STEEL
BS	BOTH SIDES	JS	JOINT SUBSTITUTE	STRUC	STRUCTURAL
BSE	BRICK SHELF ELEVATION				
C	CHANNEL	K	KIPS	T	TREAD
CB	CATCH BASIN / CHALKBOARD	L	ANGLE / LENGTH	TB	TACKBOARD
CEM BD	CEMENTITIOUS BACKER BOARD	LF	LEFT	T&B	TOP AND BOTTOM
CFM	CUBIC FEET PER MINUTE	LINO	SHEET LINOLEUM	TCE	TEMPORARY BENCHMARK
CIP	CAST IN PLACE	LL	LIVE LOAD	TJ	TIE JOIST
CJ	CONTROL JOINT / CONSTRUCTION JOINT	LLH	LONG LEG HORIZONTAL	TO	TOP OF
CL	CENTER LINE	LLV	LONG LEG VERTICAL	TOC	TOP OF CONCRETE
CLL	CONTRACT LIMIT LINE	LP	LIGHTING PANEL / LIQUIFIED PROPANE	TOF	TOP OF FOOTING
CLR	CLEAR			TOM	TOP OF MASONRY
CMU	CONCRETE MASONRY UNIT			TOP	TOP OF PIER
COL	COLUMN	MAX	MAXIMUM	TOS	TOP OF STEEL
CONC	CONCRETE	MB	MARKER BOARD	TOW	TOP OF WALL
CONT	CONTINUOUS	MDO	MEDIUM DENSITY OVERLAY	TP	TOILET PAPER (DISPENSER) / TEST PIT
CT	CERAMIC TILE	MFR	MECHANICAL MANUFACTURER	TS	TUBE STEEL
CUH	CABINET UNIT HEATER	MIN	MINIMUM	TYP	TYPICAL
D	DIAMETER	MISC	MISCELLANEOUS	UH	UNIT HEATER
DBL	DOUBLE	MO	MASONRY OPENING	UNO	UNLESS NOTED OTHERWISE
DF	DRINKING FOUNTAIN	MR	MOISTURE-RESISTANT		
DL	DEAD LOAD	MUA	MAKE-UP AIR	V	VENT PIPE / VERTICAL
DR	DISPLAY RAIL	N	NOSING	VB	VAPOR BARRIER
DTL	DETAIL	NB	NEW CATCH BASIN	VCT	VINYL COMPOSITION TILE
DWG	DRAWING	NDMH	NEW DRAIN MANHOLE	VERT	VERTICAL
EA	EACH	NFM	NEW FORCE MAIN	VP	VISION PANEL
EF	EXHAUST FAN / EACH FACE	NIC	NOT IN CONTRACT	VTR	VENT THROUGH THE ROOF
EJ	EXPANSION JOINT	NS	NEAR SIDE	W	WITH
EL	ELEVATION	NSD	NEW STORM DRAIN LINE	WC	WATER CLOSET
ELEC	ELECTRICAL	NSS	NEW SANITARY SEWER LINE	WD	WOOD
EOP	EDGE OF PAVEMENT	NTS	NOT TO SCALE	WF	WIDE FLANGE
EPDM	ETHYLENE PROPYLENE DIENE MONOMER	NW	NEW WATER LINE	WH	WATER HEATER
EQ	EQUAL			W/O	WITH OUT
EW	EACH WAY	OC	ON CENTER	WP	WORKING POINT
EWC	ELECTRIC WATER COOLER	OF	OUTSIDE FACE	WS	WEB STIFFENER
EXIST	EXISTING	OH	OVERHEAD	WWF	WELDED WIRE FABRIC
EXP	EXPANSION	OPP	OPPOSITE HAND/OPPOSITE		
EXT	EXTERIOR	PA	PUBLIC ADDRESS		
FB	FLAT BAR	PAF	POWER-ACTUATED FASTENER		
FBO	FURNISHED BY OTHERS	PDU	POOL DEHUMIDIFICATION UNIT		
FCO	FLOOR CLEA-OUT	PL	PLATE / PROPERTY LINE		
FD	FLOOR DRAIN	PLAM	PLASTIC LAMINATE		
FE	FIRE EXTINGUISHER	PLF	POUNDS PER LINEAR FOOT		
FEC	FIRE EXTINGUISHER CABINET	PP	POWER PANEL		
FF	FINISH FLOOR / FAR FACE	PSF	POUNDS PER SQUARE FOOT		
FFE	FINISH FLOOR ELEVATION	PSI	POUNDS PER SQUARE INCH		
FO	FRAMED OPENING	PT	PRESSURE-TREATED		
FRP	FIBER REINFORCED PLASTIC	PVC	POLYVINYL CHLORIDE		
FS	FAR SIDE	PVMT	PAVEMENT		
FTG	FOOTING				

SYMBOL LEGEND:



ARCHITECTURAL SYMBOL LEGEND:



DRAWING LIST:

GI-001	COVER SHEET - LEGEND & ABBREVIATIONS
A-101	GROUND LEVEL - FACILITY PLAN
A-102	QUAD LEVEL - FACILITY PLAN
A-103	THIRD LEVEL - FACILITY PLAN
A-104	FOURTH LEVEL - FACILITY PLAN
A-201	EXTERIOR ELEVATIONS - NORTH
A-202	EXTERIOR ELEVATIONS - EAST
A-203	EXTERIOR ELEVATIONS - SOUTH
A-204	EXTERIOR ELEVATIONS - WEST
C-001	SITE NOTES & LEGENDS
CD101	SITE DEMOLITION PLAN
CE001	SITE EROSION & SEDIMENT CONTRL NOTES
CE101	EROSION & SEDIMENT CONTROL PLAN
CE501	EROSION & SEDIMENT CONTROL DETAILS
CG101	SITE GRADING & DRAINAGE PLAN (Tom)
CG102	GRADING & DRAINAGE SCHEDULE (Tom)
CG201	CONNECTOR ROAD PLAN & PROFILE STA 02+50 TO 28+50 (1 OF 2) (Tom)
CG202	CONNECTOR ROAD PLAN & PROFILE STA 28+50 TO 33+00 (2 OF 2) (Tom)
CG501	GRADING & DRAINAGE DETAILS
CG502	GRADING & DRAINAGE DETAILS
CP101	LAYOUT & MATERIALS PLAN
CP401	SITE LAYOUT & MATERIALS ENLARGEMENTS
CP501	SITE LAYOUT DETAILS
CP502	SITE LAYOUT DETAILS
CP503	SITE LAYOUT DETAILS
CP504	SITE LAYOUT DETAILS
CU101	UTILITIES PLAN
CU501	UTILITY DETAILS
CU502	UTILITY DETAILS
CU503	UTILITY DETAILS
LP101	PLANTING PLAN
LP502	PLANTING DETAIL AND PLANT SCHEDULE

LOCATION MAP:



REV	DESCRIPTION	DATE
0	MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022

MAJOR SITE PLAN AND CONDITIONAL USE REVIEW

04-29-2022

CURRENT ISSUE STATUS:



University of New England

THE HAROLD AND BIBBY ALFOND CENTER FOR HEALTH SCIENCES

780 STEVENS AVENUE, PORTLAND MAINE

COVER, LEGEND & ABBREVIATIONS

SHEET TITLE:	TAX PARCEL #145 B018
SCALE: AS NOTED	
PROJECT MANAGER: Approver	PROJECT NO: 21004
A/E OF RECORD: Designer	
JOB CAPTAIN: Checker	
DRAWN BY: Author	
SMRT FILE: GI-001-21004	SHEET No. GI-001

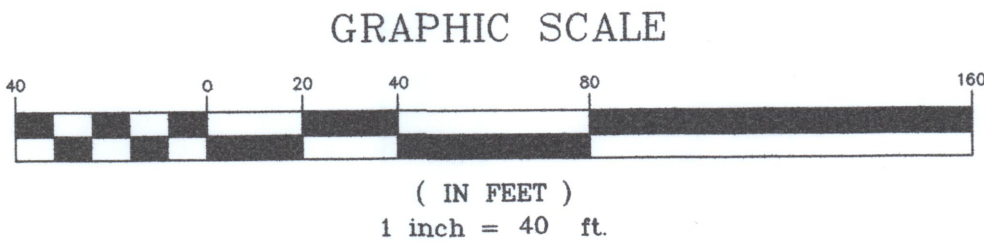
SURVEYOR'S NOTES

- 1 THIS SURVEY PLAN IS ONLY VALID IF AUTHENTIC EMBOSSED SEAL AND SIGNATURE OF CERTIFYING PROFESSIONAL APPEAR ON THE FACE OF THIS SURVEY PLAN.
- 2 NO CERTIFICATION IS MADE TO THE EXISTENCE OR NONEXISTENCE OF HAZARDOUS SUBSTANCES, ENVIRONMENTALLY SENSITIVE AREAS, UNDERGROUND UTILITIES, UNDERGROUND STRUCTURES, ZONING REGULATIONS OR REAL ESTATE TITLE.
- 3 HORIZONTAL DATUM BASED UPON 1983 N.A.D. MAINE STATE PLANE GRID WEST ZONE. VERTICAL DATUM BASED UPON N.G.V.D. 1929.
- 4 ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF I CERTIFY TO THE CLIENT THAT THIS SURVEY PLAN, MADE TO THE NORMAL STANDARD OF CARE, CONFORMS TO THE MAINE BOARD OF LICENSURE FOR LAND SURVEYOR STANDARDS CATEGORY I, CONDITION III, EXCEPTING FROM THESE STANDARDS DEED DESCRIPTION AND SURVEY REPORT.
- 5 THE PROPERTY SURVEYED IS DESCRIBED IN A DEED TO THE STATE OF MAINE FROM THE CUMBERLAND COUNTY POWER AND LIGHT COMPANY DATED 10-14-40 AND IS RECORDED IN THE CUMBERLAND REGISTRY OF DEEDS IN BOOK 1607, PAGE 418.
- 6 THE PROPERTY IS DEPICTED ON THE CITY ASSESSOR'S MAP 145 BLOCK B AS LOT 18.
- 7 THE PROPERTY SURVEYED IS BENEFITED BY A SEWER LINE EASEMENT AS DESCRIBED IN A DEED FROM WESTBROOK COLLEGE TO THE STATE OF MAINE DATED 11-15-93 AND RECORDED IN DEED BOOK 11094, PAGE 270.
- 8 AN UNDERGROUND STEAM LINE FOR HEATING PURPOSES CROSSES THE SURVEYED PROPERTY, AND WAS LOCATED PER DIG SAFE MARKINGS AND IS DEPICTED HEREON.
- 9 REFERENCE IS MADE TO COLLEGE STREET LINE DATED DECEMBER 18, 1975 BY THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT.
- 10 REFERENCE IS MADE TO PLAN OF STEVENS PLAINS AVENUE CITY OF DEERING FROM FOREST AVENUE TO PLEASANT STREET AS RELOCATED BY H.W. FOSTER JULY 1896 RECORDED IN CUMBERLAND COUNTY COMMISSIONERS RECORDS VOLUME 16 PAGE 951.
- 11 REFERENCE IS MADE TO PLAN OF LAND IN PORTLAND, MAINE FOR WESTBROOK COLLEGE DATED 8-20-74 BY OWEN HASKELL, INC.
- 12 REFERENCE IS MADE TO PLAN OF A SURVEY FOR FRED E. BRIGGS DATED MAY 1913 BY E.C. JORDAN & CO. AND RECORDED IN CUMBERLAND COUNTY REGISTRY OF DEEDS IN PLAN BOOK 12 PAGE 68.
- 13 REFERENCE IS MADE TO PLAN SHOWING WESTBROOK COLLEGE PROPERTY LINES DATED OCTOBER 26, 1981 BY WELLS ENGINEERING INC.
- 14 REFERENCE IS MADE TO PLAN OF (MORRILLS) CAR BARN LOT DEERING, ME. P.R.R. BY HSLEY & CUMMINGS IN PORTLAND, MAINE. ON FILE AT THE CITY OF PORTLAND PUBLIC WORKS DEPARTMENT IN FILE 798/14.
- 15 INFORMATION IN PARENTHESES IS ON FILE AT A PUBLIC REPOSITORY.
- 16 THE PROPERTY IS DEPICTED ON THE CITY ASSESSOR'S MAP 145-B-18 (K6SE).
- 17 DIG SAFE MUST BE CONTACTED AND CONTRACTOR SHALL FIELD VERIFY LOCATIONS AND DIMENSIONS OF ALL UTILITIES PRIOR TO EXCAVATION.
- 18 REFERENCE IS MADE TO THE CONTRACTUAL AGREEMENT BETWEEN THE PROFESSIONAL LAND SURVEYOR AND THE CLIENT.
- 19 THIS SURVEY PLAN IS SUBJECT TO POSSIBLE REVISION UPON RECEIPT OF A CERTIFIED TITLE OPINION.
- 20 ON THE BASIS OF MY KNOWLEDGE, INFORMATION AND BELIEF I CERTIFY EXCLUSIVELY TO THE CLIENT THAT THIS SURVEY PLAN, MADE TO THE NORMAL STANDARD OF CARE, SUBSTANTIALLY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR LAND SURVEYOR STANDARDS.
- 21 THIS SURVEY PLAN IS COPYRIGHT PROTECTED. THIS PLAN IS THE PROPERTY OF BOUNDARY POINTS, AND SHALL NOT BE USED FOR ANY PURPOSE WITHOUT THE WRITTEN CONSENT OF AN AUTHORIZED AGENT OF BOUNDARY POINTS. ALL RIGHTS RESERVED.

LEGEND

EXISTING	DESCRIPTION	PROPOSED
---	PROPERTY/ROW	---
---	EASEMENT	---
---	CENTERLINE	---
---	MONUMENT	---
---	IRON PIPE/ROD	---
---	5/8" IRON REBAR SET 2001	---
---	CURVE/LINE NO. BUILDING	---
---	SIGN	---
---	EDGE PAVEMENT	---
---	GRAVEL ROAD	---
---	CURBLINE	---
---	TREELINE	---
---	CONTOURS	---
---	GAS	---
---	WATER	---
---	SEWER	---
---	STORM DRAIN	---
---	OVERHEAD ELEC. & TEL.	---
---	UNDERGROUND ELEC. & TEL.	---
---	UTILITY VALVE	---
---	LIGHT POLE	---
---	UTILITY POLE	---
---	HYDRANT	---
---	MANHOLE	---
---	CATCH BASIN	---
---	CULVERT	---
---	SPOT GRADE	---
---	CHAIN LINK FENCE	---
---	DECIDUOUS TREE	---
---	CONIFEROUS TREE	---
---	GUARDRAIL	---

EVERGREEN CEMETERY



NOW OR FORMERLY
JOHN B. VANCE
BOOK 3418, PAGE 133

NOW OR FORMERLY
THE FREE CONGREGATIONAL CHURCH
BOOK 749, PAGE 299

RENTAL AGREEMENT
35 PARKING SPACES
BETWEEN STEVENS AVENUE CONGREGATIONAL CHURCH
AND THE UNIVERSITY OF NEW ENGLAND
SEPTEMBER 1, 2011

NOW OR FORMERLY
UNIVERSITY OF NEW ENGLAND
FORMERLY
WESTBROOK SEMINARY
BOOK 3481, PAGE 255
SEE NOTE 11

NOW OR FORMERLY
UNIVERSITY OF NEW ENGLAND
FORMERLY
WESTBROOK SEMINARY
BOOK 2599, PAGE 319
BOOK 2604, PAGE 11

HELD FOUND
6"x6" STONE MONUMENT
4" BELOW GRADE
SEE NOTE 9

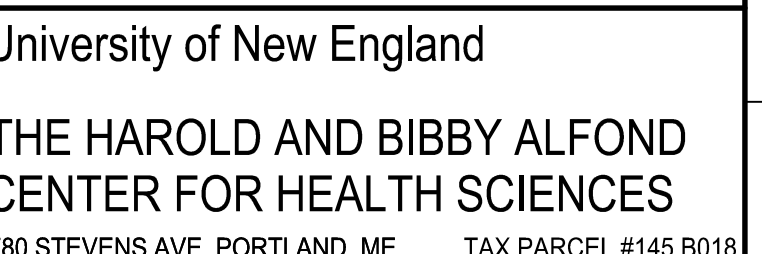
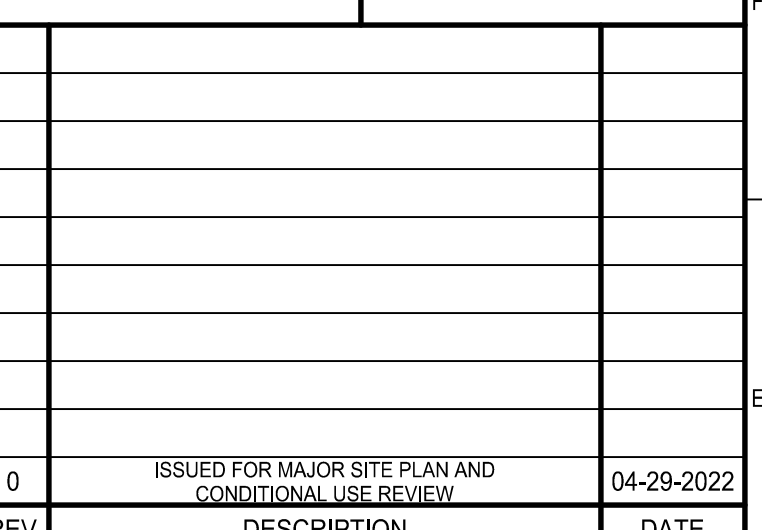
FOUND
6"x6" GRANITE MONUMENT
FLUSH WITH GRADE

655.44' TO STEVENS AVENUE
(655.44')

		Scale: 1" = 40'
		Project No: 201608
		AutoCAD Release: 2011
		Drawn By: DB
2	MAINE STATE GRID PLANE COORDINATES ADDED	6-15-16
1	ADDITIONAL TOPO BASED ON 1929 NGVD	3-9-16
No.	Revision	Date
		Plan Date: 3-14-16
THIS PLAN IS PROVIDED EXCLUSIVELY FOR THE CLIENT STATED HEREON. ANY USE OR ALTERATION OF THIS PLAN BY OTHERS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO BOUNDARY POINTS, LLC.		
EXISTING CONDITIONS & BOUNDARY SURVEY FOR SITE DESIGN ASSOCIATES OF 772 STEVENS AVENUE PROPERTY PORTLAND MAINE		
Boundary Points PROFESSIONAL LAND SURVEYING, LLC P.O. BOX 175 CUMBERLAND MAINE 04021-0175 207-854-1015 © 2016 BOUNDARY POINTS		

	MATERIALS TO BE REMOVED
	LIMIT OF ASPHALT REMOVAL
	LIMIT OF MILL & OVERLAY AREA
	UNDERGROUND PIPING TO BE REMOVED
	LIMIT OF EXISTING VEGETATION REMOVAL

1. ALL PRE-EXISTING STRUCTURES WITHIN THE PROPOSED BUILDING FOOTPRINT, UNDER AREAS PROPOSED FOR PAVING, AND ALONG PROPOSED UTILITY ROUTES ARE TO BE COMPLETELY REMOVED AND REPLACED WITH COMPACTED STRUCTURAL FILL.
2. BUILDING DEMOLITION FROM TOP OF SLABS UP, TO BE BY OTHERS.
3. FENCE NOTED TO BE REMOVED SHALL BE DISPOSED OF PROPERLY.
4. UTILITY POLES AND LIGHTS NOTED FOR REMOVAL SHALL BE DISPOSED OF PROPERLY.
5. ALL CONFLICTING ITEMS WITHIN THE DEVELOPMENT AREA NOT OTHERWISE NOTED SHALL BE REMOVED.
6. IN PAVEMENT REMOVAL AREAS EXISTING SURFACE SHALL BE GROUND, REMOVED AND STOCKPILED FOR LATER USE AS SUITABLE FILL MATERIAL.
7. ALL MANHOLE AND CATCH BASIN FRAMES AND COVERS TO BE REMOVED SHALL BE SALVAGED FOR FUTURE USE.
8. CONTRACTOR MAY REUSE ONSITE MATERIALS AS LONG AS SPECIFICATION REQUIREMENTS FOR INTENDED USE ARE MET.



SHEET TITLE:

0 10' 20' 40' 80' 120'

SCALE: 1" = 40'

Activity	Start Date	End Date	Duration (Weeks)
PROJECT MANAGER:	0	40	40
DESIGN OF RECORD:	0	20	20
CONTRACTOR CAPTAIN:	0	20	20
DRAWN BY:	0	20	20
CONTRACTOR CAPTAIN:	20	40	20
DESIGN OF RECORD:	40	80	40
CONTRACTOR CAPTAIN:	40	80	40
DRAWN BY:	80	120	40

PROJECT MANAGER: KD PROJECT NO: 21004

DESIGN OF RECORD: TNL

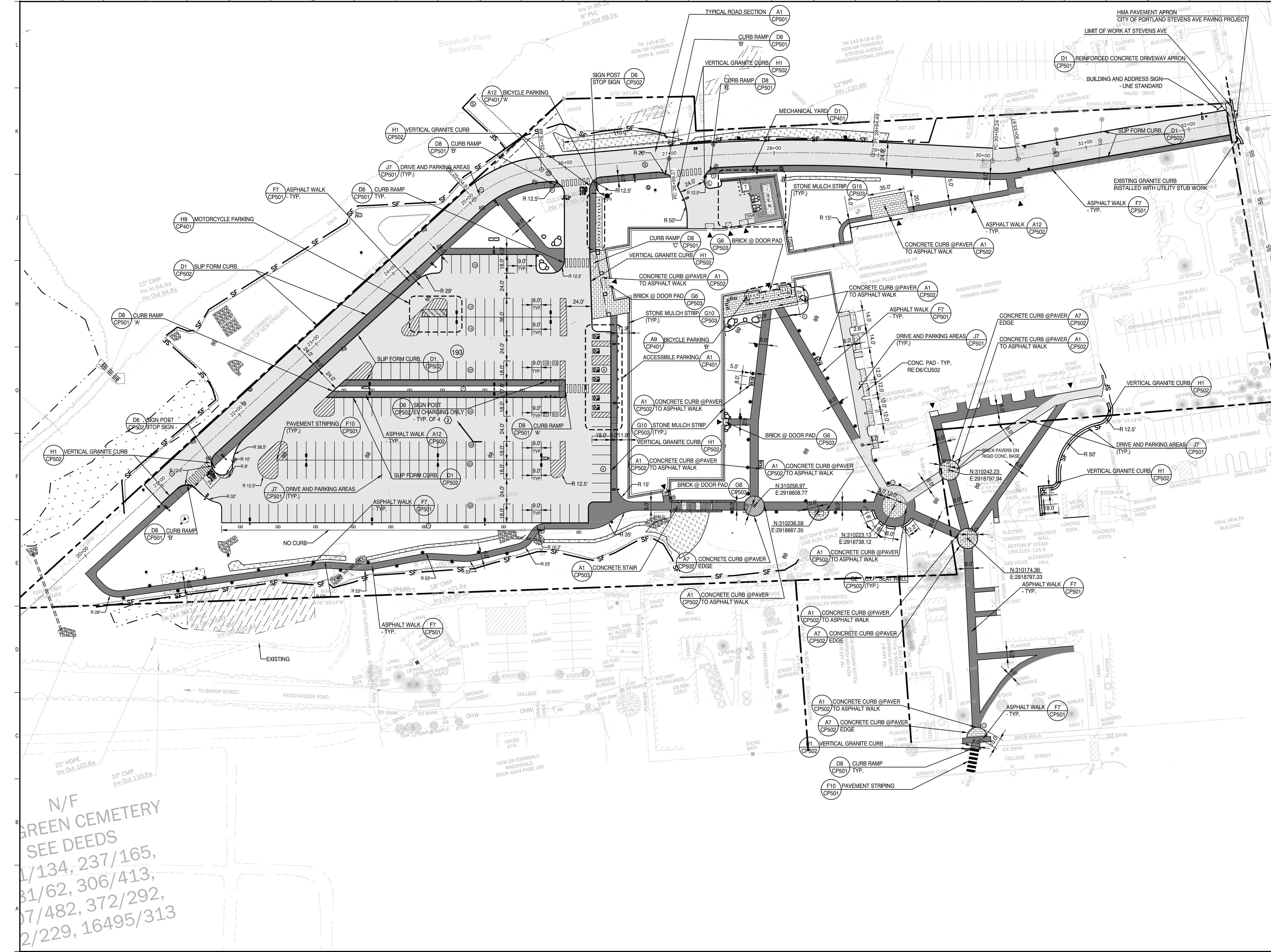
CONTRACTOR CAPTAIN: ECC

DRAWN BY: TNL

CD101

WARRANT FILE: CD101-21004 SHEET No. 1

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UNIVERSITY OF
NEW ENGLAND

11 HILLS BEACH ROAD
BIDDEFORD, MAINE 04005

REV	DESCRIPTION	DATE
0	ISSUED FOR MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022

ISSUED FOR MAJOR SITE PLAN AND CONDITIONAL USE REVIEW
04-29-2022

CURRENT ISSUE STATUS:

TRUE NORTH

SMRT Architects and Engineers
75 Washington Avenue, Suite 3A
Portland, Maine 04101
1.877.700.7678
www.smrtinc.com

University of New England

THE HAROLD AND BIBBY ALFOND
CENTER FOR HEALTH SCIENCES

780 STEVENS AVE, PORTLAND, ME TAX PARCEL #145 B018

OVERALL SITE PLAN

SHEET TITLE:

SCALE: 1" = 40'

PROJECT MANAGER: KD PROJECT NO: 21004

A/E OF RECORD: TNL

JOB CAPTAIN: ECC

DRAWN BY: TNL

SMRT FILE: CP101-21004 SHEET No. CP001

NOT FOR CONSTRUCTION

N/F
GREEN CEMETERY
SEE DEEDS
1/134, 237/165,
31/62, 306/413,
07/482, 372/292,
2/229, 16495/313

GENERAL NOTES

- THE SCOPE OF SITE WORK FOR THIS PROJECT INCLUDES PROTECTION OF EXISTING STRUCTURES AND UTILITIES, AND REINSTATEMENT OF DISTURBED AREAS OF THE SITE TO MATCH EXISTING CONDITIONS. THE EXISTING CONDITIONS SHOWN ON THE PROJECT DRAWINGS ARE TAKEN FROM RECORD DRAWINGS AND HISTORICAL INFORMATION. THE CONTRACTOR SHALL REVIEW THE DRAWINGS AND SITE CONDITIONS PRIOR TO THE START OF WORK AND CONTACT THE PROJECT ARCHITECT IMMEDIATELY IF DISCREPANCIES ARE FOUND.
- EXISTING UNDERGROUND UTILITIES HAVE BEEN LOCATED FROM HISTORICAL RECORDS AND PREVIOUS DESIGN DRAWINGS. NO GUARANTEE IS MADE THAT THE UTILITIES SHOWN WILL BE FOUND IN THE LOCATIONS INDICATED, OR THAT THE INFORMATION SHOWN IS COMPLETE. INFORMATION ON EXISTING UTILITY LOCATIONS IS PROVIDED FOR REFERENCE ONLY AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING EXISTING UTILITY LOCATIONS AND DEPTHS AND COORDINATING THE WORK ACCORDINGLY. SEE UTILITY NOTES THIS SHEET.
- THE CONTRACTOR IS REQUIRED TO NOTIFY DIGSAFE (811 OR 1-888-DIGSAFE) PRIOR TO COMMENCEMENT OF EXCAVATION WORK. IN MAINE AND VERMONT, THE CONTRACTOR IS REQUIRED TO NOTIFY ALL OWNERS OF UNDERGROUND UTILITIES WHO ARE NOT MEMBERS OF DIGSAFE. SUCH UTILITY OWNERS CAN BE LOCATED THROUGH THE 'OK-TO-DIG' DIRECTORY (1-866-OKTODIG).
- THE CONTRACTOR SHALL UNDERTAKE TEST PITS AT THE SITE AND ENGAGE PRIVATE UTILITY DETECTION SERVICE, AS NECESSARY, TO ACCURATELY IDENTIFY UTILITIES IN ORDER TO EFFICIENTLY PLAN AND COMPLETE THE WORK.
- THE CONTRACTOR SHALL PROTECT EXISTING STRUCTURES AND UTILITIES ADJACENT TO THE WORK. ANY DAMAGE TO EXISTING STRUCTURES, ROADS, SIDEWALKS, UTILITIES, OR OTHER SITE FEATURES CAUSED BY THE WORK SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
- ANY UTILITY REPAIRS OR RECONFIGURATION REQUIRED AS PART OF THIS PROJECT SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE AUTHORITY HAVING JURISDICTION.
- TEMPORARY WORKS, SUPPORT AND PROTECTION OF STRUCTURES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND THE COSTS SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL PROJECT SUM.
- ALL WORK SHALL BE UNDERTAKEN IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL SAFETY STANDARDS.
- OPEN EXCAVATIONS AND WORK AREAS SHALL BE CLEARLY DELINEATED AND FENCED, AS NECESSARY TO PREVENT UNAUTHORIZED ACCESS
- DRIVEWAYS, WALKWAYS AND ENTRANCES SERVING PREMISES SHALL BE KEPT CLEAR AND AVAILABLE TO OWNER, OWNER'S EMPLOYEES, AND EMERGENCY VEHICLES, AS NECESSARY TO MAINTAIN THE FUNCTION OF THE FACILITY. COORDINATE ALL WORK WITH OWNER TO ENSURE THAT ADEQUATE ACCESS AND CIRCULATION IS MAINTAINED AT ALL TIMES.
- DE-WATERING, IF NECESSARY, SHALL BE UNDERTAKEN IN ACCORDANCE WITH CITY OF PORTLAND, STATE AND FEDERAL STANDARDS. NO DISCHARGE OF SEDIMENT LADEN RUNOFF TO SURFACE WATERS OR TO THE PIPED STORM DRAIN SYSTEM AT THE SITE SHALL BE ALLOWED.
- ALL DISTURBED PAVEMENT AREAS, ROADS AND SIDEWALKS SHALL BE REINSTATED TO MATCH EXISTING GRADES, MATERIALS AND DEPTHS.
- EXISTING PAVEMENT SHALL BE SAW-CUT AT LEAST TWELVE INCHES INTO SOUND MATERIAL TO PROVIDE A CLEAN, STRAIGHT EDGE BETWEEN EXISTING SOUND SURFACE MATERIAL AND THE REPAIRED AREA.
- A SMOOTH TRANSITION SHALL BE PROVIDED BETWEEN REPAIR WORKS AND EXISTING PAVEMENT. ALL REINSTATED AREAS SHALL BE GRADED TO PITCH UNIFORMLY TO ENSURE POSITIVE DRAINAGE.

LAYOUT NOTES:

- DO NOT SCALE THE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. ANY OMISSIONS IN DIMENSIONING SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT FOR DECISION. ANY DISCREPANCIES BETWEEN DRAWINGS, DETAILS, NOTES, AND SPECIFICATIONS SHALL IMMEDIATELY BE REPORTED TO THE ARCHITECT FOR FURTHER DIRECTION AND RESOLUTION BEFORE ANY ADDITIONAL WORK PROCEEDS.
- ALL ANGLES ARE 90 DEGREES UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS FROM BUILDING ARE TO FACE OF BUILDING FOUNDATION. ALL DIMENSIONS FROM CURBS ARE TO FACE OF CURB.
- PROVIDE A SMOOTH TRANSITION WHERE NEW WORK MEETS EXISTING WORK.
- CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR WORK SHOWN ON THESE PLANS.
- ALL WORK SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS AND MEET OR EXCEED CITY OF PORTLAND STANDARDS.
- PROVIDE TAPERED END SECTIONS AT ALL CURB ENDS.
- EXISTING CONDITIONS AND TOPOGRAPHIC DATA ARE BASED UPON TOPOGRAPHIC SURVEY PREPARED BY UNIVERSITY OF NEW ENGLAND.

GRADING NOTES:

- SOIL DISTURBANCE IS TO BE KEPT TO A MINIMUM AND ALL DISTURBED AREAS SHALL BE STABILIZED (WITH PERMANENT OR TEMPORARY MEASURES) AS QUICKLY AS POSSIBLE.
- ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE LOAMED AND SEEDED (6" DEPTH).
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED ON A REGULAR BASIS AND AS REQUIRED AFTER STORM EVENTS.
- GULLIES OR OTHERWISE ERODED AREAS IN SEEDED AREAS SHALL BE RESTORED AS SOON AS POSSIBLE FOLLOWING OBSERVATION, USING EROSION CONTROL MESH TO STABILIZE AS REQUIRED.
- FILL IN AND AROUND THE AREA OF THE NEW BUILDING ADDITION SHALL MEET THE SPECIFICATION FOR 'STRUCTURAL FILL'.
- ALL EMBANKMENTS AND OTHER FILL SECTIONS SHALL BE CONSTRUCTED USING GRANULAR BORROW - A MIXTURE OF SAND AND GRAVEL MEETING MDOT SPECIFICATION 703.19 GRANULAR BORROW. SUITABLE SOIL BORROW MAY BE USED IN PLACE OF GRANULAR BORROW ONLY WHERE MOISTURE CONTENT CAN BE CONTROLLED TO MEET THE SPECIFIED COMPACTION.

DEWATERING NOTES:

- THE CONTRACTOR SHALL EMPLOY A DEWATERING SYSTEM THAT ACHIEVES THE FOLLOWING FUNCTIONS DURING CONSTRUCTION:
 - DEVELOP A SUBSTANTIALLY DRY AND STABLE SUBGRADE DURING EXECUTION OF THE WORK,
 - PREVENT DAMAGE TO STRUCTURES ADJACENT TO THE WORK,
 - RETAIN SEDIMENTS ON-SITE AND WITHIN THE WORK AREA. DEWATERING OPERATIONS SHALL BE SUSPENDED IF THE TURBIDITY OF DISCHARGES TO THE DOWNSTREAM DRAINAGE SYSTEM IS INCREASED ABOVE AMBIENT LEVELS.
- FLOCCULANTS MAY BE USED TO CONTROL THE TURBIDITY OF DISCHARGE WATER. REFER TO THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION'S EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS (2014, OR AS CURRENTLY REVISED) FOR RECOMMENDATIONS AND SPECIFICATIONS OR THE CITY OF PORTLAND DEWATERING STANDARD, USE WHICHEVER IS MORE STRINGENT.
- SURFACE WATER ENTERING THE CONSTRUCTION SITE SHALL BE INTERCEPTED AND DIVERTED AROUND THE WORK AREA THROUGH THE USE OF DIKES, CURB WALLS, DITCHES, SUMPS, PUMPING, OR OTHER APPROVED MEANS.
- ANY ENFORCEMENT ACTIONS OR FINES RESULTING FROM THE IMPROPER DISCHARGE OF TURBID WATER AND SEDIMENT TO DOWNSTREAM AREAS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- DIRT BAGS AND TEMPORARY DEWATERING PONDS SHALL BE CONSTRUCTED AND MAINTAINED AS NEEDED TO CAPTURE AND TREAT PUMPATE FROM DEWATERED AREAS.

PLANTING NOTES:

- THE LANDSCAPE CONTRACTOR SHALL SUPPLY AND INSTALL ALL PLANTS IN SUFFICIENT QUANTITIES TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS. DISCREPANCIES BETWEEN QUANTITIES NOTED ON THE DRAWINGS AND THOSE GRAPHICALLY SHOWN SHALL BE REPORTED IMMEDIATELY TO THE LANDSCAPE ARCHITECT AND SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL REMUNERATION.
- THE LANDSCAPE CONTRACTOR IS ADVISED THAT BELOW GROUND UTILITIES EXIST ON SITE, THE LOCATIONS OF WHICH SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF OPERATIONS (SEE GENERAL NOTES REGARDING DIGSAFE). SHOULD THE LOCATION OF ANY PROPOSED PLANTING CONFLICT WITH ANY UTILITY, THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY FOR DECISION.
- ANY AND ALL PAVING, CURBING, UTILITIES, LAWNS, ETC., DAMAGED AS A RESULT OF THE LANDSCAPE CONTRACTOR'S OPERATIONS SHALL BE REPLACED OR REPAIRED TO ORIGINAL CONDITION BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- LOCATIONS OF PROPOSED PLANTINGS AND BED LINES SHALL BE REVIEWED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- PLANTS SHALL BE PLACED NO CLOSER THAN ONE-HALF THE NOTED SPACING TO PAVEMENT EDGES, BED LINES, OR STRUCTURE FACES, UNLESS NOTED OR SHOWN OTHERWISE.
- PLANT MASSES SHALL BE LAID OUT AND INSTALLED STARTING AT THE PRINCIPAL FORM-DEFINING PERIMETER, THEN FILLING INWARD IN DOUBLE-ROW-STAGGERED FASHION, UNLESS NOTED OR SHOWN OTHERWISE.
- ALL PLANTING BEDS INCLUDING TREE AND SHRUB PITS AS INDICATED SHALL RECEIVE 3" APPROVED CLEAN, UNIFORMLY GROUND OR SHREDDED PINE OR HEMLOCK BARK MULCH.
- THE LANDSCAPE CONTRACTOR SHALL RELOCATE ANY PLANT ACCORDING TO THE DIRECTION OF THE LANDSCAPE ARCHITECT.
- ALL PLANT MATERIALS CALLED FOR AND INSTALLED SHALL MEET OR EXCEED SPECIFICATIONS OF THE 'AMERICAN STANDARDS FOR NURSERY STOCK' (LATEST EDITION) AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL PLANTING BEDS SHALL BE DEFINED BY A NEAT, SHOVEL-CUT BED LINE. BED LINES SHALL BE TRUE TO FORM AS SHOWN ON THE DRAWINGS, CONSISTING OF SMOOTH CURVES AND SHARP LINES AND CORNERS.
- IF, BECAUSE OF CULTURE REQUIREMENTS, AVAILABILITY, OR OTHER CIRCUMSTANCES, THE LANDSCAPE CONTRACTOR BELIEVES A PARTICULAR PLANT CALLED FOR IS INAPPROPRIATE, THE LANDSCAPE CONTRACTOR SHALL REPORT THE SITUATION IMMEDIATELY TO THE LANDSCAPE ARCHITECT FOR DECISION.
- ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL RECEIVE 6" LOAM AND SEED.

UTILITY NOTES:

- PROVIDE AND INSTALL MATERIALS NECESSARY TO COMPLETE UTILITY FEATURES AND DESIGN UNLESS OTHERWISE INDICATED.
- ALL WORK SHALL MEET OR EXCEED STANDARDS OF THE CITY OF PORTLAND AND THE PORTLAND WATER DISTRICT AND SHALL BE INSPECTED AND APPROVED BY THE CITY OF PORTLAND.
- CONTRACTOR TO VERIFY EXISTING UTILITY CONNECTION POINTS PRIOR TO SUBMISSION OF BIDS AND INCLUDE ALL EXTRA WORK REQUIRED TO EXTEND UTILITIES AS REQUIRED.
- ALL EXISTING UTILITY LOCATIONS SHOWN ARE APPROXIMATE AND HAVE BEEN DETERMINED BY SURFACE EVIDENCE AND/OR PREVIOUSLY GENERATED PLANS. NO GUARANTEE IS MADE THAT ALL UTILITIES ARE SHOWN OR WILL BE FOUND IN LOCATIONS INDICATED. THIS INFORMATION IS PROVIDED FOR REFERENCE AND THE CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES AND POINTS OF CONNECTION IN THE FIELD. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND RESTORATION OF ALL UTILITIES DISTURBED DURING CONSTRUCTION AT NO EXTRA EXPENSE TO THE OWNER.
- THE OWNER, CONSTRUCTION MANAGER AND ARCHITECT SHALL BE NOTIFIED AT LEAST TWO DAYS PRIOR TO ANY INTERRUPTION TO ANY UTILITY SERVICE.
- ADJUST ALL UTILITY STRUCTURE TOPS/RIMS TO MATCH PROPOSED GRADES UNLESS NOTED OTHERWISE.
- LOCATIONS OF EXISTING SEWER LINES ARE BASED ON THE LIMITED SURVEY PRODUCED BY UNIVERSITY OF NEW ENGLAND FOR USE ON THIS PROJECT.
- EXISTING UTILITY CONNECTIONS TO THE BUILDINGS AT THE SITE ARE TAKEN FROM PREVIOUS PLANS AND A SURVEY OF SURFACE FEATURES. THE CONTRACTOR SHALL EXCAVATE TEST PITS IN AREAS ADJACENT TO EXISTING BUILDINGS AS NECESSARY TO VERIFY THE LOCATION, DEPTH AND SIZE OF EXISTING SERVICES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ARCHITECT AND OWNER.
- CONTRACTOR SHALL MAKE PROVISION FOR CONNECTING NEW UTILITY SERVICES TO THE EXISTING WITHOUT INTERRUPTION BY USE OF LIVE TAPPING AND OVER-PUMPING WHERE APPROPRIATE.

MANHOLE & CATCH BASIN NOTES:

- ALL CONCRETE SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4,000 PSI AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
- PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPECIFICATION C-478.
- ALL STORM AND SEWER MANHOLE COVERS SHALL BE SOLID AND HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE LOCATED 8" FROM THE CENTER OF THE COVER.
- ALL SANITARY MANHOLE COVERS SHALL HAVE 'SEWER' CAST INTO THE COVER. ALL STORMWATER / DRAIN MANHOLE COVERS SHALL HAVE 'DRAIN' CAST INTO THE COVER.
- ALL MANHOLE RISERS SHALL BE EITHER 24" OR APPROVED EQUAL.
- SEWER BRICK SHALL CONFORM TO ASTM SPECIFICATION DESIGNATION C-32-63, GRADE MA AND SA.
- ALL SANITARY MANHOLES SHALL HAVE A WATERPROOFING COATING APPLIED TO THE EXTERIOR SURFACE.
- CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35.
- EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS TO BE REMOVED SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.

SITE LEGEND		
	EXISTING	PROPOSED
BOLLARD		
BUILDING W/ DOOR		
BUILDING CANOPY		
CATCH BASIN		
COMMUNICATIONS LINE-OH		
COMMUNICATIONS LINE-UG		
CONCRETE PAD		
CULVERT		
CURB - FLUSH		
CURB - SLOPED GRANITE		
CURB - VERT GRANITE		
DRAIN INLET		
DRAIN MANHOLE		
DRIP STRIP		
ELECTRIC MANHOLE		
ELECTRIC - OVERHEAD		
ELECTRIC - UNDERGROUND		
ELEVATION BOT OF CURB		
ELEVATION BOT OF STEP		
ELEVATION TOP OF CURB		
ELEVATION TOP OF STEP		
ELEVATION - SPOT		
FENCE - CHAINLINK		
FIRE HYDRANT		
FLAG POLE		
FORCE MAIN PIPE		
GAS & FUEL EQUIPMENT		
GAS LINE		
GAS VALVE		
GENERATOR ON CONC PAD		
GUARDRAIL		
SITE LEGEND		
	EXISTING	PROPOSED
GUARDRAIL		
LANDMARK SIGN		
LIGHT - BOLLARD		
LIGHT POLE		
LOW POINT ELEVATION		
MAJOR CONTOUR		
MINOR CONTOUR		
PARKING AREA-BITUMINOUS		
PAVEMENT STRIPING		
PROPERTY LINE		
PROPERTY LINE - ABUTTER		
RETAINING WALL		
RIPRAP		
ROADWAY		
SANITARY SEWER PIPE		
SANITARY SEWER MANHOLE		
SETBACK		
SIGN		
SPRINKLER		
STORM DRAIN PIPE		
TELEPHONE EQUIPMENT		
TRANSFORMER ON CONC		
UNDERDRAIN PIPE		
UTILITY POLE		
WALKWAY - BITUMINOUS		
WALKWAY - BRICK/COBBLE		
WALKWAY - CONCRETE		
WATER GATE VALVE		
WATER PIPE (DOMESTIC)		
WATER SHUTOFF		
WETLAND BOUNDARY		
NOTE: THIS LEGEND IS FOR REFERENCE ONLY AND APPLIES ONLY TO THE CIVIL/SITE LAYOUT DRAWINGS. NOT ALL ITEMS SHOWN HEREIN MAY APPEAR ON THE DRAWINGS, OR BE INCORPORATED IN THE DESIGN.		

SITE ABBREVIATIONS			
ALT	ALTERNATE	GALV	GALVANIZED
BOC	BOTTOM OF CURB	GC	GENERAL CONTRACTOR
BOW	BOTTOM OF WALL	HC	HANDICAPPED
CIP	CAST-IN-PLACE	HMA	HOT MIX ASPHALT
CL	CENTER LINE	HP	HIGH POINT
CLL	CONTRACT LIMITS LINE	ID	INSIDE DIAMETER
ECB	EXISTING CATCH BASIN	LP	LOW POINT
FFE	FINISHED FLOOR ELEVATION	LT	LEFT
GA	GAUGE	MAX.	MAXIMUM
		MIN.	MINIMUM
		S	SLOPE
MSC.	MISCELLANEOUS	T & B	TOP & BOTTOM
NSD	NEW STORM DRAIN (LINE)	TO	TOP OF
NSS	NEW SANITARY SEWER (LINE)	TOC	TOP OF CURB
NW	NEW WATER (LINE)	TOW	TOP OF WALL
O.C.	ON CENTER	TP	TEST PIT
OD	OUTSIDE DIAMETER	TP.	TYPICAL
R	RADIUS	UG	UNDERGROUND
RE	REFER (TO)	W	WITH
ROW	RIGHT-OF-WAY	W/O	WITHOUT
RT	RIGHT		

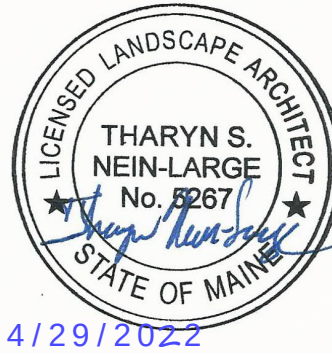


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REV	DESCRIPTION	DATE
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04-29-2022

CURRENT ISSUE STATUS:



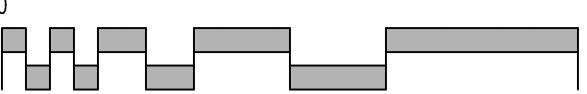


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SITE NOTES & LEGENDS

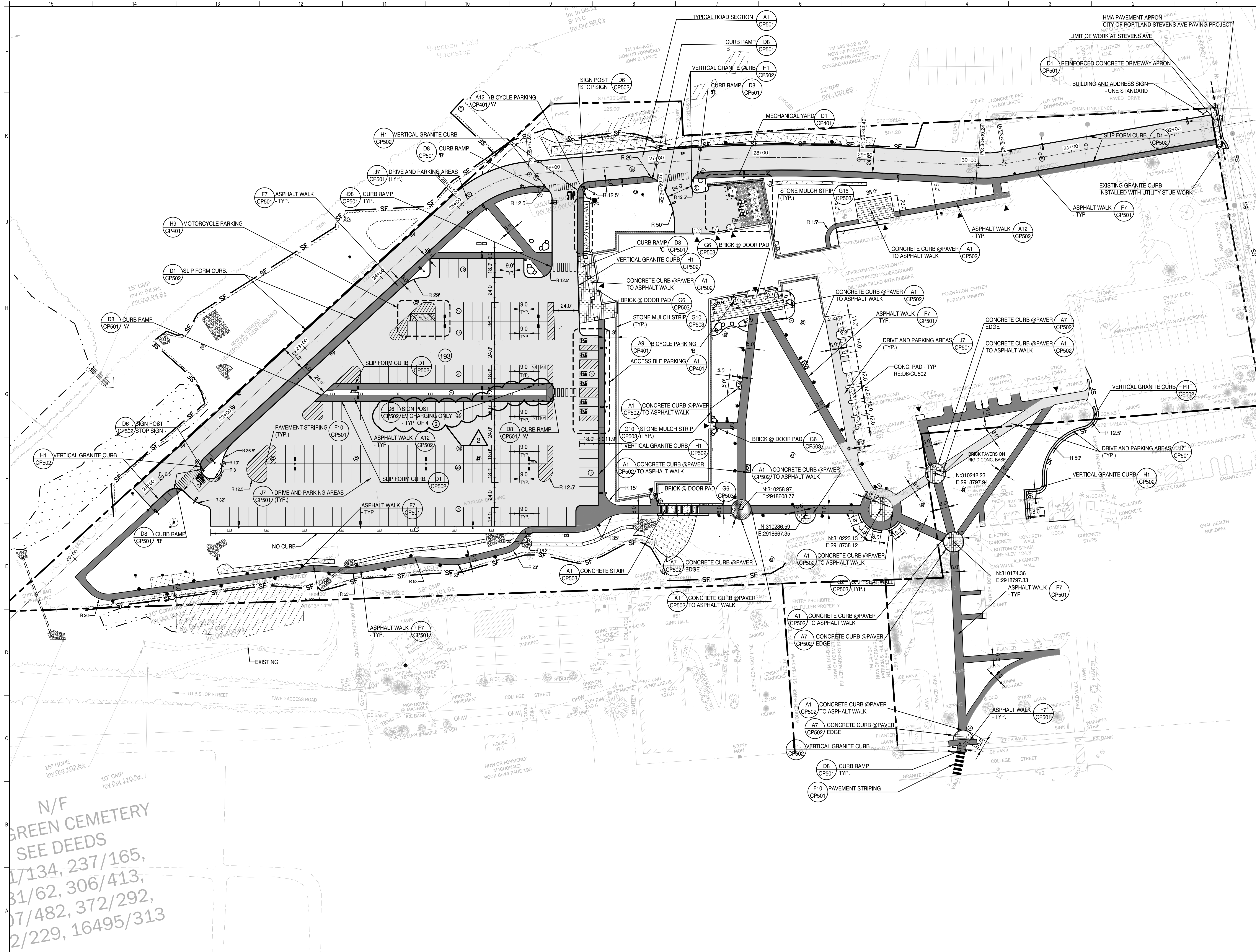
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SCALE:

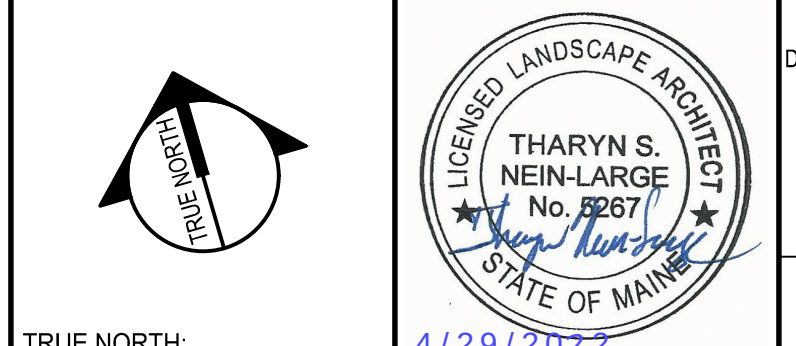
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A/E OF RECORD:	TNL		
JOB CAPTAIN:	ECC		
DRAWN BY:	TNL		
SMRT FILE:	C-001-21004	SHEET No.	C-001

NOT FOR CONSTRUCTION



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0	ISSUED FOR MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022
REV	DESCRIPTION	DATE

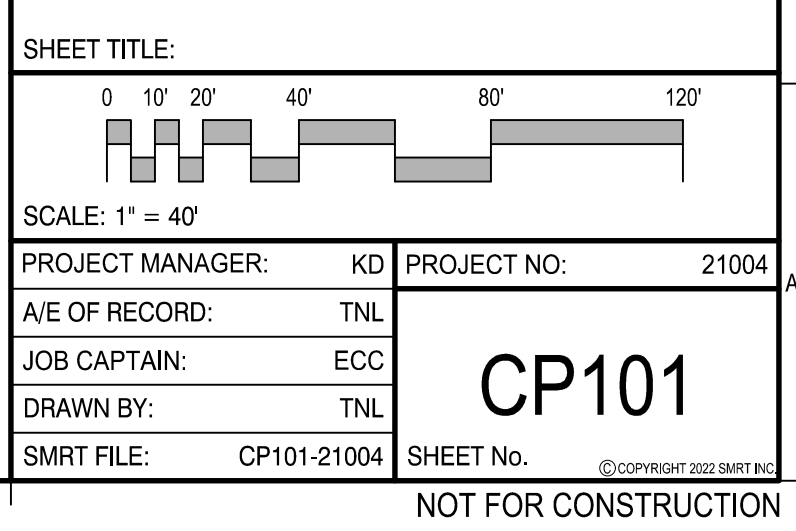
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CURRENT ISSUE STATUS:

