TERRADYN
CONSULTANTS, LLC

Pineland
Cumberland Hall
41 Campus Drive, Suite 301
New Gloucester, ME 04260

Portland
565 Congress Street, Suite 201
Portland, ME 04101

February 10, 2023 21-106

Eric Cousens
Director of Planning & Permitting
City of Auburn
60 Court Street
Auburn, ME 04210

405 Center Street - Site Plan Application
Wu Chun (Jim)
405 Center Street, Auburn, ME

Dear Eric,

On behalf of Jim Wu, we are pleased to submit the Development Review Application for the 405 Center Street Apartments - a 21-unit apartment complex that was designed using the City's Site Plan standards. We are requesting to be placed on the agenda for the March Planning Board meeting.

EXISTING PROJECT SITE

The project site is located at 405 Center Street and is approximately 1.22 ac. It's depicted on the City of Auburn Tax Map 271 as Lot 065. The site is located within the General Business District, where multifamily apartments are an allowed use. The standard net residential density for the district is up to 17 units per acre which means that the property can support 21 units.

The development parcel is located on the east side of Center Street approximately 200' south of the intersection of Center Street and East Dartmouth Street. The property contained an old 2.5 story building that had been converted from a residence to a commercial use at some point in time, and was most recently a four-unit apartment building with an unoccupied commercial space on the first floor. Fire and water damage a 2021(?) fire required the building to be recently razed.

The parcel can be accessed by two different curb cuts. One is located on each side of the Center Street frontage. A looped driveway connects the two entrances in front of the existing building. There is a parking lot located behind building that contains enough space for approximately 18 vehicles plus a loading area. The site is fully developed. All non-imperious area is maintained as lawn. There are no wetland areas located on the nearly fully developed site.

The property rises more than 30' in elevation from Center Street to the rear of the property.

PROPOSED PROJECT

The 405 Center Street Apartments project features two apartment buildings along with the associated parking, landscaping, lighting and stormwater areas. The buildings will contain 10 & 11 units, respectively. The apartment buildings are all three stories tall. Each unit will contain two bedrooms. The buildings were designed by Maine Residential Design (See Attachment 9).

Schematic Layout: The site was designed to work within the elevation constraints. Retaining walls will be utilized throughout the property. The 20' wide entrance connects to Center Street on the northern side of the frontage. It rises at an 8% grade until it turns south and reaches the parking area. The grade of the parking area flattens to between 1%-3% to provide property handicapped accessibility and to conform to general parking lot design standards. Building #1 is a 3-story, 11-unit structure that will be parallel to Center Street. Building #2 contains 10 units and is parallel to the adjacent northern property line. It will be 3 stories tall on the end closest to Center Street and 2 stories tall on the opposite side. A ramp will be constructed to provide handicapped accessibility to the rear of the building. A series of 4' high retaining walls are located adjacent to the easterly property line (behind Building #2). The area between the walls will provide for landscaping opportunities.

We provided a vehicle turnaround near the midpoint of the parking area that will allow easy access and maneuverability for both the City's fire & rescue vehicles as well as trash removal trucks.

Parking: The plan features 33 parking spaces including two handicapped accessible spaces. This number equals the amount stipulated by the zoning ordinance where it's written that 1.5 spaces are required per unit.

Access: The northernmost existing curb-cut and driveway location will be used for the project access. The first segment of the driveway will be 20' wide, paved and lined with slip-form concrete curbing. The drive aisle will widen to 24' once it reaches the first parking spaces. Sidewalks will be constructed along all parking areas that will allow handicapped accessibility to each building. Additionally, a new sidewalk will be constructed on the south side of Building 1 that will connect to the sidewalk that is adjacent to the easterly side of Center Street.

The existing site features a retaining wall on the backside of the Center Street sidewalk. The wall is generally 4.5' high. The wall will be lowered to a maximum height of 2' and the area behind the wall will be regraded to a 3:1 slope. The lowering of the wall and removal of earth will provide greater than 350' of sight distance at the project entrance in both directions.

Daily and peak hour trip generation was determined for the proposed project based upon trip tables presented in the tenth edition of the Institute of Transportation Engineers (ITE) "Trip Generation" handbook. The ITE publication provides numerous land use categories and the average volume of trips generated by each category. Site trip estimates for this project are based upon LUC #221-Multifamily Housing (Mid-Rise); which is described in the ITE publication as: multifamily housing including apartments, townhouses, and/or condominiums located within the same building with at least three other dwelling units that have between three and ten levels.

Calculation of the total number of trips generated per each corresponding time period are summarized below:

Land Use	Multifamily Housing (Mid-Rise) – LUC 221		
Time Period	Size # of units	Trip Generation Rate (Trips per Units)	Trips Generated
Weekday	21	5.44	114
AM Weekday Peak Hour (Street)	21	0.36	8
PM Weekday Peak Hour (Street)	21	0.44	9
AM Weekday Peak Hour (Generator)	21	0.32	7
PM Weekday Peak Hour (Generator)	21	0.41	9
Saturday	21	4.91	103
Saturday Peak Hour	21	0.44	9
Sunday	21	4.09	86
Sunday Peak Hour	21	0.39	8

Utilities: The complex will be served by public water, sewer, natural gas and underground power. The Center Street right of way contains all necessary utilities including public water & sewer, natural gas and above ground power lines.

A new 6” water line will connect to the existing 12” water main that will provide water service and fire protection to the building sprinkler systems. A new sewer manhole will be constructed within Center Street to allow connection of the proposed 8” gravity sewer line to the existing 18” public gravity sewer system. Gas & electrical service will make connection directly to the adjacent lines. The electric service will drop from the overhead lines and provide underground power. Two new ground-mounted transformers will be installed, one for each building.

Stormwater Management: The project meets current City requirements for both stormwater quantity and quality control. The proposed parking area, sidewalks and retaining walls feature slightly less impervious area than the existing property. This area drains to proposed catch basins that will tie directly into the Center Street stormwater system. The apartment building roofs will drain to over-sized filter strips that will be located along the building edges. The filter strips have been designed to store the runoff volume from the entire 25 year-24 hour storm event. A full stormwater report is attached.

Snow Removal: We have designated snow storage areas on the site plan. Snow storage areas are located off the end and sides of the parking area and drive aisle.

Landscaping & Lighting: Barry Hosmer, RLA is currently preparing the landscaping plan. It will be provided under separate cover. We prepared the lighting plan. It features fully cut off, building mounted architectural light fixtures.

Signage: The applicant is proposing to construct a sign to be located between Building 1 & Center Street. The location is shown on the site plan.

CLOSING

The project has been designed to meet the review standards of the City of Auburn's Zoning and Land Use Code. Narratives describing how these criteria and standards are met is attached to the Development Review Application. Please do not hesitate to reach out if you have any questions or require additional information.

Sincerely,

TERRADYN CONSULTANTS, LLC

Jimmy C. Courbron, P.L.S.

Enc.
Development Review Application & Attachments

LIST OF ATTACHMENTS

Attachment 1	Application Form & Checklist
Attachment 2	Evidence of Right Title and Interest (deed)
Attachment 3	Standards Compliance Narratives
Attachment 4	Stormwater Management Report
Attachment 5	Utility Correspondence
Attachment 6	Financial Capacity
Attachment 7	Cost Estimate
Attachment 8	Turning Figure
Attachment 9	Building Plans
Attachment 10	Plan Set

Attachment 1

Application Form

City of Auburn, Maine
Office of Planning & Permitting
Eric J. Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Application

PROJECT NAME: 405 Center Street Apartments

PROPOSED DEVELOPMENT ADDRESS: 405 Center Street, Auburn, ME 04210

PARCEL ID #: 271-065

REVIEW TYPE: Site Plan □ Site Plan Amendment □
Subdivision □ Subdivision Amendment □

PROJECT DESCRIPTION: Raze existing 2 1/2 story, mixed-use apartment building that was recently condemned due to fire and water damage and replace with one 10-unit apartment building and one 11-unit apartment building. New structures will connect to public utilities.

CONTACT INFORMATION:

Applicant	Property Owner
Name:	Wu Chun (Jim)
Address:	279 Center St.
City / State	Auburn, ME
Zip Code	04210
Work #:	
Cell #:	(207) 754-8474
Fax #:	
Home #:	
Email:	jim.w009@yahoo.com

Property Owner	
Name:	
Address:	
City / State	
Zip Code	
Work #:	
Cell #:	
Fax #:	
Home #:	
Email:	

Project Representative	Terradyn Consultants, LLC
Name:	Jeffrey D. Amos, PE
Address:	41 Campus Dr. Suite 301
City / State	New Gloucester, ME 04260
Zip Code	
Work #:	(207) 926-5111
Cell #:	
Fax #:	
Home #:	
Email:	jeff@terradynconsultants.com

Other professional representatives for the project (surveyors, engineers, etc.),	
Name:	Jimmy C. Courbron, PLS
Address:	95 Main St. Second Floor
City / State	Auburn, ME
Zip Code	04210
Work #:	(207) 200-1678
Cell #:	(207) 212-4478
Fax #:	
Home #:	
Email:	jim@terradynconsultants.com

PROJECT DATA

The following information is required where applicable, in order complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	17,395	sq. ft.
Proposed Total Paved Area	14,286	sq. ft.
Proposed Total Impervious Area	27,411	sq. ft.
Proposed Impervious Net Change	+10,016	sq. ft.
Impervious surface ratio existing	33	% of lot area
Impervious surface ratio proposed	51	% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	3,500	sq. ft.
Proposed Building Footprint	12,000	sq. ft.
Proposed Building Footprint Net change	343%	sq. ft.
Existing Total Building Floor Area	5,500	sq. ft.
Proposed Total Building Floor Area	31,000	sq. ft.
Proposed Building Floor Area Net Change	565%	sq. ft
New Building	Yes	(yes or no)
Building Area/Lot coverage existing	7	% of lot area
Building Area/Lot coverage proposed	23	% of lot area

ZONING

Existing	General Business
Proposed, if applicable	N/A

LAND USE

Existing	Residential
Proposed	Residential

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	4
Proposed Number of Residential Units	21
Subdivision, Proposed Number of Lots	N/A

PARKING SPACES

Existing Number of Parking Spaces	18
Proposed Number of Parking Spaces	33
Number of Handicapped Parking Spaces	2
Proposed Total Parking Spaces	33

ESTIMATED COST OF PROJECT: $380,000

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area	17,395	sq. ft.
Proposed Disturbed Area	53,000	sq. ft.
Proposed Impervious Area	27,411	sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

Total traffic estimated in the peak hour-existing (Since July 1, 1997) 0 passenger car equivalents (PCE)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) 9 passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the General Business zoning district.
2. Parcel Area: 1.22 acres / 53,296 square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	10,000 s.f.	53,206
Street Frontage	100'	193'
Min Front Yard	25'	25'
Min Rear Yard	35'	35'
Min Side Yard	25'	25'
Max. Building Height	45'	39'
Use Designation	Multi-family allowed	Multi-family proposed
Parking Requirement	~~1 space/ per square feet of floor area~~	1.5 spaces per unit
Total Parking:	32	33
Overlay zoning districts (if any):	None	
Urban impaired stream watershed?	YES/NO If yes, watershed name	

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submissions shall include fifteen (15) complete packets containing the following materials:

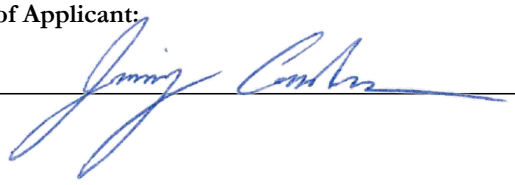
1. 5 Full size plans and 10 smaller (no larger than 11" x 17") plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed by the property owner or designated representative. (NOTE: All applications will be reviewed by staff and any incomplete application will not be accepted until all deficiencies are corrected.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

To view the City of Auburn Zoning Ordinance, go to:
www.auburnmaine.gov under City Departments / Planning, Permitting & Code / Subdivisions / Land Use /Zoning Ordinance

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:	**Date:**
	February 9, 2023

City of Auburn, Maine
Office of Planning & Permitting
Eric J. Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Checklist

The following information is required where applicable to be submitted for an application to be complete

PROJECT NAME: 405 Center Street Apartments
PROPOSED DEVELOPMENT ADDRESS: 405 Center St.
PARCEL #: 271-065

Required Information		*Check when Submitted*		*Applicable Ordinance*
Site Plan		*Applicant*	*Staff*	
	Owner's Names/Address	✓		
	Names of Development	✓		
	Professionally Prepared Plan	✓		
	Tax Map or Street/Parcel Number	✓		
	Zoning of Property	✓		
	Distance to Property Lines	✓		
	Boundaries of Abutting land	✓		
	Show Setbacks, Yards and Buffers	✓		
	Airport Area of Influence	N/A		
	Parking Space Calcs	✓		
	Drive Openings/Locations	✓		
	Subdivision Restrictions	None		
	Proposed Use	✓		
	PB/BOA/Other Restrictions	None		
	Fire Department Review	✓		
	Open Space/Lot Coverage	✓		

Required Information		*Check when Submitted*		*Applicable Ordinance*
Landscape Plan		*Applicant*	*Staff*	
	Greenspace Requirements	✓		
	Setbacks to Parking	✓		
	Buffer Requirements	None		
	Street Tree Requirements	N/A		
	Screened Dumpsters	✓		
	Additional Design Guidelines	✓		
	Planting Schedule	✓		
Stormwater & Erosion Control Plan		*Applicant*	*Staff*	
	Compliance w/ chapter 500	✓		
	Show Existing Surface Drainage	✓		
	Direction of Flow	✓		
	Location of Catch Basins, etc.	✓		
	Drainage Calculations	✓		
	Erosion Control Measures	✓		
	Maine Construction General Permit	✓		
	Bonding and Inspection Fees	✓		
	Post-Construction Stormwater Plan	✓		
	Inspection/monitoring requirements	N/A		
Lighting Plan		*Applicant*	*Staff*	
	Full cut-off fixtures	✓		
	Meets Parking Lot Requirements	✓		
Traffic Information		*Applicant*	*Staff*	
	Access Management	✓		
	Signage	✓		
	PCE - Trips in Peak Hour	✓		

Required Information		*Check when Submitted*		*Applicable Ordinance*
	Vehicular Movements	✓		
	Safety Concerns	✓		
	Pedestrian Circulation	✓		
	Police Traffic	✓		
	Engineering Traffic	✓		
Utility Plan		*Applicant*	*Staff*	
	Water	✓		
	Adequacy of Water Supply	✓		
	Water main extension agreement	✓		
	Sewer	✓		
	Available city capacity	✓		
	Electric	✓		
	Natural Gas	✓		
	Cable/Phone	✓		
Natural Resources		*Applicant*	*Staff*	
	Shoreland Zone	N/A		
	Flood Plain	None		
	Wetlands or Streams	None		
	Urban Impaired Stream	None		
	Phosphorus Check	N/A		
	Aquifer/Groundwater Protection	None		
Stormwater PBR	Applicable State Permits			
	Lake Auburn Watershed	N/A		
	Taylor Pond Watershed	N/A		
Right, Title or Interest		*Applicant*	*Staff*	
	Verify	✓		
	Document Existing Easements, Covenants, etc.	✓		

Required Information		*Check when Submitted*		*Applicable Ordinance*
Technical & Financial Capacity		***Applicant***	***Staff***	
	Cost Est./Financial Capacity	✓		
	Performance Guarantee			
State Subdivision Law		***Applicant***	***Staff***	
	Verify/Check	N/A		
	Covenants/Deed Restrictions	None		
	Offers of Conveyance to City	None		
	Association Documents	N/A		
	Location of Proposed Streets & Sidewalks	N/A		
	Proposed Lot Lines, etc.	N/A		
	Data to Determine Lots, etc.	N/A		
	Subdivision Lots/Blocks	N/A		
	Specified Dedication of Land	None		
Additional Subdivision Standards		***Applicant***	***Staff***	
	Mobile Home Parks	N/A		
	PUD	N/A		
A JPEG or PDF of the proposed site plan		***Applicant***	***Staff***	
		✓		
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving	Available after approval & upon Request.			

Attachment 2

Evidence of Right Title & Interest (deed)

Bk 9235 Pg31 #18082
10-02-2015 @ 11:25a

WARRANTY DEED

Thomas F. Shields, of the City of Auburn, County of Androscoggin, and State of Maine, for consideration paid, grants to **Chun Wu,** with a mailing address of 782 Minot Avenue, Auburn, Maine, 04210, with **WARRANTY COVENANTS**, a certain lot or parcel of land, with any buildings thereon, situated at 405 Center Street in the City of **Auburn**, County of **Androscoggin**, and State of **MAINE**, bounded and described as follows:

MAINE REAL ESTATE TRANSFER TAX PAID

Beginning on the easterly line of Center Street at the southwesterly corner of a lot or parcel of land conveyed by Herbert F. Curtis to John T. Spooner by deed dated April 30, 1928, and recorded in the Androscoggin Registry of Deeds in Book 381, Page 496; thence in a northerly direction, by the said easterly line of Center Street one hundred ninety-three and six tenths (193.6) feet to the southerly line of land owned by one Nash; thence in an easterly direction, by the southerly line of said Nash land, one hundred thirty-six and five tenths (136.5) feet; thence in a southeasterly direction, by the southwesterly line of land now or formerly owned by one Gagnon and by the southwesterly line of land owned by Lola R. Strout, one hundred eighty-seven (187) feet to an angle in said Strout's line; thence in a southerly direction, by the westerly line of said Strout's land, one hundred sixty-one and sixty-five hundredths (161.65) feet to the northerly line of land owned by one Anderson; thence in a westerly direction by said Anderson's northerly line two hundred thirteen and two-tenths (213.2) feet to an iron pipe driven into the ground, said iron pipe being located twenty-four (24) feet northerly from the foundation wall of said Anderson's house; said iron pipe also being located at the easterly corner of land conveyed by the said Herbert F. Curtis to John T. Spooner above referred to; thence in a westerly direction, by the northerly line of said Anderson's land, sixty-one and three tenths (61.3) feet to the said easterly line of Center Street and the point of beginning.

Also a right-of-way across the northwesterly corner of said Anderson's land as described in said deed from Curtis to Spooner above-referred to.

Together with all tenements, hereditaments, and appurtenances thereto belonging, but subject to easements and restrictions of record.

Being the same premises described in the deed to Thomas F. Shields from Lawrence M. Zanca and Edward R. Zanca dated July 12, 1983 and recorded on July 13, 1983 in the Androscoggin County Registry of Deeds in Book 1656, Page 130.

Excepting and reserving therefrom that certain lot or parcel of land conveyed by Thomas F. Shields to Paul H. Sasseville and Gail M. Sasseville by deed dated November 11, 2000, recorded in the Androscoggin County Registry of Deeds in Book 4547, Page 192, and as complimented by Mutual Release of all Claims dated December 11, 2000 and recorded in said Registry of Deeds in Book 4562, Page 91.

IN WITNESS WHEREOF, the Grantor has executed this instrument on this 30th day of September, 2015.

Witness

Thomas F. Shields

STATE OF MAINE
ANDROSCOGGIN, SS. September 30, 2015

Then personally appeared the above-named Thomas F. Shields and acknowledged the foregoing instrument to be his free act and deed.

Before me,

Notary Public / ~~Attorney~~ at Law Melissa M. Dunham
Print Name: _____
My Commission Expires: _____

F://Darlene/clients/shields/405 center street, auburn, me/deed to wu

Attachment 3

Standards Compliance Narratives

TERRADYN CONSULTANTS, LLC

Pineland
Cumberland Hall
41 Campus Drive, Suite 101
New Gloucester, ME 04260

Auburn
95 Main St. Suite 201
Auburn, ME 04210

February 9, 2023 Project# 22-106

COMPLIANCE WITH CITY OF AUBURN ZONING AND LAND USE CODE

405 Center St, Auburn, Maine

The following information describes how the proposed project, located at 555 Court Street in Auburn, Maine, complies with Chapter 60 of the City of Auburns Zoning Ordinance.

1. *Will not result in undue water, air or noise pollution*

   The proposed project is a market rate residential apartments development and is not expected to result in any undue water, air or noise pollution.

2. *Has sufficient water available for the reasonably foreseeable needs of the subdivision;*

   Please see the attached letter from the Auburn Water and Sewer District stating that they have capacity to serve the proposed project. District's comments have been addressed.

3. *Will not cause an unreasonable burden on the existing water supply, if one is to be utilized;*

   The proposed project will not cause an unreasonable burden to the existing water supply. Please see the attached letter from the Auburn Water and Sewer District stating that they have capacity to serve the proposed project.

4. *Will not cause unreasonable soil erosion or reduction in capacity of the land to hold water so that a dangerous or unhealthy condition may result;*

   The proposed project will not cause unreasonable soil erosion or a reduction in the of the land to hold water. Erosion and sediment controls are shown on the attached plans and a stormwater management report has been prepared demonstrating that post development runoff will not exceed predevelopment conditions.

5. *Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed;*

   The project will not cause unreasonable highway or public congestion or unsafe conditions.

6. *Will provide for adequate sewage waste disposal;*

   The proposed development will be serviced by the Auburn Water and Sewer district please see the attached letter confirming capacity to serve the proposed development.

7. *Will not cause an unreasonable burden on the ability of a municipality to dispose of solid waste and sewage if municipal services are to be utilized*

   The applicant will contract with a private waste hauler to dispose of solid waste at a licensed facility. Please see the attached letter from the Auburn Water and Sewer district confirming capacity to serve the proposed development.

8. *Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or areas and irreplaceable natural areas;*

   The proposed development will not have an adverse effect on the scenic or natural beauty of the area. The proposed development is located within the General Business District and is surrounded by commercial and multi-family uses. The subject parcel was recently used as a multi-family residence, and is proposed to be used for the same. The proposed development has a robust landscaping plan that will help enhance the beauty of the area and screen the new development.

9. *In conformance with a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan, or land use plan, if any;*

   The proposed development has been designed in conformance with all applicable regulations.

10. *Is funded by a [developer] that has adequate financial and technical capacity to meet the standards;*

The applicant has adequate funding to complete the project, please see that attached letter from Bertrand G. LaBonte, Certified Public Accountant.

The Applicant has assembled a highly qualified team of professionals to plan, permit and develop construction documents for the project. The team services will be provided by the following companies:

CONSULTANT TEAM

Civil Engineer	Jeff Amos, P.E. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 370-2776
Surveyor	Jim Courbron, P.L.S. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 926-5111
Architect	Maine Residential Design Casco, ME (207) 627-3362
Landscape Architect	Barry J. Hosmer P.L.A., A.S.L.A. 196 Whitney Avenue Portland, ME 04102 (207) 874-0248

The team of consultants retained by the Developer has expertise and experience in the design of similar projects. Resumes of key personnel for the development team can be provided upon request.

11. *Will not adversely affect the character of the surrounding neighborhood and will not tend to depreciate the value of property adjoining the neighboring property under application;*

    The proposed project will not adversely impact the surrounding area. The residential development will replace an existing structure in need of repairs and seeks to enhance the surrounding area.

12. *Has provisions for on-site landscaping that are adequate to screen neighboring properties from unsightly features of the development;*

    A robust landscaping plan has been prepared for the proposed development, please see the plan within the attached plan set. Dumpster areas will be fenced and screened.

13. *Will not create a fire hazard and has provided adequate access to the site for emergence vehicles:*

    Adequate access has been provided for emergency vehicles, please see the attached turning figures which demonstrate that the City of Auburn's Fire truck can safely access and maneuver within the site. The buildings will also be outfitted with sprinkler systems.

14. *Will not, alone or in conjunction with existing activities adversely affect the quality or quantity of groundwater;*

    The proposed project will not adversely impact the quality or quantity of groundwater. The project will utilize public water and sewer.

15. *Does not have long-term cumulative effects on the proposed subdivision that will unreasonably increase a great pond phosphorus concentration during the construction phase and life of the proposed subdivision.*

    The proposed project is not located within a great pond watershed.

Attachment 4

Stormwater Management Report

STORMWATER MANAGEMENT PLAN

405 Center Street
Auburn, Maine

The following Stormwater Management Plan has been prepared for the 405 Center Street Apartments Development to evaluate stormwater runoff and erosion control for the proposed 21 unit apartment complex to be located at 405 Center Street in Auburn, Maine.