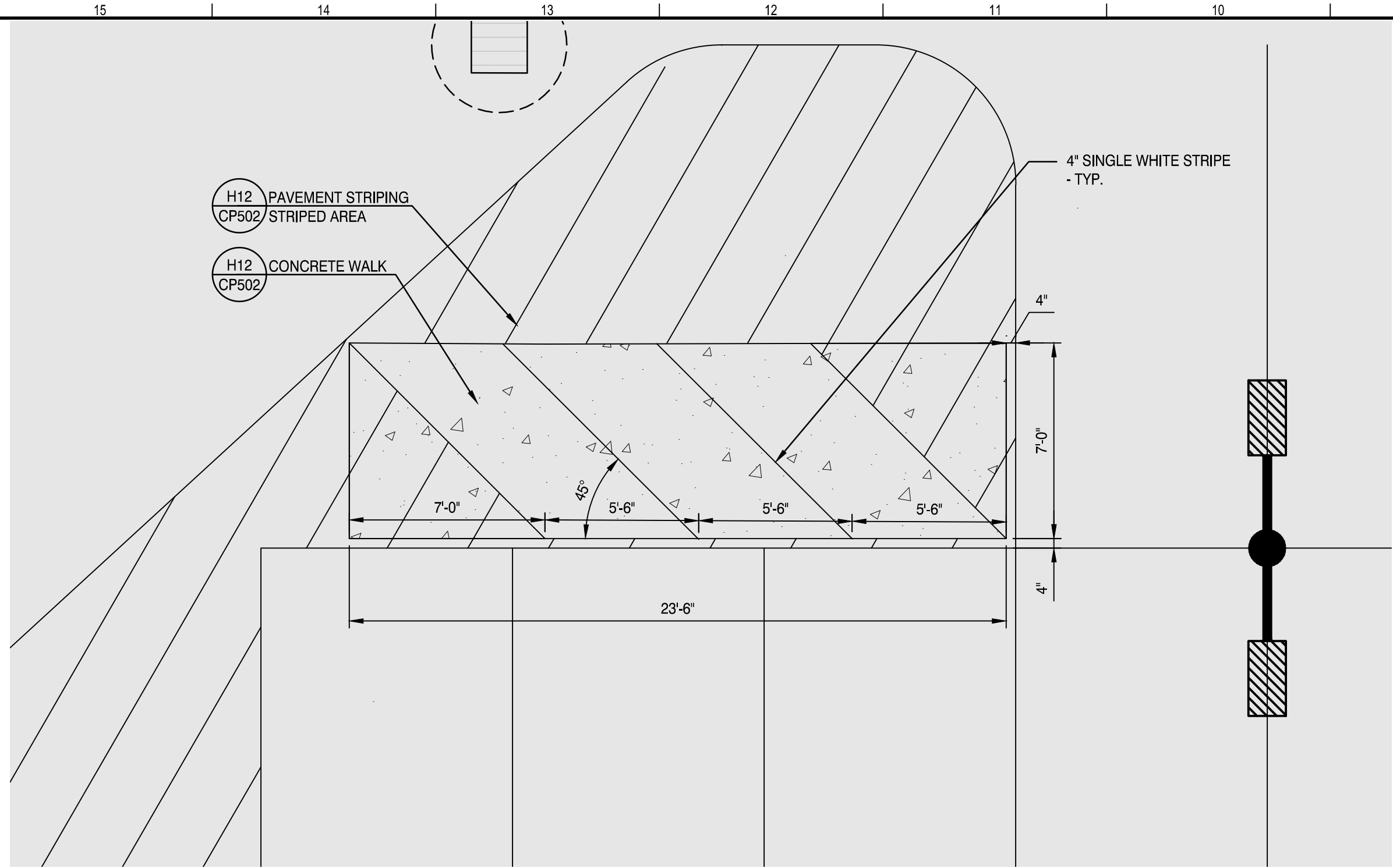


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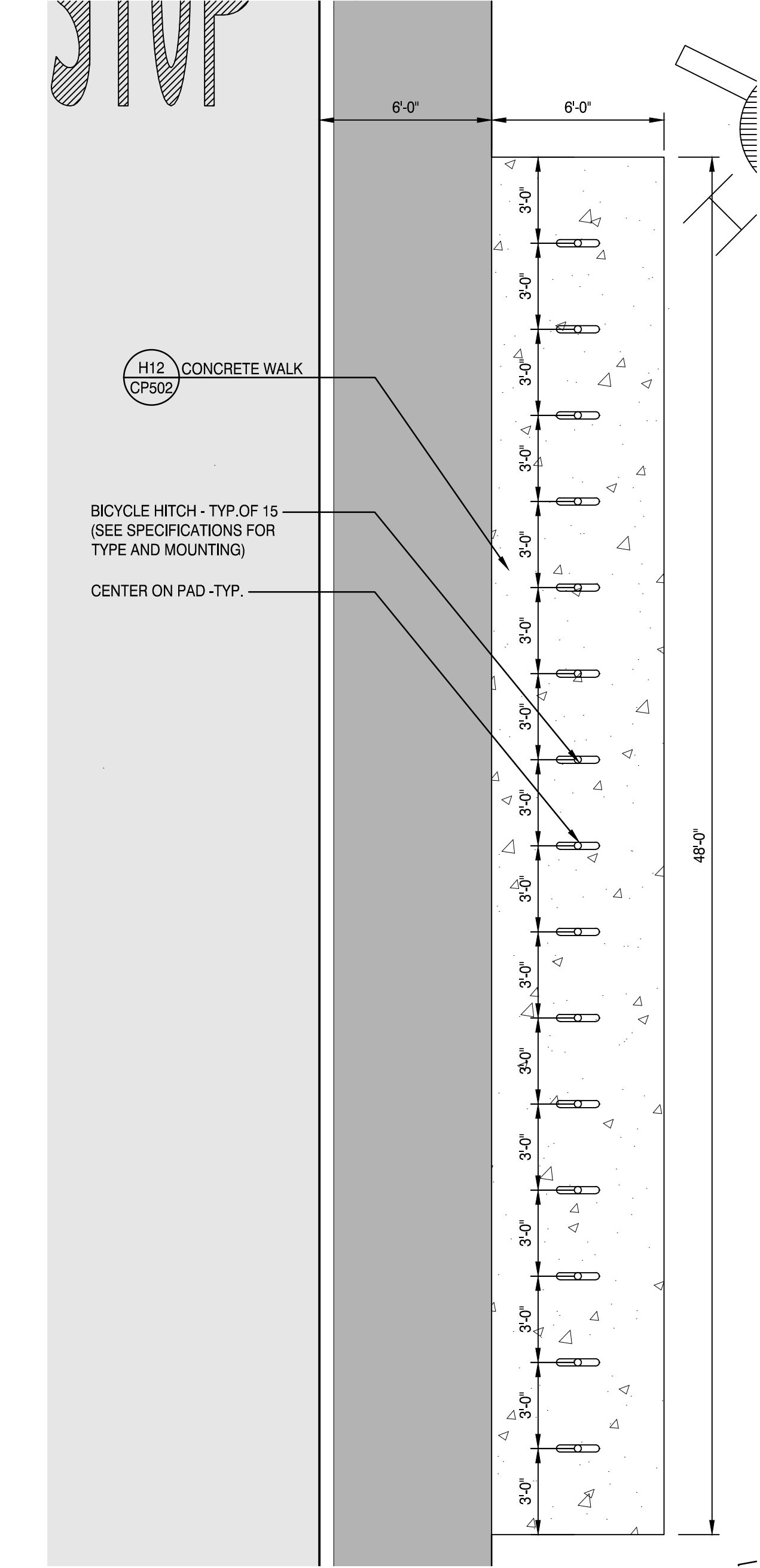
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 LAYOUT & MATERIALS PLAN

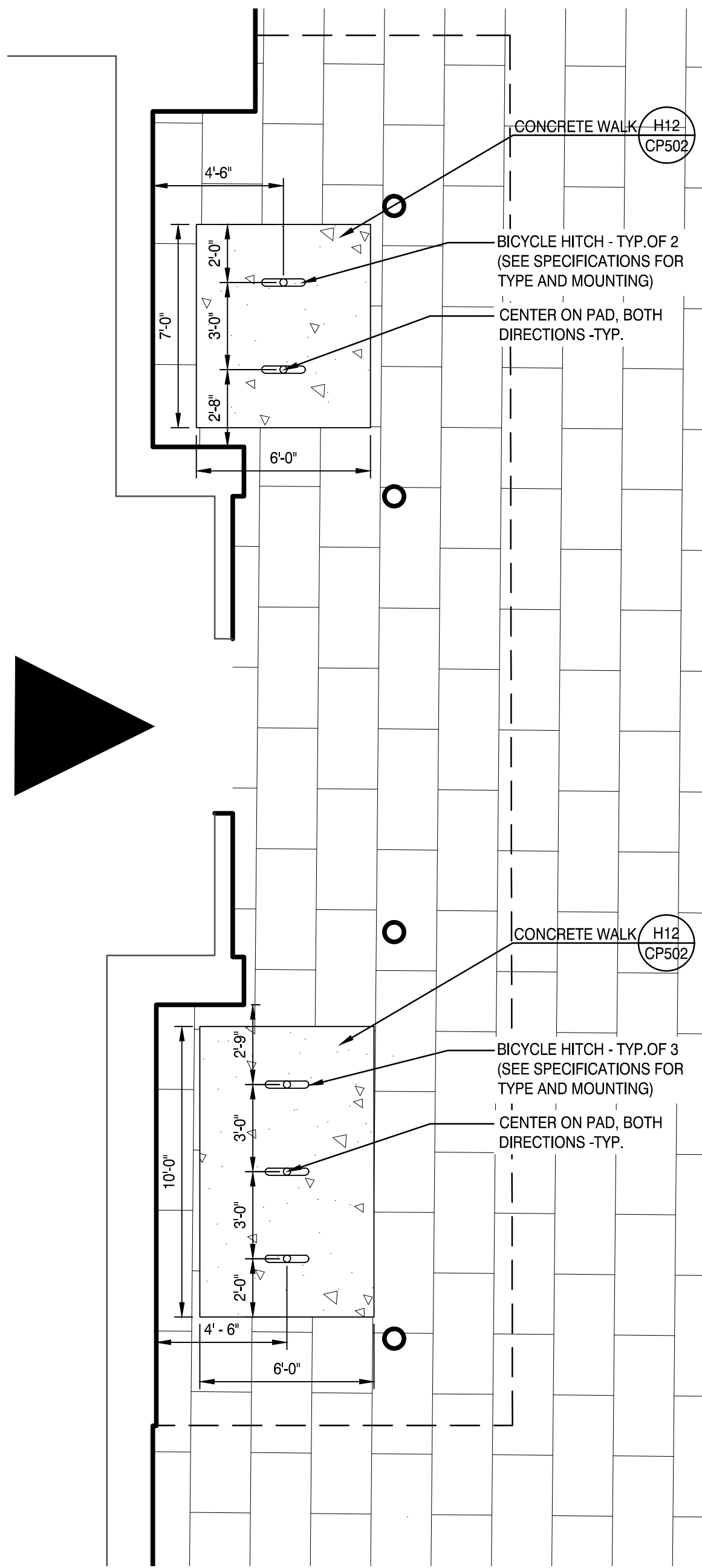




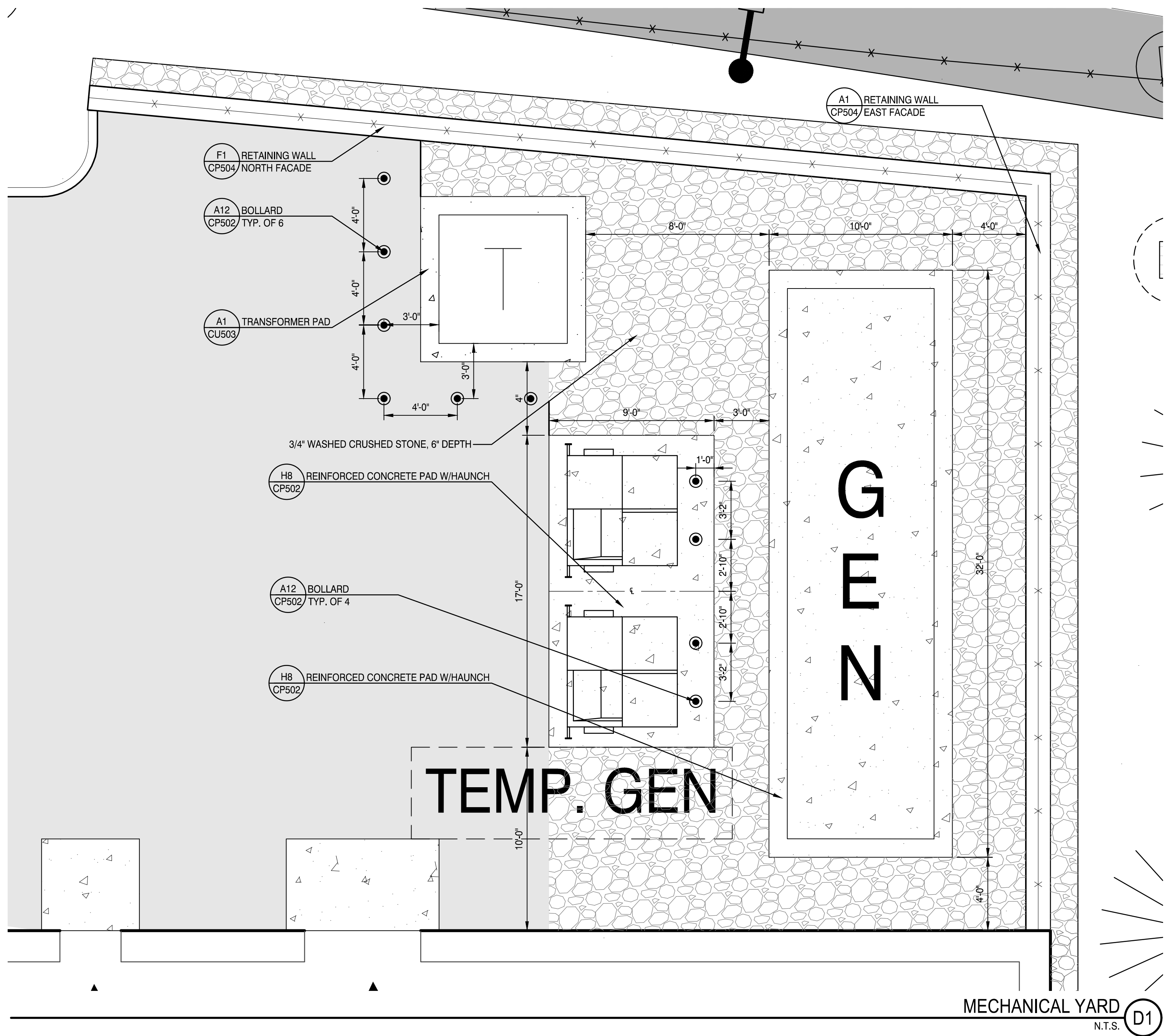
MOTORCYCLE PARKING H9
N.T.S.



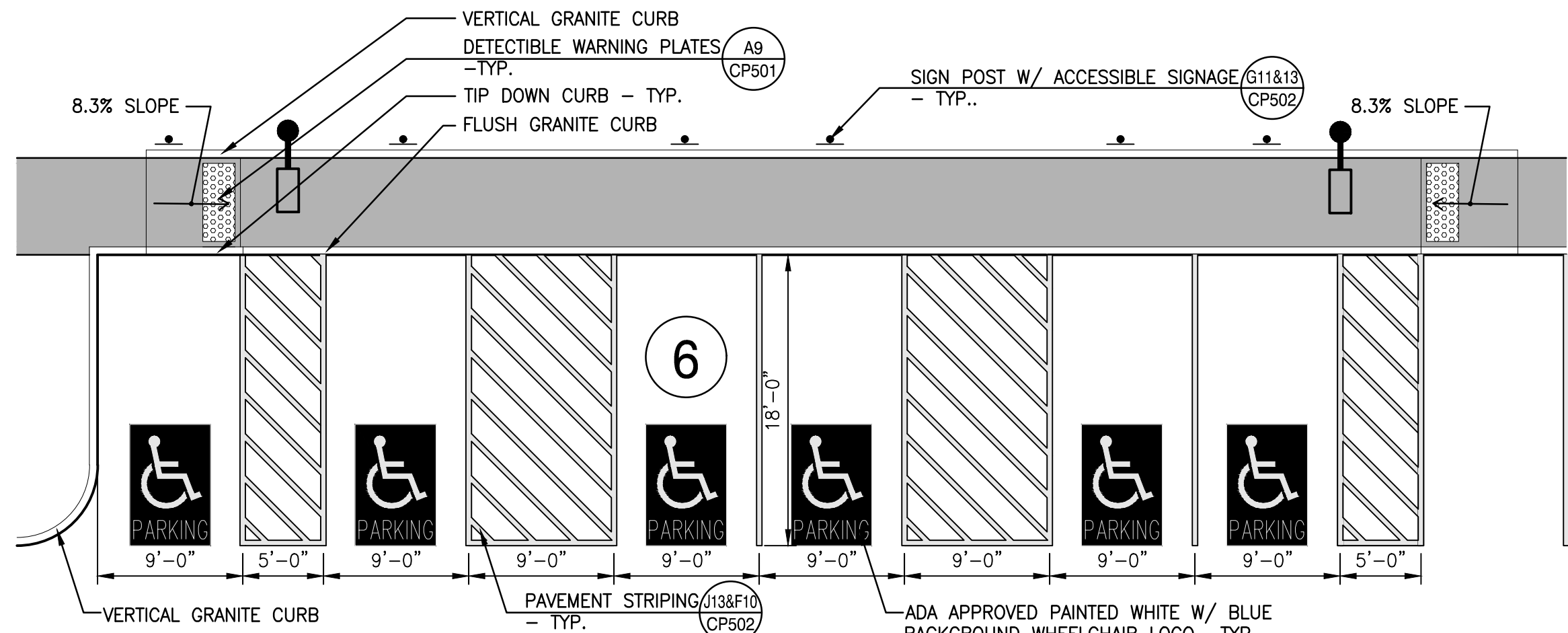
BICYCLE PARKING 'A' A12
N.T.S.



BICYCLE PARKING 'B' A9
N.T.S.



MECHANICAL YARD D1
N.T.S.

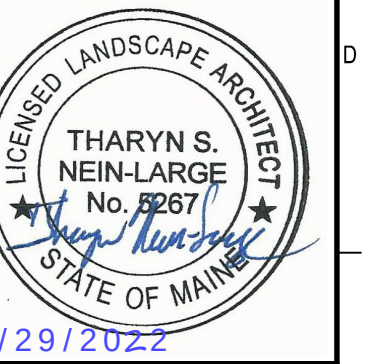


NOTE: ACCESSIBLE PARKING AREA SHALL NOT EXCEED 2% SLOPE IN ANY DIRECTION

ACCESSIBLE PARKING A1
N.T.S.

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SITE LAYOUT & MATERIALS
ENLARGEMENTS

SHEET TITLE:	0
SCALE: AS SHOWN	
PROJECT MANAGER: KD	PROJECT NO: 21004
A/E OF RECORD: TNL	
JOB CAPTAIN: ECC	
DRAWN BY: TNL	
SMRT FILE: CP401-21004	SHEET No. CP401

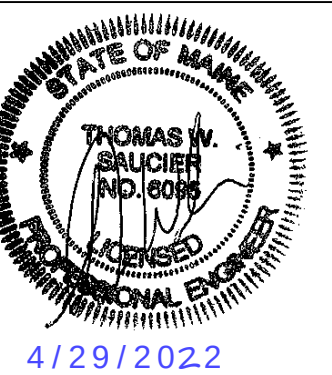
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-
- A cross-sectional diagram of a road construction. The top layer is labeled "FINISH GRADE" with a hatched pattern. Below it is a layer of "1 3/4\" BITUMINOUS CONCRETE PAVEMENT - 12.5 mm HMA". The next layer is "2 1/4\" BITUMINOUS CONCRETE PAVEMENT - 19.0 mm HMA". Below that is a "3\" AGGREGATE BASE COURSE - CRUSHED MDOT 703.06 TYPE A". The next layer is "15\" AGGREGATE SUB-BASE COURSE - GRAVEL MDOT 703.06 TYPE D". The bottom layer is "COMPACTED GRAVEL BORROW (FILL)". On the left side, there is a vertical structure, possibly a curb or wall, with a hatched pattern. On the right side, there is a cross-hatched area representing a shoulder or embankment.



CURB RAMP



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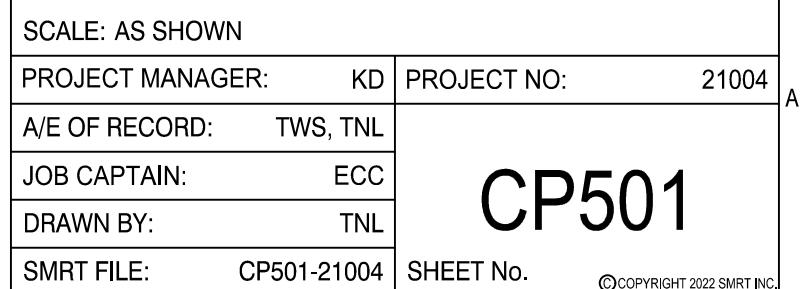
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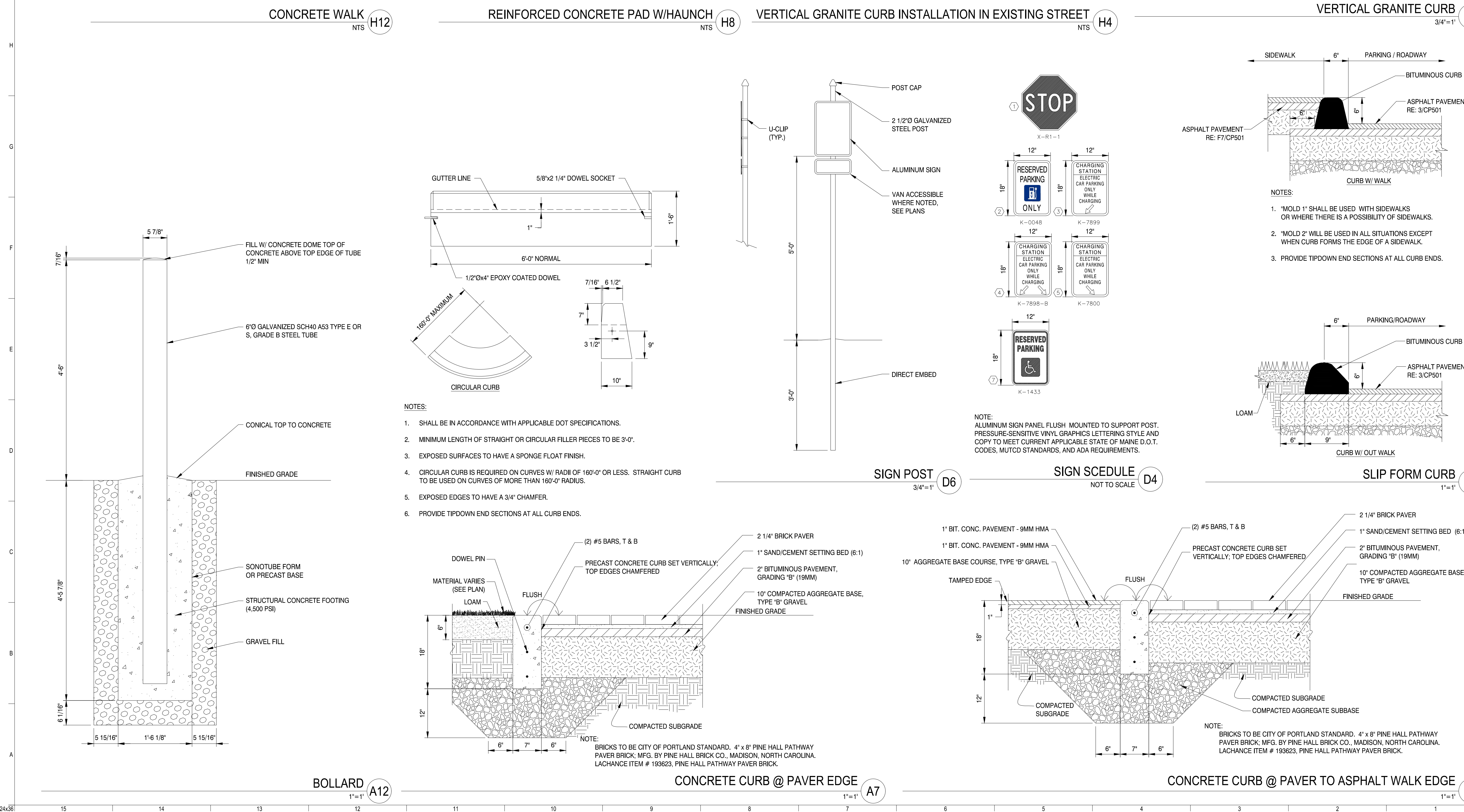
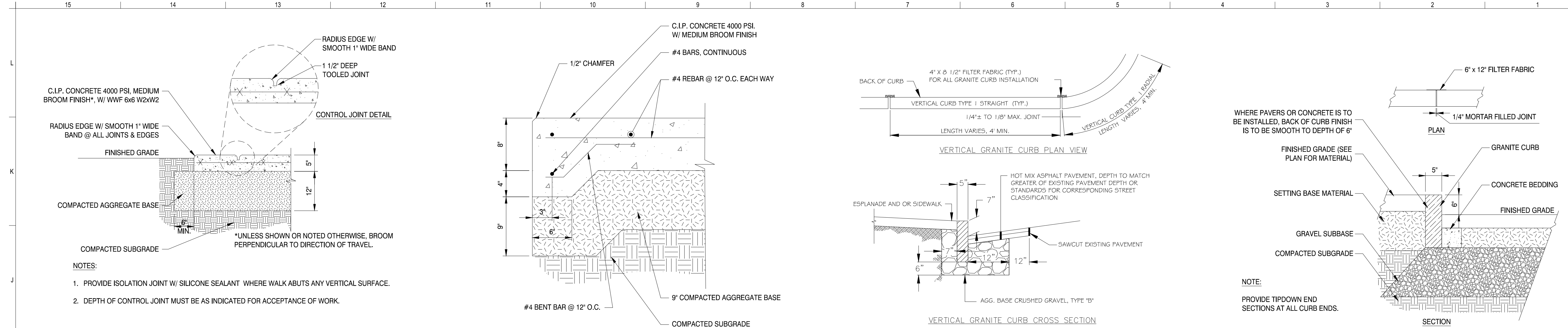
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SITE LAYOUT DETAILS

SHEET TITLE:

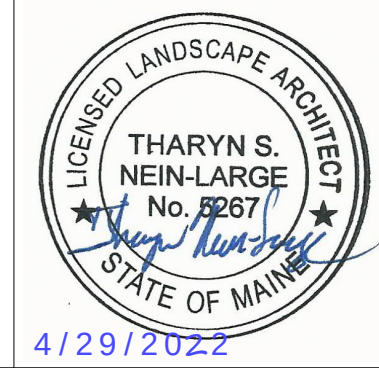




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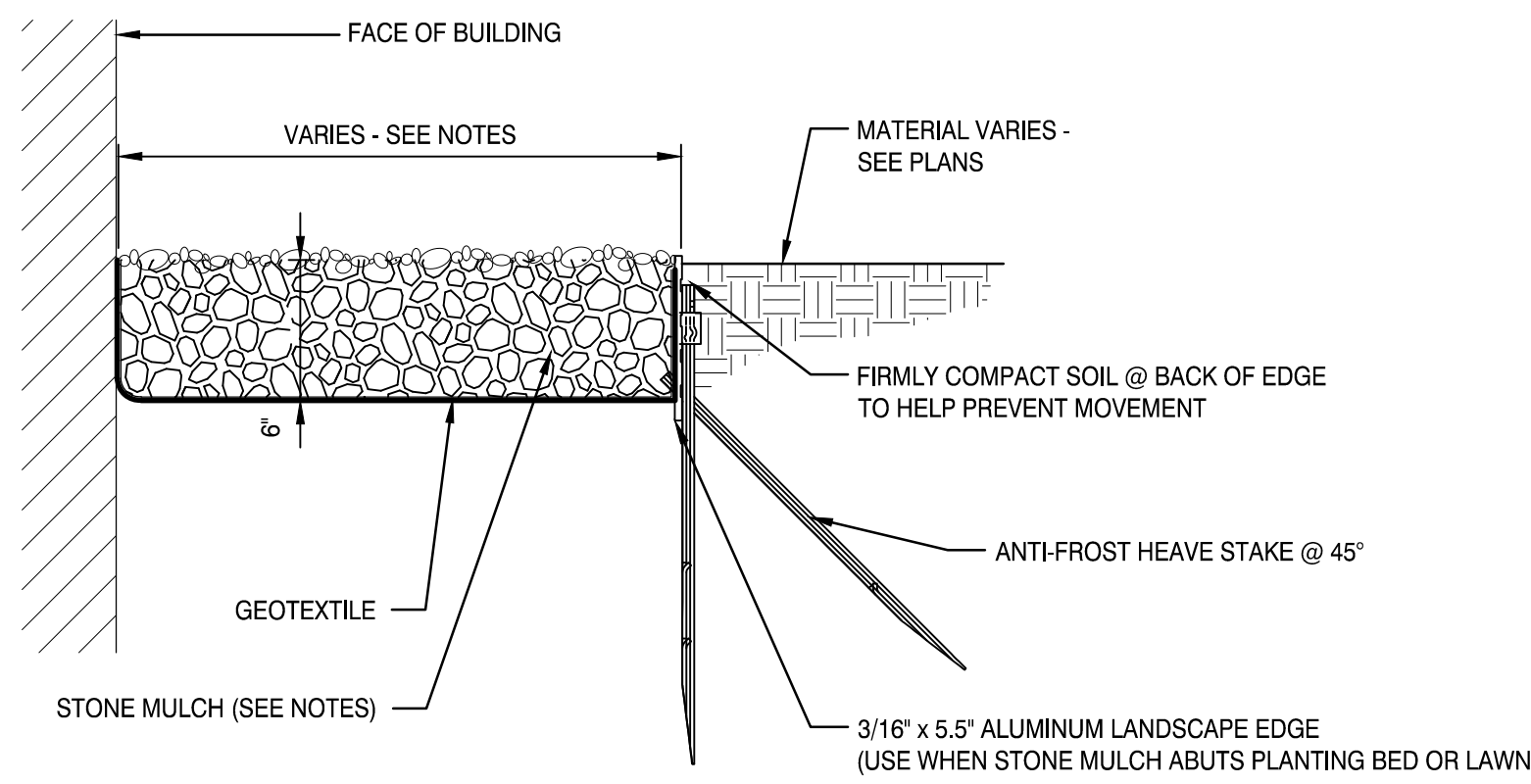
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SITE LAYOUT DETAILS

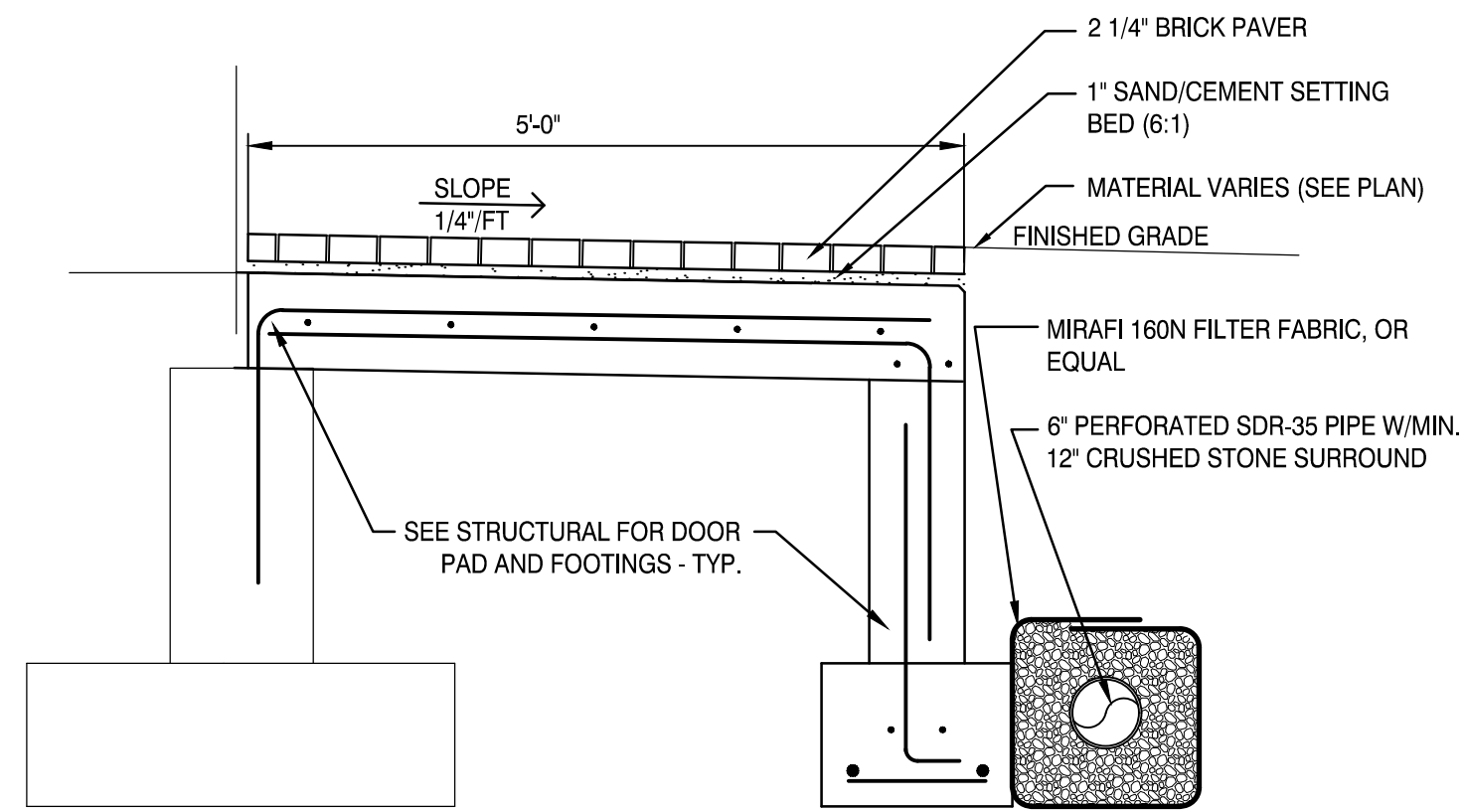
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SCALE: AS SHOWN	
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A/E OF RECORD: TNL	
JOB CAPTAIN: ECC	
DRAWN BY: TNL	
SMRT FILE: CP502-21004	SHEET NO. CP502
NOT FOR CONSTRUCTION	



NOTES:

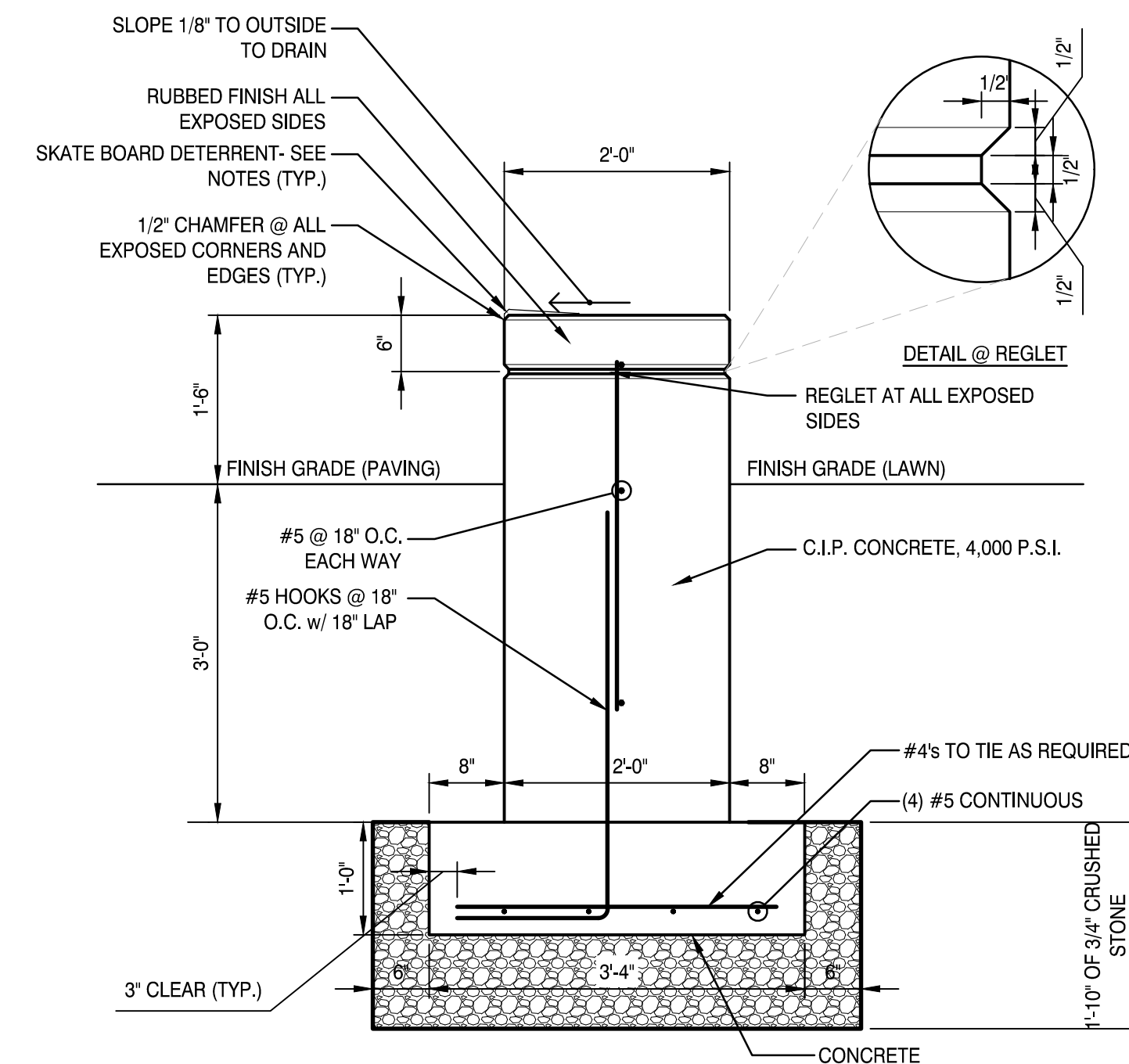
- STONE MULCH TO BE ROUNDED RIVERSTONE, 3" INCHES DIA. MAX., WASHED AND FREE OF FOREIGN OR ORGANIC MATERIALS.
- STANDARD MAINTENANCE STRIP TO BE 18" WIDE.
- STANDARD DRIP STRIP TO BE WIDTH OF BUILDING EAVE PLUS 12" UNLESS SHOWN OTHERWISE.
- EDGE TO BE BY SURE-LOC ALUMINUM EDGING CORP. OR APPROVED EQUAL.
 - MILL FINISH
 - 12" STAKES
 - ANTI-FROST HEAVE STAKE POCKETS @ 8" O.C.

STONE MULCH STRIP (1/2"=1')



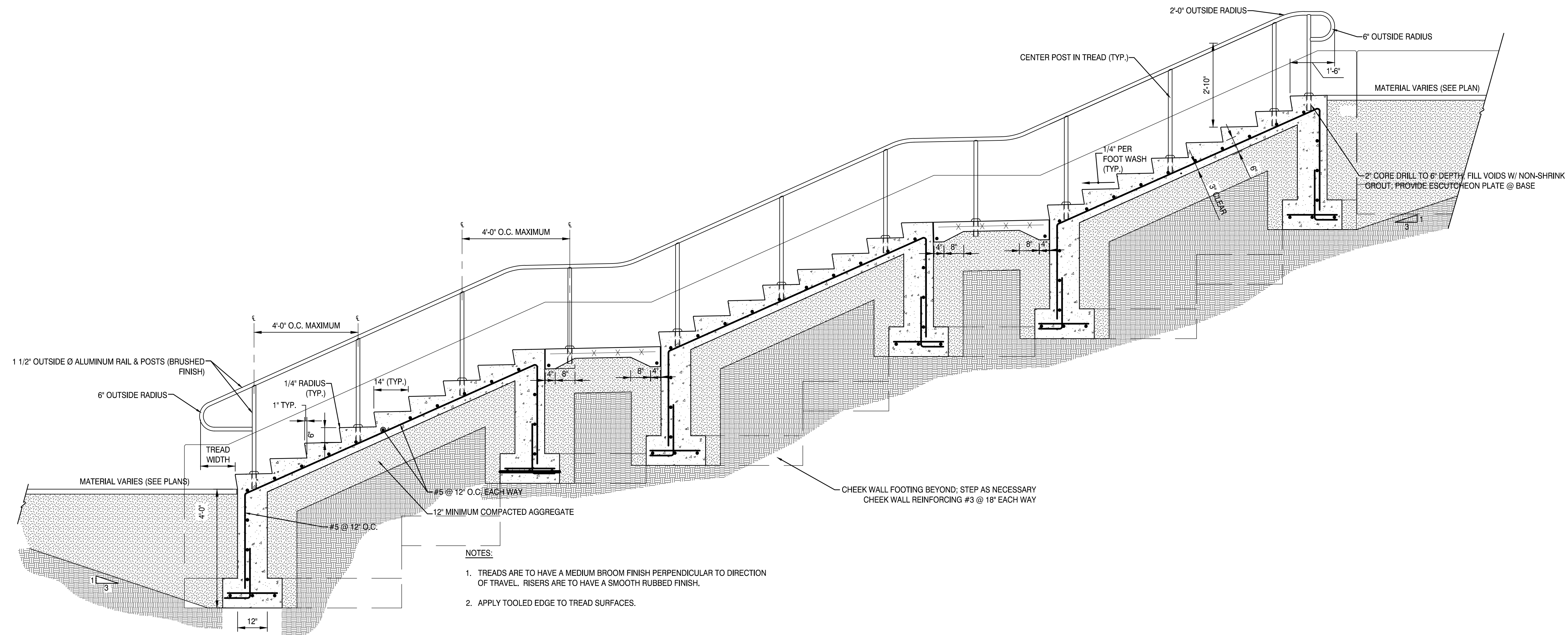
NOTE: BRICKS TO BE CITY OF PORTLAND STANDARD. 4" x 8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

BRICK @ DOOR PAD (3/4"=1')



- NOTES:
- SKATEBOARD DETERRENTS SHALL BE SURFACE MOUNTED ALUMINUM.
 - MATERIAL SHALL BE 6061-T6 ALUMINUM WITH A TYPE II HARD ANODIZED FINISH.
 - ANCHORING SHALL BE CONCEALED 'G' PIN ANCHORS WITH A TWO-PART EPOXY.
 - SPACING SHALL BE 18" ON CENTER MAXIMUM.

C.I.P. SEAT WALL (3/4"=1')



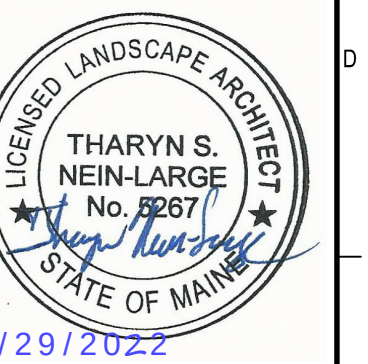
NOTES:

- TREADS ARE TO HAVE A MEDIUM BROOM FINISH PERPENDICULAR TO DIRECTION OF TRAVEL. RISERS ARE TO HAVE A SMOOTH RUBBED FINISH.
- APPLY TOOLED EDGE TO TREAD SURFACES.

CONCRETE STAIR (1/2"=1') A1

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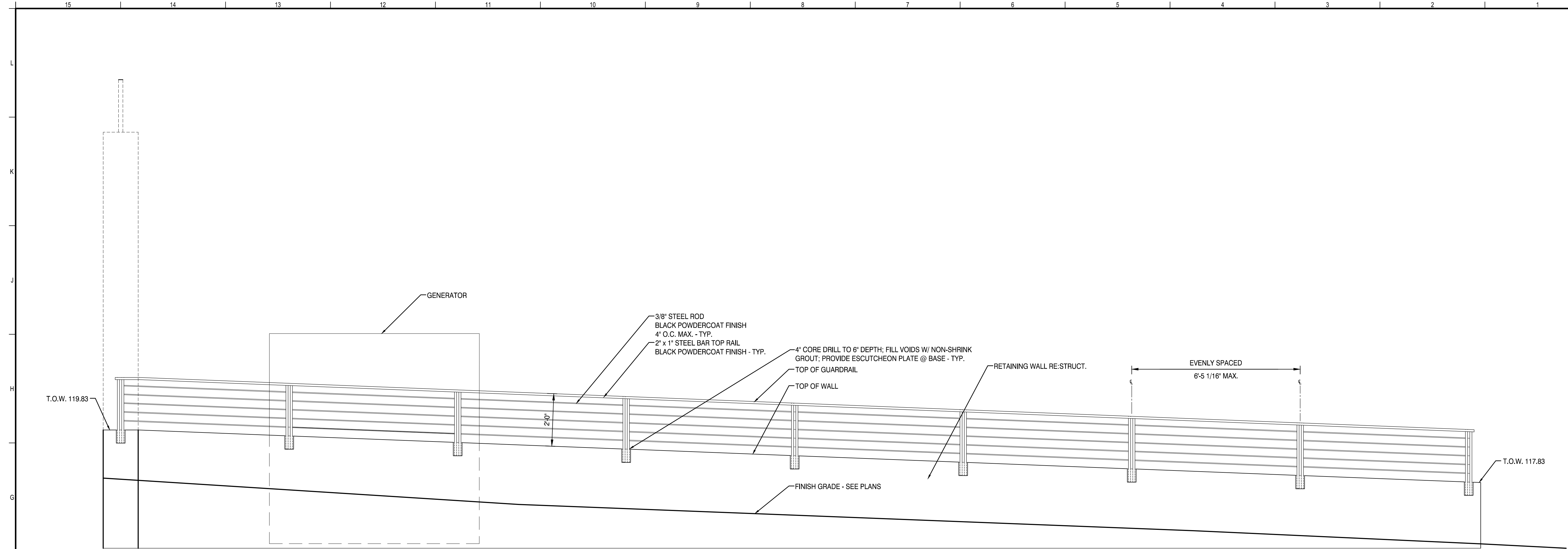


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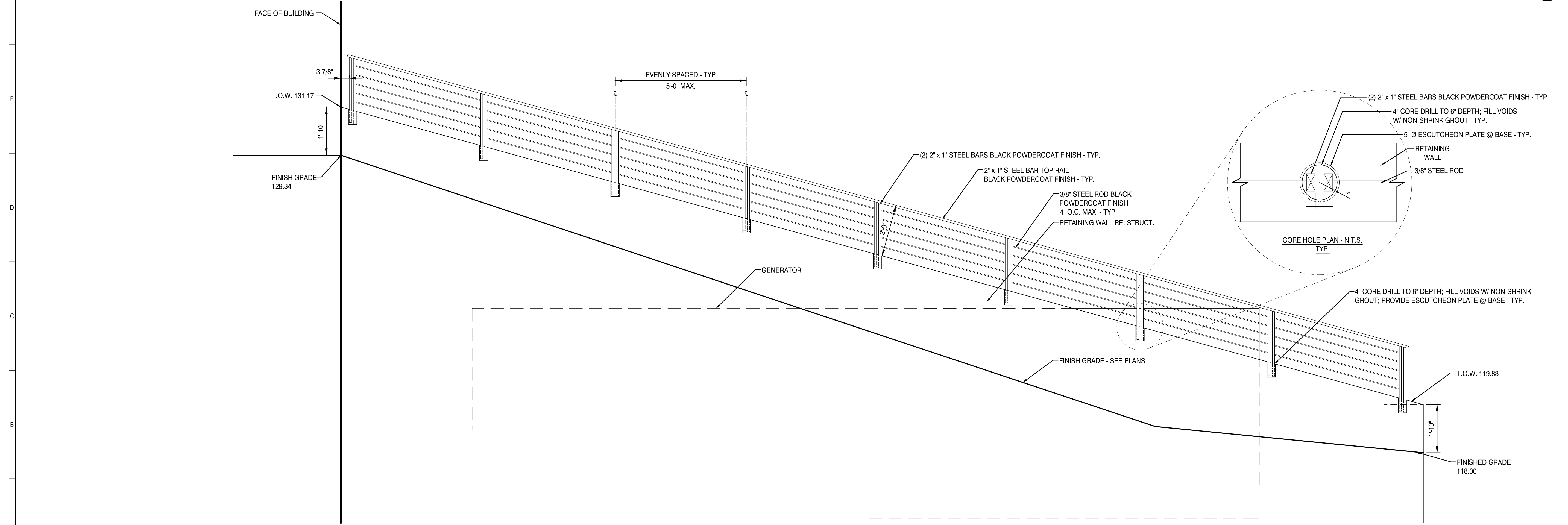
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SCALE: AS SHOWN	
PROJECT MANAGER: KD	PROJECT NO: 21004
A/E OF RECORD: TNL	
JOB CAPTAIN: ECC	
DRAWN BY: TNL	
SMRT FILE: CP503-21004	SHEET No. CP503

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NORTH FACADE

RETAINING WALL
N.T.S. (F1)



EAST FACADE

RETAINING WALL
N.T.S. (A1)

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No. 9267
4/29/2022
STATE OF MAINE

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SHEET TITLE:

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SCALE: AS SHOWN

PROJECT MANAGER: KD PROJECT NO: 21004

A/E OF RECORD: TNL

JOB CAPTAIN: ECC

DRAWN BY: TNL

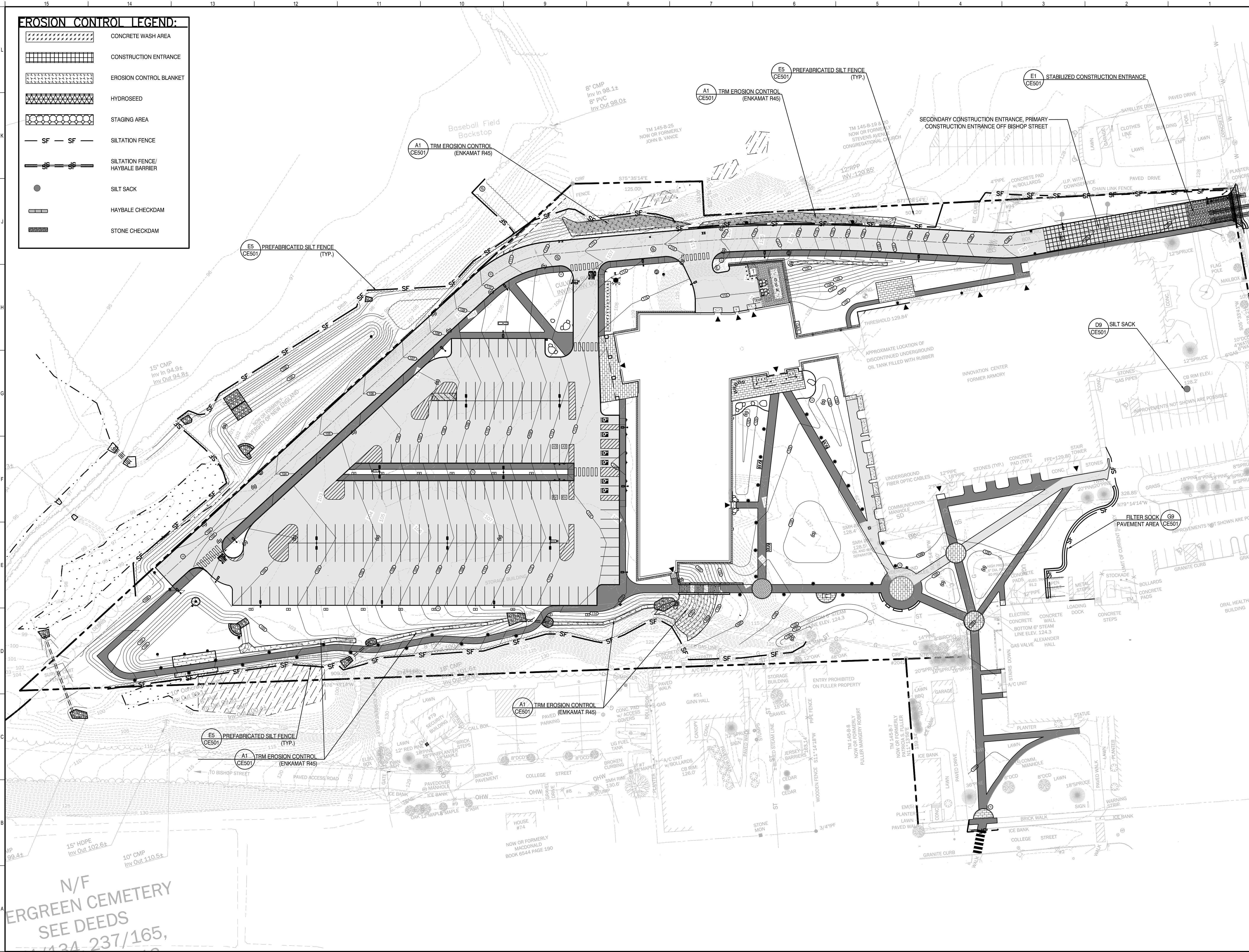
SMRT FILE: CP504-21004 SHEET NO. 1

CP504

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EROSION CONTROL LEGEND:

- CONCRETE WASH AREA
- CONSTRUCTION ENTRANCE
- EROSION CONTROL BLANKET
- HYDROSEED
- STAGING AREA
- SILTATION FENCE
- SILTATION FENCE/ HAYBALE BARRIER
- SILT SACK
- HAYBALE CHECKDAM
- STONE CHECKDAM



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THOMAS W. BAUCHER
Professional Engineer
4/29/2022

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**EROSION & SEDIMENT CONTROL
PLAN**

SHEET TITLE:

0 10' 20' 40' 80' 120'

SCALE: 1" = 40'

PROJECT MANAGER: KD PROJECT NO: 21004

A/E OF RECORD: TWS

JOB CAPTAIN: ECC

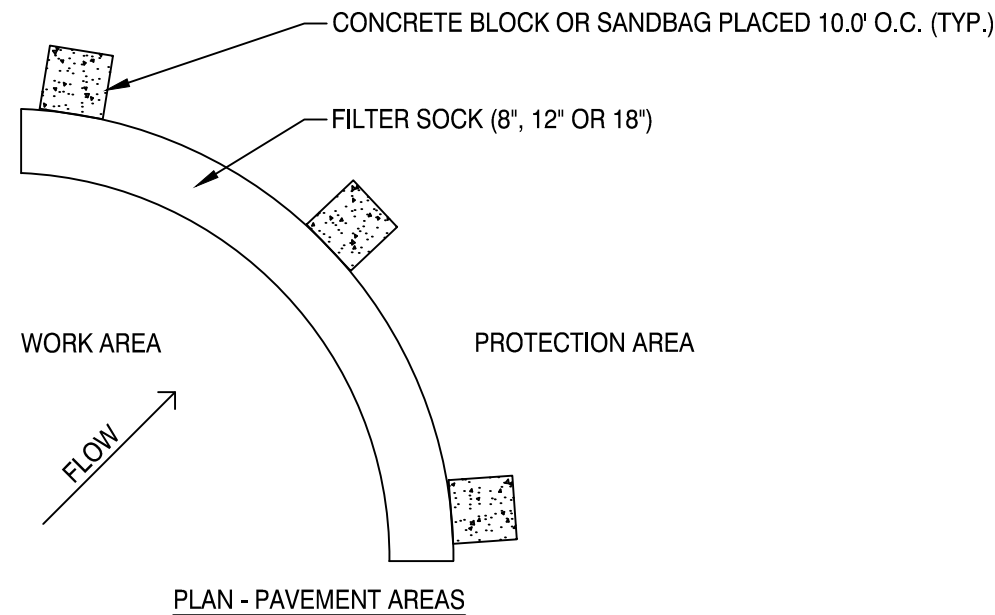
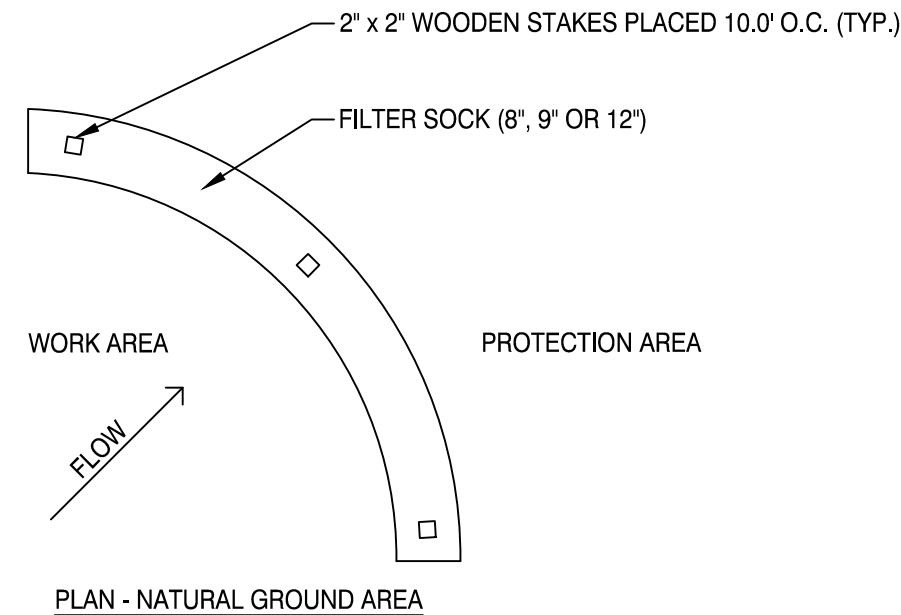
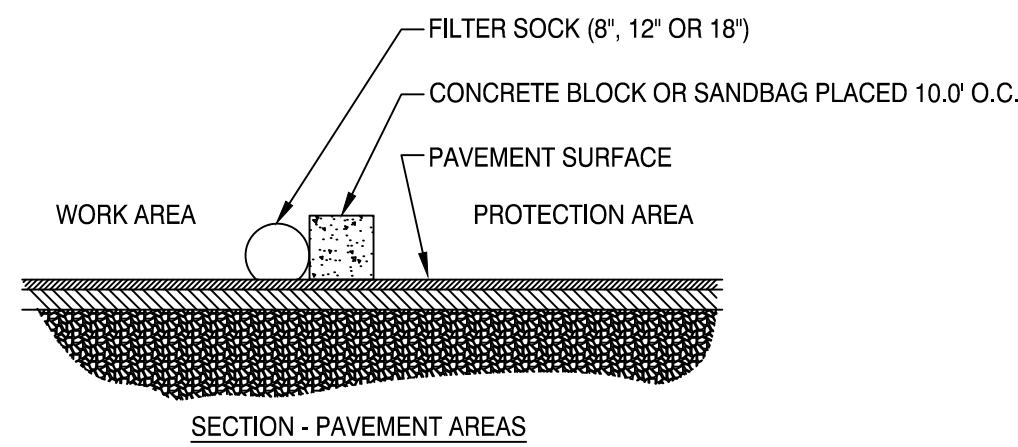
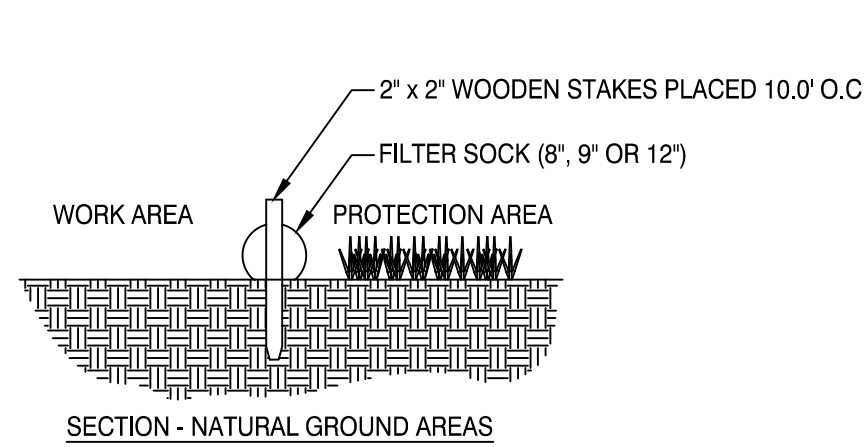
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SMRT FILE: CE101-21004 SHEET No. 1