Site Calculations

Total Property Area	1.22 Ac (+/-)
Total Existing Impervious Area	17,395 SF
Total Project Impervious Area	27,411 SF
Total Developed Area	1.22 Ac

Existing Conditions

The development parcel is located on the east side of Center Street approximately 200' south of the intersection of Center Street and East Dartmouth Street. The property contains an old 2.5 story building that had been converted from a residence to a commercial use at some point in time. The parcel can be accessed by two different curb cuts. One is located on each side of the Center Street frontage. A looped driveway connects the two entrances in front of the existing building. There is a parking lot located behind building that contains enough space for approximately 18 vehicles plus a loading area. The site is fully developed. All non-imperious area is maintained as lawn. There are no wetland areas located on the nearly fully developed site.

The site rises in elevation from an elevation of approximately 209 in Center Street to a high of 243 along the back property line. The grassy area behind the parking lot rises at an approximate grade of 20%.

The entire property and surrounding area drains to the Center Street stormwater system. The system ultimately flows into the Androscoggin River. Copies of the U.S.G.S. Quadrangle Map and an Aerial Map are attached to this submittal. The Center Street stormwater drainage system is modeled as Study Point #1 in this report.

Flooding

The development area is not located within an area of flood hazard according to the attached Federal Insurance Rate Map.

Post Development Stormwater Approach

We attempted to approach the redevelopment of 405 Center Street parcel from a volumetric approach. The existing site contained 17,395 SF of impervious area. Through an iterative process, we limited the non-roof impervious area of the proposed site it 17,343 SF so that it'd be approximately equal. We are adding approximately 10,000 SF of roof area to the site and reducing the existing grass area by the same amount. We designed a roof drain filter strip that will be constructed adjacent to each building. Each of these filter strips can contain the entire 25 year/24 hour storm event. The filter strips will be drained by an underdrain. The underdrain will be capped in the nearest catch basin and a 1" orifice will be drilled into the cap. The orifice will limit the flow from the roof drain so that it does not significantly impact the peak flow rate.

Modeling Assumptions

The onsite stormwater facilities were sized utilizing the USDA Soil Conservation Service (SCS) TR-20 Runoff Simulation Model, as contained in the HydroCAD computer software program (Version 9.0). Runoff curve numbers were determined for each direct watershed by measuring the area of each hydrologic soil group within each type of land cover. Weighted curve numbers were then calculated using curve numbers for various cover types and hydrologic soil groups, assuming "good" conditions as defined in U.S Soil Conservation Service (SCS) publications. Times of concentration and travel times were determined from site topographic maps in accordance with SCS procedures. A maximum length of 150 feet was used for sheet flow.

All of the watersheds' peak runoff rates were analyzed for the 2, 10, and 25-year frequency, 24-hour duration storm events. A Type III rainfall distribution was applied to these storms. The rainfall amounts for Androscoggin County are as follows:

Storm Frequency Precipitation (in./24 hr)	
2-year	3.0
10-year	4.3
25-year	5.4

Onsite Soils

The soils were determined from the NRCS Web Soil Mapper. See attached NRCS Soils Map. All onsite soils were determined to be Hartland very fine sandy loam. They are of hydrologic soil group B.

Water Quantity (Flooding Standard)

The following table summarizes the results of stormwater calculations for the design storm events for the project areas. Calculations and computer modeling sheets are provided with this report.

Table 1 - Stormwater Runoff Summary Table Pre-Development vs. Post-Development						
Study Point #	2Yr/24Hr (cfs)		10Yr/24Hr (cfs)		25Yr/24Hr (cfs)	
	Pre	Post	Pre	Post	Pre	Post
1	1.0	1.1	2.2	2.3	3.3	3.3

As the above result table shows, the post-development flow rates for the 2, 10, and 25-year/24 hour design storm events are nearly identical to the pre-development conditions.

Basic Standards

A site-specific Erosion & Sedimentation Control Plan has been developed for the project. Means and methods to control erosion and sedimentation during and after construction are detailed in the erosion control plan narrative and construction details, which are included directly on the project drawings for ease of reference during construction.

Requirements for inspection and maintenance of the stormwater management system are provided in the stormwater management system inspection and maintenance plan located in Attachment 6.

Housekeeping requirements are included in the Erosion & Sediment Control Narrative located on the project drawings as well as in Attachment 6. Draft buffer deed restrictions are provided in Appendix C and D.

BMP Sizing

Roof Dripline Filter Bed
We propose to provide treatment for the roof runoff for each of the proposed apartment buildings. The beds will be sized to contain the full 25 year storm event. The underdrain outlet will connect to the nearest catch basin and be capped with a 1" orifice. The orifice will restrict the flow so that it has minimal impact to the peak flow rate. The bed sizing is as follows:

Area of Watershed: = 2,517 SF (half of each roof)
Rainfall Depth = 5.4"
Required Volume = Area of Watershed x Rainfall
2,517 SF x 5.4/12 FT = 1,133 CF

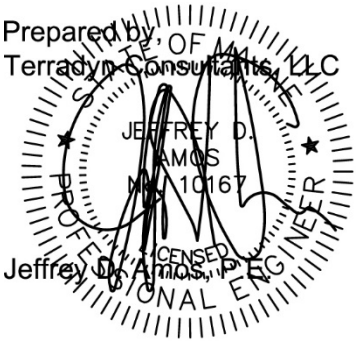
Bed Sizing:
Porosity = 40%
Bed Length = 110'
Bed Width = 6'

Bed Depth = 4.5’
Available Volume= 110’ x 6’ x 4.5’ x 0.40 = 1,188 CF.

Summary

Based on the results of this evaluation, the proposed stormwater design is not expected to cause flooding, erosion or other significant adverse effects downstream of the site.

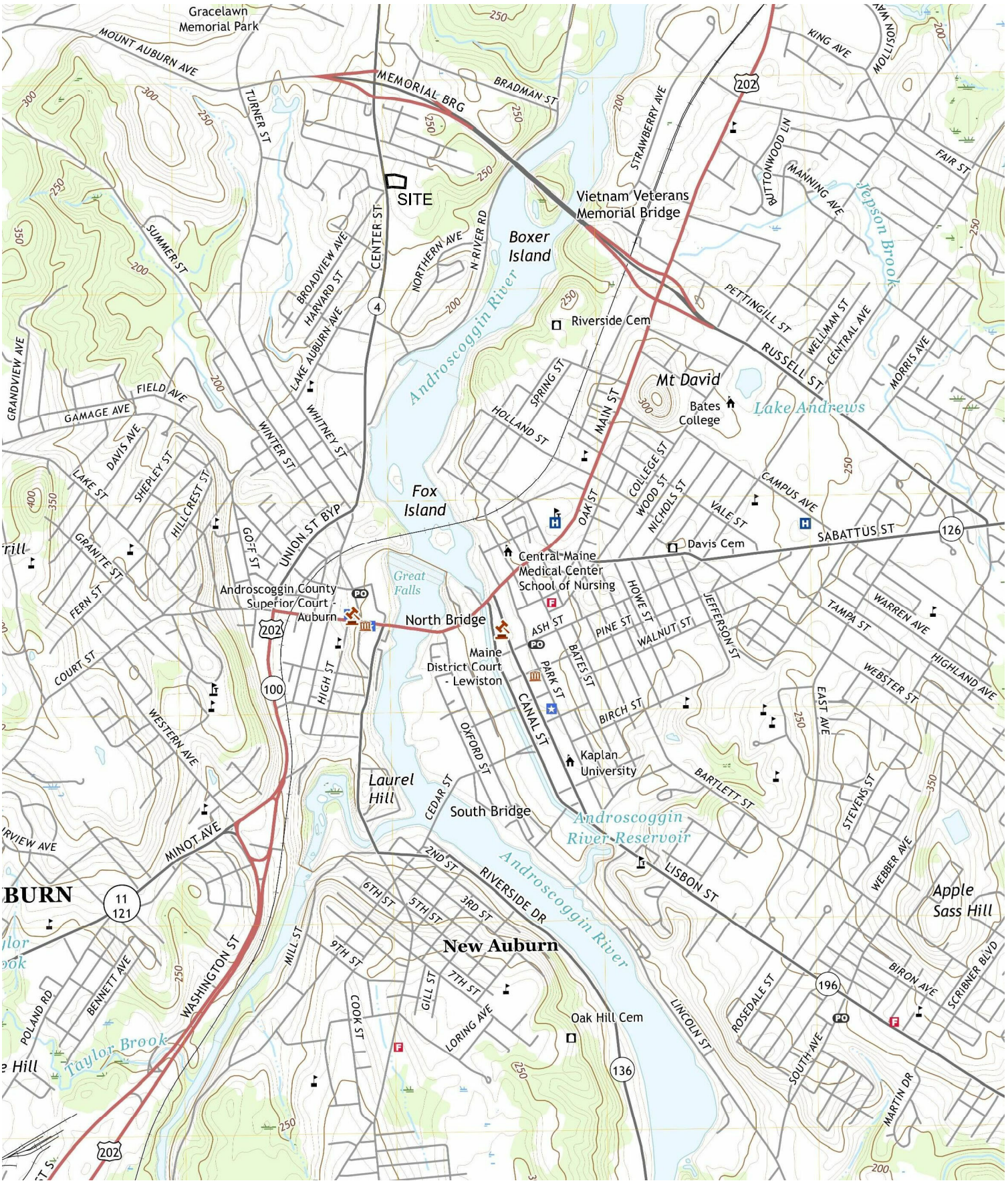
Prepared by,
Terradyn Consultants, LLC



Jeffrey D. Amos, PE

Attached:
Site Figures:
- USGS Quadrangle Map
- Aerial Photo
- Medium Intensity Soil Map
- FEMA Floodmap

Pre & Post Development Hydrocad Calculations
Maintenance & Inspection of Stormwater Facilities
Housekeeping Plan
Pre Development Watershed Maps
Post Development Watershed Maps



USGS QUADRANGLE MAP	TERRADYN CONSULTANTS, LLC Civil Engineering | Land Surveying | Geomatics Stormwater Design | Land Planning | Environmental Permitting	ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260 PHONE: (207) 926-5111 WEB SITE: www.terradynconsultants.com	PROJECT NO. 22-106	SHEET 1
PROJECT: 405 CENTER STREET APARTMENTS 405 CENTER STREET, AUBURN, ME			DATE 1/5/2022	OF 4
PREPARED FOR: MR. JIM WU 279 CENTER STREET AUBURN, ME 04210			SCALE 1"=2,000'	

AERIAL MAP

PROJECT:
405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, ME

PREPARED FOR:
MR. JIM WU
279 CENTER STREET
AUBURN, ME 04210

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
PHONE:
(207) 926-5111
WEB SITE:
www.terradynconsultants.com

PROJECT NO.
22-106

DATE
1/5/2022

SCALE
1"=60'

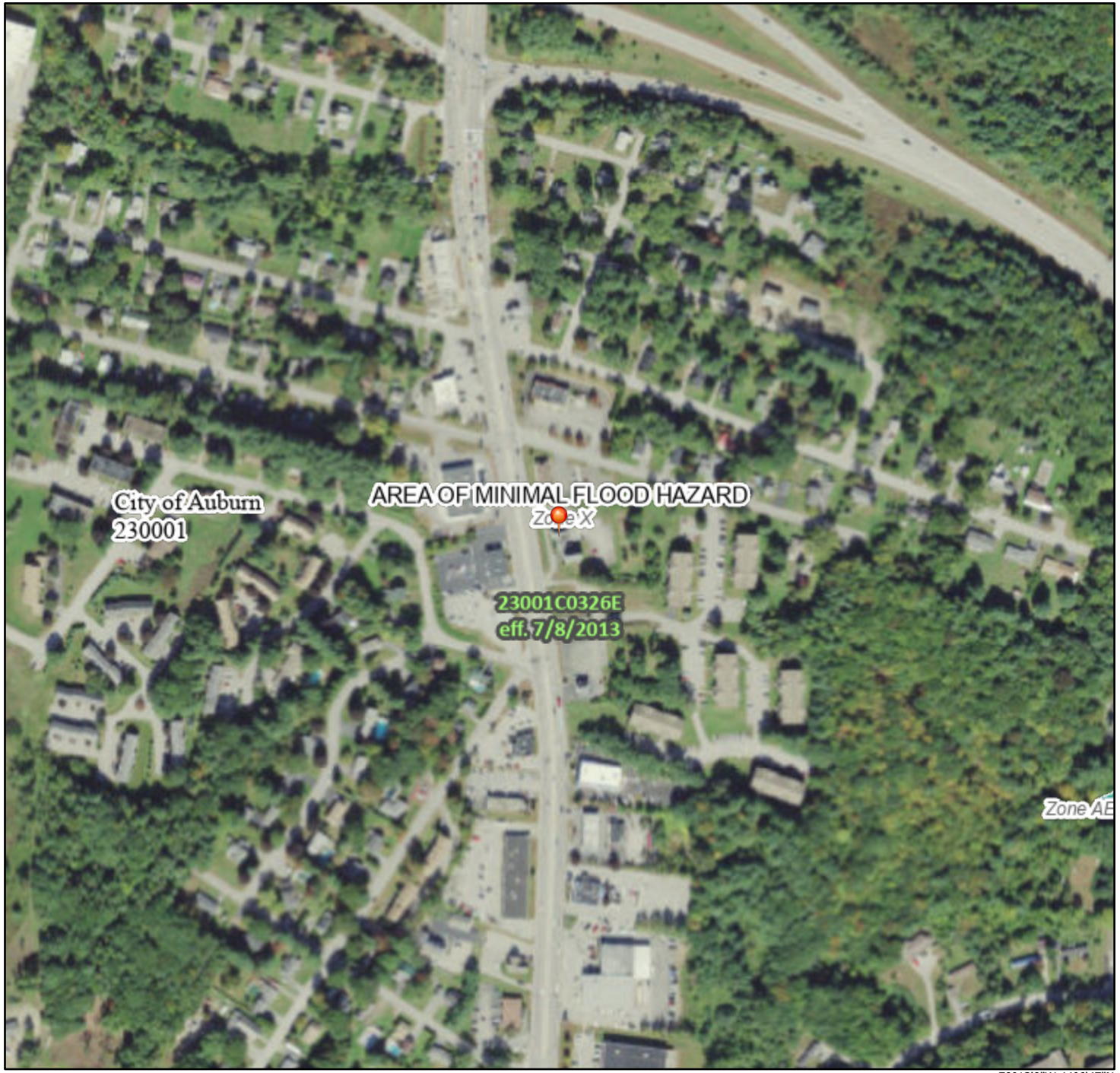
SHEET
2

OF
4

National Flood Hazard Layer FIRMette

FEMA

70°13'46"W 44°7'13"N



70°13'9"W 44°6'47"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend FIGURE 3- FEMA FLOODMAP

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/7/2022 at 1:49 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Map Scale: 1:1,300 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

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 1:15,800.

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: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 23, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

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
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	B	6.0	78.0%
Md	Made land, loamy materials		1.7	22.0%
Totals for Area of Interest			**7.7**	**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.

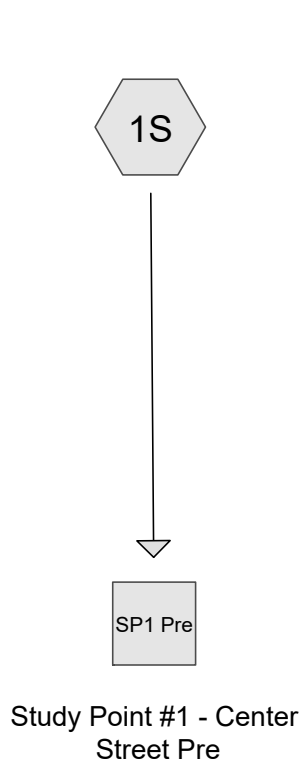
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

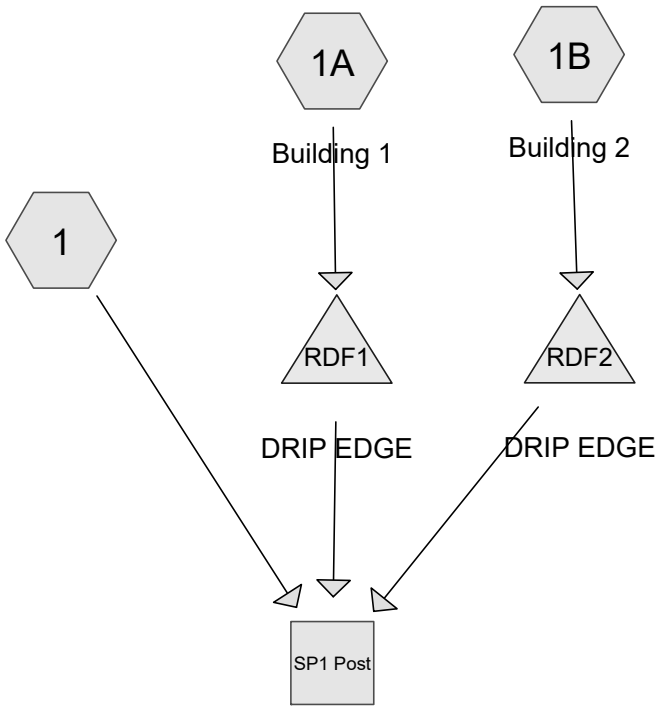
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

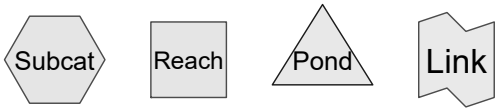
Tie-break Rule: Higher



Study Point #1 - Center Street Pre



Study Point #1 - Center Street Post



Routing Diagram for 22-106 Post
Prepared by Terradyn Consultants, LLC, Printed 1/6/2023

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Runoff Area=43,228 sf 40.12% Impervious Runoff Depth>1.01"
Flow Length=405' Tc=6.7 min CN=76 Runoff=1.09 cfs 0.084 af

Subcatchment 1A: Building 1 Runoff Area=5,034 sf 100.00% Impervious Runoff Depth>2.77"
Tc=2.0 min CN=98 Runoff=0.36 cfs 0.027 af

Subcatchment 1B: Building 2 Runoff Area=5,034 sf 100.00% Impervious Runoff Depth>2.77"
Tc=2.0 min CN=98 Runoff=0.36 cfs 0.027 af

Subcatchment 1S: Runoff Area=53,296 sf 32.54% Impervious Runoff Depth>0.86"
Flow Length=295' Tc=8.9 min CN=73 Runoff=1.00 cfs 0.087 af

Reach SP1 Post: Study Point #1 - Center Street Post Inflow=1.14 cfs 0.135 af
Outflow=1.14 cfs 0.135 af

Reach SP1 Pre: Study Point #1 - Center Street Pre Inflow=1.00 cfs 0.087 af
Outflow=1.00 cfs 0.087 af

Pond RDF1: DRIP EDGE Peak Elev=216.11' Storage=0.013 af Inflow=0.36 cfs 0.027 af
Outflow=0.03 cfs 0.024 af

Pond RDF2: DRIP EDGE Peak Elev=213.81' Storage=0.010 af Inflow=0.36 cfs 0.027 af
Outflow=0.03 cfs 0.027 af

Total Runoff Area = 2.447 ac Runoff Volume = 0.224 af Average Runoff Depth = 1.10"
58.01% Pervious = 1.420 ac 41.99% Impervious = 1.027 ac

Summary for Subcatchment 1:

Runoff = 1.09 cfs @ 12.11 hrs, Volume= 0.084 af, Depth> 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.00"

	Area (sf)	CN	Description
*	17,343	98	Lot Impervious (Water Tower)
	25,885	61	>75% Grass cover, Good, HSG B
	43,228	76	Weighted Average
	25,885		59.88% Pervious Area
	17,343		40.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.1500	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	10	0.3300	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.9	15	0.0300	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	20	0.0300	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	225	0.0600	13.97	17.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
6.7	405	Total			

Summary for Subcatchment 1A: Building 1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.00"

	Area (sf)	CN	Description
*	5,034	98	Buildings
	5,034		100.00% Impervious Area

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

Summary for Subcatchment 1B: Building 2

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.00"

	Area (sf)	CN	Description
*	5,034	98	Buildings
	5,034		100.00% Impervious Area

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

Summary for Subcatchment 1S:

Runoff = 1.00 cfs @ 12.14 hrs, Volume= 0.087 af, Depth> 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.00"

	Area (sf)	CN	Description
*	17,343	98	Lot Impervious (Water Tower)
	35,953	61	>75% Grass cover, Good, HSG B
	53,296	73	Weighted Average
	35,953		67.46% Pervious Area
	17,343		32.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.1000	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.7	15	0.3300	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	110	0.1000	15.54	12.21	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
8.9	295	Total			

Summary for Reach SP1 Post: Study Point #1 - Center Street Post

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.224 ac, 51.43% Impervious, Inflow Depth > 1.32" for 2 Year event
Inflow = 1.14 cfs @ 12.11 hrs, Volume= 0.135 af
Outflow = 1.14 cfs @ 12.11 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP1 Pre: Study Point #1 - Center Street Pre

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.224 ac, 32.54% Impervious, Inflow Depth > 0.86" for 2 Year event
Inflow = 1.00 cfs @ 12.14 hrs, Volume= 0.087 af
Outflow = 1.00 cfs @ 12.14 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond RDF1: DRIP EDGE

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 2.77" for 2 Year event
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af
Outflow = 0.03 cfs @ 12.97 hrs, Volume= 0.024 af, Atten= 93%, Lag= 56.4 min
Primary = 0.03 cfs @ 12.97 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 216.11' @ 12.97 hrs Surf.Area= 0.030 ac Storage= 0.013 af

Plug-Flow detention time= 251.2 min calculated for 0.024 af (90% of inflow)
Center-of-Mass det. time= 203.7 min (957.7 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	0.061 af	**6.00'W x 220.00'L x 5.00'H Prismatoid** 0.152 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	215.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Device 1	214.00'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 214.00' / 205.00' S= 0.1800 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.03 cfs @ 12.97 hrs HW=216.11' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.03 cfs @ 4.98 fps)
└**2=Culvert** (Passes 0.03 cfs of 0.30 cfs potential flow)

Summary for Pond RDF2: DRIP EDGE

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 2.77" for 2 Year event
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 0.027 af
Outflow = 0.03 cfs @ 12.73 hrs, Volume= 0.027 af, Atten= 90%, Lag= 41.9 min
Primary = 0.03 cfs @ 12.73 hrs, Volume= 0.027 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 213.81' @ 12.73 hrs Surf.Area= 0.030 ac Storage= 0.010 af

Plug-Flow detention time= 98.0 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 96.1 min (850.1 - 754.0)

Volume	Invert	Avail.Storage	Storage Description
#1	213.00'	0.061 af	**12.00'W x 110.00'L x 5.00'H Prismatoid** 0.152 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	212.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Device 1	212.00'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 212.00' / 211.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.03 cfs @ 12.73 hrs HW=213.81' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.03 cfs @ 6.39 fps)
↑**2=Culvert** (Passes 0.03 cfs of 0.39 cfs potential flow)

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Runoff Area=43,228 sf 40.12% Impervious Runoff Depth>1.97"
Flow Length=405' Tc=6.7 min CN=76 Runoff=2.19 cfs 0.163 af

Subcatchment 1A: Building 1 Runoff Area=5,034 sf 100.00% Impervious Runoff Depth>4.06"
Tc=2.0 min CN=98 Runoff=0.53 cfs 0.039 af

Subcatchment 1B: Building 2 Runoff Area=5,034 sf 100.00% Impervious Runoff Depth>4.06"
Tc=2.0 min CN=98 Runoff=0.53 cfs 0.039 af

Subcatchment 1S: Runoff Area=53,296 sf 32.54% Impervious Runoff Depth>1.74"
Flow Length=295' Tc=8.9 min CN=73 Runoff=2.18 cfs 0.178 af

Reach SP1 Post: Study Point #1 - Center Street Post Inflow=2.26 cfs 0.235 af
Outflow=2.26 cfs 0.235 af

Reach SP1 Pre: Study Point #1 - Center Street Pre Inflow=2.18 cfs 0.178 af
Outflow=2.18 cfs 0.178 af

Pond RDF1: DRIP EDGE Peak Elev=216.70' Storage=0.021 af Inflow=0.53 cfs 0.039 af
Outflow=0.03 cfs 0.033 af

Pond RDF2: DRIP EDGE Peak Elev=214.31' Storage=0.016 af Inflow=0.53 cfs 0.039 af
Outflow=0.04 cfs 0.039 af

Total Runoff Area = 2.447 ac Runoff Volume = 0.419 af Average Runoff Depth = 2.05"
58.01% Pervious = 1.420 ac 41.99% Impervious = 1.027 ac

Summary for Subcatchment 1:

Runoff = 2.19 cfs @ 12.10 hrs, Volume= 0.163 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.30"

	Area (sf)	CN	Description
*	17,343	98	Lot Impervious (Water Tower)
	25,885	61	>75% Grass cover, Good, HSG B
	43,228	76	Weighted Average
	25,885		59.88% Pervious Area
	17,343		40.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.1500	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	10	0.3300	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.9	15	0.0300	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	20	0.0300	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	225	0.0600	13.97	17.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
6.7	405	Total			

Summary for Subcatchment 1A: Building 1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.53 cfs @ 12.03 hrs, Volume= 0.039 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.30"

	Area (sf)	CN	Description
*	5,034	98	Buildings
	5,034		100.00% Impervious Area

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

Summary for Subcatchment 1B: Building 2

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.53 cfs @ 12.03 hrs, Volume= 0.039 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.30"

	Area (sf)	CN	Description
*	5,034	98	Buildings
	5,034		100.00% Impervious Area

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

Summary for Subcatchment 1S:

Runoff = 2.18 cfs @ 12.14 hrs, Volume= 0.178 af, Depth> 1.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.30"

	Area (sf)	CN	Description
*	17,343	98	Lot Impervious (Water Tower)
	35,953	61	>75% Grass cover, Good, HSG B
	53,296	73	Weighted Average
	35,953		67.46% Pervious Area
	17,343		32.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.1000	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.7	15	0.3300	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	110	0.1000	15.54	12.21	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
8.9	295	Total			

Summary for Reach SP1 Post: Study Point #1 - Center Street Post

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.224 ac, 51.43% Impervious, Inflow Depth > 2.30" for 10 Year event
Inflow = 2.26 cfs @ 12.10 hrs, Volume= 0.235 af
Outflow = 2.26 cfs @ 12.10 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP1 Pre: Study Point #1 - Center Street Pre

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.224 ac, 32.54% Impervious, Inflow Depth > 1.74" for 10 Year event
Inflow = 2.18 cfs @ 12.14 hrs, Volume= 0.178 af
Outflow = 2.18 cfs @ 12.14 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond RDF1: DRIP EDGE

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 4.06" for 10 Year event
Inflow = 0.53 cfs @ 12.03 hrs, Volume= 0.039 af
Outflow = 0.03 cfs @ 13.25 hrs, Volume= 0.033 af, Atten= 94%, Lag= 73.3 min
Primary = 0.03 cfs @ 13.25 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 216.70' @ 13.25 hrs Surf.Area= 0.030 ac Storage= 0.021 af

Plug-Flow detention time= 281.0 min calculated for 0.033 af (84% of inflow)
Center-of-Mass det. time= 214.6 min (961.5 - 746.9)

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	0.061 af	**6.00'W x 220.00'L x 5.00'H Prismatoid** 0.152 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	215.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Device 1	214.00'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 214.00' / 205.00' S= 0.1800 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.03 cfs @ 13.25 hrs HW=216.70' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.03 cfs @ 6.19 fps)
└**2=Culvert** (Passes 0.03 cfs of 0.37 cfs potential flow)

Summary for Pond RDF2: DRIP EDGE

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 4.06" for 10 Year event
Inflow = 0.53 cfs @ 12.03 hrs, Volume= 0.039 af
Outflow = 0.04 cfs @ 12.96 hrs, Volume= 0.039 af, Atten= 92%, Lag= 55.9 min
Primary = 0.04 cfs @ 12.96 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 214.31' @ 12.96 hrs Surf.Area= 0.030 ac Storage= 0.016 af

Plug-Flow detention time= 150.5 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 148.8 min (895.6 - 746.9)

Volume	Invert	Avail.Storage	Storage Description
#1	213.00'	0.061 af	**12.00'W x 110.00'L x 5.00'H Prismatoid** 0.152 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	212.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Device 1	212.00'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 212.00' / 211.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.04 cfs @ 12.96 hrs HW=214.31' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.25 fps)
↑**2=Culvert** (Passes 0.04 cfs of 0.44 cfs potential flow)

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Runoff Area=43,228 sf 40.12% Impervious Runoff Depth>2.87"
Flow Length=405' Tc=6.7 min CN=76 Runoff=3.21 cfs 0.237 af

Subcatchment 1A: Building 1 Runoff Area=5,034 sf 100.00% Impervious Runoff Depth>5.16"
Tc=2.0 min CN=98 Runoff=0.66 cfs 0.050 af

Subcatchment 1B: Building 2 Runoff Area=5,034 sf 100.00% Impervious Runoff Depth>5.16"
Tc=2.0 min CN=98 Runoff=0.66 cfs 0.050 af

Subcatchment 1S: Runoff Area=53,296 sf 32.54% Impervious Runoff Depth>2.59"
Flow Length=295' Tc=8.9 min CN=73 Runoff=3.29 cfs 0.264 af

Reach SP1 Post: Study Point #1 - Center Street Post Inflow=3.28 cfs 0.325 af
Outflow=3.28 cfs 0.325 af

Reach SP1 Pre: Study Point #1 - Center Street Pre Inflow=3.29 cfs 0.264 af
Outflow=3.29 cfs 0.264 af

Pond RDF1: DRIP EDGE Peak Elev=217.21' Storage=0.027 af Inflow=0.66 cfs 0.050 af
Outflow=0.04 cfs 0.040 af

Pond RDF2: DRIP EDGE Peak Elev=214.77' Storage=0.021 af Inflow=0.66 cfs 0.050 af
Outflow=0.04 cfs 0.048 af

Total Runoff Area = 2.447 ac Runoff Volume = 0.601 af Average Runoff Depth = 2.95"
58.01% Pervious = 1.420 ac 41.99% Impervious = 1.027 ac

Summary for Subcatchment 1:

Runoff = 3.21 cfs @ 12.10 hrs, Volume= 0.237 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.40"

	Area (sf)	CN	Description
*	17,343	98	Lot Impervious (Water Tower)
	25,885	61	>75% Grass cover, Good, HSG B
	43,228	76	Weighted Average
	25,885		59.88% Pervious Area
	17,343		40.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	40	0.1500	0.21		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.5	10	0.3300	0.32		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.9	15	0.0300	0.13		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.3	20	0.0300	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.00"
0.5	95	0.0300	3.52		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	225	0.0600	13.97	17.14	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
6.7	405	Total			

Summary for Subcatchment 1A: Building 1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.66 cfs @ 12.03 hrs, Volume= 0.050 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.40"

	Area (sf)	CN	Description
*	5,034	98	Buildings
	5,034		100.00% Impervious Area

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

Summary for Subcatchment 1B: Building 2

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.66 cfs @ 12.03 hrs, Volume= 0.050 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.40"

	Area (sf)	CN	Description
*	5,034	98	Buildings
	5,034		100.00% Impervious Area

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

Summary for Subcatchment 1S:

Runoff = 3.29 cfs @ 12.13 hrs, Volume= 0.264 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.40"

	Area (sf)	CN	Description
*	17,343	98	Lot Impervious (Water Tower)
	35,953	61	>75% Grass cover, Good, HSG B
	53,296	73	Weighted Average
	35,953		67.46% Pervious Area
	17,343		32.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.1000	0.22		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
0.7	15	0.3300	0.35		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
0.4	70	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	110	0.1000	15.54	12.21	**Pipe Channel,** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
8.9	295	Total			

Summary for Reach SP1 Post: Study Point #1 - Center Street Post

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.224 ac, 51.43% Impervious, Inflow Depth > 3.19" for 25 Year event
Inflow = 3.28 cfs @ 12.10 hrs, Volume= 0.325 af
Outflow = 3.28 cfs @ 12.10 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP1 Pre: Study Point #1 - Center Street Pre

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.224 ac, 32.54% Impervious, Inflow Depth > 2.59" for 25 Year event
Inflow = 3.29 cfs @ 12.13 hrs, Volume= 0.264 af
Outflow = 3.29 cfs @ 12.13 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond RDF1: DRIP EDGE

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 5.16" for 25 Year event
Inflow = 0.66 cfs @ 12.03 hrs, Volume= 0.050 af
Outflow = 0.04 cfs @ 13.51 hrs, Volume= 0.040 af, Atten= 94%, Lag= 88.4 min
Primary = 0.04 cfs @ 13.51 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 217.21' @ 13.51 hrs Surf.Area= 0.030 ac Storage= 0.027 af

Plug-Flow detention time= 296.9 min calculated for 0.040 af (80% of inflow)
Center-of-Mass det. time= 218.8 min (961.8 - 743.1)

Volume	Invert	Avail.Storage	Storage Description
#1	215.00'	0.061 af	**6.00'W x 220.00'L x 5.00'H Prismatoid** 0.152 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	215.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Device 1	214.00'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 214.00' / 205.00' S= 0.1800 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.04 cfs @ 13.51 hrs HW=217.21' (Free Discharge)
└**1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.09 fps)
└**2=Culvert** (Passes 0.04 cfs of 0.43 cfs potential flow)

Summary for Pond RDF2: DRIP EDGE

[44] Hint: Outlet device #2 is below defined storage

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 5.16" for 25 Year event
Inflow = 0.66 cfs @ 12.03 hrs, Volume= 0.050 af
Outflow = 0.04 cfs @ 13.19 hrs, Volume= 0.048 af, Atten= 93%, Lag= 69.7 min
Primary = 0.04 cfs @ 13.19 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 214.77' @ 13.19 hrs Surf.Area= 0.030 ac Storage= 0.021 af

Plug-Flow detention time= 198.3 min calculated for 0.048 af (97% of inflow)
Center-of-Mass det. time= 182.5 min (925.5 - 743.1)

Volume	Invert	Avail.Storage	Storage Description
#1	213.00'	0.061 af	**12.00'W x 110.00'L x 5.00'H Prismatoid** 0.152 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	212.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Device 1	212.00'	**4.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 212.00' / 211.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.04 cfs @ 13.19 hrs HW=214.77' (Free Discharge)
↑**1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.95 fps)
↑**2=Culvert** (Passes 0.04 cfs of 0.48 cfs potential flow)

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MAINTENANCE PLAN OF STORMWATER MANAGEMENT FACILITIES

405 CENTER STREET
AUBURN, MAINE

Project Owner/Developer:	Mr. Jim Wu 279 Center Street Auburn, Me 04210
Responsible Party:	Mr. Jim Wu 279 Center Street Auburn, Me 04210
Prepared By:	Jeffery Amos, P.E. Terradyn Consultants, LLC 41 Campus Drive, Suite 101 New Gloucester, Maine 04260 (207) 926-5111

INTRODUCTION:

Regular inspection and maintenance of the entire stormwater management system is crucial to the long-term effectiveness of the system. The responsible party must provide regular inspection and maintenance of all permanent erosion control measures and stormwater management structures, establish any contract services required to implement the program, and keep records and a maintenance log book of inspection and maintenance activities. At a minimum, the inspection and maintenance activities outlined herein should be performed at the recommended intervals.

All measures must be maintained in effective operating condition. A person with knowledge of erosion and sedimentation practices, stormwater management, and the standards and conditions of all local, state and federal permits for the project shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected.

INSPECTION TASKS

1. Inspect **vegetated areas**, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

2. Inspect **ditches, swales and other open stormwater channels** in the spring, in late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.

3. Inspect **culverts** in the spring, in late fall, and after heavy rains 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 culvert's inlet and outlet.

4. Inspect **Roof Drain Filter Strip** semi-annually and following major storm events. Debris and sediment buildup shall be removed as needed. Area should be weeded as necessary.

5. Inspect and clean out **catch basins**. Clean-out must include the removal and legal disposal of any accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil-absorptive pads).

Conveyance & Distribution Systems: (Stormwater Channels & Culverts, etc.)

1. Inspection schedule:

a. Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains (one inch of rain in 24 hours) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side-slopes.

b. Inspect culverts in the spring, in late fall, and after heavy rains 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 culvert's inlet and outlet.

c. Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

2. Mowing: Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality

storm. A minimum mow height of 6 inches is generally recommended (Galli, 1993).

3. **Erosion:** It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

4. **Fertilization:** Routine fertilization and/or use of pesticides is strongly discouraged. If complete re-seeding is necessary, half the original recommended rate of fertilizer should be applied with a full rate of seed.

5. **Sediment Removal:** The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

Roadway Surfaces:

Paved surfaces shall be swept or vacuumed at least once annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events.

Catch Basin Systems:

Catch basins are designed with a deep sump to trap larger sediment. Catch basins shall be inspected for sediment depth in the spring and fall, and accumulated sediment shall be removed and disposed of lawfully when it reaches 50% of the design capacity of the sump.

Vegetated Swales:

Mowing: Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended (Galli, 1993).

Routine Maintenance and Inspection: The area should be inspected for failures following heavy rainfall (one inch of rain in 24 hours) and repaired as necessary for newly formed channels or gullies, reseeding/sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation and to check the condition and integrity of the check dams.

Aeration: The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseeded and mulched prior to any significant rainfall.

Erosion: It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

Fertilization: Routine fertilization and/or use of pesticides is strongly discouraged. If complete re-seeding is necessary, half the original recommended rate of fertilizer should be applied with a full

rate of seed.

Sediment Removal: The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

DOCUMENTATION

Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must 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 sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Department of Environmental Protection staff and a copy provided to the Department upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

The log attached at the end of this plan is from the *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers (May 2016)*. The log may be used or adapted for this project.

ATTACHMENTS:
Stormwater Management Facilities Inspection & Maintenance Log

Stormwater Management Facilities
Inspection & Maintenance Log
405 Center Street Apartments

General Information:

Inspected by:	Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event)		

BMP	Conditions Observed	Repairs Needed?
1. Vegetated Areas		
2. Ditches, Swales, Open Channels		
3. Culverts		
4. Roof Drain Filter Strip		
5. Catch Basin		

Detailed Repair Notes:

BMP Type	Date	Description of Repairs & Sediment Disposal

Notes:
If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. A copy of this log shall be retained for a period of at least five years from the completion of permanent stabilization. The log must be made accessible to City of Auburn staff upon request.

HOUSEKEEPING PERFORMANCE STANDARDS
FOR:
405 CENTER STREET
AUBURN, MAINE

Project Developer: Mr. Jim Wu
279 Center Street
Auburn, Me 04210

Responsible Party: Mr. Jim Wu
279 Center Street
Auburn, Me 04210

Introduction:
The contractor shall be responsible for maintaining proper housekeeping standards throughout the construction phase of the project. After the construction phase has been completed, the owner or operator of the project will be responsible.

Standards:
In accordance with the housekeeping performance standards required by MDEP chapter 500 stormwater regulations, the following standards shall be met:

1. **Spill prevention.** Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
2. **Groundwater protection.** During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.
3. **Fugitive sediment and dust.** Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

   Operations during wet months that experience tracking of mud off the site onto public roads should provide for sweeping of road areas at least once a week and prior to significant storm events. Where chronic mud tracking occurs, a stabilized construction entrance should be provided. Operations during dry months, that experience fugitive dust problems, should wet down the access roads once a week or more frequently as needed.
4. **Debris and other materials.** Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

   To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. **Trench or foundation de-watering.** Trench de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.

6. **Authorized Non-stormwater discharges.** Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

(a) Discharges from firefighting activity;

(b) Fire hydrant flushings;

(c) Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);

(d) Dust control runoff in accordance with permit conditions and Appendix (C)(3);

(e) Routine external building washdown, not including surface paint removal, that does not involve detergents;

(f) Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;

(g) Uncontaminated air conditioning or compressor condensate;

(h) Uncontaminated groundwater or spring water;

(i) Foundation or footer drain-water where flows are not contaminated;

(j) Uncontaminated excavation dewatering (see requirements in Appendix C(5));

(k) Potable water sources including waterline flushings; and

(l) Landscape irrigation.

7. **Unauthorized non-stormwater discharges .** The Department's approval under this Chapter does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges in compliance with Appendix C (6). Specifically, the Department's approval does not authorize discharges of the following:

(a) Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;

(b) Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;

(c) Soaps, solvents, or detergents used in vehicle and equipment washing; and

(d) Toxic or hazardous substances from a spill or other release.

LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- REACH
- PRE — WATERSHED LABEL
- 1 — REACH
- CB — CATCH BASIN/POND
- Na — MEDIUM INTENSITY SOIL NAME
- MEDIUM INTENSITY SOIL BOUNDARY
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- 124 — MINOR CONTOURS
- 124 — MAJOR CONTOURS
- 124 — PROPOSED CONTOURS

SOILS NOTES:

SOILS OBTAINED FROM THE ANDROSCOGGIN COUNTY SOIL SURVEY AS SHOWN ON THE USDA WEB SOIL SURVEY. THE SOIL SURVEY IS OF MEDIUM INTENSITY. THE SOILS ARE SUMMARIZED BELOW:

MAP UNIT SYMBOL	MAP UNIT NAME	HSG RATING
HfC2	HARTLAND SANDY LOAM	B
Md	MADE LAND	

GRID NORTH

CENTER STREET
Public Road - Width Varies Plan Ref 8,A

SP1

Pipe
L=185'
S=0.10

SCF
L=70'
S=0.02

SF
L=15'
S=0.33

SF
L=100'
S=0.10

1

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 INCH = 20 FT.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 01-06-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
1	01-06-2023	SITE PLAN SUBMISSION TO CITY

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260

PHONE:
(207) 926-5111

WEB SITE:
www.terradynconsultants.com

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE:
PRE DEVELOPMENT STORMWATER MAP

CLIENT:
JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE: 01-06-2023
SCALE: 1" = 20'
JOB NO: 22-106
SHEET: SWP-1.0

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LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- REACH
- PRE — WATERSHED LABEL
- 1 — REACH
- CB — CATCH BASIN/POND
- Na — MEDIUM INTENSITY SOIL NAME
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MAP UNIT SYMBOL	MAP UNIT NAME	HSG RATING
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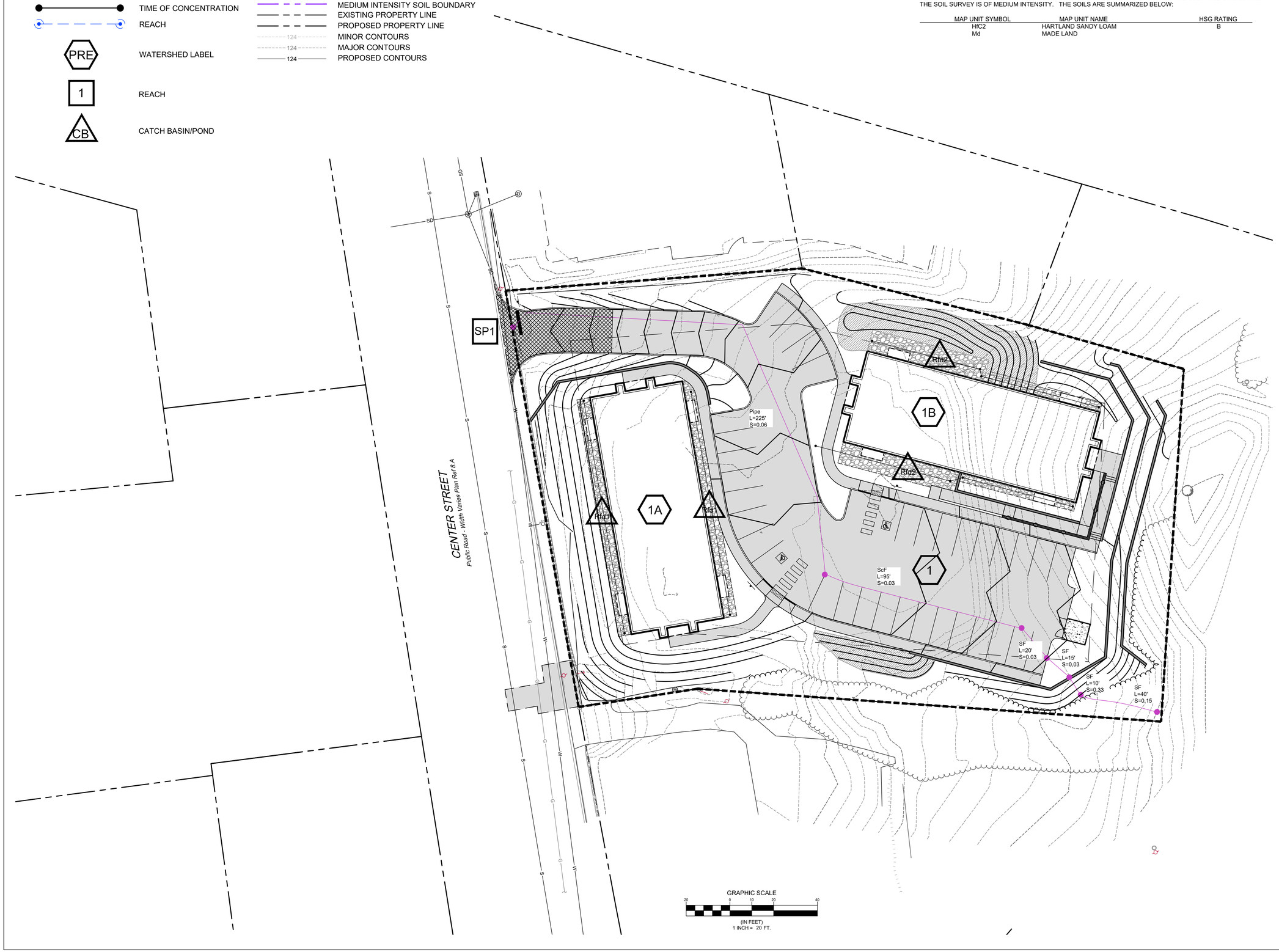
Md	MADE LAND	

GRID NORTH



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FT.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 01-06-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
1	01-06-2023	SITE PLAN SUBMISSION TO CITY

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
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Civil Engineering | Land Surveying | Geomatics
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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE:
POST DEVELOPMENT STORMWATER MAP

CLIENT:
JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE: 01-06-2023
SCALE: 1" = 20'
JOB NO: 22-106
SHEET: SWP-2.0

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Attachment 5

Utility Correspondence

Auburn Water and Sewer Districts

MEMO

To: Eric Cousens, John Blais, Katherine Cook

From: Michael Broadbent, Superintendent

CC:

Date: January 19, 2023

Re: 405 Center Street

The blow comments are based on the review of the 1/6/2023 Utility plan for 405 Center Street.

Water:

The Utility plan incorrectly shows the location of the water main in Center Street. The District's 12" water main is on the opposite side of the road, close to the median. I've attached a map for the owner's consultant's reference. They should know that Lewiston has a large water main between the AWD main and the property. Their contractor should locate this so that they can avoid elevation conflicts during installation.

If the buildings are to be sprinkled, they will need separate isolation valves on the exterior of the buildings so that the lines (domestic and fire) can be shut off independently of each other. This will require 4 additional valves from what is shown on the plans. If the buildings are not sprinkled there should be an isolation valve for each line where they split adjacent to building 1.

All water main materials installed within the rite-of-way of Center Street must be purchased from the District, the rest of the materials can be purchased at the discretion of the contractor. The owner will also be responsible for water meter fees and installation.

All water mains servicing this development will be privately owned and maintained, the District's Ownership/responsibility will end at the tapping gate.

Sewer:

The utility plan does not show a sewer service for building 1. Building 2 shows a 4" service between the building and the proposed SMH-2. This section of service line needs to be up-sized to 6" between Building 2 and SMH-2. The service for building 1 should also be 6".

The owner will be responsible for Sewer Connection fees, these fees are based on the size of the water meters and can be found on our website.

All of the sewer mains and services including the connection to the District's main will be privately owned and maintained.