CE101

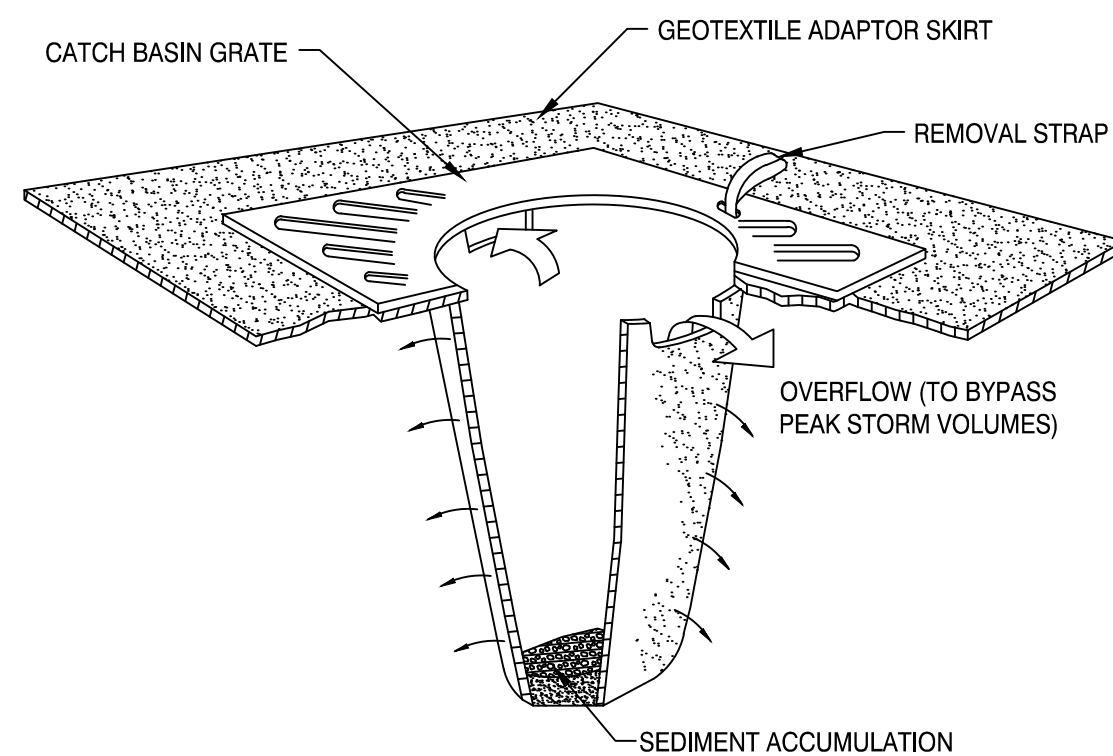
NOT FOR CONSTRUCTION

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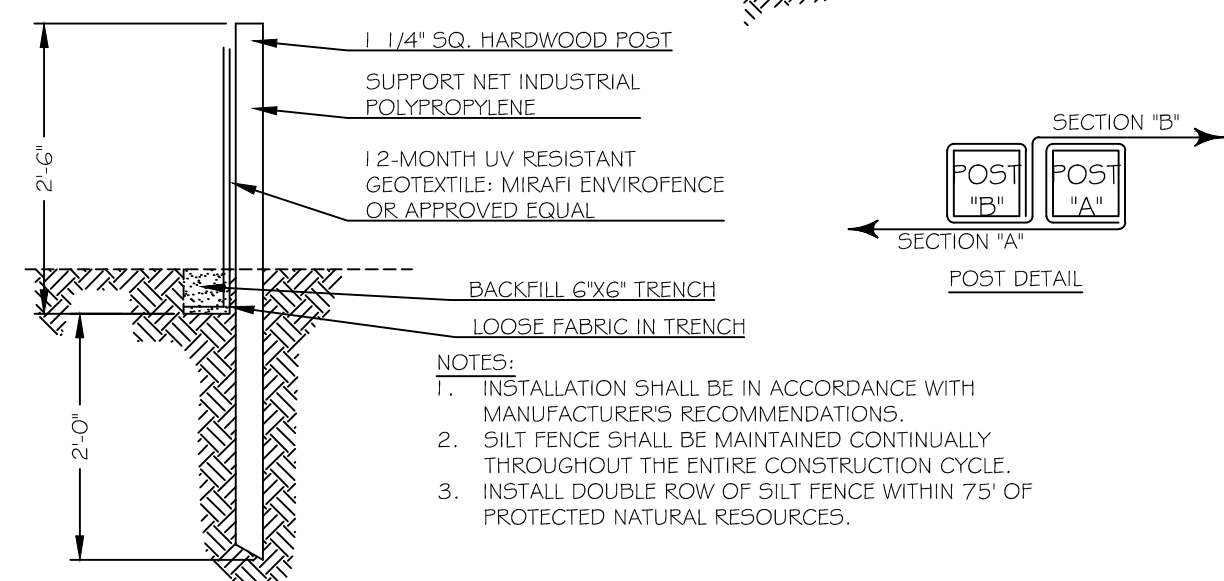
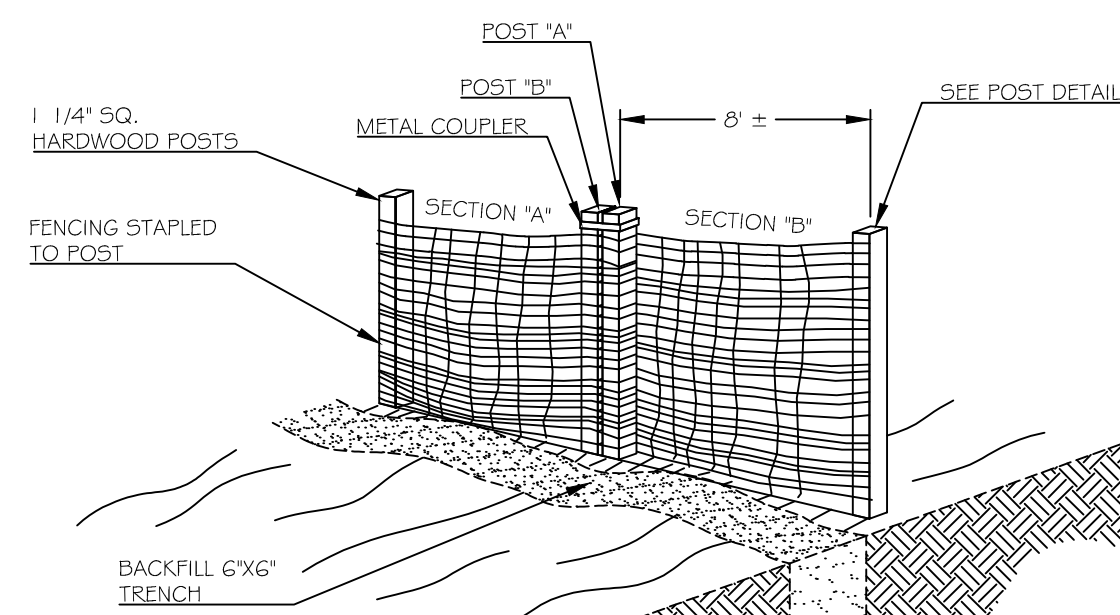
- NOTES:
1. SOCK SIZE TO BE PER MANUFACTURER'S RECOMMENDATION FOR THE APPLICATION.
 2. FILTER MATERIAL TO BE PER MANUFACTURER'S RECOMMENDATION FOR THE APPLICATION.
 3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER AFTER SITE IS PERMANENTLY STABILIZED.

FILTER SOCK G9

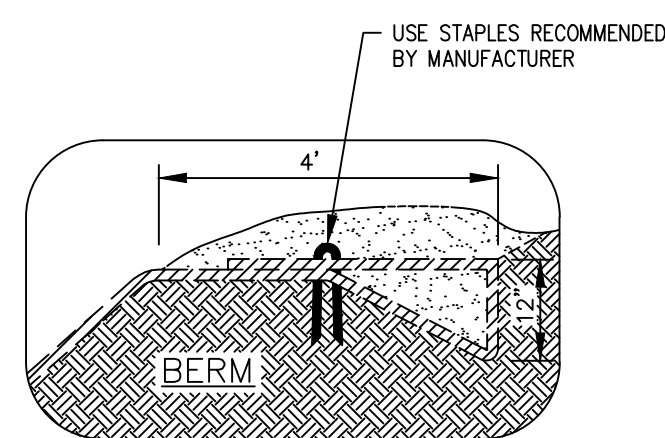


- NOTES:
1. CATCH BASIN PROTECTION TO BE "SILT SACK" (BY ACF ENVIRONMENTAL) OR "STREAM GUARD" (BY FOSS ENVIRONMENTAL SERVICES).
 2. INSERT TO BE EMPTIED IN AN APPROVED MANNER WHEN IT IS 1/2 FULL OF SEDIMENT.
 3. INSPECT INSERT AFTER ALL RAINFALL EVENTS, REPAIR AND MAINTAIN AS REQUIRED.

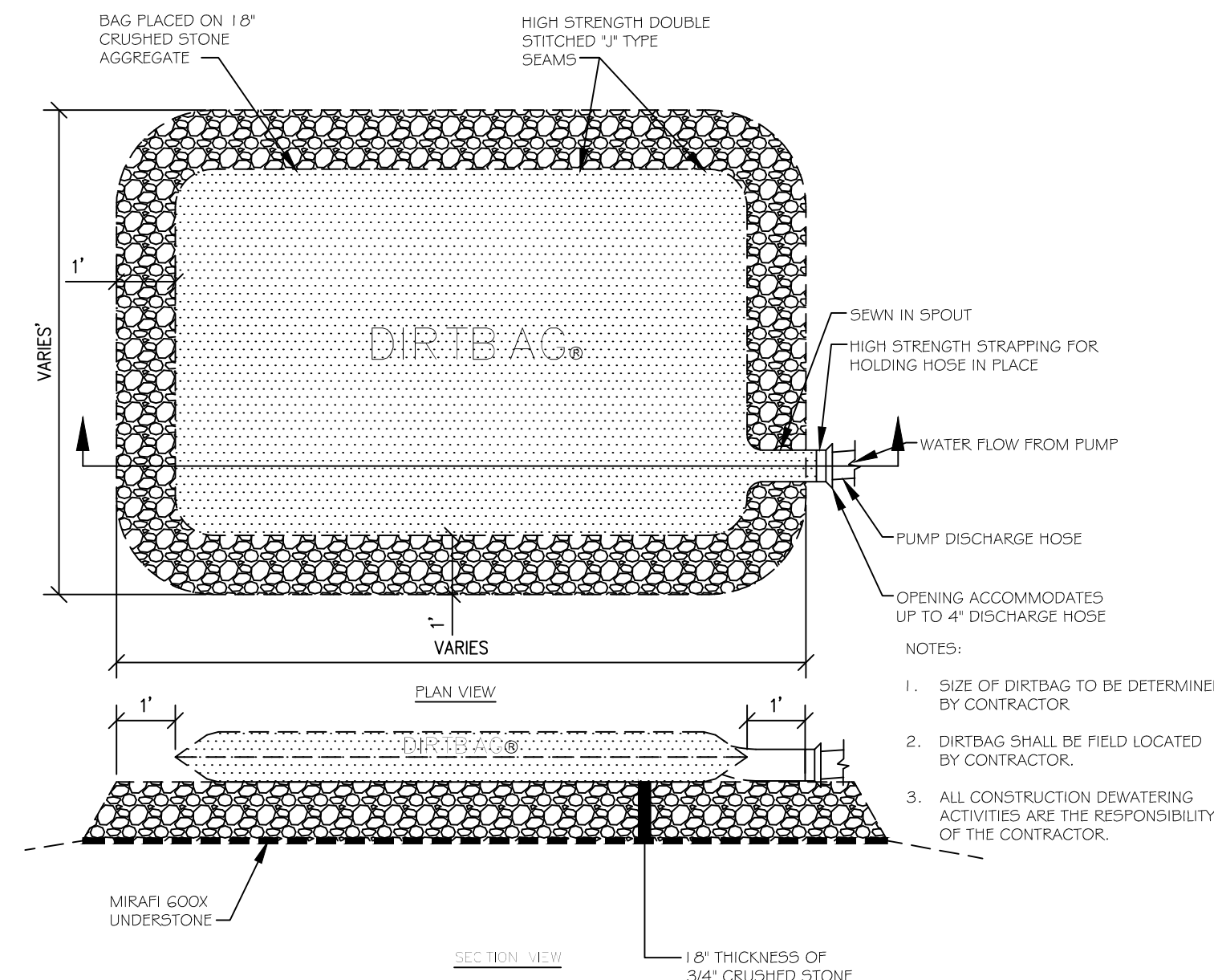
SILT SACK D9



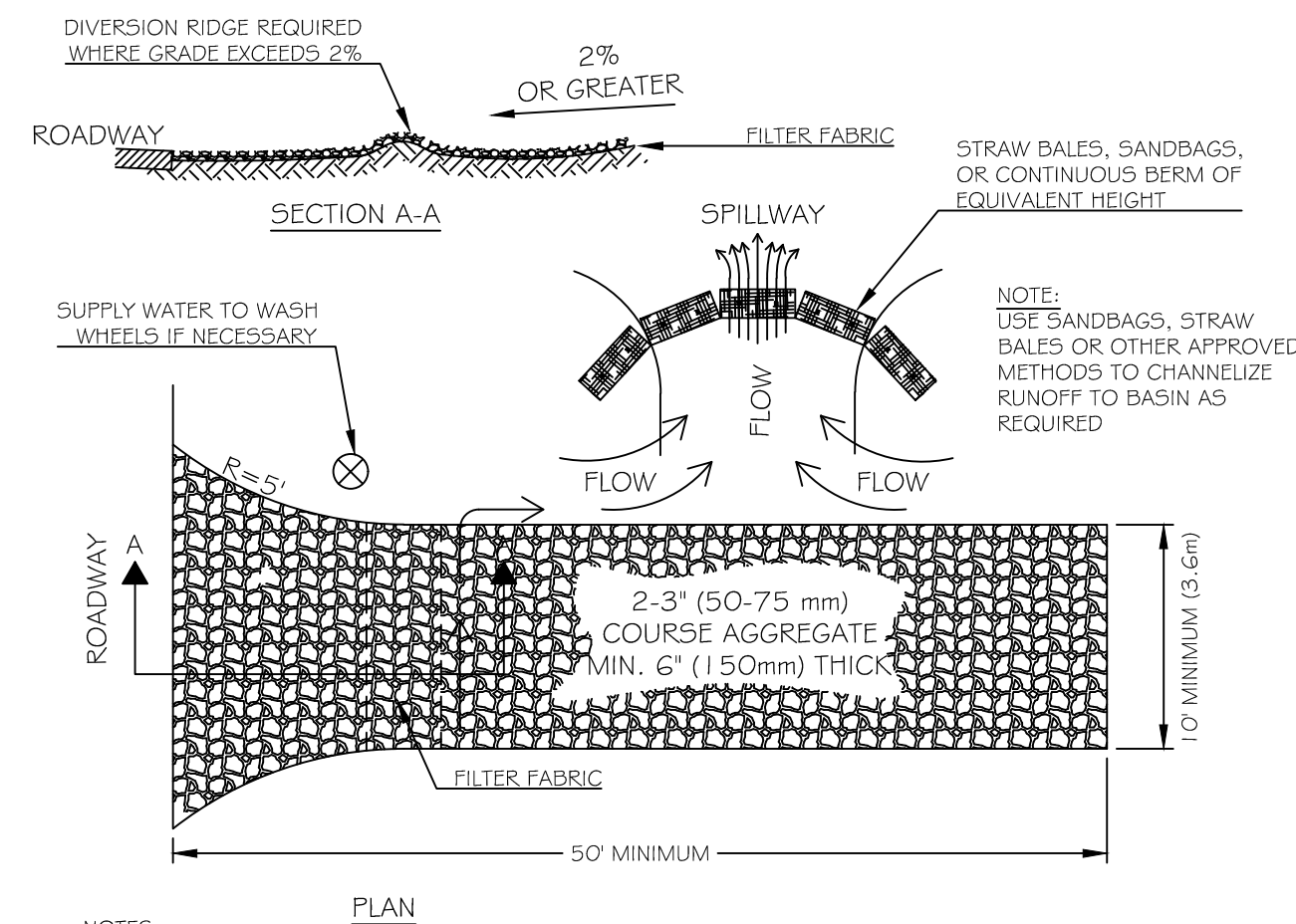
PREFABRICATED SILT FENCE E5



- INSTALLATION INSTRUCTIONS:
1. TURF REINFORCEMENT MAT (TRM) MATERIAL SHALL BE ENKAMAT R45, OR APPROVED EQUAL.
 2. EROSION CONTROL BLANKET (ECB) SHALL BE BIONET 575BN SINGLE NET STRAW BLANKET BY NORTH AMERICAN GREEN OR APPROVED EQUAL.
 3. FOR TRM INSTALLATION ONLY:
 - 3.1. APPLY 5" OF LOAM ONTO THE GROUND SURFACE.
 - 3.2. OVER TOP THE 5" OF LOAM, UNROLL MAT IN THE DIRECTION OF WATER FLOW.
 4. MAT SHOULD LIE FLAT. DO NOT STRETCH MAT OVER GROUND. STRETCHING MAY CAUSE MAT TO BRIDGE DEPRESSIONS IN THE SURFACE AND ALLOW EROSION UNDERNEATH.
 5. BURY TRANSVERSE TERMINAL ENDS OF MAT TO SECURE AND PREVENT EROSION UNDERNEATH.
 6. SECURE MAT SNUGLY INTO ALL TRANSVERSE CHECK SLOTS.
 7. BACKFILL AND COMPACT TRENCHES AND CHECK SLOTS AFTER STAKING THE MAT IN BOTTOM OF TRENCH.
 8. OVERLAP ROLL ENDS BY THREE (3) FEET (MIN.) WITH UPSLOPE MAT ON TOP TO PREVENT UPLIFT OF MAT END BY WATER FLOW. IF INSTALLING IN THE DIRECTION OF A CONCENTRATED WATER FLOW, START NEW ROLLS IN A TRANSVERSE DITCH.
 9. OVERLAP ADJACENT EDGES OF MAT BY THREE (3) INCHES (MIN.) AND STAKE.
 10. USE WOOD STAKES OR STAPLES FOR PINNING MAT TO THE GROUND SURFACE, PER MANUFACTURER'S RECOMMENDATIONS.
 11. IN ALL TRANSVERSE TERMINAL TRENCHES AND CHECK SLOTS, STAKE EACH MAT AT ITS CENTER AND OVERLAP EDGES BEFORE BACKFILLING AND COMPACTING.
 12. STAKE OVERLAPS LONGITUDINALLY AT THREE (3) TO FIVE (5) FOOT INTERVALS.
 13. FOR TRM ONLY: WORK ADDITIONAL 1" OF LOAM INTO THE MAT AND THEN SEED AND MULCH.

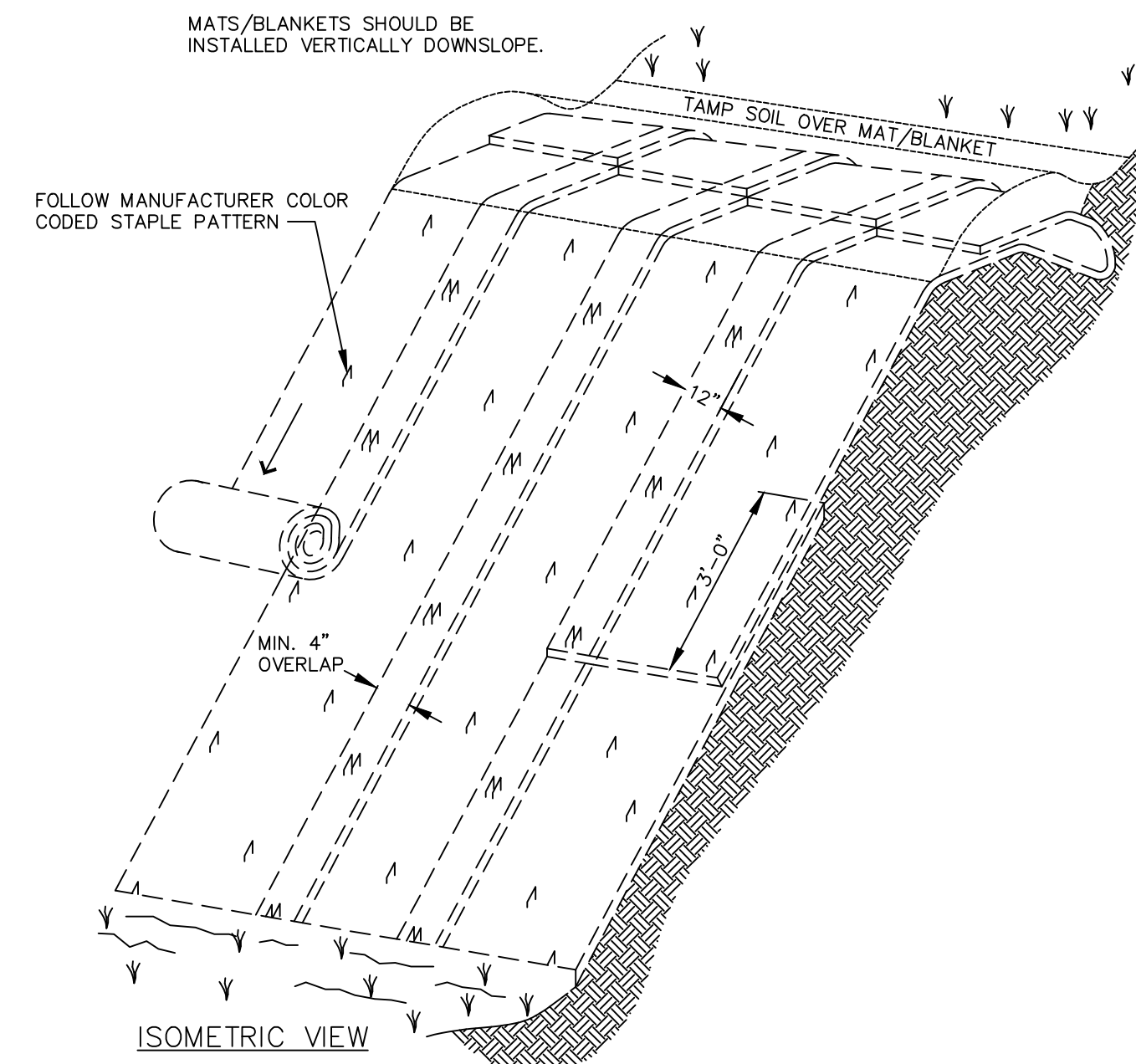


'DIRTBAG' DEWATERING H1



- 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 CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS ONTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
 4. TRACKED SEDIMENT SHALL BE REMOVED BY VACUUM SWEEPING (NOT MECHANICAL/BROOM SWEEPING) PRIOR TO THE NEXT STORM EVENT.

STABILIZED CONSTRUCTION ENTRANCE E1

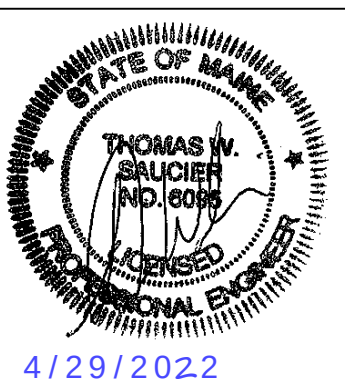


STRAW MATTING AND TRM EROSION CONTROL A1

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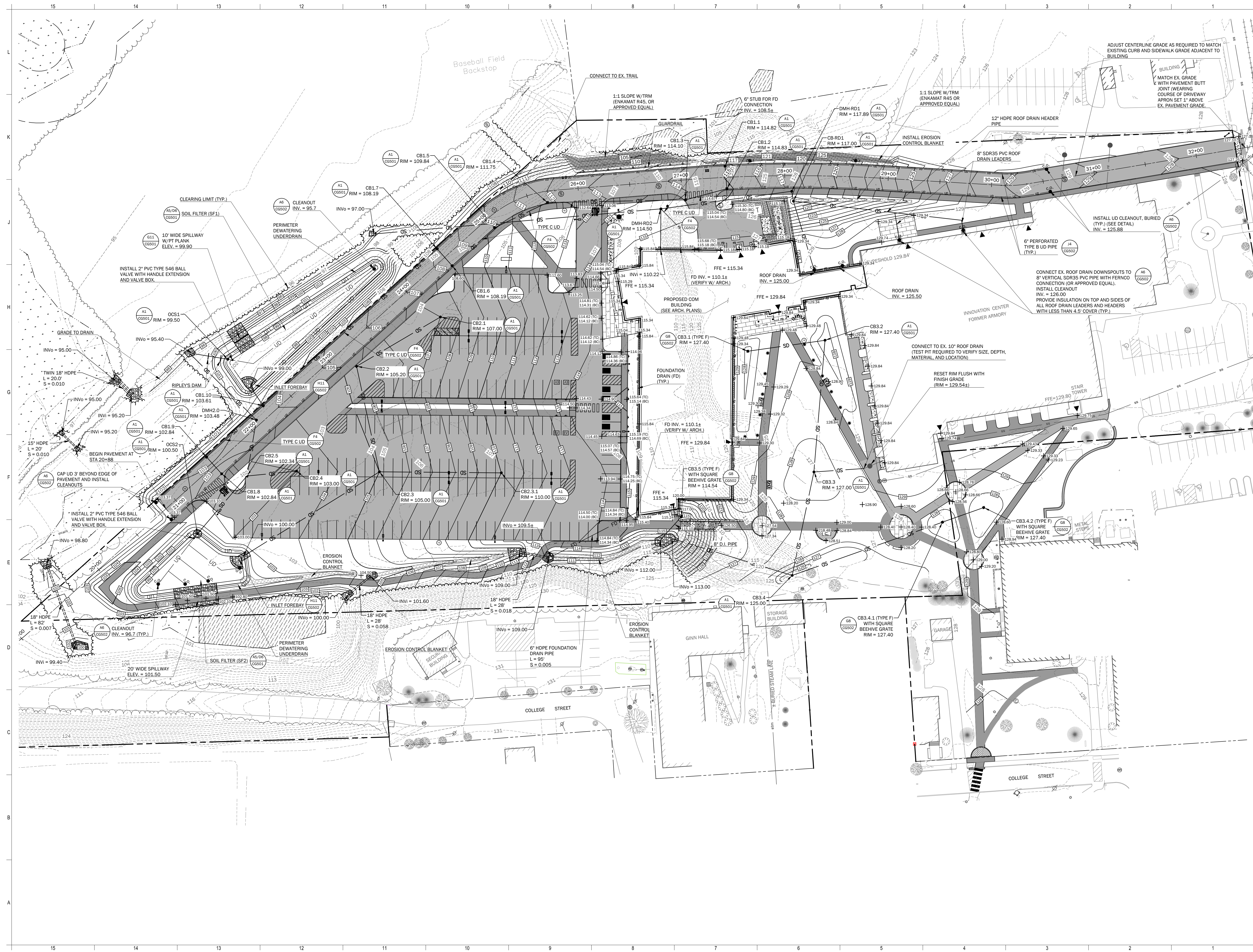
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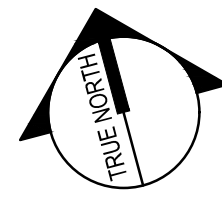
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780 STEVENS AVE, PORTLAND, ME TAX PARCEL #145 B018
EROSION & SEDIMENT CONTROL
DETAILS

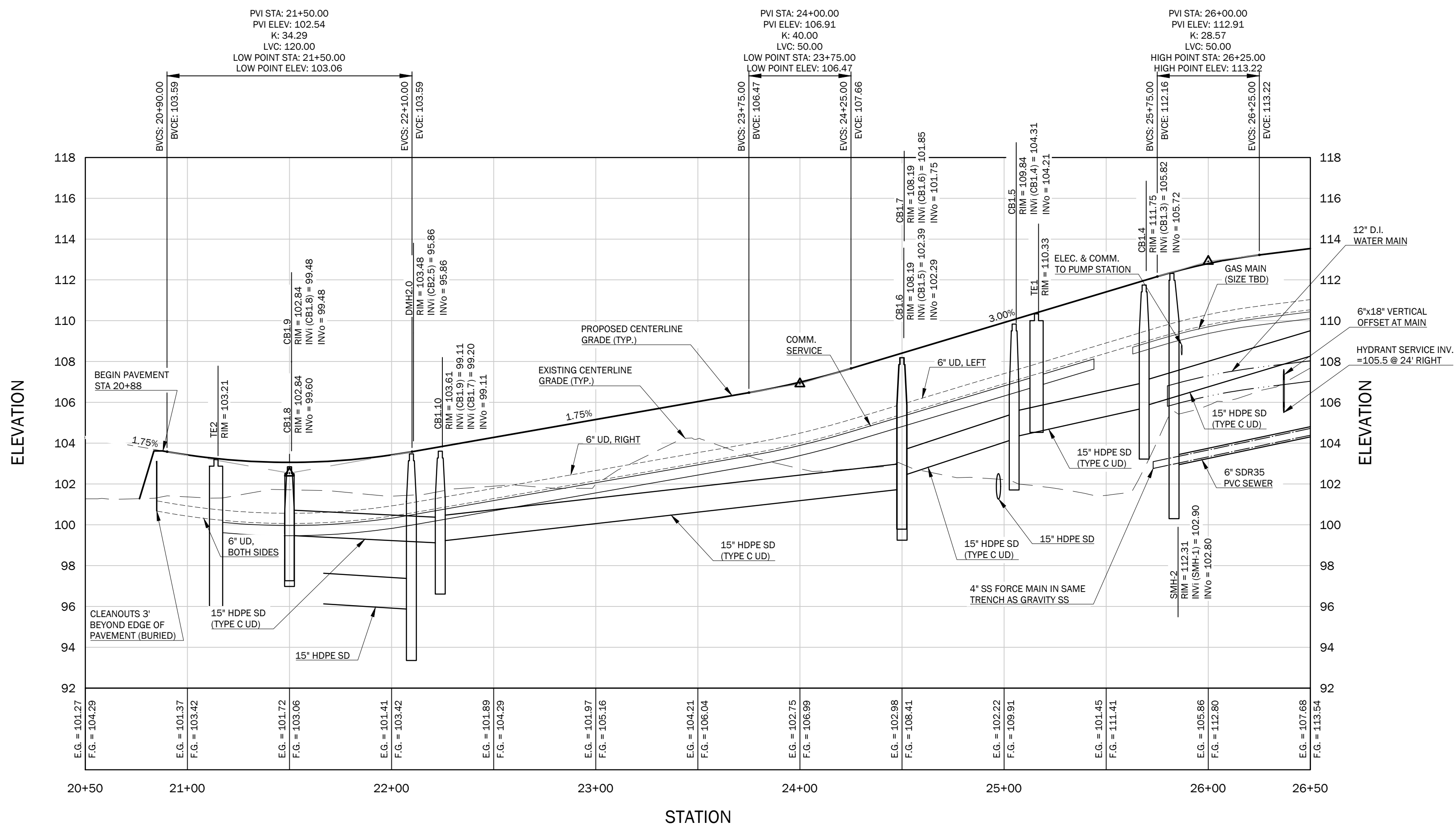
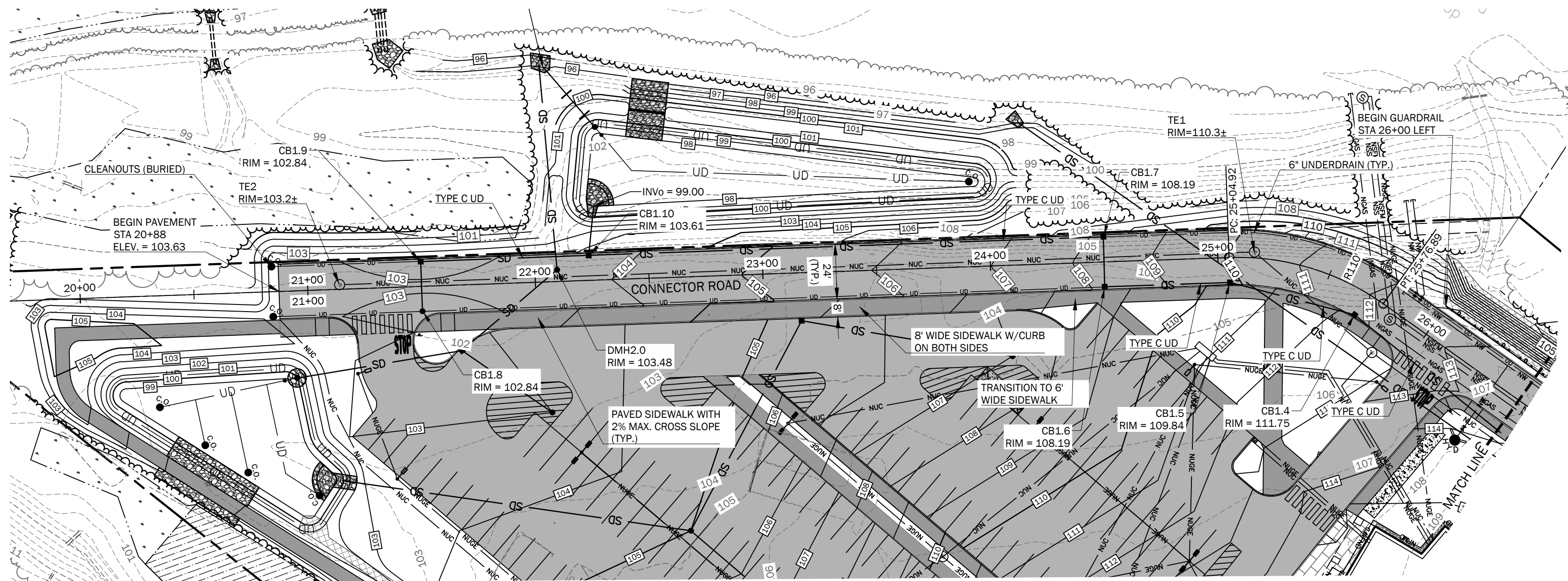
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DRAWN BY: TNL	
SMRT FILE: CE501-21004	SHEET No. CE501
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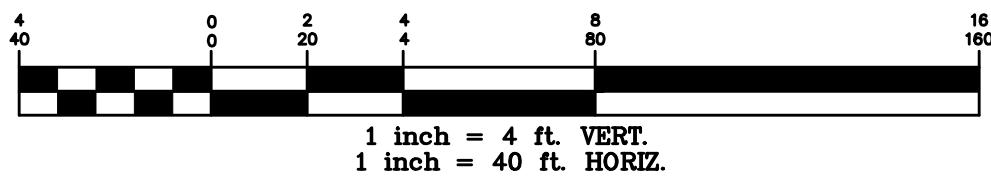


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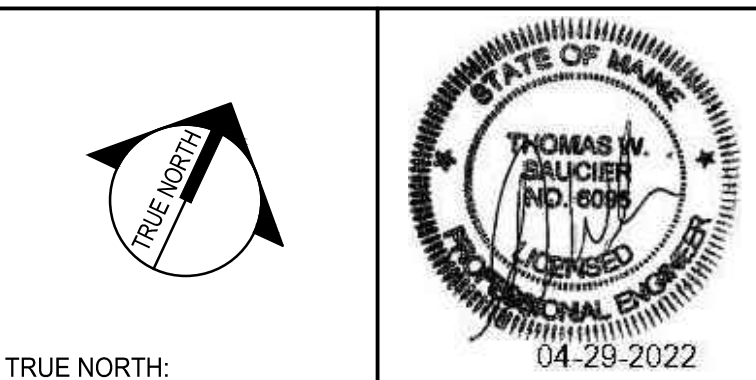
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 TRUE NORTH:		 04-29-2022
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THE HAROLD AND BIBBY ALFOND CENTER FOR HEALTH SCIENCES 780 STEVENS AVE. PORTLAND, ME		
SITE GRADING & DRAINAGE PLAN		
 SCALE: 1" = 40'		
PROJECT MANAGER: KD		PROJECT NO: 21004
A/E OF RECORD: TWS		CG101
JOB CAPTAIN: ECC		
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CONNECTOR ROAD PROFILE



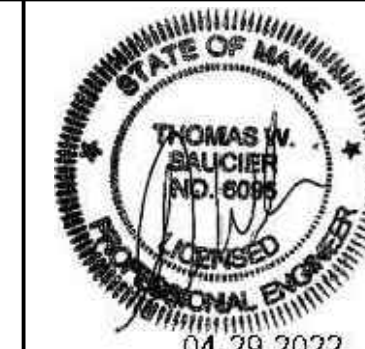
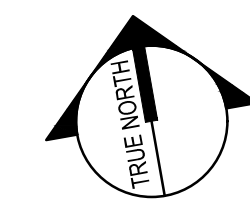
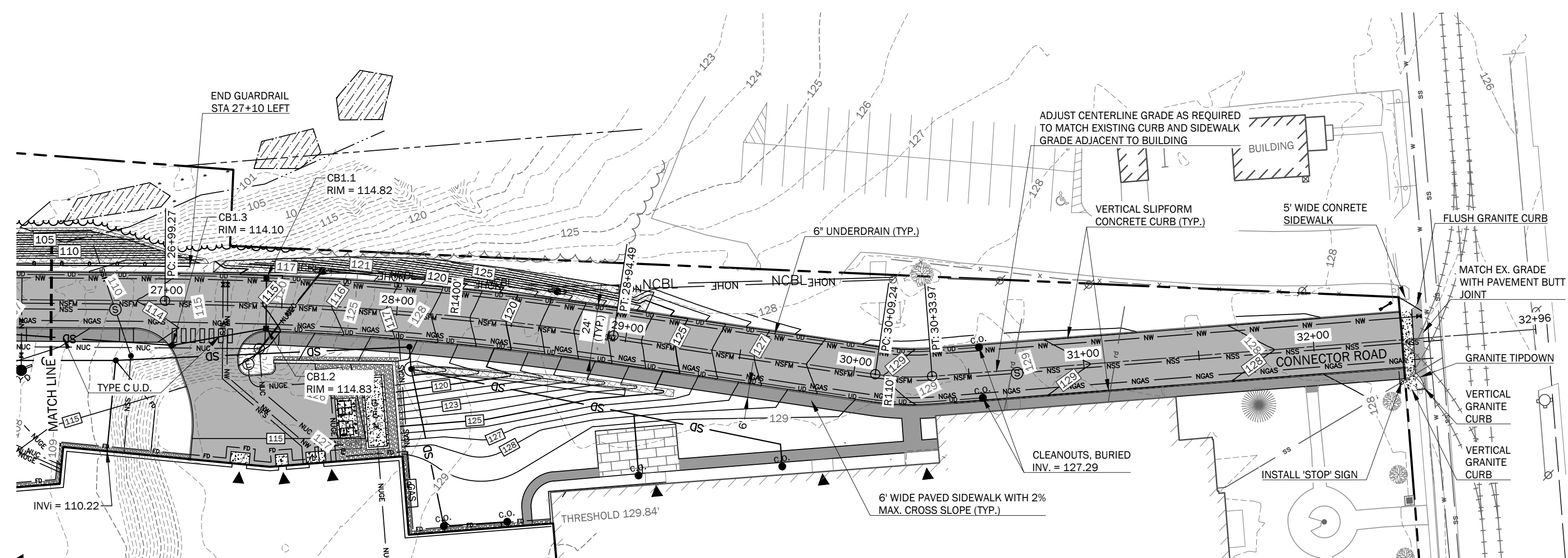
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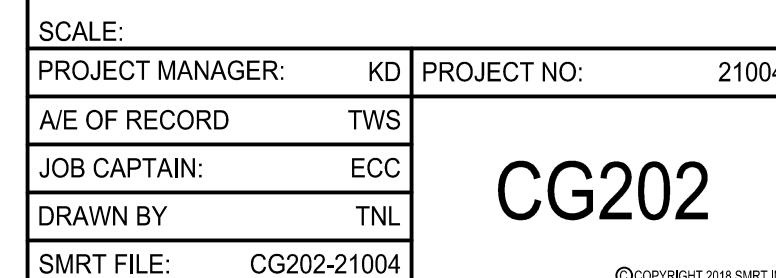
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CONNECTOR ROAD PLAN & PROFILE
STA 20+50 TO 26+50 (1 OF 2)

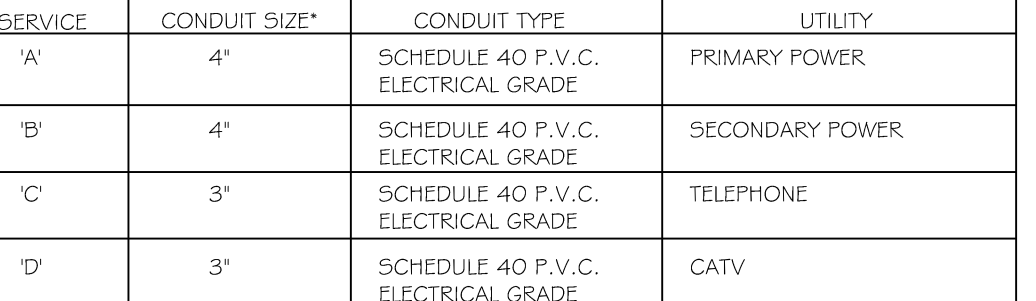
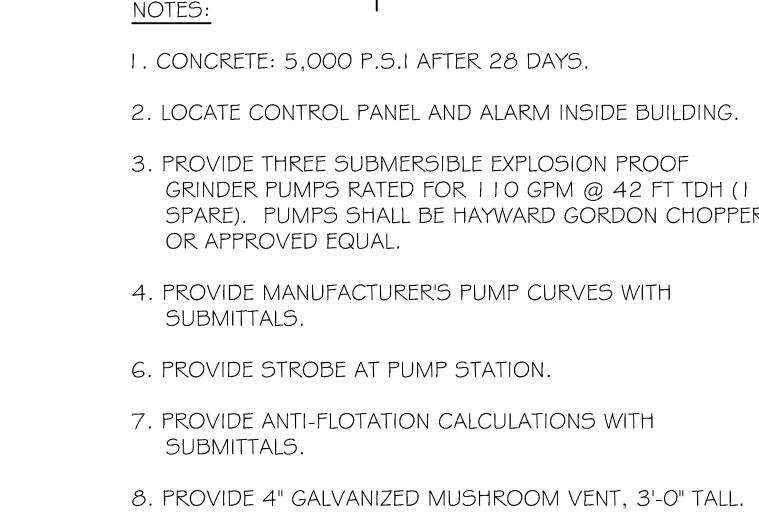
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A/E OF RECORD: TWS	JOB CAPTAIN: ECC	DRAWN BY: TNL
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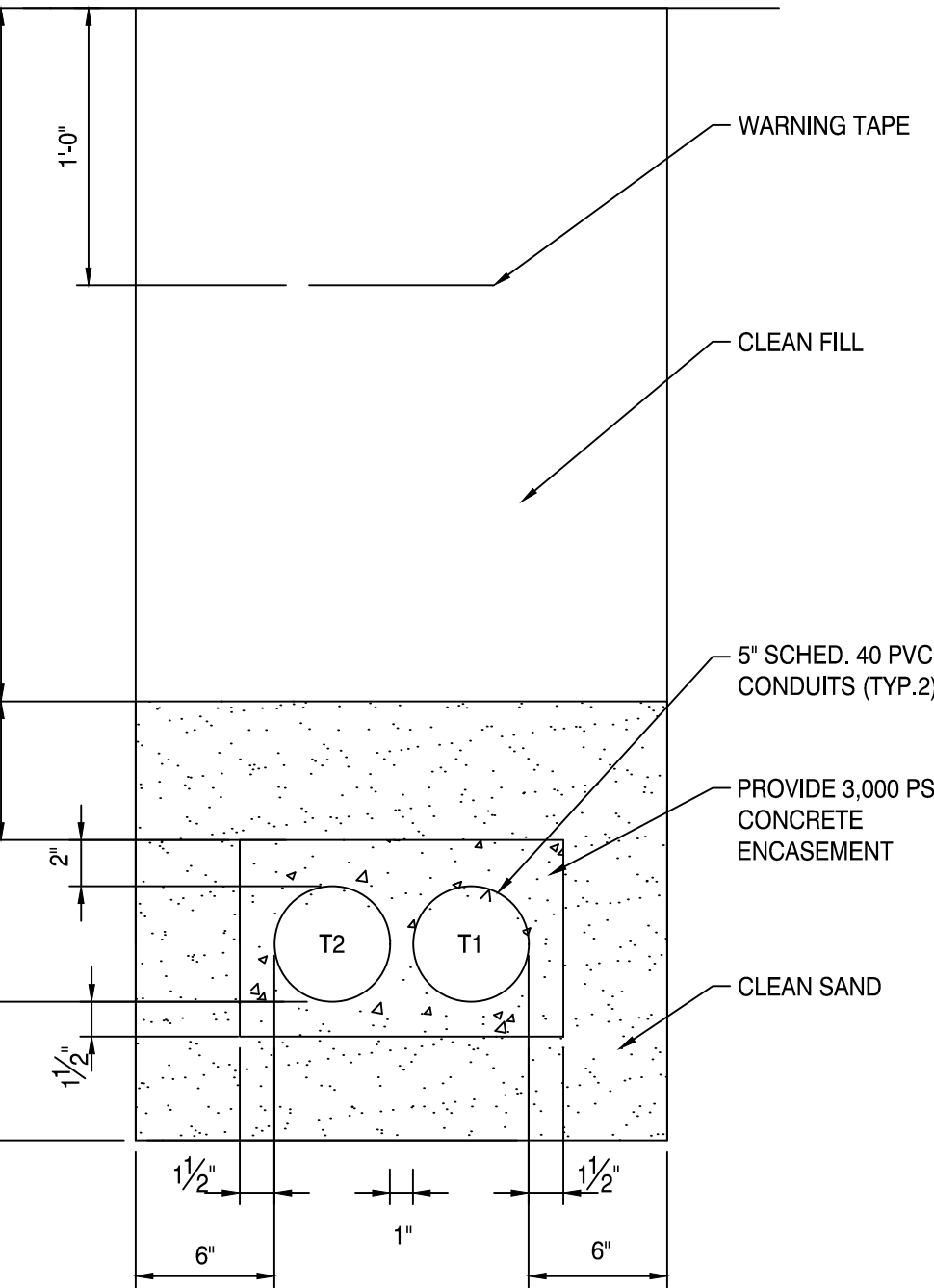
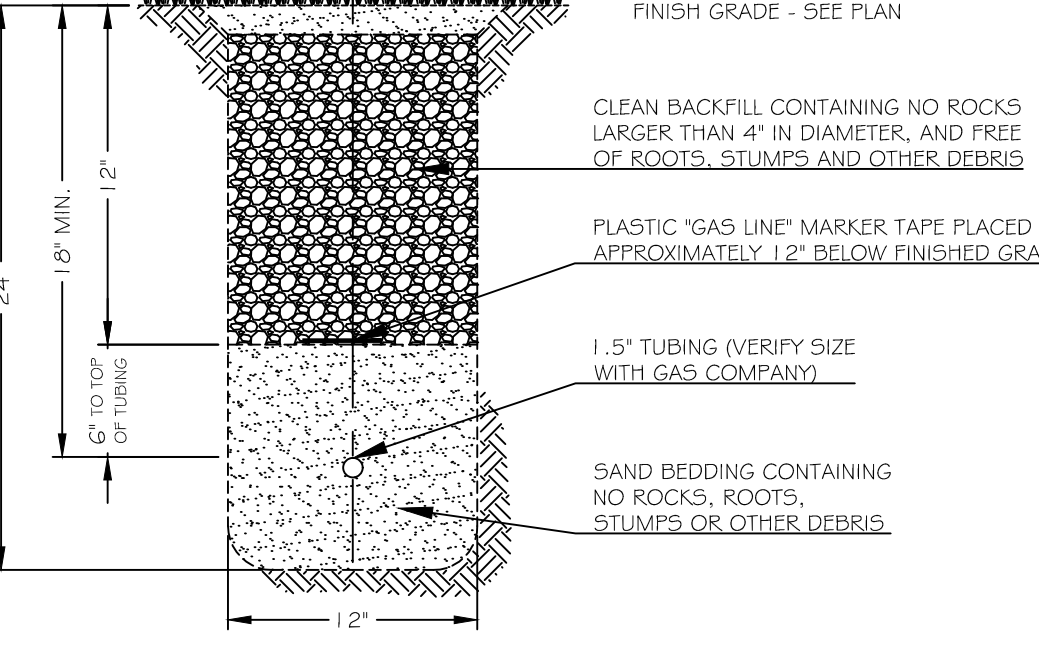
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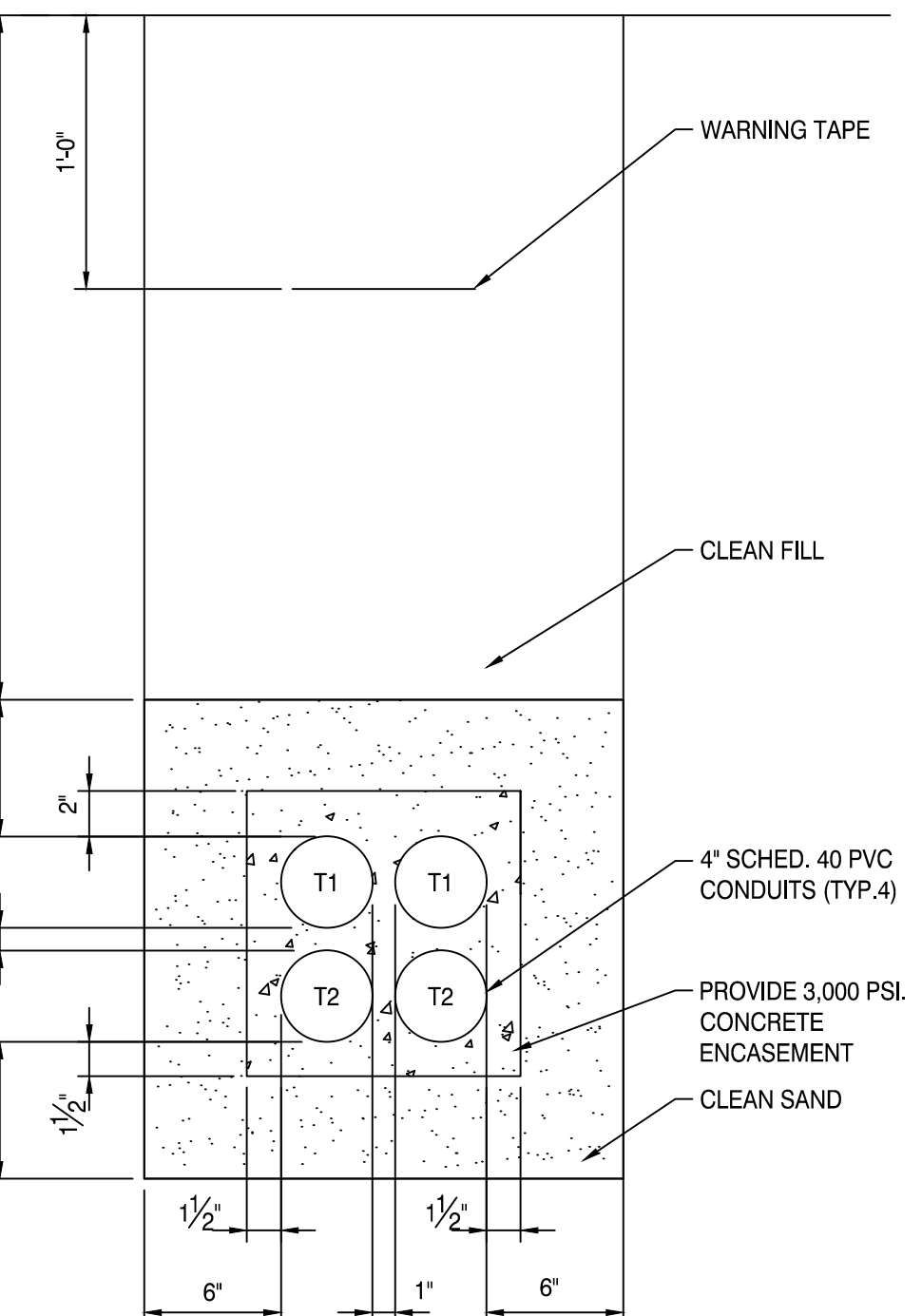




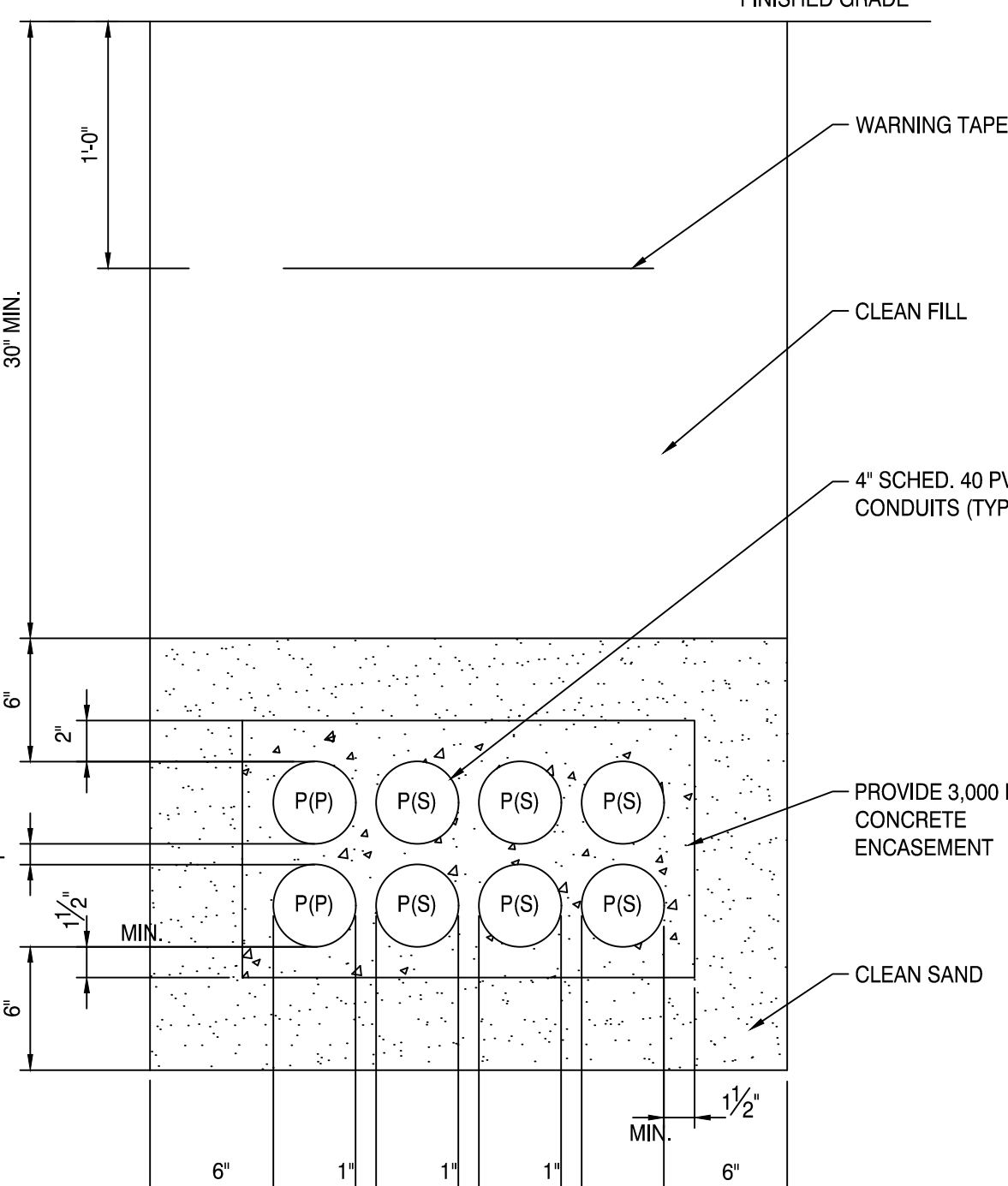
1. ALL WORK SHALL COMPLY WITH THE RESPECTIVE UTILITY COMPANY STANDARDS. IF UTILITY REQUIREMENTS DIFFER FROM THIS DETAIL, THOSE REQUIREMENTS WILL SHALL BE FOLLOWED.
2. SEE UTILITIES PLANS FOR CONDUIT LOCATIONS.
3. CONTRACTOR TO PROVIDE PULL ROPES IN ALL CONDUITS PER UTILITY SPECIFICATIONS.
4. **CONTRACTOR SHALL VERIFY CONDUIT SIZE, MATERIAL, AND QUANTITY WITH APPLICABLE UTILITY COMPANIES.**



CONCRETE ENCASED DUCTBANK (E13)
NOT TO SCALE



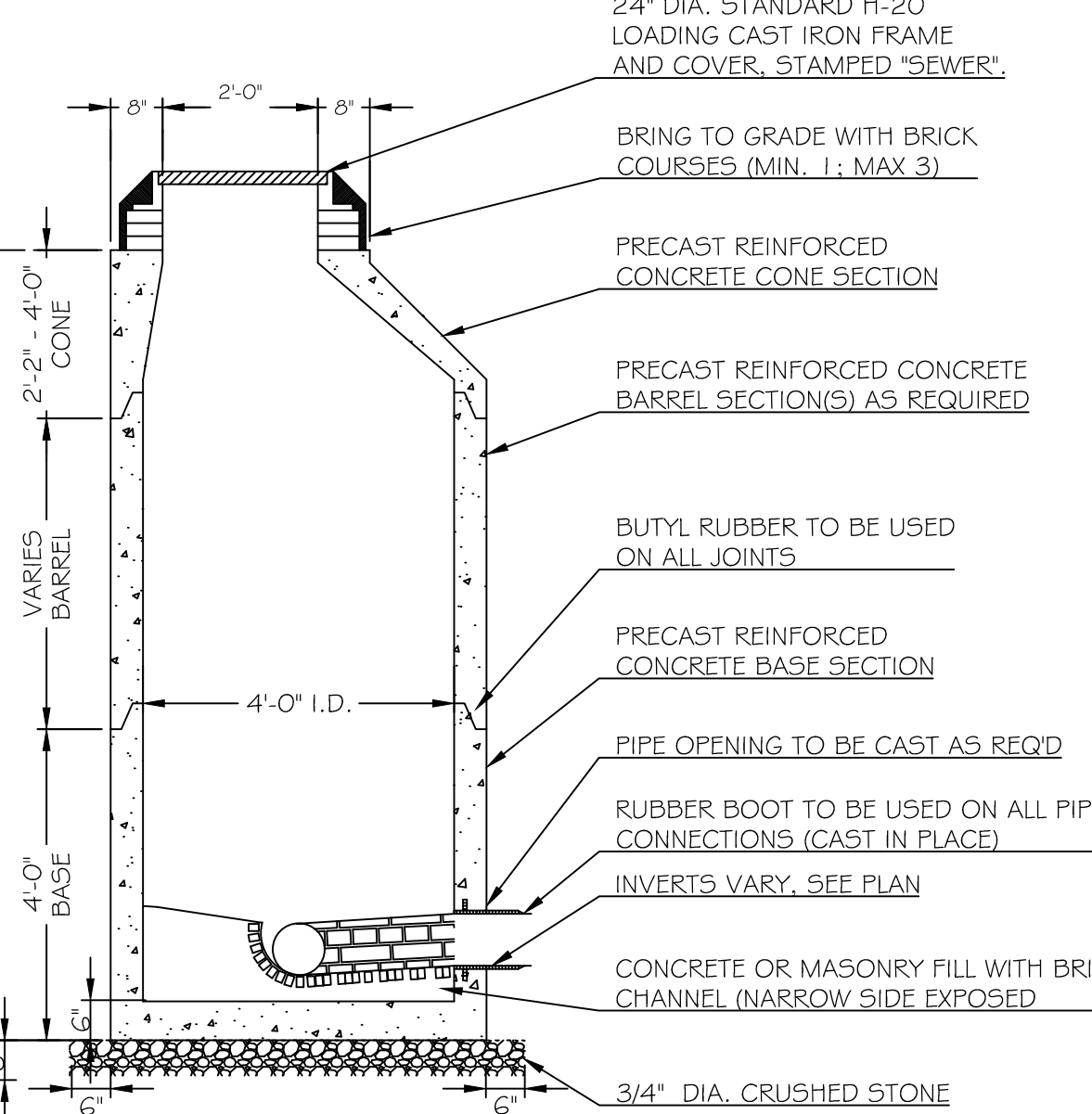
CONCRETE ENCASED DUCTBANK



CONCRETE ENCASED DUCTBANK

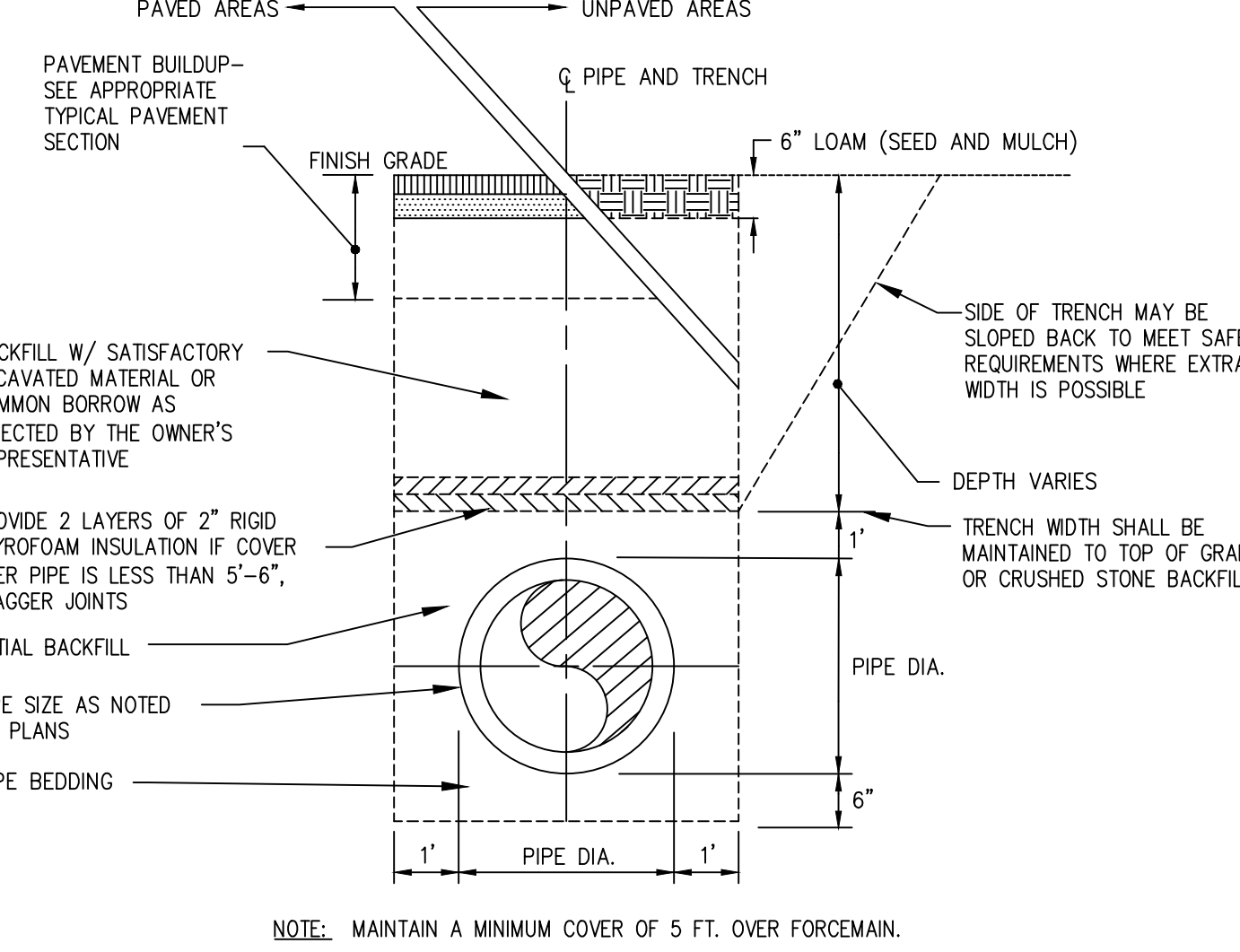
NOT TO SCALE

A9



7. CONCRETE 4000 PSI AFTER 28 DAYS.
2. REINFORCING H-20 LOADING 4x4 / 4x4 WWM.
3. EACH CASTING TO HAVE LIFTING HOLES TO BE FILLED WITH NON-SHRINK MORTAR.
4. APPLY TWO COATS OF BITUMASTIC PAINT ON ALL EXTERIOR SECTIONS.
5. MANHOLE CHANNELS REQUIRING CHANGE OF ALIGNMENT, TO BE BUILT ON SMOOTH RADIUS. CHANNEL TO BE SHAPED TO ACCEPT ADDITIONAL INLET PIPES.
6. ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER.

SANITARY SEWER MANHOLE **A5**
NOT TO SCALE



TRENCH BACKFILL SCHEDULE

PIPE MATERIAL	BEDDING MATERIAL	INITIAL BACKFILL	BACKFILL MATERIAL
HDPE	3/4" CRUSHED STONE	3/4" CRUSHED STONE	***EXCAVATED MATERIAL OR GRANULAR BORROW
PVC	SAND	3/4" CRUSHED STONE	***EXCAVATED MATERIAL OR GRANULAR BORROW
COMP	***EXCAVATED MATERIAL OR GRANULAR BORROW	***EXCAVATED MATERIAL OR GRANULAR BORROW	***EXCAVATED MATERIAL OR GRANULAR BORROW
DUCTILE IRON	GRANULAR MATERIAL	GRANULAR MATERIAL	***EXCAVATED MATERIAL OR GRANULAR BORROW

*** EXCAVATED MATERIAL MUST BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

GRANULAR MATERIAL TO BE SAND OR GRAVEL.

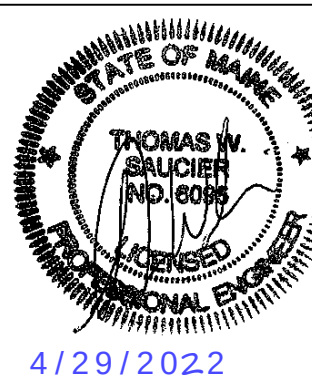
TYPICAL TRENCH SECTION **A1**
NOT TO SCALE

NOTE:
1. ALL WORK TO CONFORM
TO THE PORTLAND WATER
DISTRICT STANDARDS AND
REQUIREMENTS.

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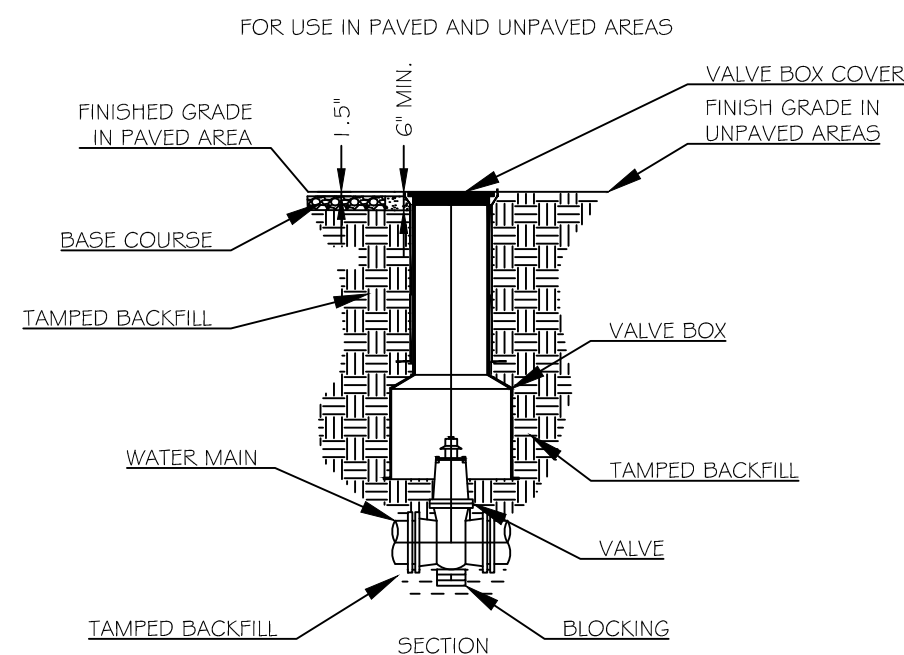
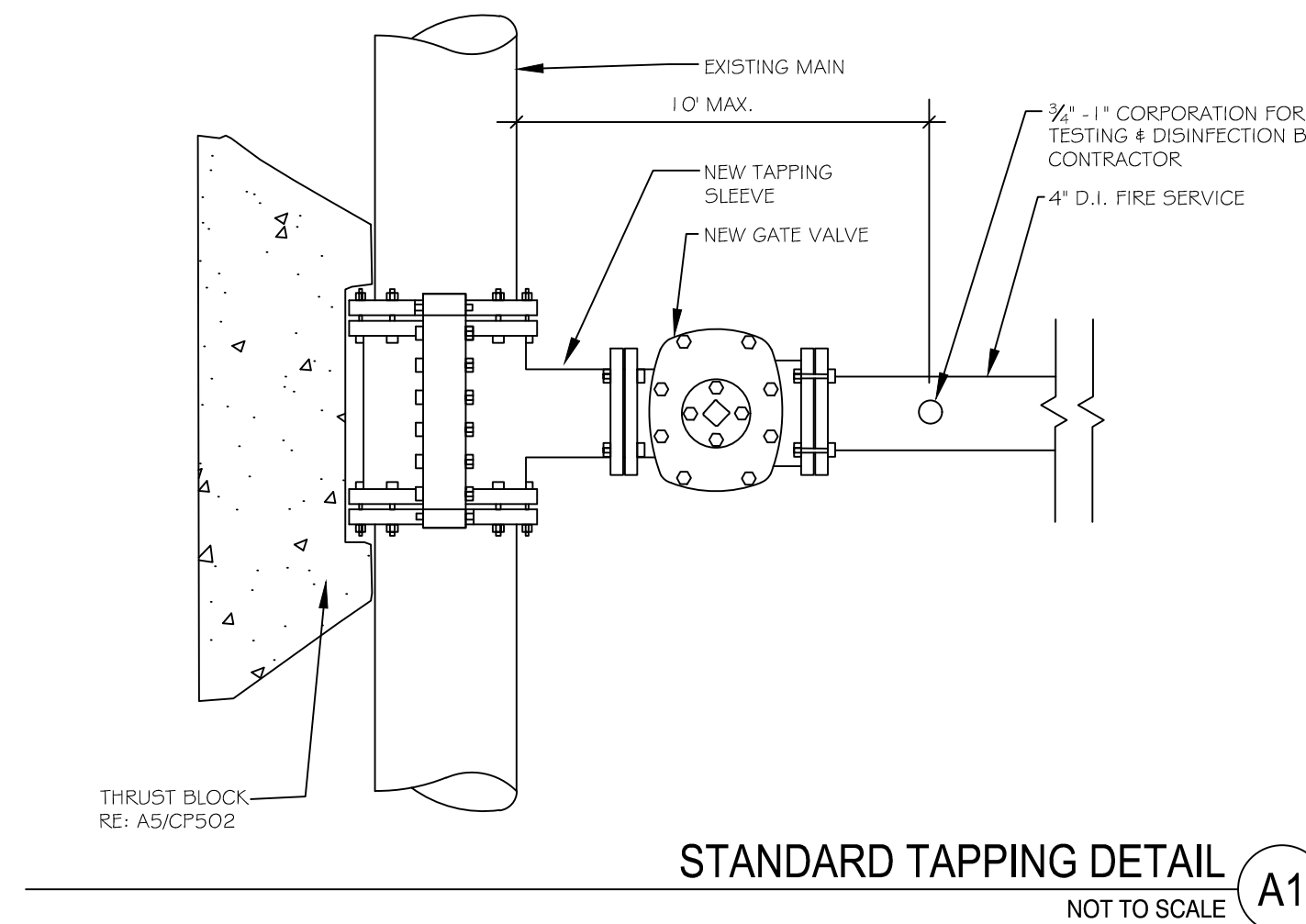
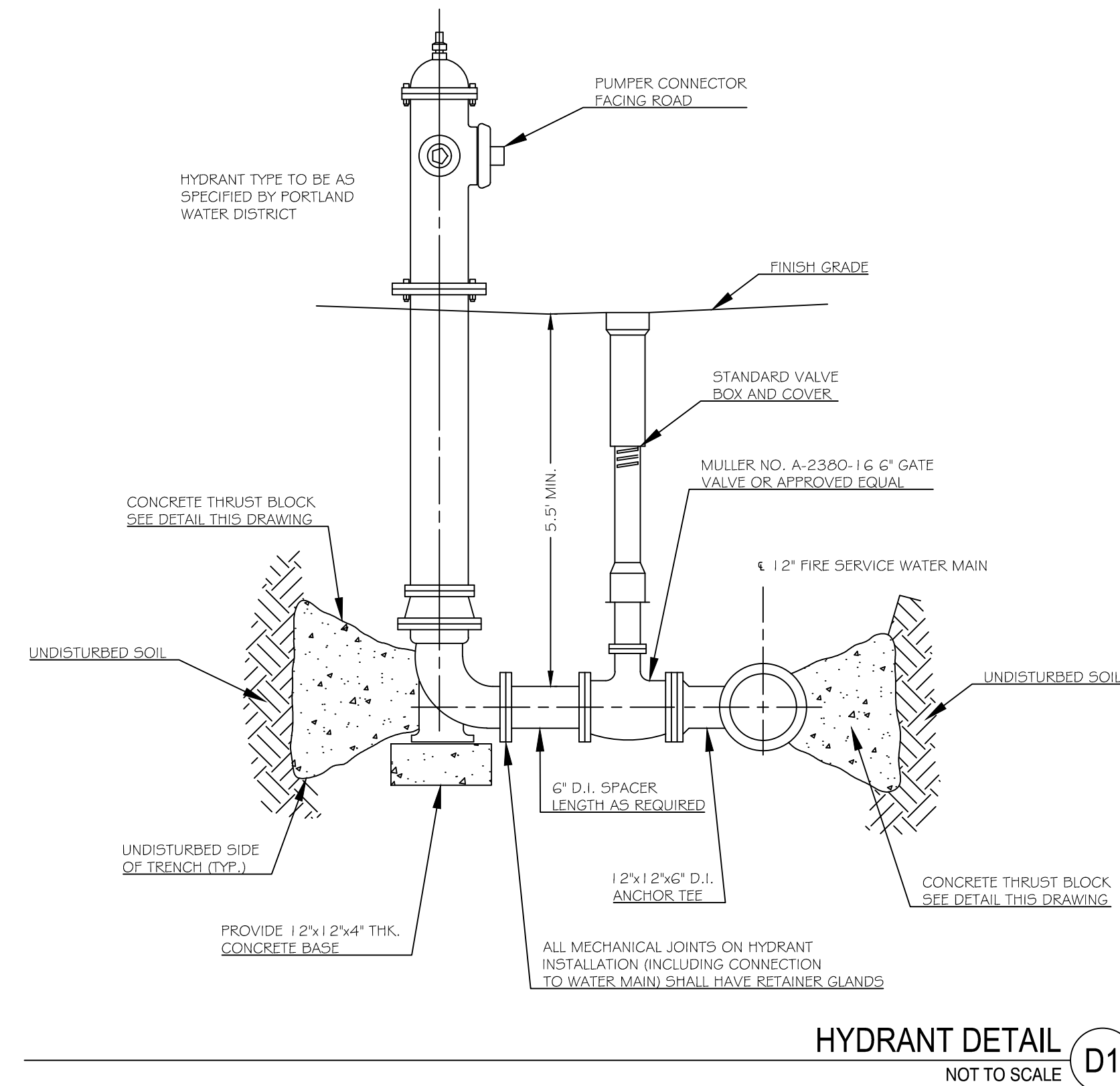
UTILITY DETAILS

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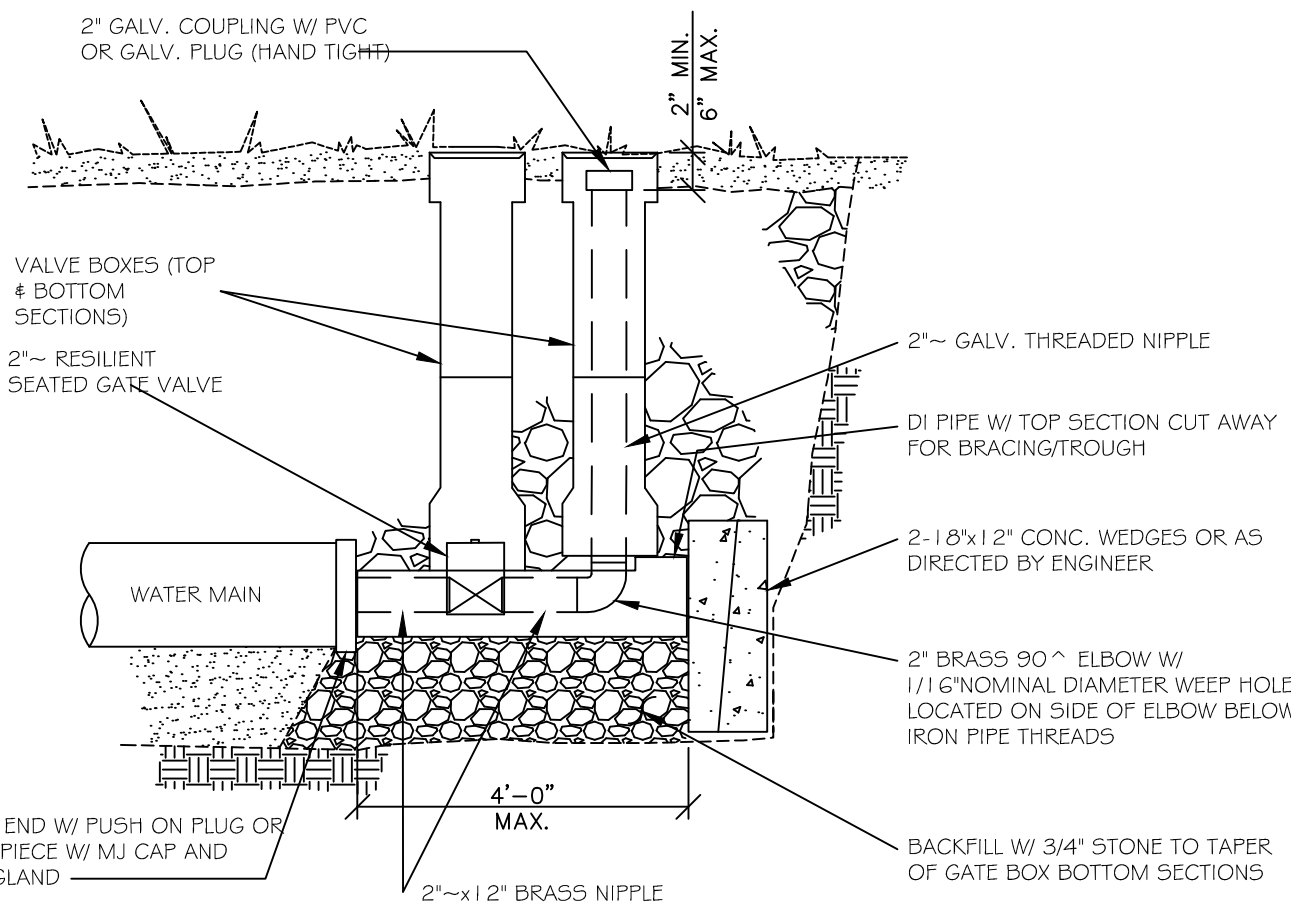


VALVE AND VALVE BOX INSTALLATION DETAIL
NOT TO SCALE C4

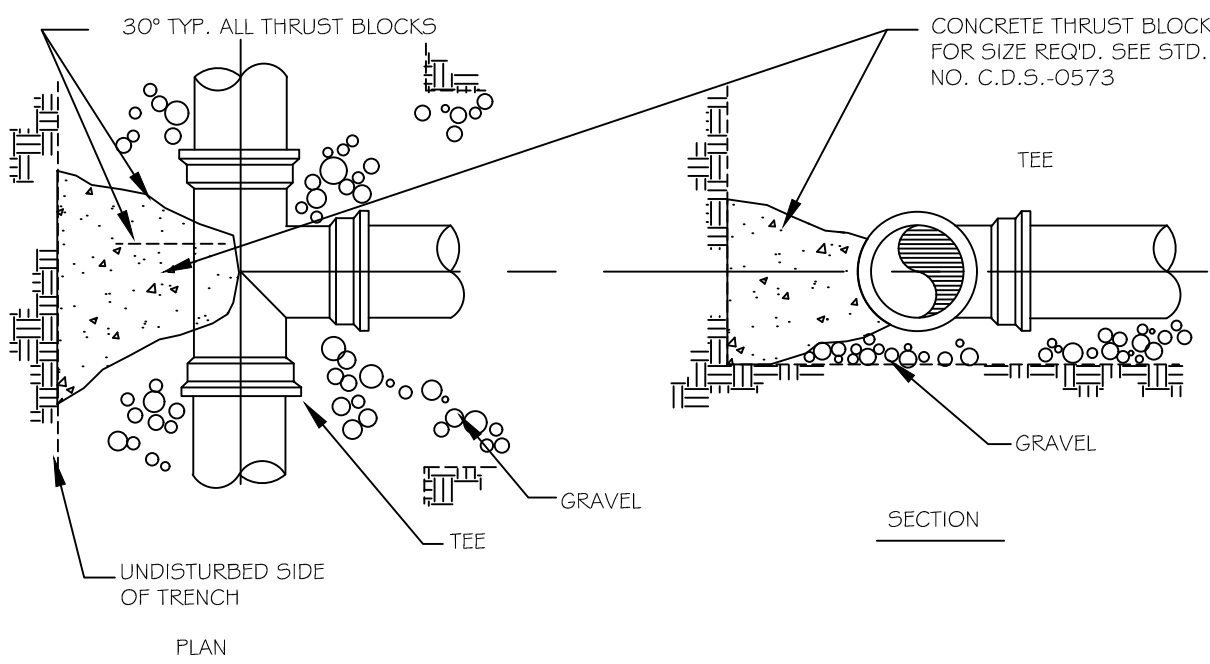
SIZE REQUIREMENTS FOR CONCRETE THRUST BLOCKS					
BEARING ON UNDISTURBED SOIL (SQUARE FT.)					
FITTINGS		90° BENDS	45° BENDS	TEES & PLUGS	HYDRANTS
PIPE SIZE	4"	2.0	1.0	1.0	N/A
	6"	3.0	2.0	2.0	6.0
	8"	5.0	3.0	4.0	N/A

THRUST BLOCK SCHEDULE

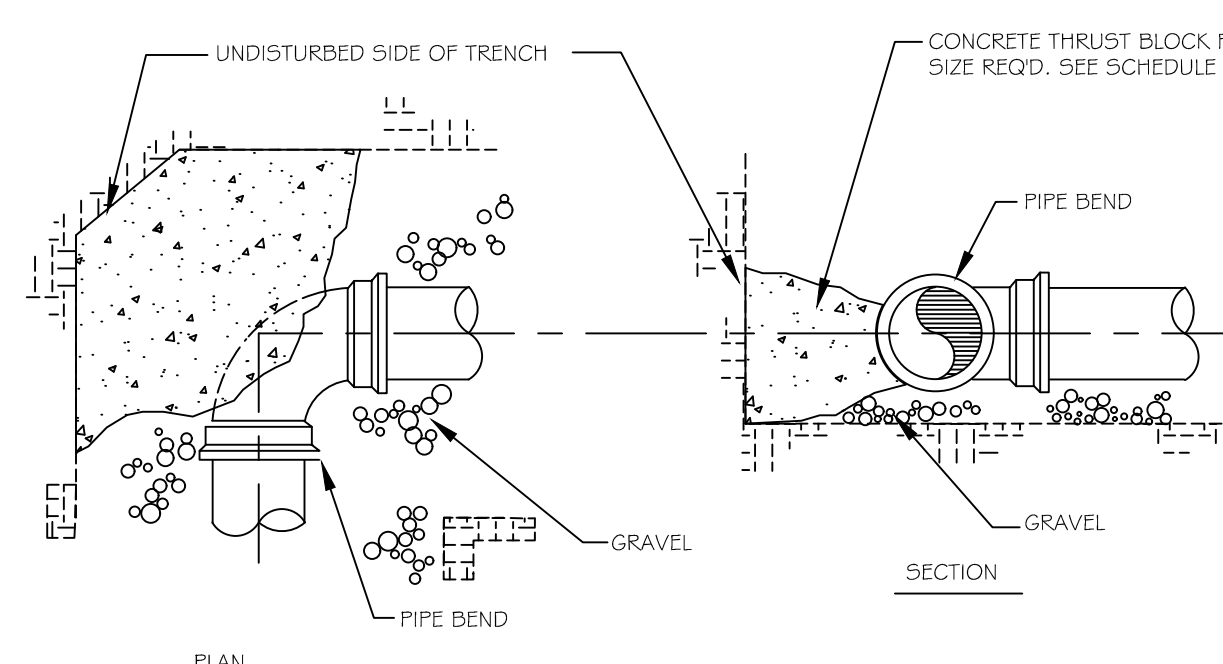
THRUST BLOCK DETAIL
NOT TO SCALE A5



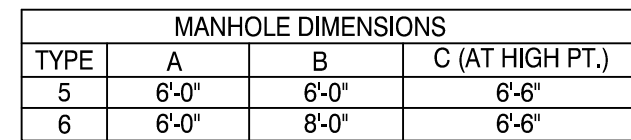
BLOW-OFF DETAIL
NOT TO SCALE C9



THRUST BLOCK PLACEMENT AT TEE(S)



THRUST BLOCK PLACEMENT AT BEND(S)



STANDARD ELECTRICAL / COMMUNICATION MANHOLE TYPES 5 & 6

6' 2"

2'

FUTURE PANELBOARD

COMMUNICATION EQUIPMENT

TOP VIEW

12" D WALL MOUNTED RACK WITH 8RU WITH CAT 6A PATCH PANELS (EQUAL TO MIDDLE ATLANTIC, CAT. NO. WM-8-12)

WALL MOUNT FIBER INTERCONNECT CENTER (EQUAL TO SIEMONS, CAT. NO SWI3C3)

120VAC

(POE SWITCH (BY OWNER))

120VAC

FUTURE PANEL LOCATION

SPD

120VAC

FRONT VIEW

#8 BARE COPPER GROUND

TO FUTURE EV CHARGING STATIONS

CAT 6A CABLES TO CAMERAS AND EV CHARGING STATIONS - REFER TO SITE PLANS FOR EXACT LOCATIONS

500W ELECTRIC BASEBOARD HEATER WITH BUILT-IN LINE VOLTAGE THERMOSTAT

6' 2"

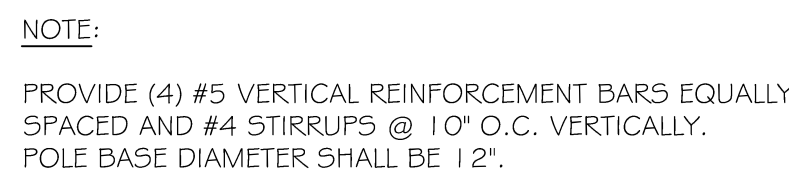
SIDE VIEW

FIBER FROM MAIN BUILDING - REFER TO TELECOMMUNICATION RISER FOR ADDITIONAL INFORMATION

- A. THE EXTERIOR ENCLOSURE SHALL BE PAD MOUNTED ON A CONCRETE PAD AND MANUFACTURED BY HOFFMAN. THE ENCLOSURE SHALL BE A TWO DOOR CONFIGURATION WITH A THREE-POINT LATCHING SYSTEM WITH PADLOCKING HANDLES AND A FOAM-IN-PLACE GASKET FOR SECURITY PURPOSES. THE ENCLOSURE SHALL BE NEMA 4, IP66 SUITED FOR USE IN OUTDOOR APPLICATIONS.
- B. THE ENCLOSURE SHALL BE MANUFACTURED FROM 12 GAUGE TYPE 304 OR 316L STAINLESS STEEL, BAK PANELS SHALL BE 10 GAUGE STAINLESS STEEL WITH X-FORM STIFFENERS. SEAMS SHALL BE CONTINUOUSLY WELDED AND GROUND SMOOTH. NO HOLES OR KNOCKOUTS WILL BE PERMITTED.
- C. A REMOVABLE CENTER-POST FOR EASY PANEL INSTALLATION SHALL BE PROVIDED ALONG WITH COLLAR STUDS FOR MOUNTING OPTIONAL PANELS. MOUNTING PANEL AND PANEL SUPPORTS SHALL BE INCLUDED.
- D. HEAVY-DUTY LIFTING EYES SHALL BE TYPE 316L STAINLESS STEEL.
- E. HEAVY-DUTY 3-POINT LATCHING MECHANISM OPERATED BY TYPE 316L STAINLESS STEEL POWERGLIDE PADLOCKING HANDLES SHALL BE INCLUDED.
- F. BODY FLANGE THROUGH COLLAR SHALL EXCLUDE LIQUIDS AND CONTAMINANTS.
- G. HEAVY-DUTY STAINLESS STEEL CONTINUOUS HINGES SHALL SUPPORT EACH DOOR.
- H. BONDING PROVISION ON DOORS ALONG WITH GROUNDING STUDS ON BODY SHALL BE PROVIDED.
- I. ACCESSORY MOUNTING CHANNEL SHALL BE PROVIDED IN ENCLOSURE TOP.
- J. DATA POCKET SHALL BE HIGH-IMPACT THERMOPLASTIC AND MOUNTED TO THE INSIDE OF THE DOORS.
- K. 12" REMOVABLE FLOOR STANDS SHALL BE BOLTED TO ENCLOSURE.
- L. SEAMLESS FOAM-IN-PLACE ONE-PIECE GASKET SHALL PROVIDE OIL-TIGHT AND DUST-TIGHT SEAL AGAINST CONTAMINANTS.
- M. EXTERNAL HARDWARE MANUFACTURED OF TYPE 316L STAINLESS STEEL AND THE ENCLOSURE SHALL BE UNPAINTED AND FRONT, SIDES, TOP AND BAK SHALL HAVE A SMOOTH #4 BRUSHED FINISH.



- PULL BOX
NOT TO SCALE



CONNECT GROUND TO POLE BASE W/ BURNDY No. G84C

BUSH CONDUITS

PROVIDE LEVELING NUTS (TOP & BOTTOM OF BASE PLATE) & GROUT SOLID

3/4" CHAMFER

PROJECTION

4"

3/4"Ø F1554 GR36 HEADED ANCHOR RODS

2" CLEAR

EQUALLY SPACED VERTICAL REINFORCING (SEE SCHEDULE)

#3 TIES @ 12" O.C. (TYP.)

FINISHED GRADE

3/4" CONDUIT FOR GROUND WIRE

#8 AWG GROUND WIRE

GROUND ROD CLAMP BURNDY No. GAR-G44C

5/8"x8'-0" COPPER WELD GROUND ROD

6" WHERE POLE IS LOCATED IN WALKS, PLANTINGS, OR LAWNS

36" WHERE POLE IS LOCATED IN DRIVEWAYS OR PARKING AREAS

2" WHERE POLE IS LOCATED IN PEDESTRIAN PAVEMENTS

2'-0" EMBEDMENT

6'-0"

3' CLEAR

DIAMETER

SEE SCHEDULE

TESTS:
CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE 4500 PSI AND AIR ENTRAINMENT.

MINIMUM ALLOWABLE SOIL BEARING CAPACITY TO BE 1,500 PSF.

CONCRETE SHALL BE NO MORE THAN 3'-0" ABOVE FINISHED GRADE.

PROVIDE SMOOTH FINISH.

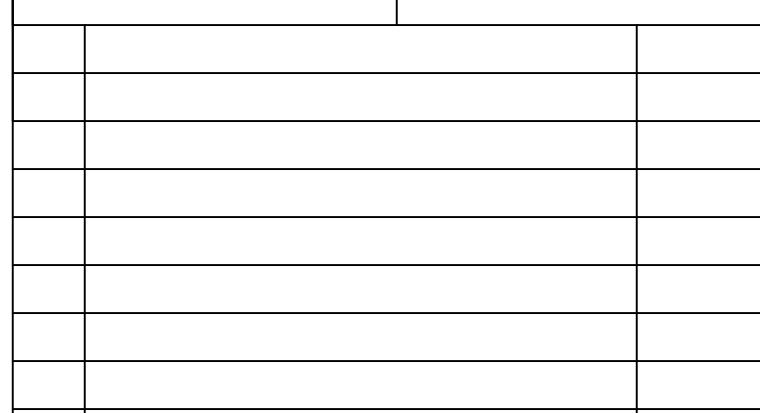
LIGHT POLE PIER SCHEDULE		
(ft) HEIGHT OF POLE	PIER DIAMETER	VERTICAL REINFORCING
11' ≤ 12'	16"	(8) #5
12' < H ≤ 20'	20"	(12) #5
20' < H ≤ 30'	24"	(12) #6

LIGHT POLE PIER SCHEDULE		
(H) HEIGHT OF POLE	PIER DIAMETER	VERTICAL REINFORCING
H ≤ 12'	16"	(8) #5
12' < H < 20'	20"	(12) #5
20' < H < 30'	24"	(12) #6

The image contains three technical drawings of a rectangular structure, likely a foundation or wall base, with the following details:

- Top View:**
 - Overall dimensions: 9'-0" wide by 9'-0" deep.
 - Inner dimensions: 5'-8" wide by 5'-8" deep.
 - Material: 24"x24"x1/4" GALV. STEEL PLATE (BY CMP).
 - Dimensions from the right edge: 6" (top), 1'-5" (middle), 6" (bottom).
 - Dimensions from the bottom edge: 1'-8" (left), 5'-8" (middle), 1'-8 1/2" (right), 3 1/2" (far right).
 - Section line A-A is indicated on the left and right sides.
- Side View:**
 - Overall width: 9'-0".
 - Overall height: 4'-0".
 - Top edge: 1" CHAMFER (TYP.).
 - Top flange thickness: 1'-0".
 - Vertical reinforcement: #4 @ 12" O.C. EACH WAY.
 - Corner reinforcement: 4"x4"x1/4" ANGLE CLIPS (TYP. 2 WALLS).
 - Bottom reinforcement: #4 LCB-1 THREADED INSERT (TYP. 4 WALLS).
 - Inner width: 5'-8".
 - Inner height: 2'-0".
 - Bottom edge: 1'-0" (left), 1'-0" (right).
- TYPICAL CORNER VIEW:**
 - Shows the corner reinforcement details.
 - Reinforcement: #5 @ 12" O.C. EACH WAY (TYP.) and #5 L-BAR @ 12" O.C. (C.I.P. ONLY).

TRANSFORMER PAD A1
1/2"=1'



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REV	DESCRIPTION	DATE

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UTILITY DETAILS	

SHEET TITLE:



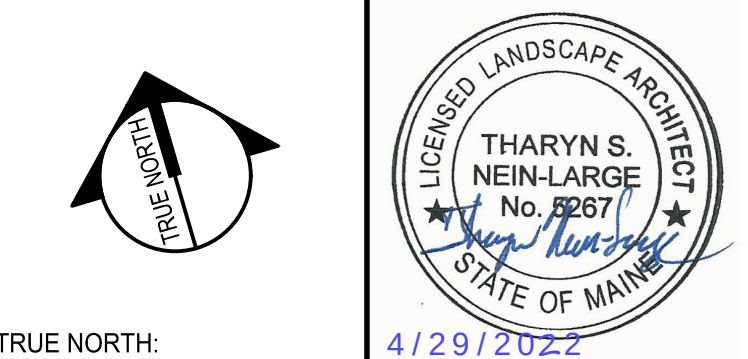
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A/E OF RECORD:	LJW	CU503	
JOB CAPTAIN:	ECC		
DRAWN BY:	TNL		
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PLANTING LEGEND

- EXISTING**
- DECIDUOUS TREES
 - PROTECT TREE IN PLACE
 - EVERGREEN TREES
 - TREE LINE
- PROPOSED**
- DECIDUOUS TREES
 - EVERGREEN TREES
 - TREE LINE
 - IRRIGATED LAWN
 - ORNAMENTAL GRASS
 - PERENNIALS
- NOTE:
SCOPE OF IRRIGATED LAWN
AREAS NEEDS BE CONFIRMED
BY OWNER.

REV	DESCRIPTION	DATE
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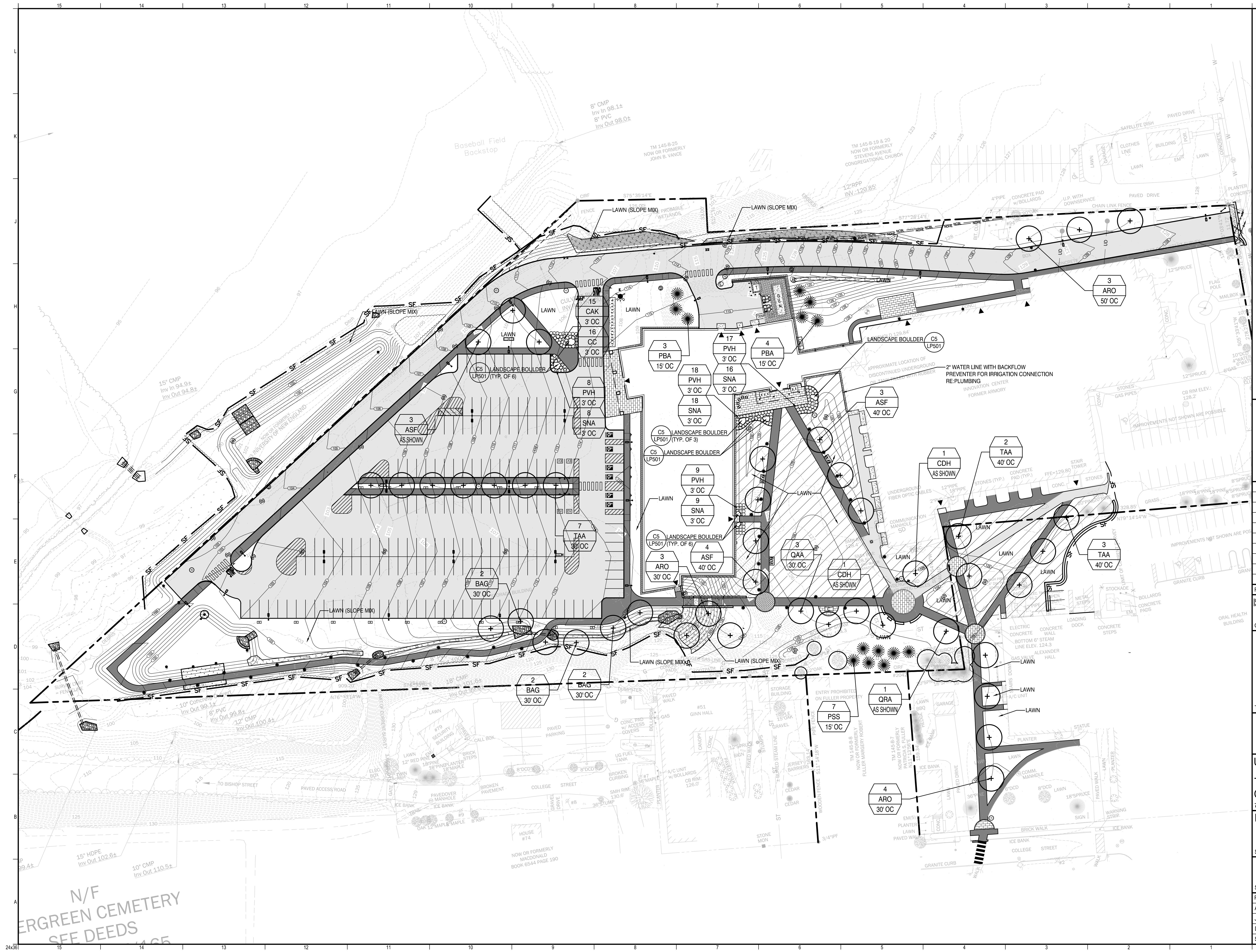


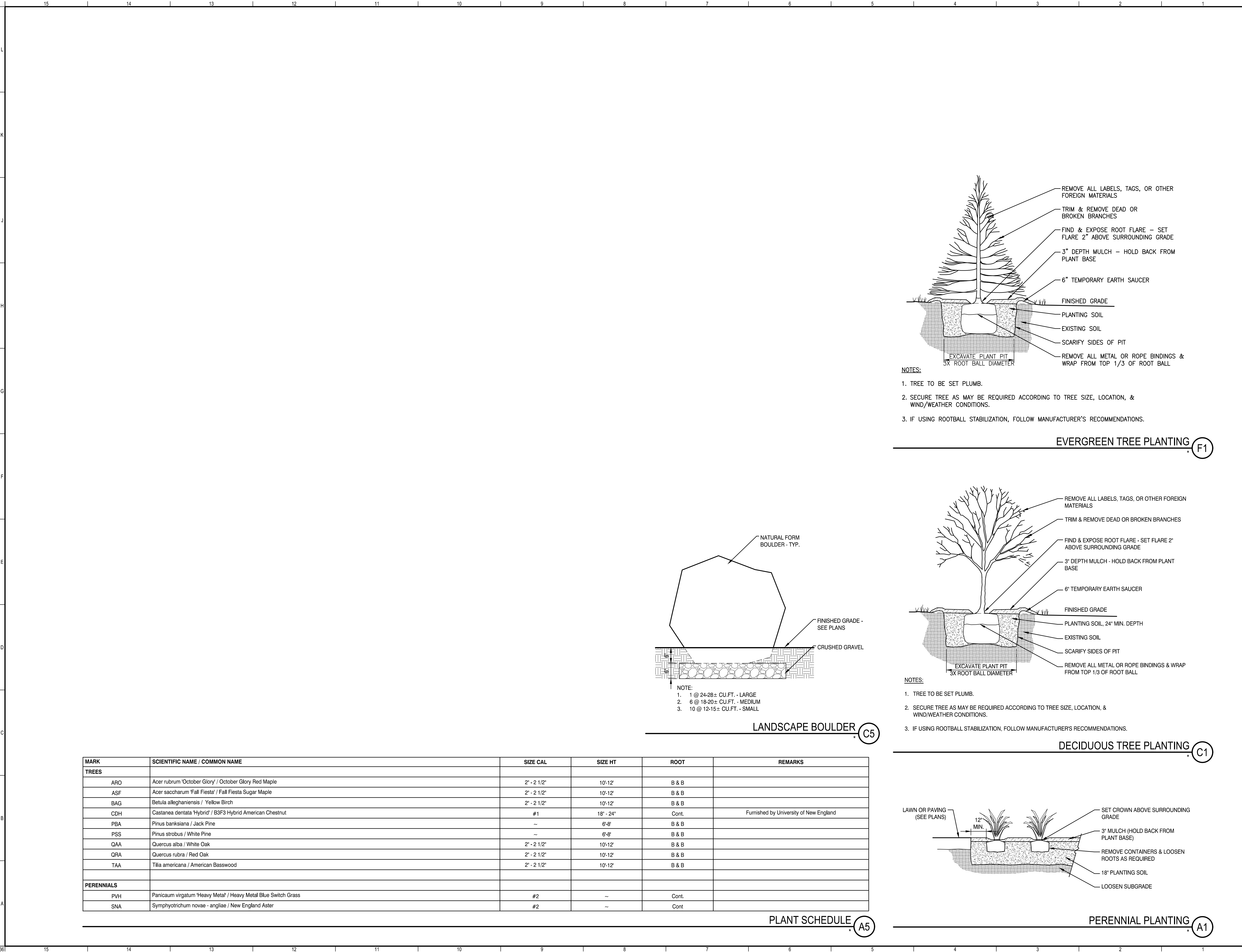
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PLANTING PLAN

SHEET TITLE:	
0 10' 20' 40' 80' 120'	
SCALE: 1" = 40'	
PROJECT MANAGER: KD	PROJECT NO: 21004
A/E OF RECORD: TNL	LP101
JOB CAPTAIN: ECC	
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11 HILLS BEACH ROAD
BIDDEFORD, MAINE 04005

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780 STEVENS AVE, PORTLAND, ME TAX PARCEL #145 8018

PLANTING DETAIL AND
PLANT SCHEDULE

SHEET TITLE:

SCALE: AS SHOWN

PROJECT MANAGER:	KD	PROJECT NO:	21004
A/E OF RECORD:	TNL		
JOB CAPTAIN:	ECC		
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SMRT FILE:	LP501-21004	SHEET NO.	LP501

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REMOVE ALL LABELS, TAGS, OR OTHER FOREIGN MATERIALS

TRIM & REMOVE DEAD OR BROKEN BRANCHES

FIND & EXPOSE ROOT FLARE – SET FLARE 2" ABOVE SURROUNDING GRADE

3" DEPTH MULCH – HOLD BACK FROM PLANT BASE

6" TEMPORARY EARTH SAUCER

FINISHED GRADE

PLANTING SOIL

EXISTING SOIL

SCARIFY SIDES OF PIT

EXCAVATE PLANT PIT
3X ROOT BALL DIAMETER

REMOVE ALL METAL OR ROPE BINDINGS & WRAP FROM TOP 1/3 OF ROOT BALL

NOTES:

- TREE TO BE SET PLUMB.
- SECURE TREE AS MAY BE REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
- IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

EVERGREEN TREE PLANTING (F1)

REMOVE ALL LABELS, TAGS, OR OTHER FOREIGN MATERIALS

TRIM & REMOVE DEAD OR BROKEN BRANCHES

FIND & EXPOSE ROOT FLARE - SET FLARE 2" ABOVE SURROUNDING GRADE

3" DEPTH MULCH - HOLD BACK FROM PLANT BASE

6" TEMPORARY EARTH SAUCER

FINISHED GRADE

PLANTING SOIL, 24" MIN. DEPTH

EXISTING SOIL

SCARIFY SIDES OF PIT

EXCAVATE PLANT PIT
3X ROOT BALL DIAMETER

REMOVE ALL METAL OR ROPE BINDINGS & WRAP FROM TOP 1/3 OF ROOT BALL

NOTES:

- TREE TO BE SET PLUMB.
- SECURE TREE AS MAY BE REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
- IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

DECIDUOUS TREE PLANTING (C1)

LAWN OR PAVING (SEE PLANS)

12" MIN.

SET CROWN ABOVE SURROUNDING GRADE

3" MULCH (HOLD BACK FROM PLANT BASE)

REMOVE CONTAINERS & LOOSEN ROOTS AS REQUIRED

18" PLANTING SOIL

LOOSEN SUBGRADE

PERENNIAL PLANTING (A1)

NATURAL FORM BOULDER - TYP.