Capacity:

The District has sufficient water and sewer capacity to serve this development. Once the above deficiencies are corrected the District would like the opportunity to review the changes on a corrected set of plans.

Attachment 6

Financial Capacity

Bertrand G. LaBonte, CPA, MBA, MST
185 Webster Street
Lewiston, Maine 04240
(207)782-9500
Fax (207)782-9600
e-mail bglcpa@aol.com

January 24, 2023

Eric Cousens, Director
Planning Board
City of Auburn Maine

Dear Mr. Cousens:

I am pleased to inform you that James Wu enjoys a great reputation in the LA Metro area. He brings many years of experience in both residential and commercial real estate development. Not only does he have the expertise and knowledge but he also has the financial capacity to complete the project on 405 Center Street in Auburn, Maine.

I am more than happy to provide more validation and specifics on similar projects that he has recently completed and others over his many years in real estate development.

Feel free to reach me at 207-782-9500 or by email at the above address.

Sincerely,

Bertrand G. LaBonte
Certified Public Accountant

Attachment 7

Cost Estimate

TERRADYN CONSULTANTS, LLC
P.O. Box 339
New Gloucester, ME 04260
(207) 926-5111

JOB NO. 22-106
SHEET NO. 1 OF 1
CALCULATED BY JDA DATE 2/10/2023

BUDGETARY COST ESTIMATE - SITE WORK
405 CENTER STREET APARTMENTS - AUBURN MAINE

ITEM	DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	AMOUNT
	EARTHWORK				
1	GRUB OPEN AREA	AC	$2,000.00	1	$1,000.00
	ROADWAY AND SIDEWALKS				
2	HOT BITUMINOUS SURFACE PAVEMENT	TON	$100.00	90	$9,000.00
3	HOT BITUMINOUS BINDER PAVEMENT	TON	$120.00	180	$21,600.00
4	BASE GRAVEL MDOT TYPE A	CY	$33.00	135	$4,455.00
5	SUBBASE GRAVEL MDOT TYPE D	CY	$21.00	675	$14,175.00
6	SLIPFORM CURB (ROAD & PARKING)	LF	$15.00	660	$9,900.00
7	5' WIDE SIDEWALK	SY	$40.00	595	$23,800.00
8	STRIPING	LS	$2,000.00	1	$2,000.00
	SITE IMPROVEMENTS				
9	SIGNS	EA	$250.00	4	$1,000.00
10	RETAINING WALLS	LS	$150,000.00	1	$150,000.00
	DRAINAGE				
11	12" DIAMETER STORM DRAIN	LF	$40.00	105	$4,200.00
12	15" DIAMETER STORM DRAIN	LF	$45.00	184	$8,280.00
13	4" UNDERDRAIN	LF	$20.00	418	$8,360.00
14	4' DIAMETER CATCH BASIN	EA	$5,000.00	6	$30,000.00
15	FIELD INLET	EA	$3,000.00	1	$3,000.00
	UTILITIES				
16	8" SEWER LINE	LF	$80.00	175	$14,000
17	6" SEWER LINE	LF	$60.00	80	$4,800
18	4' DIAMETER SEWER MANHOLE	EA	$5,000.00	2	$10,000
19	6" WATER LINE - PRIVATE	LF	$60.00	90	$5,400
20	4" WATER LINE - PRIVATE	LF	$45.00	185	$8,325
21	2" WATER LINE - PRIVATE	LF	$25.00	25	$625
22	12" TAPPING SLEEVE & 8" GATE VALVE	EA	$2,500.00	1	$2,500
23	6"x4" TEE & 4" GATE VALVE	EA	$1,500.00	1	$1,500
24	4" GATE VALVE	EA	$1,500.00	2	$3,000
25	TRANSFORMER PAD	EA	$1,500.00	2	$3,000
26	LIGHT POLE BASES	EA	$600.00	0	$0
27	SITE ELECTRICAL	LF	$15.00	245	$3,675
	EROSION & SEDIMENT CONTROL				
28	STABILIZED CONSTRUCTION ENTRANCE	EA	$2,000.00	1	$2,000.00
29	RIPRAP	CY	$40.00	0	$0.00
30	EROSION CONTROL BLANKET	SY	$15.00	230	$3,450.00
31	SILT FENCE	LF	$5.00	330	$1,650.00
32	LOAM & SEED	CY	$8.00	250	$2,000.00
33	LANDSCAPING	LS	$15,000.00	1	$15,000.00

SITE WORK TOTAL= $371,695.00

NOTES

1. THE OPINION OF PROBABLE CONSTRUCTION COST IS BASED UPON THE PERMITTING PLANS FOR 405 CENTER STREET APARTMENTS DATED FEBRUARY 10, 2023, PREPARED BY TERRADYN CONSULTANTS, LLC. THIS ESTIMATE IS IN NO WAY, IMPLIED OR EXPRESSED OTHERWISE, A WARRANTEE THAT THE PROJECT CAN BE CONSTRUCTED FOR THE ABOVE COSTS. THIS ESTIMATE IS INTENDED TO BE USED AS A SITE WORK ALLOWANCE FOR PERFORMANCE GUARANTEE PURPOSES ONLY. IT DOES NOT INCLUDE COST ASSOCIATED WITH THE BUILDING CONSTRUCTION, ENGINEERING DESIGN FEES, LAND ACQUISITION, LEGAL FEES, PERMITING FEES, TESTING SERVICES OR CONSTRUCTION PHASE SERVICES.

2. THE ONSITE PAVEMENT AND GRANULAR MATERIAL QUANTITIES FOR THE PARKING LOT ARE BASED UPON THE FOLLOWING SECTION:

MATERIAL DESCRIPTION	PAVEMENT BUILDUP (IN)		
	ROAD	PARKING LOT	DRIVEWAY
BITUMINOUS CONCRETE SURFACE COURSE (INCHES)	N/A	1	N/A
BITUMINOUS CONCRETE BINDER COURSE (INCHES)	N/A	2	N/A
AGGREGATE BASE GRAVEL (INCHES)	N/A	3	N/A
AGGREGATE SUBBASE GRAVEL (INCHES)	N/A	15	N/A

Attachment 8

Turning Figures

PARKING NOTES

1. ALL PARKING SPACES ARE TO BE 9' x 18', EXCEPT THE (2) H.C. SPACES, WHICH ARE TO BE 11' x 18' (WITH 5' WIDE ACCESS AISLE).
2. TOTAL NUMBER OF PARKING SPACES (INCLUDING 2 H.C. SPACES) = 36.

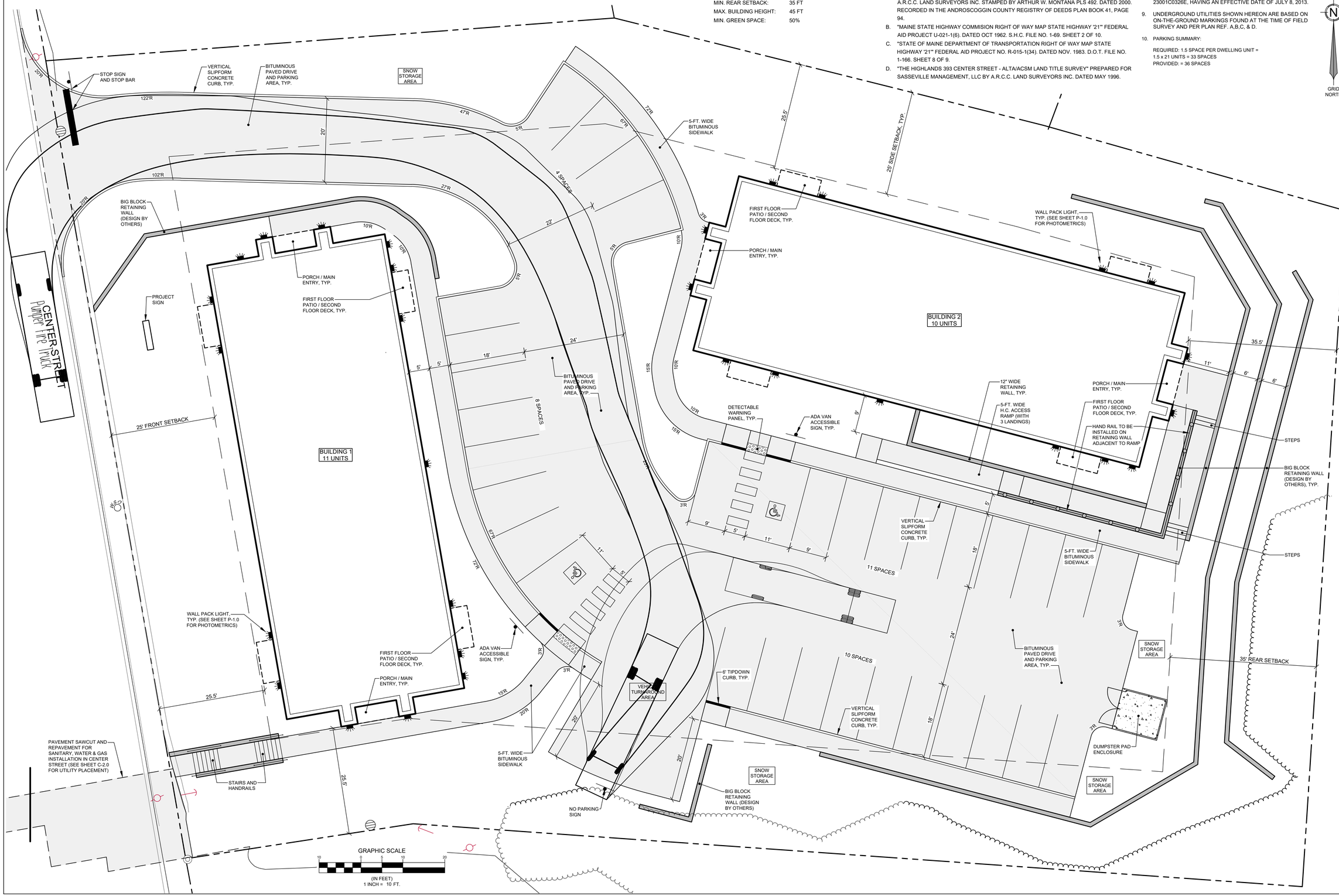
GENERAL NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS CHUN WU BY A DEED DATED SEPT. 30, 2015 AND RECORDED IN BOOK 9235, PAGE 31.
2. THE SUBJECT PARCEL IS SHOWN ON THE CITY OF AUBURN TAX MAP 271 AS LOT 65 AND IS LOCATED IN THE GENERAL BUSINESS DISTRICT.
3. SPACE AND BULK STANDARDS FOR THE GENERAL BUSINESS DISTRICT AS OF THE DATE OF THIS PLAN ARE AS FOLLOWS:

MIN. LOT SIZE:	10,000 SQ FT
MIN. LOT WIDTH:	100 FT
MIN. LOT DEPTH:	100 FT
MIN. FRONT YARD:	25 FT
MIN. SIDE YARD:	25 FT
MIN. REAR SETBACK:	35 FT
MAX. BUILDING HEIGHT:	45 FT
MIN. GREEN SPACE:	50%

4. TOTAL AREA OF THE SUBJECT PARCEL IS 53,296 SQ FT (1.22 ACRES).
5. BOUNDARY INFORMATION IS BASED SOLEY UPON PLAN REF. 8.A. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ON THE GROUND SURVEY CONDUCTED BY TERRADYN CONSULTANTS, LLC JULY 2022.
6. PLAN REFERENCES:
   - A. "STANDARD BOUNDARY SURVEY" PREPARED FOR PAUL H. & GAIL M. SASSEVILLE BY A.R.C.C. LAND SURVEYORS INC. STAMPED BY ARTHUR W. MONTANA PLS 492. DATED 2000. RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS PLAN BOOK 41, PAGE 94.
   - B. "MAINE STATE HIGHWAY COMMISION RIGHT OF WAY MAP STATE HIGHWAY '21'" FEDERAL AID PROJECT U-021-1(6). DATED OCT 1962. S.H.C. FILE NO. 1-69. SHEET 2 OF 10.
   - C. "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP STATE HIGHWAY '21'" FEDERAL AID PROJECT NO. R-015-1(34). DATED NOV. 1983. D.O.T. FILE NO. 1-166. SHEET 8 OF 9.
   - D. "THE HIGHLANDS 393 CENTER STREET - ALTA/ACSM LAND TITLE SURVEY" PREPARED FOR SASSEVILLE MANAGEMENT, LLC BY A.R.C.C. LAND SURVEYORS INC. DATED MAY 1996.
7. PLAN ORIENTATION IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83. ELEVATIONS DEPICTED HEREON ARE NAVD88, BASED ON DUAL-FREQUENCY GPS OBSERVATIONS.
8. THE SUBJECT PARCEL IS LOCATED WITHIN ZONE X, AREAS OF MINIMAL FLOOD HAZARD, AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR THE CITY OF AUBURN, ANDROSCOGGIN COUNTY, COMMUNITY-PANEL NUMBER 23001C0326E, HAVING AN EFFECTIVE DATE OF JULY 8, 2013.
9. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON ON-THE-GROUND MARKINGS FOUND AT THE TIME OF FIELD SURVEY AND PER PLAN REF. A,B,C, & D.
10. PARKING SUMMARY:

    REQUIRED: 1.5 SPACE PER DWELLING UNIT =
    1.5 x 21 UNITS = 33 SPACES
    PROVIDED: = 36 SPACES



STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
2	02-10-2023	SUBMIT FOR SITE PLAN APPROVAL
1	01-06-2023	SITE PLAN SUBMISSION TO CITY

ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradynconsultants.com

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE: FIRE TRUCK TURNING TEMPLATE EXHIBIT

CLIENT: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE:	01-06-2023
SCALE:	1" = 10'
JOB NO:	22-106
SHEET:	FIG.-1.0

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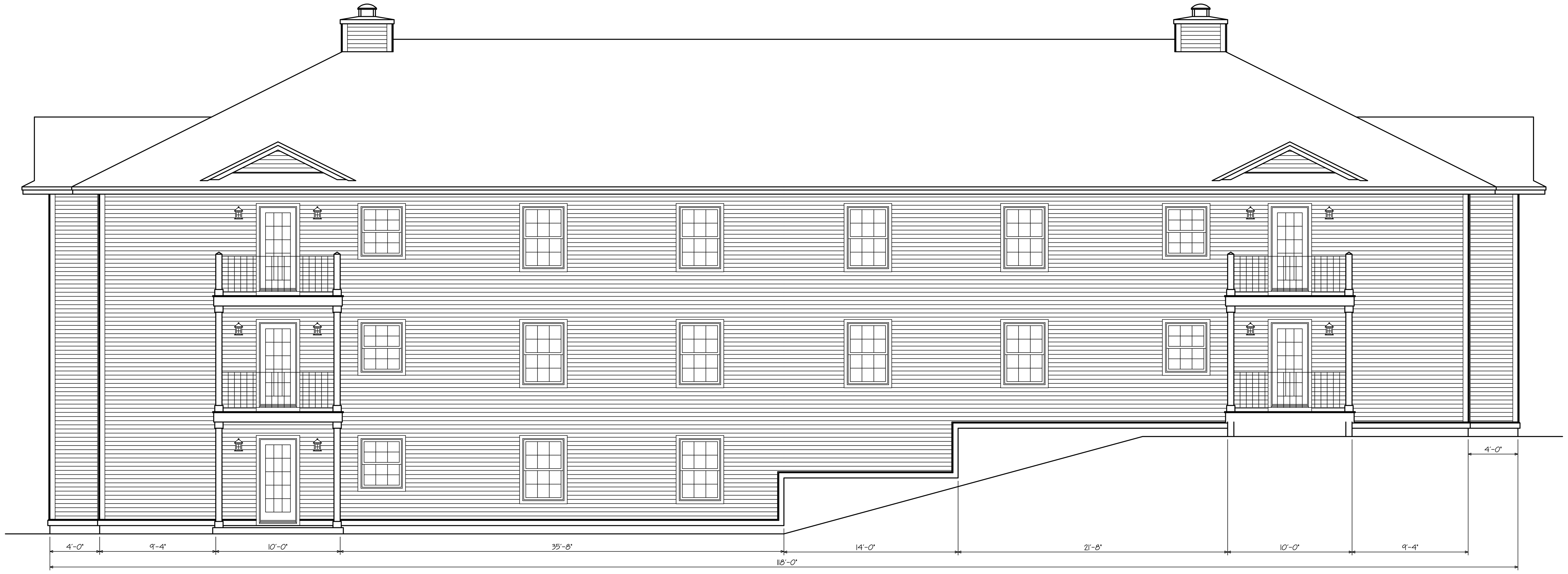
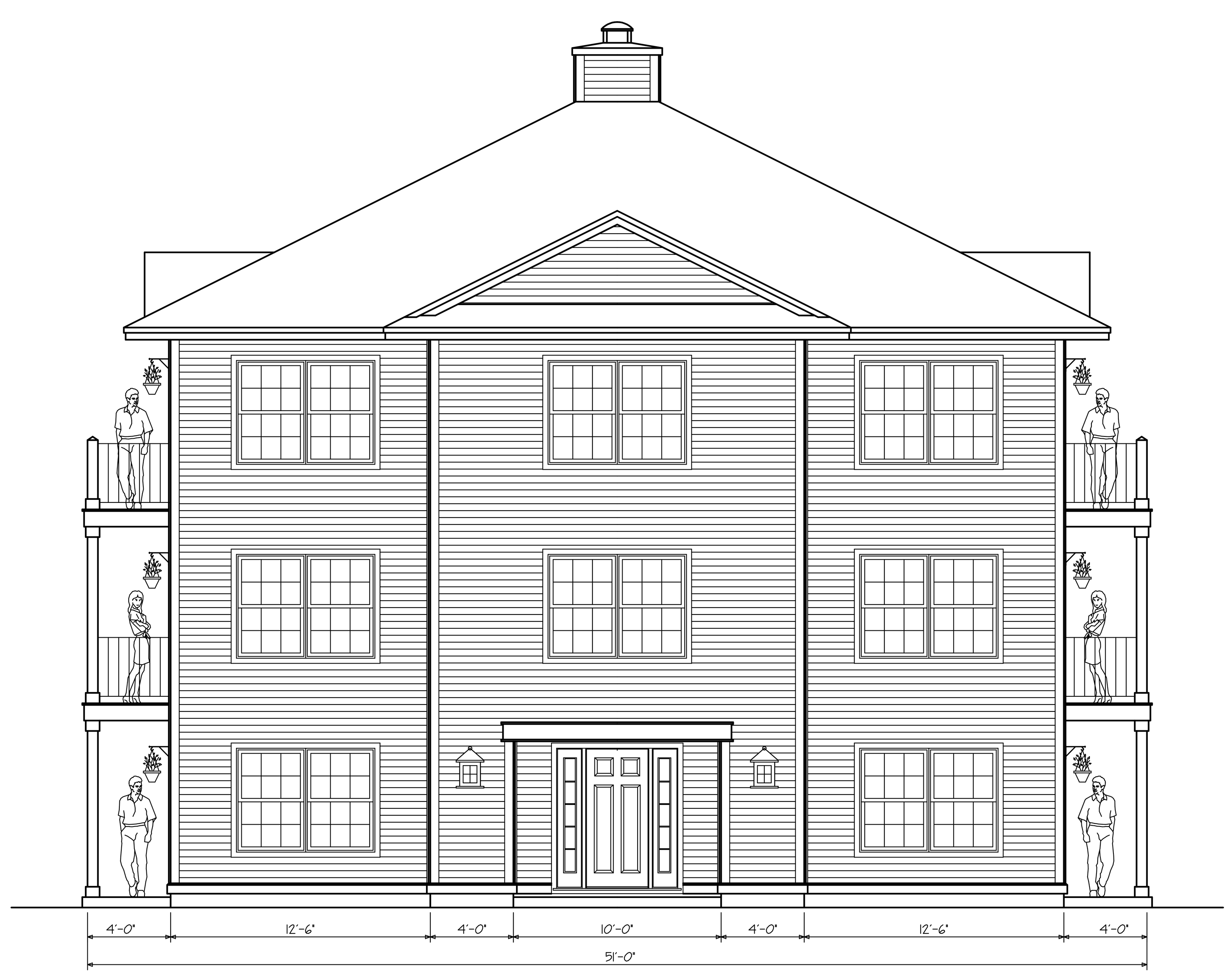
Attachment 9