FINISHED GRADE - SEE PLANS

CRUSHED GRAVEL

NOTE:

- 1 @ 24-28± CU.FT. - LARGE
- 6 @ 18-20± CU.FT. - MEDIUM
- 10 @ 12-15± CU.FT. - SMALL

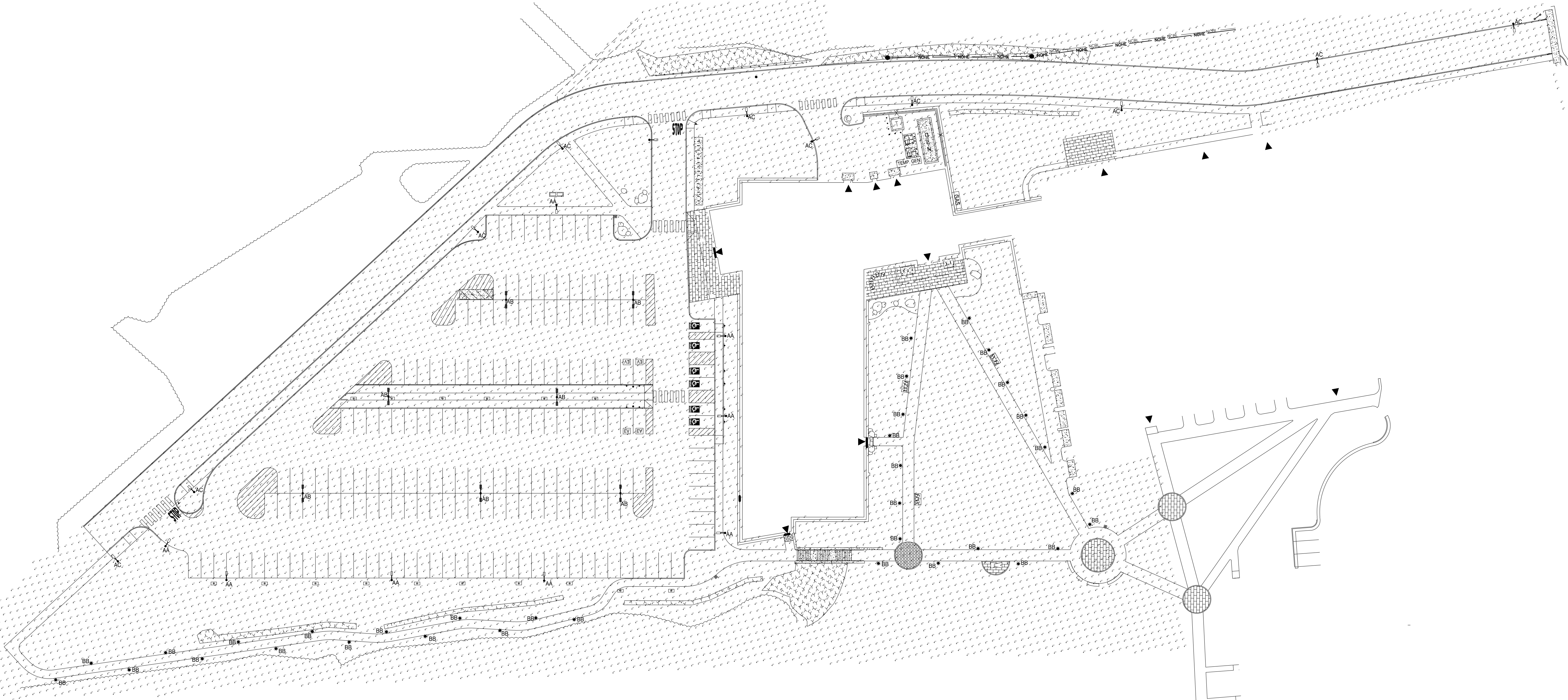
LANDSCAPE BOULDER (C5)

MARK	SCIENTIFIC NAME / COMMON NAME	SIZE CAL	SIZE HT	ROOT	REMARKS
TREES					
ARO	Acer rubrum 'October Glory' / October Glory Red Maple	2" - 2 1/2"	10'-12'	B & B	
ASF	Acer saccharum 'Fall Fiesta' / Fall Fiesta Sugar Maple	2" - 2 1/2"	10'-12'	B & B	
BAG	Betula alleghaniensis / Yellow Birch	2" - 2 1/2"	10'-12'	B & B	
CDH	Castanea dentata 'Hybrid' / B3F3 Hybrid American Chestnut	#1	18" - 24"	Cont.	Furnished by University of New England
PBA	Pinus banksiana / Jack Pine	~	6'-8'	B & B	
PSS	Pinus strobus / White Pine	~	6'-8'	B & B	
QAA	Quercus alba / White Oak	2" - 2 1/2"	10'-12'	B & B	
QRA	Quercus rubra / Red Oak	2" - 2 1/2"	10'-12'	B & B	
TAA	Tilia americana / American Basswood	2" - 2 1/2"	10'-12'	B & B	
PERENNIALS					
PVH	Panicum virgatum 'Heavy Metal' / Heavy Metal Blue Switch Grass	#2	~	Cont.	
SNA	Symphotrichum novae-angliae / New England Aster	#2	~	Cont.	

PLANT SCHEDULE (A5)

24x36 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 Page 465

EXTERIOR PHOTOMETRIC CALCULATIONS						
DESCRIPTION	AVERAGE (FC)	MAXIMUM (FC)	MINIMUM (FC)	MAX/MIN	MAX/AVG	AVG/MIN
OVERALL	0.4	15.7	0.0	N/A	N/A	N/A
ROADWAY	2.1	6.8	0.3	23:1	3	7:1
PARKING LOT	2.6	5.0	0.4	13:1	2	7:1
PATHWAYS	3.3	14.3	0.2	N/A	4	17:1
NOTES:						



EXTERIOR LIGHT FIXTURE SCHEDULE										
TYPE	DESCRIPTION	MANUFACTURER	MODEL NUMBER	MOUNTING	DRIVER	LAMP	LUMEN	WATTAGE	VOLTAGE	NOTES
AA	20' H EXTERIOR POLE MOUNTED PARKING LOT LIGHT	LITHONIA LIGHTING	RSX2 P1 40K R3 MVOLT SPA DD***	30'H POLE; SINGLE HEAD	FIXED OUTPUT	LED	10,992	71	UNV	PROVIDE FIXTURE WITH POLE EQUAL TO LITHONIA LIGHTING, CAT. NO SSS 30 5G DM19AS DD***. WHERE INDICATED WITH OUTLETS, POLES SHALL BE PROVIDED WITH FDLXX OPTION. FINISH TBD BY ARCH
AB	20' H EXTERIOR POLE MOUNTED PARKING LOT LIGHT	LITHONIA LIGHTING	RSX2 P1 40K R4 MVOLT SPA DD***	30'H POLE; DUAL HEAD @ 180 DEG.	FIXED OUTPUT	LED	11,136 PER HEAD	142	UNV	PROVIDE FIXTURE WITH POLE EQUAL TO LITHONIA LIGHTING, CAT. NO SSS 30 5G DM28AS DD***. WHERE INDICATED WITH OUTLETS, POLES SHALL BE PROVIDED WITH FDLXX OPTION. FINISH TBD BY ARCH
AC	30' H EXTERIOR POLE MOUNTED ROADWAY LIGHT	LITHONIA LIGHTING	RSX2 P1 40K R2 MVOLT SPA DD***	30'H POLE; SINGLE HEAD	FIXED OUTPUT	LED	11,031	71	UNV	PROVIDE FIXTURE WITH POLE EQUAL TO LITHONIA LIGHTING, CAT. NO SSS 30 5G DM19AS DD***. FINISH TBD BY ARCH
BB	EXTERIOR BOLLARD	LITHONIA LIGHTING	DSXB 12C 350 40K ASY MVOLT H36	GROUND MOUNTED (3' H)	FIXED OUTPUT	LED	1,283	16	UNV	FINISH TBD BY ARCH.
NOTES:										

UNE

UNIVERSITY OF
NEW ENGLAND

11 HILLS BEACH ROAD
BIDDEFORD, MAINE 04005

0	ISSUED FOR MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022
REV	DESCRIPTION	DATE
ISSUED FOR MAJOR SITE PLAN AND CONDITIONAL USE REVIEW		
02-18-2022		
CURRENT ISSUE STATUS:		

TRUE NORTH:

4/29/2022

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University of New England

THE HAROLD AND BIBBY ALFOND
CENTER FOR HEALTH SCIENCES
780 STEVENS AVE, PORTLAND, ME TAX PARCEL #145 B018

SITE PHOTOMETRIC PLAN

SHEET TITLE:

SCALE: 1" = 40'

PROJECT MANAGER: KD PROJECT NO: 21004

A/E OF RECORD: LJW

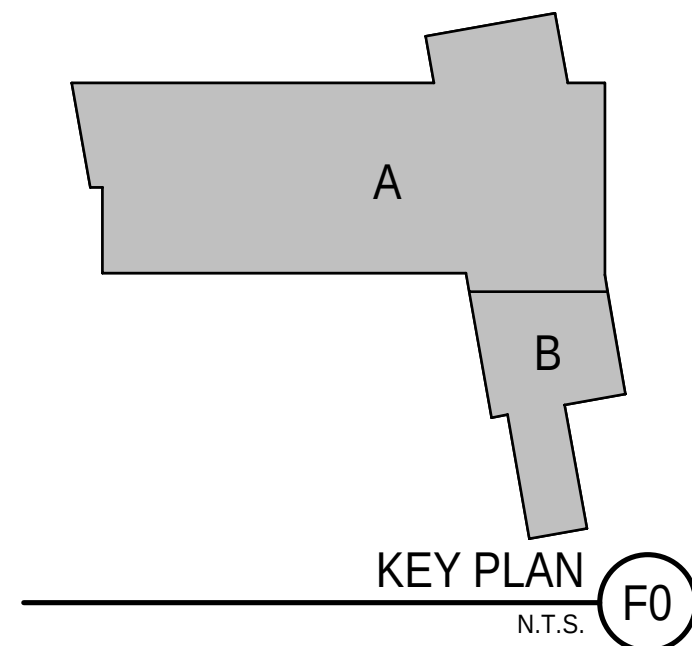
JOB CAPTAIN: ECC

DRAWN BY: LJW

SMRT FILE: ES101-21004 SHEET No.

ES101

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REV	DESCRIPTION	DATE
0	MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022

MAJOR SITE PLAN AND CONDITIONAL USE REVIEW

04-29-2022

CURRENT ISSUE STATUS:

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GROUND LEVEL - FACILITY PLAN

SHEET TITLE: TAX PARCEL #145 B018

SCALE: AS NOTED

PROJECT MANAGER: KD PROJECT NO: 21004

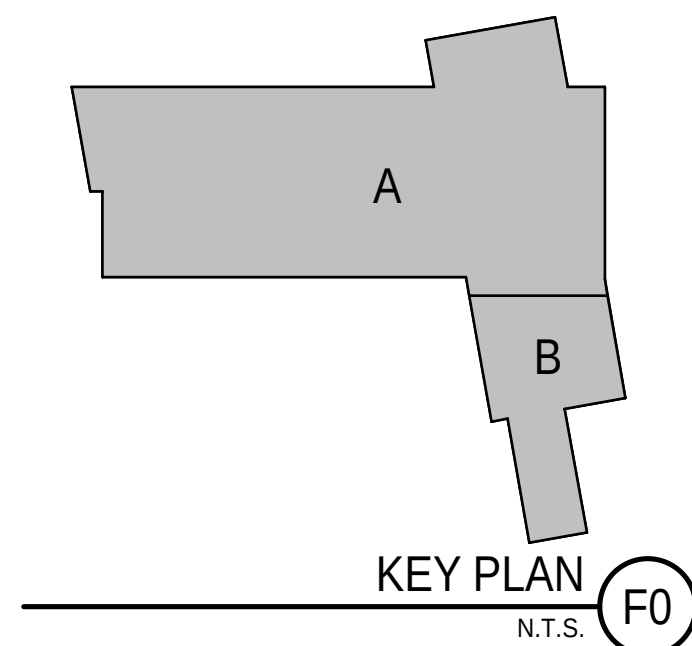
A/E OF RECORD: MTR

JOB CAPTAIN: ECC

DRAWN BY: ECC

SMRT FILE: A-101-21004 SHEET No. A-101

GROUND LEVEL - FACILITY PLAN (A1)

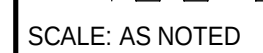


MAJOR SITE PLAN AND
CONDITIONAL USE REVIEW
04-29-2022



University of New England
THE HAROLD AND BIBBY ALFOND
CENTER FOR HEALTH SCIENCES
780 STEVENS AVENUE, PORTLAND MAINE

SHEET TITLE: TAX PARCEL #145 B018



PROJECT MANAGER

PROJECT MANAGER:	KD	PROJECT NO:	21004
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A/E OF RECORD:		MTR	
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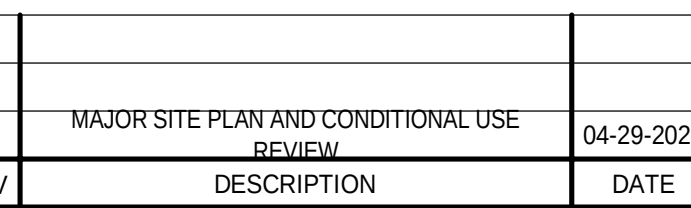
JOB CAPTAIN:	ECC	A 100
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DRAWN BY:	ECC	A-102
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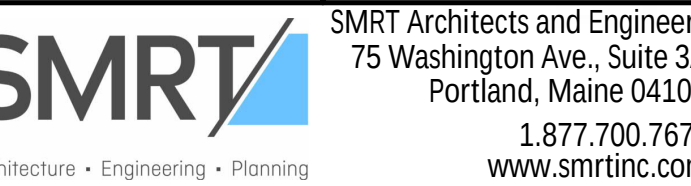
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SMRT FILE: A102 E1007 STREET: 1107 ©COPYRIGHT 2020 SMRT INC.

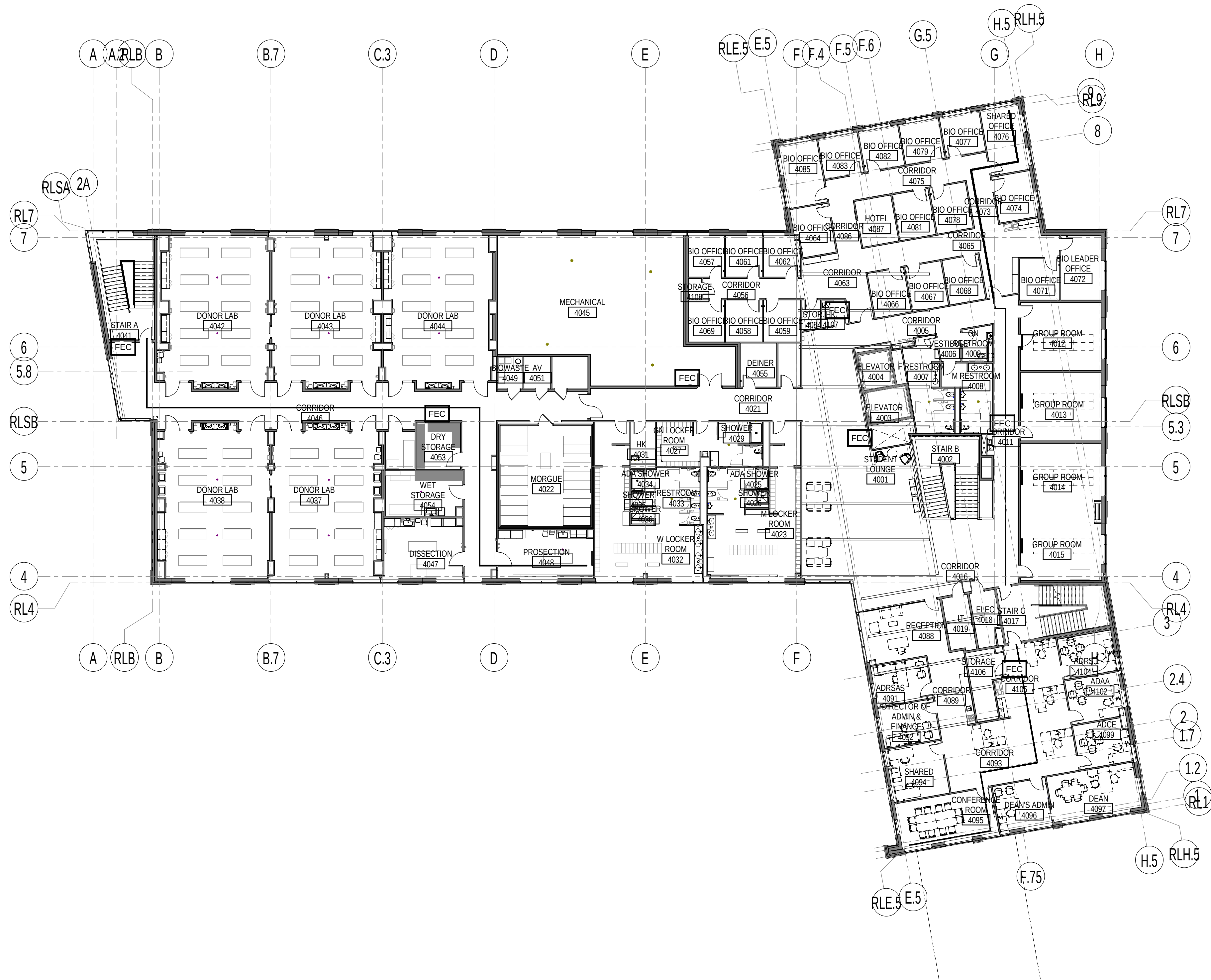
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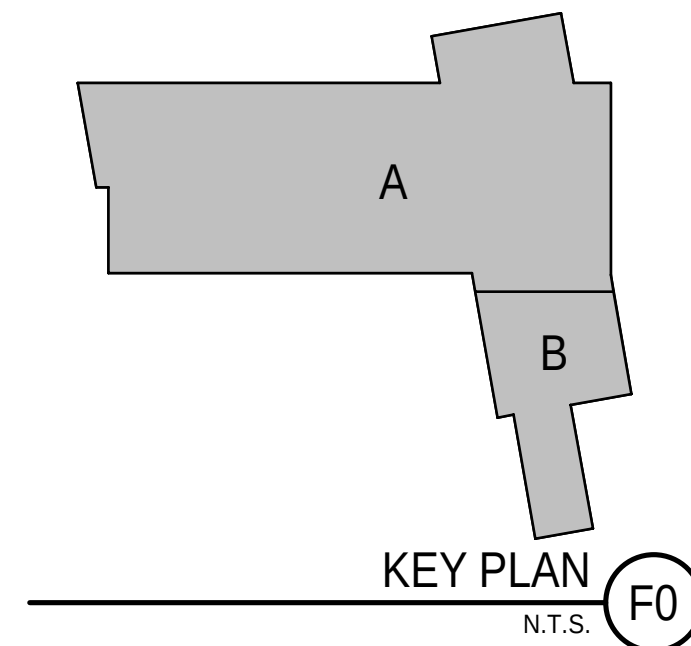
CURRENT ISSUE STATUS:



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SCALE: AS NOTED			
PROJECT MANAGER:	KD	PROJECT NO:	2100
OF RECORD:	MTR	A-103	
CAPTAIN:	ECC		
DRAWN BY:	ECC		
RT FILE:	A-103-21004	SHEET No.	©COPYRIGHT 2020 S&B



FOURTH LEVEL - FLOOR PLAN



REV	DESCRIPTION	DATE
0	MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022

MAJOR SITE PLAN AND
CONDITIONAL USE REVIEW
04-29-2022

CURRENT ISSUE STATUS:

PROJECT NORTH:

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FOURTH LEVEL - FACILITY PLAN

SHEET TITLE: TAX PARCEL #145 B018

SCALE: AS NOTED

0" 1/4" 1/2" 1" 2" 3"

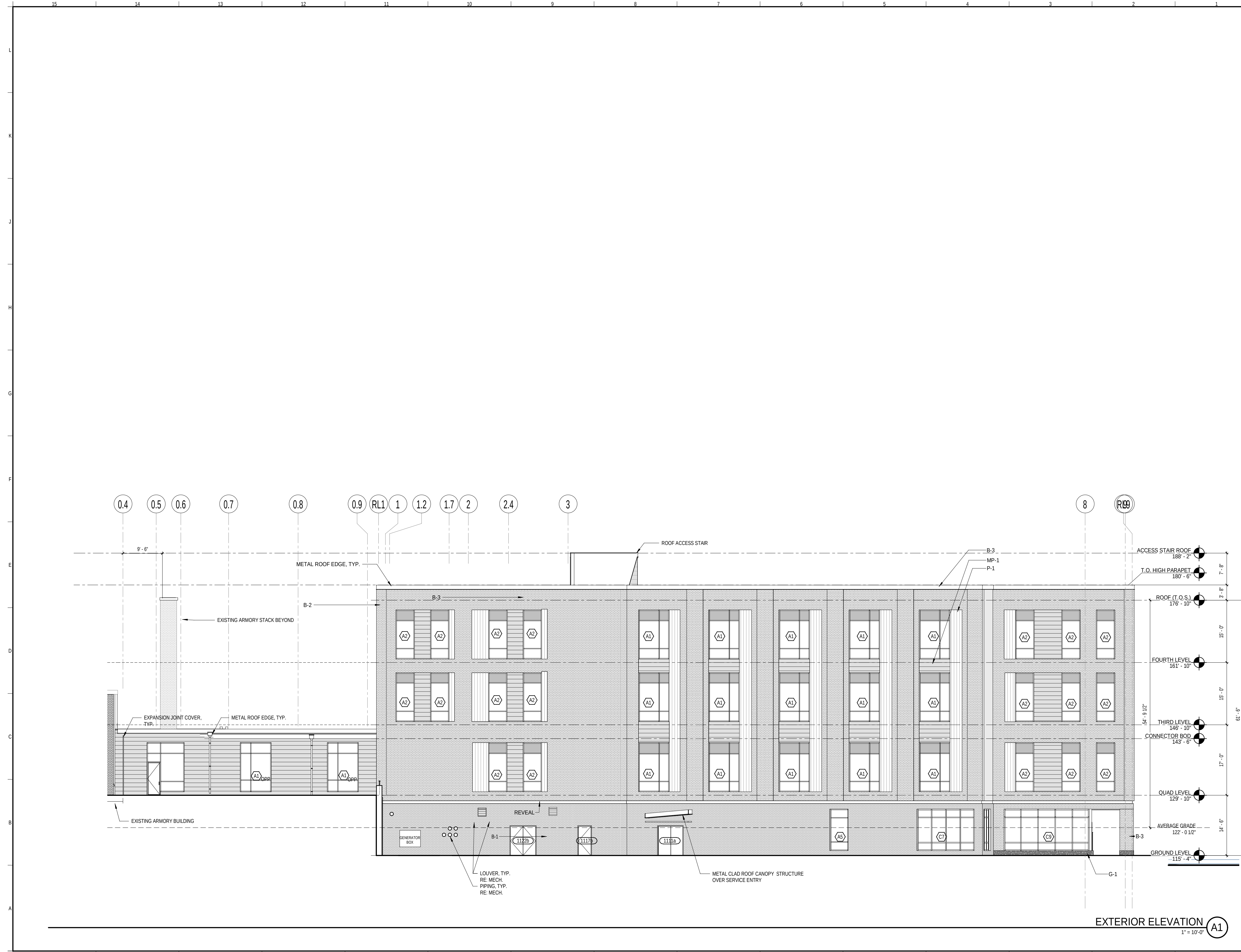
PROJECT MANAGER: KD PROJECT NO: 21004

A/E OF RECORD: MTR

JOB CAPTAIN: ECC

DRAWN BY: ECC

SMRT FILE: A-104-21004 SHEET No. A-104

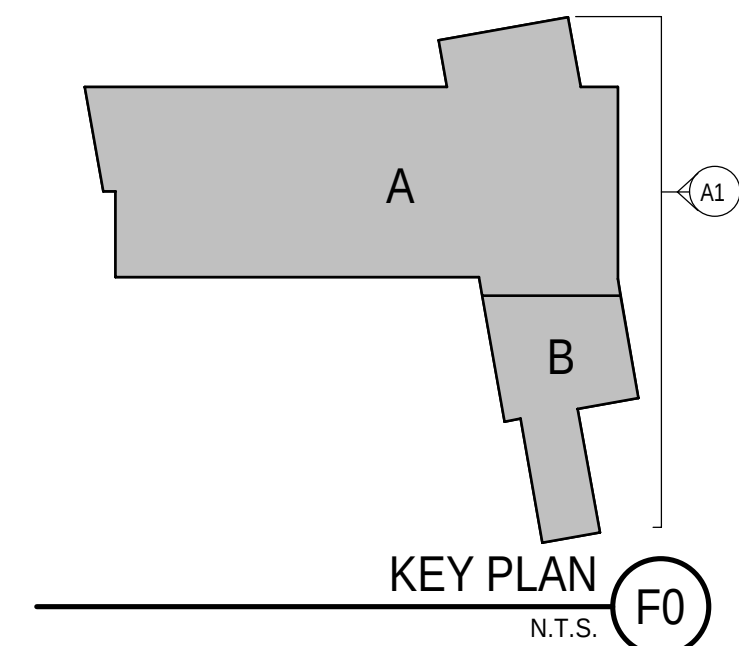


EXTERIOR ELEVATION NOTES:

1. REFER TO FIRE PROTECTION, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL RESPECTIVE FIXTURE/DEVICE LOCATIONS, COUNTS, & ASSOCIATED RECESSED BOXES AT EXTERIOR WALLS.
2. PROVIDE MASONRY CONTROL JOINTS AT ALL INSIDE MASONRY CORNERS AND WHERE SHOWN ON ELEVATIONS.

EXTERIOR FINISH LEGEND:

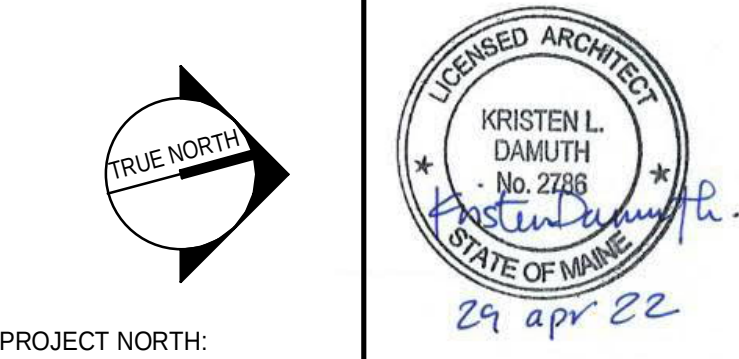
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	BR-2 - BRICK TYPE 2 - DARK BRICK
	CP-1 - PHENOLIC PANEL
	GR-1 - GRANITE WATER COURSE
	MP-1 - METAL PANEL TYPE 1



REV	DESCRIPTION	DATE
0	MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022

MAJOR SITE PLAN AND
CONDITIONAL USE REVIEW
04-29-2022

CURRENT ISSUE STATUS:

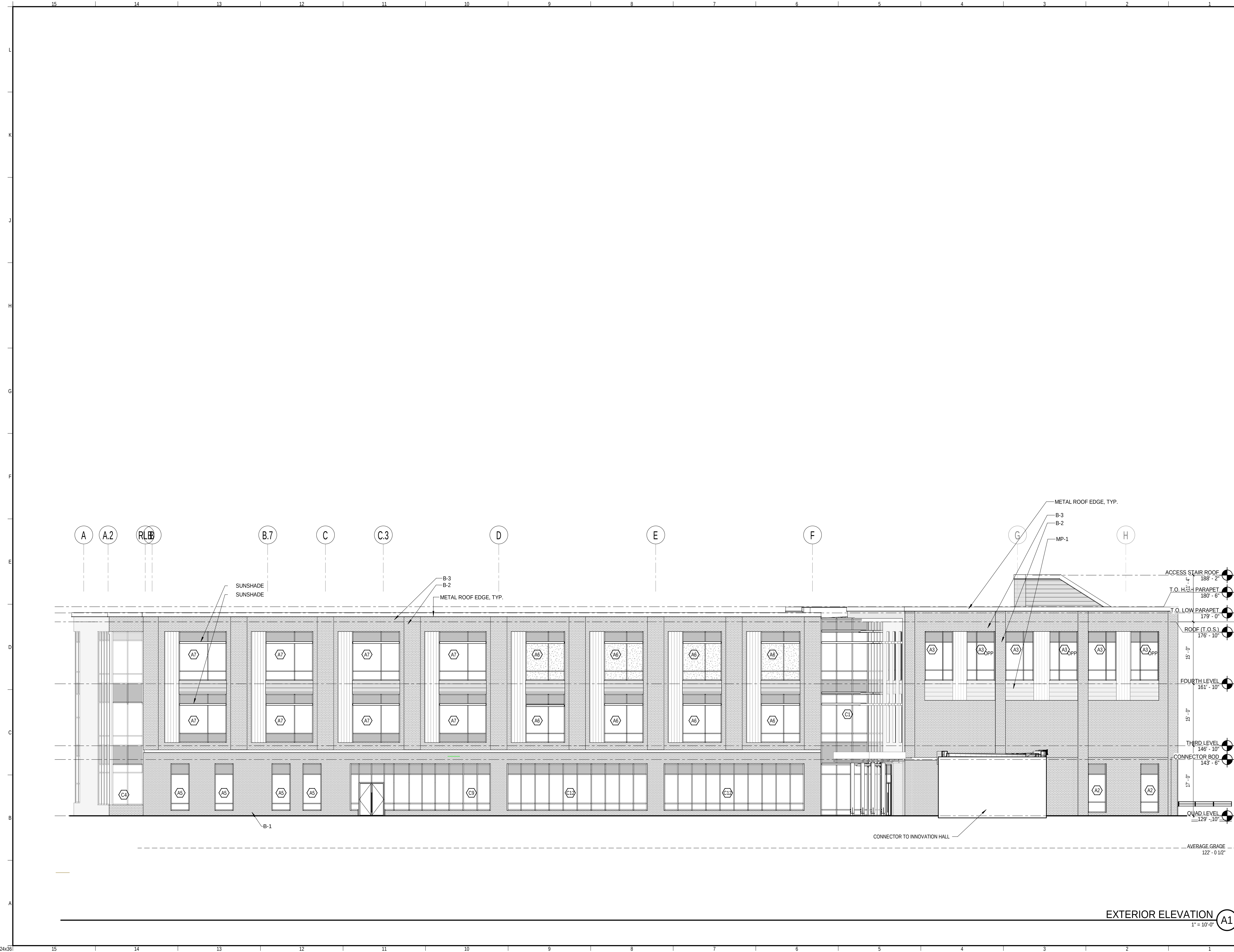


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EXTERIOR ELEVATIONS - NORTH

SHEET TITLE:		TAX PARCEL #145 B018	
0" 1/4" 1/2" 1" 2" 3"			
SCALE: AS NOTED			
PROJECT MANAGER: KD		PROJECT NO: 21004	
A/E OF RECORD: MTR			
JOB CAPTAIN: ECC			
DRAWN BY: ECC			
SMRT FILE: A-201-21004		SHEET No. A-201	



EXTERIOR ELEVATION NOTES:

1. REFER TO FIRE PROTECTION, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL RESPECTIVE FIXTURE/DEVICE LOCATIONS, COUNTS, & ASSOCIATED RECESSED BOXES AT EXTERIOR WALLS.
2. PROVIDE MASONRY CONTROL JOINTS AT ALL INSIDE MASONRY CORNERS AND WHERE SHOWN ON ELEVATIONS.

EXTERIOR FINISH LEGEND:

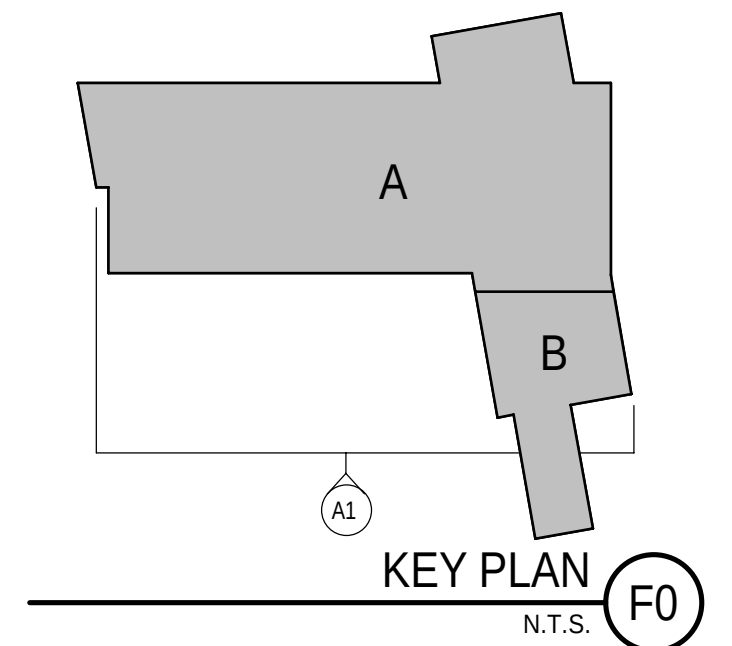
BR-1 - BRICK TYPE 1 - RED BRICK

BR-2 - BRICK TYPE 2 - DARK BRICK

CP-1 - PHENOLIC PANEL

GR-1 - GRANITE WATER COURSE

MP-1 - METAL PANEL TYPE 1



REV	DESCRIPTION	DATE
0	MAJOR SITE PLAN AND CONDITIONAL USE REVIEW	04-29-2022

MAJOR SITE PLAN AND
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04-29-2022

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EXTERIOR ELEVATIONS - EAST

SHEET TITLE: TAX PARCEL #145 B018

SCALE: AS NOTED

PROJECT MANAGER: KD PROJECT NO: 21004

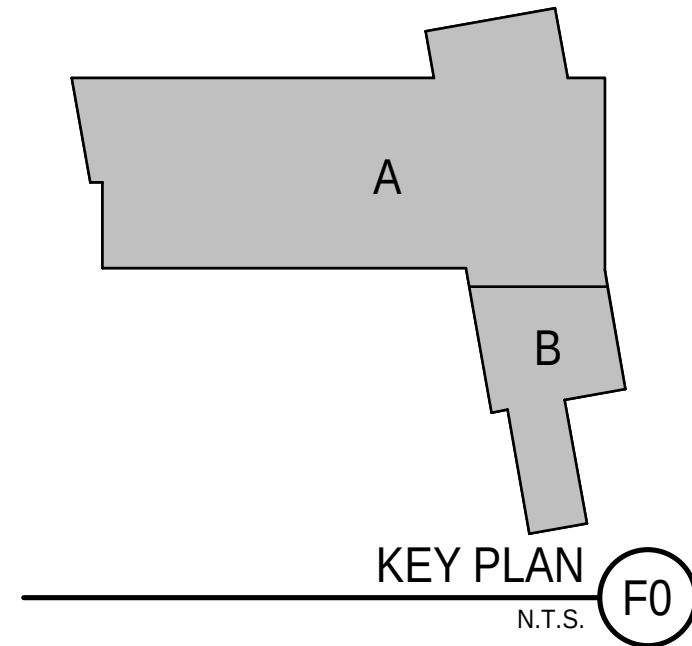
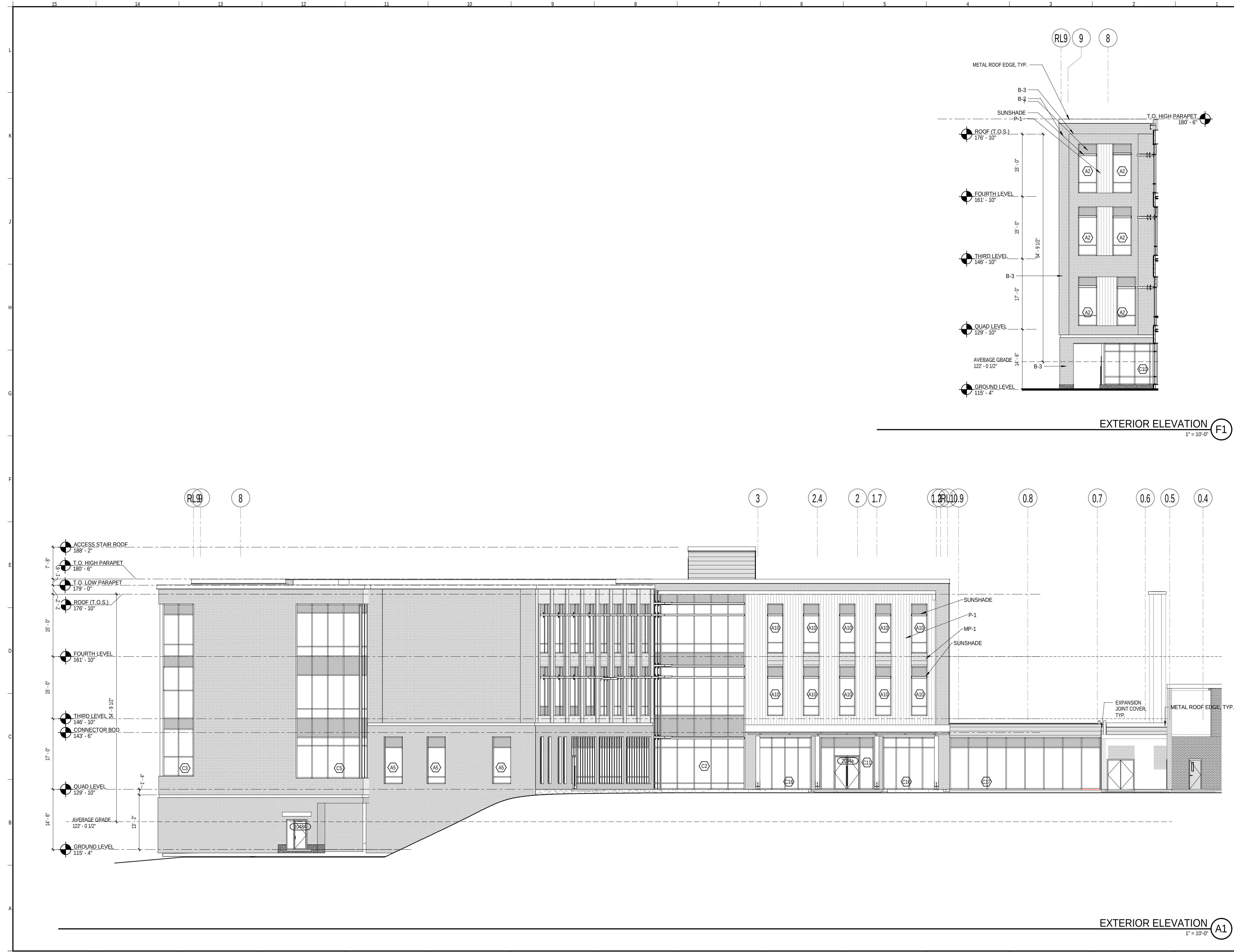
A/E OF RECORD: MTR

JOB CAPTAIN: ECC

DRAWN BY: ECC

SMRT FILE: A-202-21004 SHEET No. A-202

EXTERIOR ELEVATION
1" = 10'-0" A1



REV	DESCRIPTION	DATE
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04-29-2022

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EXTERIOR ELEVATIONS - SOUTH

SHEET TITLE: TAX PARCEL #145 B018

SCALE: AS NOTED

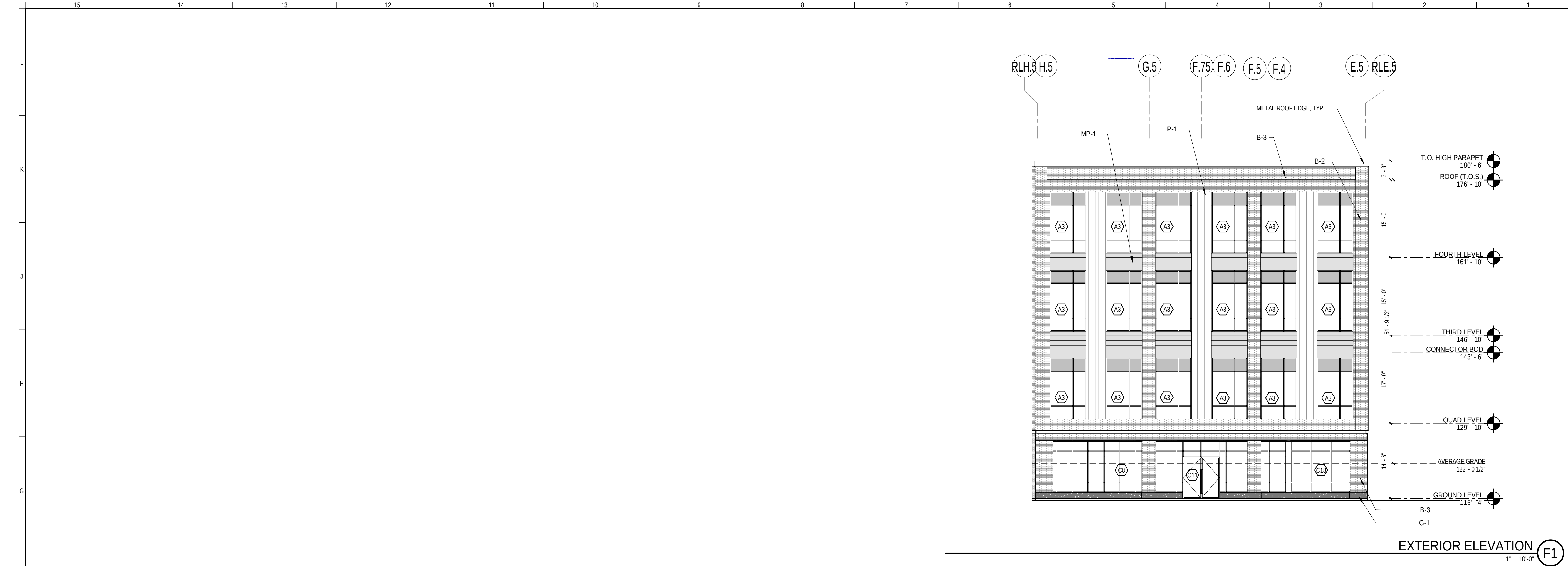
PROJECT MANAGER: KD PROJECT NO: 21004

A/E OF RECORD: MTR

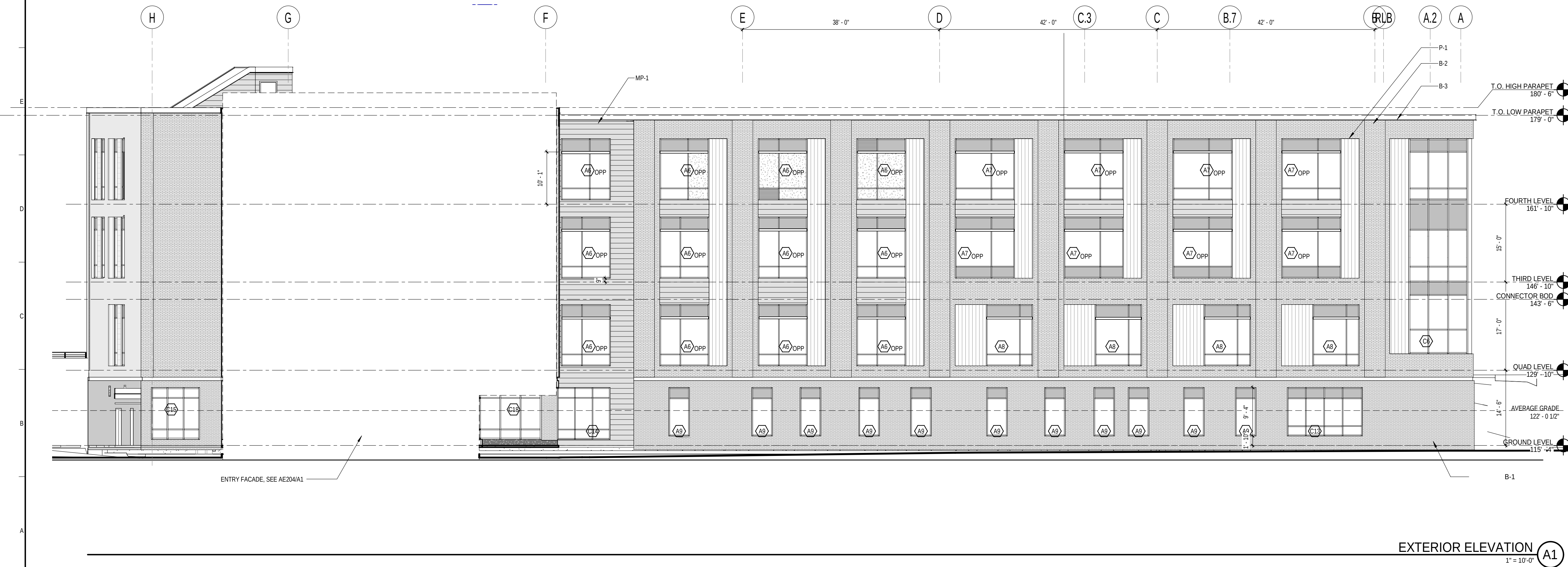
JOB CAPTAIN: ECC

DRAWN BY: ECC

SMRT FILE: A-203-21004 SHEET No. A-203



EXTERIOR ELEVATION (F1)
1" = 10'-0"



EXTERIOR ELEVATION (A1)
1" = 10'-0"

EXTERIOR ELEVATION NOTES:

- REFER TO FIRE PROTECTION, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR ALL RESPECTIVE FIXTURE/DEVICE LOCATIONS, COUNTS, & ASSOCIATED RECESSED BOXES AT EXTERIOR WALLS.
- PROVIDE MASONRY CONTROL JOINTS AT ALL INSIDE MASONRY CORNERS AND WHERE SHOWN ON ELEVATIONS.

EXTERIOR FINISH LEGEND:

- BR-1 - BRICK TYPE 1 - RED BRICK
- BR-2 - BRICK TYPE 2 - DARK BRICK
- CP-1 - PHENOLIC PANEL
- GR-1 - GRANITE WATER COURSE
- MP-1 - METAL PANEL TYPE 1

KEY PLAN (F0)
N.T.S.

MAJOR SITE PLAN AND CONDITIONAL USE REVIEW
04-29-2022

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EXTERIOR ELEVATION - WEST

SHEET TITLE: TAX PARCEL #145 B018

SCALE: AS NOTED

PROJECT MANAGER: KD **PROJECT NO.:** 21004

A/E OF RECORD: MTR

JOB CAPTAIN: ECC

DRAWN BY: ECC

SMRT FILE: A-204-21004 **SHEET No.** A-204

Conditional Use Application
505 Fore Street
CU-002003-2022
Bread + Friends, Applicant

Submitted to:	Portland Planning Board	Prepared By:	Austen Torres Davis
Public Hearing Date:	July 26, 2022	Date:	July 22, 2022

I. INTRODUCTION

Bread + Friends has submitted a Conditional Use application to facilitate the operation of a commercial restaurant space and wholesale bakery at 505 Fore Street, located within the Old Port neighborhood and B-3 Downtown Business zone. In total, the business area covers approximately 4,100 square feet, of which 240 square feet will be devoted to the wholesale bakery.

Wholesale bakeries are considered low-impact industrial uses in the City of Portland Land Use Code. Low-impact industrial uses less than 10,000 square feet are conditional uses in the B-3 zone, therefore, the wholesale bakery portion of this site requires a conditional use application.

505 Fore Street is occupied by a commercial mixed-use building, the ground floor of which was formerly operated as a restaurant. No exterior site alterations have been proposed and as such, no site plan application is associated with this proposal.

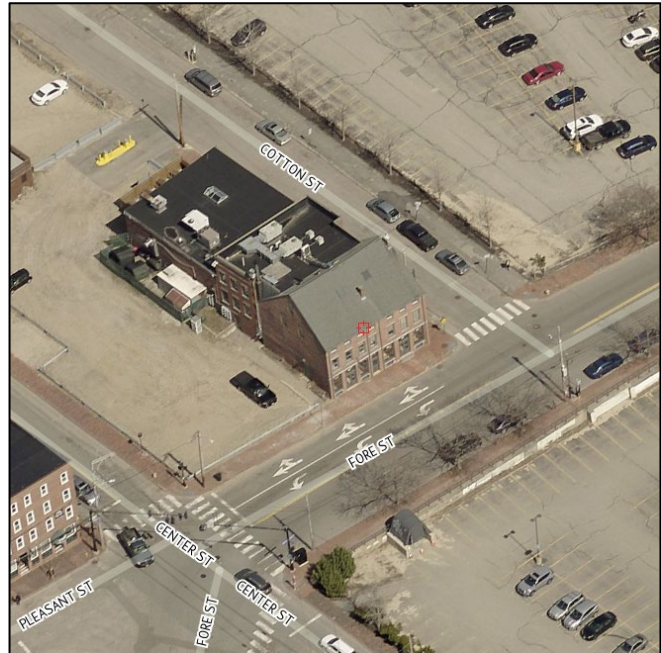


Figure 1. 505 Fore Street Parcel

The application is being referred to the Planning Board for compliance with the City of Portland's Land Use Code General Conditional Use Standards, Section 6.5.2.

In anticipation of this Planning Board Public Hearing the Planning and Urban Development Department mailed 96 notices to residences within 500 feet of the subject property. A legal advertisement ran in the July 15, 2022 and July 16, 2022 editions of the *Portland Press Herald*.

Applicant: Bread + Friends, Applicant

Applicant Team: Leslie Benson Designs, Architect and Applicant Representative

II. PROJECT ACTIONS

Applicant's Proposal	Applicable Standards
Low-impact industrial (<10,000 SF) General Conditional Use	Land Use Code Sec. 6.5.2

III. PROJECT DATA

SUBJECT	505 Fore Street
Total area of the site	18,935 square feet
Existing Zoning	B-3 Downtown Business; Old Port Overlay; Downtown Entertainment Overlay Zone
Existing Use	Multi-Use Commercial
Proposed Use	Multi-Use Commercial; Low-Impact Industrial
Impervious Surface Area --Existing --Proposed --Net Change	18,935 square feet (0.43 acres) 18,935 square feet +0 square feet
Building Footprint --Existing --Proposed --Net Change	6,204 square feet 6,204 square feet +0 square feet
Operation Floor Area --Existing --Proposed --Net Change	4,100 square feet 4,100 square feet +0 square feet
Parking Spaces --Existing --Proposed --Net Change	0 0 +0

BACKGROUND AND EXISTING CONDITIONS

505 Fore Street is a corner lot occupied by a commercial mixed-use building constructed in approximately 1900. The ground floor and basement of the structure have previously been operated as a restaurant. The building footprint is approximately 6,204 square feet in area, though only the first floor and basement of the building are leased by the applicant Bread + Friends. The total area of the leased space is approximately 4,100 square feet. The site is located in Downtown Portland and is zoned B-3 Downtown Business. The site is accessible to public transit. South Portland Bus Route 21, 24A, and 24B run along Fore and York streets. METRO local service bus lines run along Congress Street to the north of the site and METRO local route 8 runs nearby on High Street.

IV. PROPOSED DEVELOPMENT

The applicant proposes to refurbish the interior first floor and basement spaces to accommodate an approximately 700 square foot café and seating space, a 750 square foot bakery, and a 240 square foot commercial kitchen. No exterior site alterations or improvements are proposed in connection with this proposal. Additionally, no changes to parking are proposed. The aforementioned improvements are below the thresholds for site plan review and are subject to review by the Permitting and Inspections office. The application's wholesale component of their bakery business is subject to conditional use review by the Planning Board.. The Land Use Code defines industrial low-impact uses, which are conditional in the B-3 zone, as operations involving packaging, assembly, or distribution of finished products from previously prepared material. The operations of Bread + Friends meet this definition as they involve preparing, packaging, and distributing baked goods.

VI. RIGHT, TITLE AND INTEREST AND FINANCIAL/TECHNICAL CAPACITY

The operator and lessee of the property, Bread + Friends LLC., has provided a lease agreement with the owner of the property, Casco View Holdings III, LLC. This lease includes the first floor and certain areas of the basement level of the existing mixed-use building. The provided lease is for a duration of ten (10) years, commencing on November 8 2021.

VII. ZONING ANALYSIS

A. DIMENSIONAL AND USE REQUIREMENTS

505 Fore Street (parcel 038 Co12001), is located in the B-3 Downtown Business zone. Low-impact industrial uses less than 10,000 square feet, including wholesale bakeries, are listed as conditional uses in the B-3 zone as described in Table 6-C of the Land Use Code. Therefore, the wholesale bakery component of the Bread + Friends business requires a conditional use review, and is subject to the General Conditional Use Standards, Section 6.5.2.

The following table shows the dimensional requirements of the B-3 zone which are met by this proposal:

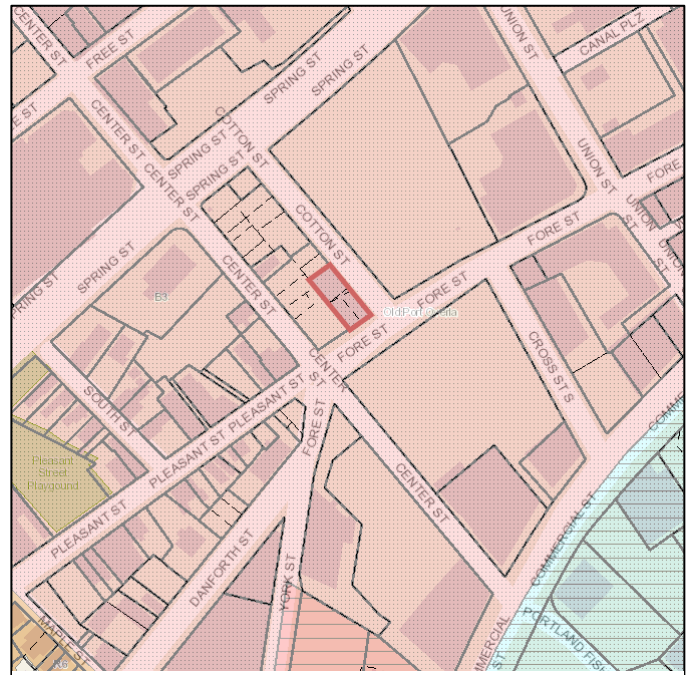


Figure 2. 505 Fore Street in B-3 Zone Context

<i>Standard</i>	<i>B-3 Zoning Requirements</i>	<i>505 Fore Street</i>
Minimum Lot Area	N/A	0.43 acres
Minimum Street Frontage	15 feet	48 feet
Maximum Front Setback	5 feet	0 feet

Minimum Rear Setback	N/A	0 feet
Minimum Side Setback	N/A	0 feet
Maximum Lot Coverage	N/A	100%
Maximum Structure Height	85 feet (Downtown Height Overlay)	< 85 feet
Minimum Off-Street Parking	0 spaces (1 space per 1,000 square feet of floor area in excess of 3,000 square feet)	0 spaces (750 square feet of industrial-bakery area)

VIII. CONDITIONAL USE REVIEW

A. GENERAL CONDITIONAL USE STANDARDS – SECTION 6.5.2

1. The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone.

The proposed use is located within Portland's walkable downtown, within the B-3 zone where a number of businesses exist and are served by delivery vehicles and are accessible via public transit. The proposed wholesale component would utilize one van which will have access to an existing commercial loading zone located on Cotton Street. The B-3 zone is Portland's Downtown Business zone and is intended to maintain and enhance the role of downtown as the business and commercial center of the region. Hours of operation for the proposed use will be consistent with other nearby uses and other allowable uses in the B-3 zone, which includes bars, restaurants, retail, theaters and performance halls, offices, and general services amongst other uses listed in Table 6-C.

The traffic induced by the wholesale use would total one van, used to make wholesale runs three days per-week between 6:30 and 11:00am. During this time the delivery van is projected to return for resupplies one or two times. Bread + Friends owns a van proposed to be loaded for deliveries within the parking lot adjacent the existing building. In rare occasions when loading on the street would be required, the applicants plan use the commercial loading zone on Cotton Street.

Given the built context here, no additional parking is being supplied and patrons are expected to arrive on foot, having utilized street parking if necessary.

Staff Response:

This standard has been met.

2. **The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter.**

The wholesale bakery use does not differ substantially from the existing allowable restaurant use or other allowable commercial uses permitted in the B-3 zone and is not expected to produce unsanitary or harmful conditions. The site is surrounded by surface parking lots and a mix of uses including restaurants, bars, retail establishments, and offices.

Staff Response:

This standard has been met.

3. **The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.**

No alterations to landscaping, screening, or the arrangement of structures is proposed.

Signage, waste generation, and materials storage are not expected to differ substantially from the existing allowable restaurant use. Deliveries are projected to take place for about four-and-a-half hours per day, on three days per week. The van being used by Bread + Friends does not differ substantially in size from a personal automobile, and the duration and dates of loading deliveries is not anticipated to differ from what is generally acceptable of businesses in the city's Downtown area.

Staff Response:

This standard has been met.

4. **The proposed use will meet any additional zone or use-specific standards identified in Tables 6-C to 6-F and Subsections 6.5.6 and 6.5.7.**

The proposed use is listed as a conditional use in the B-3 zone in Table 6-C, but is not subject to use-specific standards identified in Section 6.5.6(C).

Staff Response:

This standard is not applicable.

IX. PUBLIC COMMENT

In anticipation of this Planning Board Public Hearing the Planning and Urban Development Department mailed 96 notices to residences within 500 feet of the subject property. A legal advertisement ran in the July 15, 2022 and July 16, 2022 editions of the Portland Press Herald.

At the time of writing this memo, the Planning Department has received no public comment.

X. STAFF RECOMMENDATION

Subject to the proposed motions listed below, Planning Department staff find that the proposal to include a wholesale commercial bakery use at 505 Fore Street meets the applicable conditional use standards of Portland's Land Use Code.

XI. PROPOSED MOTIONS**A. CONDITIONAL USE**

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on July 26, 2022 for application CU-002003-2022 relevant to Land Use Code Section 6.5.2 and the testimony presented at the Planning Board hearing, the Planning Board finds that the plan is/is not in conformance with the conditional use standards of the Land Use Code.

XII. ATTACHMENTS**APPLICANT'S SUBMITTAL**

- A. Application Checklist
- B. Project Summary
- C. 505 Fore Street Lease
- D. Conditional Use Standards

PLANS

- Plan 1 – Cover Sheet with Site Plan
- Plan 2 – Life Safety Plans & ADA Information
- Plan 3 – Basement Plan & Demolition Plan
- Plan 4 – First Floor Plan & Demolition Plan
- Plan 5 – Equipment Plans & MEP Narratives
- Plan 6 – Equipment Schedules

CITY OF PORTLAND
Planning & Urban Development Department

**CONDITIONAL USE – PLANNING BOARD REVIEW
SUBMISSION CHECKLIST**

Please submit each document as a separate PDF file.
Please confirm by electronically checking the boxes in the left-hand column.

Conditional uses are listed in the land use code for each zone. The applicant must address the general standards as well as any use- or zone-based conditional use standards contained in Article 6.5 of the land use code in the written application.

GENERAL APPLICATION DOCUMENTS

☒	N/A	Project Description Cover letter with detailed project description
☒	N/A	Completed Checklist – Conditional Use (this document)
☒	N/A	Evidence of Right, Title and Interest Deeds, leases, or purchase and sales agreements

CONDITIONAL USE STANDARDS AND CRITERIA

**ALL ITEMS ADDRESSED IN THE
CONDITIONAL USE STANDARDS LETTER**

☒	☒	Traffic Demonstrate that the volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the zone.
☒	☒	Environmental Impacts Demonstrate that the proposed use will not create any unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter.
☒	☒	Design and Operation Demonstrate that the design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.
☒	N/A	Use- and Zone-Specific Criteria Address any use- or zone-specific standards in Sections 6.5.6 and 6.5.7 of the land use code.

LESLIE BENSON DESIGNS

April 14, 2022

RE:
Bread + Friends
Tenant Fit-Up
505 Fore Street
Portland, ME 04101
Permit ID: BLDC2022-02621

To Whom It may Concern,

We are seeking conditional use approval for operating a commercial bakery in the B-3 Zone, to be located at 505 Fore Street. The renovated space, most recently occupied by a wood fired pizza restaurant, will house a bakery w/wood fired oven, full kitchen and café. The bakery will also have approximately 10-12 wholesale accounts. Chapter 14 designates wholesales from bakeries within the B-3 Zone as low-impact industrial and requires a conditional use permit granted by the Planning Board (see Table 6-C and section 6.5.6-E within Chapter 14 of the city's ordinance).

The new tenant will occupy the ground floor and basement levels of the property, comprising 4,100 SF total. Of this space, the ground floor portion is divided into approximately 700 SF for a café and seating for up to 24 customers, 750 SF for the bakery and 240 SF for the commercial kitchen. The 1,824 SF basement level's use is to remain as it was, housing storage, a dish pit and prep area. The café plans to provide outdoor seating in accommodating weather.

In my review of the criteria for the issuance of the conditional use permit there is nothing that jumps out as inappropriate or incompatible in this proposed use, nor does it differ greatly in operation or impact from the restaurant uses that have previously operated out of the space. The following information is presented for your review and ideally the Planning Board will be in agreement.

Sincerely,



Leslie Benson
Maine Licensed Architect, LEED AP
Leslie Benson Designs, LLC

MEMORANDUM OF LEASE

Notice is hereby given of the Commercial Lease containing the following terms.

Landlord:

Casco View Holdings III, LLC
261 Commercial Street
P.O. Box 1137
Portland, ME 04104

Tenant:

Bread and Friends LLC
1 Shady Ledge Lane
Freeport, ME 04032

Date of Execution:

November 8, 2021

Premises:

The first floor (with certain space in the basement) of the Building located at 505 Fore Street, Portland, ME 04101

Term of Lease:

An initial term of approximately Ten Years, commencing on November 8, 2021.

The parties acknowledge that this Memorandum is executed pursuant to the provisions of the Lease and is not intended to vary the terms or conditions of the Lease in any way.

Casco View Holdings III, LLC

Delish Salach

Witness

By: *Cat F. [Signature]*

Its: Corporate Secretary

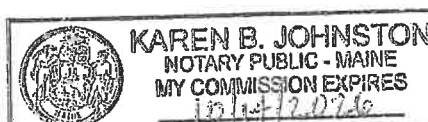
STATE OF MAINE
Cumberland (county)

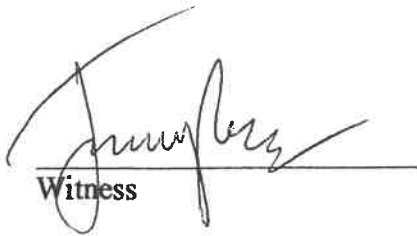
November 15, 2021

Personally appeared the above-named *Catherine F. [Signature]* duly authorized Manager of Casco View Holdings III, LLC and acknowledged the foregoing instrument to be his/her free act and deed in his/her said capacity and the free act and deed of Casco View Holdings III, LLC. Before me,

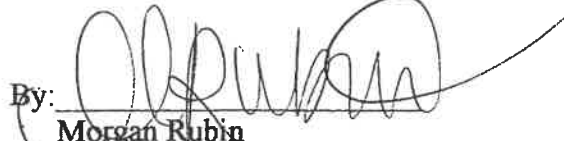
Karen B. Johnston
Notary Public/Attorney-at-Law

Karen B Johnston
Printed Name




Witness

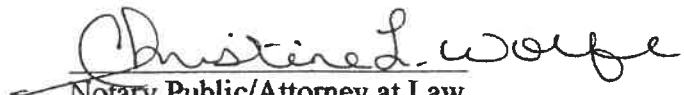
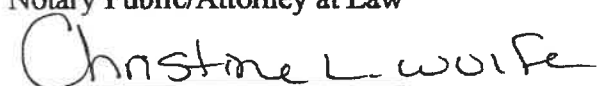
Bread and Friends LLC

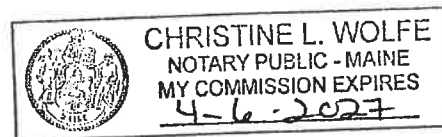
By: 
Morgan Rubin
Its. Manager

STATE OF MAINE
Cumberland (county)

November 9, 2021

Personally appeared the above-named Morgan Rubin, Manager of Bread and Friends LLC and acknowledged the foregoing instrument to be her free act and deed in her said capacity and the free act and deed of Bread and Friends LLC. Before me,


Notary Public/Attorney at Law

Printed Name



LEASE AGREEMENT

THIS LEASE AGREEMENT (this "Lease") dated as of November 8, 2021, is by and between **CASCO VIEW HOLDINGS III, LLC**, a Maine limited liability company, with an office and place of business in Portland, Maine ("Landlord") and **BREAD AND FRIENDS LLC**, a Maine limited liability company ("Tenant").

RECITALS:

A. Landlord owns certain real property and improvements situated at 505 Fore Street, Portland, Maine (the "Property"). The Property is improved with a mixed use commercial building (the "Building") having a rentable floor area of 9,815 square feet.

B. Landlord wishes to lease to Tenant and Tenant wishes to lease from Landlord approximately 2,996 +/- sf, on the first floor of the Building together with space in the basement of the Building, as shown on the plan attached hereto as **EXHIBIT A** (the "Leased Premises" or "Premises"). The cross hatched areas in the basement are used by Landlord for common storage and for HVAC equipment and not for use by Tenant, except that Tenant will be permitted access as necessary for the installation and service of Tenant's internet and associated equipment.

AGREEMENT:

NOW, THEREFORE, in consideration of the mutual covenants and agreements set forth herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Leased Premises.

Landlord hereby leases to Tenant and Tenant hereby leases from Landlord the Leased Premises, which shall include the right, in common with others, to the common areas and facilities of the Building. **TO HAVE AND TO HOLD** the Leased Premises for the term and rental hereinafter provided and upon the conditions, covenants and agreements hereinafter set forth.

2. Term.

(a) The initial term of this Lease (the "Initial Term") shall be for ten (10) years and two (2) months, commencing on the "Commencement Date" (as such term is defined below) and ending on the last day of the calendar month that is ten (10) years and two (2) months after the Commencement Date. The Commencement Date shall be the date on which this Lease is fully executed by both parties

Base Rent shall commence on that date which is two (2) months after the Commencement Date (the "Rent Commencement Date"). Upon request of either party, Landlord and Tenant shall enter into an instrument in recordable form confirming the Commencement Date and Rent Commencement Date and the end of the Term. If the Rent Commencement Date is on a date other than the first (1st) of the month, Tenant's first Base Rent payment shall be prorated accordingly.

(b) Tenant shall have the option to extend the term of this Lease for one (1) additional period of five (5) years (referred to herein as a "Renewal Term"). The Renewal Term shall commence immediately upon the expiration of the Initial Term. In order to exercise the option to extend this Lease for a Renewal Term, (i) Tenant shall deliver to Landlord written notice of its election to exercise said option not later than six (6) months before the expiration of the Initial Term of this Lease and (ii) the Lease shall be in full force and effect and Tenant shall not be in default of any of its obligations under this Lease at the time it delivers notice of its election to exercise said option to extend; provided, however, that if Tenant is in default at the time it delivers such notice, but is still within any applicable cure period, such extension notice shall be valid if Tenant in fact cures such default within such applicable cure period. All of the terms and conditions of this Lease shall be applicable in the event of an extension hereof pursuant to this Section, except that Tenant shall have no right or option to extend this Lease beyond expiration of the Renewal Term set forth in this Section. The word "Term" as used herein shall mean the Initial Term; provided, however, that if the Initial Term is timely extended as provided herein, the word "Term" shall mean the Initial Term as so extended. The Base Rent and annual escalators for the Renewal Term shall be at market rates to be negotiated by the parties, but the Base Rent for year 11 shall not be lower than the Base Rent for year 10 and the annual escalators in the Renewal Term shall not be less than 2%.

3. Rent.

(a) **Base Rent.** Tenant covenants and agrees to pay to Landlord an annual base rent (the "Base Rent") for the Leased Premises for each of the following specified "Lease Years" (as such term is defined below), as follows:

Lease Year	Monthly Rent	Annual Rent
1	\$5,492.67	\$65,912.00
2	\$5,617.50	\$67,410.00
3	\$5,742.33	\$68,908.00
4	\$5,867.17	\$70,406.00
5	\$5,992.00	\$71,904.00
6	\$6,116.83	\$73,402.00
7	\$6,241.67	\$74,900.00
8	\$6,366.50	\$76,398.00
9	\$6,491.33	\$77,896.00
10	\$6,616.17	\$79,394.00

(b) **Operating Expenses.** Tenant shall pay to Landlord, in addition to Base Rent, "Tenant's Proportionate Share" of "Landlord's Operating Expenses" (defined below). Tenant's Proportionate Share of Landlord's Operating Expenses for less than a Lease Year shall be prorated and apportioned. Any increase to Tenant's Proportionate Share of Landlord's controllable Operating Expenses shall never exceed five percent (5%) from the previous year. Operating Expenses shall be deemed "controllable" if they are capable of being reasonably limited by

Landlord. Commencing on the Rent Commencement Date, Tenant shall pay to Landlord \$1,837.55, which represents the sum of 1/12 of Tenant's Proportionate Share of the estimated Landlord's Operating Expenses for 2021 (as determined pursuant to this section) and 1/12 of Tenant's Proportionate Share of estimated property taxes for 2021 (as described in Section 5 below).

By March 30th during each year of the Term, Landlord shall determine or estimate the Landlord's Operating Expenses for the upcoming year ("Landlord's Estimated Operating Expenses") and shall submit such information to Tenant in a written statement ("Landlord's Expense Statement").

Commencing on the first day of the month following the submission of any Landlord's Expense Statement and continuing thereafter on each successive first day of the month until Landlord renders the next Landlord's Expense Statement, Tenant shall pay to Landlord a sum (the "Monthly Expense Payment") equal to one-twelfth (1/12) of Tenant's Proportionate Share of Landlord's Estimated Operating Expenses for such Lease Year.

Each Landlord's Expense Statement shall reconcile the payments made by Tenant pursuant to the preceding Landlord's Expense Statement with Tenant's Proportionate Share of Landlord's Operating Expenses for the period covered thereby. The statement required to be delivered to Tenant summarizing real estate taxes and Landlord's Operating Expenses shall contain reasonable detail and support for the amounts payable by Tenant. Within ten (10) days of receiving an Expense Statement resulting in a 0.5% or greater increase to Tenant's Monthly Expense Payment, Tenant shall be entitled to submit a reasonable request in writing to Landlord for additional detail and/or support pertaining to amounts contained in the Expense Statement. Landlord shall provide such information to Tenant within ten (10) days of the request. If Landlord fails to provide the requested information to Tenant in that time, Tenant may withhold the portion of the Monthly Expense Payment that is in excess of the amount of the prior Monthly Expense Payment plus a 0.5% increase, until such time as the reasonably-requested information is provided to Tenant.

Subject to the foregoing, any balance due to Landlord shall be paid by Tenant within thirty (30) days after Tenant's receipt of Landlord's Expense Statement; any surplus due to Tenant shall be applied by Landlord against the next accruing monthly installment of Base Rent due under this Lease. If the Term has expired or has been terminated, Tenant shall pay the balance due to Landlord or, alternatively, Landlord shall refund the surplus to Tenant, whichever the case may be, within thirty (30) days after Tenant's receipt of Landlord's Expense Statement; provided, however, if the Term shall have been terminated as a result of a default by Tenant, then Landlord shall have the right to retain such surplus to offset any past-due Base Rent or other amounts due to Landlord by Tenant hereunder.

If any tenant in the Building for any reason shall not be provided all services generally provided by Landlord to other tenants of the Building, then for purposes of determining Landlord's Operating Expenses, Landlord shall reasonably estimate what Landlord's Operating Expenses would have been had such service been provided to all tenants, provided, however, that Tenant shall not be obligated to absorb any cost that was not actually expended by Landlord

Tenant shall also pay to Landlord, within thirty (30) days of receipt of a detailed invoice, the reasonable amount of any cost or expense incurred by Landlord which is in addition to the customary costs and expenses then included in Landlord's Operating Expenses and which is directly attributable to Tenant's use of the Leased Premises, to activities conducted on or about the Leased Premises by Tenant or on behalf of Tenant or to any additions, improvements or alterations to the Leased Premises made by or on behalf of Tenant; provided, however, that such cost or expense was agreed to in writing by Tenant in advance and is not capital in nature.

(c) Rental Payment. The Base Rent and Operating Expenses and share of property taxes (together "Rental Payments") payable hereunder shall be payable to Landlord in equal monthly installments throughout each Lease Year. The first monthly installment of Base Rent shall be due and payable on the Rent Commencement Date and the first monthly installment of Operating Expenses shall be due and payable as set forth above in Section 3(b). Thereafter, the monthly installments of Rental Payments shall be due and payable on the first day of each month during the Term without notice, setoff or deduction (except as specifically set forth to the contrary herein), in lawful money of the United States at the address of Landlord as set forth in Section 33, or at such other place as Landlord may from time to time designate in writing.

(d) Definition of Lease Year. The term "Lease Year" means each period of twelve (12) months beginning with the Rent Commencement Date, and each subsequent Lease Year beginning on an anniversary thereof.

(e) Definition of Landlord's Operating Expenses. The term "Landlord's Operating Expenses" shall include all costs and expenses paid or incurred by Landlord with respect to the ownership, operation, management, maintenance or repair of the Property, including, but not necessarily limited to:

- (1) fees paid to a property manager;
- (2) Landlord's cost of maintaining and repairing all sidewalks, landscaping, utility lines and facilities;
- (3) snow removal and ice treatment;
- (4) lighting of the exterior of the Building and Property;
- (5) all costs of operating, maintaining and repairing the Building and equipment, including periodic repainting and refurbishment;
- (6) all utilities not separately metered to tenants;
- (7) the annual maintenance and non-Capital repairs of all HVAC equipment;
- (8) insurance carried by Landlord related to the Building or the Property on which it sits;
- (9) the cost to maintain common trash and recycling dumpsters (as set forth in Section 4 below);
- (10) cleaning the interior common areas of the Building; and
- (11) washing the exterior windows of the Building.

The foregoing notwithstanding, Landlord's Operating Expenses shall not include the cost of any services and utilities to the Leased Premises that shall be provided by, or contracted for by, Tenant at its sole cost, pursuant to Section 4.

(f) Exclusions. In no event shall Tenant be liable to pay for any of the following items and/or costs, which shall be excluded from Landlord's Operating Expenses:

- (1) any expenditure which, under Generally Accepted Accounting Principals ("GAAP") would constitute a capital expenditure or otherwise be deemed capital in nature;
- (2) interest, principal, points, fees or other costs associated with any debt encumbering all or any portion of the property of which the Leased Premises are a part;
- (3) depreciation, amortization or other expense not paid in cash;
- (4) reserves, whether actually funded or not, and/or any charges that relate to or benefit fewer than all of the tenants in the Building;
- (5) any management fees, administrative, overhead or other charges which exceed the reasonable cost of administering or supervising the operation or management of the Building;
- (6) costs of leasing and/or procuring tenants, including attorneys' fees, leasing commissions, advertising costs, space planning, buy-outs, contributions and tenant improvement expenses; and costs to construct any tenant alterations or improvements in connection with the preparation of a space for a new tenant or the renovation of any space for an existing tenant, and any expenses incurred by Landlord to resolve disputes, enforce or negotiate lease terms with prospective or existing tenants;
- (7) rentals and other related expenses incurred in leasing air conditioning systems, or other equipment ordinarily considered to be of a capital nature; (vii) any income, receipts, estate or inheritance taxes;
- (8) any costs to the extent of any net amount Landlord has received reimbursement therefore from condemnation, insurance or any other party or person, and any costs to the extent they are the responsibility of tenants, including Tenant, under Lease provisions;
- (9) any penalty or fine incurred by Landlord due to Landlord's violation of any law; or any interest or penalties assessed against Landlord for late payment by Landlord of any of the Operating Expenses;
- (10) Landlord's legal fees, except as otherwise provided in this Lease;
- (11) costs of repairs or replacement to the extent covered by warranty or guaranty;
- (12) cost of cleanup/remediation of any hazardous waste or hazardous substance, and all other costs of complying with any environmental law, ordinance, regulation, decree or order which are not caused by Tenant; and
- (13) financing costs.

(g) Definition of Tenant's Proportionate Share. The term "Tenant's Proportionate Share" shall mean 30.5%, which is the portion of the Leased Premises' square footage divided by the total square footage of the Building's rentable floor area.

4. Utilities, HVAC and Trash Collection.

(a) Tenant shall pay for the following utilities supplied to and/or servicing the Leased Premises, which payment(s) shall be made directly to the providers of said services:

- (1) Electricity exclusively serving the Leased Premises;
- (2) All data and telecommunications servicing the Leased Premises;

(3) Gas service serving the Leased Premises, to the extent it is separately metered. Tenant shall be responsible for contracting directly with the electricity, telecommunications and gas suppliers.

(b) All other utility costs shall be allocated in accordance with Section 3, except that Tenant shall pay Landlord directly for sub-metered water use. Notwithstanding the foregoing, Landlord represents that: (a) the Leased Premises is served by a HVAC system and that such HVAC system shall be maintained by Landlord, with the cost of non-capital maintenance and repairs included in Landlord's Operating Expenses, and shall at all times remain in good and working order throughout the term of the Lease such that it will provide adequate heating and cooling for Tenant's operations twenty-four (24) hours a day, seven (7) days a week; and (b) the Leased Premises is served by a hot water heater for the use and benefit of Tenant, its employees and customers. Landlord acknowledges that Tenant's operations require not only the foregoing heating and cooling ability but also access for Tenant and Tenant's employees to the Premises during normal business hours, after-hours and during weekends and holidays, three hundred sixty-five (365) days a year and Landlord agrees to cooperate with Tenant in accommodating such access during the Term of this Lease.

(c) Tenant shall be responsible for 25% of the charges associated with the trash dumpster serving the Property. The dumpster also serves the adjacent property at 10 Cotton Street (currently Rivalries restaurant), which pays for 50% of the dumpster charges. The remaining 25% of the dumpster charges are paid by the office tenants. The dumpster charges are included in the estimated Landlord's Operating Expenses for 2021 and will be included in Landlord's Operating Expenses going forward. Landlord reserves the right to change the allocation based on the actual dumpster use of the tenants of the Property, provided, however, that Tenant will be notified of any such change at least thirty (30) days in advance.

5. Taxes.

(a) Tenant shall pay to Landlord, in addition to Base Rent and Operating Expenses, Tenant's Proportionate Share of the "Taxes". The term "Taxes" shall mean the property taxes with respect to the Property. The process for assessing Tenant's payment of its proportionate share of Taxes shall be the same as the process for Operating Expenses set forth in Section 3(b), provided, however, that Tenant's obligation with respect to taxes is separate and distinct from Tenant's obligation with respect to Operating Expenses. Tenant's Proportionate Share of property taxes for less than a Lease Year shall be prorated and apportioned.

(b) Tenant shall pay before delinquency any and all personal property taxes, assessments, license taxes, sales and use taxes, employment taxes and other charges levied, assessed or imposed and which become payable during the Term upon Tenant's operations or upon the equipment, furniture, appliances or trade fixtures and other personal property of Tenant of any kind installed or located on the Leased Premises. In no event shall Tenant be entitled to seek an abatement of real estate taxes without Landlord's prior written approval, which approval may be withheld in Landlord's sole and absolute discretion.

6. Use and Signage.

(a) The Leased Premises shall be used by Tenant solely as a bakery and cafe, providing services to wholesale clients and retail customers on the premises, and for no other purposes without the prior written consent of the Landlord, which consent shall not be unreasonably withheld, conditioned or delayed. Tenant shall use the Leased Premises in a careful, safe and proper manner and shall not use or permit the Leased Premises to be used for any purposes prohibited by the laws of the United States or the State of Maine or the ordinances of the City of Portland. Tenant shall keep the Leased Premises in a neat and sanitary condition and shall not commit or permit any nuisance or waste on or in, or about the Leased Premises. Tenant shall dispose of all debris, trash and waste in compliance with all applicable laws and regulations.

(b) Tenant shall be entitled to a designated space to store firewood outside of the Building ("Firewood Storage Area") in a location designated by Landlord. The firewood storage area shall be approximately 85 square feet in surface area and six (6) feet in height, capable of being covered, and no more than twenty (20) feet from a point of ingress/egress to the Leased Premises. Landlord reserves the right to relocate the Firewood Storage Area during the Term, so long as the relocated Firewood Storage Area meets the foregoing parameters. Tenant shall maintain the Firewood Storage Area in a neat, tidy and orderly condition at all times, and the use of the Firewood Storage Area shall not interfere with or impede any ingress to the Building. Tenant shall be responsible, at Tenant's expense, for obtaining and maintaining any municipal permits required for the Firewood Storage Area.

(c) Tenant shall have the right with Landlord's prior written approval, which approval shall not be unreasonably withheld, to affix and maintain upon the brackets on the exterior of the Building, and within the Leased Premises visible from the street, tasteful signage consistent with the style and age of the Building. All such signage shall be installed and maintained at Tenant's sole cost, and Tenant shall be required to obtain all necessary approvals for such signage, including, without limitation, any applicable historic district approvals.

7. Compliance with Laws.

Tenant covenants and agrees that during the Term, it shall promptly comply with all present and future laws, ordinances, orders, rules, regulations and requirements of the federal, state and local governments or any of their departments, bureaus, boards, commissions and officials thereof with respect to the Leased Premises or the use or occupancy thereof, including without limitation, at Tenant's cost, to alter, maintain or restore the Leased Premises in compliance with all laws relating to the condition, use or occupancy of the Leased Premises, whether said compliance shall be ordered or directed to or against Landlord or Tenant, or both, provided such action and such compliance set forth above, is required only due to the Tenant's use of the Leased Premises.

8. Alterations and Improvements.

(a) Tenant acknowledges that it is leasing the Leased Premises "as is" and "where is" and that Landlord is not responsible for making any Tenant improvements or alterations, except as set forth in Section 8(d) below. Tenant shall not make any improvements, alterations additions or

installments to or at the Leased Premises without Landlord's prior written approval, which approval will not be unreasonably withheld or delayed.

(b) Tenant hereby releases and agrees to hold Landlord forever harmless from any and all claims and liabilities of any kind and description which may arise out of or be connected in any way with improvements, alterations, additions or installations on or to the Leased Premises, except those initiated or undertaken by Landlord pursuant to its obligations under this Lease. Tenant shall pay the cost of all such improvements, alterations, additions, or installations and also the cost of interior painting, restoring or repairing the Building occasioned by such improvements, alterations, additions, or installations, except those initiated or undertaken by Landlord pursuant to its obligations under this Lease.

(c) Any improvements, alterations, additions or installations made by Tenant shall comply with all insurance requirements and all laws, ordinances, rules and regulations of all applicable governmental authorities, and shall be constructed in a good and workmanlike manner., and shall immediately become the property of Landlord and surrendered to Landlord upon the expiration or termination of this Lease, unless required to be removed as provided in the next sentence. Upon expiration or other termination of this Lease, Tenant shall, upon written demand by Landlord, at Tenant's sole cost and expense, promptly and with all due diligence remove any alterations, additions or improvements made by Tenant and designated by Landlord to be removed and shall repair any damage to the Building caused by such removal.

(d) Landlord shall contribute \$12,500 towards Tenant's fit out of the Leased Premises. Once Tenant has completed and paid for improvements to the Leased Premises of at least \$12,500 (such as carpentry and painting, but excluding trade fixtures and equipment), Tenant shall provide Landlord with copies of paid invoices for such work in the amount of at least \$12,500. Within 30 days of receipt of such invoices, Landlord shall pay \$12,500 to Tenant as reimbursement for such expenses.

9. Maintenance and Repairs.

(a) **Tenant's Maintenance and Repairs.** Tenant shall, at Tenant's expense (i) keep the Premises in a commercially reasonable, neat and clean condition; (ii) be responsible for its own janitorial services within the Premises, including, without limitation, washing the interior of all windows within the Premises; (c) maintain and repair of any alterations and improvements made by Tenant and for all of Tenant's personal property; and (d) maintain and repair those portions of the Premises that are not maintained by Landlord in accordance with Section 9(b).

(b) **Landlord's Repairs.** Landlord shall be responsible for all structural repairs to the exterior walls, roof, foundation, and all major systems of the Building and underground utilities within the Property, and all Building utilities and systems, including, without limitation, the heating, air-conditioning and ventilation systems, and all portions of the Building outside of the Premises, except to the extent that such repairs are required as a result of the gross negligence of Tenant, its agents, employees and contractors, and Landlord agrees to keep and maintain (including, without limitation, snowplowing, sanding and ice removal) in good, well-maintained condition, the accessways, landscaping and other common areas of the Building and the Property.

Landlord shall have access to the Premises to the extent necessary to conduct such repairs, provided Landlord complies with the terms and conditions of Section 17 below. To the extent that any maintenance or repair is covered by any warranty, Landlord will cooperate with Tenant to pursue such warranty coverage for such work. Any and all maintenance and repair work carried out by Landlord pursuant to this Section 9(b) shall comply with all insurance requirements and all laws, ordinances, rules and regulations of all applicable governmental authorities and shall be completed in a good and workmanlike manner. In no event shall Tenant be liable to perform any work or make any improvements that are part of Landlord's maintenance obligations under the Lease, including without limit any repairs or maintenance to structural portions of the Leased Premises. Landlord shall be solely responsible for costs and expenses associated with capital expenditures, repairs and maintenance.

10. Mechanic's Liens.

Tenant shall pay or cause to be paid all costs for work done by it or caused to be done by it on the Leased Premises and Tenant shall keep the Leased Premises free and clear of all mechanic's liens and other liens on account of work done for Tenant or persons claiming under it. Tenant shall indemnify and hold Landlord harmless against any liability, loss, damage, costs or expenses, including attorneys' fees, on account of any claims of any nature for work performed for, or materials or supplies furnished to, Tenant or persons claiming under it.

11. Quiet Enjoyment.

Landlord covenants and agrees with Tenant that upon Tenant paying the rent hereunder and observing and performing all the terms, covenants and conditions of this Lease on Tenant's part to be observed and performed, Tenant may peaceably and quietly enjoy the Premises subject, nevertheless, to the terms and conditions of this Lease, including without limitation Section 24.

12. Assignment or Subletting.

(a) Tenant shall not, either voluntarily or by operation of law, transfer, mortgage or assign this Lease or any interest herein, or sublet the Leased Premises or any portion thereof, or otherwise allow or suffer the Leased Premises or any portion thereof to be used by any other person, without the prior written consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed. Any transfer of a partnership interest, membership in a limited liability company, or stock or the issuance or redemption thereof that singly, or in the aggregate, results in a change in the legal or beneficial ownership of the majority of the ownership interests of Tenant as it exists on the date of this Lease, shall be deemed to be a transfer in violation of this Section, unless Landlord's prior written consent is obtained as provided herein. Any such attempted assignments, subletting or occupancy without Landlord's prior written consent shall be void and shall confer no rights whatsoever on any party and shall, at Landlord's option, constitute a default hereunder.

(b) The consent by Landlord to an assignment, subletting, occupancy or use arrangement shall not relieve Tenant from primary liability hereunder or from the obligation to obtain the express consent in writing of Landlord to any further assignment, subletting, occupancy

or use arrangement. If Tenant shall request Landlord's consent to a sublease, assignment or use agreement hereunder, Tenant shall pay Landlord's expenses, including reasonable legal fees, incurred in connection with the processing and reviewing of documents necessary to evaluate such request.

(c) Notwithstanding the foregoing or anything else to the contrary herein, Landlord hereby acknowledges that Tenant intends to place in, upon, or about the Leased Premises certain personal property (the "Personal Property"), and that from time to time, Tenant may grant a security interest in and to the Personal Property. Accordingly, Landlord hereby waives any and all liens, claims, or rights which Landlord may have, or which may accrue to Landlord in the future, to the Personal Property by virtue of the Lease or arising by operation of law or equity or otherwise regardless of whether such liens, claims, or rights are contractual constitutional, statutory, or equitable. Further, Landlord hereby agrees to execute at any time, and from time to time, within fifteen (15) days after Tenant's request therefor given in accordance with the notice provisions of the Lease, such documentary evidence of Landlord's said waiver of lien rights as may be required by Tenant or any of Tenant's lender(s), provided that Tenant shall reimburse Landlord's reasonable attorney's fees related to the review of such documents.

13. Casualty Loss.

(a) If at any time during the Term, the Leased Premises shall be damaged or destroyed in whole or in part by fire or other cause, then Landlord, at its own cost and expense, shall repair and restore the Leased Premises to the condition originally delivered to Tenant, to the extent possible within the limits of insurance proceeds made available for such repair within a period of time, which, under all prevailing circumstances, shall be reasonable. If, however, such damage shall be so great that Landlord's architect shall certify in writing to Landlord and Tenant that the Premises, with the exercise of reasonable diligence, but without the payment of overtime or other premiums, cannot be restored within one hundred twenty (120) days, then Landlord or Tenant shall have the right, to be exercised by notice in writing delivered to the other within twenty (20) business days after the receipt of such certification from such architect, to elect to terminate this Lease. If neither party timely elects to terminate this Lease as provided above, this Lease shall remain in full force and effect except that Tenant shall be entitled to a proportionate reduction of the rent payable hereunder until such time as the Premises are restored, such proportionate reduction to be based upon the extent to which the damage and the making of such repairs shall interfere with the business carried on by Tenant in the Leased Premises. Notwithstanding the foregoing or anything else to the contrary herein, it is hereby agreed and acknowledged that in all cases, said proportionate reduction of the rent payable hereunder shall apply from the date of said damage or destruction until the Leased Premises are restored to the condition originally delivered to Tenant, or, if applicable, until this Lease is terminated pursuant to the terms and conditions of this Section 13.

(b) If this Lease is terminated pursuant to this Section, Tenant shall surrender to Landlord the Leased Premises in accordance with the provisions of Section 18. All rent and other sums payable hereunder shall be apportioned as of the date of such termination and Landlord and

Tenant shall be free and discharged from all obligations hereunder arising after the date of such termination.

14. Eminent Domain.

(a) If the entire Leased Premises is taken by any public authority under the power of eminent domain or taken in any manner for any public or quasi-public use or conveyed in lieu of such taking, or if any portion of the Lease Premises is so taken or conveyed so as to render the Leased Premises unrentable, then the term of this Lease shall cease as of the day possession shall be taken by such public authority or the date of the conveyance and the rent and other sums payable hereunder shall be duly apportioned as of the date of such taking or conveyance. If any portion of the Leased Premises shall be taken or conveyed as described above, but such taking or conveyance does not render the Leased Premises unrentable, then this Lease at the option of Landlord exercised by Landlord giving written notice to Tenant of such termination within sixty (60) days after such taking or conveyance, shall forthwith cease and terminate and the rent and other sums payable hereunder shall be duly apportioned as of the date of such taking or conveyance. If Landlord does not exercise the option to terminate this Lease, this Lease shall continue in full force and effect. All damages awarded for such taking under the power of eminent domain or any like proceedings shall belong to and be the property of Landlord. Tenant may separately claim and recover from the condemning authority, but not from Landlord, the value of the remaining term of the Lease and the value of any personal property of Tenant that Tenant was entitled to remove pursuant to the Lease.

(b) If only a portion of the Leased Premises is taken by any public authority under power of eminent domain or taken in any manner for any public or quasi-public use or conveyed in lieu thereof and this Lease is not terminated pursuant to subsection 14(a), this Lease shall continue in full force and effect and Landlord shall make an equitable adjustment of the rent payable by Tenant for the tenantable portion of the Leased Premises.

15. Insurance.

(a) Tenant agrees to take out and continuously maintain during the Term of this Lease and any extension or renewal thereof a general liability insurance policy, naming Landlord as an additional insured, protecting against damage to Premises or injury or death of persons by reason of or in any way arising on or out of or connected with the Premises or Tenant's use or occupancy of the Premises, in an amount not less than One Million Dollars (\$1,000,000) with an insurance carrier license to do business in the State of Maine. The insurance policy or certificate thereof shall be delivered to Landlord prior to occupancy of the Premises by Tenant and at least ten (10) prior to expiration of any such policy. Such policy shall state that it shall not be reduced, canceled or amended without ten (10) days' prior written notice to Landlord. Any such policy shall be written as a primary policy not contributing with and not in excess of any coverage that Landlord may carry.

(b) Tenant shall not do or permit to be done any act or thing that either (i) may cause any policy of insurance of any kind covering any or all of the Building, or any liability of Landlord in connection therewith, to become void or suspended, or (ii) would (in the opinion of

the insurer thereunder) increase the insurance risk under any such policy; provided, however, that it shall not be an Event of Default hereunder if the sole result of (i) or (ii) above is an increase in insurance premium and Tenant pays any such increase in any premium within ten (10) days after Landlord notifies Tenant in writing of such increase.

(c) Throughout Term of this Lease, Landlord shall maintain Comprehensive General Liability Insurance and casualty insurance upon the Building and the Property under a so-called "All Risk" policy in such forms and in such amount as would customarily be carried by prudent owners of similar properties in the same locale as the Leased Premises.

16. Trade Fixtures.

Tenant may install or cause to be installed in the Leased Premises such equipment and trade fixtures as are reasonably necessary for the operation of its business. Tenant shall be entitled to remove such trade fixtures installed by Tenant at any time during the Term or upon the expiration or earlier termination of this Lease; provided that Tenant is not then in default hereunder beyond the expiration of any applicable notice, grace or cure period. Tenant covenants and agrees, at its own expense, to immediately repair any damage to the Leased Premises attributable to the removal of any of Tenant's equipment and trade fixtures and this provision shall survive the expiration or termination of this Lease.

Furniture, equipment and personal property from prior tenant(s) that remains in the Leased Premises as of the Commencement Date will be deemed property of Tenant and subject to the foregoing. Tenant shall be entitled to keep any funds received from the sale of any such items.

The following trade fixtures existing on the Leased Premises as of the date of this Lease are owned by Landlord and included as part of the Leased Premises and may be used by Tenant during the Term, provided that Tenant shall be obligated to maintain them at Tenant's expense: a gas range, a hood, a fires suppression system and a walk in cooler. If Tenant desires to upgrade, replace or alter any such trade fixture, it shall constitute an alteration subject to, and conducted in accordance with, Section 8 of this Lease.

17. Access to Leased Premises.

Landlord and Landlord's agent shall have the right to enter the Leased Premises at all reasonable times with at least twenty-four (24) hours prior notice to Tenant (excepting in the case of an emergency) to examine them, show them to prospective purchasers, mortgagees or tenants and to make and perform such maintenance, repairs and other work that Landlord may be required to perform under this Lease or as Landlord may deem necessary for the safety, improvement or preservation of the Leased Premises, without the same constituting an eviction of Tenant in whole or in part or entitling Tenant to any abatement of rent or damages for any injury or interference with Tenant's business or loss of quiet enjoyment, provided, however that in the case of any such access, Landlord and Landlord's agents shall use commercially reasonable efforts to minimize disruption and disturbance of Tenant's operations at the Leased Premises.

18. End of Term.

At the expiration or termination of this Lease, Tenant shall promptly quit and surrender the Leased Premises to Landlord broom clean and in good order and condition, ordinary wear and tear excepted, and free from debris, trash and waste. Subject to the terms and conditions of Section 8(c) above, all trade fixtures, equipment, furniture, furnishings and personal effects not removed by Tenant within ten (10) calendar days after expiration or termination of this Lease shall, at Landlord's option, be deemed to have been conveyed to Landlord and may be appropriated, sold, stored, destroyed or otherwise disposed of by Landlord without obligation to account therefore or, at Landlord's option, Landlord can have such trade fixtures and items removed and the cost of any such removal and the expense of any repair necessitated by such removal shall be borne by Tenant.

19. Release and Indemnity.

(a) Except to the extent caused by the gross negligence or willful misconduct of Landlord, its employees, agents or representatives, Tenant shall neither hold nor attempt to hold Landlord or Landlord's employees or agents liable for, and Tenant shall defend, hold harmless and indemnify Landlord and Landlord's employees or agents from and against any and all demands, claims, causes of action, liabilities or judgments, and any and all reasonable expenses and costs (including, without limitation, reasonable attorneys' fees) incurred by Landlord in investigating and resisting the same, incurred in connection with or as a result of, or arising from any of the following:

(i) use or occupancy of the Leased Premises by Tenant, its agents, employees, contractors, subtenants, invitees or visitors;

(ii) any willful acts, omissions or gross negligence of Tenant, its agents, employees, contractors, subtenants, invitees or visitors or any violation or non-performance of any law, ordinance or governmental requirement of any kind, or from any breach or default in the performance of any provisions of this Lease by any of such persons, or any activity, work or other thing done, permitted or suffered by any of such persons; or

(iii) any injury or damage to the person, property or business of Tenant, its agents, employees, contractors, invitees, visitors or any other person entering upon the Leased Premises, except to the extent caused by the gross negligence or willful act of Landlord.

(b) Tenant agrees to use and occupy the Leased Premises at its own risk. Landlord shall have no responsibility or liability for any such loss or injury or for any loss of or damage to fixtures or personal property of Tenant, except to the extent caused by the gross negligence or willful misconduct of Landlord, its employees, agents or representatives, or by Landlord's failure to perform its obligations pursuant to this Lease.

(c) The provisions of this Section 19 shall survive the termination or expiration of this Lease.

20. Default.

The following shall constitute a default of Tenant hereunder:

(a) Tenant shall fail to pay any installment of Rental Payments or any other sum payable under the terms of the Lease when due and such failure continues for five (5) days;

(b) Tenant shall neglect or fail to perform or observe any covenant herein contained on Tenant's part to be performed or observed, that is not otherwise specified as an event of default under this Section, and Tenant shall fail to remedy the same within thirty (30) days after Landlord shall have given to Tenant written notice specifying the details of such neglect or failure or within such longer period as may be reasonably required to cure such default if it is of such nature that it can be cured, but not within such thirty (30) day period, provided that Tenant promptly commences to remedy such default and proceeds with reasonable diligence thereafter to cure such default; provided, however, that such period of completion shall not extend for more than an additional sixty (60) days;

(c) This Lease or the Leased Premises or any part thereof shall be taken upon execution or by other process of law directed against Tenant or shall be taken upon or subject to any attachment at the instance of any creditor of or claimant against Tenant, and such attachment is not discharged or disposed of within sixty (60) days after the levy thereof;

(d) Tenant shall (i) admit in writing its inability to pay its debts generally as they become due, (ii) make an assignment of all or a substantial part of its property for the benefit of creditors, (iii) apply for or consent to or acquiesce in the appointment of a receiver, trustee or liquidator of Tenant, or any partner of Tenant, or of all or a substantial part of its property or of the Leased Premises or of its interest in this Lease unless such receiver, trustee, or liquidator is discharged within sixty (60) days from the date of his appointment; or (iv) file a voluntary petition in bankruptcy or a petition or an answer seeking reorganization under any bankruptcy or insolvency law or an arrangement with creditors, or take advantage of any insolvency law or file an answer admitting the material allegations of a petition filed against Tenant, or any partner of Tenant, in any bankruptcy, reorganization or insolvency proceedings which is not dismissed in forty- five (45) days; or

(e) The entry of a court order, judgment or decree without the application, approval or consent of Tenant, appointing a receiver, trustee or liquidator of Tenant or of all or a substantial part of its property or of the Leased Premises or of Tenant's interest in this Lease or adjudicating Tenant a bankrupt or insolvent, and such order, judgment or decree shall not be vacated, set aside or stayed within sixty (60) days from the date of entry.

21. Remedies.

If Tenant shall default under this Lease as set forth in Section 20, Landlord shall have the following rights and remedies, in addition to all other remedies at law or equity, and none of the

following, whether or not exercised by Landlord, shall preclude the exercise of any other right or remedy whether herein set forth or existing at law or equity:

(a) Landlord lawfully may (to the extent permitted by applicable law), immediately or at any time after such default, and without demand or notice, enter into and upon said Leased Premises or any part thereof in the name of the whole, and peacefully repossess the same as of its former estate, and expel Tenant and those claiming through or under it and remove its or their effects without being deemed guilty of any manner of trespass, and without prejudice to any remedies which might otherwise be used for arrears of rent or preceding breach of covenant, and upon entry as aforesaid, this Lease shall terminate.

(b) Landlord shall have the right to terminate this Lease by giving Tenant notice in writing, and upon the giving of such notice, this Lease and the Term hereof as well as the right, title and interest of Tenant under this Lease shall wholly cease and expire in the same manner and with the same force and effect (except as to Tenants liability) on the date of the termination of this Lease without the necessity of re-entry or any other act on Landlord's part. Upon any termination of this Lease Tenant shall quit and surrender to Landlord the Leased Premises as set forth in Section 18. If this Lease is terminated, Tenant shall remain liable to Landlord for all rent accrued and unpaid and for the entire unpaid rental and other sums due hereunder for the remainder of the Term and Landlord shall also be entitled to recover damages from Tenant, such damages to include not only damages under this Lease, but also reimbursement for any liability or obligation that Landlord may elect to assume under any subleases of the Leased Premises.

(c) Landlord may (to the extent permitted by applicable law), without further demand or notice, peacefully re-enter and take possession of the Leased Premises or any part thereof, without terminating this Lease and expel Tenant and those claiming through or under Tenant and remove any effects of any and all such persons without being deemed guilty of any manner of trespass and without prejudice to any remedies and Tenant shall remain liable for its obligations under this Lease. Should Landlord elect to re-enter as provided in this subsection 21(c), or should Landlord take possession pursuant to legal proceedings or pursuant to any notice provided for by law, Landlord, may, from time to time, without terminating this Lease, relet the Leased Premises or any part thereof for such term or terms and at such rent or rentals and upon such other conditions as Landlord may deem advisable, with the right to make alterations or repairs to the Leased Premises. No such re-entry or repossession of the Leased Premises by Landlord shall be construed as an election of Landlord's part to terminate this Lease unless a written notice of termination is given to Tenant by Landlord. No such re-entry or repossession of the Leased Premises shall relieve Tenant of its liability and obligation under this Lease, all of which shall survive such re-entry or repossession. Upon the occurrence of such re-entry or repossession, Landlord shall be entitled to the amount of the monthly rent and any other sums, which would be payable hereunder if such re-entry or repossession had not occurred, less the net proceeds, if any, of reletting the Leased Premises after deducting all of Landlord's reasonable expenses in connection with such reletting. Tenant shall pay such amount to Landlord on the days on which the rent or other sums due hereunder would have been payable hereunder if possession had not been retaken. In no event shall Tenant be entitled to receive the excess, if any, of net rent collected by Landlord as a result of such reletting of the sums payable by Tenant to Landlord hereunder.

(d) If Tenant shall default in making any payment required to be made by Tenant (other than Rental Payments) or shall default in performing any other obligation of Tenant under this Lease, Landlord may, but shall not be obligated to, make such payment or, on behalf of Tenant, spend such sum as may be necessary to perform such obligation. All sums so expended by Landlord, together with interest thereon at the annual rate equal to 2% plus the "Index Rate," as defined below, shall be repaid by Tenant to Landlord on demand. No such payment or expenditure by Landlord shall be deemed a waiver of Tenant's default nor shall it affect any other remedy of Landlord by reason of such default. The Index Rate shall be the "Prime Rate" as published by the Wall Street Journal, or in the absence of such publication, a comparable index reasonably selected by Landlord. If Landlord prevails in any lawsuit against Tenant wherein Tenant is found to have defaulted under this Lease beyond any applicable cure period, Landlord shall be entitled to recover from Tenant Landlord's reasonable costs and expenses, including reasonable attorneys' fees.

(e) The receipt of rent by Landlord with knowledge of any default of Tenant shall not be deemed to be a waiver of any provision of this Lease. Any failure of Landlord to enforce the provisions of this Lease upon the default of Tenant shall not be construed as creating a custom of deferring payment or as modifying in any way the terms of this Lease or as a waiver of Landlord's remedies under this Lease or of Landlord's right to enforce the provisions hereof for any subsequent default. No payment by Tenant, or receipt by Landlord, of a lesser amount than the rent due hereunder shall be deemed to be other than on account of the earliest stipulated rent, nor shall any endorsement or statement on any check or any letter accompanying any check or payment as rent be deemed in accord and satisfaction. Landlord may accept such check or payment without prejudice to Landlord's right to recover the balance of such rent or pursue any other remedy available to Landlord.

(f) **TIME IS OF THE ESSENCE HEREOF.**

22. Landlord's Default.

(a) Landlord shall be deemed to be in default hereunder if Landlord fails to perform any covenant, condition, agreement or provision contained herein to be performed by Landlord within thirty (30) days after receipt of written notice by Tenant specifying the default; provided, that if such default cannot be reasonably cured within such thirty (30)-day period, Landlord shall not be in default hereunder so long as it promptly commences to cure such default within such thirty (30) -day period and completes such cure within a reasonable period of time thereafter, which additional period of completion shall not extend for more than an additional sixty (60) days. If Tenant prevails in any lawsuit against Landlord wherein Landlord is found to have defaulted under this Lease beyond any applicable cure period, Tenant shall be entitled to recover from Landlord, Tenant's reasonable costs and expenses, including reasonable attorneys' fees.

(b) In the event Landlord shall be in default under the Lease beyond the applicable cure periods set forth above, Tenant shall have the right and option to pursue, in addition to any and all of its legal and equitable rights, any one or more of the following remedies: (i) do whatever Landlord is obligated to do under the terms of the Lease, and Landlord agrees to reimburse Tenant, within thirty (30) calendar days after notice of the amount thereof, for any expenses which Tenant may incur in effecting compliance with Landlord's obligations, or (ii) apply any amount owed by

Landlord to Tenant as a credit against Tenant's next accruing installments of rentals or any other amounts due by Tenant to Landlord. Landlord shall be liable to Tenant for Tenant's expenses, including reasonable attorney's fees, incurred by Tenant in successfully enforcing any obligation, covenant or agreement of this Lease or resulting from Landlord's breach of any provisions of this Lease, or any document, settlement or other agreements related to this Lease.

23. Holdover.

If Tenant or any party claiming through or under Tenant shall remain or continue to be in possession of the Leased Premises or any part thereof after the termination of the Lease, without Landlord's consent at Landlord's option Tenant or such party or both shall be deemed to be illegally retaining possession or shall be deemed to be a month-to-month tenant of the Leased Premises on all the terms and conditions of this Lease except that the monthly rent hereunder shall be 150% of the amount payable during the month prior to such termination. This Section shall not be construed as giving Tenant any right to hold over after the expiration of the Term or to limit Landlord's rights to obtain possession of the Leased Premises upon termination by any lawful means available to Landlord if Landlord does not elect to treat the continued possession by Tenant or any party claiming through or under Tenant as a month-to-month tenancy.

24. Subordination.

(a) This Lease is subject and subordinate to all ground and underlying leases and to all mortgages, indentures and other encumbrances now or hereafter affecting all or any portion of the Leased Premises; provided that Landlord obtains from the holder of any such lease, mortgage, indenture or other encumbrance a non-disturbance agreement containing the agreement of such holder that Tenant's rights under this Lease shall not be disturbed by such holder in the event of foreclosure or in the event such holder comes into possession or ownership of Landlord's interest in the Leased Premises, unless Tenant is in terminable default. Landlord also agrees, upon request of Tenant, to obtain such an agreement from any future lenders. Tenant covenants and agrees, nevertheless, to execute and deliver within ten (10) business days' notice any certificate or other assurance in confirmation of such subordination requested by Landlord. If the holder of any such encumbrance obtains title to the Property as a result of the foreclosure of such encumbrance, Tenant shall, upon request and upon Landlord's compliance with the remaining terms of this Section 24(a), attorn to such holder.

(b) Within ten (10) business days, at the request of Landlord or the holder of any mortgage on the Leased Premises or any landlord under any ground or underlying lease (herein referred to as a "Mortgagee"), Tenant shall execute, acknowledge and deliver such further instruments evidencing such subordination as the Landlord or such Mortgagee shall deem necessary or desirable, and, upon request of such Mortgagee, attorn to such Mortgagee and recognize such Mortgagee as Landlord under all the terms and provisions of this Lease except as such Mortgagee shall not be (i) liable for any act or omission of any prior landlord, or (ii) subject to any offsets or defenses that Tenant might have against any prior landlord, or (iii) bound by any rent or other sums payable hereunder that Tenant might have paid for more than one month in advance to any prior landlord, or (iv) bound by any amendment or modification of this Lease made without the consent of such Mortgagee.

(c) After receiving written notice from any Mortgagee, Tenant shall be required to give to such Mortgagee the same notices as are required to be given to Landlord under the terms of this Lease, but such notices may be given by Tenant to Landlord and such Mortgagee concurrently. It is further agreed that such Mortgagee shall have the right, but not the obligation, within thirty (30) days after receipt of such notice (or within such additional time as is reasonably required to correct any such default) to correct or remedy, or cause to be corrected or remedied, each such default before Tenant may take any action under this Lease by reason of such default and if necessary to cure such default, such Mortgagee shall have access to the Leased Premises. Notice to such Mortgagee shall be sent to the address specified in the written notice from such Mortgagee to Tenant, or to such other address as may be designated in writing from time to time from such Mortgagee.

25. No Implied Surrender or Waiver.

The acceptance of rent by Landlord or his agent shall not be deemed to be a waiver (except as to any default arising out of the failure to pay the rent so accepted by Landlord) of any breach of Tenant of any covenant herein contained. No provisions of this Lease shall be deemed to have been waived by Landlord or Tenant unless such waiver is in writing signed by the party to be charged.

26. No Representations by Landlord; Zoning; Entire Agreement.

(a) Landlord and Landlord's agents have made no representations, warranties, agreements or promises with respect to the Leased Premises. The Leased Premises are being leased "as is" and "where is" and Landlord makes no representation, express or implied, with respect to habitability, merchantability or fitness for a particular purpose.

(b) It is the responsibility of Tenant to review all, applicable zoning ordinances and other governmental rules and regulations and to secure all necessary and required permits and approvals for its proposed use of the Leased Premises, including, without limitation, any outdoor seating. Landlord makes no representations or warranties as to the suitability of, or the ability to obtain regulatory approval for, the Tenant's intended use of the Leased Premises.

(c) The entire agreement of the parties is contained herein, and there are no promises, agreements, representations, warranties, conditions or understandings, either oral or written, between them other than as are herein set forth.

27. Amendment or Modification.

Except as herein otherwise provided, no amendment, alteration, modification of or addition to this Lease shall be valid or binding unless expressed in writing and signed by the party or parties to be bound thereby.

28. Definition of Landlord.

The term "Landlord" as used in this Lease, so far as covenants or obligations on the part of Landlord are concerned, shall be limited to mean and include only the owner or owners, at the time in question, of the Leased Premises. In the event of any sale or other transfer of the Leased Premises by Landlord, whether the original Landlord hereunder or any successor Landlord thereto, Landlord shall be and is hereby entirely freed and relieved of all liability under any and all of its covenants and obligations contained in or derived from this Lease arising out of any act, occurrence or omission occurring after the consummation of such sale or transaction and Tenant shall look solely to the successor Landlord for the performance of any such covenants or obligations.

29. Estoppel Certificates.

Tenant agrees, at any time, and from time to time, upon not less than twenty (20) days prior request by Landlord, to execute, acknowledge and deliver to Landlord a statement in writing certifying that this Lease is unmodified and in full force and effect (or, if there have been modifications, stating the modifications, and that the Lease as modified is in full force and effect), and that there are no defenses or offsets thereto then accrued, or stating those claimed by Tenant, and the dates to which the rent and other charges have been paid, it being intended that any such statement delivered pursuant to this Section may be relied upon by any prospective purchaser of, any prospective holder of a mortgage upon the fee of the Leased Premises, or any other property interest party.