Building Plans



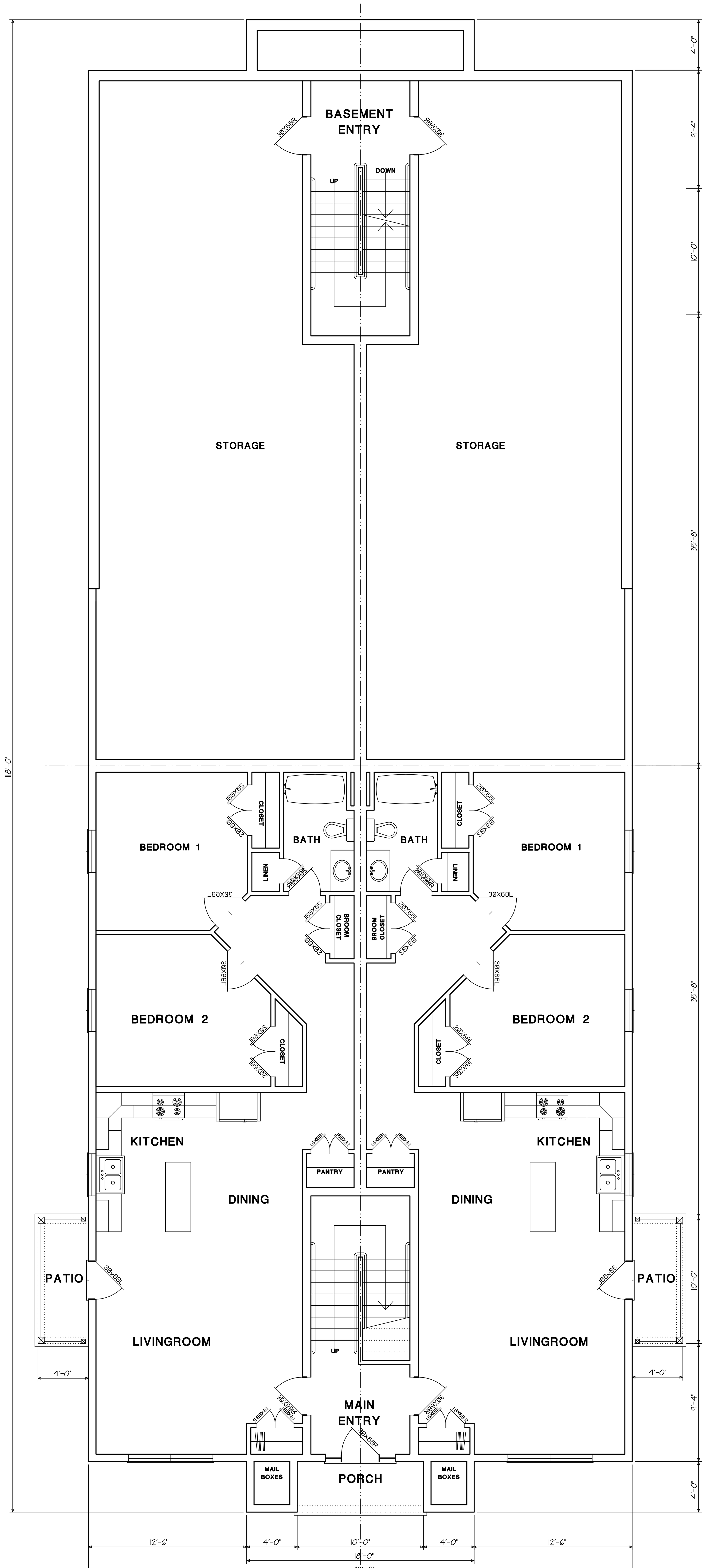
SIDE ELEVATION



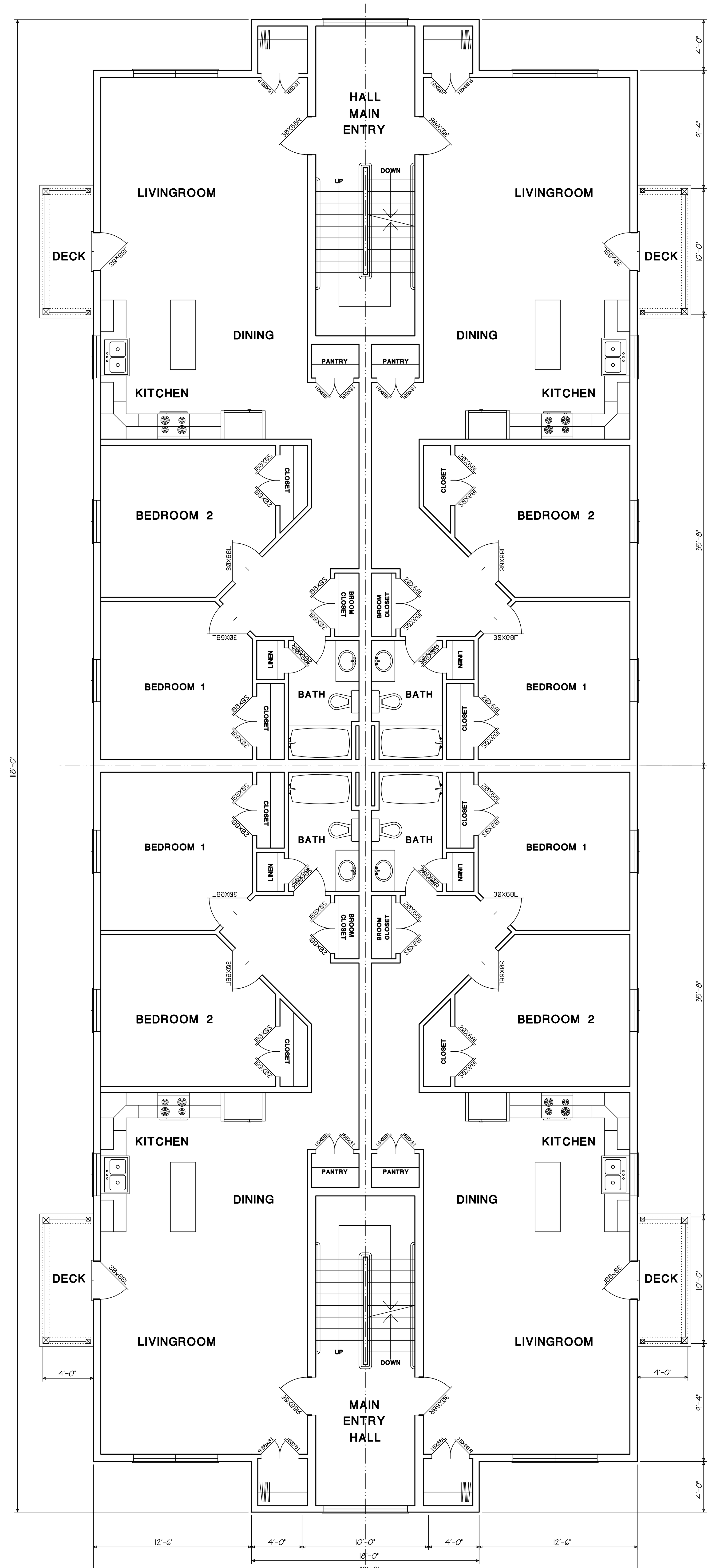
FRONT ELEVATION

BACK ELEVATION

MAINE RESIDENTIAL DESIGN	FILE NAME
CASCO, ME. 207-627-3362	
JOB: 6 UNIT APT. BUILDING B	SCALE: 1/4"=1'-0" DATE: 10/25/2022
DISCIPTION: ELEVATIONS	DRAWN BY:MEJ APPROVED:

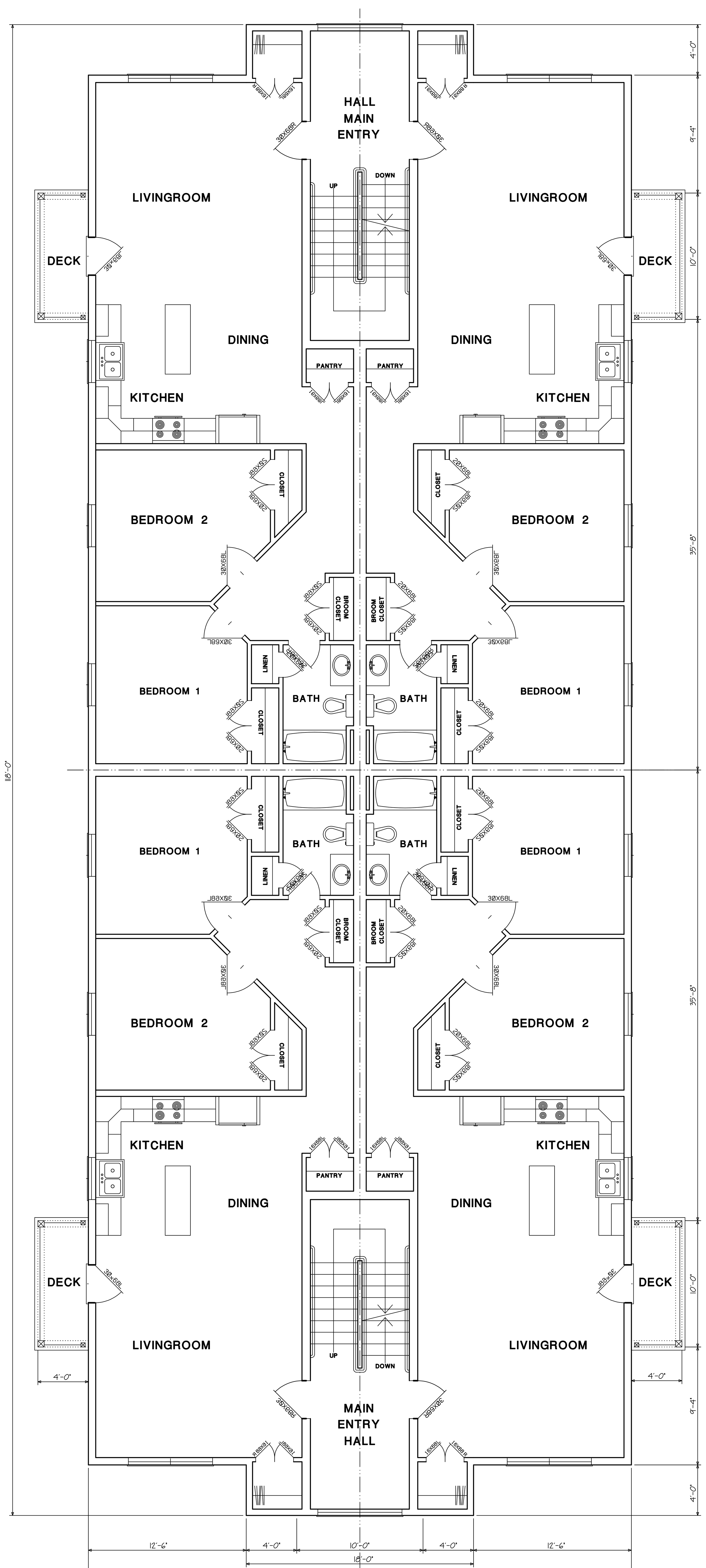


FIRST FLOOR PLAN

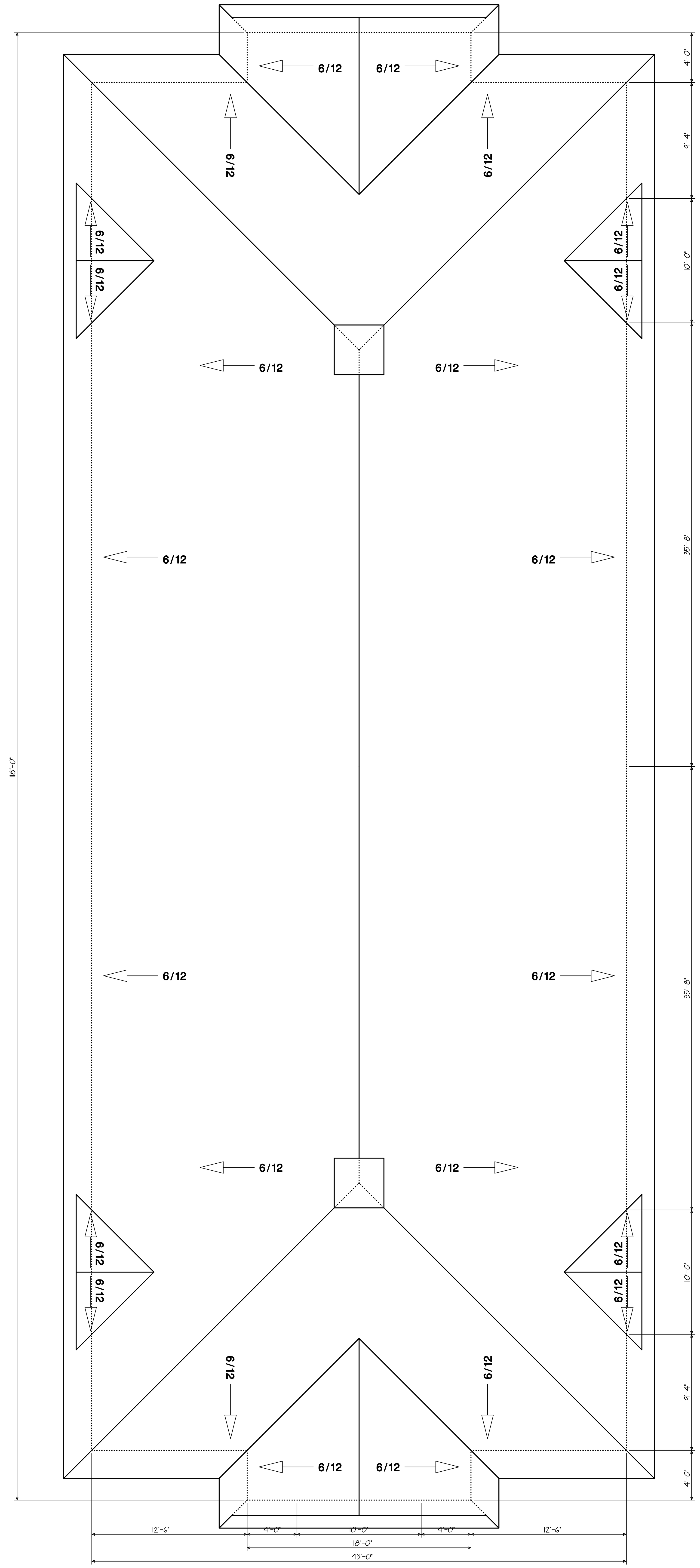


SECOND FLOOR PLAN

MAINE RESIDENTIAL DESIGN	FILE NAME
CASCO, ME. 207-627-3362	
JOB: 6 UNIT APT. BUILDING B	SCALE: 1/4"=1'-0" DATE: 10/25/2022
DISCIPTION: ELEVATIONS	DRAWN BY:MEJ APPROVED:

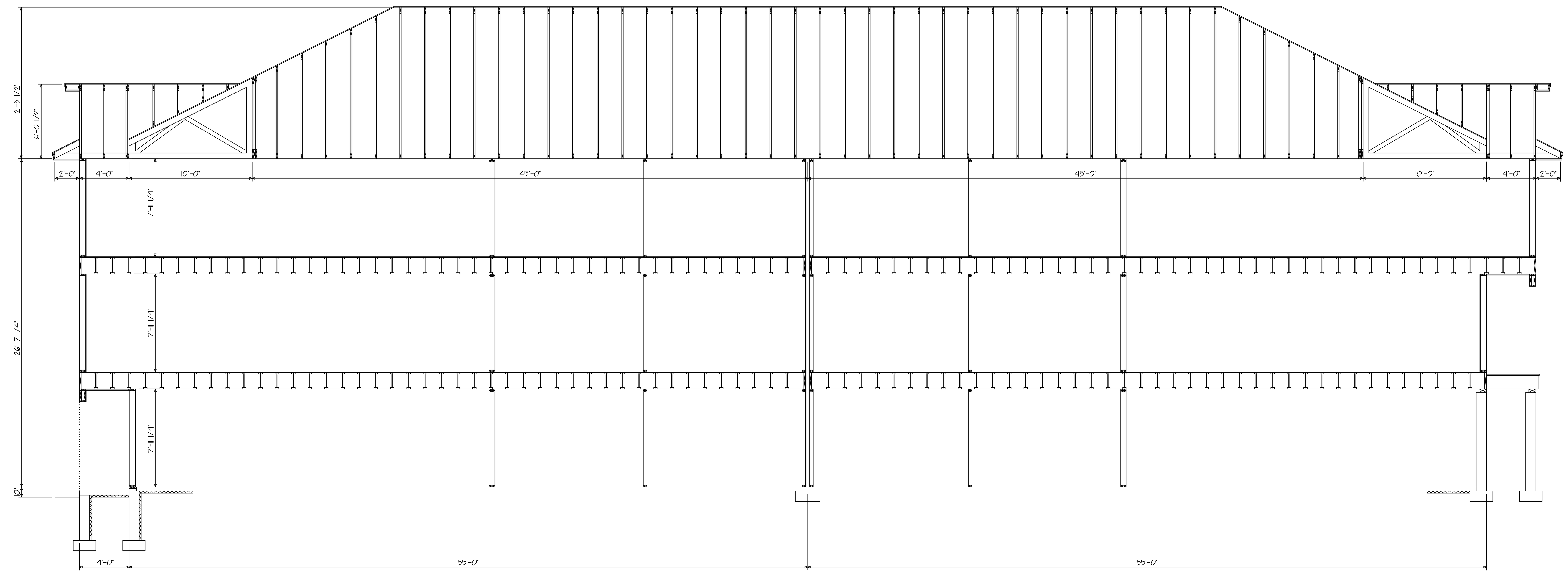


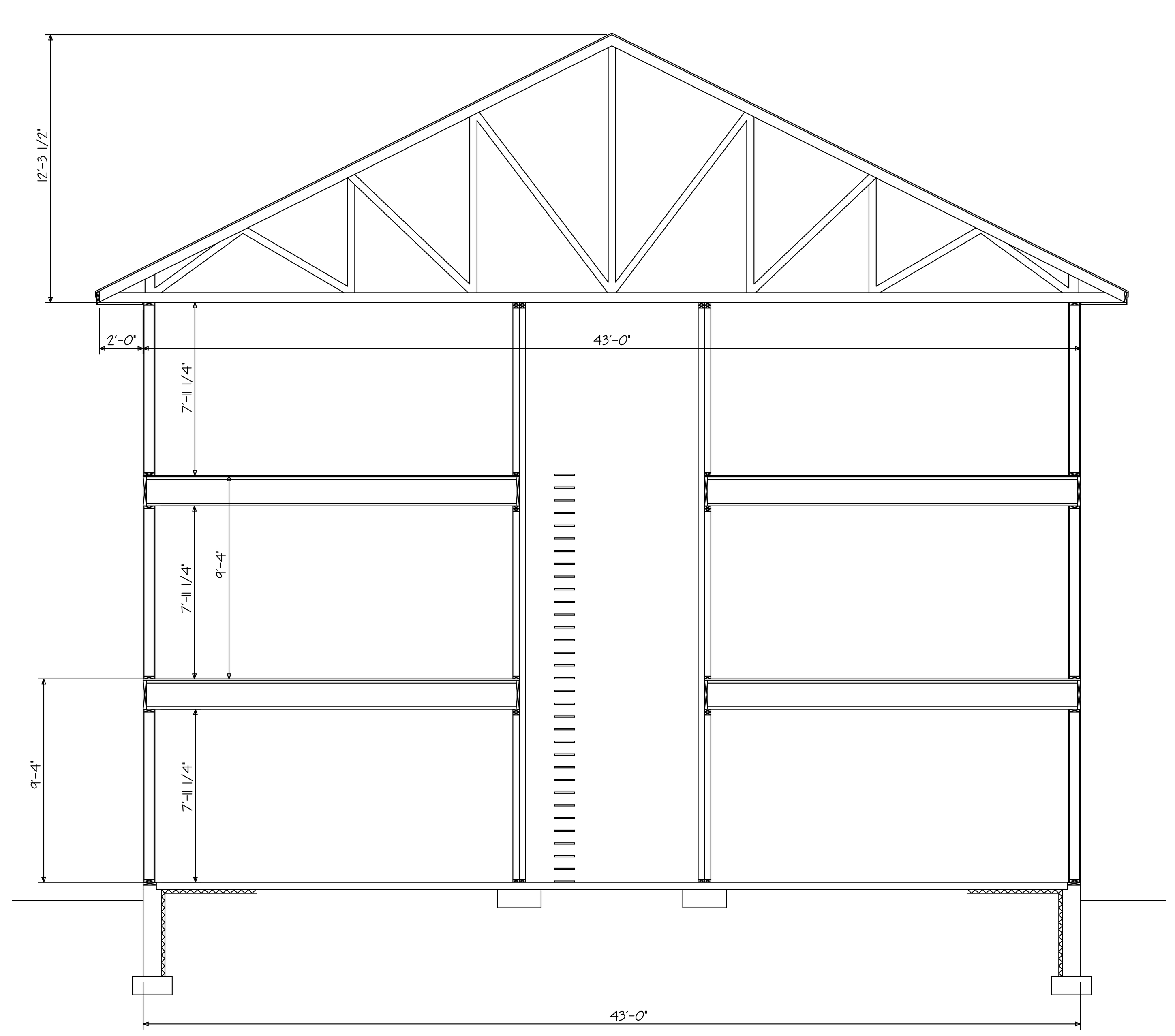
THIRD FLOOR PLAN

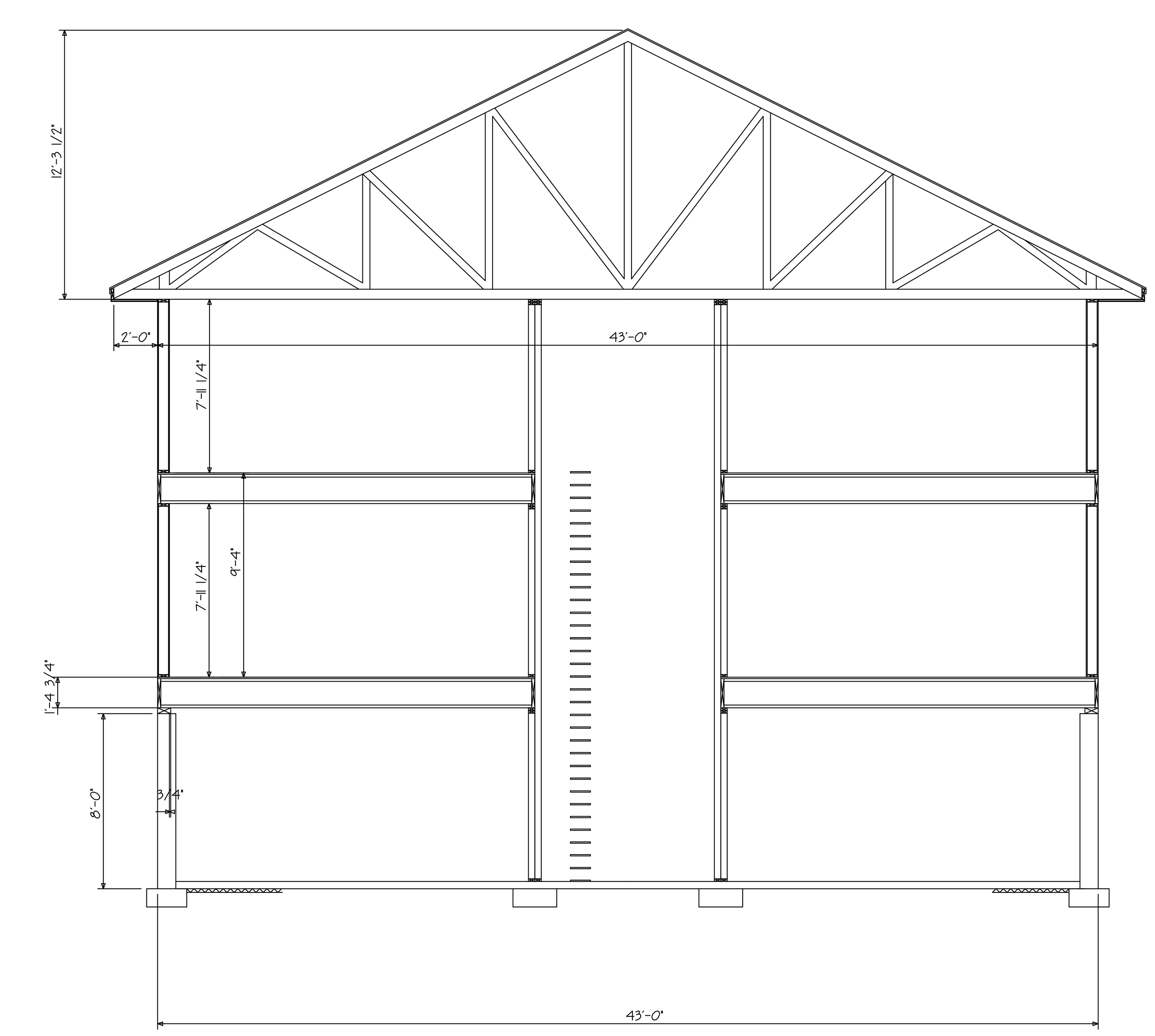


ROOF PLAN

MAINE RESIDENTIAL DESIGN	FILE NAME
CASCO, ME. 207-627-3362	
JOB: 6 UNIT APT. BUILDING B	SCALE: 1/4"=1'-0" DATE: 10/25/2022
DISCIPTION: ELEVATIONS	DRAWN BY:MEJ APPROVED:







MAINE RESIDENTIAL DESIGN	FILE NAME
CASCO, ME. 207-627-3362	
JOB: 6 UNIT APT. BUILDING B	SCALE: 1/4"=1'-0" DATE: 10/25/2022
DISCIPTION: ELEVATIONS	DRAWN BY:MEJ APPROVED:

Attachment 10

Plan Set

405 CENTER STREET APARTMENTS

405 CENTER STREET

AUBURN, MAINE

APPLICANT
JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

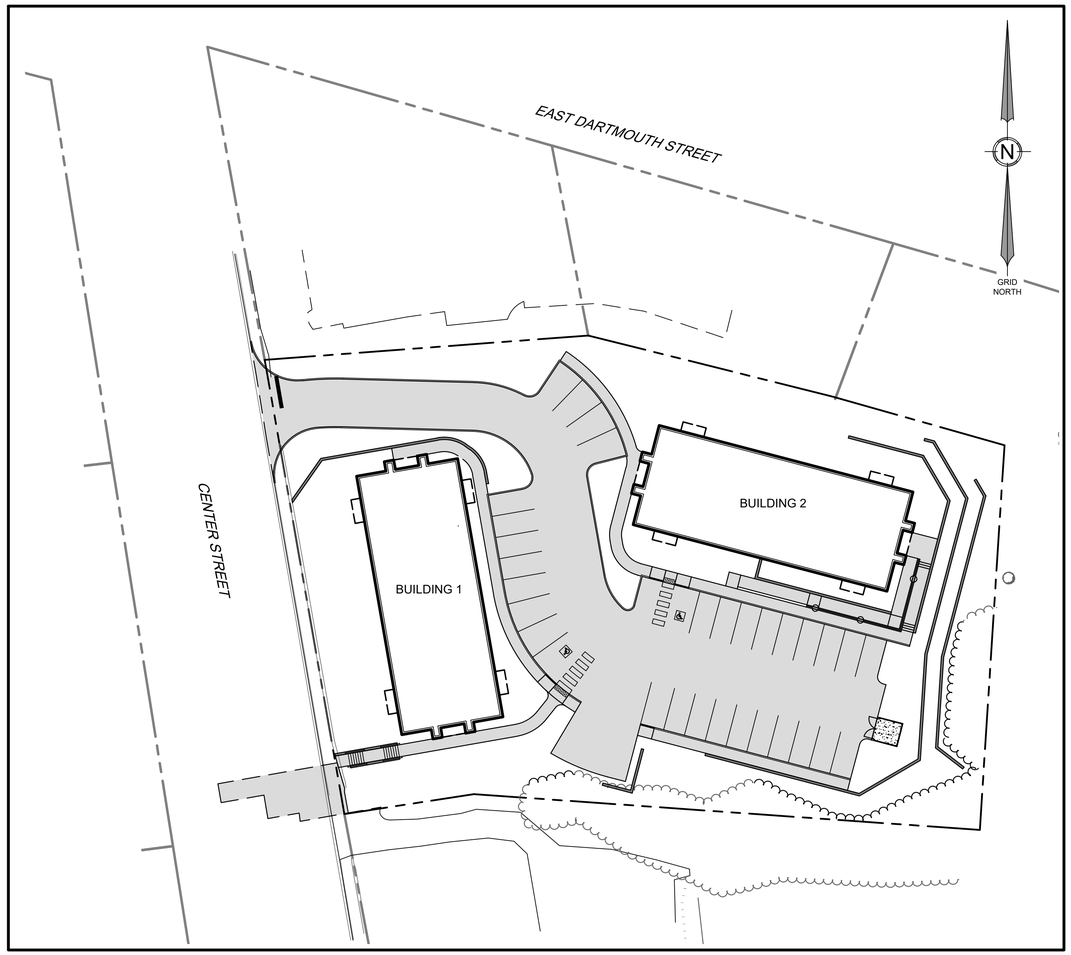
OWNER
CHUN WU
279 CENTER STREET
AUBURN, MAINE 04210

PROJECT PARCEL SITE
CITY OF AUBURN TAX ASSESSOR'S MAP & LOT NUMBER
(LOCATED IN GENERAL BUSINESS DISTRICT)

MAP	LOT
271	65

CONSULTANT

CIVIL ENGINEER/SURVEYOR:
TERRADYN CONSULTANTS, LLC
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260
(207) 926-5111



LOCATION MAP
1" = 300'

LEGEND (TYPICAL, ALL SHEETS)

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK LINE
- EXISTING SETBACK LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- ROAD CENTERLINE
- 124 EXISTING MINOR CONTOUR
- 124 EXISTING MAJOR CONTOUR
- 124 PROPOSED CONTOUR
- SD EXISTING STORMDRAIN
- SD PROPOSED STORMDRAIN
- W EXISTING WATER LINE
- W PROPOSED WATER LINE
- UD PROPOSED UNDERDRAIN
- OHE EXISTING OVERHEAD ELECTRIC & TELEPHONE
- OHE PROPOSED OVERHEAD ELECTRIC & TELEPHONE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- EXISTING CURB
- PROPOSED CURB
- EDGE OF WATER
- EXISTING TREE LINE
- PROPOSED TREE LINE
- EXISTING GUARDRAIL
- PROPOSED GUARDRAIL
- MB EROSION CONTROL MULCH BERM
- TP-A TEST PIT
- EXISTING VALVE
- PROPOSED VALVE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- T EXISTING TRANSFORMER
- EXISTING LIGHT POLE
- PROPOSED LIGHT POLE
- EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- PROPOSED DRAINAGE MANHOLE
- EXISTING SEWER MANHOLE
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING BUILDING
- PROPOSED BUILDING
- WETLAND AREA
- PROPOSED PAVEMENT
- RIPRAP
- PROPOSED BUFFER
- PROPOSED WETLAND ALTERATION

SHEET INDEX

APPROVED: CITY OF AUBURN
PLANNING BOARD

DATE

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
2	02-10-2023	SUBMIT FOR SITE PLAN APPROVAL
1	01-06-2023	SITE PLAN SUBMISSION TO CITY

ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradynconsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE
SHEET TITLE: COVER SHEET AND LOCATION MAP
CLIENT: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210
DATE: 01-06-2023
SCALE: 1" = 30'
JOB NO: 22-106
SHEET: C-0.0

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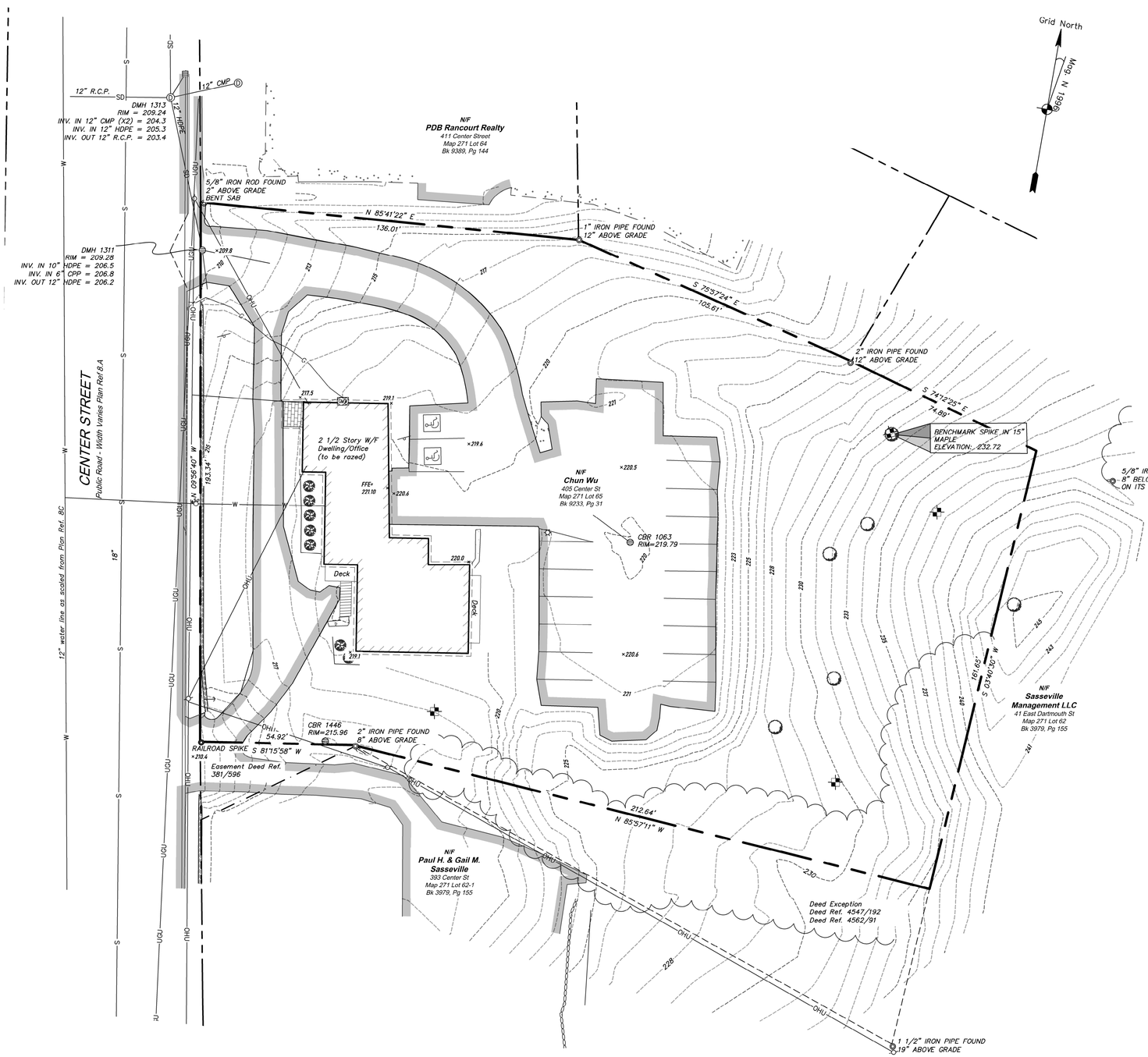
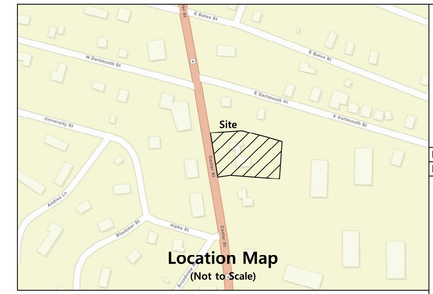


Legend:

- Record Property Line/R.O.W.
- Abutter Line/R.O.W.
- Deed/Plan Line/R.O.W.
- Easement/R.O.W. Line
- Building
- Building Overhang
- Deck/Steps
- Edge of Pavement
- Edge of Concrete
- Edge of Brick
- Edge of Gravel
- Curb
- Treeline
- Major Contour
- Minor Contour
- Spot Elevation
- Gas Line
- Sewer Line
- Overhead Utility Line
- Iron Pipe/Rod (as noted.)
- Railroad Spike
- Sign
- Gas Meter

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 INCH = 20 FT.



General Notes:

1. The purpose of this plan is to depict the results of an Existing Conditions/Topographic Survey of the subject parcel.
2. All Book and Page numbers refer to the Androscoggin County Registry of Deeds, unless otherwise noted.
3. The record owner of the subject parcel is Chun Wu by a deed dated Sept 30, 2015 and recorded in Book 9235, Page 31.
4. The subject parcel is shown on the City of Auburn Tax Map 271 as Lot 65 and is located in the General Business District.
5. Space and bulk standards for the General Business District as of the date of this plan are as follows:

Min. Lot Size:	10,000 sq ft
Min. Lot Width:	100 ft
Min. Lot Depth:	100 ft
Min. Front Yard:	25 ft
Min. Side Yard:	25 ft
Min. Rear Setback:	35 ft
Max. Building Height:	45 ft
Min. Green Space:	50%

6. Total area of the subject parcel is 53,296 sq ft (1.22 Acres).
7. Boundary information is based soley upon Plan Ref. 8.A. Topographic information shown hereon is based on an on the ground survey conducted by Terradyn Consultants, LLC July 2022.
8. Plan References:
   - A. "Standard Boundary Survey" Prepared for Paul H. & Gail M. Sasseville by A.R.C.C. Land Surveyors Inc. Stamped by Arthur W. Montana PLS 492. Dated 2000. Recorded in the Androscoggin County Registry of Deeds Plan Book 41, Page 94.
   - B. "Maine State Highway Commision Right of Way Map State Highway '21'" Federal Aid Project U-021-1(6). Dated Oct 1962. S.H.C. File No. 1-69. Sheet 2 of 10.
   - C. "State of Maine Department of Transportation Right of Way Map State Highway '21'" Federal Aid Project No. R-015-1(34). Dated Nov. 1983. D.O.T. File No. 1-166. Sheet 8 of 9.
   - D. "The Highlands 393 Center Street - ALTA/ACSM Land Title Survey" Prepared for Sasseville Management, LLC by A.R.C.C. Land Surveyors Inc. Dated May 1996.
9. Plan orientation is Grid North, Maine State Plane Coordinate System, West Zone 1802-NAD83. Elevations depicted hereon are NAVD88, based on dual-frequency GPS observations.
10. The subject parcel is located within Zone X, Areas of Minimal Flood Hazard, as delineated on the Flood Insurance Rate Map for the City of Auburn, Androscoggin County, Community-Panel Number 23001C0326E, having an Effective Date of July 8, 2013.
11. Underground utilities shown hereon are based on on-the-ground markings found at the time of field survey and per Plan Ref. A,B,C, & D.

Net Residential Calcs:

	Allowed	Existing
Units:	17 per acre	21 (1.22 Acres)
Green Space:	50% Min	68%
Building:		2,920 sq ft
Paved Area:		14,286 sq ft
Total:		17,206 sq ft

Impervious Surface Area/Ratio:

Existing Total Impervious Area:	17,395 s.f.
Proposed Total Paved Area:	14,286 s.f.
Proposed Total Impervious Area:	27,411 s.f.
Proposed Impervious Net Change:	+10,016 s.f.
Impervious Surface Ratio Existing:	33%
Impervious Surface Ratio Proposed:	51%
Proposed Greenspace Ratio:	52.7%

Building Area/Lot Coverage:

Existing Building Footprint:	3,500 s.f. (approx.)
Proposed Building Footprint:	12,000 s.f. (approx.)
Building Footprint Net Change:	343%
Existing Total Building Floor Area:	5,500 s.f. (per assessor's records)
Prop Total Building Floor Area:	31,000 s.f. (approx.)
Floor Area Net Change:	565%
Building Area/Lot Coverage Exist:	7%
Building Area/Lot Coverage Prop:	23%

Surveyor's Certification

To the best of my knowledge, I have used ordinary and prudent conduct expected of Professional Land Surveyors and the results shown here represent the licensee's responsibility to the public as required under the Standards of Practice as defined by the Board of Licensure for Professional Land Surveyors (M.R.S.A Title 32, Chapter 141, Dated April 2001).

Except as Follows:

1. Survey Report Limited to Notes on the Plan
2. No Deed Description to Date

Plan Prepared by: Jan. 5, 2023

Jimmy C. Courbron PLS # 2532

STATE OF MAINE, Androscoggin County, SS
REGISTRY OF DEEDS

Received _____

At ____ h ____ m ____M and recorded in

Plan Book _____, Page _____

Attest _____
Registrar

STATE OF MAINE
JIMMY C. COURBRON
No. PLS2532
PROFESSIONAL LAND SURVEYOR

NO.	DATE	REVISIONS
2	02/09/2023	ISSUED for Planning Board Review
1	01/05/2023	ISSUED TO CLIENT FOR REVIEW

DATE: DATE
PLS: PLS

ADDRESS: 41 CAMPUS DRIVE, SUITE 301, NEW GLOUCESTER, ME 04260
PHONE: (207) 926-5111
WEB SITE: www.terradyncnsultants.com
TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE
SHEET TITLE: EXISTING CONDITIONS/TOPOGRAPHIC SURVEY PLAN
FOR RECORD OWNER: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE: 01/05/2023
SCALE: 1"= 20'
JOB NO: 22-106
SHEET: C-0.1

Sheet Size: 24" X 36"

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SITE DEMOLITION NOTES

1. BUILDING AND ALL ASSOCIATED DECKS, SIDEWALKS, LANDINGS, WALKWAYS, AND LANDSCAPING TO BE REMOVED.
2. OVERHEAD UTILITY LINE TO BE REMOVED.
3. GAS METERS AND LINE TO BE REMOVED.
4. CATCH BASIN AND CONNECTED STORM DRAIN TO BE REMOVED.
5. LIGHT AND LIGHT POLE TO BE REMOVED.
6. TREE TO BE REMOVED.
7. SIGN TO BE REMOVED.
8. ALL PAVEMENT AND PAINT STRIPING WITHIN SHADED AREA TO BE REMOVED.
9. BEGIN CURB CUT.
10. SECTION OF CURB TO REMOVED TO ALLOW FOR IMPROVED SITE ACCESS.
11. PAVEMENT SAWCUT.
12. BEGIN/END OF EXISTING TREELINE REMOVAL.
13. REMOVE TREELINE.
14. DRAINAGE MANHOLE TO REMAIN.
15. STORM DRAIN TO BE REMOVED.

GRID NORTH

CENTER STREET

MATCHLINE RIGHT

MATCHLINE LEFT

GRAPHIC SCALE

10 0 5 10 20

(IN FEET)
1 INCH = 10 FT.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
2	02-10-2023	SUBMIT FOR SITE PLAN APPROVAL
1	01-06-2023	SITE PLAN SUBMISSION TO CITY

TERRADYN CONSULTANTS, LLC
ADDRESS: 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260
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Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE: SITE DEMOLITION PLAN

CLIENT: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE:	01-06-2023
SCALE:	1" = 10'
JOB NO:	22-106
SHEET:	C-0.2

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PARKING NOTES

1. ALL PARKING SPACES ARE TO BE 9' x 18', EXCEPT THE (2) H.C. SPACES, WHICH ARE TO BE 11' x 18' (WITH 5' WIDE ACCESS AISLE).
2. TOTAL NUMBER OF PARKING SPACES (INCLUDING 2 H.C. SPACES) = 36.

GENERAL NOTES

1. THE RECORD OWNER OF THE SUBJECT PARCEL IS CHUN WU BY A DEED DATED SEPT. 30, 2015 AND RECORDED IN BOOK 9235, PAGE 31.
2. THE SUBJECT PARCEL IS SHOWN ON THE CITY OF AUBURN TAX MAP 271 AS LOT 65 AND IS LOCATED IN THE GENERAL BUSINESS DISTRICT.
3. SPACE AND BULK STANDARDS FOR THE GENERAL BUSINESS DISTRICT AS OF THE DATE OF THIS PLAN ARE AS FOLLOWS:

MIN. LOT SIZE:	10,000 SQ FT
MIN. LOT WIDTH:	100 FT
MIN. LOT DEPTH:	100 FT
MIN. FRONT YARD:	25 FT
MIN. SIDE YARD:	25 FT
MIN. REAR SETBACK:	35 FT
MAX. BUILDING HEIGHT:	45 FT
MIN. GREEN SPACE:	50%

4. TOTAL AREA OF THE SUBJECT PARCEL IS 53,296 SQ FT (1.22 ACRES).
5. BOUNDARY INFORMATION IS BASED SOLEY UPON PLAN REF. 8.A. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON AN ON THE GROUND SURVEY CONDUCTED BY TERRADYN CONSULTANTS, LLC JULY 2022.
6. PLAN REFERENCES:
   A. "STANDARD BOUNDARY SURVEY" PREPARED FOR PAUL H. & GAIL M. SASSEVILLE BY A.R.C.C. LAND SURVEYORS INC. STAMPED BY ARTHUR W. MONTANA PLS 492. DATED 2000. RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS PLAN BOOK 41, PAGE 94.
   B. "MAINE STATE HIGHWAY COMMISION RIGHT OF WAY MAP STATE HIGHWAY '21'" FEDERAL AID PROJECT U-021-1(6). DATED OCT 1962. S.H.C. FILE NO. 1-69. SHEET 2 OF 10.
   C. "STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP STATE HIGHWAY '21'" FEDERAL AID PROJECT NO. R-015-1(34). DATED NOV. 1983. D.O.T. FILE NO. 1-166. SHEET 8 OF 9.
   D. "THE HIGHLANDS 393 CENTER STREET - ALTA/ACSM LAND TITLE SURVEY" PREPARED FOR SASSEVILLE MANAGEMENT, LLC BY A.R.C.C. LAND SURVEYORS INC. DATED MAY 1996.
7. PLAN ORIENTATION IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83. ELEVATIONS DEPICTED HEREON ARE NAVD88, BASED ON DUAL-FREQUENCY GPS OBSERVATIONS.
8. THE SUBJECT PARCEL IS LOCATED WITHIN ZONE X, AREAS OF MINIMAL FLOOD HAZARD, AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR THE CITY OF AUBURN, ANDROSCOGGIN COUNTY, COMMUNITY-PANEL NUMBER 23001C0326E, HAVING AN EFFECTIVE DATE OF JULY 8, 2013.
9. UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON ON-THE-GROUND MARKINGS FOUND AT THE TIME OF FIELD SURVEY AND PER PLAN REF. A,B,C, & D.
10. PARKING SUMMARY:

    REQUIRED: 1.5 SPACE PER DWELLING UNIT =
    1.5 x 21 UNITS = 33 SPACES
    PROVIDED: = 33 SPACES

GRID NORTH

CENTER STREET

STOP SIGN AND STOP BAR
VERTICAL SLIPFORM CONCRETE CURB, TYP.
BITUMINOUS PAVED DRIVE AND PARKING AREA, TYP.
SNOW STORAGE AREA
5-FT. WIDE BITUMINOUS SIDEWALK
25.5'
25' SIDE SETBACK, TYP
BIG BLOCK RETAINING WALL (DESIGN BY OTHERS)
PROJECT SIGN
PORCH / MAIN ENTRY, TYP.
FIRST FLOOR PATIO / SECOND FLOOR DECK, TYP.
WALL PACK LIGHT, TYP. (SEE SHEET P-1.0 FOR PHOTOMETRICS)
BUILDING 2
10 UNITS
BUILDING 1
11 UNITS
25' FRONT SETBACK
4 SPACES
8 SPACES
11 SPACES
10 SPACES
DETECTABLE WARNING PANEL, TYP.
ADA VAN ACCESSIBLE SIGN, TYP.
12" WIDE RETAINING WALL, TYP.
5-FT. WIDE H.C. ACCESS RAMP (WITH 3 LANDINGS)
HAND RAIL TO BE INSTALLED ON RETAINING WALL ADJACENT TO RAMP
STEPS
VERTICAL SLIPFORM CONCRETE CURB, TYP.
5-FT. WIDE BITUMINOUS SIDEWALK
BITUMINOUS PAVED DRIVE AND PARKING AREA, TYP.
6" TIPDOWN CURB, TYP.
VEHICLE TURNAROUND AREA
DUMPSTER PAD ENCLOSURE
35' REAR SETBACK
MATCHLINE BELOW
MATCHLINE ABOVE
PAVEMENT SAWCUT AND REPAVEMENT FOR SANITARY, WATER & GAS INSTALLATION IN CENTER STREET (SEE SHEET C-2.0 FOR UTILITY PLACEMENT)
STAIRS AND HANDRAILS
NO PARKING SIGN

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)
1 INCH = 10 FT.

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
2	02-10-2023	SUBMIT FOR SITE PLAN APPROVAL
1	01-06-2023	SITE PLAN SUBMISSION TO CITY

TERRADYN CONSULTANTS, LLC
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Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE
SHEET TITLE: SITE PLAN
CLIENT: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE: 01-06-2023
SCALE: 1" = 10'
JOB NO: 22-106
SHEET: C-1.0

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WATER MAIN CONSTRUCTION NOTES

1. CURB STOPS LOCATED WITHIN PAVED AREAS SHALL BE IN A VALVE BOX TO SECTION.
2. (2) LAYERS OF RIGID INSULATION BETWEEN SERVICE(S) AND CULVERT, TYP. ALL CROSSINGS.
3. 6 FEET OF COVER ON ALL WATER MAINS & SERVICES, TYP.
4. MINIMUM 12" SEPARATION BETWEEN STORM DRAIN AND WATER MAIN. INSTALL 2" RIGID FOAM INSULATION ABOVE WATER MAIN, TYP.
5. TESTABLE DCVA ON ALL FIRE SERVICES BEFORE RISER PIPE, TYP.
6. WATER MAIN LOCATION AND BENDS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL PLACE, BASED ON FIELD CONDITIONS.