30. Limitation of Landlord's Liability.

Tenant shall neither assert nor seek to enforce any claim (except injunctive relief where appropriate) for breach of this Lease against any of Landlord's assets other than Landlord's interest in the Leased Premises and in the rents, issues and profits thereof, and in any insurance proceeds actually received by Landlord that are allocable to the Leased Premises, and Tenant agrees to look solely to such interests and proceeds for the satisfaction of any liability of Landlord under this Lease. In no event shall Landlord (which term shall include, without limitation all of the officers, trustees, directors, partners, partners in partners, beneficiaries, joint venturers, members, stockholders or other principals or representatives, disclosed or undisclosed, thereof) ever be personally liable for any such liability or ever be liable for damages, whether direct, consequential, punitive or otherwise.

31. Severability.

If any clause or provision of this Lease is illegal, invalid or unenforceable under present or future laws effective during the term of this Lease, then and in the event, it is the intention of the parties hereto that the remainder of this Lease shall not be affected thereby.

32. Captions, Gender and Number.

The caption of each Section is added as a matter of convenience only and shall be considered of no effect in the construction of any provision or provisions of this Lease. The term

“Tenant” herein, or any pronoun used in place thereof, shall include the masculine, feminine, singular, plural, individuals, partnerships or corporations where applicable.

33. Notice.

Any notice, demand or communication concerning the Lease shall be in writing and shall be deemed sufficiently given or rendered if delivered personally or by certified or registered U.S. mail, postage prepaid or overnight courier service addressed to Tenant at the Premises and to Landlord and Tenant at the following addresses:

Landlord:

Casco View Holdings III, LLC
Attention: Catherine F. Lamson
261 Commercial Street
P.O. Box 1137
Portland, ME 04104

Tenant:

Bread and Friends LLC
Attn: Maggie Rubin
1 Shady Ledge Ln
Freeport, ME 04032

Any such notice shall be deemed effective upon the earlier of (i) actual receipt or (ii) three days after deposit in the U.S. mail or with such overnight courier service as provided herein. Either party can change its address for future notices in the manner provided above, such change of address to be effective only upon receipt.

34. WAIVER OF JURY TRIAL.

IT IS MUTUALLY AGREED BY AND BETWEEN LANDLORD AND TENANT THAT THE RESPECTIVE PARTIES WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING OR COUNTERCLAIM BROUGHT BY EITHER OF THE PARTIES AGAINST THE OTHER ON ANY MATTER WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS LEASE, INCLUDING WITHOUT LIMITATION ANY EVICTION OR FORCIBLE ENTRY OR DETAINER ACTION.

35. Security Deposit.

Tenant shall deposit with Landlord, upon execution of this Lease, the sum of \$5,492.67 to be held by Landlord as a security deposit upon this Lease. Said security deposit shall be returned to Tenant at the termination of the Term, as such may be extended, provided that the Tenant leaves the Leased Premises in good repair in accordance with the provisions of Section 18, and provided that Tenant is not in default of any of the terms of this Lease.

36. Hazardous Materials.

In addition to and not in limitation of the other provisions of this Lease, Tenant covenants that it will not introduce or permit to be introduced or located on the Premises or in the Building any “Hazardous Materials” (defined below) and that Tenant will not violate any “Environmental

Laws" (defined below) in connection with Tenant's use, maintenance or operation of the Premises and Tenant shall, and hereby does totally and completely defend, save, and hold harmless Landlord, its employees, agents, officers, trustees, and directors, shareholders, partners, successors and assigns (the "Indemnified Landlord Parties") from and against, and shall promptly pay to or reimburse the Indemnified Landlord Parties for, all claims, demands, actions, losses, penalties, costs, expenses and damages, including all attorneys fees and court costs, investigation and laboratory fees, clean-up and removal costs incurred by or asserted against the Indemnified Landlord Parties by reason of the inaccuracy or breach of the covenant contained in this paragraph. Upon termination of this Lease, Tenant covenants and agrees to remove from the Premises any and all Hazardous Materials introduced by it in violation of this Lease at its sole expense. Tenant acknowledges and agrees that the expiration or sooner termination of this Lease shall not relieve or release Tenant of any legal liability and responsibility whether by way of damages, penalties, remedial actions or otherwise for unlawful discharges of Hazardous Materials. "Hazardous Materials" shall mean any flammable explosives, radioactive materials, hazardous materials, hazardous waste, petroleum or petroleum products, hazardous matter, hazardous or toxic substances, or toxic pollutants, oil or waste oil as any of those terms are used or defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended (42 U.S.C. §§ 9601, et seq.), the Hazardous Materials Transportation Act, as amended (49 U.S.C. §§ 2802, et seq.), the Resource Conservation and Recovery Act, as amended (42 U.S.C. §§6901, et seq.), applicable Maine statutes or any similar federal, state or local law, or in the regulations adopted and publications promulgated pursuant thereto, including all amendments to such laws and regulations and all supplements or successors thereto (such Acts, statutes, laws and regulations together with the Acts, statutes, laws and regulations referred to hereinafter in this subparagraph being sometimes referred to herein as "Environmental Laws"), or any other pollutants, contaminants, substances or materials that may constitute a hazard, peril or threat to the health of persons, animals, plant life or the environment; excepting, however, Hazardous Materials shall not include any materials or substances in amounts or concentrations insufficient to require any remedial action under any applicable law, order, rule or regulation of the federal, state or local governments. Tenant's obligations under this Section shall survive the expiration or earlier termination of this Lease.

37. Binding Effect.

The covenants, conditions and agreements contained in this Lease shall bind and inure to the benefit of Landlord and Tenant and their respective heirs, distributees, executors, administrators, successors, and, except as otherwise provided in this Lease, their assigns.

38. Brokers.

Landlord and Tenant acknowledge that Nate Steven of The Boulos Company ("Landlord's Broker") has acted as Landlord's agent with respect to Landlord's lease of the Property, and that Landlord shall be solely responsible, pursuant to a separate agreement, for paying all commissions or professional fees due Landlord's Broker as a result of the negotiation or execution of this Lease. Tenant represents that it has not dealt with any other broker in connection with this Lease other than Maine Realty Advisors ("Tenant's Broker"). Tenant's Broker agrees to look solely to Landlord's Broker for any brokerage claims related to this Lease. Tenant covenants and agrees to

defend and indemnify Landlord against any claim for brokerage commission with respect to this Lease by anyone claiming by, through or under Tenant, including Tenant's Broker. Landlord covenants and agrees to defend and indemnify Tenant against any claim for brokerage commission with respect to this Lease by anyone claiming by, through or under Landlord, including Landlord's Broker.

39. Recording.

The parties agree that this Lease will not be recorded. Landlord agrees that, upon request by Tenant, Landlord will execute a Notice of Lease evidencing this Lease and satisfying the requirements of Maine law. Such Memorandum shall expressly provide that it is being executed to evidence this Lease and does not vary the terms hereof.

39. Lease Guaranty. This Lease is conditioned upon Morgan Rubin, Jeremy Broucek, Jessica Rattey and Tanner Rubin executing and delivering to Landlord a Lease Guaranty substantially in the form attached hereto as **EXHIBIT B**.

40. Governing Law.

This Lease shall be governed by and interpreted in accordance with the laws of the State of Maine.

[REMAINDER OF PAGE INTENTIONALLY BLANK. SIGNATURE PAGE FOLLOWS.]

IN WITNESS WHEREOF, the undersigned have executed this Lease as of the date first set forth above.

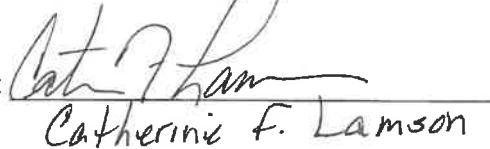
WITNESSED BY:



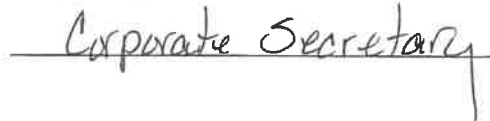
Landlord:

CASCO VIEW HOLDINGS III, LLC, a
Maine limited liability company

By:


Catherine F. Lamson

Its:

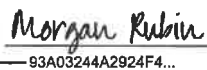

Corporate Secretary

TENANT:

BREAD AND FRIENDS LLC, a Maine
limited liability company

DocuSigned by:

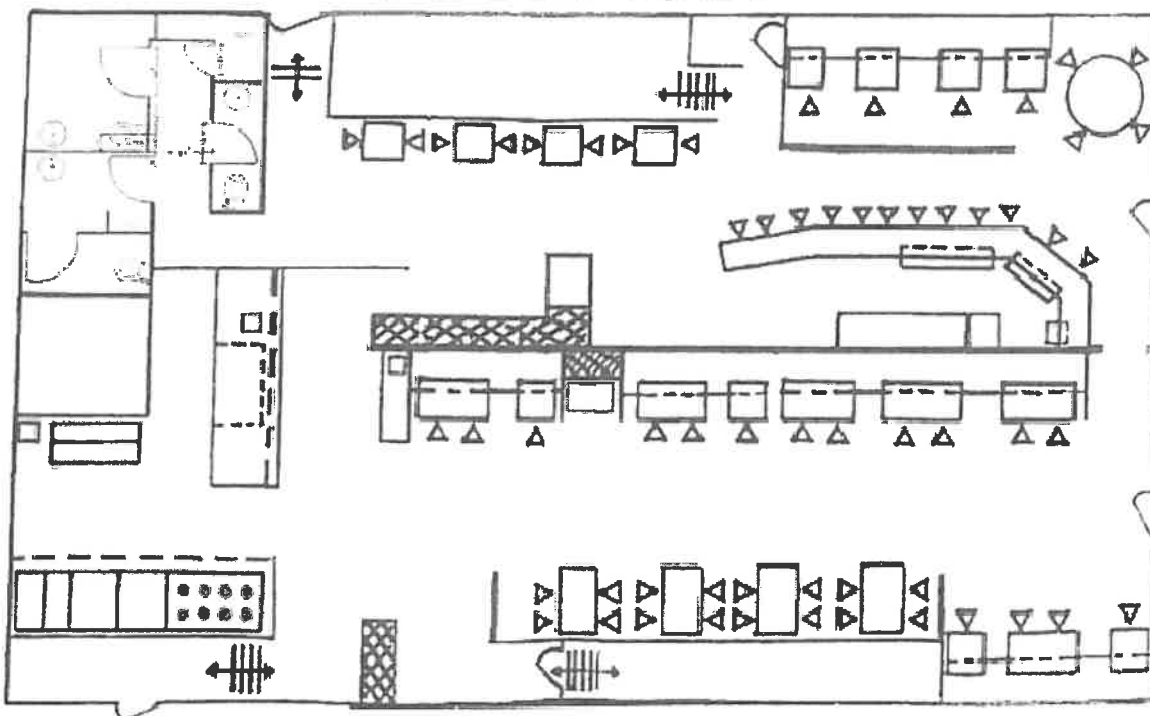
By:


93A03244A2924F4...

Its: Managing Partner

EXHIBIT A

First Floor



Basement

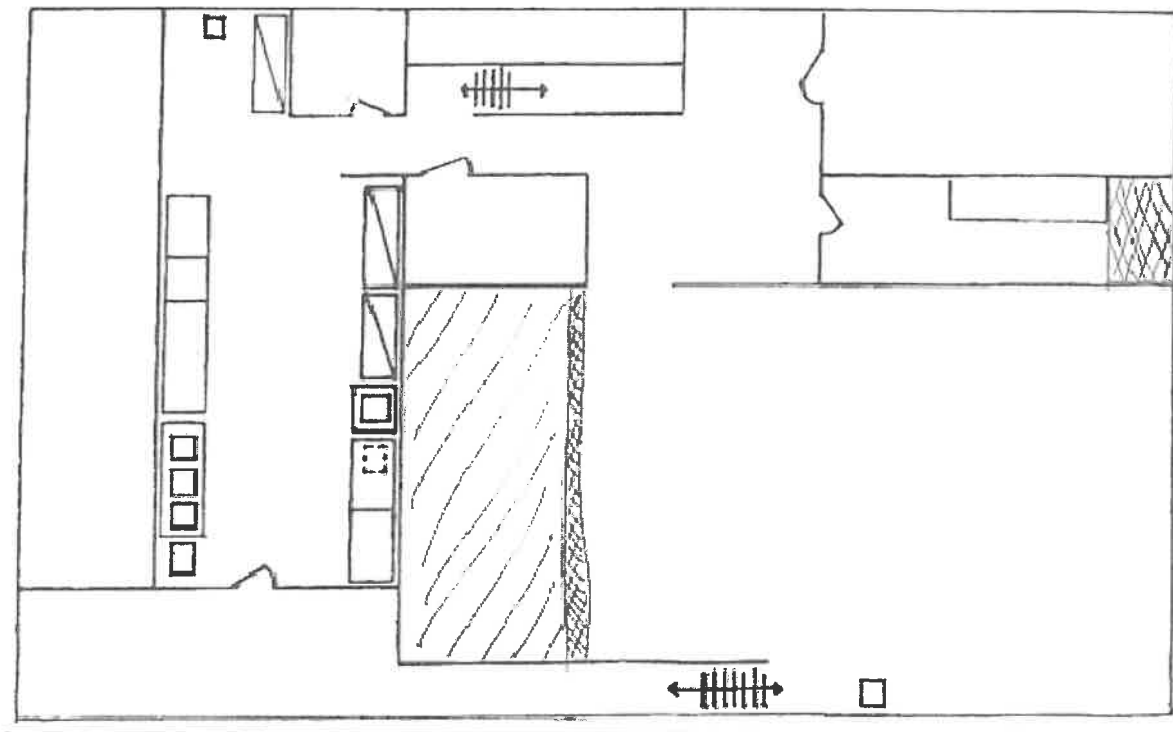


EXHIBIT B

LEASE GUARANTY

THIS LEASE GUARANTY (this "Guaranty") dated as of November 9th, 2021 is given by **JEREMY BROUCEK, JESSICA RATTEY, TANNER RUBIN and Morgan RUBIN**, residents of Maine (collectively referred to herein as "Guarantor") for the benefit of **CASCO VIEW HOLDINGS III, LLC**, a Maine limited liability company ("Landlord"). The obligations of the Guarantor are joint and several.

RECITALS

A. Landlord has entered into that certain Lease (the "Lease") dated on or about the date hereof with Bread and Friends, LLC, a Maine limited liability company ("Tenant") covering certain premises situated at 505 Fore Street, Portland, Maine, as more particularly described in the Lease.

B. Guarantor is the owner of Tenant and has agreed to execute and deliver this Guaranty as an inducement for Landlord to enter into the Lease with Tenant. Landlord is unwilling to enter into the Lease but for the Guarantor's willingness to guaranty Tenant's performance under the Lease.

NOW THEREFORE, in consideration of the recitals and for other good and valuable consideration, the receipt and sufficiency of which are hereby mutually acknowledged, Guarantor hereby agrees with Landlord as follows:

AGREEMENT

1. Guarantor hereby unconditionally guarantees to Landlord the full and prompt performance and observance of all covenants, conditions and agreements provided to be performed and observed by Tenant under the Lease, including without limitation the payment of rent or other charges due thereunder. If Tenant or Tenant's successors or assigns shall default at any time during the term of the Lease in the payment of rent or other charges due under the Lease or in the full and prompt observance and performance of any of the other covenants, conditions or agreements on Tenant's part to be performed under the terms of the Lease, then Guarantor shall, on written demand of Landlord, pay to Landlord the rent and other charges due under the Lease and perform the other obligations of Tenant under the terms of the Lease. This Guaranty shall remain and continue in full force and effect as to any modification or amendment of the Lease regardless of whether Guarantor has consented thereto. Landlord may proceed directly to enforce Landlord's rights under this Guaranty without proceeding against or joining Tenant, Guarantor hereby waiving any rights Guarantor may have to compel Landlord to proceed against Tenant. This Guaranty shall not be affected by, and the obligations of Guarantor hereunder shall not be released as a result of, (i) any waiver by Landlord or by any failure of Landlord to enforce rights against Tenant under the Lease, (ii) failure of Landlord to insist on strict performance of all

provisions of the Lease, or (iii) Landlord's receipt, application or release of any security given for the performance and observation of Tenant's obligations under the Lease. Guarantor hereby waives notice of any breach or default by Tenant under the Lease. This Guaranty shall apply to the term granted by the Lease, any extension or renewal thereof and to any holdover term following the term granted by the Lease or any extension or renewal thereof.

2. The liability of Guarantor hereunder shall in no way be affected by (a) the filing by or against Tenant of any bankruptcy or similar proceeding or by the release or discharge of Tenant in any creditors', receivership, bankruptcy or other proceedings; (b) the impairment, limitation, or modification of the liability of Tenant or the estate of Tenant in bankruptcy, or of any remedy for the enforcement of Tenant's liability under the Lease resulting from the operation of any present or future provision of any bankruptcy law or other statute or from the decision of any court; (c) the rejection or disaffirmance of the Lease in any such proceedings; (d) the assignment or transfer of the Lease by Tenant; (e) any disability or other defense of Tenant; or (f) the cessation of liability of Tenant from any cause whatsoever. Guarantor hereby waives all guaranty and suretyship defenses. Guarantor further agrees that if at any time any payment of any obligation guaranteed hereunder is rescinded or must be otherwise repaid or restored by Landlord upon or as a result of the bankruptcy of Tenant or by the order of any court, then this Guaranty and the obligations hereunder shall continue to be effective, or shall be reinstated, as the case may be, so as to include and be applicable to any payment so rescinded, repaid or restored.

3. Until the covenants and conditions in the Lease on Tenant's part to be performed and observed are fully performed and observed, Guarantor (a) shall have no right to subrogation against Tenant by reason of any payments or acts of performance by Guarantor in compliance with the obligations of the Guarantor hereunder, (b) waives any right to enforce any remedy which Guarantor now or hereafter shall have against Tenant by reason of any one or more payments or acts of performance in compliance with the obligations of Guarantor hereunder, and (c) subordinates any liability or indebtedness of Tenant now or hereafter held by Guarantor to the obligations of Tenant to the Landlord under the Lease.

4. All demands, notices or other communications hereunder intended for Guarantor shall be in writing and shall be deemed effective (a) at the time actually received by Guarantor, or (b) three (3) days after mailing by certified mail, return receipt requested, or one (1) day after the date sent in the case of delivery by overnight express service, addressed to Guarantor as follows:

Bread and Friends LLC
Attn: Maggie Rubin
1 Shady Ledge Ln Freeport ME 04032

or at such other address as may be designated by Guarantor for future notices to it by written notice given to Landlord in the manner specified in the Lease.

5. Guarantor agrees to reimburse Landlord, upon demand, for all the reasonable costs incurred by Landlord in enforcing this Guaranty, including attorneys' fees.

6. Landlord shall be entitled to assign Landlord's rights hereunder from time to time to any assignee of the Lease to the extent of the interest assigned, and any such assignment of the Lease shall constitute an assignment of the rights of Landlord hereunder. Guarantor shall not be entitled to assign Guarantor's rights or delegate Guarantor's duties hereunder without the prior written consent of Landlord. Any such assignment or delegation by Guarantor, with or without Landlord's written consent, shall not relieve Guarantor of liability under this Guaranty.

7. Subject to the provisions of Paragraph 6 above, this Guaranty shall be binding upon Guarantor and shall inure to the benefit of Landlord and its respective heirs, personal representatives, successors and assigns. The death of Guarantor shall not terminate the duties of Guarantor or Guarantor's successors and assigns under this Guaranty.

8. This Guaranty shall be construed and governed by the laws of the State of Maine, excluding any choice of laws provisions or conflict of laws principles which would require reference to the laws of any other jurisdiction. The Guarantor agrees that any suit for the enforcement of this Guaranty may be brought in the courts of the State of Maine or any Federal Court sitting therein and consents to the non exclusive jurisdiction of such courts and to service of process in any such suit being made upon the Guarantor by mail at the address specified in Section 4 hereof. The Guarantor hereby waives any objection that it may now or hereafter have to the venue of any such suit or any such court or that such suit was brought in an inconvenient court.

IN WITNESS WHEREOF, this instrument was executed by the undersigned, as of the date first set forth above.

WITNESS:

GUARANTOR:

Jeremy Broucek

Jessica Rattey

Tanner Rubin

Morgan Rubin

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

On the 9 day of NOV, 2021, personally appeared the above-named Jeremy Broucek, who signed the foregoing instrument and acknowledged the foregoing instrument to be their free act and deed.

Before me,

Notary Public

Printed Name:

My Commission Expires: 4-6-2027

Christine L. Wolfe
Christine L Wolfe

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

On the 9 day of NOV, 2021, personally appeared the above-named Jessica Rattey, who signed the foregoing instrument and acknowledged the foregoing instrument to be their free act and deed.

Before me,

Notary Public

Printed Name:

My Commission Expires: 4-6-2027

Christine L. Wolfe
Christine L Wolfe

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

On the 9 day of Nov, 2021, personally appeared the above-named Tanner Rubin, who signed the foregoing instrument and acknowledged the foregoing instrument to be their free act and deed.

Before me,

Notary Public

Printed Name:

My Commission Expires:

Christine L. Wolfe

Christine L. Wolfe

4-6-2027

STATE OF MAINE

COUNTY OF CUMBERLAND, ss.

On the 9 day of Nov, 2021, personally appeared the above-named Morgan Rubin, who signed the foregoing instrument and acknowledged the foregoing instrument to be their free act and deed.

Before me,

Notary Public

Printed Name:

My Commission Expires:

Christine L. Wolfe

Christine L. Wolfe

4-6-2027

LESLIE BENSON DESIGNS

CONDITIONAL USE STANDARDS AND CRITERIA

TRAFFIC

- Volume and type of vehicle traffic: This will be in line with allowed and previous uses. The bakery will only have one delivery vehicle which will make wholesale runs 3 days per week between the hours of 6:30 and 11:00 am. During this window they will only return to the bakery a maximum of 1-2 times for reloading.
- Hours of operation: The business will operate between the hours of 8:00 am-3:00 pm with a baker beginning around 4:00 am.
- Pavement and parking: Street parking only, so no change from previous uses.

ENVIRONMENTAL IMPACTS

- No creation of unsanitary or harmful conditions: The new use will not differ significantly from past uses in terms of equipment, operations or waste production so there should be no negative environmental impacts as a result.

DESIGN & OPERATION

- Design and operation will not have greater effect/impact on surroundings: The exterior of the building is to remain as is, renovations will be at the interior of the space only. Trash and recycling will be managed/stored in the same area as previous restaurant tenants. Deliveries will also be received at the back side door, the same as previous tenants. Storage for approximately two cord of wood will be along the South wall of the building, between the two side doors, as it was with the previous tenants. The exact location and enclosure design TBD based on tenant's lease agreement with the landlord.

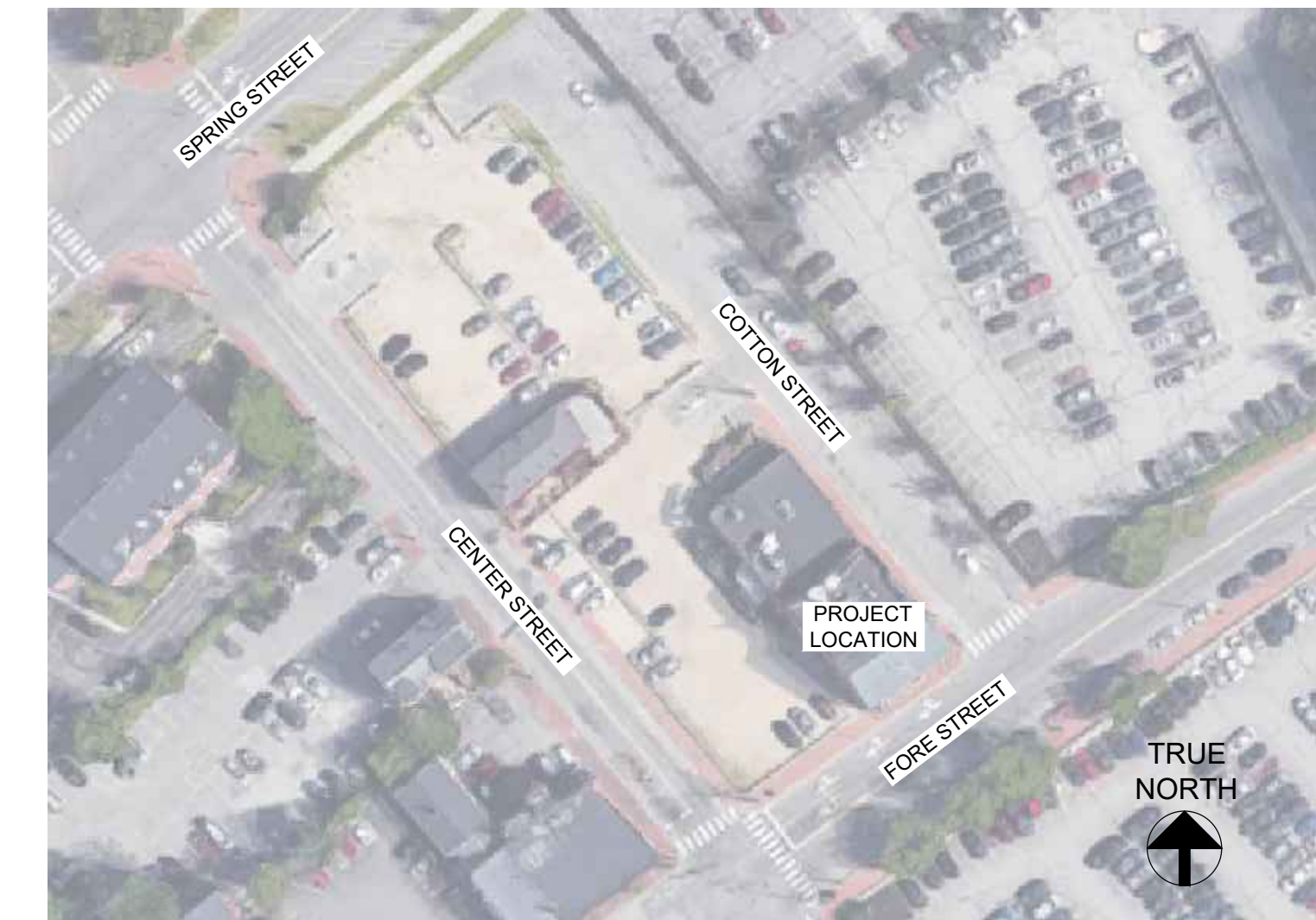
USE- & ZONE-SPECIFIC CRITERIA

- SECTION 6.5.6.E.2, Industrial Uses in the B-3 Zone:
 - a. Floor area less than 10,000 SF: Yes. 4,100 GSF total over two floors.
 - b. Intensive traffic impact: No. Same impact as all uses within past 5 years.
 - c. Located within PAD Overlay Zone: Yes. Project will comply with requirements of Section 8.8.
 - d. In existence March 11, 1991: Yes.
 - i. No tractor trailer trucks associated with proposal: Correct
 - ii. No warehousing and storage as a principal use: Correct
 - iii. No more than six delivery or service trips per day between 7 am and 7 pm: Correct, maximum of 3 planned trips, 3 days per week.
- SECTION 8.8, Pedestrian Activities District (PAD) Overlay:
 - A. 75% of street level frontage to be occupied: Yes, 100% occupied by Restaurant use
 - Occupied floor area to be 75% of street frontage x 20 foot depth: Yes
 - 46 LF street frontage x .75 = 34.5 LF
 - 34.5 LF x 20' depth = 690 SF
 - Total cafe space = 700 SF

BREAD + FRIENDS TENANT FIT-UP

03.25.22 ISSUED FOR PERMITTING

LOCUS MAP SCALE: N.T.S.



EXHAUST HOOD CLEARANCES SCALE: N.T.S.

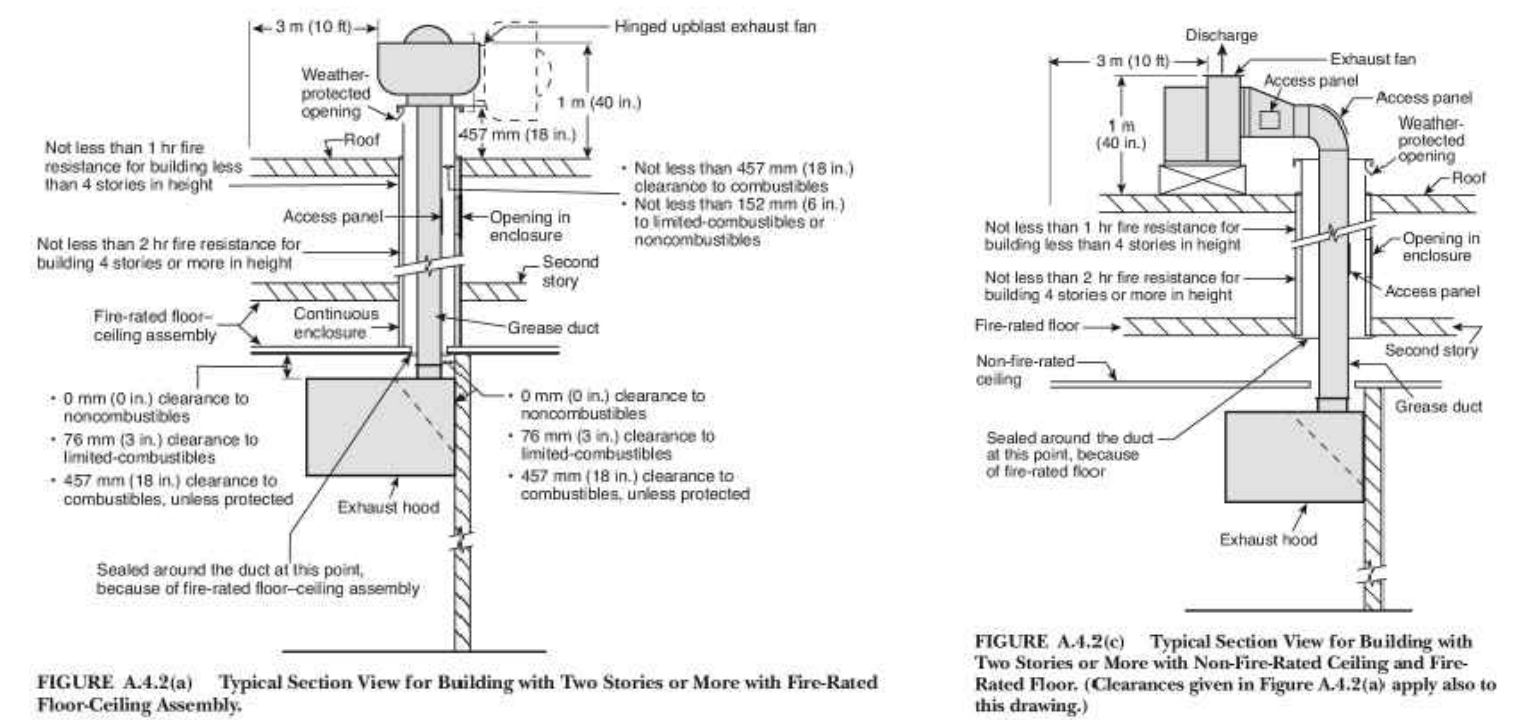
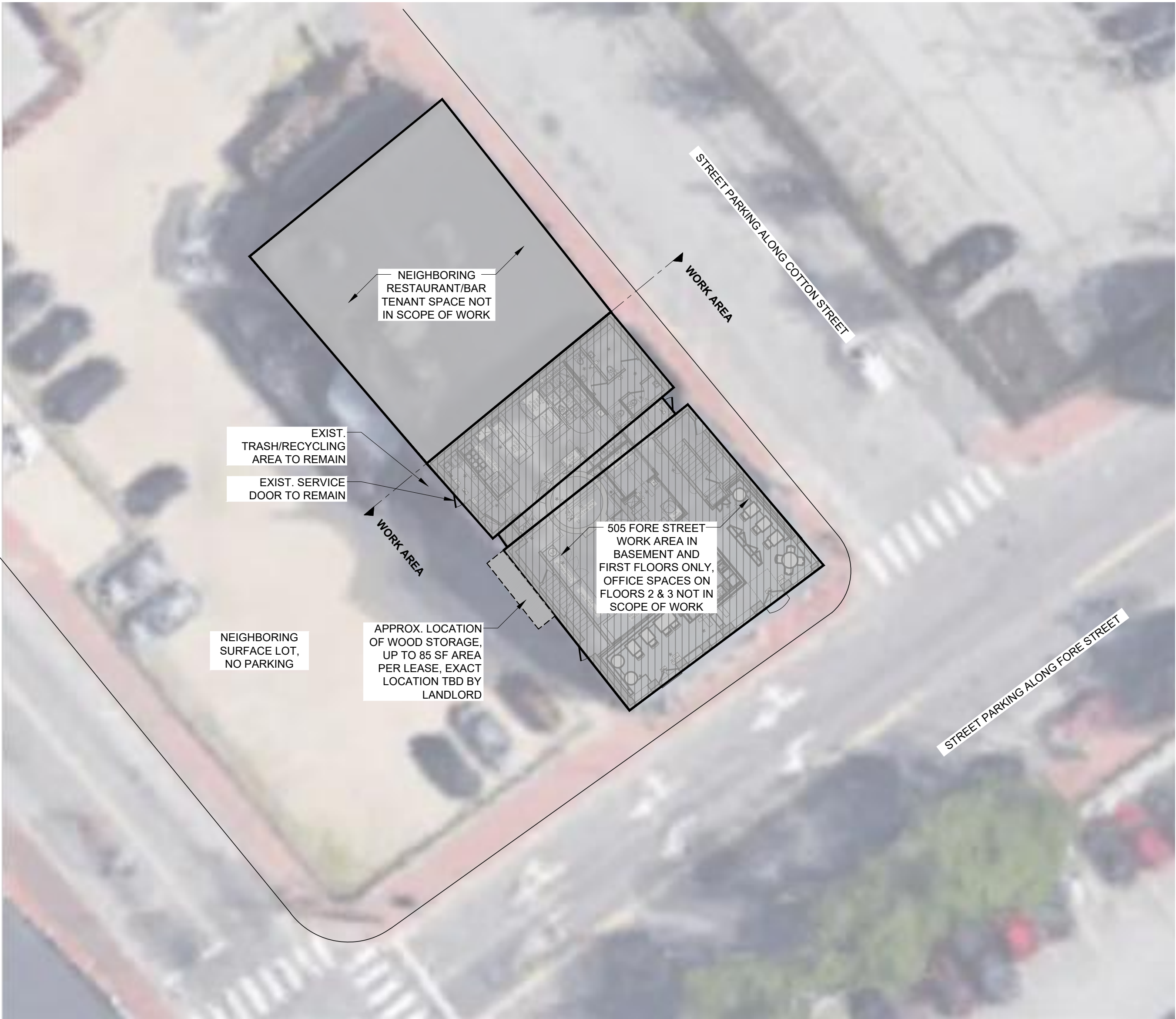


FIGURE A.4.2(a) Typical Section View for Building with Two Stories or More with Fire-Rated Floor-Ceiling Assembly.

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



PROJECT TEAM

CLIENT:
Bread + Friends
Maggie Rubin
505 Fore Street
Portland, ME 04101
(c): 720.394.8754
(e): maggie@breadandfriendsbakery.com

ARCHITECT:
Leslie Benson Designs, LLC
Leslie Benson, R.A.
131 Spring Street
Portland, ME 04101
(c): 217.553.0672
(e): lesliebdesigns@gmail.com

INTERIOR ARCHITECT:
Mey & Co.
Carrie Dessertine
630 Forest Ave
Portland, ME 04101
(c): 207.387.4980
(e): carrie@meyandco.com

BUILDER:
Optimum Construction Co.
Sebastien Leclerc
91 Auburn Street
Portland, ME 04103
(c): 207.747.9580
(e): sleclerc@optimumbuilds.com

STRUCTURAL ENGINEER:
Structural Integrity
Aaron Jones, P.E.
46 Forest Ave.
Portland, ME 04101
(c): 207.774.4614(e):
(e): aaron@structuralinteg.com

DRAWING LIST

SHEET NO. SHEET TITLE
C100 COVER SHEET

LIFE SAFETY
LS01 LIFE SAFETY PLANS & ADA INFO

ARCHITECTURAL
A100 BASEMENT PLAN & DEMO PLAN
A101 FIRST FLOOR PLAN & DEMO PLAN
A601 EQUIPMENT PLANS & MEP NARRATIVES
A602 EQUIPMENT SCHEDULES

PROJECT SUMMARY

- PROJECT ADDRESS:
505 FORE STREET
- PORTLAND, ME 04101
- PROJECT TYPE: TENANT FIT-UP OF EXISTING GROUP A ASSEMBLY RESTAURANT INTO BAKERY/CAFE SPACE, NO CHANGE OF USE
- LOCATION: BASEMENT AND FIRST FLOOR WITHIN AN EXISTING 3 STORY, MASONRY/WOOD TYPE III BUILDING
- PROJECT SIZE: 4,100 GSF
- BUILDING CODES:
IBC 2015, NFPA 101, NFPA 96
- PARKING: STREET PARKING ONLY

ARCHITECTURAL ABBREVIATIONS

AB ANCHORBOLT	D DBL DOUBLE	GA GAUGE	MTRL MATERIAL
ACT ACCOUSTICAL CEILING TILE	DEFL DEFLECTION	GAL GALLON	MAS MASONRY
ADDL ADDITIONAL	DEMO DEMOLITION	GALV GALVANIZED	MAX MAXIMUM
ADMIN ADMINISTRATION	DF DRINKING FOUNTAIN	GC GENERAL CONTRACTOR	MECH MECHANICAL
AFF ABOVE FINISH FLOOR	DI DIA DIAMETER	GL GLASS	MED MEDICAL
ALUM ALUMINUM	DR DIRECTOR/DOOR	GR GRANITE	MFR MANUFACTURER
AP ACCESS PANEL	DIV DIVISION	GWB GYPSUM WALL BOARD	MGR MANAGER
APV ASPHALT PAVEMENT	DN DOWN	GYP GYPSUM	MH MANHOLE
ARCH ARCHITECT	DR DIRECTOR/DOOR	HD HIGH DENSITY	MIN MINIMUM
BD BOARD	EA EACH	HR HOUR	MISC MISCELLANEOUS
BIT BITUMINOUS	EF EXHAUST FAN	HGT HEIGHT	MO MASONRY OPENING
BLDG BUILDING	EJ EXPANSION JOINT	HM HOLLOW METAL	MOLD MOLDING
BLKG BLOCKING	EL ELEVATION	HOLZ HOLLOW CORE	MR MOISTURE RESISTANT
BM BENCHMARK	ELEV ELEVATOR	HTG HEATING	MTD MOUNTED
BRG BEARING	ELEC ELECTRIC/ELECTRICAL	HVAC HEATING, VENTILATION	MTG MOUNTING
BTW BETWEEN	EQ EQUAL	HW HYDRANT	MTL METAL
	EW ELECTRIC WATER COOLER	IN INCH	N NORTH
	EXAM EXAMINATION	INCL INCLUDE/INCLUDING	NATL NATURAL
	EXIST EXISTING	ID INSIDE DIAMETER	NIC NOT IN CONTRACT
	EXT EXTERIOR	INT INTERIOR	NL NIGHT LIGHT
	FBO FURNISHED BY OWNER	INV INVERT	NO NUMBER
	FOO FLOOR CLEAN OUT	JAN JANITOR	NTS NOT TO SCALE
	FCD FLOOR CLEAN OUT	JAN JANITOR CLOSET	O C ON CENTER
	FCP FIRE CONTROL PANEL	JIT JOINT	OCFI OWNER FURNISHED CONTRACTOR INSTALLED
	FE FIRE EXTINGUISHER	LAM LAMINATE/LAMINATED	OZ OZ
	FG FIBERGLASS	LAV LAVATORY	PART BD PARTICLE BOARD
	FIN FINISH	LCC LEAD COATED COPPER	PL PLASTER
	EXT EXTERIOR	LF LINEAR FOOT	PLAS PLASTIC LAMINATE
	FOS FACE OF STUD	LGT LIGHT	PLYWD PLYWOOD
	FRP FIBERGLASS REINFORCED	LIN LINEN	PNT PAINT
	FT FOOT		POLY POLYURETHANE
	FTG FOOTING		PREP PREPARATION
	F.O. FACE OF		PSF POUNDS / SQUARE FOOT
			PSI POUNDS / SQUARE INCH
			PT PRESERVATIVE TREATED
			PTD PAINTED
			PVMT PAVEMENT

ARCHITECTURAL SYMBOLS

FINISH MATERIAL	CL1	PROPOSED ELEVATION	TOP OF FIN. FLOOR EL. + X'-X"
ROOM NUMBER	ROOM NAME 101	BUILDING SECTION	X AXXX
DOOR NUMBER	101A	BUILDING ELEVATION	X AXXX
WINDOW TYPE	NO	WALL SECTION	X AXXX
PARTITION TYPE	M4 01	INTERIOR ELEVATION	N X W AXXX E S
REVISION REFERENCE	1	COLUMN REFERENCE LINE	X
FIRE EXTINGUISHER, RECESSED CABINET	FE		
FIRE EXTINGUISHER SURFACE MOUNT	FE		
DETAIL			

LESLIE BENSON DESIGNS

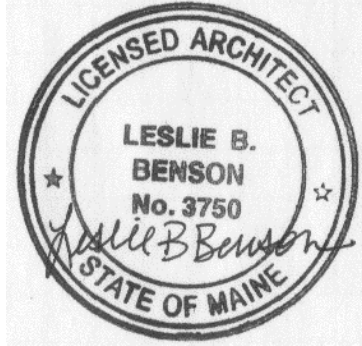
131 SPRING STREET
PORTLAND, ME 04101

lesliebdesigns@gmail.com
217.553.0672

PROJECT NAME:
BREAD + FRIENDS

TENANT FIT-UP
505 FORE STREET
PORTLAND, ME 04101

SEAL:



THIS DRAWING IS THE PROPERTY OF LESLIE BENSON DESIGNS (LBD) AND IS NOT TO BE COPIED OR REPRODUCED IN PART OR WHOLE.

REVISION:

1	DATE
2	DATE
3	DATE
4	DATE
5	DATE
6	DATE

DATE OF ISSUE:	MARCH 25, 2022
PROJECT NUMBER:	2021-0008
STATUS:	ISSUED FOR PERMITTING

COVER SHEET

C100

CODE SUMMARY

CODE SUMMARY				
PROJECT ADDRESS	505 FORE STREET, PORTLAND ME 04101			
PROJECT TYPE	TENANT FIT UP - RESTAURANT RENOVATION, NO CHANGE OF USE			
SQUARE FOOTAGE	2,276 GSF - FIRST FLOOR, 1,824 GSF - BASEMENT = 4,100 TOTAL			
BUILDING CODES	2015 IBC, 2018 NFPA 101, ANSI 2007/ASHRAE 62.1, 2021 UPC			
PARKING	STREET PARKING ONLY			
	IBC	NFPA	IBC REF.	NFPA REF.
OCCUPANCY TYPE	GROUP A-2, ASSEMBLY	ASSEMBLY, RESTAURANT	303.106.3	61.2
			TABLE 1004.1.2	17.3.1.2
OCCUPANT LOADS - FIRST FLOOR				
ASSEMBLY W/O FIXED SEATS - UNCONCENTRATED	370 SF/15 NET = 24	370 SF/15 NET = 24		
ASSEMBLY W/O FIXED SEATS - STANDING SPACE	150 SF/5 NET = 30	150 SF/7 NET = 21		
KITCHENS, COMMERCIAL	890 SF/200 GROSS = 4	890 SF/100 GROSS = 8		
	SUBTOTAL = 58	SUBTOTAL = 53		
OCCUPANT LOADS - BASEMENT				
KITCHENS, COMMERCIAL	555 SF/200 GROSS = 2	555 SF/100 GROSS = 5		
ACCESSORY STORAGE	515 SF/300 GROSS = 1	515 SF/500 GROSS = 1		
	SUBTOTAL = 3	SUBTOTAL = 6		
TOTAL OCCUPANT LOAD	61 PEOPLE	59 PEOPLE		
TOTAL OCCUPANT LOAD 68 PEOPLE, BASED ON STRICTEST OF EACH CODE				
MINIMUM # EXITS/FLOOR	2 FOR 1-500 PEOPLE	2 MEANS OF EGRESS REQ'D (LESS THAN 600 PPL)	1006.2.1/11006.2.1	13.2.4.2
EGRESS WIDTH/CORRIDOR WIDTH	2" PER PERSON, 36" MIN (40 PPL OR LESS) OR 44" MIN (50+ PPL)	2" PER PERSON, 28" MIN IN EXISTING BLDGS	1005.3.2/11020.2	17.3.3.1/7.3.4.1.2
	36" ALLOWED FOR NON-PUBLIC AREAS SERVING LESS THAN 50 PPL		1018.5 (EXC)	
AISSLES SERVING SEATING AT TABLES		36" MIN (50 PPL OR LESS) OR 44" MIN (51+ PPL)		13.2.5.8.2
SEATING AT TABLES	MEASURE AISLE OR AISLE ACCESSWAY 19" FROM EDGE OF TABLE OR COUNTER, TYP.		1029.12.1	13.2.5.7.3
AISLE ACCESSWAY CAPACITY AND WIDTH	12" MIN + 1/2" FOR EACH 1' OF ACCESSWAY BEYOND 12"		1029.12.1.1	13.2.5.7.1
EGRESS DOOR	32" MIN CLEAR WIDTH		1010.1.1	7.2.1.2.3.2
DOOR SWING	DIRECTION OF EGRESS (80+ PEOPLE)		1010.1.2.1	7.2.1.4.2
COMMON PATH OF TRAVEL	79' MAX (LESS THAN 50 PEOPLE) / 30' MAX (50+ PEOPLE)	79' MAX (LESS THAN 50 PEOPLE) / 30' MAX (50+ PEOPLE)	1009.6 (EXC) 110106.2.1	13.2.5.1.2
EXIT ACCESS TRAVEL DISTANCE	250' FROM MOST REMOTE POINT W/ SPRINKLER		1029.7/11017.2	13.2.6.2
DISTANCE BETWEEN EXITS	1/3 LENGTH OF DIAGONAL 72'3" = 24' SEPARATION		1007.1.1 EXC 2	
PANIC HARDWARE	REQ'D WITH 50 PPL, UNLESS FOLLOW 1010.1.3.3.4P	PANIC HARDWARE REQ'D IF 100+ PEOPLE	1010.1.10	13.2.2.2.3
FIRE ALARM	NOT REQ'D FOR LESS THAN 50 PEOPLE, BUT EXISTING ALARM SYSTEM TO REMAIN - TO BE MODIFIED AS NEEDED FOR NEW LAYOUT, VIF			12.3.4.1.1
SPRINKLER SYSTEM	NOT REQ'D FOR LESS THAN 50 PEOPLE, BUT EXISTING SPRINKLER SYSTEM TO REMAIN - HEAD LOCATIONS TO BE MODIFIED AS NEEDED FOR NEW LAYOUT, VIF	CLASS A,B,C ALLOWED PER 10.2 (300+ PEOPLE)		12.3.5.1
WALL AND CEILING FINISHES				13.3.3.3
RECD SEP. OF OCCUPANCIES	ASSEMBLY (< 300 PPL) & BUSINESS = 1 HR			TABLE 6.1.14.4.1(a)
VENTILATION	COMPLY WITH NFPA 91			9.2.2
COMMERCIAL COOKING EQUIPMENT	COMPLY WITH NFPA 96 - STANDARD FOR VENTILATION CONTROL AND FIRE PROTECTION OF COMMERCIAL COOKING OPERATIONS			9.2.3
2021 UNIFORM PLUMBING CODE	TOTAL OCCUPANCY = 68 PPL		MINIMUM PLUMBING FIXTURE COUNT	CODE REF.
ASSEMBLY, A-2, RESTAURANT	34 MALE	34 FEMALE		
WATER CLOSETS	1:50 MALE = 1 TOILET	1:25 FEMALE = 2 TOILETS	3 TOILETS	TABLE 422.1
LAVATORIES	1:150 MALE = 1 LAV	1:150 FEMALE = 1 LAV	2 LAVATORIES	TABLE 422.1
SERVICE SINK	1		1 SERVICE SINK	TABLE 422.1

LIFE SAFETY SYMBOLS KEY:

- EXISTING EGRESS LIGHTING TO REMAIN, TYP.
- EXISTING EXIT SIGN TO REMAIN, TYP.
- EXISTING FIRE EXTINGUISHER TO REMAIN, TYP. - ADD NEW AS NEEDED IN ACCORDANCE WITH NFPA 10 EXTINGUISHER RATINGS AND TRAVEL DISTANCES
- EXISTING SPRINKLER HEAD TO REMAIN, TYP.
- EXISTING HORN STROBE TO REMAIN, TYP.