UNDERDRAIN PIPE DATA

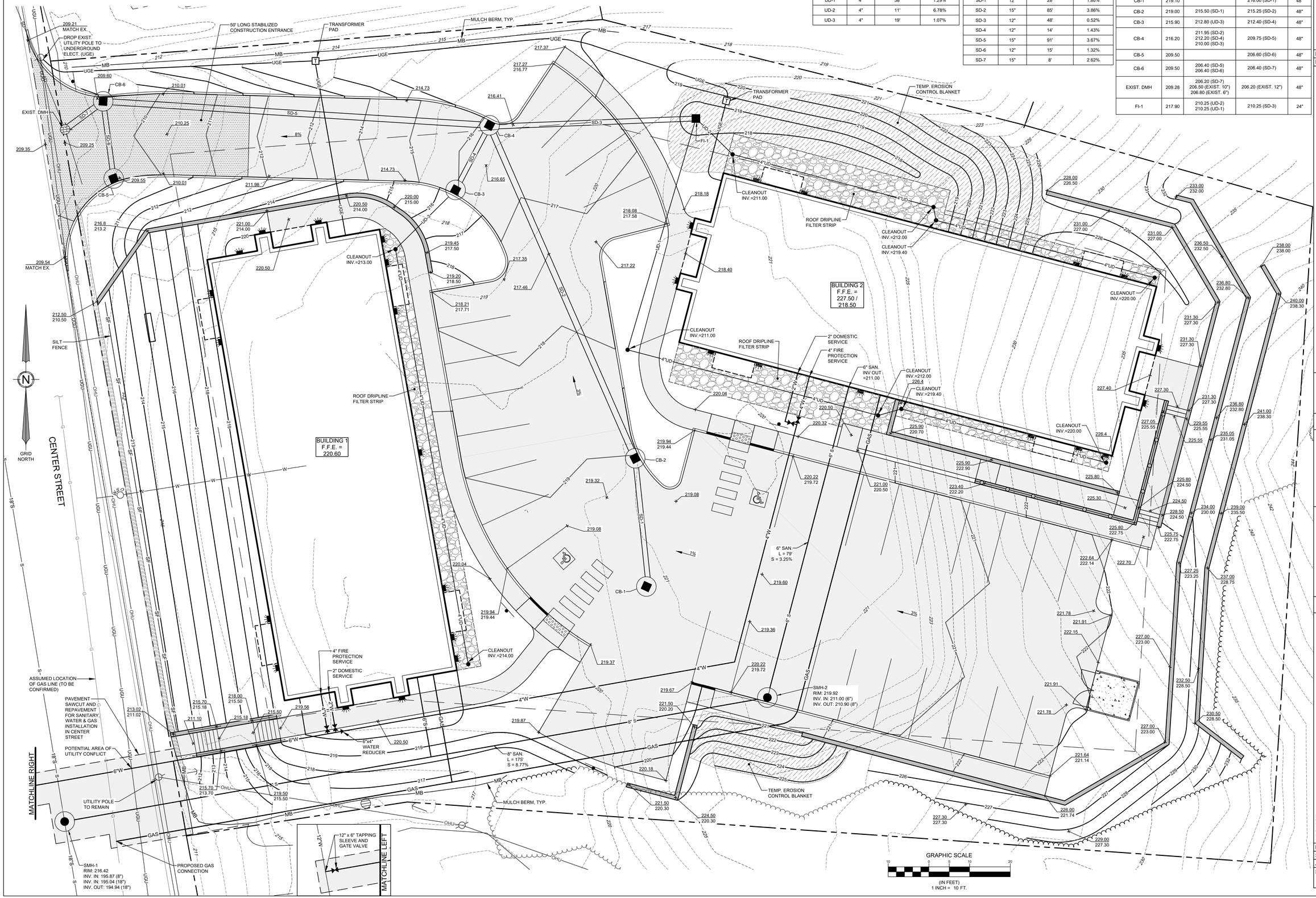
NAME	SIZE	LENGTH	SLOPE
UD-1	4"	58'	1.29%
UD-2	4"	11'	6.78%
UD-3	4"	19'	1.07%

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-1	12"	28'	1.80%
SD-2	15"	85'	3.86%
SD-3	12"	48'	0.52%
SD-4	12"	14'	1.43%
SD-5	15"	91'	3.67%
SD-6	12"	15'	1.32%
SD-7	15"	8'	2.62%

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-1	219.10		216.00 (SD-1)	48"
CB-2	219.00	215.50 (SD-1)	215.25 (SD-2)	48"
CB-3	215.90	212.80 (UD-3)	212.40 (SD-4)	48"
CB-4	216.20	211.95 (SD-2) 212.20 (SD-4) 210.00 (SD-3)	209.75 (SD-5)	48"
CB-5	209.50		206.60 (SD-6)	48"
CB-6	209.50	206.40 (SD-5) 206.40 (SD-6)	206.40 (SD-7)	48"
EXIST. DMH	209.28	206.20 (SD-7) 206.50 (EXIST. 10") 206.80 (EXIST. 6")	206.20 (EXIST. 12")	48"
FI-1	217.90	210.25 (UD-2) 210.25 (UD-1)	210.25 (SD-3)	24"



STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

NO.	DATE	REVISIONS
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PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE: GRADING AND UTILITY PLAN

CLIENT: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE: 01-06-2023
SCALE: 1" = 10'
JOB NO: 22-106
SHEET: C-2.0

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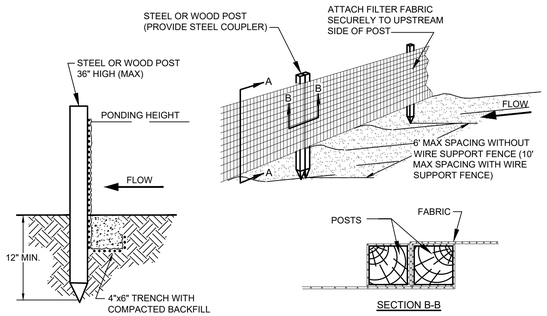

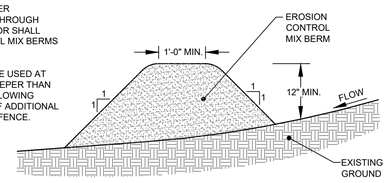

EROSION AND SEDIMENT CONTROL PLAN

PRE-CONSTRUCTION PHASE

A PERSON WHO CONDUCTS, OR CAUSES TO BE CONDUCTED, AN ACTIVITY THAT INVOLVES FILLING, DISPLACING OR EXPOSING SOIL OR OTHER EARTHEN MATERIALS SHALL TAKE MEASURES TO PREVENT UNREASONABLE EROSION OF SOIL OR SEDIMENT BEYOND THE PROJECT SITE OR INTO A PROTECTED NATURAL RESOURCE AS DEFINED IN 38 MRSA § 480-B. EROSION CONTROL MEASURES MUST BE IN PLACE BEFORE THE ACTIVITY BEGINS. MEASURES MUST REMAIN IN PLACE AND FUNCTIONAL UNTIL THE SITE IS PERMANENTLY STABILIZED. ADEQUATE AND TIMELY TEMPORARY AND PERMANENT STABILIZATION MEASURES MUST BE TAKEN. THE SITE MUST BE MAINTAINED TO PREVENT UNREASONABLE EROSION AND SEDIMENTATION. MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE.

ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES" PUBLISHED BY THE CUMBERLAND COUNTY SOIL AND WATER CONSERVATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2016 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.

BMP CONSTRUCTION PHASE

A. SEDIMENT BARRIERS. PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE EDGE OF ANY DOWNGRADIENT DISTURBED AREA AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE PROPOSED DISTURBED AREA. MAINTAIN THE SEDIMENT BARRIERS UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.

B. CONSTRUCTION ENTRANCE: PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT THE INTERSECTION WITH THE PROPOSED ACCESS DRIVE AND THE EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE. TRACKED MUD OR SEDIMENT SHALL BE REMOVED PRIOR TO A STORM EVENT BY VACUUM SWEEPING.

C. RIPRAP: SINCE RIPRAP IS USED WHERE EROSION POTENTIAL IS HIGH, CONSTRUCTION MUST BE SEQUENCED SO THAT THE RIPRAP IS PUT IN PLACE WITH THE MINIMUM DELAY. DISTURBANCE OF AREAS WHERE RIPRAP IS TO BE PLACED SHOULD BE UNDERTAKEN ONLY WHEN FINAL PREPARATION AND PLACEMENT OF THE RIPRAP CAN FOLLOW IMMEDIATELY BEHIND THE INITIAL DISTURBANCE. WHERE RIPRAP IS USED FOR OUTLET PROTECTION, THE RIPRAP SHOULD BE PLACED BEFORE OR IN CONJUNCTION WITH THE CONSTRUCTION OF THE PIPE OR CHANNEL SO THAT IT IS IN PLACE WHEN THE PIPE OR CHANNEL BEGINS TO OPERATE. MAINTAIN TEMPORARY RIPRAP, SUCH AS TEMPORARY CHECK DAMS UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED.

D. TEMPORARY STABILIZATION. STABILIZE WITH TEMPORARY SEEDING, MULCH, OR OTHER NON-ERODABLE COVER ANY EXPOSED SOILS THAT WILL REMAIN UNWORKED FOR MORE THAN 14 DAYS EXCEPT, STABILIZE AREAS WITHIN 100 FEET OF A WETLAND OR WATERBODY WITHIN 7 DAYS OR PRIOR TO A PREDICTED STORM EVENT, WHICHEVER COMES FIRST. IF HAY OR STRAW MULCH IS USED, THE APPLICATION RATE MUST BE 2 BALES (70-90 POUNDS) PER 1000 SF OR 1.5 TO 2 TONS (90-100 BALES) PER ACRE TO COVER 75 TO 90% OF THE GROUND SURFACE. HAY MULCH MUST BE KEPT MOIST OR ANCHORED TO PREVENT WIND BLOWING. AN EROSION CONTROL BLANKET OR MAT SHALL BE USED AT THE BASE OF GRASSED WATERWAYS, STEEP SLOPES (15% OR GREATER) AND ON ANY DISTURBED SOIL WITHIN 100 FEET OF LAKES, STREAMS AND WETLANDS. GRADING SHALL BE PLANNED SO AS TO MINIMIZE THE LENGTH OF TIME BETWEEN INITIAL SOIL EXPOSURE AND FINAL GRADING. ON LARGE PROJECTS THIS SHOULD BE ACCOMPLISHED BY PHASING THE OPERATION AND COMPLETING THE FIRST PHASE UP TO FINAL GRADING AND SEEDING BEFORE STARTING THE SECOND PHASE, AND SO ON.

E. EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX SHOULD BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH SUCH AS FLY ASH OR YARD SCRAPING. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX. THE MIX COMPOSITION SHOULD MEET THE FOLLOWING STANDARDS:

- THE ORGANIC MATTER CONTENT SHOULD BE BETWEEN 80% AND 100%, DRY WEIGHT BASIS.
- PARTICLE SIZE BY WEIGHT SHOULD BE 100% PASSING A 6" SCREEN AND 70% TO 85% PASSING A 0.75" SCREEN
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
- SOLUBLE SALTS CONTENT SHALL BE <4.0 MMHOS/CM
- THE pH SHALL BE BETWEEN 5.0 AND 8.0

F. VEGETATED WATERWAY. UPON FINAL GRADING, THE DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED TO PERMANENT VEGETATION AND MULCHED AND WILL NOT BE USED AS OUTLETS UNTIL A DENSE, VIGOROUS VEGETATIVE COVER HAS BEEN OBTAINED. ONCE SOIL IS EXPOSED FOR WATERWAY CONSTRUCTION, IT SHOULD BE IMMEDIATELY SHAPED, GRADED AND STABILIZED. VEGETATED WATERWAYS NEED TO BE STABILIZED EARLY DURING THE GROWING SEASON (PRIOR TO SEPTEMBER 15). IF FINAL SEEDING OF WATERWAYS IS DELAYED PAST SEPTEMBER 15, EMERGENCY PROVISIONS SUCH AS SOD OR RIPRAP MAY BE REQUIRED TO STABILIZE THE CHANNEL. WATERWAYS SHOULD BE FULLY STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

PERMANENT STABILIZATION DEFINED

A. SEEDED AREAS. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS AN 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.

B. SODDED AREAS. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.

C. PERMANENT MULCH. FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.

D. RIPRAP. FOR AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIPRAP. STONE MUST BE SIZED APPROPRIATELY. IT IS RECOMMENDED THAT ANGULAR STONE BE USED.

E. AGRICULTURAL USE. FOR CONSTRUCTION PROJECTS ON LAND USED FOR AGRICULTURAL PURPOSES (E.G., PIPELINES ACROSS CROP LAND), PERMANENT STABILIZATION MAY BE ACCOMPLISHED BY RETURNING THE DISTURBED LAND TO AGRICULTURAL USE.

F. PAVED AREAS. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUBBASE IS COMPLETED.

G. DITCHES, CHANNELS, AND SWALES. FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH WELL-GRADED RIPRAP, OR WITH ANOTHER NON-EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE LINING, UNDERCUTTING OF THE BANKS, OR DOWN-CUTTING OF THE CHANNEL.

GENERAL CONSTRUCTION PHASE

THE FOLLOWING EROSION CONTROL MEASURES SHALL BE FOLLOWED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION OF THIS PROJECT:

A. ALL TOPSOIL SHALL BE COLLECTED, STOCKPILED, SEEDED WITH RYE AT 3 POUNDS/1,000 SF AND MULCHED, AND REUSED AS REQUIRED. SILT FENCING SHALL BE PLACED DOWN GRADIENT FROM THE STOCKPILED LOAM. STOCKPILE TO BE LOCATED BY DESIGNATION OF THE OWNER AND INSPECTING ENGINEER.

B. THE INSPECTING ENGINEER AT HIS/HER DISCRETION, MAY REQUIRE ADDITIONAL EROSION CONTROL MEASURES AND/OR SUPPLEMENTAL VEGETATIVE PROVISIONS TO MAINTAIN STABILITY OF EARTHWORKS AND FINISH GRADED AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY SUPPLEMENTAL MEASURES AS DIRECTED BY THE INSPECTING ENGINEER. FAILURE TO COMPLY WITH THE ENGINEER'S DIRECTIONS WILL RESULT IN DISCONTINUATION OF CONSTRUCTION ACTIVITIES.

C. EROSION CONTROL MESH SHALL BE APPLIED IN ACCORDANCE WITH THE PLANS OVER ALL FINISH SEEDED AREAS AS SPECIFIED ON THE DESIGN PLANS.

D. ALL GRADED OR DISTURBED AREAS INCLUDING SLOPES SHALL BE PROTECTED DURING CLEARING AND CONSTRUCTION IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN UNTIL THEY ARE ADEQUATELY STABILIZED.

E. ALL EROSION, AND SEDIMENT CONTROL PRACTICES AND MEASURES SHALL BE CONSTRUCTED, APPLIED AND MAINTAINED IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

F. AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIALS.

G. AREAS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 INCHES PRIOR TO PLACEMENT OF TOPSOIL.

H. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC., SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

I. ALL FILLS SHALL BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 8 INCHES IN THICKNESS.

J. EXCEPT FOR APPROVED LANDFILLS OR NON-STRUCTURAL FILLS, FILL MATERIAL SHALL BE FREE OF BRUSH, RUBBISH, ROCKS, LOGS, STUMPS, BUILDING DEBRIS AND OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY LIFTS.

K. FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILL SLOPES OR STRUCTURAL FILLS.

L. FILL SHALL NOT BE PLACED ON A FROZEN FOUNDATION.

M. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED APPROPRIATELY.

N. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY FOLLOWING FINISHED GRADING.

O. REMOVE ANY TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.

PERMANENT VEGETATION

PERMANENT VEGETATIVE COVER SHOULD BE ESTABLISHED ON DISTURBED AREAS WHERE PERMANENT, LONG LIVED VEGETATIVE COVER IS NEEDED TO STABILIZE THE SOIL, TO REDUCE DAMAGES FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE ENVIRONMENT.

SEEDBED PREPARATION

A. GRADE AS FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION AND ANCHORING, AND MAINTENANCE.

B. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TESTS SUCH AS THOSE OFFERED BY THE UNIVERSITY OF MAINE SOIL TESTING LABORATORY. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL COOPERATIVE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 800 POUNDS PER ACRE OR 18.4 POUNDS PER 1,000 SQUARE FEET USING 10-20-20 (N-P2O5-K2O) OR EQUIVALENT. APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT
A RATE OF 3 TONS PER ACRE (138 LB. PER 1,000 SQ. FT).

C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM, FINE SEEDBED IS PREPARED. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.D. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.

E. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED; THE AREA MUST BE TILLED AND FIRMED AS ABOVE.

F. PERMANENT SEEDING SHOULD BE MADE 45 DAYS PRIOR TO THE FIRST KILLING FROST OR AS A DORMANT SEEDING WITH MULCH AFTER THE FIRST KILLING FROST AND BEFORE SNOWFALL. WHEN CROWN VETCH IS SEEDED IN LATER SUMMER, AT LEAST 35% OF THE SEED SHOULD BE HARD SEED (UNSCARIFIED). IF SEEDING CANNOT BE DONE WITHIN THE SEEDING DATES, MULCH ACCORDING TO THE TEMPORARY MULCHING BMP AND OVERWINTER STABILIZATION AND CONSTRUCTION TO PROTECT THE SITE AND DELAY SEEDING UNTIL THE NEXT RECOMMENDED SEEDING PERIOD.

G. FOLLOWING SEED BED PREPARTATION, SWALE AREAS, FILL AREAS AND BACK SLOPES SHALL BE SEEDED AT A RATE OF 3 LBS./1,000 S.F. WITH A MIXTURE OF 35% CREEPING RED FESCUE, 6% RED TOP, 24% KENTUCKY BLUEGRASS, 10% PERENNIAL RYEGRASS, 20% ANNUAL RYEGRASS AND 5% WHITE DUTCH CLOVER.

I. AREAS WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING.

J. AREAS WHICH CANNOT BE SEEDED WITHIN THE GROWING SEASON SHALL BE MULCHED FOR OVER-WINTER PROTECTION AND THE AREA SHOULD BE SEEDED AT THE BEGINNING OF THE GROWING SEASON.

WINTER CONSTRUCTION PHASE

IF AN AREA IS NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES BY NOVEMBER 15, THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES.

A. PERMANENT STABILIZATION CONSISTS OF AT LEAST 90% VEGETATION, PAVEMENT/GRAVEL BASE OR RIPRAP.

B. DO NOT EXPOSE SLOPES OR LEAVE SLOPES EXPOSED OVER THE WINTER OR FOR ANY OTHER EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY PROTECTED WITH MULCH.

C. APPLY HAY MULCH AT TWICE THE STANDARD RATE (150 LBS. PER 1,000 SF). THE MULCH MUST BE THICK ENOUGH SUCH THAT THE GROUND SURFACE WILL NOT BE VISIBLE AND MUST BE ANCHORED.

D. USE MULCH AND MULCH NETTING OR AN EROSION CONTROL MULCH BLANKET OR ALL SLOPES GREATER THAN 8 % OR OTHER AREAS EXPOSED TO DIRECT WIND.

E. INSTALL AN EROSION CONTROL BLANKET IN ALL DRAINAGEWAYS (BOTTOM AND SIDES) WITH A SLOPE GREATER THAN 3 %.

F. SEE THE VEGETATION MEASURES FOR MORE INFORMATION ON SEEDING DATES AND TYPES.

G. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SO THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME.

H. AN AREA WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIER.

I. TEMPORARY MULCH MUST BE APPLIED WITHIN 7 DAYS OF SOIL EXPOSURE OR PRIOR TO ANY STORM EVENT, BUT AFTER EVERY WORKDAY IN AREAS WITHIN 100 FEET FROM A PROTECTED NATURAL RESOURCE.

J. AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE PERMANENTLY MULCHED THAT SAME DAY.

K. IF SNOWFALL IS GREATER THAN 1 INCH (FRESH OR CUMULATIVE), THE SNOW SHALL BE REMOVED FROM THE AREAS DUE TO BE SEEDED AND MULCHED.

L. LOAM SHALL BE FREE OF FROZEN CLUMPS BEFORE IT IS APPLIED.

M. ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE DEPARTMENT.

N. EROSION CONTROL MUST BE INSPECTED AFTER EACH RAINFALL, SNOW STORM, OR THAWING EVENT AND AT LEAST ONCE A WEEK BETWEEN NOVEMBER 15 AND APRIL 15.

MAINTENANCE AND INSPECTION PHASE

A. MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE APPLICANT WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE

B. A LOG (REPORT) MUST BE KEPT SUMMARIZING THE SCOPE OF THE INSPECTION, NAME(S) AND QUALIFICATIONS OF THE PERSONNEL MAKING THE INSPECTION, THE DATE(S) OF THE INSPECTION, AND MAJOR OBSERVATIONS RELATING TO OPERATION OF EROSION AND SEDIMENTATION CONTROLS AND POLLUTION PREVENTION MEASURES. MAJOR OBSERVATIONS MUST INCLUDE: BMPS THAT NEED TO BE MAINTAINED; LOCATION(S) OF BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION; AND LOCATION(S) WHERE ADDITIONAL BMPS ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION. FOLLOW-UP TO CORRECT DEFICIENCIES OR ENHANCE CONTROLS MUST ALSO BE INDICATED IN THE LOG AND DATED, INCLUDING WHAT ACTION WAS TAKEN AND WHEN.

DEWATERING

A DEWATERING PLAN IS NEEDED TO ADDRESS EXCAVATION DE-WATERING FOLLOWING HEAVY RAINFALL EVENTS OR WHERE THE EXCAVATION MAY INTERCEPT THE GROUNDWATER TABLE DURING CONSTRUCTION. THE COLLECTED WATER NEEDS TREATMENT AND A DISCHARGE POINT THAT WILL NOT CAUSE DOWNGRADIENT EROSION AND OFFSITE SEDIMENTATION OR WITHIN A RESOURCE.

GOOD HOUSEKEEPING NOTES:

1. **SPILL PREVENTION.** CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES.

   NOTE: ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1-800-482-0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1-800-452-4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. **GROUNDWATER PROTECTION.** DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE-TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.

   SEE MAINE DEP CHAPTER 500 APPENDIX D FOR LICENSE BY RULE STANDARDS FOR INFILTRATION OF STORMWATER.

   NOTE: LACK OF APPROPRIATE POLLUTANT REMOVAL BEST MANAGEMENT PRACTICES (BMPS) MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARD ESTABLISHED BY 38 M.R.S.A. §465-C(1).

3. **FUGITIVE SEDIMENT AND DUST.** ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF-SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS, THAT EXPERIENCE FUGITIVE DUST PROBLEMS, SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.

   NOTE: DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE *NATURAL RESOURCES PROTECTION ACT*.

4. **DEBRIS AND OTHER MATERIALS.** MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

   NOTE: TO PREVENT THESE MATERIALS FROM BECOMING A SOURCE OF POLLUTANTS, CONSTRUCTION AND POST-CONSTRUCTION ACTIVITIES RELATED TO A PROJECT MAY BE REQUIRED TO COMPLY WITH APPLICABLE PROVISION OF RULES RELATED TO SOLID, UNIVERSAL, AND HAZARDOUS WASTE, INCLUDING, BUT NOT LIMITED TO, THE MAINE SOLID WASTE AND HAZARDOUS WASTE MANAGEMENT RULES; MAINE HAZARDOUS WASTE MANAGEMENT RULES; MAINE OIL CONVEYANCE AND STORAGE RULES; AND MAINE PESTICIDE REQUIREMENTS.

5. **EXCAVATION DE-WATERING.** EXCAVATION DE-WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.

   NOTE: DEWATERING CONTROLS ARE DISCUSSED IN THE "MAINE EROSION AND SEDIMENT CONTROL BMPS, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION."

6. **AUTHORIZED NON-STORMWATER DISCHARGES.** IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES. WHERE ALLOWED NON-STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON-STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON-STORMWATER DISCHARGES ARE:

   (a) DISCHARGES FROM FIREFIGHTING ACTIVITY;
   (b) FIRE HYDRANT FLUSHINGS;
   (c) VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
   (d) DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3);
   (e) ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
   (f) PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
   (g) UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
   (h) UNCONTAMINATED GROUNDWATER OR SPRING WATER;
   (i) FOUNDATION OR FOOTER DRAIN-WATER WHERE FLOWS ARE NOT CONTAMINATED;
   (j) UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
   (k) POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
   (l) LANDSCAPE IRRIGATION.

7. **UNAUTHORIZED NON-STORMWATER DISCHARGES.** THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:

   (a) WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
   (b) FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
   (c) SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
   (d) TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.

8. **ADDITIONAL REQUIREMENTS.** ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.

SILT FENCE

NOT TO SCALE

NOTES:

1. BURY THE TOP END OF THE MESH MATERIAL IN A 6" TRENCH AND BACKFILL AND TAMP TRENCHING SECURE END WITH STAPLES AT 6" SPACING, 4" DOWN FROM EXPOSED END.
2. FLOW DIRECTION JOINTS TO HAVE UPPER END OF LOWER STRIP BURIED WITH UPPER LAYERS OVERLAPPED 4" AND STAPLED. OVERLAP B OVER A.
3. LATERAL JOINTS TO HAVE 4" OVERLAP OF STRIPS. STAPLE 18" ON CENTER.
4. STAPLE OUTSIDE LATERAL EDGE 2' ON CENTER.
5. WIRE STAPLES TO BE MIN. OF #11 WIRE, 6" LONG & 1-1/2" WIDE.
6. USE NORTH AMERICAN GREEN DS 150 (OR APPROVED EQUAL) ON SLOPES BETWEEN 4:1-2:1. USE NORTH AMERICAN GREEN VMAX SC250 PERMANENT TURF REINFORCEMENT MAT (OR APPROVED EQUAL) ON SLOPES 2:1 AND STEEPER..