GENERAL LIFE SAFETY NOTES:

- ALL EXISTING MEANS OF EGRESS TO REMAIN, TYP.
- ALL EXISTING SPRINKLER HEADS, EXIT SIGNAGE, EMERGENCY LIGHTS AND FIRE ALARM COMPONENTS TO REMAIN. SEE LIFE SAFETY PLAN FOR LOCATIONS, TYP.
- ADD/RELOCATE EXIST. LIFE SAFETY COMPONENTS (INCL. SPRINKLER HEADS, EXIT SIGNAGE & HORN STROBES) AS REQ'D PER UPDATED LAYOUT, VIF

GENERAL ACCESSIBILITY NOTES:

- (1) ADA BATHROOMS PROVIDED
- ADA ACCESSIBLE ENTRY TECHNICALLY INFEASIBLE DUE TO EXISTING ENTRY STEPS. LIMITED SIDEWALK WIDTH PREVENTS ADDITION OF RAMPING OR OTHER ACCESSIBLE MEANS OF ACCESS, (IEBC 705.1)
- ORDERING COUNTER TO BE 36" MAX AFF.
- 5% OF SEATING (2 SEATS) TO BE AT COUNTER HEIGHT OF 28"-34" MAX AFF, WITH CLEAR SPACE UNDERNEATH

OCCUPANT LOAD BASED ON LAYOUT:

- CAFE COUNTER ORDERING: 12 (BASED ON 24 LINEAR FEET)
- CAFE SEATING: 24 SEATS
- STAFF PER SHIFT: 12-14
- TOTAL: 24 SEATS + 26 (COUNTER & STAFF)
- TOTAL OCCUPANCY: 50 PEOPLE, EXCL. OUTDOOR SEATING
- SEASONAL OUTDOOR: 20 SEATS

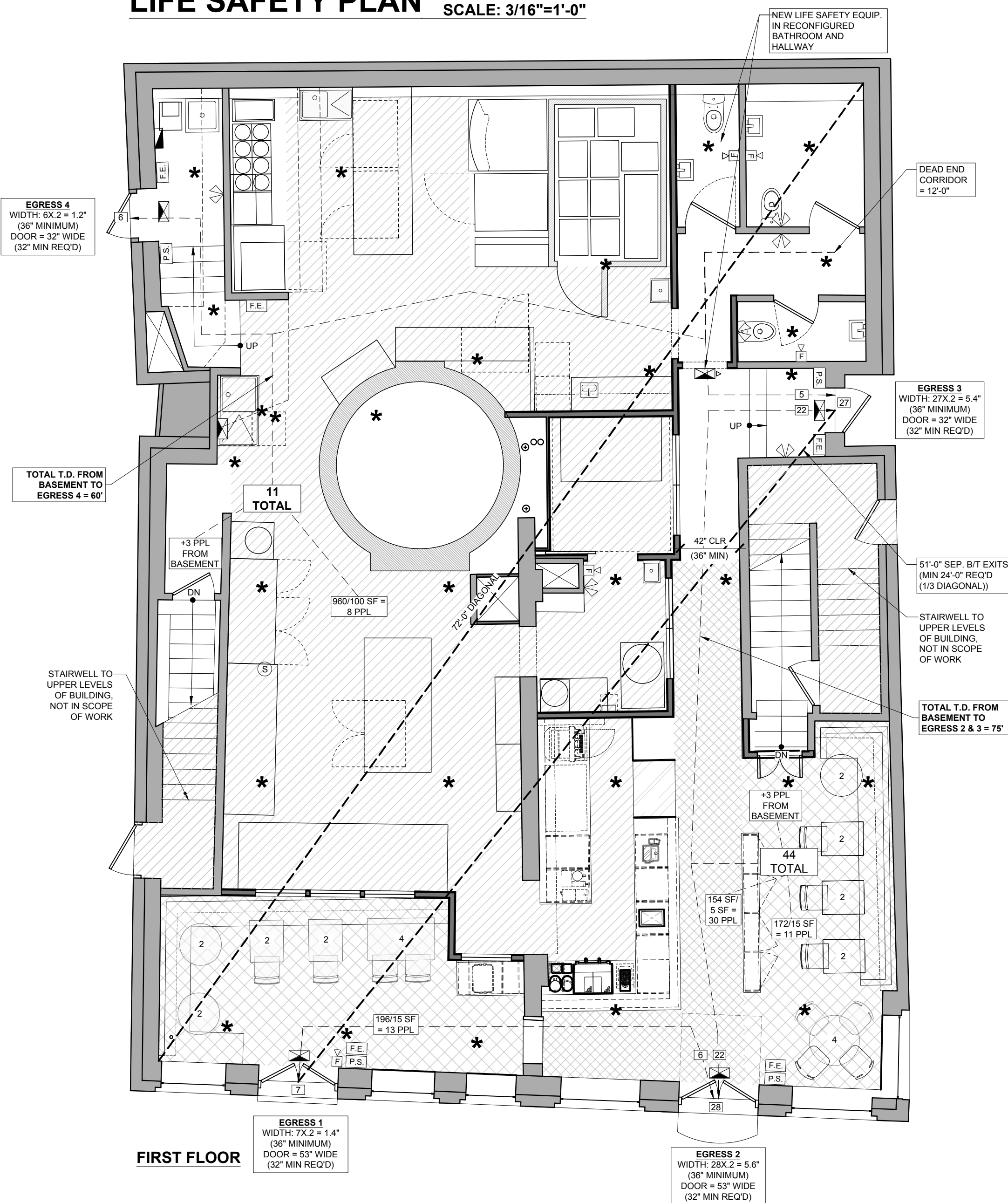
OCCUPANT LOAD BASED ON SF:

- ASSEMBLY, UNCONCENTRATED (TABLES & CHAIRS) 1:15 - 370 SF/15 SF = 24 (FIRST FLOOR)
- ASSEMBLY, STANDING SPACE 1:5 - 150 SF/5 SF = 30 (FIRST FLOOR)
- KITCHENS - COMMERCIAL 1:100, 890 SF/100 SF = 8 (FIRST FLOOR) 1:100, 555 SF/100 SF = 5 (BASEMENT)
- STORAGE 1:300 - 515 SF/300 SF = 1 (BASEMENT)

TOTAL OCCUPANCY = 68*

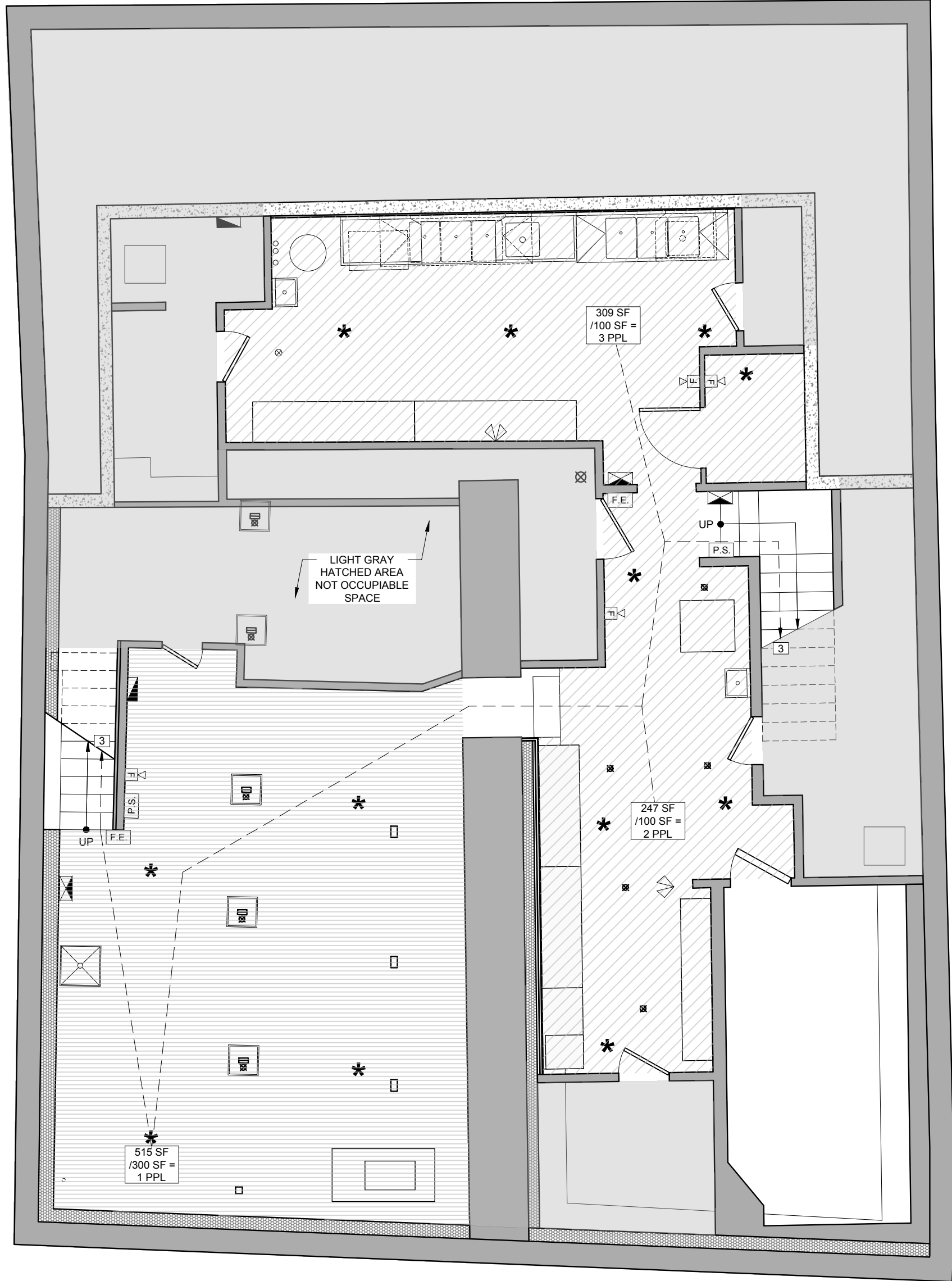
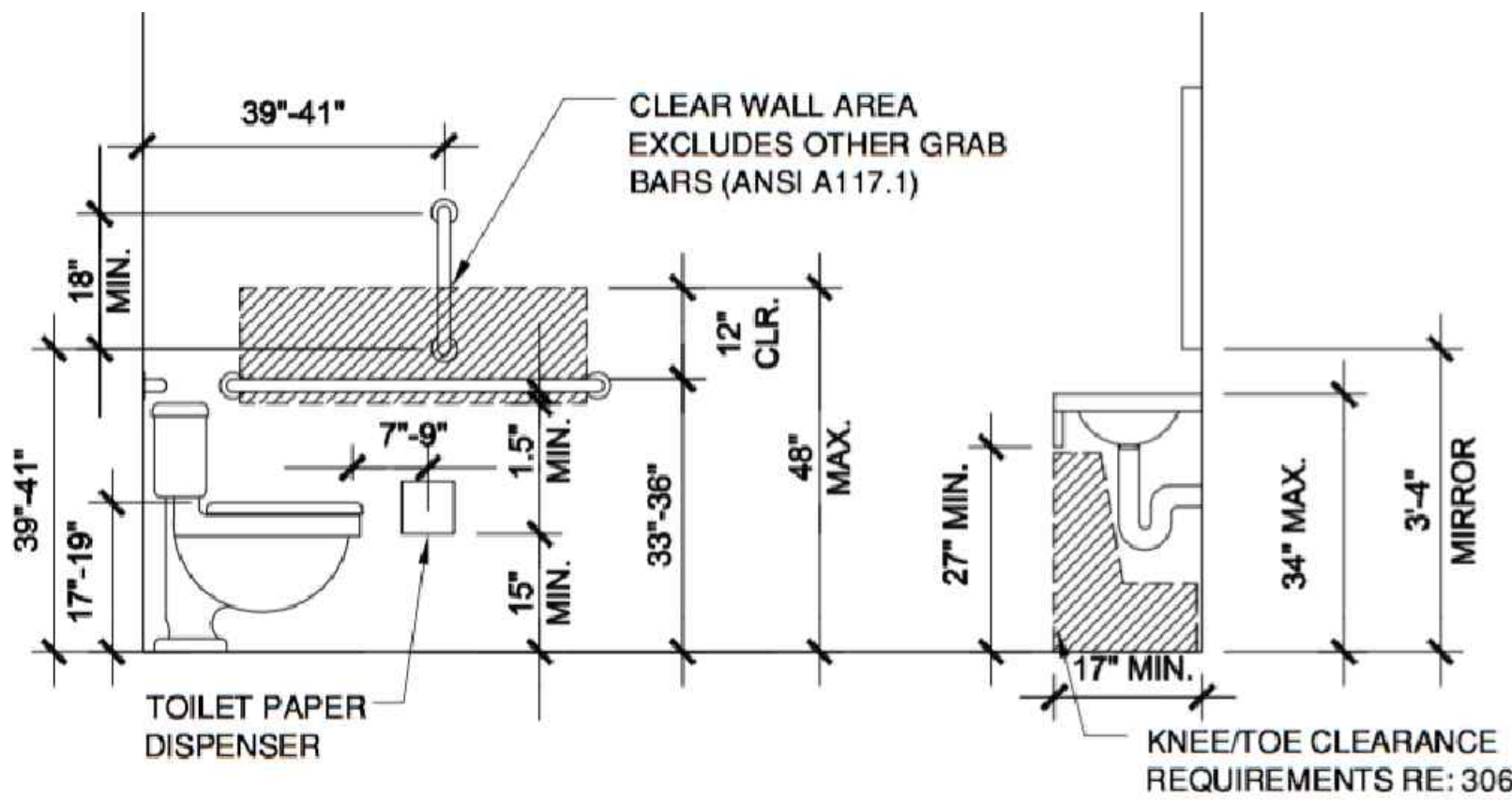
* INCREASED OCCUPANT LOAD ALLOWED PER IBC 1004.2/NFPA 7.3.1.3.1, NOT TO EXCEED 1.7

LIFE SAFETY PLAN SCALE: 3/16"=1'-0"



FIRST FLOOR

ADA BATHROOM DIAGRAM SCALE: 1/2"=1'-0"



BASEMENT

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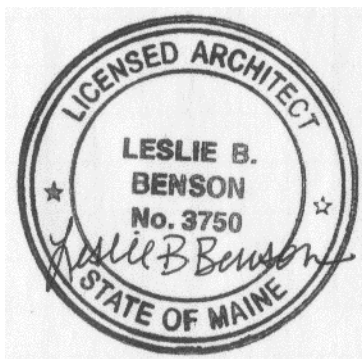
131 SPRING STREET
PORTLAND, ME 04101

lesliebdesigns@gmail.com
217.553.0672

PROJECT NAME:
BREAD + FRIENDS

TENANT FIT-UP
505 FORE STREET
PORTLAND, ME 04101

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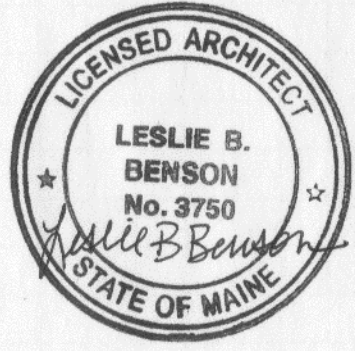
LIFE SAFETY
PLANS & ADA INFO

LS01

PROJECT NAME:
BREAD + FRIENDS

TENANT FIT-UP
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PORTLAND, ME 04101

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**BASEMENT PLAN &
DEMO PLAN**

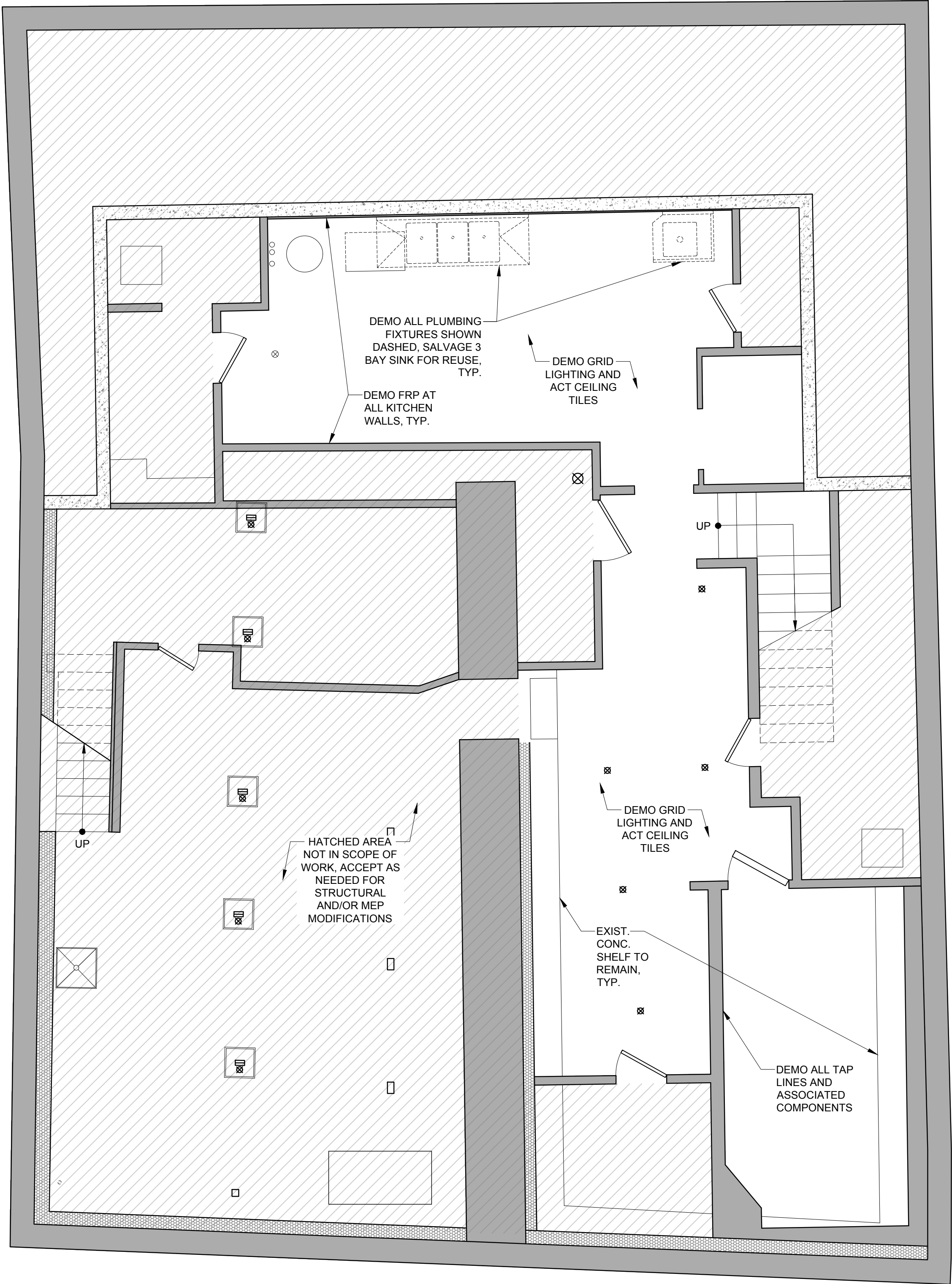
A100

GENERAL DEMOLITION NOTES:

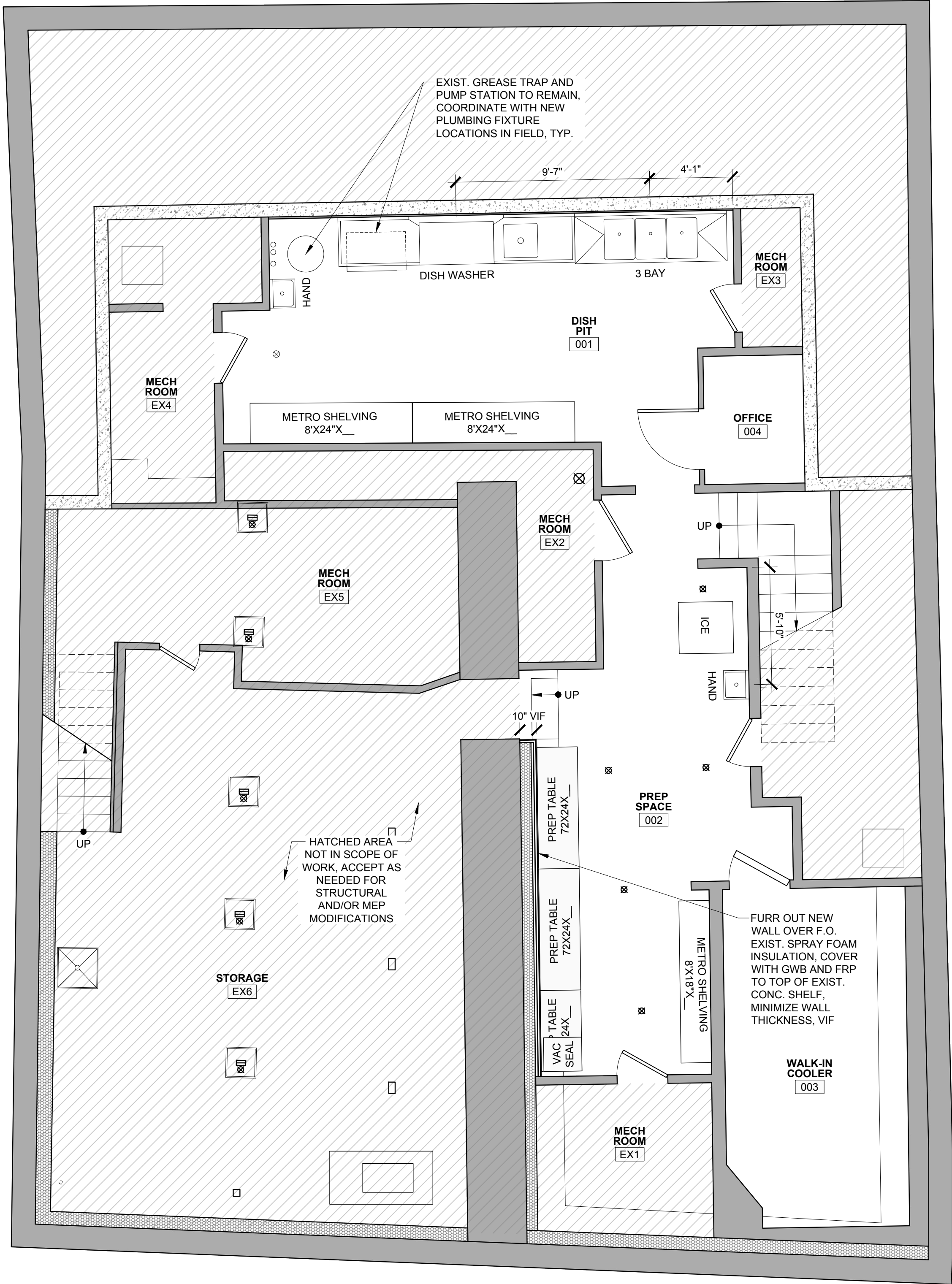
1. ALL WORK TO BE SEQUENCED AND SCHEDULED WITH OWNER
2. G.C. TO PROTECT ADJACENT AREAS NOT AFFECTED BY CONSTRUCTION.
3. G.C. TO FIELD VERIFY ALL CONDITIONS PRIOR TO BIDDING AND CONSTRUCTION.
4. ALL EXISTING MATERIALS NOTED TO BE REMOVED SHALL BE PROPERLY DISPOSED OF BY G.C. UNLESS OTHERWISE NOTED.
5. G.C. SHALL COORDINATE EXTENT OF ALL DEMOLITION WORK WITH NEW CONSTRUCTION.
6. ALL ELECTRICAL, PLUMBING AND MECHANICAL LOCATED IN WALLS NOTED TO BE REMOVED SHALL BE EITHER REMOVED BACK TO SOURCE OR LOCATED OUT OF HARMS WAY FOR RELOCATION IN NEW CONSTRUCTION, G.C. TO COORDINATE.
7. REMOVE EXISTING WALL FINISH AND SHEATHING AS REQUIRED
8. DEMO ALL WALLS, FIXTURES, DOORS, WINDOWS & APPLIANCES AS SHOWN.
9. SALVAGE REMOVED DOORS AND HARDWARE FOR REUSE, TYP.

GENERAL PLAN NOTES:

1. EXISTING WALLS SHOWN IN LIGHT GRAY HATCH. NEW WALLS SHOWN DARK GRAY HATCH.
2. EXISTING DOORS SHOWN PARTIALLY OPEN, NEW DOORS SHOWN OPEN 90 DEGREES.
3. ALL DIMENSIONS TO FACE OF FINISH AT EXISTING WALLS AND FACE OF FRAMING AT NEW WALLS, UNLESS OTHERWISE NOTED.
4. G.C. TO COORDINATE WORK WITH MECHANICAL CONTRACTOR FOR MODIFICATION OF EXISTING HVAC SYSTEMS - ARCHITECT, G.C. AND MECHANICAL CONTRACTOR TO REVIEW IN FIELD PRIOR TO INSTALLATION.
5. G.C. TO COORDINATE NEW PLUMBING & VENTING WITH EXISTING FRAMING, TYP.
6. ALL EXISTING WALLS TO REMAIN IN BASEMENT, TYP.
7. PATCH AND REPAIR ALL INTERIOR AND EXTERIOR FINISHES AS REQUIRED, TYP.



1 BASEMENT PLAN - DEMO
SCALE: 1/4" = 1'-0"



2 BASEMENT PLAN - NEW
SCALE: 1/4" = 1'-0"



DOOR SCHEDULE

MARK	MANF.	MODEL	OPERATION	SIZE			MATERIAL	HARDWARE	REMARKS
				WIDTH	HEIGHT	THICK			
102A	TBD	INTERIOR DOUBLE LEAF	SWING	2'-8"	6'-8"	1 3/4"	TBD	NONE	
106A	TBD	INTERIOR	POCKET/BARN	3'-0"	6'-8"	1 3/4"	TBD	POCKET/TBD	EXPOSED SURFACE MTD TRACK HARDWARE

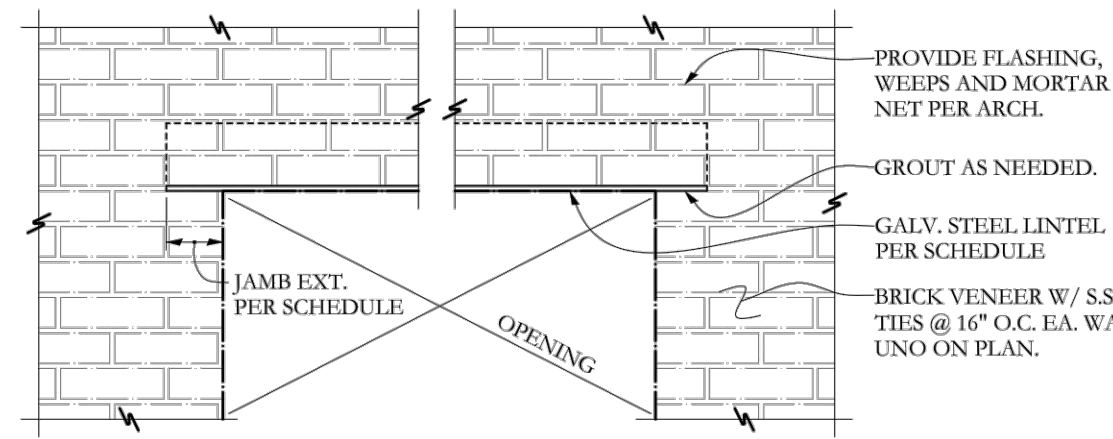
DOOR NOTES:
1. ALL DOORS AND HARDWARE TO BE SELECTED BY OWNER AND/OR INTERIOR ARCHITECT, TYP.

GENERAL DEMOLITION NOTES:

1. ALL WORK TO BE SEQUENCED AND SCHEDULED WITH OWNER
2. G.C. TO PROTECT ADJACENT AREAS NOT AFFECTED BY CONSTRUCTION.
3. G.C. TO FIELD VERIFY ALL CONDITIONS PRIOR TO BIDDING AND CONSTRUCTION.
4. ALL EXISTING MATERIALS NOTED TO BE REMOVED SHALL BE PROPERLY DISPOSED OF BY G.C. UNLESS OTHERWISE NOTED.
5. G.C. SHALL COORDINATE EXTENT OF ALL DEMOLITION WORK WITH NEW CONSTRUCTION.
6. ALL ELECTRICAL, PLUMBING AND MECHANICAL LOCATED IN WALLS NOTED TO BE REMOVED SHALL BE EITHER REMOVED BACK TO SOURCE OR LOCATED OUT OF HARMS WAY FOR RELOCATION IN NEW CONSTRUCTION, G.C. TO COORDINATE.
7. REMOVE EXISTING WALL FINISH AND SHEATHING AS REQUIRED
8. DEMO ALL WALLS, FIXTURES, DOORS, WINDOWS & APPLIANCES AS SHOWN.
9. SALVAGE REMOVED DOORS AND HARDWARE FOR REUSE, TYP.

GENERAL PLAN NOTES:

1. EXISTING WALLS SHOWN IN LIGHT GRAY HATCH. NEW WALLS SHOWN DARK GRAY HATCH.
2. EXISTING DOORS SHOWN PARTIALLY OPEN, NEW DOORS SHOWN OPEN 90 DEGREES.
3. ALL DIMENSIONS TO FACE OF FINISH AT EXISTING WALLS AND FACE OF FRAMING AT NEW WALLS, UNLESS OTHERWISE NOTED.
4. G.C. TO COORDINATE WORK WITH MECHANICAL CONTRACTOR FOR MODIFICATION OF EXISTING HVAC SYSTEMS - ARCHITECT, G.C. AND MECHANICAL CONTRACTOR TO REVIEW IN FIELD PRIOR TO INSTALLATION.
5. G.C. TO COORDINATE NEW PLUMBING & VENTING WITH EXISTING FRAMING, TYP.
6. TABLES AND CHAIRS SHOWN FOR REFERENCE, FRONT OF HOUSE DESIGN BY INTERIOR ARCHITECT, SEE SHEETS XX.X-XX.X FOR ADDITIONAL INFO, TYP.
7. PATCH AND REPAIR ALL INTERIOR AND EXTERIOR FINISHES AS REQUIRED, TYP.



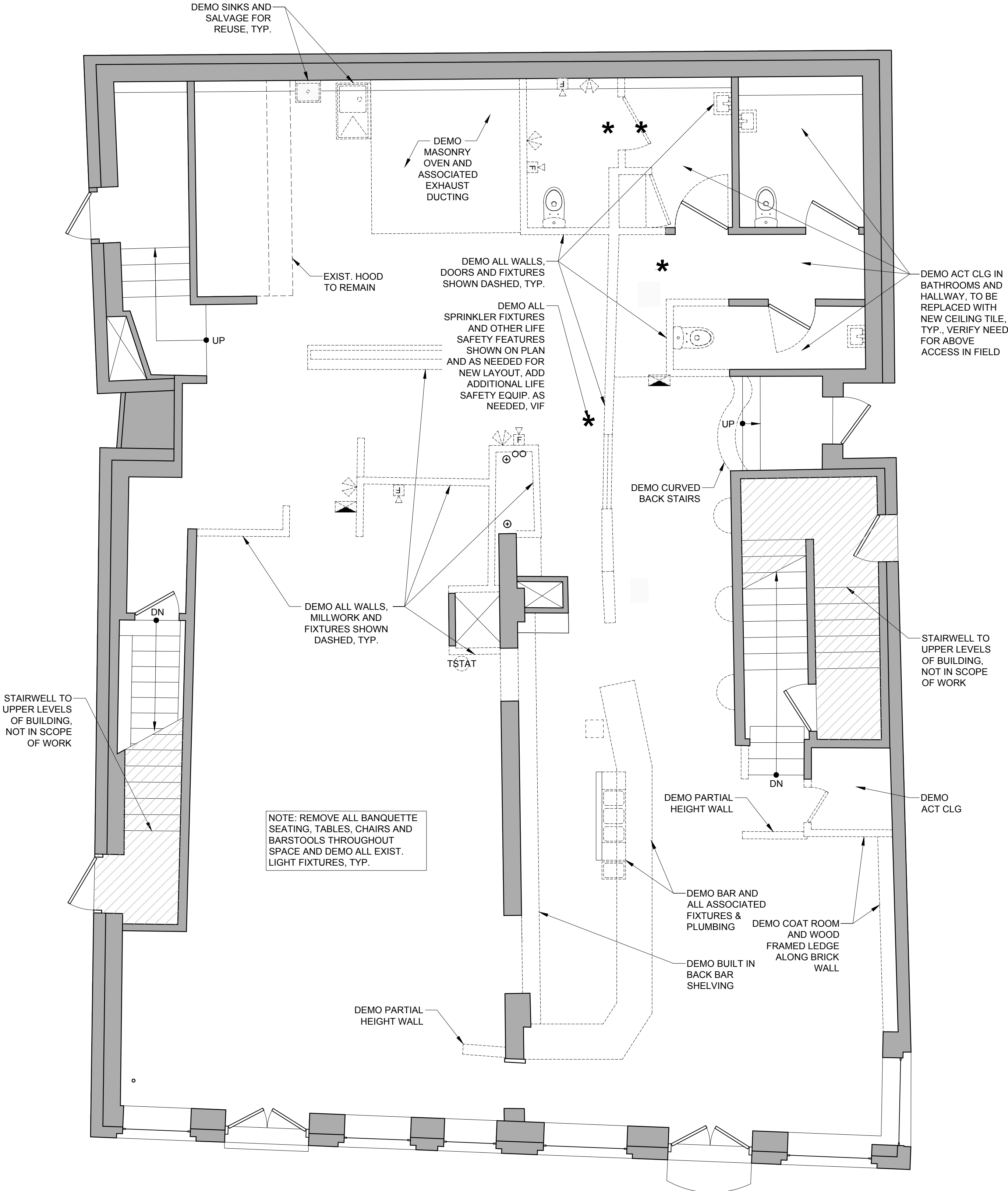
OPENING SIZE*	LINTEL PER WYTHE	JAMB EXTENSION
LESS THAN 4'-0"	13 1/2 x 3 1/2 x 1/4	4"
4'-1" TO 5'-5"	13 x 3 1/2 x 1/4	4"
5'-6" TO 6'-5"	16 x 3 1/2 x 1/4	8"
6'-6" TO 8'-6"	16 x 4 x 3/8	8"

* FOR OPENINGS GREATER THAN LISTED, SEE PLAN.
** ALL TEMPORARY SHORING BY G.C. - TYP.

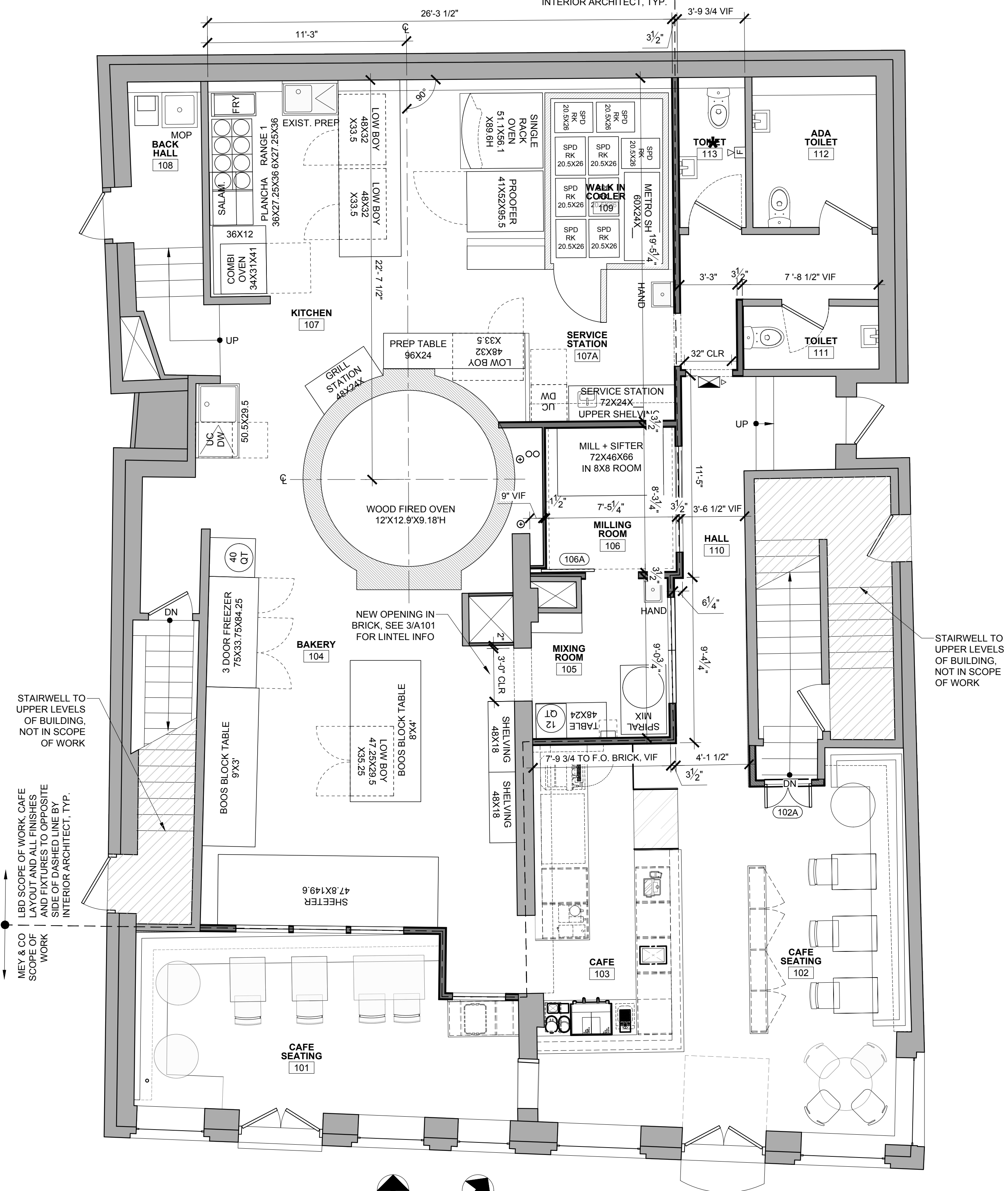
3 LINTEL SCHEDULE
SCALE: N.T.S.

LBD SCOPE OF WORK, CAFE LAYOUT AND ALL FINISHES AND FIXTURES TO OPPOSITE SIDE OF DASHED LINE BY INTERIOR ARCHITECT, TYP.

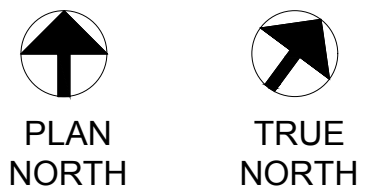
MEY & CO SCOPE OF WORK



1 FLOOR PLAN - DEMO
SCALE: 1/4" = 1'-0"



2 FLOOR PLAN - NEW
SCALE: 1/4" = 1'-0"



LESLIE BENSON DESIGNS

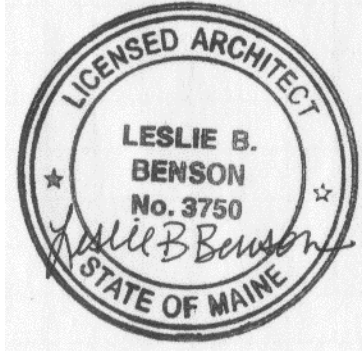
131 SPRING STREET
PORTLAND, ME 04101

lesliebdesigns@gmail.com
217.553.0672

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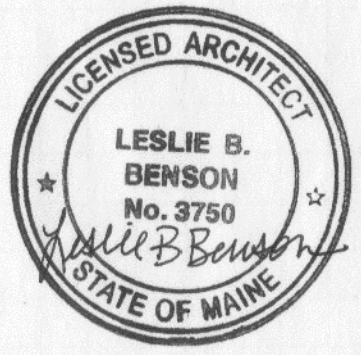
FIRST FLOOR PLAN
& DEMO PLAN

A101

PROJECT NAME:
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**EQUIPMENT
PLANS & MEP
NARRATIVES**

A601

MECHANICAL NARRATIVE:

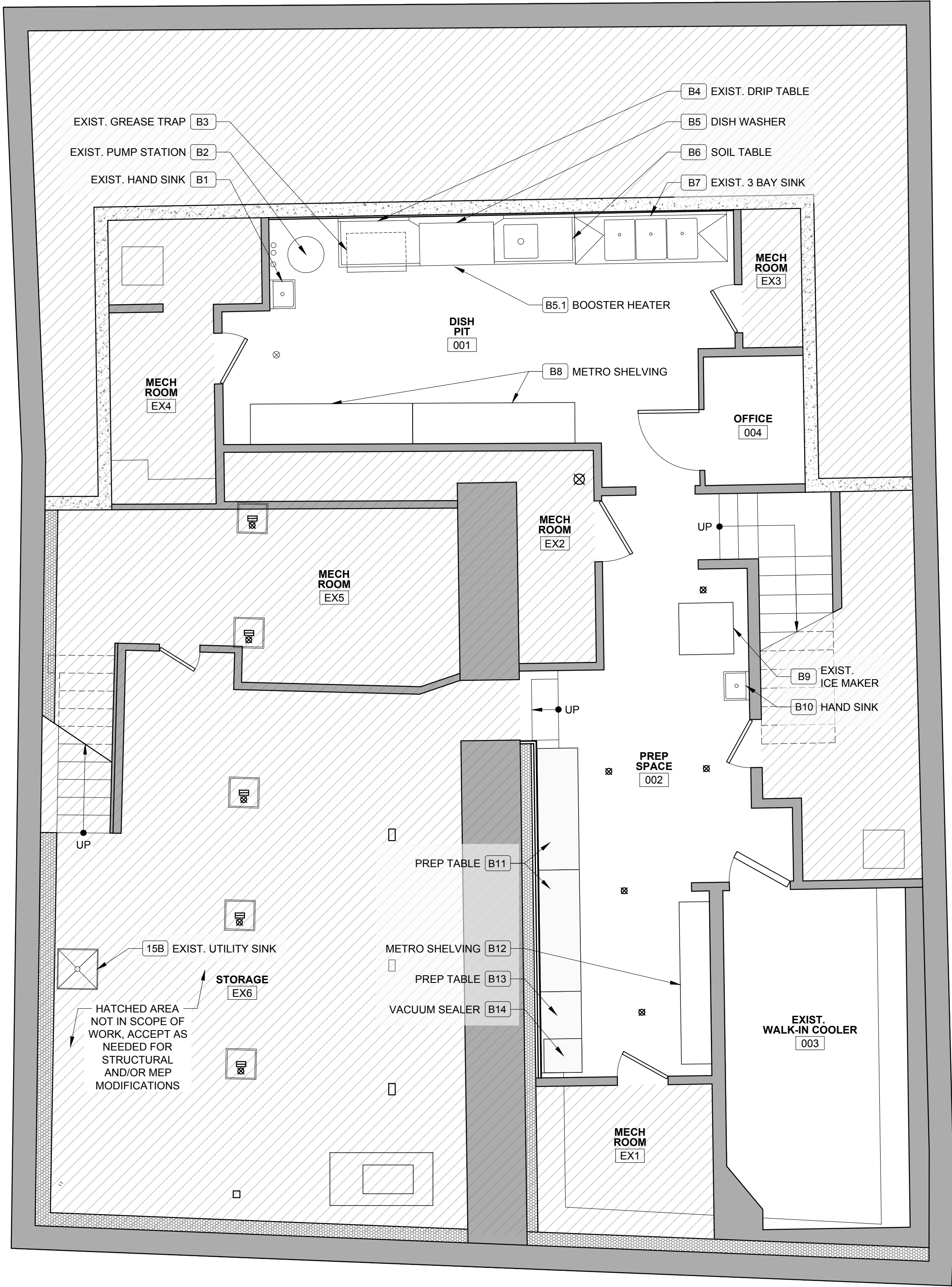
- NEW VENTILATION TO BE PROVIDED TO ALL NEW AND EXISTING EQUIPMENT TO REMAIN AS NEEDED TO MEET ALL APPLICABLE CODES.
- THE EXISTING TYPE 1 ANSL HOOD SYSTEM WILL REMAIN AND THE MAJORITY OF NEW VENTILATED EQUIPMENT WILL BE PLACED UNDERNEATH IT.
- EXISTING WOOD FIRED MASONRY OVEN AND ASSOCIATED VENTILATION TO BE REMOVED. NEW WOOD FIRED MASONRY OVEN/GRILL EXHAUST TO TIE INTO SAME LOCATION AS PREVIOUS, VIF
- ITEM 2 - SINGLE RACK OVEN, TO BE TIED INTO EXHAUST SYSTEM
- ITEM 1 - WALK-IN COOLER, COMPRESSOR LOCATION TO BE DETERMINED
- MILL ROOM TO BE VENTILATED BY ITEM 29 - JET AIR FILTRATION SYSTEM, CONFIRM MAKE UP AIR REQUIREMENTS.
- EXISTING HVAC DUCTING TO REMAIN, MODIFY/EXTEND AS NEEDED FOR NEW LAYOUT OF SPACES

ELECTRICAL NARRATIVE:

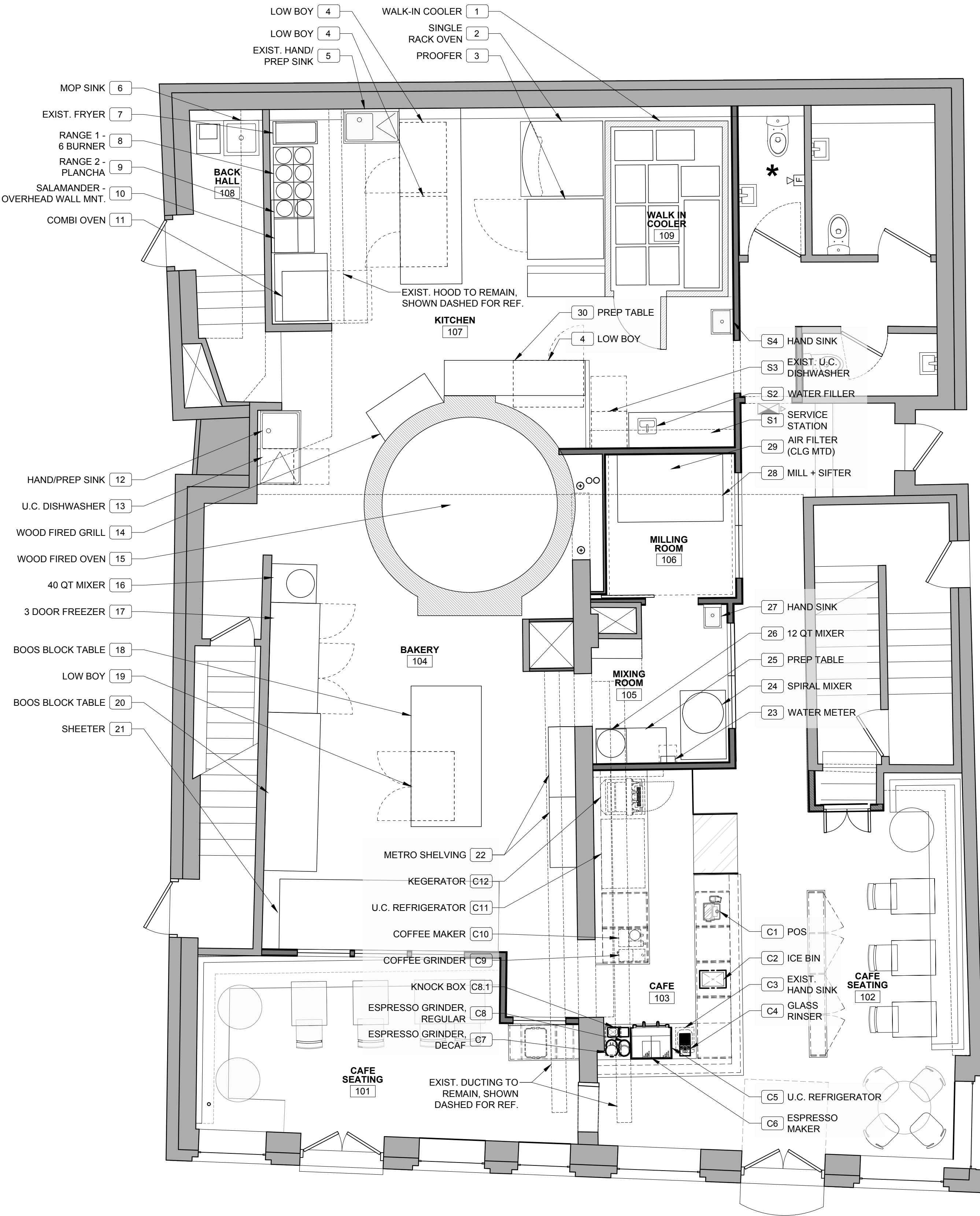
- NEW LIGHTING TO BE PROVIDED THROUGHOUT 1ST FLOOR AND BASEMENT, SEE RCPS FOR MORE INFORMATION
- VERIFY ALL EXISTING POWER CAPACITY AND CONFIRM THAT IT MEETS NEEDS OF NEW EQUIPMENT AND EXISTING EQUIPMENT TO REMAIN
- AVAILABLE BASIC POWER NEEDS OUTLINED ON EQUIPMENT SCHEDULE, CONFIRM ALL NEEDS WITH SPEC SHEETS ONCE FINAL PRODUCT SELECTIONS ARE CONFIRMED WITH OWNER
- 3 PHASE POWER IS AVAILABLE AT BUILDING

PLUMBING NARRATIVE:

- EXISTING SERVICE ENTRY, GREASE TRAP & PUMP STATIONS TO REMAIN
- PROVIDE NEW OR MODIFIED PLUMBING AND VENTING AS REQUIRED BY CODE TO ALL NEW AND EXISTING RELOCATED FIXTURES
- (1) ADA BATHROOM TO REMAIN, (2) ADDITIONAL BATHROOMS TO BE MODIFIED PER PLANS. PROVIDE NEW TOILETS AND SINKS PER MEY & CO SPECS, REUSE EXISTING TOILETS IF POSSIBLE.
- PROVIDE WHOLE BUILDING WATER FILTRATION SYSTEM OR INDIVIDUAL FILTERS AS NEEDED FOR SPECIFIC EQUIPMENT, BEST APPROACH TO BE CONFIRMED WITH OWNER



2 EQUIPMENT PLAN - BASEMENT
SCALE: 1/4" = 1'-0"



1 EQUIPMENT PLAN - FIRST FLOOR
SCALE: 1/4" = 1'-0"

EQUIPMENT SCHEDULE

MARK	PRODUCT	MANF.	MODEL	SIZE			ELEC. REQ'S	WATER		VENTING REQ'S	WEIGHT	REMARKS	MARK	PRODUCT	MANF.	MODEL	SIZE			ELEC. REQ'S	WATER		VENTING REQ'S	WEIGHT	REMARKS									
				WIDTH	DEPTH	HEIGHT		IN	OUT								WIDTH	DEPTH	HEIGHT		IN	OUT												
FIRST FLOOR													CAFE & SERVICE STATION																					
1	WALK-IN COOLER	TBD	TBD	7'-0"	10'-0"	116"	1PH, 208/230V, 60HZ	---	---		???	CONFIRM DIMENSIONS AND POWER REQ'S BASED ON SELECTED MANUF. NEED TO DETERMINE LOCATION FOR COMPRESSOR.	C1	POINT OF SALE	TBD					Y	---	---												
2	SINGLE RACK OVEN	REVENT	ONE26	51.1"	56.1"	89.6"	3PH	Y	Y	Y		INSTALL VENT DUCT TO EXISTING HOOD, VIF	C2	ICE BIN	REGENCY	600DIB1812	12"	18"	12"	---	---	Y												
3	PROOFER/RETARDER	REVENT	7112	41"	52"	95.5"	3PH	Y	Y			RELOCATE PER PLANS	C3	EXIST. HAND SINK	EXIST. TO REMAIN		12 1/2"	1'- 5 1/4"	VIF	---	---	Y	Y		RELOCATE PER PLANS									
4	LOW BOY	BEVERAGE-AIR	UCRD48AHC-2-ADA	48"	32"	33.5"	115V, 1PH	---	---				C4	GLASS RINSER	BARISTA BASICS	EPPR715	7"	15"	7/8"	---	---	Y	Y											
5	EXIST. PREP SINK	EXIST. TO REMAIN	---	3'-2"	1'-11 1/2"	VIF	---	Y	Y				C5	U.C. REFRIGERATOR	TBD	TBD	27"	TBD	TBD	TBD	---	---			OWNER TO CONFIRM MODEL NUMBER									
6	MOP SINK	REGENCY	600SM16206	25"	21"	10 7/8"	---	Y	Y				C6	ESPRESSO MAKER	LA MAZZORCA	LINEA PB, 2 GROUP	28"	23"	21"	1PH/208-240V/60HZ/30A	Y	---		202 LBS										
7	EXIST. FRYER	EXIST. TO REMAIN	---	15 1/2"	30 1/4"	47 1/8"	---			Y		RELOCATE PER PLANS, KEEP UNDER EXIST. HOOD	C7	ESPRESSO GRINDER, D	MAHLKONIG	X54	7.5"	11"	16.7"	TBD	Y	Y												
8	RANGE 1 - 6 BURNER	MONTAGUE	HD RANGE 136-5	36"	27.25"	36"	120V/60HZ/1PH	---	---	Y		LOCATE UNDER EXIST. HOOD, NAT. GAS	C8	ESPRESSO GRINDER, R	MAHLKONIG	E80 SUPREME	9.44"	13.3"	24.8"	100V, 50/60HZ, 600/800W	Y	Y												
9	RANGE 2 - PLANCHA	MONTAGUE	HD RANGE V136-7PL	36"	27.25"	36"	120V/60HZ/1PH	---	---	Y			C8.1	KNOCK BOX	TBD				►	---	---	---			OWNER TO CONFIRM MODEL NUMBER									
10	SALAMANDER	MONTAGUE	SB36-W "CONFIRM MTG STYLE"	36"	18"	20 3/4"	---	---	---	Y		LOCATE UNDER EXIST. HOOD, NAT. GAS	C9	COFFEE GRINDER	MAHLKONIG	GH2	7"	17"	26"	100-115V, 50/60HZ, 750W	---	---												
11	COMBI OVEN	RATIONAL	B118206.19E	34"	31"	41"	208/240V	Y	Y	Y		LOCATE UNDER EXIST. HOOD, NAT. GAS	C10	COFFEE MAKER	FETCO	CBS-2131XTS	11 3/4"	20 3/8"	25 3/4"	TBD	---	---			OWNER TO CONFIRM CAPACITY									
12	HAND/PREP SINK	REGENCY	600S1242424G	50 1/2"	29 1/2"	43 3/4"	---	Y	Y				C11	U.C. REFRIGERATOR	TBD	TBD	48"	TBD	TBD	---	---	Y	Y		OWNER TO CONFIRM MODEL NUMBER									
13	U.C. DISHWASHER	JACKSON	DISHSTAR HT	24 3/16"	25"	33 5/16"	208/230V	Y	Y				C12	KEGERATOR	BEVERAGE-AIRE	DD24HC-1-S-138	24"	30 1/8"	53"	115V, 60HZ, 1PH	---	---		174 LBS										
14	WOOD FIRED GRILL	JLLOPIS	CUSTOM	TBD	TBD	TBD	---	---	---	Y	2,000	DIRECT VENT, TIE INTO EXIST BUILDING EXHAUST	S1	SERVICE STATION	REGENCY	600EBTB2472 OR 3072	48"	24" OR 30"	36"	---	---	---			PLUMB FOR WATER FILL STATION									
15	WOOD FIRED OVEN	JLLOPIS	IPSOR GL3000	12'-0"	12.958'	9.18'	---	---	---	Y	20,100	DIRECT VENT, TIE INTO EXIST BUILDING EXHAUST	S2	WATER FILL STATION	EQUIP BY T&S	5GF-8P-WS	12 5/8"	10 5/8"	9 9/16"	---	---	Y	Y											
16	40 QT MIXER	HOBART	HL400 LEGACY+	26.4"	30.9"	49.8"	TBD	---	---				S3	EXIST. U.C. DISHWASHER	EXIST. TO REMAIN	JACKSON DELTA	24.25"	26.88"	36.25"	VIF	Y	Y			RELOCATE PER PLANS									
17	3 DOOR FREEZER	BEVERAGE-AIR	FB72HC-SS	75"	33.75"	84 1/4"	TBD	---	---				S4	HAND SINK	REGENCY	600HS17	17"	15"	13"	---	---	Y	Y			OWNER TO CONFIRM MODEL NUMBER								
18	BLOCK TABLE	BOOS	TBD	8'-0"	4'-0"	???	---	---	---				BASEMENT																					
19	2 DOOR LOW BOY	TBD	TBD	47.25"	29.5"	35.25"	TBD	---	---			CONFIRM HEIGHT ALLOWS FOR TABLE ABOVE	B1	EXIST. HAND SINK	EXIST. TO REMAIN											►								
20	BLOCK TABLE	BOOS	TBD	9'-0"	3'-0"	???	---	---	---				B2	EXIST. PUMP STATION	EXIST. TO REMAIN											►								
21	DOUGH SHEETER	RONDO	SS0677	149.6"	47.8"	90.6"	3PH, 200-420V, 50/60HZ	---	---				B3	EXIST. GREASE TRAP	EXIST. TO REMAIN											►								
22	METRO SHELVING	TBD	TBD	48"	18"	TBD	---	---	---				B4	EXIST. DRIP TABLE	EXIST. TO REMAIN		48"	30"	VIF							RELOCATE PER PLANS								
23	WATER METER	STM INDUST. ELEC.	DOX 25M	12.3"	4.5"	9.9"	???	Y	Y			REQ'S FLOOR SINK TO DRAIN	B5	DISHWASHER	SUMMIT	ADS MODEL 5AG-ES	44"	35"	79.875"	115V, 18A, 1PH	Y	Y												
24	SPIRAL MIXER	KEMPER	HEAVY DUTY SP 75	31"	47"	???	3PH/208V	---	---				B5.1	BOOSTER HEATER	HUBBLE	J612R	13"	25"	19 3/4"	3PH/208V	Y	---												
25	PREP TABLE	TBD	TBD	48"	24"	TBD	---	---	---				B6	SOIL TABLE	REGENCY	600DDT48	48"	30"	44 3/4"	---	---	Y	Y											
26	12 QT MIXER	HOBART	HL120 LEGACY+	20.75"	23.5"	29"	3PH	Y	Y			TABLE TOP MODEL	B7	EXIST. 3 BAY SINK	EXIST. TO REMAIN		7'-6"	2'-6"	VIF	---	---	Y	Y			RELOCATE PER PLANS								
27	HAND SINK	REGENCY	600HS12	12"	16"	12"	---	Y	Y			OWNER TO CONFIRM MODEL NUMBER	B8	METRO SHELVING	TBD	TBD	8'-0"	2'-0"	TBD	---	---	---	---											
28	MILL + SIFTER	NEW AMERICAN	CUSTOM	72"	46"	66"	DEDICATED 208-240V, 3PH, 30AMP CIRCUIT	---	---	Y	1500 LBS	REQ'S 7'X8' VENTILATED ROOM	B9	EXIST. ICE MAKER	EXIST. TO REMAIN											►								
29	AIR FILTRATION SYSTEM	JET	AFS-1000B	30 1/4"	24 1/8"	12 1/8"	115V GROUNDING OUTLET	---	---				B10	HAND SINK	SEE S4											►								
30	PREP TABLE	TBD	TBD	8'-0"	24"	TBD	---	Y	Y				B11	PREP TABLE	TBD	TBD	72"	24"	TBD	---	---	---				OWNER TO CONFIRM MODEL NUMBER								
													B12	METRO SHELVING	TBD	TBD	8'-0"	1'-6"	TBD	---	---	---												
													B13	PREP TABLE	TBD	TBD	48"	24"	TBD	---	---	---												
													B14	VACUUM SEALER	VACMASTER	VP321	20"	22.5"	20.5"	110V, 60HZ, 13A	---	---			210 LBS									
													B15	EXIST. UTILITY SINK	EXIST. TO REMAIN																			
EQUIPMENT NOTES:																																		
1. OWNER TO CONFIRM ALL EQUIPMENT MODEL NUMBERS PRIOR TO ORDERING																																		
2. PLUMBER AND ELECTRICIAN TO VERIFY ALL WATER, GAS, VENTING AND ELECTRICITY REQUIREMENTS BASED ON FINAL PRODUCT SELECTION																																		
3. FAUCETS, SPRAYERS AND ADDITIONAL ACCESSORIES NOT INCLUDED IN SCHEDULE																																		

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LESLIE BENSON DESIGNS

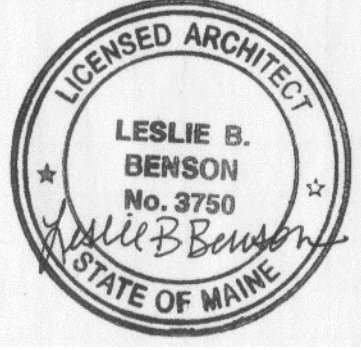
131 SPRING STREET
PORTLAND, ME 04101

lesliebdesigns@gmail.com
217.553.0672

PROJECT NAME:
BREAD + FRIENDS

TENANT FIT-UP
505 FORE STREET
PORTLAND, ME 04101

SEAL:



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REVISION:

1	DATE
2	DATE
3	DATE
4	DATE
5	DATE
6	DATE

DATE OF ISSUE: MARCH 25, 2022
PROJECT NUMBER: 2021-0008
STATUS: ISSUED FOR PERMITTING

EQUIPMENT SCHEDULES

A602