EROSION CONTROL BLANKET

NOT TO SCALE

NOTES:

1. DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.
2. ECM BERMS ARE NOT TO BE USED AT THE BASE OF A SLOPE STEEPER THAN 8% OR WHERE WATER IS FLOWING WITHOUT THE SUPPORT OF ADDITIONAL MEASURES, SUCH AS SILT FENCE.

EROSION CONTROL MIX:

EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:

- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80% - 100% DRY WEIGHT BASIS
- PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70%, MAXIMUM OF 85% PASSING A 0.75" SCREEN
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
- LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
- SOLUBLE SALTS CONTENT SHALL BE < 4.0 mmhos/cm.
- ph SHALL FALL BETWEEN 5.0 - 8.0.

EROSION CONTROL MIX BERM

NOT TO SCALE

NOTES:

1. SILT SACKS TO BE INSTALLED IN ALL CATCH BASINS RECEIVING RUNOFF FROM DISTURBED AREA
2. SILT SACK TO BE MAINTAINED UNTIL TRIBUTARY ARE IS FULLY STABILIZED

SILT SACK DETAIL

NOT TO SCALE

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 INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

JEFFREY D. AMOS No. 10167

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

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Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE:
EROSION CONTROL NOTES AND DETAILS

CLIENT:
JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

DATE: 01-06-2023
SCALE: AS SHOWN
JOB NO: 22-106
SHEET: C-4.0

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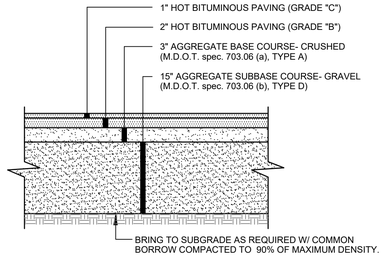
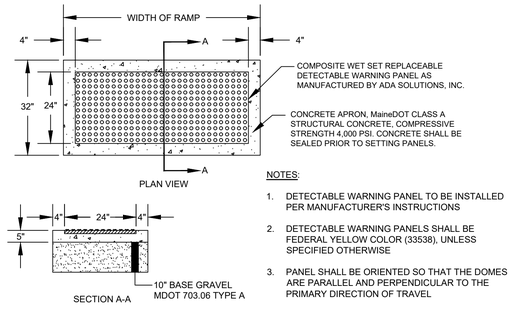


NOTES:

1. COMPACT GRAVEL SUBBASE COURSE TO 92% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

PAVED PARKING LOT SECTION

NOT TO SCALE

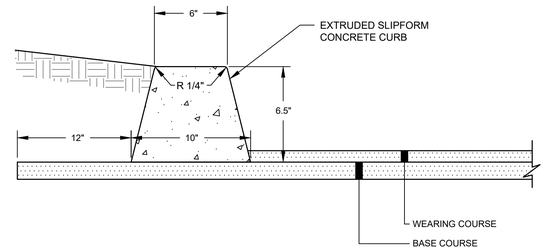


NOTES:

1. DETECTABLE WARNING PANEL TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS
2. DETECTABLE WARNING PANELS SHALL BE FEDERAL YELLOW COLOR (33538), UNLESS SPECIFIED OTHERWISE
3. PANEL SHALL BE ORIENTED SO THAT THE DOMES ARE PARALLEL AND PERPENDICULAR TO THE PRIMARY DIRECTION OF TRAVEL

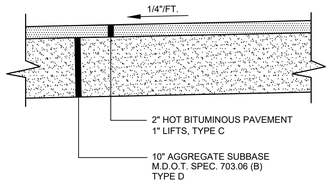
COMPOSITE DETECTABLE WARNING PANEL DETAIL

NOT TO SCALE



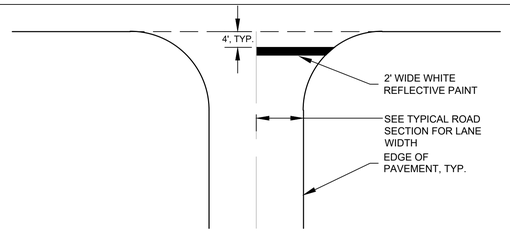
VERTICAL SLIPFORM CONCRETE CURB DETAIL

NOT TO SCALE



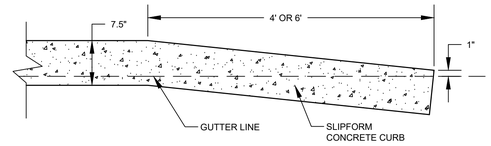
BITUMINOUS SIDEWALK

NOT TO SCALE



STOP BAR DETAIL

NOT TO SCALE

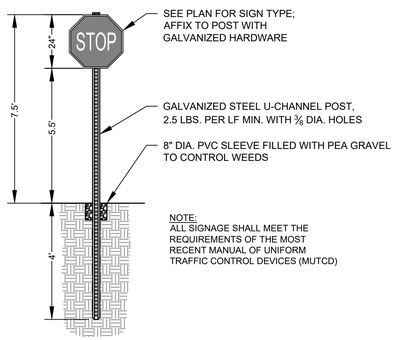


SLIPFORM CURB TIPDOWN DETAIL

NOT TO SCALE

CROSSWALK STRIPING DETAIL

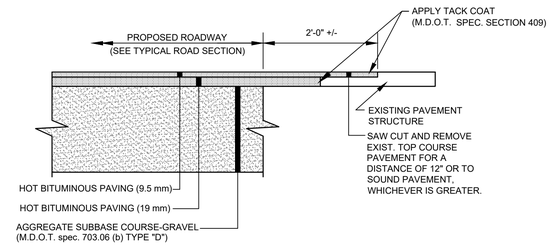
NOT TO SCALE



NOTE:
ALL SIGNAGE SHALL MEET THE REQUIREMENTS OF THE MOST RECENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

STREET SIGN

NOT TO SCALE

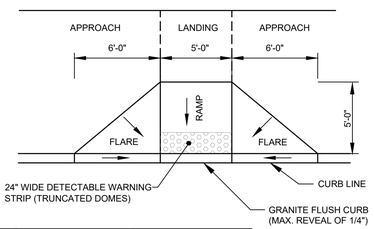


TYPICAL PAVEMENT JOINT

NOT TO SCALE

NOTES:

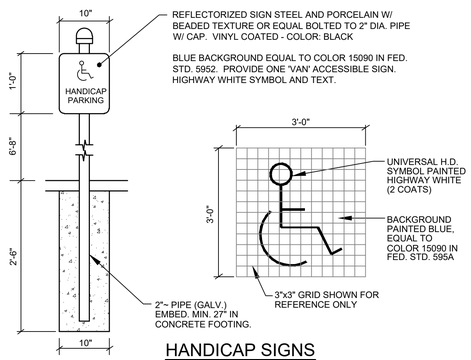
1. RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
2. ALL RAMPS SHALL HAVE DETECTABLE WARNINGS THE FULL DEPTH AND WIDTH OF THE RAMP PER SECTION 4.29 OF THE ADA.
3. A TACTILE WARNING STRIP IS REQUIRED WHERE RAMP ABUTS AN AREA USED BY VEHICLES.



DESIGN ELEMENT	SLOPE IN DIRECTION OF TRAVEL	CROSS SLOPE
APPROACH	8.33% MAXIMUM	2%
LANDING	2%	2%
RAMP	8.33% MAXIMUM	MATCH STREET GRADE
FLARE	10% MAXIMUM AT CURB	-
SIDEWALK	MATCH STREET GRADE	2%

HANDICAP RAMP

NOT TO SCALE



HANDICAP SIGNS

NOT TO SCALE

STATE OF MAINE
JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER

DATE: 02-10-2023
PE: JEFFREY D. AMOS, PE 10167

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SHEET TITLE: SITE DETAILS

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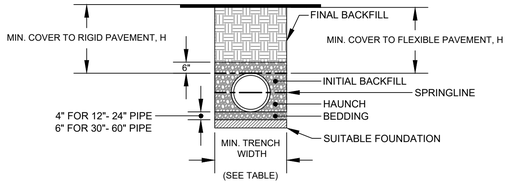


NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-900mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING NOT LESS THAN 6" ABOVE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 54"-60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT.

RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

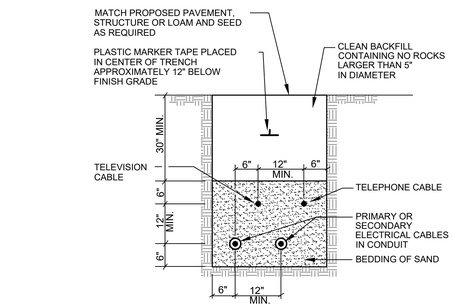
MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS

	SURFACE LIVE LOADING CONDITION	
PIPE DIAM.	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48"	12"	48"
54" - 60"	24"	60"

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER

TYPICAL TRENCH DETAIL

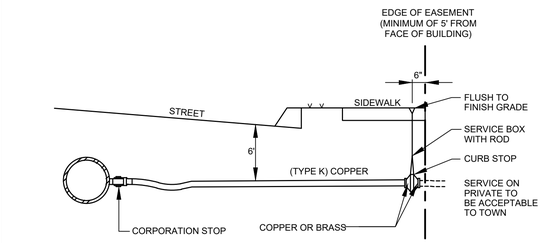
NOT TO SCALE



CABLES TO BE ENCASED IN SCHEDULE 40 PVC CONDUIT WHEN RUN BENEATH PAVED AREAS.

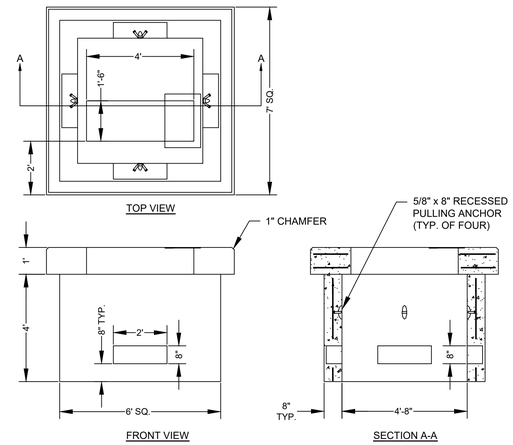
TYPICAL UNDERGROUND CABLE INSTALLATION

NOT TO SCALE



TYPICAL WATER SERVICE CONNECTION

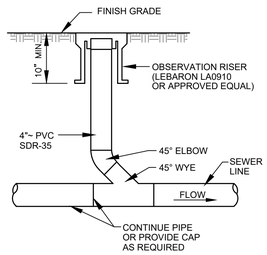
NOT TO SCALE



NOTES:
1. CONCRETE f'c=4000 psi. AT 28 DAYS.
2. REINF. PER CMP SPECIFICATIONS.
3. DUCT OPENINGS SHOWN ARE TYPICAL AND CAN BE MODIFIED PER REQUEST.
4. CENTRAL MAINE POWER CO. SPECIFICATION

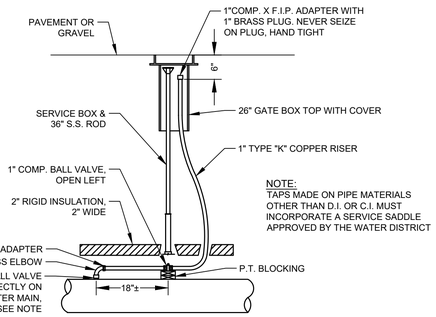
7'X7' TRANSFORMER PAD (75-500 KVA)

NOT TO SCALE



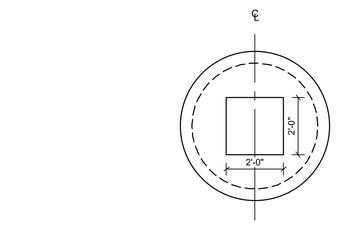
SEWER CLEANOUT

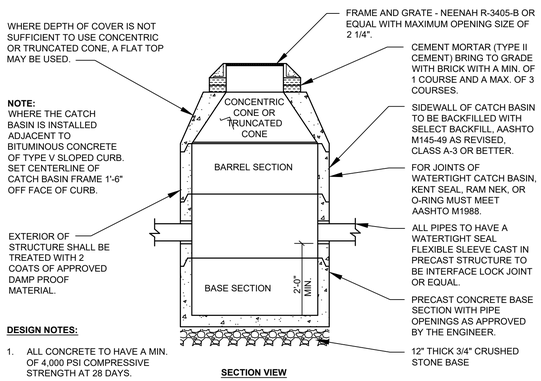
NOT TO SCALE



AIR RELEASE DETAIL

NOT TO SCALE





DESIGN NOTES:

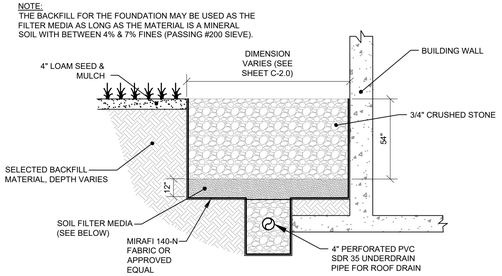
1. ALL CONCRETE TO HAVE A MIN. OF 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. DESIGN LOAD FOR H-20 WHEEL LOAD.
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS.
4. REINFORCE TO 0.12 IN SQ./LF..

SECTION VIEW

NOTE:
CASCADE GRATES SHALL BE INSTALLED ON GRADIENT OF GUTTER IF PROFILE GRADE EXCEEDS 5% GRATES SHALL BE DEPRESSED 2" BELOW NORMAL GUTTER GRADE UNLESS THIS DEPRESSION INTERFERES WITH TRAFFIC. PARALLEL BAR GRATES SHALL BE INSTALLED ON A LEVEL GRADIENT.

TYPICAL CATCH BASIN

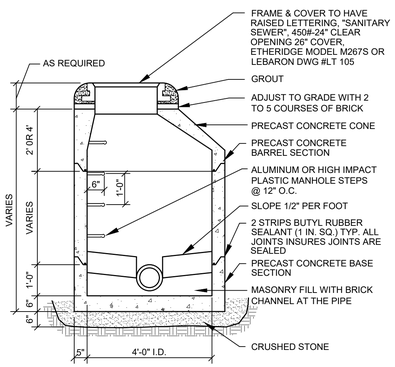
NOT TO SCALE



CONSTRUCTION INSPECTION NOTES:
INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT EACH THE ROOF DRIP EDGE FILTER'S UNDERDRAIN CONSTRUCTION, FILTER MATERIAL PLACEMENT, AND OVERFLOW FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE FILTER.

ROOF DRIPLINE FILTER BED

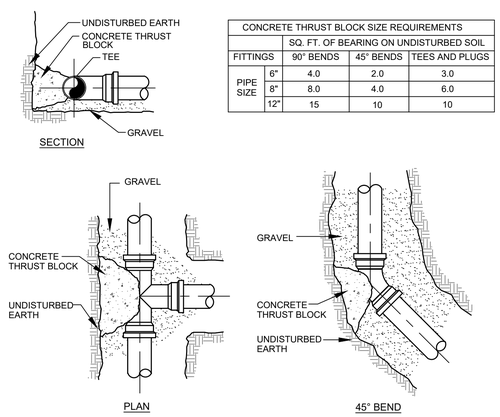
NOT TO SCALE



NOTE: PIPE CONNECTIONS SHALL BE WATERTIGHT FLEXIBLE BOOT CONNECTORS PROVIDES LEAKPROOF CONNECTION

PRECAST SEWER MANHOLE

NOT TO SCALE



CONCRETE THRUST BLOCK SIZE REQUIREMENTS

		SQ. FT. OF BEARING ON UNDISTURBED SOIL		
FITTINGS		90° BENDS	45° BENDS	TEES AND PLUGS
PIPE SIZE	6"	4.0	2.0	3.0
	8"	8.0	4.0	6.0
	12"	15	10	10

TEE & BEND DETAIL

NOT TO SCALE

JEFFREY D. AMOS
10167
LICENSED PROFESSIONAL ENGINEER
STATE OF MAINE

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PROJECT: 405 CENTER STREET APARTMENTS
405 CENTER STREET, AUBURN, MAINE

SHEET TITLE: SITE DETAILS

CLIENT: JIM WU
279 CENTER STREET
AUBURN, MAINE 04210

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GRID NORTH

AUBURN LIGHTING STANDARDS

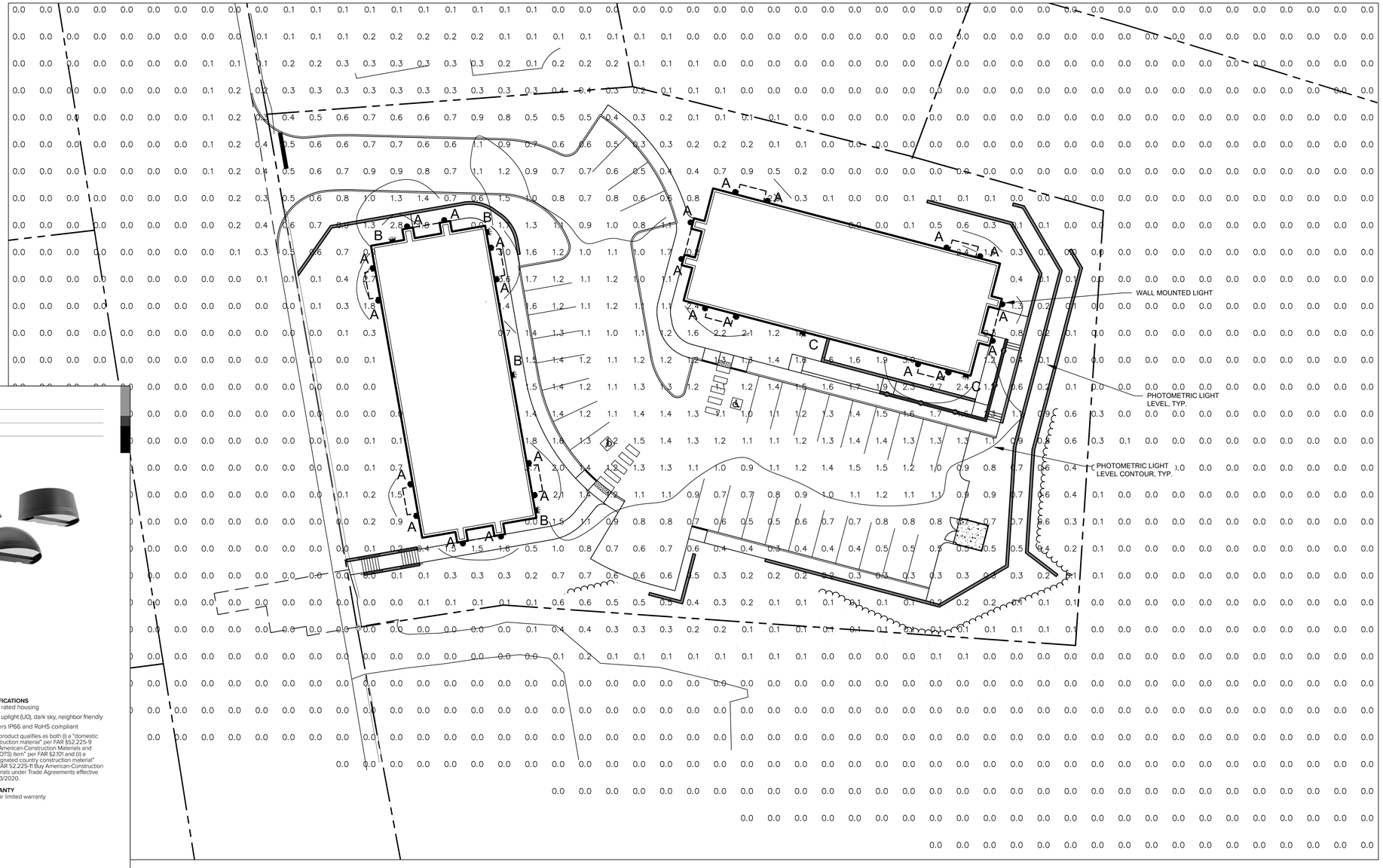
STANDARD	REQURIED VALUE	PROVIDED VALUE
MAX ILLUMINATION AT PROPERTY LINE FROM PROPOSED LIGHTS	N/A	0.6 FC
MAX ILLUMINATION	N/A	3.7 FC

*ILLUMINATION BEYOND PROPERTY LINES AT SITE ENTRANCE ARE PROVIDED FOR PEDESTRIAN AND VEHICLE SAFETY.

LIGHT FIXTURE TABLE

LABEL	LIGHT FIXTURE	MANUFACTURER	MANUFACTURERS ID	LUMENS	NUMBER OF LIGHTS	MOUNTING HEIGHT	MOUNTING LOCATION
A	DECORATIVE ENTRY LIGHT	PHILLIPS	LEDBULB_60W_E27_A19_830_FR	790	24	8'	WALL
B	GEOPAK	BEACON	TRP2-24L-50-3K7-4	5,100	4	26'	WALL
C	GEOPAK	BEACON	TRP2-24L-70-3K7-4	6,942	2	26'	WALL

NOTES:
1. LIGHTING PLAN PREPARED USING DESIGN MASTER PHOTOMETRICS SOFTWARE
2. ONLY PROPOSED LIGHTING FIXTURES ARE MODELED
3. DEPRECIATION FACTOR FOR LED IS 0.90



GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 INCH = 20 FT.

BEACON
where great lighting begins

GEOPAK Series 2

SIZE 2 - TRP2/QSP2/RDI2

DATE: LOCATION:
TYPE: PROJECT:
CATALOG #:

FEATURES

- Mid sized architectural wallpacks in three stylish shapes
- Capable of replacing up to 400w HID luminaires
- Type I, II, III and IV distributions for a wide variety of applications
- Integral battery backup options
- Control capabilities offer additional energy savings options
- Zero uplight distributions

See Certification Specifications

SPECIFICATIONS

CONSTRUCTION
- Die-cast aluminum housing and door
- Seven powder coat standard finishes, plus custom color options

OPTICS
- 24 or 32 high power LEDs deliver up to 10,800 lumens
- Up to 146 lumens per watt
- Different lenses offer a variety of distribution patterns - Type I, II, III and IV (Forward throw)
- 3000K - 70 CRI, 4000K - 70 CRI and 5000K - 70 CRI, CCT nominal

INSTALLATION
- Quick-mount adapter with gasket seal provides easy installation to wall or to recessed junction box (4" square junction box). Fixture attaches by two Allen-head hidden fasteners for tamper resistance
- Black box accessory available for surface conduit application

ELECTRICAL
- Optional Dual Drivers & Dual Power Feeds for 50, 70 and 90 watt versions
- 120-277, 347 and 480 voltage, 50/60Hz
- Power factor ≥ 90%
- THD (Total Harmonic Distortion) <20%
- Ambient operating temperature -40°C to 40°C
- 20kA surge protection (series); Automatically takes fixture off-line when device is consumed

ELECTRICAL (CONTINUED)
- Integral Battery Backup provides emergency lighting for the required 90 minute path of egress
- Includes a long-life Lithium Iron Phosphate battery with optional battery heater for cold temperature application
- Utilizes 4 LEDs in emergency mode with 657 lumens. Each of the 4 LEDs in emergency are designed to function independently in the unlikely event of a single LED malfunction
- Spectron® self-testing/self-diagnostic electronics are included standard
- Independent dedicated driver and LED array for battery/emergency mode operation

CONTROLS
- Drivers are 0-10V dimming standard
- Universal button photocontrol for dusk to dawn energy savings
- Photocell and occupancy sensor options available for complete on/off and dimming control

CERTIFICATIONS
- IP65 rated housing
- Zero uplight (U0), dark sky, neighbor friendly
- Drivers IP66 and RoHS compliant
- This product qualifies as both (i) a "domestic construction material" per FAR §52.225-9 Buy American-Construction Materials and a "(COTS) item" per FAR §2.101 and (ii) a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 06/03/2020.

WARRANTY
- 5 year limited warranty

KEY DATA	
Lumen Range	3,200-11,000
Wattage Range	28–87
Efficacy Range (LPW)	112–146
Weights lbs. (kg)	16–18 (7.3–8.2)

Current

currentlighting.com/beacon

STATE OF MAINE
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405 CENTER STREET, AUBURN, MAINE
SHEET TITLE: PHOTOMETRIC PLAN
CLIENT: JIM WU
279 CENTER STREET
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